**AWARD/CONTRACT**

2. CONTRACT AWARD NUMBER: HDTRA1-14-1-0029

3. THIS CONTRACT IS A RATED ORDER UNDER DFARSE (15 CFR 701)

4. REQUISITION/PURCHASE REQUEST/PROJECT NO.

5. ISSUED BY CODE: HDTRA1

6. ADMINISTERED BY CODE: HDTRA1

See Item 5

7. NAME AND ADDRESS OF CONTRACTOR

8. DELIVERY

| Facility Code | CODE: 3MMUC |

9. DISCOUNT FOR PROMPT PAYMENT

10. SUBMIT INVOICED (Completed and submitted prior) TO THIS ADDRESS SHOWN IN:

11. SHIP TO/SHIP FOR CODE: HDTRA1

12. PAYMENT WILL BE MADE BY CODE: J-2037

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:

14. ACCOUNTING AND APPROPRIATION DATA

SEE SCHEDULE

15A. ITEM NO. 15B. SUPPLIES/SERVICES

15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT

SEE SCHEDULE

16. TOTAL AMOUNT OF CONTRACT $992,699.00

16A. TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SEC.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>SOLICITATION/CONTRACT FORM 1</td>
</tr>
<tr>
<td>X</td>
<td>SUPPLIES OR SERVICES AND PRICES 2-4</td>
</tr>
<tr>
<td>X</td>
<td>DESCRIPTION: SPECIFICATIONS/WORK STATEMENT 5-16</td>
</tr>
<tr>
<td>D</td>
<td>PACKAGING AND MARKING</td>
</tr>
<tr>
<td>X</td>
<td>INSPECTION AND ACCEPTANCE 11</td>
</tr>
<tr>
<td>X</td>
<td>DELIVERIES OR PERFORMANCE 12</td>
</tr>
<tr>
<td>X</td>
<td>CONTRACT ADMINISTRATION DATA 12-15</td>
</tr>
<tr>
<td>H</td>
<td>SPECIAL CONTRACT REQUIREMENTS</td>
</tr>
</tbody>
</table>

PART I: THE SCHEDULE

PART II: CONTRACT CLAUSES

PART III: LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

PART IV: REPRESENTATIONS AND INSTRUCTIONS

PART V: REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF CONFORMITY

PART VI: INSTRUMENTS, CONSENTS AND NOTICES TO OFFERORS

PART VII: EVALUATION FACTORS FOR AWARD

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17A. NAME AND TITLE OF SIGNER (Type or print)

17B. NAME OF CONTRACTOR

17C. DATE SIGNED

18A. NAME OF CONTRACTING OFFICER (Type or print)

18B. DATE OF GRANT OF AUTHORITY

18C. DATE SIGNED

STANDARD FORM 26 (REV. 12/04)

Prepared by OSA

FAIR 26-00F-3 11/2014
### Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>Understanding Rift Valley Fever FFP Base Year: Grantee shall perform all work IAW the SOW in Section C of this document. FOB: Destination</td>
<td>992,699</td>
<td>Lot</td>
<td>$1.00</td>
<td>$992,699.00</td>
</tr>
<tr>
<td></td>
<td>NET AMT</td>
<td></td>
<td></td>
<td></td>
<td>$992,699.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td>Base Year Funding only FFP Base Year Funding only FOB: Destination</td>
<td></td>
<td>Lot</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>NET AMT</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

ACRN AA
CIN: CTB12254000101

$992,699.00
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0002</td>
<td>Understanding Rift Valley Fever</td>
<td>978,784</td>
<td>Lot</td>
<td>$1.00</td>
<td>$978,784.00</td>
</tr>
</tbody>
</table>

Option Year 1: Grantee shall perform all work IAW the SOW in Section C of this document.

FOB: Destination

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0003</td>
<td>Understanding Rift Valley Fever</td>
<td>970,536</td>
<td>Lot</td>
<td>$1.00</td>
<td>$970,536.00</td>
</tr>
</tbody>
</table>

Option Year 2: Grantee shall perform all work IAW the SOW in Section C of this document.

FOB: Destination

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0004</td>
<td>Understanding Rift Valley Fever</td>
<td>996,147</td>
<td>Lot</td>
<td>$1.00</td>
<td>$996,147.00</td>
</tr>
</tbody>
</table>

Option Year 3: Grantee shall perform all work IAW the SOW in Section C of this document.

FOB: Destination

NET AMT       $978,784.00

NET AMT       $970,536.00

NET AMT       $996,147.00
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0005</td>
<td>Understanding Rift Valley Fever FFP</td>
<td>998,193</td>
<td>Lot</td>
<td>$1.00</td>
<td>$998,193.00</td>
</tr>
<tr>
<td>OPTION</td>
<td>Option Year 4: Grantee shall perform all work IAW the SOW in Section C of this document. FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NET AMT $998,193.00
STATEMENT OF WORK

Project Title: Understanding Rift Valley Fever in Republic of South Africa

Document Date: July 1, 2013

Objective: The objective of this grant is to build a collaborative partnership with South African scientists and managers to study important aspects of Rift Valley fever virus (RVFV) epidemiology and ecology that have been neglected by previous research on the continent. The project is designed to strengthen South Africa’s leadership role within the African continent for the study and control of RVFV and other vector-borne diseases. This work is vital to understanding how to manage animal populations, protect people, when and how to use vaccination protocols, and ways to reduce the risk of the virus spreading outside of Africa. It also provides the baseline data needed to better predict the spread of the virus should it ever be introduced into the United States and strengthens scientific partnerships in the region, thereby fulfilling DTRA’s mandate of reducing the threat of the introduction and maintenance of a select agent into the United States.

Scope: The grantee proposes the first comprehensive study of the implications of vertebrate immunity at multiple scales, including the effect of vaccination, vector transmission dynamics and climate-ecology on RVFV ecology between and during epizootics. Grantee shall investigate RVFV life cycle, transmission by mosquitoes, and immunity in domestic and wild ruminants and humans, paired with vegetation and climate data, to increase our understanding of these integrated aspects through a One Health approach. The grantee team shall focus on the following major goals and milestones:

1. Improve the capacity for South Africa to be a regional leader in vector-borne diseases and Rift Valley fever virus epidemiology.
   - Establish collaborations of stakeholders, training of local technical personnel, training of graduate students and post-doctoral fellows, and improve official disease reporting to local and international authorities, publishing and sharing of project findings.

2. Determine how immunity against RVFV may change over time in domestic and wild ruminants (vaccinated and non-vaccinated) and be altered by animal management approaches.
   - Establish study protocols, implement and maintain field studies at individual and population scales, including the use of vaccines to simulate exposure and conduct laboratory analyses.

3. Determine the herd immunity status of free-ranging wildlife, wildlife from game farms and domestic animals in a 200Km² study region.
   - Establish implement and maintain field studies and conduct laboratory analyses.

4. Determine how mosquito abundance relates to weather in South Africa, the percentage of mosquitoes carrying RVFV and which ruminant species these vectors are biting.
   - Establish study protocols, implement and maintain mosquito field studies, collate weather/climate data, extend vector studies in OY4 and OY5 to examine variability between years.

5. Determine the current seroprevalence of RVFV antibodies in people working on the study farms and detect inter-epidemic transmission to people if it is occurring.
   - Improve the understanding of the widespread effect of previous RVFV outbreaks in people from the study area.

This integrated approach represents the most comprehensive project to date to understand the epidemiology and ecology of RVFV. It is likely that herd immunity within the entire ruminant community (wild and domestic) plays a role in whether an outbreak occurs given the
appropriate climatic conditions. The proposed immunity studies combined with transmission and succession data collected from mosquitoes during this project will demonstrate their relationship with the occurrence of an outbreak. This work in conjunction with a better understanding of current exposure levels and possible inter-epidemic transmission in people will improve the ability of scientists, local stakeholders and policy makers to prevent potential RVFV outbreaks. This research will have a direct impact on methods of managing ruminants, mosquitoes and mitigating risks to reduce or prevent future outbreaks and will likely be transferable to other nations in southern or all of Africa. It will also better inform policy makers in the U.S. to develop contingency plans should a RVF outbreak occur on American soil.

Our research will be centered in the Republic of South Africa (RSA), in areas with heightened risk of RVFV outbreaks (based on prior and future potential for occurrence). Collaborators from five RSA governmental and academic institutions (RSA National Institute for Communicable Diseases (NICD), RSA National and State Veterinary Services, RSA National Parks (SANParks), RSA Department of Defense, and University of Pretoria), as well as RSA private and livestock game ranchers, will play active and key roles in all components of the project, including study design, training, sampling, testing, and data analysis and information dissemination. The extensive involvement of South African partners will enable opportunities to advance RSA as a leader in vector-borne disease research. The proposed project duration is three years, with two optional years to allow for further advancement of research.

Background:

Rift Valley fever (RVF) is an emerging infectious disease that presents a formidable challenge for global public health and livestock producers. Its causative agent, RVF virus (RVFV) is listed as a pathogen of significant concern with the potential for international spread by several national and international defense, health and agricultural agencies, including the US DoD and CDC, WHO, and FAO. In addition to the potential risk of spread to the U.S. (intentionally or unintentionally), the virus causes large, devastating epizootics in Africa, inducing high rates of abortions in pregnant domestic ruminants, and over 90% mortality in juveniles. In addition to the economic and nutritional impacts on humans from livestock loss, transmission to humans occurs either through contact with bodily fluids and tissues of infected livestock, or via the bite of an infected mosquito. Though human infection with RVFV may be mild, it can cause hemorrhagic, neurological or hepatic disease. In recent years, RVFV has been demonstrated to cross the Red Sea, resulting in outbreaks in Yemen and Saudi Arabia.

On the basis of our project partners’ work, climate has been used as a predictor of RVF outbreak occurrence and control. However, climate prediction models have not been paired with basic research necessary for understanding of the vector life cycle and its role in RVF maintenance, and the transmission pathways and immunological dynamics of RVFV. As a result, prevention and control strategies are insufficient to adequately prepare for current and potential RVF risks. Thus, there is great need to better elucidate the underlying mechanisms of RVF, especially given the potential for transmission between vectors, humans, and animals.

Key references include (Further references can be found in the Project Narrative):


The RSA represents an ideal location for this research given the weaknesses in current understanding of RFV epidemiology there, the willingness, interest and capacity of local partners to engage in the project, the impact of RFV outbreaks to agricultural production and risks to people and trade, the abundance of wildlife and presence of game farming to facilitate the research activities needed, and the recertification of the NICD BSL-4 laboratory facilities. The study area has seen multiple RFV outbreaks in the past and hosts a variety of ruminant species – including domestic cattle, goats and sheep as well as wildlife. It hosts 23% of the game farming in RSA. Preliminary data has been obtained for this project through field studies and testing with project partners EcoHealth Alliance, SANParks, DETEA and NICD (Technical Proposal Table 1). The preliminary data has informed the study design by allowing us to target wild ruminant species with highest seroprevalence for RFV. Furthermore, the success of collaboration with project partners to date ensures the ability to collect adequate samples for analytical statistical significance and the ability to conduct testing of samples in RSA.

Tasks/Scientific Goals:  (Format: Year #(s).Task #.Sub-task#)

**Task Y1.1-OY5.1: Improve the capacity for South Africa to be a leader in vector-borne diseases and Rift Valley fever virus epidemiology (Years 1-OY5).**

Our team believes that South Africa can be a leader and model to other African nations regarding public health. Three medical entomology and mosquito identification workshops for regional professionals will be given. This will focus on techniques for trapping adult mosquitoes and larvae and their identification. A post-doctoral fellow from South Africa or southern Africa will split her/his time between EHA (conducting epidemiological and ecological analyses) and working in South Africa (working with the field and laboratory teams). We will also select two Masters’ students in epidemiology and one or two (if option years are approved) Masters’ students in entomology from the University of Pretoria.

Y1.1.1, Y3.1.1, OY4.1.1 Conduct an entomology workshop for participants from southern Africa.

Y1.1.2-OY5.1.2 Mentor a South African post-doctoral fellow on RFV epidemiology.

Y1.1.3 -Y2.1.3 Train two Masters’ students in epidemiology.

Y1.1.4-OY4.1.4 Train PhD student.

Y2.1.5-OY4.1.5 Train Masters’ student(s) in medical entomology.

**Task Y1.2-OY5.2: Field mosquito studies and corresponding satellite data (Years 1-OY5).**

The grantees shall 1) monitor rainfall conditions on a daily basis. Additionally, the vegetation conditions using normalized difference vegetation index (NDVI) shall be monitored via satellite every 10 days in our 20,000Km² study area; 2) Identify the mechanistic link between mosquito abundance and succession in RSA with NDVI satellite data technology by conducting a line transect with 40km intervals, with weekly vegetation transects and daily larval sampling of flooded dambos in Y1; 3) Use a variety of traps to collect mosquitoes at selected sites for one week per site per quarter and after identification, screen pools with RT-PCR and isolate RFV viral strains, and isolate blood-meals to analyze using PCR of the vertebrate cytochrome b gene of mitochondrial DNA (RNA extraction will occur in a BSL-3 or more secure facility; PCR and RT-PCR will be conducted in a BSL-2 facility). 4) Grantee shall conduct mosquito abundance and diversity sampling at the 50 ranches randomly chosen from the metapopulation investigation (see Task 6) during Y3 and OY5.
Y1.2.1 Finalize proposed protocols with collaborators and stakeholders in RSA.
Y1.2.2 Implement concurrent vegetation and dambo transects for mosquito larvae.
Y1.2.3-OY5.2.3 Collect and process mosquitoes at ruminant sampling sites.
Y1.2.4-OY5.2.3 Collect satellite derived rainfall, temperature and NDVI data.
Y3.2.5, OY5.2.5 Conduct cross-sectional mosquito study across the 20,000km² study site.

**Task Y1.3-OY5.3: Ruminant immunological study (Years 1-OY5).**

Our target ruminant community for sampling includes domestic livestock, game-ranched wildlife, and free-ranging wildlife. The importance of each group and each scale will be analyzed based on the data from Task 3 and Task 5 (below). 1) **Sheep flocks – Individual immunity:** We will create experimental flocks of 70 modified-live vaccinated, 70 inactivated vaccinated and 70 non-vaccinated seronegative sheep. Sheep will be maintained in the same manner as domestic stock on farms in Free State. The flocks will be sampled quarterly and tested for anti-RVFV IgG, IgM and interferon gamma (BSL-2). Each treatment group should give us different information regarding the longevity of anti-RVFV antibodies and innate immunity. Aliquots will remain in cryogenic storage at the state veterinary laboratories. 2) **Game-Farm springbok – Population immunity:** We will work with commercial game ranches that raised springbok for hunting or meat. We will simulate RVFV exposure by using a modified-live vaccinated group to compare to a control group. In Y1 the 800 springbok will be captured, vaccinated (if needed), sampled, tagged, quarantined and released. Annually, 100 vaccinated and 100 unvaccinated springbok will be culled as part of the ranches’ protocol. All sera will be tested by virus neutralization test (BSL-3). Unused serum aliquots will be stored in a secure serum bank at SANParks.

Y1.3.1 Vaccinate sheep for individual and population level immunological studies.
Y1.3.2-OY5.3.2 Collect quarterly/annual serology in study flocks and/or herds.
Y1.3.3 Vaccinate springbok for individual and population level immunological studies.

**Task Y1.4, Y2.4, Y4.4: Disseminate reports to relevant stakeholders (Years 1, 2, 4).**

Synthesize all data collected through the projects described above as well as capacity building activities in South Africa. A database for the extensive amount of data shall be developed and used for epidemiological analyses. Biobank sample repositories will be maintained and corresponding metadata will be available. Scientific and general reports will be generated. A stakeholder meeting will be held annually (Tasks 4 and 7- see Task 7 for Y3 and OY5, for more complete summaries to close the project) to describe the project and the current results.

Y1.4.1, Y2.4.1, OY4.4.1 Submit reports, including sample repository data, to DTRA.
Y1.4.1, Y2.4.1, OY4.4.1 Complete annual report to local stakeholders.
Y1.4.3 Disseminate preliminary serological data in a peer-reviewed publication.
Y1.4.1, Y2.4.1, OY4.4.1 Conduct presentations/meetings at times and places specified in the grant schedule, including DTRA Annual Technical Review.
Y1.4.1, Y2.4.1, OY4.4.1 Submit and maintain samples in biobanks.
Y1.4.1, Y2.4.1, OY4.4.1 Conduct annual stakeholder meetings.
Y2.4.7, OY4.4.7 Prepare to submit publications on data collected in Years 1-4.

**Task Y.2.5-OY5.5: Conduct human surveys and serological cross-sectional study (Years 2-OY5).**

Grantee shall develop and publish public health information on the prevention of RVFV and vector-borne diseases for the ranchers and employees in the Free State. The information will be
published in English, Afrikaans and Sesotho. Grantee shall conduct annual serosurveys and written surveys of the employees (on a voluntary basis) at the ranches where the study sheep and springbok flocks/herds are located to detect possible inter-epidemic human transmission of RVFV. During the meta-population analyses a large cross-sectional study across the ranches and farms throughout our 20,000km² study site shall be conducted. Human serum samples shall be screened by ELISA (IgG and IgM; BSL-2) and confirmed with virus neutralization (BSL-3).

Y2.5.1 Develop written information booklet on RVFV and other vector-borne diseases.
Y2.5.2 Develop written questionnaire for risk analyses of RVFV infection.
Y2.5.3-OY5.5.3 Collect serology samples from people at the ranches in domestic and game-farm study.
Y2.5.4-OY5.5.4 Conduct written questionnaire in conjunction with blood collection.
Y2.5.5-OY5.5.5 Conduct serological analyses for human anti-RVFV IgG and IgM.
Y3.5.6, OY5.5.6 Conduct serology and written surveys for people at farms used for metapopulation study.

Task Y3.6, OY5.6: Ruminant metapopulation study (Years 3 and O5).
Grantee shall conduct a large-scale serosurvey of free-ranging and farmed wildlife and livestock herds. We propose two replicate sampling events following each rainy season in Years 3 and OY5. For six species (sheep, goats, cattle, springbok, kudu and blesbok) grantee shall sample a minimum of 400 individuals (the wild species will include samples from game ranches and Mokala National Park). A minimum of 50 individuals from three additional species (buffalo, waterbuck and kudu) and 100 nyala will be sampled. Laboratory tests include ELISA IgG and IgM (BSL-3) and VNT for wildlife (BSL-3). Data on animal movement, including birth and cull rates for farmed animals as well as trade shall be obtained by the ranch owner via a survey.

Y3.6.1, OY5.6.1 Conduct metapopulation level herd immunity survey of domestic and wild ruminants.
Y3.6.2, OY5.6.2 Store wildlife serum in SANParks biobank for future studies.

Task Y3.7, OY5.7: Epidemiological analyses and comprehensive report of project to date (Years 3 and OY5).
Grantee shall prepare the database and complete analyses on mosquito, satellite and ruminant data collected from the project to date, including metapopulation data. Grantee shall synthesize this data and prepare manuscripts for publication. A stakeholder meeting will be held annually to describe the project and the current results.

Y3.7.1, OY5.7.1 Analyze and disseminate mosquito data.
Y3.7.2, OY5.7.2 Analyze and disseminate ruminant data.
Y3.7.3, OY5.7.3 Analyze and disseminate human data.
Y3.7.4, OY5.7.4 Synthesize and report project’s scientific and capacity building success to DTRA.
Y3.7.5, OY5.7.5 Prepare and submit manuscripts for publication in peer-reviewed journals.
Y3.7.6, OY5.7.6 Conduct presentations/meetings at times and places specified in the grant schedule, including DTRA Annual Technical Review.
<table>
<thead>
<tr>
<th>Task</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 04</th>
<th>Year 05</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task 1: Improve the capacity for South Africa to be a leader in vector-borne diseases and RVF epidemiology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Monitor a South African post-doctoral fellow on RVF epidemiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 and 1.5 Train Master’s students</td>
<td>Epidemiology and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Entomology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Train PhD student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 2: Field mosquito studies and corresponding satellite data.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Concurrent vegetation and mosquito larval transects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Collect and process mosquitoes at ruminate sampling sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Collect satellite weather and NDVI data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 Cross-sectional mosquito study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 3: Ruminate immunological study</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Vaccinate sheep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2 Collect quarterly/annual serology in study flocks and/or heads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Vaccinate squadron</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 4: Disseminate reports to relevant stakeholders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Complete reports, including mosquito abundance data, to DTRA.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2 Complete annual report to local stakeholders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3 Disseminate serological data in a peer-reviewed publication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4 Conduct presentations/meetings at times and places specified in the grant schedule, including</td>
<td>ASTMH, IMED, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTRA Annual Technical Review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5 Submit and maintain samples in biobanks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.6 Conduct annual stakeholder meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.7 Prepare to submit publications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 5: Conduct human surveys and cross-sectional serological study</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1 Develop booklet on RVFV and other VBDs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2 Develop written questionnaires - risk analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3 Serology from people at the ranches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4 Conduct written questionnaire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5 Serological analysis IgG and IgM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.6 Metapopulation serology &amp; within surveys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 6: Ruminate metapopulation study</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1 Metapopulation level herd immunity survey of ruminants</td>
<td>Cross-sectional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2 Store wildlife sera at SANParks biobank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1 Analyze and disseminate mosquito data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2 Analyze and disseminate ruminate data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3 Analyze and disseminate human data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.4 Report project’s scientific and capacity building success to DTRA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5 Prepare and submit manuscripts for peer-reviewed publications</td>
<td>ASTMH, IMED, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.6 Conduct presentations/meetings at times and places specified in the grant schedule, including</td>
<td>ASTMH, IMED, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTRA Annual Technical Review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>0002</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>0003</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>0004</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>0005</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>
## DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 28-MAY-2014 TO 27-MAY-2015</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB確認 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>0002</td>
<td>POP 28-MAY-2015 TO 27-MAY-2016</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB確認 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>0003</td>
<td>POP 28-MAY-2016 TO 27-MAY-2017</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION) FOB: Destination</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>0004</td>
<td>POP 28-MAY-2017 TO 27-MAY-2018</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION) FOB: Destination</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>0005</td>
<td>POP 28-MAY-2018 TO 27-MAY-2019</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION) FOB: Destination</td>
<td>HDTRA1</td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 044315 097 0134 000 N 20142016 D 34HQ 0901515BR-KD-BP 3416-6134-34HQ-SOUCT DTRA 410
AMOUNT: $992,699.00
CIN CTB122540500010: $992,699.00

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email: [Redacted]

b. Grantee Business Office:
   Name: Mr. Aleksei Chmure
   Title: Chief of Staff
   Phone: 212-380-4473
   Email: chmure@ceohealthalliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. William B. Karesh
   Title: Principal Investigator
   Phone: 212-380-4463
   Email: Karesh@ceohealthalliance.org

252.601-9001 GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)

d. Grants Officer’s Representative (GOR) for this Grant is:
   Name: [Redacted]
   Defense Threat Reduction Agency/J3C/TBS
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email: [Redacted]
b. SCOPe AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as an agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unsuitable. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

252.601-9002  GRANT REFERENCE INFORMATION (MAY 2009)

e. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-09-14-FRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate, Basic Research for Combating Weapons of Mass Destruction (C-WMD).
f. **CFDA #:** 12.351

g. **Authority:** Pub. 11376 Cooperative Threat Reduction.
Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit_</td>
<td>Terms and Conditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00002

5. EFFECTIVE DATE 01-Jun-2015

6. ISSUED BY DEFENSE THREAT REDUCTION AGENCY
   DTRA
   7550 JOHN HANCOCK ROAD, MSC 0821
   BOSTON, MA 02115-0821
   FAX 617-338-8951

7. ADMINISTERED BY OFFICE OF NAVAL RESEARCH - BOSTON
   BOSTON REGIONAL OFFICE, 495 SUMMER STREET, RD
   BOSTON, MA 02116-2695
   CODE N62879

8. NAME AND ADDRESS OF CONTRACTOR
   ECCOHEALTH ALLIANCE INC.
   680 WORTH ST 7TH FL.
   NEW YORK, NY 10001-2628

9. AMENDMENT OF SOLICITATION NO.
   9A. DATED (SEE ITEM 11)

10. AMOUNT OF CONTRACT/ORDER NO.
    10A. DATED (SEE ITEM 13)

   10B. DATED (SEE ITEM 13)


11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
    [☐] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended. [☐] is extended. [☐] is not extended.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

   See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.
    IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

   A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: [Specify authority] THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT NO. IN ITEM 10A.

   B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.101(b).

   C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

   [☐] OTHER (Specify type of modification and authority)

   [AW Grant Terms and Conditions Section 10(b)]

   D. IMPORTANT: Contractor [☐] is not. [☐] is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION: [Organized by UCF section headings, including solicitation/contract subject matter where feasible]

   Modification Control Number: [☐][4][☐][8]

   The purpose of this modification is to:
   1. Exercise and fully fund the option at CLIN 0002, in the amount of 978,784.00, and
   2. Update clause 252.201-9000 "Grant Points of Contact"

15. NAME AND TITLE OF SIGNER (Type or print)

   15A. NAME AND TITLE OF SIGNER (Type or print)

   15B. CONTRACTOR/OFFEROR

   15C. DATE SIGNED

   (Signature of person authorized to sign)

   16. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

   16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

   16B. UNITED STATES OF AMERICA

   16C. DATE SIGNED

   (Signature of Contracting Officer)

   (Signature of person authorized to sign)

   16C. DATE SIGNED

   (Signature of Contracting Officer)

   01-Jun-2015

EXCEPTION TO SF 30
APPROVED BY ORLM 11-84
50-1105-04
STANDARD FORM 30 (Rev. 10-83)
Prepared by ORLM
FAR (48 CFR) 31.203
SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $978,784.00 from $992,699.00 to $1,971,483.00.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0002
The option status has changed from Option to Option Exercised.

SUBCLIN 000201 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000201</td>
<td>Funding Information Only</td>
<td></td>
<td></td>
<td></td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Funding for Option Year 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NET AMT $0.00

ACRN AB
CIN: HDTRA1516990000201

$978,784.00

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000201:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $978,784.00 from $992,699.00 to $1,971,483.00.
SUBCLIN 000201:
Funding on SUBCLIN 000201 is initiated as follows:

ACRN: AB
CIN: HDTRA1516990000201

Acting Date: 044315 097 0134 000 N 20152017 D 34HQ 0901515BR_KD_BP_OT 1517_0134_34HQ_SOUCT_DTRA 410

Increase: $978,784.00
Total: $978,784.00

The following have been modified:

252.601-9000   GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/J4COC
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email: [Redacted]

b. Grantee Business Office:
   Name: Mr. Aleksei Chmure
   Title: Chief of Staff
   Phone: 212-380-4473
   E-mail: chmure@ecohealthalliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. William B. Karesh
   Title: Principal Investigator
   Phone: 212-380-4463
   E-mail: Karesh@ecohealthalliance.org

252.601-9001   GRANTS OFFICER'S REPRESENTATIVE (GOR) (MAY 2009)

d. Grants Officer's Representative (GOR) for this Grant is:
   Name: [Redacted]
   Defense Threat Reduction Agency/J3CTBS
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email: [Redacted]
b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00003

3. EFFECTIVE DATE 17-May-2016

4. REQUISITION/PURCHASE REQ. NO.

5. PROJECT NO./(If applicable)

6. ISSUED BY CODE HDTRA1

DEFENSE THREAT REDUCTION AGENCY (DTRA)
125 JOHN H. WILKINSON RD.
FT. BELVOIR VA 22060-2205

7. ADMINISTERED BY CODE N62879

OFFICE OF NAVAL RESEARCH (ONR)
495 SUMMER STREET.
ROOM 627
BOSTON, MA 02110-6203

8. NAME AND ADDRESS OF CONTRACTOR (Name, Street, County, State, and Zip Code)

ECOHEALTH ALLIANCE INC.
MR. ALEKSEJ OHUZA
460 W. 34Th ST. 11TH FL.
NEW YORK, NY 10001-2320

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (See Item 11)

X 10A. MOD. OF CONTRACT/ORDER NO. HDTRA1-44-1-0029

X 10B. DATED (See Item 13)

28-May-2014

CODE 3/MMUS3 FACILITY CODE

X 11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer(es) is extended. (X) is not extended.

Other offerors must acknowledge receipt of this amendment prior to the hour and date specified on the solicitation or as amended by one of the following methods:

a) By completing Items 8 and 15 and returning a copy of the amendment;

b) By acknowledging receipt of this amendment in the offer submitted;

c) By separate letter or telegram which includes a reference to the solicitation and amendment number. FAILURE TO PROVIDE EVIDENCE OF RECEIPT, IN REJECTION OF YOUR OFFER. If any of these amendment procedures are not met, such change may be made by Offer or Offeror provided such offer or offeror makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.

IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMERATED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.): SET FORTH IN ITEM 14 ARE MADE IN THE AUTHORITY OF FAR 43.108(b).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF TERMS AND CONDITIONS, SECTION 6.

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor (X) is not, ( ) is required to sign this document and return _______ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by DOD section headings, including solicitation/contract subject matter where feasible)

Modification Control Number: B(2)

This reason for this modification is:

1. To update this Grant Administration POC for ECO-Health
3. To add funding for year 3 in the amount of $970,536.00 to subCLIN 00301, ACRN AC.

All other terms and conditions remain unchanged.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, or hereof or thereof, remain unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED

(Signature of person authorized to sign)

(Signature of Contracting Officer)
SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000301 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO 000301</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding Information Only</td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td>CTB-16-203 FY16 EcoHealth Year 3 Rift Valley Fever in South Africa Incremental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| NET AMT | $0.00 |

ACRN AC
CIN: CBEP00016990000301

$970,536.00

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been deleted:

STATEMENT OF WORK

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000301:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation
Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $970,536.00 from $1,971,483.00 to $2,942,019.00.
SUBCLIN 000301:
Funding on SUBCLIN 000301 is initiated as follows:

ACRN: AC

CIN: CBIP0001699000301

Acrctg Date: 044315 097 0134 000 N 20162018 D 34HQ 0901515BR_KD_BP_OT1618_0134_34HQ_AFRCF_DTRA 410

Increase: $970,536.00

Total: $970,536.00

The following have been modified:

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [redacted]  
   Defense Threat Reduction Agency/J4/COC
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone: [redacted]
   email address: [redacted]

b. Grantee Business Office:
   Name: Ms. Virginia Porter
   Title: Administrative Assistant to the Executive Vice President for Health & Policy
   Phone: 212-380-4470
   E-mail: Porter@EcoHealthAlliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. William B. Karesh
   Title: Principal Investigator
   Phone: 212-380-4463
   E-mail: Karesh@ecohealthalliance.org

SECTION 1 - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit _</td>
<td>Terms and Conditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 1</td>
<td>Terms and Conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment 2</td>
<td>Statement of Work (SOW)</td>
<td></td>
<td>10-MAR-2016</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>3. EFFECTIVE DATE</th>
<th>4. REQUISITION/PURCHASE REQ. NO.</th>
<th>5. PROJECT NO (Applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00004</td>
<td>19-May-2017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. ISSUED BY                  | CODE              | ADMINISTERED BY                  | CODE                     |
| DEFENSE THREAT REDUCTION AGENCY INC | HDT 1A          | OFFICE OF NAVAL RESEARCH BOSTON | N92279                   |
| 9705 JOHN HANCOCK TERRACE, BOX 001 |                | 46 SUMMER STREET, ROOM 827      |                           |
| FORT BELVOIR, VA 20009-5010      |                  | BOSTON, MA 02115-2000          |                           |

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

ECOHEALTH ALLIANCE INC.
MR. ALESEH CHIMA
460 WORTH ST, 9TH FLOOR
NEW YORK, NY 10012

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MOD. OF CONTRACT ORDER NO.

10B. DATED (SEE ITEM 13)

CODE: 3MM8

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offers is extended. ☐ is not extended.

If offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by any of the following methods: (A) By completing Item 8 and 15 and returning copies of the amendment; (B) By acknowledging receipt of this amendment on each copy of the offer submitted; or (C) By separate letter or telecommunication which includes reference to the solicitation and amendment numbers. FAILURE TO ACKNOWLEDGE, FAILURE TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.

By virtue of this amendment you are authorized to make changes to the offer already submitted such changes may be made by telephone letter, provided each telephone letter makes reference to this amendment and this amendment is received prior to the offering hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS OR ORDERS

IT MODIFIES THE CONTRACT ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

☐ THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

DTRA Terms and Conditions

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☑ is not. ☐ is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)

Modification Control Number: [0][4]

RQN: HDT1A 15169990

The purpose of this modification is to provide funding in the amount of $896,147 to subCLIN 000401, ACRN AAD.

All other terms and conditions remain unchanged.

---

**EXCEPTION TO SF 32**

Approved by OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)

Prescribed by OSA

FAR (48 CFR) 53.243
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $996,147.00 from $1,971,483.00 to $2,967,630.00.
The standard size code 1,000 has been added.
The NAICS code 541711 has been added.

SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000101
The unit of issue Lot has been deleted.
The FOB Destination has been deleted.

SUBCLIN 000201
The FOB Destination has been deleted.

SUBCLIN 000301
The FOB Destination has been deleted.

CLIN 0004
The option status has changed from Option to Option Exercised.

SUBCLIN 000401 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000401</td>
<td>Funding in support of Option Yr 3 FFP</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NET AMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.00</td>
</tr>
</tbody>
</table>

ACRN AD
CIN: J3CTB16990000401

$996,147.00

SECTION E - INSPECTION AND ACCEPTANCE
The Acceptance/Inspection Schedule for SUBCLIN 000101 has been changed from:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

The Acceptance/Inspection Schedule for SUBCLIN 000201 has been changed from:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

The Acceptance/Inspection Schedule for SUBCLIN 000301 has been changed from:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000401:

<table>
<thead>
<tr>
<th></th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0005 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 28-MAY-2018 TO 27-MAY-2019</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $996,147.00 from $2,942,019.00 to $3,938,166.00.

SUBCLIN 000401:
Funding on SUBCLIN 000401 is initiated as follows:

ACRN: AD

CIN: J3CTB16990000401

Acctng Data: 044315 097 0134 000 N 20172019 D 34HQ 0901515BR_KD_BP2_OT1719_0134_34HQ_SCNCT DTRA 410

Increase: $996,147.00

Total: $996,147.00

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO.  P00005
3. EFFECTIVE DATE  10-Jul-2017
4. REQUISITION PURCHASE REQ. NO.  165
5. PROJECT NO (Applicable)  

6. ISSUED BY CODE  HDTRA1
DEFENSE THREAT REDUCTION AGENCY
925 JOHN L. HANNAWAY PKWY, MSC 0051
FORT BELVOIR VA 22060-5001

7. ADMINISTERED BY (Name of Agency)
OFFICE OF NAVAL RESEARCH BOSTON
45 SUMMER STREET, ROOM 627
BOSTON MA 02110-2108

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
ECOHEALTH ALLIANCE INC.
MR. ALEXANDER CHIKARA
480 WORTH ST #303
NEW YORK NY 10013-2417

CODE  3MVU8
FACILITY CODE  

9A. AMENDMENT OF SOLICITATION NO. 

9B. DATED (SEE ITEM 11)  

x 10A. MOD. OF CONTRACT/ORDER NO.  HDTRA1-14-1-0029
x 10B. DATED (SEE ITEM 13)  28-May-2014

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended. ☐ is not extended.

Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods: (a) by completing Items 8 and 14 and returning a copy of the amendment; (b) by acknowledging receipt of this amendment on each copy (unless otherwise directed) by separate letter or telegram which includes reference to the solicitation and amendment numbers.

Failure to give proper acknowledgment will result in rejection of your offer. By virtue of this amendment you desire to change an offer already submitted, such changes may be made by letter, provided each paragraph of the letter indicates the amendment number and text of the amendment, and is received prior to the hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS IT MODIFIES THE CONTRACT ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103B.

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☑ is not. ☐ is required to sign this document and return ______ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: 0(0)
ROCN: 16950A

The purpose of this administrative modification is to:

1.) Make corrections to Mod P00005 by Exercising Option CLIN 0003.
2.) Add Grant Funding Profile clause, 252.692-9000.

All other terms and conditions remain unchanged.

EXCEPTION TO SF 32
APPROVED BY OIRM 11-84
STANDARD FORM 30 (Rev. 10-83)
Prescribed by OSA
FAR (48 CFR) 15.243

15A. NAME AND TITLE OF SIGNER (Type or print)  11A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
B(18) CONTRACTING OFFICER/GRANT OFFICER
TEL: 0(0)  EMAIL: 0(0)

15B. CONTRACTOR/OFFERER  15C. DATE SIGNED  16A. UNITED STATES OF AMERICA
16B. DATE SIGNED
16C. DATE SIGNED  11-Jul-2017

(Signature of person authorized to sign)  (Signature of Contracting Officer)
SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $970,536.00 from $2,967,630.00 to $3,938,166.00.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0003

The option status has changed from Option to Option Exercised.

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been added by full text:

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

**FUNDING PROFILE:**

The amount of $3,938,166 is obligated for work to be performed during the period beginning with grant award and continuing through May 27, 2018. Additional incremental funding planned, but not obligated, is:

The Government's liability is limited to the amount obligated

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>06/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>38</td>
<td>07/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>39</td>
<td>08/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>40</td>
<td>09/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>41</td>
<td>10/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>42</td>
<td>11/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>43</td>
<td>12/30/2017</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>44</td>
<td>01/30/2018</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>45</td>
<td>02/28/2018</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>46</td>
<td>03/30/2018</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>47</td>
<td>04/30/2018</td>
<td>$83,012.25</td>
</tr>
<tr>
<td>48</td>
<td>05/30/2018</td>
<td>$83,012.25</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
### Amendment of Solicitation/Modification of Contract

<table>
<thead>
<tr>
<th>2. Amendment/Modification No.</th>
<th>3. Effective Date</th>
<th>4. Requested Purchase Reo. No.</th>
<th>5. Product No. (applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00006</td>
<td>25-May-2018</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Issued by: DEFENSE THREAT REDUCTION AGENCY
   VA-DOE Office of Threat Reduction
   9205 JOHN J. LONGHANI RD
   FT BELVOIR VA 22060-5201

7. Administered by: OFFICE OF NAVAL RESEARCH-BOSTON
   485 SUMMER STREET, Room 607
   Boston MA 02115-2109

<table>
<thead>
<tr>
<th>9A. Amendment of Solicitation No.</th>
<th>9B. Dated (see item 11)</th>
<th>9C. MOD. of Contract/Order No.</th>
<th>10A. Dated (see item 13)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HDT4A1-14-00001</td>
<td>28-May-2014</td>
</tr>
</tbody>
</table>

8. Name and Address of Contractor:
   ECOHEALTH ALLIANCE INC
   MR. ALEJANDRO MORA
   485 W 58TH ST 7TH FL
   NEW YORK NY 10019-2117

   FACILITY CODE: 3MM06

11. This item only applies to amendments of solicitations
   - [ ] The above numbered solicitation is amended as set forth in item 4.
     The hour and date specified for receipt of offer is extended. [ ] is not extended.

   Offeror must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
   (a) By completing item 13, and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. (By virtue of this amendment, you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram or letter references reference in the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (if required)

   See Schedule

13. This item applies only to modifications of contract orders. It modifies the contract/order no. as described in item 14.

A. This Change Order is issued pursuant to: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation date, etc.) set forth in item 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. This Supplemental Agreement is entered into pursuant to authority of:
   - DTRA Terms and Conditions
   - [X] Other (Specify type of modification and authority)

D. IMPORTANT: Contractor is not required to sign this document and return copies to the issuing office.

14. Description of Amendment/Modification (organized by UCP section headings, including solicitation/contract subject matter where feasible)

   Modification Control Number: 06(4)
   RQN: HDT4A1-156990 Amend No 4

   The purpose of this modification is to:
   1. Exercise option year 4 on CLIN 0005.
   2. Provide funding in the amount of $988,193.00 on subCLIN 000501.
   3. Updated the Grant Points of Contact, Grant Officer's Representative, and invoice schedule.
   4. Update the Terms and Conditions.

   (Except as provided below, all terms and conditions of the document referenced in Item 5A or 10A, including the clause, remain unchanged and in full force and effect)

15A. Name and Title of Signer (Type or print)

15B. Contractor/Offeror

15C. Date Signed

16A. Name and Title of Contracting Officer (Type or print)

16B. United States of America

16C. Date Signed
SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $998,193.00 from $3,938,166.00 to $4,936,359.00.
The 'issued by' organization has changed from
DEFENSE THREAT REDUCTION AGENCY/J4C
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201
to
DEFENSE THREAT REDUCTION AGENCY/AL-ACO
8725 JOHN J. KINGMAN RD
FT BELVOIR VA 22060-6201

The 'administered by' organization has changed from
OFFICE OF NAVAL RESEARCH-BOSTON
BOSTON REGIONAL OFFICE, 495 SUMMER STREET, RO
BOSTON MA 02110-2109
to
OFFICE OF NAVAL RESEARCH-BOSTON
495 SUMMER STREET, ROOM 627
BOSTON MA 02110-2109

The 'Payment will be made by' organization has changed from
DFAS COLUMBUS CENTER
DFAS-CO/NORTII ENTITLEMENT OPERATIONS
P.O. BOX 182266
COLUMBUS OH 43218-2266
to
DFAS COLUMBUS CENTER
DFAS-CO/NORTII ENTITLEMENT OPERATIONS
P.O. BOX 182317
COLUMBUS OH 43218-2317

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0005
The option status has changed from Option to Option Exercised.

SUBCLIN 000501 is added as follows:
ITEM NO 000501
SUPPLIES/SERVICES Funding in support of OY 4, CLIN 0005 FFP
QUANTITY
UNIT
UNIT PRICE
AMOUNT $0.00

NET AMT $0.00

ACRN AE
CIN: HDTRA151699004000501
$998,193.00

SECTION E - INSPECTION AND ACCEPTANCE

The Acceptance/Inspection Schedule for CLIN 0005 has been changed from:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000501:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $998,193.00 from $3,938,166.00 to $4,936,359.00.

SUBCLIN 000501:
Funding on SUBCLIN 000501 is initiated as follows:

ACRN: AE
CIN: HDTRA151699004000501

Acting Date: 044315 097 0134 000 N 20182020 D 34HQ 0901515BR KD BP OT 18 1820 0134 34HQ SCNCT DTRA 410

Increase: $998,193.00
Total: $998,193.00

The following have been modified:

252.601-9000   GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [redacted]
   Defense Threat Reduction Agency/AL-ACO
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [redacted]
   Email: [redacted]

b. Grantee Business Office:
   Name: Ms. Virginia Porter
   Title: Administrative Assistant to the Executive Vice President for Health & Policy
   Phone: 212-380-4470
   E-mail: Porter@EcoHealthAlliance.org

b. Grantee Principal Investigator (PI):
   Name: Dr. William B Karesh
   Title: Principal Investigator
   Phone: 212-380-4463
   Email: Karesh@ecohealthalliance.org

252.601-9001   GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)

d. Grants Officer’s Representative (GOR) for this Grant is:
   Name: [redacted]
   Defense Threat Reduction Agency/ITCDBS
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [redacted]
   Email: [redacted]

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and
   programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement)
   including compliance with the agreement’s reporting requirements. Perceived deviations from
   the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if
   not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the
   recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the
   immediate attention of the Grants Officer.
2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

252.632-9000 GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:
The amount of $4,936,359.00 is obligated for work to be performed during the period beginning with grant award and continuing through May 27, 2019. Additional incremental funding planned, but not obligated, is:

The Government's liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>06/30/2018</td>
<td>$83,182.75</td>
</tr>
<tr>
<td>50</td>
<td>07/30/2018</td>
<td>$83,182.75</td>
</tr>
<tr>
<td>51</td>
<td>08/30/2018</td>
<td>$83,182.75</td>
</tr>
<tr>
<td>52</td>
<td>09/30/2018</td>
<td>$83,182.75</td>
</tr>
<tr>
<td>53</td>
<td>10/30/2018</td>
<td>$83,182.75</td>
</tr>
<tr>
<td>54</td>
<td>11/30/2018</td>
<td>$83,182.75</td>
</tr>
</tbody>
</table>
SECTION I - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 1</td>
<td>Terms and Conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment 2</td>
<td>Statement of Work (SOW)</td>
<td></td>
<td>10-MAR-2016</td>
</tr>
</tbody>
</table>

To:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work (SOW)</td>
<td></td>
<td>10-MAR-2016</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and Conditions</td>
<td></td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
<table>
<thead>
<tr>
<th>Item</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</td>
</tr>
<tr>
<td>2.</td>
<td>AMENDMENT/MODIFICATION NO.</td>
</tr>
<tr>
<td>3.</td>
<td>EFFECTIVE DATE (e.g., 20-Aug-2014)</td>
</tr>
<tr>
<td>4.</td>
<td>REQUISITION/PURCHASE REQ. NO.</td>
</tr>
<tr>
<td>5.</td>
<td>PROJECT NO./(if applicable)</td>
</tr>
<tr>
<td>6.</td>
<td>ISSUED BY CODE</td>
</tr>
<tr>
<td>7.</td>
<td>ADMINISTERED BY CODE</td>
</tr>
<tr>
<td>8.</td>
<td>NAME AND ADDRESS OF CONTRACTOR</td>
</tr>
<tr>
<td>9.</td>
<td>AMENDMENT OF SOLICITATION NO.</td>
</tr>
<tr>
<td>10.</td>
<td>DATED (SEE ITEM 11)</td>
</tr>
<tr>
<td>11.</td>
<td>MOD. OF CONTRACT/ORDER NO.</td>
</tr>
<tr>
<td>12.</td>
<td>DATED (SEE ITEM 13)</td>
</tr>
<tr>
<td>13.</td>
<td>This item applies only to modifications of contracts/orders. It modifies the contract/order no. as described in item 14.</td>
</tr>
<tr>
<td>14.</td>
<td>DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by DOD section headings, including solicitation/contract subject matter where feasible):</td>
</tr>
<tr>
<td>15.</td>
<td>SIGNER</td>
</tr>
</tbody>
</table>

The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of offer is extended. This amendment modifies the contract/order no. as described in item 14.

The purpose of this administrative modification is:

The above numbered contract/order is modified to reflect the administrative changes (e.g., changes in paying office, appropriation, etc.) set forth in item 14, pursuant to the authority of FAR 43.103(b).

These changes are at no additional cost to the Government. All other terms and conditions remain unchanged.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 16A, as hereinafter changed, remain unchanged and in full force and effect.

**Signature of person authorized to sign**

---

**STANDARD FORM 40 (Rev. 10-84)**

**APPROVED BY DOD** 11-84

30-106-04

**Prepared by CSA**

FAR 43 CFR 53, 240
SECTION A - SOLICITATION/CONTRACT FORM

The 'administered by' organization has changed from
DEFENSE THREAT REDUCTION AGENCY/J4C
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201

to
OFFICE OF NAVAL RESEARCH: BOSTON
BOSTON REGIONAL OFFICE, 495 SUMMER STREET
BOSTON MA 02110-2109

(End of Summary of Changes)
## AWARD/CONTRACT

**1. THIS CONTRACT IS A RATED ORDER UNDER DFAS (15 CFR 706)**

**2. CONTRACT LINE NO.**

**3. EFFECTIVE DATE**

14 Apr 2017

**4. REQUISITION/PURCHASE REQUEST/PRODUCT NO.**

**5. ISSUED BY**

CODE: HDTRA

DEFENSE THREAT REDUCTION AGENCY
1729 JOHN H. KINGMAN ROAD, MS 6301
FORT BELVOIR VA 22050-6301

**6. ADMINISTERED BY**

CODE: NS025

OFFICE OF NAVAL RESEARCH-BOSTON
99 SUMMER STREET, ROOM 627
BOSTON MA 02110-2909

**7. NAME AND ADDRESS OF CONTRACTOR**

ECOEHEALTH ALLIANCE INC.
Mr. ALEXIS CHOUHOU
4605 W 36TH STREET 7TH FL
NEW YORK NY 10018-2200

**8. DELIVERY**

[ ] FOB ORIGIN [ ] OTHER

**9. DISCOUNT FOR PROMPT PAYMENT**

**10. SUBMIT INVOICES to the above address for speedy payment.**

**11. SHIP TO MARK FOR**

CODE: HDTRA

DEFENSE THREAT REDUCTION AGENCY-JCCTB
1729 JOHN H. KINGMAN ROAD, MS 6301
FORT BELVOIR VA 22050-6301

**12. PAYMENT WILL BE MADE BY**

CODE: NS025

DFAS COLUMBUS CENTER
13200 BEECHES DR CRESTWOOD VA 20126

**13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:**

- [ ] 110 USC 253(c)( )
- [ ] 141 USC 253(c)( )

**14. ACCOUNTING AND APPROPRIATION DATA**

See Schedule

**15. ITEM NO.**

15B. SUPPLIES/SERVICES

**15C. QUANTITY**

15D. UNIT

15E. UNIT PRICE

15F. AMOUNT

**16. TOTAL AMOUNT OF CONTRACT**

$2,408,375.45

---

**PART I - THE SCHEDULE**

<table>
<thead>
<tr>
<th>X</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

**PART II - CONTRACT CLAUSES**

**PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS**

**PART IV - REPRESENTATIONS AND INSTRUCTIONS**

**PART V - EVALUATION FACTORS FOR AWARD**

**CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED BID OR NEGOTIATED PROCUREMENT OR IS SEALED BID PROCUREMENT AS APPLICABLE)**

**19. NAME AND TITLE OF SIGNER**

(Typed or printed)

**20. NAME OF CONTRACTING OFFICER**

**21. CONTRACTING OFFICER'S SIGNATURE**

**22. CONTRACTING OFFICER'S AUTHORITY**

**23. NAME OF CONTRACTOR**

**24. DATE SIGNED**

13 Apr 2017

**25. UNITED STATES OF AMERICA**

**26. DATE SIGNED**

13 Apr 2017

**27. AFFIDAVIT OF AUTHORIZATION TO SIGN**

Authorized Signature

---

AUTHORIZED FOR LEGAL REPRODUCTION

SANDI FORM 26 (REV. 5/2011)

Prepared by SANDI 7PR-10-1315 53-21454

Page 1 of 5
### Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>FRBA14-6-2-0050_R: Base Year Cost</td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$2,408,373.45</td>
</tr>
<tr>
<td></td>
<td>Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B. FOB: Destination PURCHASE REQUEST NUMBER: J3CTB23032</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST:</td>
<td></td>
<td></td>
<td></td>
<td>$2,408,373.45</td>
</tr>
<tr>
<td>000101</td>
<td>Incremental Funding Cost</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>Incremental funding in the amount of $565,205.00.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST:</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>ACRN AA</td>
<td></td>
<td></td>
<td></td>
<td>$565,205.00</td>
</tr>
<tr>
<td></td>
<td>CIN: J3CTB2303200101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>000102</td>
<td>Incremental Funding Cost</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>Incremental funding in the amount of $201,612.00.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST:</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>ACRN AB</td>
<td></td>
<td></td>
<td></td>
<td>$201,612.00</td>
</tr>
<tr>
<td></td>
<td>CIN: J3CTB2303200102</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM NO</td>
<td>SUPPLIES/SERVICES</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td>UNIT PRICE</td>
<td>AMOUNT</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------</td>
<td>----------</td>
<td>------</td>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>0002</td>
<td>FRBAA14-6-2-0050_R: Option Year 1</td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$767,080.93</td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td>Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B. FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$767,080.93</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0003</td>
<td>FRBAA14-6-2-0050_R: Option Year 2</td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$735,963.67</td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td>Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B. FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$735,963.67</td>
</tr>
</tbody>
</table>
INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0002</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>0003</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>
### DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 01-MAY-2017 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td>30-APR-2020</td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[0][0]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0002</td>
<td>POP 01-MAY-2020 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td>30-APR-2021</td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[0][0]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>0003</td>
<td>POP 01-MAY-2021 TO</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION)</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td>30-APR-2022</td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 044315 097 0134 000 N 20152017 D 34HQ 0901515BR_KD_BP_OT 1517_0134_34HQ_PRICT DTRA 410
AMOUNT: $565,205.00

AB: 044315 097 0134 000 N 20162018 D 34HQ 0901515BR_KD_BP_OT 1618_0134_34HQ_PRICT DTRA 410
AMOUNT: $201,612.00

<table>
<thead>
<tr>
<th>ACRN</th>
<th>CLIN/SLIN</th>
<th>CIN</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>090101</td>
<td>J3CTB23032000101</td>
<td>$565,205.00</td>
</tr>
<tr>
<td>AB</td>
<td>090102</td>
<td>J3CTB23032000102</td>
<td>$201,612.00</td>
</tr>
</tbody>
</table>

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [redacted]
   Defense Threat Reduction Agency/J4COC
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-0201
   Telephone: [redacted]
   Email: [redacted]

b. Grantee Business Office:
   Name: Aleksei Chumura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   E-mail: chumura@ecohealthalliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. Jonathan H Epstein
   Title: Associate Vice President, Conservation
   Phone: (212) 380-4467
   E-mail: epsicin@ecohealthalliance.org

252.601-9001 GRANTS OFFICER'S REPRESENTATIVE (GOR) (MAY 2009)

d. Grants Officer's Representative (GOR) for this Grant is:
   Name: [redacted]
   Defense Threat Reduction Agency/J4CTB
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-0201
   Telephone: [redacted]
b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
FUNDING PROFILE:

The amount of $766,817.00 is obligated for work to be performed during the period beginning with grant award and continuing through April 30th, 2018. Additional incremental funding planned, but not obligated, is:

- FY18 $121,958.02
- FY19 $804,315.14
- FY20 $715,283.29

The Government’s liability is limited to the amount obligated

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 01, 2017</td>
<td>$222,193.76</td>
</tr>
<tr>
<td>2</td>
<td>December 01, 2017</td>
<td>$222,193.76</td>
</tr>
<tr>
<td>3</td>
<td>April 01, 2018</td>
<td>$222,193.75</td>
</tr>
<tr>
<td>4</td>
<td>August 01, 2018</td>
<td>$222,193.75</td>
</tr>
</tbody>
</table>
Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work</td>
<td>8</td>
<td>01-MAY-2016</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and Conditions</td>
<td>17</td>
<td>31-OCT-2016</td>
</tr>
</tbody>
</table>
Statement of Work

Project Title: Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia

Document Date: May 2016

Objective: The objective of this project is to enhance capacity within the Malaysia government to characterize the distribution of and detect spillover of novel and known henipaviruses and filoviruses, (both groups include high consequence zoonotic pathogens) in indigenous populations and farms in Peninsular Malaysia. Current surveillance strategies for novel zoonotic viruses rely exclusively on molecular detection tools, but Nipah and Ebola viruses are present at low prevalence in bat species which makes infected individuals difficult to detect. By establishing a multiplexed serological assay developed to detect antibodies against any henip- and filoviruses, the Government of Malaysia (GoM) will more effectively be able to determine the distribution of these high-impact viruses in wildlife reservoirs and detect evidence of spillover in at-risk human or livestock populations. This enhancement of human and animal surveillance in all three sectors (wildlife, livestock and human health) and training of Malaysian scientists utilizes a One Health approach and will help reduce risk of zoonotic disease emergence and spread by accelerating detection and response. These activities fulfill DTRA CBEP’s mandate and are also complementary to and supportive of the aims of the USAID EPT program and the Global Health Security Agenda.

Scope: This research includes transferring state-of-the-art serological reagents and Luminex-based microsphere beaded technology that will allow the Government of Malaysia to use a One Health approach to conduct serological surveillance for all known and unknown henipaviruses and filoviruses in wildlife, domestic animals, and humans. The study will test archived human and wildlife serum samples which are linked to PCR-tested oral, rectal, or urogenital swab samples (collected and tested under the ongoing USAID Emerging Pandemic Threats: PREDICT program and a University of Malaya study of Orang Asli healthy populations and acutely febrile hospital cases). It will also conduct a new study looking at henipa- and filovirus antibodies in livestock and farm workers and wildlife near the farms, as well as an expanded Orang Asli study focused on hunting communities living in the forest. The grantee will investigate spillover of these pathogens by screening wildlife reservoirs (e.g. bats and nonhuman primates), people, and livestock for IgG antibodies to henipaviruses and filoviruses, while also continuing to develop and transfer additional tests that will detect antibodies against novel viruses in these groups.

Our team will focus on the following major goals and milestones:
1. Improve the Government of Malaysia’s capacity to conduct serological surveillance for henipaviruses and filoviruses in human and animal populations, using a One Health approach.
   * Transfer Luminex-based technology into government and university diagnostic labs in three key sectors (wildlife, livestock, and human health); conduct trainings for staff to be able to screen samples, interpret results, and perform confirmatory assays; train local graduate students; and publish and share findings among GoM partners.
2. Determine the host distribution and seroprevalence of henipaviruses and filoviruses in wildlife (e.g. bat) populations in Peninsular Malaysia associated with Orang Asli communities and livestock farms.
Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein
CBEP-Thrust Area 6, CC WMD

- Conduct cross-sectional serological studies of humans and animals for henipa- and filoviruses by testing sera from new samples collected under this project and archived samples from PREDICT. Wildlife sampling will be conducted jointly with the Dept. of Wildlife and National Parks (DWNP); livestock sampling with DVS and UPM; and human sampling with MoH. These activities provide opportunity for One Health-based disease surveillance; threat reduction; and capacity building within the Government of Malaysia.

3. Conduct surveillance for IgG antibodies against filoviruses and henipaviruses in people and domestic animals which may indicate spillover from wildlife reservoirs. Sampling activities will focus on Orang Asli communities and farms in Peninsular Malaysia and will be conducted jointly with the Ministry of Health’s National Public Health Laboratory (NPHL), DWNP, and the University Putra Malaysia under the Department of Veterinary Services (DVS). Serological surveillance will allow the GoM to focus limited resources and develop interventions to reduce threat from viral outbreaks in at-risk animal and human populations.

- Qualitative studies (e.g. questionnaires) detailing human-animal contact where sampling occurs will characterize high-risk behaviors and interfaces;
- Sampling human, wildlife, and domestic animal populations in Orang Asli forest communities that practice hunting.
- Sampling domestic animals and farm workers on large and small-scale farms and associated wildlife to identify evidence of spillover.

Our research will be focused on building capacity within the Government of Malaysia to conduct serological surveillance in human and animal populations in Peninsular Malaysia where people and animals are believed to have high levels of contact. Collaborators from the Government of Malaysia (GoM)’s Department of Wildlife and National Parks (DWNP), the Ministry of Health’s National Public Health Laboratory (NPHL), the Department of Veterinary Service’s University Putra Malaysia (UPM), University of Malaysia (UM), The Uniformed Services University, Maryland (USU), Conservation Medicine, Ltd. (CM), The US Navy Medical Research Center, Asia (NMRC-A), and Duke-NUS Graduate Medical School, Singapore will play active roles in this research. EHA’s history of successful collaboration with DWNP, MoH, and DVS under prior research projects and most recently through PREDICT, as well as having a Memorandum of Agreement with the aforementioned institutions, gives us confidence that we will be able to achieve the aims of this proposal (also see letters of collaboration).

The duration of the proposed project is three years, with optional 4th and 5th years containing follow-up Orang Asli studies and farm studies so that we have longitudinal data. These option years will significantly strengthen the overall study by enhancing our ability to detect temporal patterns of infection in bat and other animal populations as well as additional opportunity to detect spillover in humans or livestock. Through these proposed activities we would create enhanced One Health surveillance for known and novel henipaviruses and filoviruses in human and animal populations in Peninsular Malaysia, an emerging disease hotspot. The proposed activities would significantly support Malaysia’s surveillance priorities, DTRA CBEP Thrust Area 6 objectives, the Global Health Security Agenda (GHSA), and the USAID Emerging Pandemic Threats program by allowing the Government of Malaysia to more rapidly detect infections of high impact zoonotic agents and develop effective interventions to prevent viral
outbreaks and reduce human and animal mortality, thereby reducing the threat from these high consequence viral agents.

Background:
Nipah virus (NiV), Ebola virus (EBOV) and Marburg Virus (MARV) are emerging zoonotic viruses belonging to the genera Hennipavirus (Family Paramyxoviridae), Ebolavirus and Marburgvirus (both Family Filoviridae) and they have each caused outbreaks in people with high mortality rate. These viruses are listed as a select agents by HHS and USDA as pathogens of significant threat to both human and animal health. Nipah virus (NiV) is a zoonotic paramyxovirus (genus Henipavirus) with pandemic potential that first emerged on a pig farm in Malaysia in 1997 and led to a human outbreak with more than 260 cases and 40% mortality. Old world frugivorous bats, particularly Genus Pteropus (Family Pteropodidae), are natural reservoirs for a range of henipaviruses, including Nipah virus. Filoviruses circulate both in Africa and Southeast Asia, and have also been linked to bat reservoirs. In Africa, EBOV and Sudan virus (SUDV) have caused multiple human outbreaks with mean mortality rates between 50% and 90%. The current EBOV outbreak in West Africa, by far the largest Ebola epidemic in history, has had more than 28,600 cases, primarily in Sierra Leone, Guinea, and Liberia, with a mortality rate of 40%. The outbreak in West Africa has prompted the Government of Malaysia to determine whether filoviruses are circulating in bat species resident in Peninsular Malaysia. Malaysia's experience with Nipah virus, existing technical expertise, and its current commitment to using a One Health approach to disease surveillance (e.g., surveillance for novel zoonoses under PREDICT in all three sectors: wildlife, livestock, and human health) make it an ideal place to establish an advanced serological platform for detection of henipavirus and filovirus antibodies in wildlife and at-risk livestock and human populations.

Preliminary data: Serological studies of Nipah virus and Ebola virus using the Luminex-based platform. Studies conducted by our group have shown that NiV viral prevalence in pteropid bats is low (~1%-3%) and there is temporal variation to shedding. Mean seroprevalence in P. vampyrus, which is found across Peninsular Malaysia was 32% (n=253; range 16.7% - 42.4%). In Bangladesh, we conducted a 6-year longitudinal study of Pteropus giganteus using the Luminex-based platform to screen bats for IgG antibodies against both NiV virus and Ebola virus Zaire. Between 20% and 80% of adult Pteropus giganteus were NiV seropositive, while between 20% and 50% were EBOV seropositive (Epstein et al, in prep). Nipah virus infections appear to peak in June/July while EBOV appears to peak in December (see also Project Narrative). We found a diversity of genetic strains of Nipah virus in P. giganteus (Epstein et al, in prep), and viruses which are NiV-like but distinct henipaviruses. Non-neutralizing antibodies against NiV-like viruses found in goats, cattle, and pigs in Bangladesh suggests that spillover from bats to domestic animals occurs and that there is a broad spectrum of henipaviruses circulating in bats. RESTV RNA was recently identified by our group in Mineopterus schreibersii, a common insectivorous bat. We also detected RESTV antibodies in two fruit bat species: Cynopterus brachyotis and Pteropus vampyrus: the latter is a NiV reservoir. In Bangladesh, we found antibodies against EBOV and RESTV in 3.5% of Rousettus leschenaultii (n=141). M. schreibersii, R. leschenaultii, and two Pteropus species, including P. vampyrus all occur in Malaysia, yet there is no data available regarding filoviruses in wildlife in Malaysia. The possibility that multiple henipaviruses or filoviruses capable of infecting people or livestock
Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein CBEF-Thrust Area 6, CC WMD

to be circulating in bats in Malaysia makes enhanced surveillance and early detection of these high consequence viruses critically important for reducing their threat to public health.

**PREDICT**

Between 2009 and 2015, EHA, CM, and the Department of Wildlife and National Parks (DWNP) have collected and archived samples, including serum, from more than 1,400, animals including bats, rodents, and macaques, all from areas where people and wildlife come into contact. While oropharyngeal, urogenital, and rectal swab samples have been or will be screened using PCR assays for viral families (including paramyxoviruses and filoviruses), corresponding sera remain archived (and untested) and will be made available for this project to test them using the Luminex-based assay.

*University Malaya study of acutely ill Orang Asli patients.*

We will also have access to archived and newly collected Orang Asli samples collected from acutely febrile patients at Gombak Hospital that serves the Orang Asli communities, under a separate ongoing disease study at the University of Malaya (Prof. [Box]) and NMRC-A (Co-PI[b][a]). This study just received renewed funding to continue sampling febrile patients and expand to sample asymptomatic Orang Asli from communities across a land-use gradient, which will include individuals without animal exposure. Under this proposal we will screen sera collected from well characterized Orang Asli patients and community members using the Luminex-based platform.

**Key references (Further references are available in the Project Narrative):**


**Tasks/Scientific Goals:** *(Format: Year #)(s). Task #. Sub-task#)*

**Task 1: (Year 1-OY5). Enhance capacity within Malaysia to conduct serological surveillance for henipa- and filoviruses.** The GoM has been engaged in using a One-Health approach to zoonotic disease surveillance since the NiV outbreak in 1998 and most recently via collaborations with EHA under PREDICT. However, current GoM and PREDICT surveillance activities in humans, wildlife and domestic animals are based on broad molecular assays designed to identify novel viruses (including henipaviruses and filoviruses). One of the challenges with this approach is that Nipah, Ebola, and related viruses tend to be acute and asymptomatic infections in bats, making detection of viral RNA challenging. IgG antibodies,
however, persist in bats (as well as people and livestock), reducing the sampling effort necessary to identify exposed or infected individuals in a population and also allowing for detection of asymptomatic carriers. Adding a serological component to existing surveillance will greatly enhance the government’s ability to detect both known and unknown henipa- and filoviruses in wildlife, domestic animals and human populations at risk for spillover. To establish this capacity, we will provide a BioRad Bio-Plex 200 machine with computer console to NPHL and DWNP. We will provide all reagents for henipa- and filovirus assays. Following Bio-Plex installation, we will conduct a 10-day training course for lab technicians at DWNP and another at NPHL. UM has a Luminex machine and will receive assay reagents and lab staff will participate in one of the training workshops. 1 PhD student at USU will develop additional assay reagents in Y1-OY5. We will identify either 1 PhD or 2 Masters’ students at UM and 1 PhD student at UPM to train under this project. We will provide additional training to technical staff from GoM partner labs in viral pseudo-type assay development at USU. The grantee shall:

1.1.1. Transfer BioRad Bio-Plex 200 to NPHL and DWNP labs;
1.1.2-1.2. Transfer Luminex-based filovirus and henipavirus reagents to DWNP, NPHL, and UM labs; the grantee will provide a BioRad Bio-Plex 200 to UPM and conduct a 10-day training workshop in Y2.
1.1.3-1.3 Train lab staff to use Luminex-based assays
1.1.4- OY5.1.4 Supervise 1 UM PhD or 2 Masters’ students (Y1-3), and 1 UPM PhD student
1.1.5-OY5.1.5 Convene the Science Advisory Group (annually in KL);
1.1.6-2.1.6 Develop a database for serology results and sample metadata; establish sample repository at partner labs.

Task 2. (Y1-OY5) Develop and validate Luminex-based reagents to detect henipa- and filovirus antibodies. At USU, we will engineer soluble and secreted versions of henipa- and filovirus glycoproteins, expressed in mammalian cell culture systems to accurately reflect proper synthesis including their assembly and processing into properly glycosylated higher order complexes. Constructs will be designed and tested in pilot experiments for expression and analysis, and then used to establish stably expressing cell lines. Preparative amounts of the various soluble viral glycoproteins will be made using serum-free culture conditions in suspension culture, and proteins are purified using the appropriate tag protocol (either S-tag or double strep tag (TST)) by affinity chromatography, followed by concentration and size exclusion chromatography. We will test the utility of each individual glycoprotein by Luminex, ELISA and Western blotting then provide all necessary reagents to partner labs to accomplish the testing under this project. The grantee shall:

1.2.1-2.2.1 produce Mojaing virus (MojV) and African GH-M74a G glycoproteins; Bundibugyo virus (BDBV), Tai Forest virus (TAFV), Lloviu virus (LLOV), MARV Ravn, SUDV, SUDV GpΔmucin, RESTV (monkey), and RESTV (porcine) Gp glycoproteins.
1.2.2-3.2.2 use the completed viral glycoprotein preparations and produce polyclonal rabbit serum to each individual glycoprotein; test the utility of each individual glycoprotein by Luminex-based, ELISA and Western blotting assays;
1.2.3 Provide N protein reagents to detect novel henipa- and filoviruses to partner labs.
1.2.4-OY5.2.4: If novel henipa- or filoviruses are detected using molecular assays (under
Serological Biosurveillance for Spillover of *Henipaviruses* and *Filoviruses* at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein

CBEP-Thrust Area 6, CC WMD

PREDICT), grantees may develop new reagents for antibodies against these viruses and negative sera will be re-screened.

**Task 3. Screen archived serum samples from wildlife and Orang Asli for henipa- and filovirus antibodies using a Luminex-based platform (Y1-Y2).** Grantees shall test up to 945 macaque and 175 bat archived serum samples collected under PREDICT and stored at DWNP, and up to 300 archived Orang Asli samples stored at NPHL, and up to 200 Orang Asli samples at UM. The number of samples will depend on available serum volume and quality. Results will be used to inform the Orang Asli and farm studies described in **Tasks 4 and 5**. Positive sera may be sent for confirmatory testing at USU using pseudovirus serum neutralization assays, ELISA, or Western blot. Results shall be entered into a database and shared with GoM partners.

1.3.1 Identify suitable archived animal and human sera;
1.3.2 Screen sera for henipa- and filovirus IgG antibodies at GoM and UM partner labs;
1.3.3 Confirm positive results using western blot or pseudovirus assay;
1.3.4 Enter results into database and analyze;
1.3.5-2.3.5 share results with partners.

**Task 4. Serological survey of Orang Asli who hunt, wildlife, and peri-domestic animals. (Y1-OY5).** Indigenous communities living in forested areas and that practice subsistence wildlife hunting are at higher risk of exposure to zoonotic viruses due to handling and butchering wildlife and therefore contact with bodily fluids. In Y1 of this project, we will apply for IRB ethical approval to continue and expand a pilot study currently underway (expected completion: Oct 2016). Pending IRB and IACUC approval, CM, MoH, and DWNP will work together in Y1-Y2 to sample 100 individuals from each of 3 Orang Asli communities in Perak State (incl. Kuala Lipis and Gua Musang), totaling **600 human blood samples over five years.**

100 people sampled per community will allow us to detect a seropositive individual with 95% confidence at a prevalence of 3%, assuming a population of 500 individuals. We will also aim to sample blood from 50 bats per each of 3 species around each study village (e.g. *Miniopterus, Pteropus*, and *Rousettus* spp); 30 nonhuman primates; and 30 dogs, if present, in order to be able to detect henipa- or filovirus antibodies in an individual with 95% confidence given a 5% seroprevalence (in bats) and 10% in dogs and nonhuman primates. MOH officers and CM will collect blood from Orang Asli and associated animals, and serum will be separated either in the field or at partner labs and stored at -86C at prior to testing. A sample size of 50 bats would allow us to detect differences between study locations (or time points, should we conduct follow-up studies) of 56% with 95% confidence and 80% precision. The grantee shall conduct repeated sampling of Orang Asli and peri-domestic livestock and wildlife in the same communities in Y3-OY4. If novel henipa or filoviruses identified by PREDICT, new assays will be developed in OY4 and negative samples re-tested. Molecular and serological data from Orang Asli will be co-analyzed in OY4-OY5. In addition, we will test sera collected through an ongoing UM study of Orang Asli. Up to 500 samples per year will be collected Y1-OY5, and these will be tested using the Luminex-based platform at UM. Positive samples will be confirmed at UM or USU.

The grantee shall:

1.4.1-OY5.4.1 Test Orang Asli, wildlife, and peri-domestic animal samples collected under PREDICT and UM studies
1.4.2-2.4.2, Y3.4.2, OY4.4.2-OY5.4.2. Enter results into database and analyze data;
1.4.3 - 2.4.3, Y3.4.3, OY4.4.3 Confirm sero-positive samples;
Serological Biosurveillance for Spillover of *Henipaviruses* and *Filoviruses* at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein
CBEP-Thrust Area 6, CC WMD

1.4.4. Develop follow-up study with GoM partners to be implemented in Y3.
2.4.5 Apply for IRB and permits for follow-up study
3.4.6 Implement repeated sampling in Orang Asli villages
3.4.7 Analyze longitudinal data

**OY4.4.1.** If new viruses found by PREDICT, develop new sero assay and re-test samples

**OY4.4.2.** OY5.4.2 Confirm additional test results and co-analyze molecular and sero data

### Task 5. Develop serological study of farm workers, livestock, and wildlife around farms.

(Y1-OY5) Grantee shall conduct a serological survey of farm workers and animals living on or around 2 large-scale farms (>5000 ruminants and/or pigs) and 2 small-scale farms (500-1000 ruminants and/or pigs) in Peninsular Malaysia to detect exposure to henipa- or filoviruses. Grantee shall work with DWNP to sample bats, macaques and dogs proximal to farms; and with MoH to conduct qualitative research and collect blood samples from farm workers to screen for henipa- and filovirus antibodies. Grantee will work with UPM to sample and test livestock. In Y1 grantees will select appropriately sized farms. Grantee shall also locate bat caves or roosts proximal to each farm, meet farm owners, and characterize the livestock. Grantee shall apply for all necessary IRB and IACUC approvals. Grantee may commence sampling in Y2, pending approvals, and conduct a follow-up study in OY4 and OY5 (if funded). The grantee shall:

1.5.1 Meet with GoM partners to develop study;
1.5.2 Apply for ethical approvals and permits.
1.5.3. Conduct scoping visits to farms, characterize livestock and local wildlife species.
2.5.1-3.5.1 Collect wildlife, livestock, and human samples
2.5.2-3.5.2 Conduct questionnaires with farm workers
2.5.3-3.5.3 Screen samples using Luminex-based assay; confirm results
2.5.4-3.5.4 Enter data into database and analyze results

**OY4.5.1-5.5.1** Repeat human, wildlife and livestock sampling at each farm

**OY4.5.2-OY5.5.2** Test samples, enter results into database; analyze complete dataset

**OY5.5.3** Prepare manuscript based on (Y1-OY5) study

### Task 6. Disseminate reports to relevant stakeholders (Y1-OY5).
Grantee shall synthesize all data collected through the projects described above as well as capacity building activities in Malaysia. Scientific and general reports will be generated and provided to GoM partners and an annual report to DTRA. PhD or Masters’ students will complete thesis and present at annual stakeholders meeting in KL or at scientific meeting in Malaysia. Grantee shall meet with GoM partners and SAG in Kuala Lumpur annually, according to schedule. Grantee shall present findings at scientific meetings (e.g. ASTM, ASM Biodefense, IMED, EcoHealth) to present findings according to the schedule.

1.6.1-OY5.6.1 Submit progress reports to DTRA.
1.6.2-OY5.6.2 Complete annual report to local stakeholders.
1.6.3-OY5.6.3 Conduct presentations/meetings at times and places specified in the grant schedule, including DTRA Annual Technical Review.
1.6.4-OY5.6.4 Conduct annual stakeholder meetings.
3.6.5. Prepare comprehensive project report for GoM
3.6.7. OY5.6.7 UM Graduate students present thesis to committee and prepare publication in peer reviewed journal
3.6.6-OY5.6.6 Prepare and submit publications to disseminate study findings.
Serological Biosurveillance for Spillover of *Henipaviruses* and *Filoviruses* at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein

CBEP-Thrust Area 6, CC WMD

**Project Timeline**

<table>
<thead>
<tr>
<th>Task</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY4</th>
<th>OY5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enhance capacity in Malaysia for serological surveillance for all henipaviruses and filoviruses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Transfer BioRad Bio-Plex 200 in NPHL, DWNP, and UPM labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Transfer serological reagents to NPHL, DWNP, UPM, and UM labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Training staff at partner labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Identify graduate students at UM and UPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Convene Science Advisory Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6 Develop database for serology results and sample metadata</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.7 Training in pseudovirus development at USU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Develop &amp; validate henipavirus and filovirus reagents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Produce specific henipavirus and filovirus proteins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Produce and test monoclonal antibodies against new proteins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Transfer henipa and filo N protein assays to partner labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Develop/validate proteins and mAbs for novel henipa- &amp; filoviruses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Screen archived wildlife and Orang Asli sera</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Identify archived wildlife and human sera at NPHL and DWNP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2 Screen sera using Luminex-based platform</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Confirm positive sera with additional testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4 Enter results in database / analyze</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sero-survey of Orang Asli and animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Apply for IRB/IACUC approval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2 Collect &amp; test serum samples from Orang Asli – animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3 Enter results into database</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4 Confirm positive sera with additional testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5 Conduct follow-up study of Orang Asli and animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.6 Analyze data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Serological study of farm workers, livestock, and wildlife on farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1 Apply for necessary permits and ethical approval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2 Scoping visits to potential study farms; select farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3 Sample farm workers, livestock, and wildlife on farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4 Follow-up study of farm workers, wildlife and livestock (4 farms)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5 Enter results into database / analyze results</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Disseminate reports to relevant stakeholders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1 Annual report to DTRA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2 Annual report to government of Malaysia partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3 Attend DTRA annual technical review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4 Partner meeting in Malaysia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5 Present results at scientific conference (e.g. ASTMH, IMED, ASM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.6 Prepare manuscripts for publication in peer-reviewed journal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DEFENSE THREAT REDUCTION AGENCY (DTRA)
GENERAL TERMS AND CONDITIONS FOR GRANT AWARDS

Table of Contents
Table of Contents ........................................................................................................................................... 1
1. Terms and Conditions Incorporated by Reference. .............................................................................. 2
2. Acceptance of Grant. ........................................................................................................................... 2
3. Recipient Responsibilities ..................................................................................................................... 2
5. Modification of the Grant. .................................................................................................................... 2
6. Payments ............................................................................................................................................. 3
7. Funding Increments and/or Options. ...................................................................................................... 3
8. Patent Rights ........................................................................................................................................ 4
9. Technical Reporting Requirements ..................................................................................................... 7
10. Financial Reporting Requirements. ..................................................................................................... 10
11. Delegation of Administration Duties .................................................................................................. 10
12. Security ............................................................................................................................................ 11
13. Representations and Assurances. ......................................................................................................... 11
14. Data Collection .................................................................................................................................... 16
15. Publications and Acknowledgement of Sponsorship .......................................................................... 16
16. Authorization to Perform Activities Abroad ...................................................................................... 17
17. Inconsistency between English Version and Translation of Grant. .................................................... 17
1. **Terms and Conditions Incorporated by Reference.**


2. **Acceptance of Grant.**

The recipient is not required to countersign the Grant document; however, the recipient agrees to the conditions specified in the Research Grant and the Articles contained herein unless notice of disagreement is furnished to the Grants Officer within fifteen (15) calendar days after the date of the Grants Officer's signature. In case of disagreement, the recipient shall not assess the Grant any costs of the research unless and until such disagreement(s) is resolved.

3. **Recipient Responsibilities.**

The recipient will bear primary responsibility for the conduct of the research and will exercise judgment towards attaining the stated research objectives within the limits of the Grant’s Terms and Conditions.

The Principal Investigator(s) (PI) specified in the Grant award will be continuously responsible for the conduct of the research project and will be closely involved with the research effort. The PI, operating within the policies of the recipient, is in the best position to determine the means by which the research may be conducted most effectively.

4. **Standards for Financial Management Systems.**

Where the Federal Government guarantees or insures the repayment of money borrowed by the recipient, DTRA, at its discretion, may require adequate bonding and insurance if the bonding and insurance requirements of the recipient are not deemed adequate to protect the interest of the Federal Government.

DTRA may require adequate fidelity bond coverage where the recipient lacks sufficient coverage to protect the Federal Government’s interest.

Where bonds are required in the situations described above, the bonds shall be obtained from companies holding certificates of authority as acceptable sureties, as prescribed in 31 CFR Part 223, “Surety Companies Doing Business with the United States.”

5. **Modification of the Grant.**

The only method by which this Grant may be modified is by a formal, written modification signed by the Grants Officer. No other communications, whether oral or in writing, are valid.

Prior Approvals are required as follows:

1) Expenditures on equipment costing $5,000 or more not specifically identified in the budget at time of award. (Approval via written notification from the Grants Officer.)
2) Expenditures for foreign travel not specifically identified in the budget at time of award. (Approval via written notification from the Grants Officer.)
3) Prior approval is not required to transfer amounts budgeted for indirect costs to absorb increases in direct costs, or vice versa.
4) Prior approval is not required to carry forward an unobligated balance to a subsequent period of performance under this award.

6. Payments.
The 2 CFR 200 governs responsibilities concerning payments, with the following clarifications:

Recipients shall submit requests for payment using Invoicing, Receipt, Acceptance, and Property Transfer (iRAPT) at https://wawf.eh.mil/. Any request for advance payments must be approved by the Administrative Grants Office shown in Block 6 of the award. The request shall be submitted to the Administrative Office identified in Block 6 of the Research Grant by entering the following routing codes:

1) Pay Office DoDAAC: See Block 12 (Code) on the first page of the Grant.
2) Invoice Type: Grant and Cooperative Agreement Voucher.
3) Issue By DoDAAC: See Block 5 (Code) on the first page of the Grant.
4) Admin DoDAAC: See Block 6 (Code) on the first page of the Grant.
5) Grant Approver: Same as Admin DoDAAC (Leave Ext. blank).

Payments will be made by the Defense Finance and Accounting Service (DFAS) office specified in the Research Grant (Block 12).

A foreign awardee must have a U.S. bank account and be signed up for electronic payments (electronic funds transfers (EFT)).

7. Funding Increments and/or Options.
The recipient is advised that the Grantor's obligation to provide funding for increments and/or options included in the Grant is contingent upon satisfactory performance in the judgment of the DTRA Scientific Officer/Technical Monitor and the availability of funds. Other factors will be considered before options will be exercised (for example, expenditure rate and current programmatic objectives). Accordingly, no legal liability on the part of the Grantor exists unless or until funds are made available to the Grantor and notice of such availability is confirmed in writing to the recipient. Refer to the Funding Profile in Section G of the Grant for additional incremental funding planned, but not currently obligated for the Grant.

Funding Increments – In no event is the Government obligated to reimburse the recipient for expenditures in excess of the total funds allotted by the Government to this agreement. Recipients should note that low expenditure rates reported on payment requests may be cause for deferral of future increments. The Government anticipates unilateral modifications for funding increments.

Options – If the agreement contains Option(s), the Government reserves the right to exercise the Option(s) unilaterally.
8. **Patent Rights.**

Patent Rights are governed by 37 CFR 401.14 with the following clarifications: All DTRA-related disclosures, confirmatory licenses to the government, patent applications, and other communications should be submitted as detailed herein.

The 37 CFR Part 401 invention reporting requirements are summarized in the table below. Unless otherwise indicated in the “Submission to DTRA” column, the grantee is required to upload the following types of invention information using iEdison (https://s-edison.info.nih.gov/iEdison/), a single web interface for government grantees to report details of inventions and patents. If the grantee organization is not already an iEdison registrant, then iEdison registration is required prior to submission of the below invention reports. The grant shall not be closed out until all invention reporting requirements are met.
<table>
<thead>
<tr>
<th>Action</th>
<th>When</th>
<th>Discussion</th>
<th>37 CFR Reference</th>
<th>Submission to DTREA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invention Report:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The grantee must submit a report of any &quot;subject&quot; invention. The report must identify inventors, federal agencies, grant number(s), and date of any public disclosure. Date of submission establishes time frames for all future actions. Must be complete in technical detail. The report should be directed to the lead agency.</td>
<td>Within 2 months of the invention's initial report to the grantee's contractor organization.</td>
<td>There is no single format for disclosing the invention to the government. The communication should include: the title of the invention, date of any public disclosure, names of all inventors, source(s) of federal funding (i.e., grant number), a written description of the invention in technical detail. The invention disclosure should be signed by the inventor(s) at the very least signed by a grantee institutional official.</td>
<td>400 14(g)(2) 400 14(e)(1)</td>
<td>Submit electronically by uploading either a PDF, TIFF, or text file through Edison.</td>
</tr>
<tr>
<td><strong>Rights to Inventions on Subcontracts:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subcontractors retain rights to their subject inventions.</td>
<td>Same reporting responsibilities, obligations, and time frames as prime grantee organization.</td>
<td>Prime grantee organization cannot require ownership of subcontractor's subject invention(s)</td>
<td>400 14(g)(1) 400 14(g)(2)</td>
<td>Invention disclosure, confirmatory license, and proof of govt. support clause shall be submitted electronically through Edison.</td>
</tr>
<tr>
<td><strong>Election of Title to Invention:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grantee organization must notify the federal agency sponsor that it will retain ownership of invention and take steps to commercialize the invention.</td>
<td>Within 2 years of reporting the invention to the lead federal agency sponsor of disclosure publicly, this period is decreased.</td>
<td></td>
<td>400 14(b) 400 14(c)(1) 400 14(e)(2)</td>
<td>Submit electronically through Edison.</td>
</tr>
<tr>
<td><strong>Confirmatory License:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The grantee organization must provide a nonexclusive, nontransferable, nonassignable paid-up license for the government to practice or have the invention practiced on its behalf throughout the world.</td>
<td>Communicate with report of any initial patent filing, unless the invention is being licensed as an unpatented biological material or research tool.</td>
<td></td>
<td>400 14(d)(1)</td>
<td>Submit electronically by uploading either a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td><strong>Nonselection of Title to Invention:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grantee organization must notify the federal sponsor that it will not retain ownership of an invention.</td>
<td>Within 2 years of reporting to federal agency sponsor if disclosed publicly, this period is decreased.</td>
<td>Effectively a waiver to the government. After further review the federal agency sponsor may elect title on behalf of the government. Title does not actually vest with the government until government elects to retain title.</td>
<td>400 14(c)(2) 400 14(d)</td>
<td>Submit electronically through Edison.</td>
</tr>
<tr>
<td><strong>Assignment of Invention Rights to the Inventor:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The inventor must request assignment of invention rights. Agencies support requests of this type on a case-by-case basis.</td>
<td>At the time the grantee organization elects not to retain rights in the invention.</td>
<td>First, the grantee organization must elect not to retain rights in the invention. Second, the inventor must request the assignment of rights, agree to all terms associated with invention reporting as detailed in 37 CFR 401 and must pursue commercialization of the invention through patent filing or licensing as a research tool. Specific procedures for any agency should be determined prior to initiating the request.</td>
<td>400 14(b)(1)</td>
<td>This status shall be indicated using Edison. Submission of all other issues (such as outstanding required documents) should be resolved prior to proceeding further. Submission of the required documents will be done electronically by uploading either a PDF, TIFF, or text file through Edison.</td>
</tr>
<tr>
<td>Action</td>
<td>When</td>
<td>Discussion</td>
<td>37 CFR Reference</td>
<td>Submission to DTRA</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Initial Patent Application:</strong>  The grantee must inform the government of the initial patent application that related to any subject invention. The patent application must include a government support clause.</td>
<td>Within 1 year after election of title, unless there is an extension</td>
<td>Time frame may vary if invention becomes public. The term initial patent application means a nonprovation U.S. national application for patent as defined in 37 CFR 1.501(5). The notification must include the patent application number and filing date assigned by the USPTO. A copy of the full application is not required.</td>
<td>400 14(f)(3) 400 3(a)</td>
<td>All filing data shall be submitted via Edison. Evidence of inclusion of government support clause shall be submitted electronically as either a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td><strong>Assignment to Third Party:</strong>  Documentation necessary when a grantee contractor wishes to assign invention rights to third party. If the grantee contractor is a non-profit, the government must approve the assignment. For profit or small business grantee contractors do not need to seek approval. If the rights are assigned, the rights holder assumes the same reporting responsibilities as the grantee contractor organization.</td>
<td></td>
<td>If assignment approved, third party must pursue commercialization of the invention through patent filing or licensing of the invention as a research tool. Specific procedures to request third party assignment may vary between agencies. Consult DTTRA prior to initiating request.</td>
<td>400 14(h) for non-profits. Note the distinction between small businesses and non-profit organizations</td>
<td>Documentation shall be submitted electronically as either a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td><strong>Issued Patent:</strong>  Grantee must provide federal agency sponsor with patent issue date, number, title of patent, and evidence of government support clause.</td>
<td>At the time of issue</td>
<td>Patent must include government support clause.</td>
<td>400 5(i)(2) 400 14(i)(4)</td>
<td>All issued patent information shall be provided using Edison. Evidence of inclusion of government support clause will be provided electronically as a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td><strong>Request for Extension of Time:</strong>  An extension of up to two years may be requested for election of title, or one year for filing a patent application.</td>
<td>Prior to any statutory bar</td>
<td>Extension of 2 years for title election and one year for patent application are preapproved for funded inventions. Additional extensions need written approval from the federal agency sponsor.</td>
<td>400 14(c)(4)</td>
<td>Request electronically using Edison.</td>
</tr>
<tr>
<td><strong>Discontinuance of Patent Application, Payment of Maintenance Fees, or Define in a Reexamination or Opposition proceeding on a Patent:</strong>  Grantee must notify federal agency sponsor of changes in patent status.</td>
<td>At any time in the process but prior to established deadlines</td>
<td>Relevant information and documentation e.g. patent application or patent(s) must be provided such that a determination to protect government interests can be made. The federal agency sponsor has the option to pursue the patent application or the patent if not being properly pursued or maintained. Any change in status must be reported at least 30 days prior to pending PTO office actions.</td>
<td>400 14(h)(3) 400 6</td>
<td>Indication shall be made via Edison.</td>
</tr>
</tbody>
</table>

**Research Performance Progress Report (RPPR).** Except under rare cases, RPPRs are required annually. The RPPR is due no later than 1 July of each year. Grants effective after 31 January will not require a RPPR until 1 July of the following year.

The RPPR is not a cumulative report. The first RPPR shall only include actions that occurred from the Period of Performance start date up to submission of the first RPPR. Each subsequent report shall only include actions that occurred during the 12-month period following the previous year's RPPR.
A RPPR is not required in the final year of the award if the period of performance ends within 60 days of the RPPR due date. In this instance the Final Report will satisfy the requirement. Broadly the RPPR shall address the following items:

- Accomplishments
- Products
- Participants and Other Collaborating Organizations
- Impact
- Changes/Problems

Templates and specific instructions will be provided each year in advance of the submission deadline. All files must be submitted via email to drabasicresearch@mail.mil (individual file size must be less than 10MB). A copy of the RPPR should also be provided to the Administrative Office identified in the Grant. The file names should be as follows:

- **RPPR**: Year Annual Report Grant Number, e.g. 2017 Annual Report HDTRA1-12-1-9999.
- **Metrics**: Year Metrics Grant Number, e.g. 2017 Metrics HDTRA1-12-1-9999.

**Quad Chart.** An updated quad chart must be submitted annually. A template will be provided each year in advance of the submission deadline. All files must be submitted via email to drabasicresearch@mail.mil (individual file size must be less than 10MB). The file name should be as follows:

- **Quad Chart**: Year Quad Chart Grant Number, e.g. 2017 Quad Chart HDTRA1-12-1-9999.

**Annual Technical Review.** At least one representative (preferably the PI) for each award is expected to attend and present at an annual technical program review meeting, unless otherwise exempted by DTRA in writing. For planning purposes reviews will typically be for two days in Northern Virginia during the spring or summer months.

**Final Technical Report.** A comprehensive final technical report is required: the draft document is required forty-five (45) days prior to the end of the Period of Performance and the final document is required ninety (90) days after the expiration or termination of the award.

The purpose of the final report is to document and to transition the results of the effort into the DTRA and DoD applied research community. The final report will always be sent to the Defense Technical Information Center (DTIC) and unclassified reports may be made available to the public through the National Technical Information Service (NTIS).

The final report is more than an extension of previous annual reports. The final report shall be a **comprehensive** technical summary of the significant work accomplished. The final report, where it is not readily accessible in published form should, where applicable:

- Clearly describe and illustrate the experimental equipment, setup, and procedures;
- Characterize and tabulate collected/computed data in an appendix;
- Sufficiently describe computational codes so they can be reproduced. Include a listing of the code in an appendix if possible and appropriate; and

- When the research effort culminates in the production of one or more student theses or dissertations, in these cases, the most significant advancements and conclusions (equations, figures, relationships, etc.) should be included in an executive summary. The theses or dissertations should be attached as appendices only if they are not readily available. If they are, clearly reference them and how they can be obtained. Also include in the executive summary, cumulative lists of people involved in, and publications stemming from, the research effort. Do not include copies of already submitted or published articles in the final report.

Standard Form (SF) 298, Report Documentation Page, must be used. Item 13 of the SF-298 should contain a 100 to 200 word abstract summarizing technical progress during the reporting period. The SF-298 may be found on the Internet at: http://www.gsa.gov/portal/forms/download/116146

All of the report pages should be prepared for acquisition and distribution by DTIC. All of the report pages should be of good quality for copying purposes. No pages should be missing.

The format and standard required by your institution for the preparation of theses and dissertations shall be used for the final report. In the absence of any institutional standards, you may wish to refer to the American National Standards Institute (ANSI) document Z39.18-1987, “Scientific and Technical Reports: Organization, Preparation, and Production,” for guidance. The report may be obtained from:

American National Standards Institute, Inc.
1430 Broadway
New York, NY 10018

It is anticipated that all final technical reports will be unclassified and that distribution will not be limited. However, for final technical reports that require a limited distribution as deemed necessary by DTRA, a Distribution List will be provided with the comments on the draft final technical report. The Distribution List should be formatted to match the rest of the report, placed at the end of the report, and added to the Table of Contents. The number of pages in the Distribution List should be added to the total page count and included in the total number of pages cited in Block 15 of the SF-298.

The draft of the final technical report will be due not later than forty-five (45) days prior to the end of the period of performance. The draft of the final technical report (including a draft SF-298) must be submitted electronically as follows:

- Email the draft of the final technical report to dtrabasicresearch@mail.mil (file size must be less than 10MB). The file name should be ‘Draft Final Report’ and the Grant number, e.g. Draft Final Report HDTRA1-12-1-9999.

- Provide a copy of the report to the Administrative Office identified in the Grant.

Within thirty (30) days, this draft will be reviewed by DTRA and comments will be provided to the Grantee to ensure the report complies with DTRA final report requirements. Such review and comment does not restrict the conduct or reporting of the project research
findings/outcomes and, in accordance with Article 35, does not restrict Grantee’s ability to publish. Grantee shall incorporate such requested changes so that the report incorporates and complies with agreement final reporting requirements terms. Final Technical Reports are due ninety (90) days after the expiration or termination of the award. The final submission should be made in accordance with the draft final report submission instructions.

**Final Metrics.** A final metrics table (in MS Excel format) is required. A template and specific instructions will be provided in advance of the submission deadline. The final metrics file should be submitted along with the Final Technical Report. The fields contained in the final metrics file are analogous to those of the annual submissions. The final metrics file shall contain only data from the last annual reporting period until the end of the award’s funded Period of Performance.

- Email the final Metrics File to drubasicresearch@mail.mil (file size must be less than 10MB). The file name should be ‘Final Metrics’ and the Grant number, e.g. Final Metrics HDTRA1-12-1-9999.


Federal Financial Reports (SF-425) are due no later than 1 July of each year with data “as of” 30 May of that year. Grants effective after 31 January will not require a Federal Financial Report until 1 July of the following year. All financial reports shall be submitted to the Administration Office identified in Block 6 of the Research Grant. In addition, the Federal Financial Report must be submitted electronically as follows:

- Email the Federal Financial Report to drubasicresearch@mail.mil (file size must be less than 10MB). The file name should be the Year, ‘Federal Financial Report’ and the Grant number, e.g. 2015 Federal Financial Report HDTRA1-12-1-9999.


Certain grant administration duties have been delegated to the Administration Office identified in Block 6 of the Research Grant. These duties are as follows:

1) Provisionally approve all Grant and Cooperative Agreement Vouchers.
2) Perform all property administration services except the approval of recipient’s requests to purchase equipment with grant funds. Such approvals must be granted by the DTRA Grants Officer.
3) Perform all plant clearance functions.
4) Approve requests for Registration for Scientific and Technical Information Services (DD Form 1540).
5) Obtain all financial report(s) (see Article 10 of this document).
6) Execute administrative closeout procedures, which include the following:
   a. Obtain the final Report of Inventions and Subcontracts (DD Form 882).
   b. Obtain final payment request, if any.
   c. Obtain final property report and dispose of purchased property and government furnished equipment (GFE) in accordance with the DoDARs Part 22, Subpart G.
   d. Perform a review of final incurred costs and assist the Grants Officer in resolving exceptions, if any, resulting from questioned costs.
   e. Assure that all refunds due the Government are received by the Grantor.
NOTE: This term and condition is not applicable to instrumentation and equipment grant awards.


As a general rule, PI’s will not need access to classified security information in the conduct of research supported under this Grant. Should it appear that access to such information is desirable the recipient shall advise the Grantor and request clearance for the investigator. Should information be developed during the course of work under this Grant that, in the judgment of the PI or the recipient, should be classified, the Grants Officer shall be notified immediately.


By accepting funds under this Grant, the recipient assures that it will comply with applicable provisions of the national policies and statutory/regulatory/executive-based requirements detailed below.

LIVE ORGANISMS. By signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provisions of the following national policies concerning live organisms:

1) For human subjects:

   a) Adhere to the requirements for protection of human subjects per the DoD level terms and conditions as well as the following DTRA requirements:

   b) The recipient shall adhere to DTRA local clause 252.223-9002 – Protection of Human Subjects (Aug 2010). The full text of this clause is as follows:

      All research under this grant involving human subjects must be conducted in accordance with 32 CFR 219, 10 U.S.C 980, and DoDD 3216.02, as well as other applicable federal and state regulations. Grantees must be cognizant of and abide by the additional restrictions and limitations imposed on the DoD regarding research involving human subjects, specifically as regards vulnerable populations (32 CFR 219 modifications to subparts B-D of 45 CFR 46), recruitment of military research subjects (32 CFR 219), and surrogate consent (10 U.S.C. 980).

      DTRA Directive 3216.01 of June 9, 2010 establishes the DTRA Human Subjects Protection Program, sets forth the policies, defines the applicable terms, and delineates the procedures necessary to ensure DTRA compliance with federal and DoD regulations and legislation governing human subject research. The regulations mandate that all DoD activities, components, and agencies protect the rights and welfare of human subjects of study in DoD-supported research, development, test and evaluation, and related activities hereafter referred to as “research”. The requirement to comply with the regulations applies to new starts and to continuing research.

      The DTRA directive requires that research using human subjects may not begin or continue until the Defense Threat Reduction Agency’s Research Oversight Board (ROB) has reviewed and approved the proposed protocol. Grantees and subcontractors are required to submit a valid federal assurance for their organization...
(institution, laboratory, facility) that has been issued by either DoD or the Department of Health and Human Services, and documentation of review of proposed protocols by the local Institutional Review Board (IRB) to include consent forms for any planned research using human subjects to the DTRA ROB for its review through the Grants Officer’s representative (if assigned) or the Grants Officer. The ROB review is separate from, and in addition to, local IRB review.

A study is considered to involve human research subjects if: 1) there is interaction with the subject (simply talking to the subject qualifies; no needles are required); and 2) if the study involves collection and/or analysis of personal/private information about an individual, or if material used in the study contains links to such information.

Written approval to begin research or subcontract for the use of human subjects under the proposed protocol will be provided in writing from the DTRA ROB, through the Grants Officer. A copy of this approval shall be maintained by both the Grantee and the government. Any proposed modifications or amendments to the approved protocol or consent forms must be submitted to the local IRB and the DTRA ROB for review and approval. Examples of modifications/amendments to the protocol include but are not limited to:

- a change of the PI;
- changes in duration or intensity of exposure to some stimulus or agent;
- changes in the information requested of volunteers, or changes to the use of specimens or data collected; or
- changes in perceived or measured risks or benefits to volunteers that require changes to the study.

Research pursuant to such modifications or amendments shall not be initiated without IRB and ROB approval except when necessary to eliminate apparent and immediate hazards to the subject(s).

Research projects lasting more than one year require IRB review at least annually, or more frequently as required by the responsible IRB. ROB review and approval is required annually. The Grantee or subcontractor must provide documentation of continued IRB review of protocols for ROB review and approval in accordance with these Terms and Conditions. Research must not continue without renewed ROB approval unless necessary to eliminate apparent and immediate hazards to the subject(s).

Non-compliance with any provision of this clause may result in withholding of payments under the grant pursuant to the grant’s payments clause(s) and/or grant termination pursuant to the grant’s termination clause(s). The government shall not be responsible for any costs incurred for research involving human subjects prior to protocol approval by the ROB.

2) For animals:

a. Adhere to the requirements for protection of animal subjects per the DoD level terms and conditions as well as the following DTRA requirements:
b. DTRA local clause 252.235-9001 – Prohibition of Use of Laboratory Animals (Jul 2010). The full text of this clause is as follows:

The grant recipient shall obtain approval from the US Army Medical Research and Material Command (MRMC), Animal Care and Use Review Office (ACURO) prior to conducting research on live nonhuman vertebrates. Studies involving non-human primates, dogs, cats, or marine mammals will require a site visit by an ACURO laboratory animal veterinarian as a condition of approval. DoD may also conduct site visits involving research on other animals when deemed appropriate. The animal research facility is responsible for notifying the DoD sponsor if Association for the Assessment and Accreditation of Laboratory Animal Care accreditation is lost or the facility is under USDA inspection. DoD also has the right to a site inspection under these circumstances.

The grant recipient (including subcontractors) is expressly forbidden to use laboratory animals in any manner whatsoever without the express written approval of MRMC ACURO.

The grant recipient shall complete the ACURO Animal Use Appendix for Research Involving Animals found at the following web site:
http://mrmc.amedd.army.mil/index.cfm?pageid=research_protections.acuro_animalappendix. Submit the completed ACURO appendix, contact information, the DTRA grant number and a copy of the grant for processing to the email address listed at the ACURO website. Once ACURO approves the effort, the grant recipient will receive written approval to begin animal use from the US Army MRMC ACURO by separate email. The grant recipient shall promptly provide a copy of the approval to the Grants Officer and Grants Officer representative. After approval, changes or protocol amendments must be submitted to and approved by ACURO before implementation.

The grant recipient, or subcontractors as appropriate, shall submit the most recent U.S. Department of Agriculture Animal Care Inspection Report annually in accordance with instructions provided.

Non-compliance with any provision of this clause may result in termination of the grant.

DoD Instruction 3216.01, dated September 13, 2010, provides policy and requirements for the use of animals in DoD-funded research based on Army Regulation 40-33. The DoD definition of animal is any live nonhuman vertebrate. All proposals that involve the use of animals must be in compliance with DoD Instruction 3216.01 and AR 40-33. DTRA requires that research using animals not begin or continue until the ACURO has reviewed and approved the proposed animal use. For animals, the provisions include rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966 (U.S.C. 2131-2156); and (ii) the “Guide for the Care and Use of Laboratory Animals,” National Institutes of Health Publication No. 86-23

RESEARCH INVOLVING RECOMBINANT DNA MOLECULES. Any recipient performing research involving recombinant DNA molecules and/or organisms and viruses
containing recombinant DNA molecules agrees by acceptance of this award to comply with the National Institutes of Health "Guidelines for Research Involving Recombinant DNA Molecules," July 5, 1994 (59 FR34496) amended August 5, 1994 (59 FR40170) amended April 27, 1995 (60 FR 20726), or such later revision of those guidelines as may be published in the Federal Register.

COMBATING TRAFFICKING IN PERSONS. The recipient agrees to comply with the trafficking in persons requirement in Section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)) as implemented by 2 CFR 175.

1) Provisions applicable to a recipient that is a private entity.

   a. You as the recipient, your employees, sub-recipients under this award, and sub-recipients' employees may not—
      • Engage in severe forms of trafficking in persons during the period of time that the award is in effect;
      • Procure a commercial sex act during the period of time that the award is in effect; or
      • Use forced labor in the performance of the award or subawards under the award.

   b. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if you or a sub-recipient that is a private entity—
      • Is determined to have violated a prohibition in paragraph 1)a. of this award term; or
      • Has an employee who is determined by the agency official authorized to terminate the award to have violated a prohibition in paragraph 1)a. of this award term through conduct that is either
         o Associated with performance under this award; or
         o Imputed to you or the sub-recipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Government-wide Debarment and Suspension (Non-procurement)." as implemented by our agency at 2 CFR Part 376.

2) Provision applicable to a recipient other than a private entity.

   a. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if a sub-recipient that is a private entity—
      • Is determined to have violated an applicable prohibition in paragraph 1)a. of this award term; or
      • Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph 1)a. of this award term through conduct that is either
         o Associated with performance under this award; or
         o Imputed to the sub-recipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Government-wide
Debarment and Suspension (Non-procurement)," as implemented by our agency at 2 CFR Part 376.

3) Provisions applicable to any recipient.
   a. You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph 1)a. of this award term.
   b. Our right to terminate unilaterally that is described in paragraph 1)b. or 2)a. of this Article:
      - Implements Section 106(g) of the TVPA, as amended (22 U.S.C. 7104(g)), and
      - Is in addition to all other remedies for noncompliance that are available to us under this award.
   c. You must include the requirements of paragraph 1)a. of this award term in any subaward you make to a private entity.

4) Definitions. For purposes of this award term:
   a. "Employee" means either:
      - An individual employed by you or a sub-recipient who is engaged in the performance of the project or program under this award; or
      - Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.
   b. "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.
   c. "Private entity":
      - Means any entity other than a State, local government, Indian tribe, or foreign public entity, as those terms are defined in 2 CFR 175.25.
      - Includes:
         - A non-profit organization, including any non-profit institution of higher education, hospital, or tribal organization other than one included in the definition of Indian tribe at 2 CFR 175.25(b).
         - A for-profit organization.
   d. "Severe forms of trafficking in persons," "commercial sex act," and "coercion" have the meanings given at Section 103 of the TVPA, as amended (22 U.S.C. 7102).

PROHIBITION ON USING FUNDS UNDER GRANTS AND COOPERATIVE AGREEMENTS WITH ENTITIES THAT REQUIRE CERTAIN INTERNAL CONFIDENTIALITY AGREEMENTS. The recipient agrees to comply with the requirements in section 743 of the Financial Services and General Government Appropriations Act, 2015 (Division E of the Consolidated and Further Continuing Appropriations Act, 2015, Pub. L. 113-235):
1) The recipient may not require its employees, contractors, or sub-recipients seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting them from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

2) The recipient must notify its employees, contractors, or sub-recipients that the prohibitions and restrictions of any internal confidentiality agreements inconsistent with paragraph 1) of this award provision are no longer in effect.

3) The prohibition in paragraph 1) of this award provision does not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

4) If the Government determines that the recipient is not in compliance with this award provision, it:
   a. Will prohibit the recipient’s use of funds under this award, in accordance with section 743 of Division E of the Consolidated and Further Continuing Resolution Appropriations Act, 2015, (Pub. L. 113-235) or any successor provision of law; and
   b. May pursue other remedies available for the recipient’s material failure to comply with award terms and conditions.

14. **Data Collection.**

Data collection activities, if any, performed under this Grant are the responsibility of the recipient. Awarding agency support of the project does not constitute approval of the survey design, questionnaire content, or data collection procedures. The recipient shall not represent to respondents that such data are being collected for or in association with the awarding agency without the specific written approval of the cognizant awarding agency official. However, this requirement is not intended to preclude mention of the awarding agency support of the project in response to an inquiry or acknowledgment of such support in any publication of this data.

15. **Publications and Acknowledgement of Sponsorship.**

Publication of results of the research project in an appropriate professional journal is encouraged as an important method of recording and reporting scientific information.

The recipient agrees that in the release of information relating to the grant, such release shall include the following statement, “The project or effort depicted was or is sponsored by the Department of the Defense, Defense Threat Reduction Agency. The content of the information does not necessarily reflect the position or the policy of the federal government, and no official endorsement should be inferred.” For purposes of this provision, information includes news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association proceedings, symposia, etc.

When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing projects or programs funded in whole or in part with federal money, all recipients receiving federal funds, shall clearly state: (i) the percentage of total costs of the
program or project which will be financed with federal money, and (ii) the dollar amount of federal funds for the project or program.

16. **Authorization to Perform Activities Abroad.**

If the award recipient is a foreign institution, the recipient assures that it has been duly authorized to operate and do business in the country or countries in which the grant is to be performed, that it has obtained all appropriate licenses, permits, and approvals required in connection with the grant's proposed activities; and that it will fully comply with all the laws, decrees, labor standards and regulations of such country or countries during the performance of the grant. U.S. Government funds may not be used in support of a project which is prohibited by law in the country or countries in which it is undertaken. DTRA does not assume responsibility for the recipient's compliance with the laws and regulations of the country or countries in which the activities are to be conducted.

17. **Inconsistency between English Version and Translation of Grant.**

The foreign recipient shall ensure that all contract correspondence that is addressed to the U.S. Government is submitted in English or with an English translation. In the event of inconsistency between the terms of the grant and any translation thereof into another language, the meaning in the English language shall control.
All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Dear [Name],

We have consulted our implementing partners, and to the best of our knowledge, we do not anticipate incurring the stated level of tax in any upcoming transactions.

Please let me know if you need additional information. Also, please note that the primary administrative contact for this project is Ms. Emma Lane. Future emails should copy her, Dr. Aleksei Chmura and Ms. Evelyn Luciano - all copied here.

Cheers,
Jon

On Tue, Mar 27, 2018 at 7:55 AM, [Name] wrote:

Good Morning,

I just wanted to follow up to confirm EHA's receipt of the attached letter and e-mail string below. Kindly request EHA's response to the attached letter as soon as possible. Please do not hesitate to reach out with any questions at all.

Thank you and have a wonderful day!

Very Respectfully,

[Name]
Contractor
Grant Specialist
TENICA & Associates LLC
Defense Threat Reduction Agency
Office Phone

-----Original Message-----
From: CTR DTRA ACQ FIN AND LOG (US)
Sent: Friday, March 23, 2018 10:10 AM
To: Aleksei Chmura <chmura@ecohealthalliance.org>
Cc: andre@ecohealthalliance.org
Subject: [Non-DOD Source] Re: FIN: HDT-RA-17-1-0037 Inquiry
Subject: FW: HDTRA1-17-1-0037 Inquiry
Importance: High

Greetings,

As a reminder, responses due to the attached letter are requested no later than close of business today, 23 March. Please feel free to contact me with any questions.

Very Respectfully,

Contractor
Grant Specialist
TENICA & Associates LLC
Defense Threat Reduction Agency
Office Phone

-----Original Message-----
From CTR DTRA ACQ FIN AND LOG (US)
Sent: Monday, March 19, 2018 10:52 AM
To: Aleksei Chmura <chmura@ecohealthalliance.org < Caution-mailto:chmura@ecohealthalliance.org >>
Cc:

Subject: HDTRA1-17-1-0037 Inquiry
Importance: High

Greetings,

At the direction of the Grants Officer, please see the following attachment: Foreign Tax Letter. Please acknowledge receipt of this e-mail and its attachment. Please submit your response no later than Wednesday, March 21, 2018.

Feel free to contact me if you have any questions.
Very Respectfully,

[Name and title]

[Company and agency]

[Phone number]

--

Jonathan H. Epstein DVM, MPH, PhD

Vice President for Science and Outreach

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4467 (direct)
(b) (8) mobile

web: ecohealthalliance.org < Caution-http://www.ecohealthalliance.org/ >

twitter:

EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00001
   3. EFFECTIVE DATE 24 May 2017
   4. REQUISITION/PURCHASE REQ. NO. S726230X
   5. PROJECT NO. (Applicable)

6. ISSUED BY CODE HDTRA1
   7. ADMINISTERED BY (Other than above)
      OFFICE OF NAVAL RESEARCH-BOSTON
      GRACE TOWER, ROOM 627
      BOSTON, MA 02110-2603

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
   ANOVA ALLIANCE INC.
   2700 W 32ND STREET, STE 300
   CHICAGO, IL 60618

9A. AMENDMENT OF SOLICITATION NO.
800000
9B. DATED (SEE ITEM 11)

10A. MOD. OF CONTRACT/ORDER NO.
    HDTRA17110007
10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
   ❌
   The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer
   ❌
   is extended, ❌ is not extended.

   Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
   ❌ By completing Item 5 and returning ❌ copies of the amendment; ❌ By acknowledging receipt of this amendment on each copy of the offer received:
   ❌ by separate letter or telegram which includes reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE
   RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN
   REJECTION OF YOUR OFFER. By virtue of this amendment you desire to change an offer already submitted, such changes may be made by integrating letter,
   provided such integration letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
   ❌
   This item applies only to modifications of contracts/orders as described in Item 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
   CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying
   office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ❌ is not. ❌ is required to sign this document and return ❌ copies to the issuing office.

13. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter
   where feasible):
   Modification Control Number: 0(4)
   RQN: J3CTB23032A

The purpose of this modification is to correct the payment office by changing it to DFAS-Columbus North HD0037.

All other terms and conditions remain unchanged.

EXCEPTION TO SF 32
APPROVED BY OIRM 11-84
STANDARD FORM 30 (Rev. 11-04)

15A. NAME AND TITLE OF SIGNER (Type or print)
15B. CONTRACTOR/OFFEROR
15C. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
16B. UNITED STATES OF AMERICA
16C. DATE SIGNED

(Signature of person authorized to sign)
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM
The 'Payment will be made by' organization has changed from
DFAS COLUMBUS CENTER
DFAS-CO/SOUTH ENTITLEMENT OPERATIONS
P.O. BOX 182317
COLUMBUS OH 43218-2264

To
DFAS COLUMBUS CENTER
DFAS-00/NORTH ENTITLEMENT OPERATIONS
P.O. BOX 182266
COLUMBUS OH 43218-2266

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00002
3. EFFECTIVE DATE 01-Dec-2017
4. REQUISITION/PURCHASE REQ. NO. 07232K

5. PROJECT No.: (applicable)

6. ISSUED BY CODE HDTRA1
   DEFENSE THREAT REDUCTION AGENCY
   AC-702, JOHN L. HANDOK, ROADS, MSC-0291
   FORT BELVOIR, VA 20160-5001

6. ADMINISTERED BY CODE NQ2679
   (other than DoD)
   OFFICE OF NAVAL RESEARCH
   455 SUMMER STREET, ROOM 627
   BOSTON, MA 02115-2639

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
   ECONO-HEALTH ADVANCE INC
   DR. JEN EPPSTEIN
   490 W 39TH ST, 6TH FL
   NEW YORK, NY 10018-2017

9A. AMENDMENT OF SOLICITATION NO. 10A. MOD. OF CONTRACT/ORDER NO.
9B. DATED (SEE ITEM 11)
   HDTRA11710037
   X 10B. DATED (SEE ITEM 13)
   14-Apr-2017

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
   ☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer is extended. ☐ is not extended.
   Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
   □ By completing Items 8 and 15, and returning copies of the amendment to: By acknowledging receipt of this amendment on each copy of the offer submitted to you by separate letter or telegram which includes a reference to the solicitation and amendment numbers.
   ☒ By returning the amendment to the issuing office.
   REJECTION OF YOUR OFFER: By virtue of this amendment, you desire to withdraw your offer or submit a revised offer, you must do so in written form, provided the telegram or letter contains reference to the solicitation and this amendment and is received prior to the hour and date specified.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.
   IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14
   ☒ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
   X B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
   X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
   HDTRA Terms and Conditions
   D. OTHER (Specify type of modification and authority)

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Omitted by UCF section headings, including solicitation/contract subject matter
   where applicable)
   Modification Control Number: E(0)
   Please see SF 29 Continuation Page

15A. NAME AND TITLE OF SIGNER (Type or print)
   15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
   16B. UNITED STATES OR AMERICA
   16C. DATE SIGNED

(Signature of person authorized to sign)
(Signature of Contracting Officer)

20-Nov-2017

EXCEPT AS PROVIDED HEREIN, ALL TERMS AND CONDITIONS OF THE CONTRACT ENTERED INTO BASED ON THIS AMENDMENT 10A ARE HEREBY CHANGED, REVISED, AND ENERGIZED IN ITS ENTIRETY OR IN PART.

10A. MOD. OF CONTRACT/ORDER NO.
HDTRA11710037
10B. DATED (SEE ITEM 13)
14-Apr-2017

STANDARD FORM 30 (Rev. 10-83)
APPROVED BY OIRM 11-84
(20 Nov-2017)
STANDARD FORM 30 (Rev. 10-83)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. PO0002
3. EFFECTIVE DATE 01-Dec-2017
4. REQUISITION/PO UIC NO. 0U0000X
5. PROJECT No. (Applicable)

6. ISSUED BY CODE
   DEFENSE THREAT REDUCTION AGENCY-AC
   9725 JOHN J. KINGMAN ROAD, MSC 321
   FORT BELVOIR VA 22060-5201
   HDTRA1

7. ADMINISTERED BY CODE
   OFFICE OF NAVAL RESEARCH
   450 SUMMER STREET, ROOM 627
   BOSTON MA 02115-2698
   909279

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
   ECODA HEALTH ALLIANCE INC.
   DR. JON EISEN
   460 WORTH ST 9TH FL
   NEW YORK NY 10013 2017

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)
   10A. MOD. OF CONTRACT/ORDER NO.
   HDTRA1 11710037
   10B. DATED (SEE ITEM 13)
   14-Apr-2017

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

   [ ] The above numbered amendment is amended as set forth in Item 14. The bumbered date specified for receipt of Offer
   [ ] is extended.
   [ ] is not extended.

   Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
   (a) by completing Items 12 and 15 and returning _______ copies of the amendment; (b) by acknowledging receipt of this amendment on each copy of Offer, Offerer submits with offer;
   (c) by separate letter of acknowledgement to include a reference to the solicitation and amendment numbers. FAILURE TO ACKNOWLEDGE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS FROM TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.

   [X] This offerer's amendment to this offer does not change the offer already submitted; such change may be made by telephonic or letter, provided said telephonic or letter makes reference to this amendment and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

   See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS


   A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
      CONTRACT/ORDER NO. IN ITEM 10A.

   B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying
      office, appropriation data, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

   [X] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

   HDTRA Terms and Conditions

   D. OTHER (Specify type of modification and authority)

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter

   where feasible.)

   Modification Control Number: 094

   Please see SF 30 Continuation Page

---

EXCEPTION TO SF 30

APPROVED BY ORM 11-84

STANDARD FORM 30 (Rev. 10-83) 30-105-04

Prepared by GSA
FAR (48 CFR) 33.213
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

SF 30 CONTINUATION PAGE

RQN: HDTRA1723032 002

The purpose of this modification is to do the following:

1.) Note and provide acceptance of the EHA's revised budget of $4,085,686.00.
2.) Increase the award amount by $154,246.95 to reflect the budget increasing from $3,911,418.05 to $4,065,686.00.
3.) Provide additional funding to CLIN 0001 in the amount of $156,044.00 to subcontract CLIN 00013. ACRN - AG.
4.) Correct and update the Grant Funding Profile and Invoice Schedule.
5.) Update the Grant Points of Contact.
6.) Update the Issuing and Payment Offices.

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $91,758.55 from $2,408,373.45 to $2,500,132.00.
The 'issued by' organization has changed from
DEFENSE THREAT REDUCTION AGENCY/J4C
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201

To
DEFENSE THREAT REDUCTION AGENCY/AL-AC
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201

The 'payment will be made by' organization has changed from
DFAS COLUMBUS CENTER
DFAS-CO/NORTH ENTITLEMENT OPERATIONS
P.O. BOX 182266
COLUMBUS OH 43218-2266

To
DFAS COLUMBUS CENTER
DFAS-CO/NORTH ENTITLEMENT OPERATIONS
P.O. BOX 182317
COLUMBUS OH 43218-2317

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0001
The CLIN description has changed from FRBAA14-6-2-0050_R: Base Year to FRBAA14-6-2-0050_R: Three Year Base.
The estimated/max cost has increased by $91,758.55 from $2,408,373.45 to $2,500,132.00.  
The total cost of this line item has increased by $91,758.55 from $2,408,373.45 to $2,500,132.00.

CLIN 0002
The estimated/max cost has increased by $33,355.07 from $767,080.93 to $800,436.00.  
The total cost of this line item has increased by $33,355.07 from $767,080.93 to $800,436.00.

CLIN 0003
The estimated/max cost has increased by $29,134.33 from $735,963.67 to $765,098.00.  
The total cost of this line item has increased by $29,134.33 from $735,963.67 to $765,098.00.

SUBCLIN 000103 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000103</td>
<td>Incremental Funding</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incremental funding in the amount of $156,044.00.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>ACRN AC</td>
<td></td>
<td></td>
<td></td>
<td>$156,044.00</td>
</tr>
<tr>
<td>CIN: HDTRA17230320020003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000103:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $156,044.00 from $766,817.00 to $922,861.00.

SUBCLIN 000103:
Funding on SUBCLIN 000103 is initiated as follows:

ACRN: AC

CIN: HDTRA17230320020003
The following have been modified:

252.601-9000  GRANT POINTS OF CONTACT (MAY 2009)

a.  Grant Specialist:
    Name
    Defense Threat Reduction Agency/J4CO
    8725 John J. Kingman Road, MS 6201
    Fort Belvoir, VA 22060-6201
    telephone
    email address

b.  Grantee Business Office:
    Name:  Aleksei Chmura
    Title:  Authorized Organizational Representative
    Phone: (212) 380-4473
    E-mail:  chmura@ecohealthalliance.org

c.  Grantee Principal Investigator (PI):
    Name:  Dr. Jonathan H Epstein
    Title:  Associate Vice President, Conservation
    Phone: (212) 380-4467
    E-mail:  epstein@ecohealthalliance.org

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:

The amount of $922,861.00 is obligated for work to be performed during the period beginning with grant award and continuing through April 30th, 2018. Additional incremental funding planned, but not obligated, is:

Year 1 (FY17-18)  $0.00
Year 2 (FY18-19)  $833,274.00
Year 3 (FY19-20)  $743,997.00

The Government's liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 01, 2017</td>
<td>$76,903.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>---</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>2</td>
<td>September 01, 2017</td>
<td>76,905.08</td>
</tr>
<tr>
<td>3</td>
<td>October 01, 2017</td>
<td>76,905.08</td>
</tr>
<tr>
<td>4</td>
<td>November 01, 2017</td>
<td>76,905.08</td>
</tr>
<tr>
<td>5</td>
<td>December 01, 2017</td>
<td>76,905.08</td>
</tr>
<tr>
<td>6</td>
<td>January 01, 2018</td>
<td>76,905.08</td>
</tr>
<tr>
<td>7</td>
<td>February 01, 2018</td>
<td>76,905.08</td>
</tr>
<tr>
<td>8</td>
<td>March 01, 2018</td>
<td>76,905.08</td>
</tr>
<tr>
<td>9</td>
<td>April 01, 2018</td>
<td>76,905.08</td>
</tr>
<tr>
<td>10</td>
<td>May 01, 2018</td>
<td>76,905.08</td>
</tr>
<tr>
<td>11</td>
<td>June 01, 2018</td>
<td>76,905.08</td>
</tr>
<tr>
<td>12</td>
<td>July 01, 2018</td>
<td>76,905.12</td>
</tr>
</tbody>
</table>

**The amounts listed are estimates; invoices should be submitted for actual cost incurred.**

The following have been deleted:

252.232-7007  
252.232-7007

(End of Summary of Changes)
<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>3. EFFECTIVE DATE</th>
<th>4. RECEIPT OF PURCHASE REQ. NO.</th>
<th>5. CONTRACT ID/ CODE</th>
<th>6. ISSUED CODE</th>
<th>7. ADMINISTERED BY CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00003</td>
<td>25-May-2018</td>
<td>MIST102621525</td>
<td>1</td>
<td>HDTRA1</td>
<td>9</td>
</tr>
<tr>
<td>DEFENSE THREAT REDUCTION AGENCY-ACO</td>
<td>FT BELVOIR VA 22045-5001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. NAME AND ADDRESS OF CONTRACTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECOHEALTH ALLIANCE INC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MR. ALHAFLOUTA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>460 W 35TH ST 3RD FL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEW YORK NY 10018-2317</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CODE 3MM38</td>
<td>FISCAL CODE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ The above numbered solicitation is amended as set forth in Item 9.</td>
<td>☐ is extended, ☐ is not extended.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offer to acknowledge receipt of this amendment prior to the bound and date specified in the solicitation are amended by one of the following methods:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ By completing Items 8 and 10, and returning copies of the amendment to:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ By acknowledging receipt of this amendment on each copy of the offer submitted:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ By the submission of a telegraphic message including reference to the solicitation and amendment numbers. ☐ FAILURE TO ACKNOWLEDGE MAY RESULT IN REJECTION OF YOUR OFFER.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. ACCOUNTING AND APPROPRIATION DATA (If required)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[See Schedule]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDTRA Terms and Conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. OTHER (Specify type of modification and authority)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. IMPORTANT: Contractor ☑ is not. ☐ is required to sign this document and return copies to the issuing office.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modification Control Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RQN: HDTRA1723032 03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The purpose of this modification is to:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Note and provide acceptance of the overall revised budget of $4,115,665.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Increase the award amount by $50,000.00 to reflect the budget increasing from $4,065,665.00 to $4,115,665.00.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Provide funding in the amount of $408,006.00 on subCLIN 0000103 in support of Year 2 activities on CLIN 0001.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Provide funding in the amount of $475,268.00 on subCLIN 0000104 in support of Year 2 activities on CLIN 0002.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Update the invoice schedule and Grant Officer’s Representative (GOR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Update the Terms and Conditions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15A. NAME AND TITLE OF SIGNER (Type or print)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Signature of person authorized to sign)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15B. CONTRACTOR/OFFEROR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15C. DATE SIGNED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Type or print]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16B. SIGNED STATES OF AMERICA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Signature of Contracting Officer)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16C. DATE SIGNED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-May-2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $50,000.00 from $2,500,132.00 to $2,550,132.00.
The issuing organization has changed from:
DEFENSE THREAT REDUCTION AGENCY/AL-AC
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201
to
DEFENSE THREAT REDUCTION AGENCY/AL-ACO
8725 JOHN J. KINGMAN RD
FT BELVOIR VA 22060-6201

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0001
The CLIN extended description has changed from:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and
DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.

To:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and
DTRA Terms and Conditions for Grant Awards dated 6 April 2018 at Exhibit B.

The estimated/max cost has increased by $50,000.00 from $2,500,132.00 to $2,550,132.00.
The total cost of this line item has increased by $50,000.00 from $2,500,132.00 to $2,550,132.00.

SUBCLIN 000103
The CLIN extended description has changed from:

Incremental funding in the amount of $156,044.00.

To:

Incremental funding in the amount of $564,050.00.
CLIN 0002
The CLIN extended description has changed from:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.

To:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 6 April 2018 at Exhibit B.

CLIN 0003
The CLIN extended description has changed from:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.

To:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 6 April 2018 at Exhibit B.

SUBCLIN 000104 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000104</td>
<td>Incremental Funding</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incremental funding in the amount of $883,274.00.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ESTIMATED COST $0.00

ACRN AD
CIN: HDTRA17230320300104

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000104:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $883,274.00 from $922,861.00 to $1,806,135.00.

SUBCLIN 000103:

AC: 044315 097 0134 000 N 20162018 D 34HQ 0901515BR_KD_BP_OT 1618_0134_34HQ_SCNCT DTRA 410 (CIN HDTRA17230320020003) was increased by $408,006.00 from $156,044.00 to $564,050.00

SUBCLIN 000104:
Funding on SUBCLIN 000104 is initiated as follows:

ACRN: AD

CIN: HDTRA172303203000104

Acctng Data: 044315 097 0134 000 N 20172019 D 34HQ 0901515BR KD BP2 OT 1719 0134 34HQ SCNCT DTRA 410

Increase: $475,268.00

Total: $475,268.00

The following have been modified:

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name [Redacted]
   Defense Threat Reduction Agency/J4CO
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone [Redacted]
   Email Address [Redacted]

b. Grantee Business Office:
   Name: Aleksei Chmura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   E-mail: chmura@ecohealthalliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. Jonathan H Epstein
   Title: Associate Vice President, Conservation
   Phone: (212) 380-4467
   E-mail: epstein@ecohealthalliance.org
d. Grants Officer’s Representative (GOR) for this Grant is:

Name: [Redacted]
Defense Threat Reduction Agency/PI-CTB
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201

telephone [Redacted]
email address [Redacted]

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.
252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:

The amount of $1,806,135.00 is obligated for work to be performed during the period beginning with grant award and continuing through April 30th, 2019. Additional incremental funding planned, but not obligated, is:

Year 3 (FY19-20) $743,997.00

The Government’s liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>PAYMENT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>May 31, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>2</td>
<td>June 30, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>3</td>
<td>July 31, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>4</td>
<td>August 31, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>5</td>
<td>September 30, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>6</td>
<td>October 31, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>7</td>
<td>November 30, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>8</td>
<td>December 31, 2018</td>
<td>$73,606.17</td>
</tr>
<tr>
<td>9</td>
<td>January 31, 2019</td>
<td>$73,606.16</td>
</tr>
<tr>
<td>10</td>
<td>February 28, 2019</td>
<td>$73,606.16</td>
</tr>
<tr>
<td>11</td>
<td>March 31, 2019</td>
<td>$73,606.16</td>
</tr>
<tr>
<td>12</td>
<td>April 30, 2019</td>
<td>$73,606.16</td>
</tr>
</tbody>
</table>

*The amounts listed above are estimates; invoices should be submitted for actual costs incurred.

SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work</td>
<td>8</td>
<td>01-MAY-2016</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and</td>
<td>17</td>
<td>31-OCT-2016</td>
</tr>
<tr>
<td></td>
<td>Conditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work</td>
<td>8</td>
<td>01-MAY-2016</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and Conditions</td>
<td>18</td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00004
3. EFFECTIVE DATE 04-Apr-2019
4. REQUISITION/PURCHASE REQ. NO. 20220606

5. PROJECT NO. (If applicable)
6. ISSUED BY CODE HDTRA1
   DEFENSE THREAT REDUCTION AGENCY
   8725 JOHN HANNOVER ROAD, MSC 0201
   FORT BELVOIR VA 20161-5001

7. ADMINISTERED BY (Other than Agency) CODE N22679
   OFFICE OF NAVAL RESEARCH
   450 SUMMER STREET, ROOM 627
   BOSTON MA 02110-2605

8. NAME AND ADDRESS OF CONTRACTOR
    (No., Street, County, State and Zip Code)
    ECOHEALTH ALLIANCE INC
    468 W 50TH STREET
    NEW YORK NY 10020-1017

9. AMENDMENT OF SOLICITATION NO.
9A. AMENDED BY (See Item 11)

X 10A. MOD. OF CONTRACT/ORDER NO.
X 10B. DATED (See Item 13)

CODE 3MNL8
11. FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
   The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is
   extended. ☐ is not extended.
   Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following
   methods: (a) completing Items 8-15, and returning an appropriate copy of the amendment to the Contracting Officer; or (b) by separate letter or telegraph which includes a reference to the solicitation and amendment numbers. FAILURE TO ACKNOWLEDGE TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HURD AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. For value of this amendment you desire to change or modify this solicitation: [X] value of the order is increased, [ ] is not increased.
   Provided such telegraphic acknowledgment is received prior to the time and date of the opening of proposals.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
    See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.
    IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
   CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying
   office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
   [X] 43.103(b)
   [ ] OTHER

D. OTHER (Specify type of modification and authority)
   Grant Terms & Conditions for 10a. All other terms and conditions remain unchanged.

E. IMPORTANT: Contractor ☐ is not. ☐ is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter
   where feasible)
   Modification Control Number: 20220606
   The purpose of this modification is to incrementally fund HDTRA1-17-1-0037 to EcoHealth Alliance grant "Serological
   Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular
   Malaysia" in the amount of $743,597.00

15A. NAME AND TITLE OF SIGNER (Type or print)

☐ 15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
   [ ] CONTRACTING OFFICER
   TEL. [ ] ( )
   EMAIL. [ ]

15B. CONTRACTOR/Offeror

☐ 15C. DATE SIGNED
   [ ] 04-Apr-2019

16A. UNITED STATES OR AMERICA

16B. DATE SIGNED

☐ 16C. DATE SIGNED
   [ ] 04-Apr-2019

signature of person authorized to sign

STANDARD FORM 30 (Rev. 10-03)
APPROVED BY DIBM 11-84
30-105-04
Prescribed by OSA
FAR (48 CFR) 32.243
SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000105 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000105</td>
<td>Incremental Funding</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>Incremental Funding in the amount of 743,997.00</td>
<td></td>
<td></td>
<td></td>
<td>$743,997.00</td>
</tr>
</tbody>
</table>

ACRN AE
CIN: HDTRA17230320006

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000105:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2017 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION 8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>30-APR-2020</td>
<td></td>
<td>AGENTY J3CTB FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following Delivery Schedule item for CLIN 0002 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2017 TO 30-APR-2020</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-BT</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8275 JOHN J. KINGMAN RD #6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2017 TO 30-APR-2021</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-BT</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8275 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0003 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2021 TO 30-APR-2022</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8275 JOHN J. KINGMAN RD #6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2021 TO 30-APR-2022</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8275 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $743,997.00 from $1,800,135.00 to $2,550,132.00.

SUBCLIN 000105:
Funding on SUBCLIN 000105 is initiated as follows:

ACRN: AE
CIN: HDTRA17230320006
Acting Data: 044315 097 01 34 000 N 20192021 D 34000 0901515BR_KD_BP_TB_19
1921_0134_3400_SCNCT DTRA 410
Increase: $743,997.00
Total: $743,997.00

The following have been modified:

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/I4CO
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email: [Redacted]

b. Grantee Business Office:
   Name: Aleksei Chimura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   Email: chimura@ecohealthalliance.org
c. Grantee Principal Investigator (PI):
   Name: Dr. Jonathan H Epstein
   Title: Associate Vice President, Conservation
   Phone: (212) 380-4467
   E-mail: epstein@cohenthallnace.org

252.601-9001 GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)

d. Grants Officer’s Representative (GOR) for this Grant is:
   Name:
   Defense Threat Reduction Agency/PI-CTB
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone:
   Email address:

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.
7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

252.632-9000   GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:

The amount of $2,550,132.00 is obligated for work to be performed during the period beginning with grant award and continuing through April 30th, 2020.

We are currently incrementally funding CLIN 1 in the amount of $743,997.00.

CLIN 1 is now fully funded.

The Government’s liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE SCHEDULE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVOICE NO.</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>P00005</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. EFFECTIVE DATE</td>
<td>11-Apr-2019</td>
</tr>
<tr>
<td>4. REQUIREMENT/PURCHASE REQ. NO.</td>
<td>X</td>
</tr>
<tr>
<td>5. PROJECT NO (if applicable)</td>
<td></td>
</tr>
</tbody>
</table>

| 6. ISSUED BY CODE             | HDTRA1 |
| 7. ADMINISTERED BY CODE       | N62579 |

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

ECOHEALTH ALLIANCE INC
MTA HEADQUARTERS
460 WORTH ST., F4L
NEW YORK, NY 10001-2017

CODE 3NV03
FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SORICATIONS
☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended, is not extended.

Order must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
- return completed Item 8 and 15, and returning additional copies of the amendment
- acknowledge receipt of this amendment on each copy of the offer submitted
- by separate letter to an authorized representative of the offerer
- by an electronic transmission which includes a reference to the solicitation and amendment numbers, DATE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER

In the event of amendments, the offeror or offeror's agent shall submit a signed amendment to the contract office. A copy of the amendment shall be attached to the amendment and shall be maintained by the contracting officer in the contract file.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☑ is not. ☐ is required to sign this document and return ______ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)

Modification Control Number: □□□□□
Change Task 5 in the SOW.

15A. NAME AND TITLE OF SIGNER (Type or print)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

15B. CONTRACTOR/OFFEROR

16B. UNITED STATES OR AMERICA

15C. DATE SIGNED 11-Apr-2019

16C. DATE SIGNED

SIGNATURE OF CONTRACTING OFFICER

EXCEPTION TO FAR 30

STANDARD FORM 30 (Rev. 10-83)

30-105-04

APPROVED BY OIRM 11-84

STANDARD FORM 30 (Rev. 10-83)

Prescribed by OSA

FAR (48 CFR) 33.243
SECTION 1 - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work</td>
<td>8</td>
<td>01-MAY-2016</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and Conditions</td>
<td>18</td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work</td>
<td>8</td>
<td>11-APR-2019</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and Conditions</td>
<td>18</td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
## AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

### 2. AMENDMENT/MODIFICATION NO. P00006

### 3. EFFECTIVE DATE 23-Mar-2020

### 4. REQUISITION PURCHASE REQ. NO. 0000012300

### 5. PROJECT NO. (Applicable)

### 6. ISSUED BY DEFENSE THREAT REDUCTION AGENCY-AC

925 JOHN L. KINMON ROAD, MSC 2001
FORT Belvoir VA 20160-5201

### 7. ADMINISTERED BY OFFICE OF NAVAL RESEARCH-BOSTON

485 SUMMER STREET, ROOM 627
BOSTON MA 02115-2076

### 8. NAME AND ADDRESS OF CONTRACTOR

ECOMIC HEALTH ALLIANCE INC
MR. ALEX RICHARDS
400 W WITH ST. 7TH FL.
NEW YORK NY 10017-2017

### 9. AMENDMENT OF SOLICITATION NO.

### 9A. AMENDED (SEE ITEM 11)

### 9B. DATED (SEE ITEM 11)

### 10A. MGD. OF CONTRACT/ORDER NO.

### 10B. DATED (SEE ITEM 13)

### 14-Apr-2017

### FACILITY CODE 3MVJ8

### 11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offers is extended. ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:

1. By completing Items 8 and 13, and returning copies of the amendment.
2. By acknowledging receipt of the amendment on each copy of the offer submitted, with a statement that the offeror is in accordance with the amendment.

REJECTION OF YOUR OFFER: If you do not receive an offer, you may submit a supplement to this amendment, provided such supplement is in compliance with the instruction and this amendment, and is received prior to the opening hour and date specified.

### 12. ACCOUNTING AND APPROPRIATION DATA (If required)

#### 13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.

IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(c).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY:

D. OTHER: (Specify type of modification and authority)

DTRA Terms and Conditions for Grants Awards, Section 5

### 14. DESCRIPTION OF AMENDMENT/MODIFICATION

(Identify section headings, including solicitation/contract subject matter where feasible)

Modification Control Number: 00

The purpose of this modification is:

1. Combine the scope and value from Option CLINS 0002 and 0003 into base CLIN 0001.
2. Extend the POP of CLIN 0001 from 4/30/20 to 4/30/22 at no additional cost to the Government.
3. Update the Grant POC.
4. Update the grant funding profile and invoice schedule.

### 15. NAME AND TITLE OF SIGNER (Type or print)

(Signature of person authorized to sign)

### 15A. CONTRACTOR/OFFEROR

15C. DATE SIGNED

### 15B. CONTRACTOR/OFFEROR

### 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

### 16B. UNITED STATES OF AMERICA

### 16C. DATE SIGNED

BY

(Completion of Contracting Officer)

23-Mar-2020

---

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84

STANDARD FORM 30 (Rev. 10-83)
Proscribed by GSA
FAR (48 CFR) 53.243
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $1,565,534.00 from $2,550,132.00 to $4,115,666.00.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0001
The estimated/max cost has increased by $1,565,534.00 from $2,550,132.00 to $4,115,666.00.
The total cost of this line item has increased by $1,565,534.00 from $2,550,132.00 to $4,115,666.00.

CLIN 0002
The CLIN extended description has changed from:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 6 April 2018 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0002 HAS BEEN COMBINED WITH CLIN 0001. THIS OPTION IS NOT TO BE EXERCISED.

The estimated/max cost has decreased by $800,436.00 from $800,436.00 to $0.00.
The total cost of this line item has decreased by $800,436.00 from $800,436.00 to $0.00.

CLIN 0003
The CLIN extended description has changed from:

Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. In accordance with the following attachments: SOW at Exhibit A and DTRA Terms and Conditions for Grant Awards dated 6 April 2018 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0003 HAS BEEN COMBINED WITH CLIN 0001. THIS OPTION IS NOT TO BE EXERCISED.
The estimated/max cost has decreased by $765,098.00 from $765,098.00 to $0.00. The total cost of this line item has decreased by $765,098.00 from $765,098.00 to $0.00.

SUBCLIN 000106 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000106</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Funding in support of CLIN 0001

ESTIMATED COST

ACRN AF
CIN: HDTRA10342010001

$1,565,534.00

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000106:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2017</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>30-APR-2020</td>
<td></td>
<td>AGENCY/CT-BT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8275 JOHN J. KINGMAN RD #6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 01-MAY-2017</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>IHDTRA1</td>
</tr>
<tr>
<td>30-APR-2022</td>
<td></td>
<td>AGENCY/CT-BT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8275 JOHN J. KINGMAN RD #6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $1,565,534.00 from $2,550,132.00 to $4,115,666.00.

SUBCLIN 000106:
Funding on SUBCLIN 000106 is initiated as follows:

ACRN: AF

CIN: HDTRA10342010001

Accounting Data: 044315 097 0134 000 N 20202022 D 3400 0901515BR_KD_BP_TB_20
2022_0134_3400_SCNCT DTRA 410

Increase: $1,565,534.00

Total: $1,565,534.00

The following have been modified:

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/J4CO
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email: [Redacted]

b. Grantee Business Office:
   Name: Aleksei Chmura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   Email: chmura@ecohealthalliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. Jonathan H Epstein
   Title: Associate Vice President, Conservation
   Phone: (212) 380-4467
   Email: epstein@ecohealthalliance.org

252.632-9000 GRANT FUNDING PROFILE (MAR 2012)
FUNDING PROFILE:

The amount of $4,115,666.00 is obligated for work to be performed during the period beginning with grant award and continuing through April 30th, 2022.

The Government's liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>May 31, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>2</td>
<td>June 30, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>3</td>
<td>July 31, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>4</td>
<td>August 31, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>5</td>
<td>September 30, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>6</td>
<td>October 31, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>7</td>
<td>November 30, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>8</td>
<td>December 31, 2019</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>9</td>
<td>January 31, 2020</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>10</td>
<td>February 28, 2020</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>11</td>
<td>March 31, 2020</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>12</td>
<td>April 30, 2020</td>
<td>$61,999.75</td>
</tr>
<tr>
<td>13</td>
<td>31-May-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>14</td>
<td>30-Jun-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>15</td>
<td>31-Jul-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>16</td>
<td>31-Aug-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>17</td>
<td>30-Sep-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>18</td>
<td>31-Oct-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>19</td>
<td>30-Nov-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>20</td>
<td>31-Dec-20</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>21</td>
<td>31-Jan-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>22</td>
<td>28-Feb-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>23</td>
<td>31-Mar-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>24</td>
<td>30-Apr-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>25</td>
<td>31-May-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>26</td>
<td>30-Jun-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>27</td>
<td>31-Jul-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>28</td>
<td>31-Aug-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>29</td>
<td>30-Sep-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>30</td>
<td>31-Oct-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>31</td>
<td>30-Nov-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>32</td>
<td>31-Dec-21</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>33</td>
<td>31-Jan-22</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>34</td>
<td>28-Feb-22</td>
<td>$65,230.58</td>
</tr>
<tr>
<td>35</td>
<td>31-Mar-22</td>
<td>$65,230.58</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>30-Apr-22</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein
CBEP-Thrust Area 6, CC WMD

Statement of Work

Project Title: Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia

Document Date: April 11 2019

Objective: The objective of this project is to enhance capacity within the Malaysia government to characterize the distribution of and detect spillover of novel and known henipaviruses and filoviruses, (both groups include high consequence zoonotic pathogens) in indigenous populations and farms in Peninsular Malaysia. Current surveillance strategies for novel zoonotic viruses rely exclusively on molecular detection tools, but Nipah and Ebola viruses are present at low prevalence in bat species which makes infected individuals difficult to detect. By establishing a multiplexed serological assay developed to detect antibodies against any henipaviruses and filoviruses, the Government of Malaysia (GoM) will more effectively be able to determine the distribution of these high-impact viruses in wildlife reservoirs and detect evidence of spillover in at-risk human or livestock populations. This enhancement of human and animal surveillance in all three sectors (wildlife, livestock and human health) and training of Malaysian scientists utilizes a One Health approach and will help reduce risk of zoonotic disease emergence and spread by accelerating detection and response. These activities fulfill DTRA CBEP’s mandate and are also complementary to and supportive of the aims of the USAID EPT program and the Global Health Security Agenda.

Scope: This research includes transferring state-of-the-art serological reagents and Luminex-based microsphere beaded technology that will allow the Government of Malaysia to use a One Health approach to conduct serological surveillance for all known and unknown henipaviruses and filoviruses in wildlife, domestic animals, and humans. The study will test archived human and wildlife serum samples which are linked to PCR-tested oral, rectal, or urogenital swab samples (collected and tested under the ongoing USAID Emerging Pandemic Threats: PREDICT program and a University of Malaya study of Orang Asli healthy populations and acutely febrile hospital cases). It will also conduct a new study looking at henipavirus antibodies in livestock and farm workers and wildlife near the farms, as well as an expanded Orang Asli study focused on hunting communities living in the forest. The grantee will investigate spillover of these pathogens by screening wildlife reservoirs (e.g. bats and nonhuman primates), people, and livestock for IgG antibodies to henipaviruses and filoviruses, while also continuing to develop and transfer additional tests that will detect antibodies against novel viruses in these groups.

Our team will focus on the following major goals and milestones:
1. Improve the Government of Malaysia’s capacity to conduct serological surveillance for henipaviruses and filoviruses in human and animal populations, using a One Health approach.
   - Transfer Luminex-based technology into government and university diagnostic labs in three key sectors (wildlife, livestock, and human health); conduct trainings for staff to be able to screen samples, interpret results, and perform confirmatory assays; train local graduate students; and publish and share findings among GoM partners.
2. Determine the host distribution and seroprevalence of henipaviruses and filoviruses in wildlife (e.g. bat) populations in Peninsular Malaysia associated with Orang Asli communities and livestock farms.
Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein
CBEPM-Thrust Area 6, CC WMD

- Conduct cross-sectional serological studies of humans and animals for henipaviruses and filoviruses by testing sera from new samples collected under this project and archived samples from PREDICT. Wildlife sampling will be conducted jointly with the Dept. of Wildlife and National Parks (DWNP); livestock sampling with DVS and UPM; and human sampling with MoH. These activities provide opportunity for One Health-based disease surveillance; threat reduction; and capacity building within the Government of Malaysia.

3. Conduct surveillance for IgG antibodies against filoviruses and henipaviruses in people and domestic animals which may indicate spillover from wildlife reservoirs. Sampling activities will focus on Orang Asli communities and farms in Peninsular Malaysia and will be conducted jointly with the Ministry of Health’s National Public Health Laboratory (NPHL), DWNP, and the University Putra Malaysia under the Department of Veterinary Services (DVS). Serological surveillance will allow the GoM to focus limited resources and develop interventions to reduce threat from viral outbreaks in at-risk animal and human populations.
  - Qualitative studies (e.g. questionnaires) detailing human-animal contact where sampling occurs will characterize high-risk behaviors and interfaces;
  - Sampling human, wildlife, and domestic animal populations in Orang Asli forest communities that practice hunting;
  - Sampling domestic animals and farm workers on large and small-scale farms and associated wildlife to identify evidence of spillover.

Our research will be focused on building capacity within the Government of Malaysia to conduct serological surveillance in human and animal populations in Peninsular Malaysia where people and animals are believed to have high levels of contact. Collaborators from the Government of Malaysia (GoM)’s Department of Wildlife and National Parks (DWNP), the Ministry of Health’s National Public Health Laboratory (NPHL), the Department of Veterinary Service’s University Putra Malaysia (UPM), University of Malaysia (UM), The Uniformed Services University, Maryland (USU), Conservation Medicine, Ltd. (CM), The US Navy Medical Research Center, Asia (NMRC-A), and Duke-NUS Graduate Medical School, Singapore will play active roles in this research. EHA’s history of successful collaboration with DWNP, MoH, and DVS under prior research projects and most recently through PREDICT, as well as having a Memorandum of Agreement with the aforementioned institutions, gives us confidence that we will be able to achieve the aims of this proposal (also see letters of collaboration).

The duration of the proposed project is three years, with optional 4th and 5th years containing follow-up Orang Asli studies and farm studies so that we have longitudinal data. These option years will significantly strengthen the overall study by enhancing our ability to detect temporal patterns of infection in bat and other animal populations as well as additional opportunity to detect spillover in humans or livestock. Through these proposed activities we would create enhanced One Health surveillance for known and novel henipaviruses and filoviruses in human and animal populations in Peninsular Malaysia, an emerging disease hotspot. The proposed activities would significantly support Malaysia’s surveillance priorities, DTRA CBEPM Thrust Area 6 objectives, the Global Health Security Agenda (GHSA), and the USAID Emerging Pandemic Threats program by allowing the Government of Malaysia to more rapidly detect infections of high impact zoonotic agents and develop effective interventions to prevent viral
outbreaks and reduce human and animal mortality, thereby reducing the threat from these high consequence viral agents.

Background:
Nipah virus (NiV), Ebola virus (EBOV) and Marburg Virus (MARV) are emerging zoonotic viruses belonging to the genera *Henipavirus* (Family *Paramyxoviridae*), *Ebolavirus* and *Marburgvirus* (both Family *Filoviridae*) and they have each caused outbreaks in people with high mortality rate. These viruses are listed as a select agents by HHS and USDA as pathogens of significant threat to both human and animal health. Nipah virus (NiV) is a zoonotic paramyxovirus (genus *Henipavirus*) with pandemic potential that first emerged on a pig farm in Malaysia in 1997 and led to a human outbreak with more than 260 cases and 40% mortality. Old world frugivorous bats, particularly Genus *Pteropus* (Family *Pteropodidae*), are natural reservoirs for a range of henipaviruses, including Nipah virus. Filoviruses circulate both in Africa and Southeast Asia, and have also been linked to bat reservoirs. In Africa, EBOV and Sudan virus (SUDV) have caused multiple human outbreaks with mean mortality rates between 50% and 90%. The current EBOV outbreak in West Africa, by far the largest Ebolavirus epidemic in history, has had more than 28,600 cases, primarily in Sierra Leone, Guinea, and Liberia, with a mortality rate of 40%. The outbreak in West Africa has prompted the Government of Malaysia to determine whether filoviruses are circulating in bat species resident in Peninsular Malaysia. Malaysia’s experience with Nipah virus, existing technical expertise, and its current commitment to using a One Health approach to disease surveillance (e.g., surveillance for novel zoonoses under PREDICT in all three sectors: wildlife, livestock, and human health) make it an ideal place to establish an advanced serological platform for detection of henipavirus and filovirus antibodies in wildlife and at-risk livestock and human populations.

Preliminary data: Serological studies of Nipah virus and Ebola virus using the Luminex-based platform. Studies conducted by our group have shown that NiV viral prevalence in pteropid bats is low (~1%-3%) and there is temporal variation to shedding. Mean seroprevalence in *P. vampyrus*, which is found across Peninsular Malaysia was 32% (n=253; range 16.7% - 42.4%). In Bangladesh, we conducted a 6-year longitudinal study of *Pteropus giganteus* using the Luminex-based platform to screen bats for IgG antibodies against both Nipah virus and Ebola virus Zaire. Between 20% and 80% of adult *Pteropus giganteus* were NiV seropositive, while between 20% and 50% were EBOV seropositive (Epstein et al., in prep). Nipah virus infections appear to peak in June/July while EBOV appears to peak in December (see also Project Narrative). We found a diversity of genetic strains of Nipah virus in *P. giganteus* (Epstein et al., in prep), and viruses which are NiV-like but distinct henipaviruses. Non-neutralizing antibodies against NiV-like viruses found in goats, cattle, and pigs in Bangladesh suggests that spillover from bats to domestic animals occurs and that there is a broad spectrum of henipaviruses circulating in bats. RESTV RNA was recently identified by our group in *Mimeopterus schreibersii*, a common insectivorous bat. We also detected RESTV antibodies in two fruit bat species: *Cynopterus brachyotis* and *Pteropus vampyrus*: the latter is a NiV reservoir. In Bangladesh, we found antibodies against EBOV and RESTV in 3.5% of *Rousettus leschenaultii* (n=141). *M. schreibersii*, *R. leschenaultii*, and two *Pteropus* species, including *P. vampyrus* all occur in Malaysia, yet there is no data available regarding filoviruses in wildlife in Malaysia. The possibility that multiple henipaviruses or filoviruses capable of infecting people or livestock
Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein CBEP-Thrust Area 6, CC WMD
to be circulating in bats in Malaysia makes enhanced surveillance and early detection of these high consequence viruses critically important for reducing their threat to public health.

PREDICT
Between 2009 and 2015, EHA, CM, and the Department of Wildlife and National Parks (DWNP) have collected and archived samples, including serum, from more than 1,400, animals including bats, rodents, and macaques – all from areas where people and wildlife come into contact. While oropharyngeal, urogenital, and rectal swab samples have been or will be screened using PCR assays for viral families (including paramyxoviruses and filoviruses), corresponding sera remain archived (and untested) and will be made available for this project to test them using the Luminex-based assay.

University Malaya study of acutely ill Orang Asli patients.
We will also have access to archived and newly collected Orang Asli samples collected from acutely febrile patients at Gombak Hospital that serves the Orang Asli communities, under a separate ongoing disease study at the University of Malaya (Prof. [9][10] and NMRC-A (Co-PI). This study just received renewed funding to continue sampling febrile patients and expand to sample asymptomatic Orang Asli from communities across a land-use gradient, which will include individuals without animal exposure. Under this proposal we will screen sera collected from well characterized Orang Asli patients and community members using the Luminex-based platform.

Key references (Further references are available in the Project Narrative):


Tasks/Scientific Goals: (Format: Year #(s). Task #. Sub-task#)

Task 1: (Year 1-OY5). Enhance capacity within Malaysia to conduct serological surveillance for henipa- and filoviruses. The GoM has been engaged in using a One-Health approach to zoonotic disease surveillance since the NiV outbreak in 1998 and most recently via collaborations with EHA under PREDICT. However, current GoM and PREDICT surveillance activities in humans, wildlife and domestic animals are based on broad molecular assays designed to identify novel viruses (including henipaviruses and filoviruses). One of the challenges with this approach is that Nipah, Ebola, and related viruses tend to be acute and asymptomatic infections in bats, making detection of viral RNA challenging. IgG antibodies,
however, persist in bats (as well as people and livestock), reducing the sampling effort necessary to identify exposed or infected individuals in a population and also allowing for detection of asymptomatic carriers. Adding a serological component to existing surveillance will greatly enhance the government’s ability to detect both known and unknown henipa- and filoviruses in wildlife, domestic animals and human populations at risk for spillover. To establish this capacity, we will provide a BioRad Bio-Plex 200 machine with computer console to NPHL and DWNP. We will provide all reagents for henipa- and filovirus assays. Following Bio-Plex installation, we will conduct a 10-day training course for lab technicians at DWNP and another at NPHL. UM has a Luminex machine and will receive assay reagents and lab staff will participate in one of the training workshops. 1 PhD student at USU will develop additional assay reagents in Y1-OY5. We will identify either 1 PhD or 2 Masters’ students at UM and 1 PhD student at UPM to train under this project. We will provide additional training to technical staff from GoM partner labs in viral pseudo-type assay development at USU. The grantee shall:

1.1.1. Transfer BioRad Bio-Plex 200 to NPHL and DWNP labs;
1.1.2-1.1.2. Transfer Luminex-based filovirus and henipavirus reagents to DWNP, NPHL, and UM labs; the grantee will provide a BioRad Bio-Plex 200 to UPM and conduct a 10-day training workshop in Y2.
1.1.3.-2.1.3 Train lab staff to use Luminex-based assays
1.1.4- OY5.1.4 Supervise 1 UM PhD or 2 Masters’ students (Y1-3), and 1 UPM PhD student
1.1.5-OY5.1.5 Convene the Science Advisory Group (annually in KL);
1.1.6-2.1.6 Develop a database for serology results and sample metadata; establish sample repository at partner labs.

Task 2. (Y1-OY5) Develop and validate Luminex-based reagents to detect henipa- and filovirus antibodies. At USU, we will engineer soluble and secreted versions of henipa- and filovirus glycoproteins, expressed in mammalian cell culture systems to accurately reflect proper synthesis including their assembly and processing into properly glycosylated higher order complexes. Constructs will be designed and tested in pilot experiments for expression and analysis, and then used to establish stably expressing cell lines. Preparative amounts of the various soluble viral glycoproteins will be made using serum-free culture conditions in suspension culture, and proteins are purified using the appropriate tag protocol (either S-tag or double strep tag (TST)) by affinity chromatography, followed by concentration and size exclusion chromatography. We will test the utility of each individual glycoprotein by Luminex, ELISA and Western blotting then provide all necessary reagents to partner labs to accomplish the testing under this project. The grantee shall:

1.2.1-2.2.1 produce Mojaiing virus (MojV) and African GH-M74a G glycoproteins; Bundibugyo virus (BDBV), Tai Forest virus (TAFV), Lloviu virus (LLOV), MARV Ravn, SUDV, SUDV GpAmuucin, RESTV (monkey), and RESTV (porcine) Gp glycoproteins.
1.2.2-3.2.2 use the completed viral glycoprotein preparations and produce polyclonal rabbit serum to each individual glycoprotein; test the utility of each individual glycoprotein by Luminex-based, ELISA and Western blotting assays;
1.2.3 Provide N protein reagents to detect novel henipa- and filoviruses to partner labs.
1.2.4-OY5.2.4: If novel henipa- or filoviruses are detected using molecular assays (under
Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia / Epstein

CBEP-Thrust Area 6, CC WMD

PREDICT), grantee may develop new reagents for antibodies against these viruses and negative sera will be re-screened.

Task 3. Screen archived serum samples from wildlife and Orang Asli for henipa- and filovirus antibodies using a Luminex-based platform (Y1-Y2). Grantee shall test up to 945 macaque and 175 bat archived serum samples collected under PREDICT and stored at DWNP, and up to 300 archived Orang Asli samples stored at NPHL and up to 200 Orang Asli samples at UM. The number of samples will depend on available serum volume and quality. Results will be used to inform the Orang Asli and farm studies described in Tasks 4 and 5. Positive sera may be sent for confirmatory testing at USU using pseudovirus serum neutralization assays, ELISA, or Western blot. Results shall be entered into a database and shared with GoM partners.

1.3.1 Identify suitable archived animal and human sera;
1.3.2 Screen sera for henipa- and filovirus IgG antibodies at GoM and UM partner labs;
1.3.3 Confirm positive results using western blot or pseudovirus assay;
1.3.4 Enter results into database and analyze;
1.3.5-2.3.5 share results with partners.

Task 4. Serological survey of Orang Asli who hunt, wildlife, and peri-domestic animals. (Y1-OY5). Indigenous communities living in forested areas and that practice subsistence wildlife hunting are at higher risk of exposure to zoonotic viruses due to handling and butchering wildlife and therefore contact with bodily fluids. In Y1 of this project, we will apply for IRB ethical approval to continue and expand from a pilot study currently underway (expected completion: Oct 2016). Pending IRB and IACUC approval, CM, MoH, and DWNP will work together in Y1-Y2 to sample 100 individuals from each of 3 Orang Asli communities in Perak State (incl. Kuala Lipis and Gua Musang), totaling 600 human blood samples over five years. 100 people sampled per community will allow us to detect a seropositive individual with 95% confidence at a prevalence of 3%, assuming a population of 500 individuals. We will also aim to sample blood from 50 bats per each of 3 species around each study village (e.g. Miniopterus, Pteropus, and Rousettus spp); 30 nonhuman primates; and 30 dogs, if present, in order to be able to detect henipa- or filovirus antibodies in an individual with 95% confidence given a 5% seroprevalence (in bats) and 10% in dogs and nonhuman primates. MOH officers and CM will collect blood from Orang Asli and associated animals, and serum will be separated either in the field or at partner labs and stored at -86C at prior to testing. A sample size of 50 bats would allow us to detect differences between study locations (or time points, should we conduct follow-up studies) of 56% with 95% confidence and 80% precision. The grantee shall conduct repeated sampling of Orang Asli and peri-domestic livestock and wildlife in the same communities in Y3-OY4. If novel henipa or filoviruses identified by PREDICT, new assays will be developed in OY4 and negative samples re-tested. Molecular and serological data from Orang Asli will be co-analyzed in OY4-OY5. In addition, we will test sera collected through an ongoing UM study of Orang Asli. Up to 500 samples per year will be collected Y1-OY5, and these will be tested using the Luminex-based platform at UM. Positive samples will be confirmed at UM or USU.

The grantee shall:

1.4.1-OY5.4.1 Test Orang Asli, wildlife, and peri-domestic animal samples collected under PREDICT and UM studies
1.4.2-2.4.2, Y3.4.2, OY4.4.2-OY5.4.2. Enter results into database and analyze data;
1.4.3 – 2.4.3, Y3.4.3, OY4.4.3 Confirm sero-positive samples;
Task 5. Develop serological and molecular virology study of farm workers, livestock, and wildlife around farms. (Y1-OY5) Grantee shall conduct a serological and molecular virology survey of farm workers and animals living on or around 2 large-scale farms (>5000 ruminants and/or pigs) and 2 small-scale farms (500-1000 ruminants and/or pigs) in Peninsular Malaysia to detect exposure to and presence of henipa- or filoviruses. Grantee shall work with DWNP to sample bats, macaques and dogs proximal to farms; and with MoH to conduct qualitative research and collect blood samples from farm workers to screen for henipa- and filovirus antibodies. Sample collection from animals and humans will also include two duplicate nasal or oropharyngeal swabs, fecal samples (animals only), and urine samples (animals only) for PCR analysis, utilizing a pan-henipavirus and panfilovirus assay developed under the PREDICT project. Grantee will work with UPM to sample and test livestock. In Y1, grantee will select appropriately sized farms. Grantee shall also locate bat caves or roosts proximal to each farm, meet farm owners, and characterize the livestock. Grantee shall apply for all necessary IRB and IACUC approvals. Grantee may commence sampling in Y2, pending approvals, and conduct a follow-up study in OY4 and OY5 (if funded). The grantee shall:

1.5.1 Meet with GoM partners to develop study;
1.5.2 Apply for ethical approvals and permits;
1.5.3. Conduct scoping visits to farms, characterize livestock and local wildlife species.
2.5.1-3.5.1 Collect wildlife, livestock, and human samples
2.5.2-3.5.2 Conduct questionnaires with farm workers
2.5.3-3.5.3 Screen samples using Luminex-based assay and PCR; confirm results
2.5.4-3.5.4 Enter data into database and analyze results
OY4.5.1-5.5.1 Repeat human, wildlife and livestock sampling at each farm
OY4.5.2-OY5.5.2 Test samples, enter results into database; analyze complete dataset
OY5.5.3 prepare manuscript based on (Y1-OY5) study

Task 6. Disseminate reports to relevant stakeholders (Y1-OY5). Grantee shall synthesize all data collected through the projects described above as well as capacity building activities in Malaysia. Scientific and general reports will be generated and provided to GoM partners and an annual report to DTRA. PhD or Masters’ students will complete thesis and present at annual stakeholders meeting in KL or at scientific meeting in Malaysia. Grantee shall meet with GoM partners and SAG in Kuala Lumpur annually, according to schedule. Grantee shall present findings at scientific meetings (e.g. ASTM, ASM Biodefense, IMED, EcoHealth) to present findings according to the schedule.

1.6.1-OY5.6.1 submit progress reports to DTRA.
1.6.2-OY5.6.2 Complete annual report to local stakeholders.
1.6.3-OY5.6.3 Conduct presentations/meetings at times and places specified in the grant schedule, including DTRA Annual Technical Review.
1.6.4-OY5.6.4 Conduct annual stakeholder meetings.
3.6.5. Prepare comprehensive project report for GoM
3.6.7. OY5.6.7 UM Graduate students present thesis to committee and prepare publication in peer reviewed journal
3.6.6-OY5.6.6 Prepare and submit publications to disseminate study findings.
### Project Timeline

<table>
<thead>
<tr>
<th>Task</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY4</th>
<th>OY5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enhance capacity in Malaysia for serological surveillance for all henipaviruses and filoviruses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1. Transfer BioRad Bio-Plex 200 in NPHL, DWNP, and UPM labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2. Transfer serological reagents to NPHL, DWNP, UPM, and UM labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3. Training staff at partner labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4. Identify graduate students at UM and UPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5. Convene Science Advisory Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6. Develop database for serology results and sample metadata</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.7. Training in pseudovirus development at USU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Develop &amp; validate henipavirus and filovirus reagents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1. Produce specific henipavirus and filovirus proteins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2. Produce and test monoclonal antibodies against new proteins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3. Transfer henipa and filo N protein assays to partner labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4. Develop/validate proteins and mAbs for novel henipa- &amp; filoviruses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Screen archived wildlife and Orang Asli sera</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1. Identify archived wildlife and human sera at NPHL and DWNP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2. Screen sera using Luminex-based platform</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3. Confirm positive sera with additional testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4. Enter results in database / analyze</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sero-survey of Orang Asli and animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1. apply for IRB/IACUC approval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2. Collect &amp; test serum samples from Orang Asli + animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3. Enter results into database</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4. Confirm positive sera with additional testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5. Conduct follow-up study of Orang Asli and animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.6. Analyze data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Serological study of farm workers, livestock, and wildlife on farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1. Apply for necessary permits and ethical approval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2. Scoping visits to potential study farms; select farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3. Sample farm workers, livestock, and wildlife on farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4. Follow-up study of farm workers, wildlife and livestock (4 farms)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5. Enter results into database / analyze results</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Disseminate reports to relevant stakeholders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1. Annual report to DTRA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2. Annual report to government of Malaysia partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3. Attend DTRA annual technical review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4. Partner meeting in Malaysia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5. Present results at scientific conference (e.g. ASTMH, IMED, ASM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.6. Prepare manuscripts for publication in peer-reviewed journal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AWARD/CONTRACT

2. CONTRACT (Proc. No. or Mail No.):
   HNDRA1 1710064

3. EFFECTIVE DATE:
   05 Sep 2017

4. REQUISITION/PURCHASE REQUEST/PROJECT NO.:

5. ISSUED BY:
   DEFENSE THREAT REDUCTION AGENCY
   2030 JOHNNY R. ROBERTS RD
   APO ELMendorf, AK
   96252-1300

6. ADMINISTERED BY:
   DODAC
   2000 WOODROW AVE
   FORT BELVOIR, VA
   22045-6000

7. NAME AND ADDRESS OF CONTRACTOR:
   B coord. Alliance Inc.
   DR. NEIL GUILLER
   495 W 34TH ST 17TH FL
   NEW YORK, NY
   10001-2371

9. DELIVERY:
   [ ] FOB ORIGIN  [X] OTHER (See below)

10. SUBMIT INVOICES:
    [ ] Invoice shall be submitted in triplicate
    [ ] Invoice shall be submitted in electronic format

11. SHIP TO MARK FOR:
    [ ] See Schedule

12. PAYMENT WILL BE MADE BY:
    [ ] PDAC GS01257
    [ ] COLUMBUS OH 43218-2017

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
    [ ] 10 USC 230d(c)
    [ ] 41 USC 253a

14. ACCOUNTING AND APPROPRIATION DATA:
    [ ] See Schedule

15A. ITEM NO.

15B. SUPPLIES/ SERVICES

15C. QUANTITY

15D. UNIT

15E. UNIT PRICE

15F. AMOUNT

15G. TOTAL AMOUNT OF CONTRACT:
   $2,881,912.55

16. TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>X</th>
<th>SEC</th>
<th>DESCRIPTION</th>
<th>PAGE(S)</th>
<th>(X) SEC</th>
<th>DESCRIPTION</th>
<th>PAGE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>Solicitation/Contract Form</td>
<td>1</td>
<td></td>
<td>CONTRACT CLAUSES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Supplies or Services and Prices Costs</td>
<td>2-3</td>
<td></td>
<td>LIST OF ATTACHMENTS</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Description/Spec./Work Statement</td>
<td>4</td>
<td>X</td>
<td>LIST OF ATTACHMENTS</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Packaging and Marking</td>
<td>5</td>
<td></td>
<td>REPRESENTATIONS, CERTIFICATIONS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Inspection and Acceptance</td>
<td>6</td>
<td></td>
<td>OTHER STATEMENTS OF OFFERORS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Deliveries or Performance</td>
<td>7-9</td>
<td></td>
<td>INSTRS., CONDS., AND NOTICES TO OFFERORS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>Contract Administration Data</td>
<td>9</td>
<td></td>
<td>EVALUATION FACTORS FOR AWARD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>Special Contract Requirements</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART II - CONTRACT CLAUSES

CONTRACT OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR ITEM 18 (SEALED-BID PROCUREMENT AS APPLICABLE)

PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

PART IV - REPRESENTATIONS AND INSTRUCTIONS

The requirements of the contract shall be subject to and governed by the following documents: (1) the contract and all attachments thereto, (2) the solicitation, (3) its addendum, (4) which contains representations, certification and other provisions, and (5) all other documents which the contractor is required to submit with the proposal.

19A. NAME AND TITLE OF SIGNER
   (Type or print)

19B. NAME OF CONTRACTOR

19C. DATE SIGNED:
   05-Sep-2017

20A. NAME OF CONTRACTING OFFICER

20B. UNITED STATES OF AMERICA

20C. DATE SIGNED:
   05-Sep-2017

AUTHORIZED FOR LEGAL REPRODUCTION

PREVIOUS EDITION IS NOT VALID

STANDARD FORM (REV 5/2013)

# Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td></td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$904,922.38</td>
</tr>
<tr>
<td></td>
<td>Year 1: FRBAA-14-6-2-0063</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$904,922.38</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>Funding in support of CLIN 0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACRN AA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIN: HDTRA1724052000001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0002</td>
<td></td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$979,366.52</td>
</tr>
<tr>
<td></td>
<td>Year 2: FRBAA-14-6-2-0063</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$979,366.52</td>
</tr>
<tr>
<td>ITEM NO</td>
<td>SUPPLIES/SERVICES</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td>UNIT PRICE</td>
<td>AMOUNT</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------</td>
<td>----------</td>
<td>------</td>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>0003</td>
<td>FRBAA-14-6-2-0063</td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$972,623.66</td>
</tr>
<tr>
<td></td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$972,623.66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0004</td>
<td>FRBAA-14-6-2-0063</td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$840,216.30</td>
</tr>
<tr>
<td>OPTION</td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$840,216.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0005</td>
<td>FRBAA-14-6-2-0063</td>
<td>1</td>
<td>Lot</td>
<td></td>
<td>$669,314.80</td>
</tr>
<tr>
<td>OPTION</td>
<td>COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESTIMATED COST</td>
<td></td>
<td></td>
<td></td>
<td>$669,314.80</td>
</tr>
</tbody>
</table>
Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

252.601-9002  GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-11-16-BRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate, Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CFDA #: 12.351

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0002</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>0003</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>0004</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>0005</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
</tbody>
</table>
**DELIVERY INFORMATION**

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 02-OCT-2017 TO 01-OCT-2018</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
<tr>
<td>0002</td>
<td>POP 02-OCT-2018 TO 01-OCT-2019</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
<tr>
<td>0003</td>
<td>POP 02-OCT-2019 TO 01-OCT-2020</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
<tr>
<td>0004</td>
<td>POP 02-OCT-2020 TO 01-OCT-2021</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
<tr>
<td>0005</td>
<td>POP 02-OCT-2021 TO 01-OCT-2022</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 044315 097 0134 000 N 20172019 D 34HQ 0901515BR_KD_BP2_OT 1719 0134L 34HQ_SCNCT DTRA 410
AMOUNT: $782,330.00

<table>
<thead>
<tr>
<th>ACRN</th>
<th>CLIN/SLIN</th>
<th>CIN</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>000101</td>
<td></td>
<td>$782,330.00</td>
</tr>
</tbody>
</table>

CLAUSES INCORPORATED BY REFERENCE

52.232-19 Availability Of Funds For The Next Fiscal Year APR 1984
252.204-0001 Line Item Specific: Single Funding SHP 2009
252.232-7007 Limitation Of Government’s Obligation APR 2014

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

d. Grant Specialist:
   Name: [5(5)]
   Defense Threat Reduction Agency/BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone [5(5)]
   email address

e. Grantee Business Office:
   Name: Mr. Aleksei Chmura
   Title: Authorized Organizational Representative
   Phone: 212-380-4473
   E-mail: chmura@ecohealthalliance.org

f. Grantee Principal Investigator (PI):
   Name: Dr. Kevin Olival
   Title: Associate Vice President for Research
   Phone: 212-380-4478
   E-mail: olival@ecohealthalliance.org

252.601-9001 GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)
g. Grants Officer’s Representative (GOR) for this Grant is:

Name: 
Defense Threat Reduction Agency/CBEP
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201

h. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
FUNDING PROFILE:
The amount of $782,330.00 is obligated for work to be performed during the period beginning with grant award and continuing through 10/01/2018. Additional incremental funding planned, but not obligated, is:

Year 1 (FY18) $122,592.38
Year 2 (FY19) $979,366.52
Year 3 (FY20) $997,623.66
Year 4 (FY21) $840,216.30
Year 5 (FY22) $669,314.80

The Government’s liability is limited to the amount obligated.

INVOICE SCHEDULE:

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>DATE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>November 1, 2017</td>
<td>$122,592.38</td>
</tr>
<tr>
<td>2</td>
<td>December 1, 2017</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>3</td>
<td>January 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>4</td>
<td>February 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>5</td>
<td>March 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>6</td>
<td>April 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>7</td>
<td>May 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>8</td>
<td>June 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>9</td>
<td>July 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>10</td>
<td>August 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>11</td>
<td>September 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>12</td>
<td>October 1, 2018</td>
<td>$71,121.00</td>
</tr>
</tbody>
</table>

*The invoice amounts listed above are estimates. Submitted invoice amounts will be reflective of actual costs incurred on a monthly basis.*
## Section 1 - List of Documents, Exhibits and Other Attachments

### Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work-Exhibit A</td>
<td>7</td>
<td>29-JUL-2016</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Terms and Conditions-Exhibit B</td>
<td>17</td>
<td>31-OCT-2016</td>
</tr>
</tbody>
</table>
Statement of Work

Project Title: Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia

Document Date: July 29, 2016

Objective: Our primary objective is to characterize the diversity of coronaviruses (CoVs) and test key hypotheses about bat-borne zoonotic virus emergence risk in Western Asia in order to reduce the threat of infectious diseases. Despite growing recognition of the importance of bat viruses as zoonotic diseases, and the emergence of the Middle East Respiratory Syndrome coronavirus (MERS-CoV), there remains limited scientific knowledge of the distribution and ecology of bats, their pathogen diversity, and potential interfaces for transmission to humans and other species in Western Asia – an area encompassing over 20 countries in the Middle East and Near East. Our project is designed to detect emerging viruses at their source (wildlife populations) through hypothesis-driven research, and to provide a mechanism for improved risk assessment, information sharing and scientific collaboration in an area with fragmented, and often limited, capacity for zoonotic disease investigations. Through partnerships with laboratories within the region and extensive field investigations, we will establish a statistically rigorous research platform to characterize endemic pathogen diversity for coronaviruses, a key viral family with known pandemic potential. Data on pathogen diversity, host distribution, and ecological traits will be curated, exchanged, and used to model zoonotic disease risk and facilitate scientific collaboration in this politically volatile region.

Scope:

The grantee proposes development of a regional zoonotic bat disease research program, including specific hypothesis-driven scientific activities to characterize coronavirus (CoV) diversity and risk of viral spillover to people. Toward advancement of One Health research, the grantee will also establish a network of scientists currently working independently on bat and disease research to more effectively share data aimed at parameterizing risk models and testing regional hypotheses in disease ecology of bat-borne pathogens. Research findings will be disseminated broadly in the scientific community and to relevant government authorities and policy makers in the US and Western Asia. The grantee team shall focus on the following goals and milestones:

1. Conduct disease ecology investigations to more precisely map bat-borne zoonotic disease distribution and spillover risk (Year 1 – Option Year 2).

- Milestones: Establish study protocols; map existing data; implement field surveys to catalogue regional bat diversity, species inventories, and collect specimens for CoV characterization; collate spatial and ecological data into central database; refine species distribution maps and niche models to refine reservoir host distribution in Western Asia; develop and maintain information sharing database and website.
2. Characterize bat CoV diversity in Western Asia to improve understanding of spillover risk. (Year 1 – Option Year 2).
   • Milestones: Train personnel and implement field and laboratory studies; collect and transport bat specimens; validate coronavirus assays; screen specimens using PCR; sequence CoV positive specimens; database for viral sequence, host, and spatial data.

3. Improve the One Health scientific capacity for bat and disease ecology research in Western Asia (Year 1 – Option Year 2).
   • Milestones: Establish regional network of scientists; implement hypothesis-driven research projects (per below); field, laboratory and analytical training of in-country scientists; research exchanges from ‘field to lab'; annual project planning and data sharing workshop; country capacity assessments; coordinated information sharing platform; and publish and disseminate scientific findings.

4. Synthesize data and conduct analyses of bat pathogen spillover risk (Year 3 – Option Year 2)
   • Milestones: Develop and apply a range of analytical approaches to model spatial patterns of zoonotic virus distribution and risk, host-viral sharing and evolutionary co-divergence, and identify correlates of viral diversity; develop and parameterize a synthetic model of bat spillover risk for region.

This work will support strengthening One Health research capacity in four high-engagement countries with CBEP determination: Jordan, Georgia, Turkey, and Pakistan, and a broader research coordination network including countries geographically adjacent to core countries in Western Asia. The project will engage one to two lead bat scientist identified as points of contact in each country and establish field and laboratory teams with additional local scientists to conduct surveillance activities. The Center For Excellence In Biosafety, Biosecurity And Biotechnology Royal Scientific Society (Amman, Jordan) and the R. Lugar Center for Public Health Research (Tbilisi, Georgia) will serve as regional hubs for laboratory research and training in pathogen detection. Support for laboratory protocols and transfer of technology and information sharing will additionally be provided by NIH’s Rocky Mountain Laboratories and the USAID Emerging Pandemic Threats PREDICT project. A Steering Committee will facilitate communication within and between the country regions and with government ministries, and will define and oversee the strategic aims of the network. The Scientific Advisory Board will provide general oversight to animal welfare and biosafety issues and scientific validity of proposed research activities, maintain collaborations with researchers from other regions, and will serve as lead experts during capacity building activities and workshops. The proposed project period is three years, with two optional years to augment datasets for more robust hypothesis testing and promote further advancement of scientific capacity in the region.

Background:

Bats are hosts to a wide range of viral zoonoses of concern to DoD, CDC, WHO, and OIE due to their pandemic potential, high mortality rates, and lack of treatment options, including Ebola virus, Marburg virus, Nipah virus, SARS-CoV and MERS-CoV. However, despite the risk that viral zoonoses emerging from bats pose worldwide, compared to Southeast Asia, Europe, the Americas, and Africa, virtually nothing is known about viral pathogens in natural bat populations from Western Asia. Bats are an extremely diverse group (1200+ species globally) of ecologically important animals that have been understudied compared to other taxonomic groups.
Zoonotic disease research in the Middle East and Western Asia is highly fragmented and largely undeveloped—often only one or two experts per country working in isolation within national boundaries and without access to disease experts or laboratories for diagnostics. As bats are mobile and do not respect political borders, there is a critical need to engage and link ecological researchers through meaningful field-based projects to allow for more comprehensive research and surveillance activities in Western Asia. Bat research coordination networks exist in Southeast Asia (Southeast Asian Bat Conservation Research Unit, SEABCRU); in Europe (Eurobats); and in Africa (Bat Conservation Africa), but Western Asia represents a major geographic gap. Western Asia does not currently have the infrastructure in place to support data sharing for regional understanding of zoonotic disease threats, nor wildlife ecology and distribution more generally. Many health authorities in the region are not aware of bat populations or diversity in their countries. Our proposed research project will additionally serve multiple goals and objectives of the CBEP mission, by: 1) engaging partner country scientists in high-quality, hypothesis-driven research; 2) enhancing understanding of endemic viruses to allow differentiation of natural vs. nefarious emergence events in the future; 3) supporting biosurveillance capacity building by enhancing partner capability to detect, diagnose, and report select agents; 4) employing responsible bio-risk management best practices; 5) training partner country researchers to think critically about ethical research and be competitive in soliciting international funding; and 6) promoting a One Health concept.

Key references include (further references can be found in the Project Narrative): Memish, ZA, N Mishra, KJ Olival, SF Fagbo, V Kapoor, JH Epstein, RA AlHakeem, MA Al Asmari, A Islam, A Kapoor, T Briese, P Daszak, AA Al Rabeeah, and WI Lipkin. 2013. Middle East Respiratory Syndrome Coronavirus in Bats, Saudi Arabia. Emerging Infectious Diseases 19: 1819-1823.


Tasks/Scientific Goals: (Format: Year #(s).Task #. Subtask#).

Task Y1.1-OY2.1: Establish robust scientific research platform to understand zoonotic disease risk in Western Asia (Years 1-OY2).

The grantees shall assemble a network of scientific research partners from high and medium-engagement countries via email, conference calls, and formal invitations. Data for risk modeling will be collated across a larger regional footprint than our proposed field sampling sites through annual data-sharing workshops and the creation of the Western Asia Bat Research Network (WAB-Net) – a collaborative, sustainable network of key wildlife researchers and public health representatives from
>12 countries. The process of coordinating and building the network will be ongoing throughout the grant. Participants will be added through networking opportunities, including at poster sessions, workshops, bat and/or wildlife health meetings, and as in-country contacts grow in ministries and academic and research institutions. 2-4 participants will be selected to participate in research exchanges with regional reference laboratories each year to strengthen their scientific capacity and facilitate testing of specimens collected from collaborating partner countries (e.g. Pakistan, Turkey). A simple core competency assessment tool (piloted in Y1, and then implemented Y2-LOY2) will be developed to measure individual competency of project participants in the areas of: best practices for wildlife field investigations, safe animal handling, specimen collection and transport, personal protective equipment and biosafety, cold chain management, specimen tracking, and pathogen testing. A workshop and data-sharing meeting will be held annually. The grantee will build a website for communication and customize an existing CBEP funded cloud-based database to host project ecological and viral data and enable testing of hypotheses related to CoV diversity and spatial modeling.

Y1.1.1-Y3.1.1 Confirm and identify research partners and diagnostic laboratories.

Y1.1.2-Y3.1.2 Develop, pilot and implement core scientific competency assessment.

Y1.1.3-LOY2.1.3 Host workshop and data-sharing meeting in a high-engagement partner country.

Y1.1.4-LOY2.1.4 Refine hypotheses for CoV study.

Y1.1.5-LOY2.1.5 Organize and implement field-to-lab research exchange program.

Y1.1.6-LOY2.1.6 Develop and maintain website for project.

Y1.1.7-LOY2.1.7 Develop and maintain information sharing database.

Task Y1.2-LOY2.2: Bat specimen and disease ecology field data collection (Years 1-LOY2).

The grantee will train and support field investigations for targeted bat specimen collection using standardized ecological methods for capture, species identification, and characterization of bat communities from geographic gaps identified in the first year of the project. All bats will be non-lethally sampled with strict adherence to US IACUC approved protocols. Improving the quality of bat species distribution and abundance data is essential for understanding the risk of zoonotic disease emergence and testing hypotheses relevant to the diversity and distribution of coronaviruses and other endemic bat pathogens. Longitudinal datasets will be additionally identified among WAB-Net scientists, and where possible, trends in population decline or increase will be measured over the duration of the project from field trapping data. Data will be collated and entered into the database with appropriate permission controls for data access, agreed upon by each member. Field survey methods include five nights of bat trapping and echolocation monitoring at each site (0-5 unique sites per participating country over the course of this project), with a minimum target of 30 bats per species per site on each sampling trip, with target 3 species per site (total 90 bats per sampling event). We will conduct 58 sampling events (46 in high-engagement countries, and at least 12 in medium-engagement countries) over the course of the project. Bat echolocation call analyses will be used to identify additional taxa (e.g. genera or families) not sampled using trapping and to quantify nightly bat activity using published algorithms. Data will be analyzed using rank abundance and rarefaction curves to compare diversity and abundance in tandem between sites, and we will apply standard statistical comparisons of
bat and CoV diversity and abundance among sites (See Task 5). Specimens for the CoV study (rectal swabs/feces, oral swabs, blood, and tissue/wing) will be collected during field surveys (see Task 3). Tissue biopsies will be collected for genetic barcoding to confirm field species IDs as needed. Supplies for ecological surveys will be provided to the four high-engagement countries and four or more medium-engagement countries, and a recommended supply list (plus additional supplies as budget allows) will be provided to the remaining partner countries. At each annual workshop we will collate data from previous and dedicated surveys and provide training in data entry to the WAB-Net database (see Task 1).

Y1.2.1-Y3.2.1 Equip country partners with supplies for study.

Y1.2.2-OY1.2.2 Conduct field-based training for network scientists.

Y1.2.3-OY1.2.3 Assist countries with study design and implementation plan for standardized surveys and implement bat study transects.

Y1.2.4-OY2.2.4 Collect bat specimens for CoV study and species distribution and taxonomic data.

Y1.2.5-OY2.2.5 Transport specimens to approved local or regional laboratory for storage.

Task Y1.3-OY2.3: Regional bat coronavirus characterization (Years 1-OY2).

The grantee shall develop and maintain a collaborative research investigation to characterize bat-CoVs. Local researchers shall be trained to conduct non-lethal bat virus specimen collection, and refine and test hypotheses relevant to geographic and host specific patterns of CoV diversity in bats. We will capture bats and collect fecal, oral, blood, and tissue specimens. 5220 fecal specimens representing individual bats will be collected and prioritized for testing (with testing of additional samples as resources allow), with 522 tissue specimens barcoded for species confirmation. Assuming mean RNA prevalence of 6%, this will give us 95% probability of detecting a positive CoV in each species, and with 30 fecal specimens per species, per site, will yield an average of 3 CoV sequences per target species for analyses. Assuming a conservative average prevalence of ~6% across all bat species and locations, screening an anticipated 5220 bat fecal specimens across the project will yield a minimum of 313 ± 36 positive CoV samples for analysis. Cold chain, viral transport and biosecurity best practices will be standardized and utilized across the project. Demographic and ecological data will be collected with specimens and entered into the central database. Testing will be initially conducted at two regional laboratories (RSS and Lugar), with additional potential laboratory capacity for CoV screening pending funding and DTRA approval. We will validate CoV PCR assays in Year 1, and screen fecal samples with follow-up confirmatory sequencing and analysis on positive specimens in subsequent years.

Y1.3.1-OY1.3.1 Equip country partners with laboratory supplies. Y2.3.2-OY1.3.2 Conduct laboratory-based diagnostic training. Y2.3.3-OY2.3.3 Store and update repository data for bat specimens.

Y2.3.4-OY2.3.4 Screen specimens for CoVs.

Y2.3.5-OY2.3.5 Confirm and sequence positive specimens.

Task Y1.4-OY2.4: Compile and disseminate research results and reports to stakeholders (Years 1-OY2).

The grantee shall synthesize and report on the project’s scientific, regional capacity building achievements, and specific data collected/analyzed to DTRA and various stakeholders (country-level,
regional, and international). Biobank sample repository information and associated metadata will be maintained in a DTRA-specified format and all samples and data will be available for at least 12 months past the project end date. Scientific publications will be written and submitted for peer-review and presentation and international conferences.

Y1.4.1-OY2.4.1 Submit annual report, including sample repository data, to DTRA. Y1.4.2-OY2.4.2 Analyze and disseminate study findings to local, regional, and global stakeholders.

Y1.4.3-OY2.4.3 Conduct presentations/meetings at times and places specified in the grant schedule, including DTRA Annual Technical Review.

Y1.4.4-OY2.4.4 Prepare/submit peer-reviewed manuscripts

Task Y3.5-OY2.5: Synthesize data and conduct analyses of bat pathogen spillover risk (Years 3-OY2).

The grantee will analyze data to test primary hypotheses aimed at understanding the risk of CoV viral spillover from bats to humans using a range of analytical approaches. Project data including bat and virus distribution from ecological field surveys, species occurrence and ecological data collated from partners, novel CoV sequence data, and previously published CoV data and existing spatial (environmental and ecological disease drivers) data sets from the region will be synthetically analyzed. Specific analytical tools used will include ecological niche models, geographic profiling analysis, spatial regressions, bat-virus cophylogeny analyses, and epidemiological analyses and power tests to assess risk of spillover between species and by subregion.

Y3.5.1-OY2.5.1 Clean and refine field and laboratory data from database for analyses.

Y3.5.2-OY2.5.2 Conduct viral phylogeny and co-phylogenetic analyses.

Y3.5.3-OY2.5.3 Conduct epidemiological analysis of CoV prevalence and diversity.

Y3.5.4-OY2.5.4 Refine ecological niche and species distribution analyses. Y3.5.5-OY2.5.5 Develop and refine bat spillover risk assessment model. OY2.5.6 Develop final technical report and policy brief from risk assessment.
# Performance Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>OV 1</th>
<th>OV 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task 1: Establish robust scientific research platforms to understand current disease risk in Western Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 2: Data generation and data analysis from field samples</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 3: Establishing and implementing procedures to improve diagnostic testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 4: Developing and implementing procedures to improve diagnostic testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 5: Developing and implementing procedures to improve diagnostic testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 6: Developing and implementing procedures to improve diagnostic testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 7: Developing and implementing procedures to improve diagnostic testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 8: Developing and implementing procedures to improve diagnostic testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*PI: Kevin J. Oliival CBEP Thrust Area 6, CC WMD*
DEFENSE THREAT REDUCTION AGENCY (DTRA)
GENERAL TERMS AND CONDITIONS FOR GRANT AWARDS

Table of Contents
Table of Contents ...................................................................................................................... 1
1. Terms and Conditions Incorporated by Reference ......................................................... 2
2. Acceptance of Grant ........................................................................................................ 2
3. Recipient Responsibilities ............................................................................................. 2
5. Modification of the Grant ............................................................................................... 2
6. Payments ........................................................................................................................ 3
7. Funding Increments and/or Options ............................................................................ 3
8. Patent Rights .................................................................................................................. 4
9. Technical Reporting Requirements ............................................................................... 7
10. Financial Reporting Requirements .............................................................................. 10
11. Delegation of Administration Duties .......................................................................... 10
12. Security ........................................................................................................................ 11
13. Representations and Assurances .............................................................................. 11
14. Data Collection ............................................................................................................ 16
15. Publications and Acknowledgement of Sponsorship ............................................... 16
16. Authorization to Perform Activities Abroad .............................................................. 17
17. Inconsistency between English Version and Translation of Grant ......................... 17
1. **Terms and Conditions Incorporated by Reference.**


2. **Acceptance of Grant.**

   The recipient is not required to countersign the Grant document; however, the recipient agrees to the conditions specified in the Research Grant and the Articles contained herein unless notice of disagreement is furnished to the Grants Officer within fifteen (15) calendar days after the date of the Grants Officer's signature. In case of disagreement, the recipient shall not assess the Grant any costs of the research unless and until such disagreement(s) is resolved.

3. **Recipient Responsibilities.**

   The recipient will bear primary responsibility for the conduct of the research and will exercise judgment towards attaining the stated research objectives within the limits of the Grant's Terms and Conditions.

   The Principal Investigator(s) (PI) specified in the Grant award will be continuously responsible for the conduct of the research project and will be closely involved with the research effort. The PI, operating within the policies of the recipient, is in the best position to determine the means by which the research may be conducted most effectively.

4. **Standards for Financial Management Systems.**

   Where the Federal Government guarantees or insures the repayment of money borrowed by the recipient, DTRA, at its discretion, may require adequate bonding and insurance if the bonding and insurance requirements of the recipient are not deemed adequate to protect the interest of the Federal Government.

   DTRA may require adequate fidelity bond coverage where the recipient lacks sufficient coverage to protect the Federal Government's interest.

   Where bonds are required in the situations described above, the bonds shall be obtained from companies holding certificates of authority as acceptable sureties, as prescribed in 31 CFR Part 223, “Surety Companies Doing Business with the United States.”

5. **Modification of the Grant.**

   The only method by which this Grant may be modified is by a formal, written modification signed by the Grants Officer. No other communications, whether oral or in writing, are valid.

   Prior Approvals are required as follows:

   1) Expenditures on equipment costing $5,000 or more not specifically identified in the budget at time of award. (Approval via written notification from the Grants Officer.)
   2) Expenditures for foreign travel not specifically identified in the budget at time of award. (Approval via written notification from the Grants Officer.)
3) Prior approval is not required to transfer amounts budgeted for indirect costs to absorb increases in direct costs, or vice versa.
4) Prior approval is not required to carry forward an unobligated balance to a subsequent period of performance under this award.

6. Payments.

The 2 CFR 200 governs responsibilities concerning payments, with the following clarifications:

Recipients shall submit requests for payment using Invoicing, Receipt, Acceptance, and Property Transfer (iRAPT) at https://wawf.eh.mil/. Any request for advance payments must be approved by the Administrative Grants Office shown in Block 6 of the award. The request shall be submitted to the Administrative Office identified in Block 6 of the Research Grant by entering the following routing codes:

1) Pay Office DoDAAC: See Block 12 (Code) on the first page of the Grant.
2) Invoice Type: Grant and Cooperative Agreement Voucher.
3) Issue By DoDAAC: See Block 5 (Code) on the first page of the Grant.
4) Admin DoDAAC: See Block 6 (Code) on the first page of the Grant.
5) Grant Approver: Same as Admin DoDAAC (Leave Ext. blank).

Payments will be made by the Defense Finance and Accounting Service (DFAS) office specified in the Research Grant (Block 12).

A foreign awardee must have a U.S. bank account and be signed up for electronic payments (electronic funds transfers (EFT)).

7. Funding Increments and/or Options.

The recipient is advised that the Grantor's obligation to provide funding for increments and/or options included in the Grant is contingent upon satisfactory performance in the judgment of the DTRA Scientific Officer/Technical Monitor and the availability of funds. Other factors will be considered before options will be exercised (for example, expenditure rate and current programmatic objectives). Accordingly, no legal liability on the part of the Grantor exists unless or until funds are made available to the Grantor and notice of such availability is confirmed in writing to the recipient. Refer to the Funding Profile in Section G of the Grant for additional incremental funding planned, but not currently obligated for the Grant.

Funding Increments – In no event is the Government obligated to reimburse the recipient for expenditures in excess of the total funds allotted by the Government to this agreement. Recipients should note that low expenditure rates reported on payment requests may be cause for deferral of future increments. The Government anticipates unilateral modifications for funding increments.

Options – If the agreement contains Option(s), the Government reserves the right to exercise the Option(s) unilaterally.
8. **Patent Rights.**

Patent Rights are governed by 37 CFR 401.14 with the following clarifications: All DTRA-related disclosures, confirmatory licenses to the government, patent applications, and other communications should be submitted as detailed herein.

The 37 CFR Part 401 invention reporting requirements are summarized in the table below. Unless otherwise indicated in the “Submission to DTRA” column, the grantee is required to upload the following types of invention information using iEdison (https://s-edison.info.nih.gov/iEdison/), a single web interface for government grantees to report details of inventions and patents. If the grantee organization is not already an iEdison registrant, then iEdison registration is required prior to submission of the below invention reports. The grant shall not be closed out until all invention reporting requirements are met.
<table>
<thead>
<tr>
<th>Action</th>
<th>When</th>
<th>Discussion</th>
<th>37 CFR Reference</th>
<th>Submission to DTRA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invention Report:</strong> The grantee must submit a report of any &quot;subject&quot; invention. The report must identify inventors, federal agency(ies), grant number(s), and date of any public disclosure. Date of submission establishes time frame for all future actions. Must be complete in technical detail. The report should be directed to the lead agency.</td>
<td>Within 2 months of inventor's initial report to the grantee contractor organization.</td>
<td>There is no single format for disclosing the invention to the government. The communication should include: (a) title of the invention, date of any public disclosure, names of all inventors, source(s) of federal funding (e.g., grant number(s)), a written description of the invention in technical detail. The invention disclosure should be signed by the inventor(s) at the very least, signed by a grantee institutional official.</td>
<td>40 U.S.C. 4(a)(2) 40 U.S.C. 4(a)(1)</td>
<td>Submit electronically by uploading either a PDF, TIFF, or text file through Edison.</td>
</tr>
<tr>
<td><strong>Rights to Inventions on Subcontracts:</strong> Subcontractors retain rights to their subject inventions.</td>
<td>Same reporting responsibilities, obligations, and timeframes as prime grantee organization.</td>
<td>Prime grantee organization cannot require ownership of subcontractor's subject invention(s).</td>
<td>40 U.S.C. 4(a)(1) 40 U.S.C. 4(a)(2)</td>
<td>Invention disclosure, confirmatory license, and proof of govt's support clause shall be submitted electronically through Edison.</td>
</tr>
<tr>
<td><strong>Election of Title to Inventions:</strong> Grantee organization must notify the federal agency sponsor that it will retain ownership of invention and take steps to commercialize the invention.</td>
<td>Within 2 years of reporting the invention to the lead federal agency sponsor, if disclosed publicly, this period is decreed.</td>
<td>Commence with report of any initial patent filing; unless the invention is being licensed as an unpatented biological material or research tool.</td>
<td>40 U.S.C. 4(a)(1)</td>
<td>Submit electronically by uploading either a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td><strong>Confirmation of License:</strong> The grantee organization must provide a nonexclusive, nontransferable, irrevocable, paid-up license for the government to practice or have the invention practiced on its behalf throughout the world.</td>
<td>Commence with report of any initial patent filing; unless the invention is being licensed as an unpatented biological material or research tool.</td>
<td>40 U.S.C. 4(a)(1)</td>
<td>Submit electronically by uploading either a PDF or TIFF file through Edison.</td>
<td></td>
</tr>
<tr>
<td><strong>Nonelection of Title to Inventions:</strong> Grantee organization must notify the federal sponsor that it will not retain ownership of an invention.</td>
<td>Within 2 years of reporting to federal agency sponsor, if disclosed publicly, this period is decreed.</td>
<td>Effectively a waiver to the government. After further review, the federal agency sponsor may elect title on behalf of the government. Title does not actually vest with the government until government elects to retain title.</td>
<td>40 U.S.C. 4(a)(2) 40 U.S.C. 4(a)(4)</td>
<td>Submit electronically through Edison.</td>
</tr>
<tr>
<td><strong>Assignment of Invention Rights to the Inventor:</strong> The inventor may request assignment of invention rights. Agencies support requests of this type to variously. In all cases, documentation is required when a grantee organization waives rights to the invention and the inventor(s) wishes to retain the invention rights.</td>
<td>At the time the grantee organization elects not to retain rights in the invention. Second, the inventor must request assignment of rights. Agree to all terms associated with invention reporting as detailed in 37 CFR 401 and must pursue commercialization of the invention through patent filing or licensing as a research tool. Specific procedures for any agency should be determined prior to initiating the request.</td>
<td>40 U.S.C. 4(a)(1) non-profit</td>
<td>This status shall be indicated using Edison. Submission of all other issues (such as outstanding required documents) should be resolved prior to proceeding further. Submission of the required documents will be done electronically by uploading either a PDF, TIFF, or text file through Edison.</td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>When</td>
<td>Discussion</td>
<td>37 CFR Reference</td>
<td>Submission to DTRA</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Initial Patent Application: The grantee must inform the government of the initial patent application that relates to any subject invention. The patent application must include a government support clause.</td>
<td>Within 1 year after election of title, unless there is an extension</td>
<td>Time frame may vary if invention becomes public. The term initial patent application means a nonprovisional U.S. national application for patent as defined in 37 CFR 1.5(a)(5). The notification must include the patent application number and filing date assigned by the USPTO. A copy of the full application is not required.</td>
<td>401.14(b)(6) 401.3(a)</td>
<td>All filing data shall be submitted via Edison. Evidence of inclusion of government support clause shall be submitted electronically as either a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td>Assignment to Third Party: Documentation necessary when a grantee etc. must assign invention rights to a third party. If the grantee is a non-profit, the government must approve the assignment. For for-profit or small business grantee contractors, no approval is required.</td>
<td>At the time of issue</td>
<td>If assignment is approved, third party must provide commercialization and distribution of the invention through patent filing or licensing of the invention, as a research tool. Specific procedures to request third party assignment may vary between agencies. Consult DTRA prior to initiating request.</td>
<td>401.14(b) for non-profits. Note the distinction between small businesses and non-profit organizations</td>
<td>Document shall be submitted electronically as either a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td>Issued Patent: The grantee must provide federal agency sponsor with patent issue date, number, title of patent, and evidence of government support clause.</td>
<td>At the time of issue</td>
<td>Patent must include government support clause</td>
<td>401.3(c)(2) 401.14(a)(4)</td>
<td>All issued patent information shall be provided using Edison. Evidence of inclusion of government support clause will be provided electronically as a PDF or TIFF file through Edison.</td>
</tr>
<tr>
<td>Request for Extension of Time: An extension of up to two years may be requested for election of title, or one year for filing a patent application.</td>
<td>Prior to any statutory bar</td>
<td>Extension of 2 years for title election and one year for patent application are preapproved for funded inventions. Additional extensions need written approval from the federal agency sponsor.</td>
<td>401.14(c)(4)</td>
<td>Request electronically using Edison.</td>
</tr>
<tr>
<td>Discontinuance of Patent Application, Payment of Maintenance Fees, or Deferral in a Reexamination or Opposition proceeding on a Patent: The grantee must notify federal agency sponsor of changes in patent status.</td>
<td>At any time in the process but prior to establishment of deadlines</td>
<td>Relevant information and documentation, e.g., patent application or patent, must be provided such that a determination to protect government interests can be made. The federal agency sponsor has the option to pursue the patent application on the patent if not being properly pursued or maintained. Any change in status must be reported at least 30 days prior to pending PTO office actions.</td>
<td>401.14(d)(3) 401.6</td>
<td>Indication shall be made via Edison.</td>
</tr>
<tr>
<td>Action</td>
<td>When</td>
<td>Discussion</td>
<td>37 CFR Reference</td>
<td>Submission to DTRA</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>------------</td>
<td>------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Annual Utilization Report: DTIRA requires utilization reporting for all subject inventors that have had title elected or are licensed without a patent. Report includes name of development, date of first commercial sale or use, number and type of licenses, gross income, licensing to small business, status of U.S. manufacturing and identification of any FDA-approved product names.</td>
<td>Annually</td>
<td>DTIRA requires invention utilization reports on a 12-month reporting cycle beginning in the month of grantee choosing and continuing throughout duration of patent. Information requirements defined in Edison. Note: This reporting requirement is applicable for durations beyond the grant period.</td>
<td>401 141h</td>
<td>Submit electronically using Edison</td>
</tr>
<tr>
<td>Annual Summary Report of Inventions: Summarize all previously reported subject inventions under this grant.</td>
<td>Annually</td>
<td>Invention reports shall be filed annually due no later than 1 July of each year. Grants effective after 31 January will not require a report until 1 July of the following year. The recipient shall use DD Form 832, Report of Inventions and Subcontracts, to file invention reports. If no inventions occurred during the annual reporting period, a negative report must be submitted. Email Form DD832 to <a href="mailto:distributedresearch@mail.mil">distributedresearch@mail.mil</a> (file size must be less than 10 MB). File should be named by the Grant number and Invention Report (e.g. HDTX14-12-1-0001 Invention Report). The grant shall not be closed out until all invention reporting requirements are met.</td>
<td>405 5(9)</td>
<td>No Edison submission allowed. Submit DD Form 832, Report of Inventions and Subcontracts to: DTIRA Grants Officer, 9255 John J. Kingman Rd, MSC 601, (2273, 2275 (B), Ft Belvoir VA 22060-6011. Administrative office identified in the Grant. As directed by DTIRA, email or portal.</td>
</tr>
<tr>
<td>Final Invention Statement and Certification: Report all subject inventions derived or reduced to practice during the performance of the grant.</td>
<td>Due with the Final Technical Report within 90 days after the project ends.</td>
<td>Invention reports shall be filed at the end of the Grant's PPI. If no inventions occurred during the lifetime of the award, a negative report must be submitted. Email Form DD832 to <a href="mailto:distributedresearch@mail.mil">distributedresearch@mail.mil</a> (file size must be less than 10 MB). File should be named by the Grant number and Invention Report (e.g. HDTX14-12-1-0001 Invention Report). The grant shall not be closed out until all invention reporting requirements are met.</td>
<td>405 5(1)</td>
<td>No Edison submission allowed. Submit DD Form 832, Report of Inventions and Subcontracts to: DTIRA Grants Officer, 9255 John J. Kingman Rd, MSC 601, (2273, 2275 (B), Ft Belvoir VA 22060-6011. Administrative office identified in the Grant. As directed by DTIRA, email or portal.</td>
</tr>
</tbody>
</table>

9. **Technical Reporting Requirements.**

**Research Performance Progress Report (RPPR).** Except under rare cases, RPPRs are required annually. The RPPR is due no later than 1 July of each year. Grants effective after 31 January will not require a RPPR until 1 July of the following year.

The RPPR is *not* a cumulative report. The first RPPR shall only include actions that occurred from the Period of Performance start date up to submission of the first RPPR. Each subsequent report shall only include actions that occurred during the 12-month period following the previous year's RPPR.
A RPPR is not required in the final year of the award if the period of performance ends within 60 days of the RPPR due date. In this instance the Final Report will satisfy the requirement. Broadly the RPPR shall address the following items:

- Accomplishments
- Products
- Participants and Other Collaborating Organizations
- Impact
- Changes/Problems

Templates and specific instructions will be provided each year in advance of the submission deadline. All files must be submitted via email to drabasicresearch@mail.mil (individual file size must be less than 10MB). A copy of the RPPR should also be provided to the Administrative Office identified in the Grant. The file names should be as follows:

- RPPR: Year Annual Report Grant Number, e.g. 2017 Annual Report HDTRA1-12-1-9999.
- Metrics: Year Metrics Grant Number, e.g. 2017 Metrics HDTRA1-12-1-9999.

**Quad Chart.** An updated quad chart must be submitted annually. A template will be provided each year in advance of the submission deadline. All files must be submitted via email to drabasicresearch@mail.mil (individual file size must be less than 10MB). The file name should be as follows:

- Quad Chart: Year Quad Chart Grant Number, e.g. 2017 Quad Chart HDTRA1-12-1-9999.

**Annual Technical Review.** At least one representative (preferably the PI) for each award is expected to attend and present at an annual technical program review meeting, unless otherwise exempted by DTRA in writing. For planning purposes reviews will typically be for two days in Northern Virginia during the spring or summer months.

**Final Technical Report.** A comprehensive final technical report is required: the draft document is required forty-five (45) days prior to the end of the Period of Performance and the final document is required ninety (90) days after the expiration or termination of the award.

The purpose of the final report is to document and to transition the results of the effort into the DTRA and DoD applied research community. The final report will always be sent to the Defense Technical Information Center (DTIC) and unclassified reports may be made available to the public through the National Technical Information Service (NTIS).

The final report is more than an extension of previous annual reports. The final report shall be a comprehensive technical summary of the significant work accomplished. The final report, where it is not readily accessible in published form should, where applicable:

- Clearly describe and illustrate the experimental equipment, setup, and procedures;
- Characterize and tabulate collected/computed data in an appendix;
• Sufficiently describe computational codes so they can be reproduced. Include a listing of the code in an appendix if possible and appropriate; and

• When the research effort culminates in the production of one or more student theses or dissertations, in these cases, the most significant advancements and conclusions (equations, figures, relationships, etc.) should be included in an executive summary. The theses or dissertations should be attached as appendices only if they are not readily available. If they are, clearly reference them and how they can be obtained. Also include in the executive summary, cumulative lists of people involved in, and publications stemming from, the research effort. Do not include copies of already submitted or published articles in the final report.

Standard Form (SF) 298, Report Documentation Page, must be used. Item 13 of the SF-298 should contain a 100 to 200 word abstract summarizing technical progress during the reporting period. The SF-298 may be found on the Internet at:
http://www.gsa.gov/portal/forms/download/116146

All of the report pages should be prepared for acquisition and distribution by DTIC. All of the report pages should be of good quality for copying purposes. No pages should be missing.

The format and standard required by your institution for the preparation of theses and dissertations shall be used for the final report. In the absence of any institutional standards, you may wish to refer to the American National Standards Institute (ANSI) document Z39.18-1987, “Scientific and Technical Reports: Organization, Preparation, and Production,” for guidance. The report may be obtained from:

American National Standards Institute, Inc.
1430 Broadway
New York, NY 10018

It is anticipated that all final technical reports will be unclassified and that distribution will not be limited. However, for final technical reports that require a limited distribution as deemed necessary by DTRA, a Distribution List will be provided with the comments on the draft final technical report. The Distribution List should be formatted to match the rest of the report, placed at the end of the report, and added to the Table of Contents. The number of pages in the Distribution List should be added to the total page count and included in the total number of pages cited in Block 15 of the SF-298.

The draft of the final technical report will be due not later than forty-five (45) days prior to the end of the period of performance. The draft of the final technical report (including a draft SF-298) must be submitted electronically as follows:

• Email the draft of the final technical report to dtrabasicresearch@mail.mil (file size must be less than 10MB). The file name should be ‘Draft Final Report’ and the Grant number, e.g. Draft Final Report HDTRA1-12-1-9999.

• Provide a copy of the report to the Administrative Office identified in the Grant.

Within thirty (30) days, this draft will be reviewed by DTRA and comments will be provided to the Grantee to ensure the report complies with DTRA final report requirements. Such review and comment does not restrict the conduct or reporting of the project research
findings/outcomes and, in accordance with Article 35, does not restrict Grantee's ability to publish. Grantee shall incorporate such requested changes so that the report incorporates and complies with agreement final reporting requirements terms. Final Technical Reports are due ninety (90) days after the expiration or termination of the award. The final submission should be made in accordance with the draft final report submission instructions.

**Final Metrics.** A final metrics table (in MS Excel format) is required. A template and specific instructions will be provided in advance of the submission deadline. The final metrics file should be submitted along with the Final Technical Report. The fields contained in the final metrics file are analogous to those of the annual submissions. The final metrics file shall contain only data from the last annual reporting period until the end of the award's funded Period of Performance.

- Email the final Metrics File to drabasicresearch@mail.mil (file size must be less than 10MB). The file name should be ‘Final Metrics’ and the Grant number, e.g. Final Metrics HDTRA1-12-1-9999.

10. **Financial Reporting Requirements.**

Federal Financial Reports (SF-425) are due no later than 1 July of each year with data “as of” 30 May of that year. Grants effective after 31 January will not require a Federal Financial Report until 1 July of the following year. All financial reports shall be submitted to the Administration Office identified in Block 6 of the Research Grant. In addition, the Federal Financial Report must be submitted electronically as follows:

- Email the Federal Financial Report to drabasicresearch@mail.mil (file size must be less than 10MB). The file name should be the Year, ‘Federal Financial Report’ and the Grant number, e.g. 2015 Federal Financial Report HDTRA1-12-1-9999.

11. **Delegation of Administration Duties.**

Certain grant administration duties have been delegated to the Administration Office identified in Block 6 of the Research Grant. These duties are as follows:

1) Provisionally approve all Grant and Cooperative Agreement Vouchers.
2) Perform all property administration services except the approval of recipient's requests to purchase equipment with grant funds. Such approvals must be granted by the DTRA Grants Officer.
3) Perform all plant clearance functions.
4) Approve requests for Registration for Scientific and Technical Information Services (DD Form 1540).
5) Obtain all financial report(s) (see Article 10 of this document).
6) Execute administrative closeout procedures, which include the following:
   a. Obtain the final Report of Inventions and Subcontracts (DD Form 882).
   b. Obtain final payment request, if any.
   c. Obtain final property report and dispose of purchased property and government furnished equipment (GFE) in accordance with the DoDGRS Part 22, Subpart G.
   d. Perform a review of final incurred costs and assist the Grants Officer in resolving exceptions, if any, resulting from questioned costs.
   e. Assure that all refunds due the Government are received by the Grantor.
NOTE: This term and condition is **not applicable** to instrumentation and equipment grant awards.

12. **Security.**

As a general rule, PI’s will not need access to classified security information in the conduct of research supported under this Grant. Should it appear that access to such information is desirable the recipient shall advise the Grantor and request clearance for the investigator. Should information be developed during the course of work under this Grant that, in the judgment of the PI or the recipient, should be classified, the Grants Officer shall be notified immediately.

13. **Representations and Assurances.**

By accepting funds under this Grant, the recipient assures that it will comply with applicable provisions of the national policies and statutory/regulatory/executive-based requirements detailed below.

**LIVE ORGANISMS.** By signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provisions of the following national policies concerning live organisms:

1) For human subjects:

a) Adhere to the requirements for protection of human subjects per the DoD level terms and conditions as well as the following DTRA requirements:

b) The recipient shall adhere to DTRA local clause 252.223-9002 – Protection of Human Subjects (Aug 2010). The full text of this clause is as follows:

All research under this grant involving human subjects must be conducted in accordance with 32 CFR 219, 10 U.S.C 980, and DoDD 3216.02, as well as other applicable federal and state regulations. Grantees must be cognizant of and abide by the additional restrictions and limitations imposed on the DoD regarding research involving human subjects, specifically as regards vulnerable populations (32 CFR 219 modifications to subparts B-D of 45 CFR 46), recruitment of military research subjects (32 CFR 219), and surrogate consent (10 U.S.C. 980).

DTRA Directive 3216.01 of June 9, 2010 establishes the DTRA Human Subjects Protection Program, sets forth the policies, defines the applicable terms, and delineates the procedures necessary to ensure DTRA compliance with federal and DoD regulations and legislation governing human subject research. The regulations mandate that all DoD activities, components, and agencies protect the rights and welfare of human subjects of study in DoD-supported research, development, test and evaluation, and related activities hereafter referred to as "research". The requirement to comply with the regulations applies to new starts and to continuing research.

The DTRA directive requires that research using human subjects may not begin or continue until the Defense Threat Reduction Agency’s Research Oversight Board (ROB) has reviewed and approved the proposed protocol. Grantees and subcontractors are required to submit a valid federal assurance for their organization
(institution, laboratory, facility) that has been issued by either DoD or the Department of Health and Human Services, and documentation of review of proposed protocols by the local Institutional Review Board (IRB) to include consent forms for any planned research using human subjects to the DTRA ROB for its review through the Grants Officer's representative (if assigned) or the Grants Officer. The ROB review is separate from, and in addition to, local IRB review.

A study is considered to involve human research subjects if: 1) there is interaction with the subject (simply talking to the subject qualifies; no needles are required); and 2) if the study involves collection and/or analysis of personal/private information about an individual, or if material used in the study contains links to such information.

Written approval to begin research or subcontract for the use of human subjects under the proposed protocol will be provided in writing from the DTRA ROB, through the Grants Officer. A copy of this approval shall be maintained by both the Grantee and the government. Any proposed modifications or amendments to the approved protocol or consent forms must be submitted to the local IRB and the DTRA ROB for review and approval. Examples of modifications/amendments to the protocol include but are not limited to:

- a change of the PI;
- changes in duration or intensity of exposure to some stimulus or agent;
- changes in the information requested of volunteers, or changes to the use of specimens or data collected; or
- changes in perceived or measured risks or benefits to volunteers that require changes to the study.

Research pursuant to such modifications or amendments shall not be initiated without IRB and ROB approval except when necessary to eliminate apparent and immediate hazards to the subject(s).

Research projects lasting more than one year require IRB review at least annually, or more frequently as required by the responsible IRB. ROB review and approval is required annually. The Grantee or subcontractor must provide documentation of continued IRB review of protocols for ROB review and approval in accordance with these Terms and Conditions. Research must not continue without renewed ROB approval unless necessary to eliminate apparent and immediate hazards to the subject(s).

Non-compliance with any provision of this clause may result in withholding of payments under the grant pursuant to the grant's payments clause(s) and/or grant termination pursuant to the grant's termination clause(s). The government shall not be responsible for any costs incurred for research involving human subjects prior to protocol approval by the ROB.

2) For animals:
   a. Adhere to the requirements for protection of animal subjects per the DoD level terms and conditions as well as the following DTRA requirements:
b. DTRA local clause 252.235-9001 – Prohibition of Use of Laboratory Animals (Jul 2010). The full text of this clause is as follows:

The grant recipient shall obtain approval from the US Army Medical Research and Material Command (MRMC), Animal Care and Use Review Office (ACURO) prior to conducting research on live nonhuman vertebrates. Studies involving non-human primates, dogs, cats, or marine mammals will require a site visit by an ACURO laboratory animal veterinarian as a condition of approval. DoD may also conduct site visits involving research on other animals when deemed appropriate. The animal research facility is responsible for notifying the DoD sponsor if Association for the Assessment and Accreditation of Laboratory Animal Care accreditation is lost or the facility is under USDA inspection. DoD also has the right to a site inspection under these circumstances.

The grant recipient (including subcontractors) is expressly forbidden to use laboratory animals in any manner whatsoever without the express written approval of MRMC ACURO.

The grant recipient shall complete the ACURO Animal Use Appendix for Research Involving Animals found at the following web site: http://mrmc.amc.army.mil/index.cfm?parentid=research_protections.acuro_animalappendix. Submit the completed ACURO appendix, contact information, the DTRA grant number and a copy of the grant for processing to the email address listed at the ACURO website. Once ACURO approves the effort, the grant recipient will receive written approval to begin animal use from the US Army MRMC ACURO by separate email. The grant recipient shall promptly provide a copy of the approval to the Grants Officer and Grants Officer representative. After approval, changes or protocol amendments must be submitted to and approved by ACURO before implementation.

The grant recipient, or subcontractors as appropriate, shall submit the most recent U.S. Department of Agriculture Animal Care Inspection Report annually in accordance with instructions provided.

Non-compliance with any provision of this clause may result in termination of the grant.

DoD Instruction 3216.01, dated September 13, 2010, provides policy and requirements for the use of animals in DoD-funded research based on Army Regulation 40-33. The DoD definition of animal is any live nonhuman vertebrate. All proposals that involve the use of animals must be in compliance with DoD Instruction 3216.01 and AR 40-33. DTRA requires that research using animals not begin or continue until the ACURO has reviewed and approved the proposed animal use. For animals, the provisions include rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966 (U.S.C. 2131-2156); and (ii) the “Guide for the Care and Use of Laboratory Animals,” National Institutes of Health Publication No. 86-23

RESEARCH INVOLVING RECOMBINANT DNA MOLECULES. Any recipient performing research involving recombinant DNA molecules and/or organisms and viruses
containing recombinant DNA molecules agrees by acceptance of this award to comply with the National Institutes of Health "Guidelines for Research Involving Recombinant DNA Molecules," July 5, 1994 (59 FR34496) amended August 5, 1994 (59 FR40170) amended April 27, 1995 (60 FR 20726), or such later revision of those guidelines as may be published in the Federal Register.

COMBATING TRAFFICKING IN PERSONS. The recipient agrees to comply with the trafficking in persons requirement in Section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)) as implemented by 2 CFR 175.

1) Provisions applicable to a recipient that is a private entity.

   a. You as the recipient, your employees, sub-recipients under this award, and sub-recipients' employees may not—
      • Engage in severe forms of trafficking in persons during the period of time that the award is in effect;
      • Procure a commercial sex act during the period of time that the award is in effect; or
      • Use forced labor in the performance of the award or subawards under the award.

   b. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if you or a sub-recipient that is a private entity—
      • Is determined to have violated a prohibition in paragraph 1)a. of this award term; or
      • Has an employee who is determined by the agency official authorized to terminate the award to have violated a prohibition in paragraph 1)a. of this award term through conduct that is either
        o Associated with performance under this award; or
        o Imputed to you or the sub-recipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Government-wide Debarment and Suspension (Non-procurement)." as implemented by our agency at 2 CFR Part 376.

2) Provision applicable to a recipient other than a private entity.

   a. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if a sub-recipient that is a private entity—
      • Is determined to have violated an applicable prohibition in paragraph 1)a. of this award term; or
      • Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph 1)a. of this award term through conduct that is either
        o Associated with performance under this award; or
        o Imputed to the sub-recipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Government-wide
Debarment and Suspension (Non-procurement),” as implemented by our agency at 2 CFR Part 376.

3) Provisions applicable to any recipient.
   a. You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph 1)a. of this award term.
   b. Our right to terminate unilaterally that is described in paragraph 1)b. or 2)a. of this Article:
      • Implements Section 106(g) of the TVPA, as amended (22 U.S.C. 7104(g)), and
      • Is in addition to all other remedies for noncompliance that are available to us under this award.
   c. You must include the requirements of paragraph 1)a. of this award term in any subaward you make to a private entity.

4) Definitions. For purposes of this award term:
   a. "Employee" means either:
      • An individual employed by you or a sub-recipient who is engaged in the performance of the project or program under this award; or
      • Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.
   b. "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.
   c. "Private entity":
      • Means any entity other than a State, local government, Indian tribe, or foreign public entity, as those terms are defined in 2 CFR 175.25.
      • Includes:
         o A non-profit organization, including any non-profit institution of higher education, hospital, or tribal organization other than one included in the definition of Indian tribe at 2 CFR 175.25(b).
         o A for-profit organization.
   d. "Severe forms of trafficking in persons,” “commercial sex act,” and "coercion" have the meanings given at Section 103 of the TVPA, as amended (22 U.S.C. 7102).

PROHIBITION ON USING FUNDS UNDER GRANTS AND COOPERATIVE AGREEMENTS WITH ENTITIES THAT REQUIRE CERTAIN INTERNAL CONFIDENTIALITY AGREEMENTS. The recipient agrees to comply with the requirements in section 743 of the Financial Services and General Government Appropriations Act, 2015 (Division E of the Consolidated and Further Continuing Appropriations Act, 2015, Pub. L. 113-235):
1) The recipient may not require its employees, contractors, or sub-recipients seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting them from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

2) The recipient must notify its employees, contractors, or sub-recipients that the prohibitions and restrictions of any internal confidentiality agreements inconsistent with paragraph 1) of this award provision are no longer in effect.

3) The prohibition in paragraph 1) of this award provision does not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

4) If the Government determines that the recipient is not in compliance with this award provision, it:

   a. Will prohibit the recipient’s use of funds under this award, in accordance with section 743 of Division E of the Consolidated and Further Continuing Resolution Appropriations Act, 2015, (Pub. L. 113-235) or any successor provision of law; and

   b. May pursue other remedies available for the recipient’s material failure to comply with award terms and conditions.


Data collection activities, if any, performed under this Grant are the responsibility of the recipient. Awarding agency support of the project does not constitute approval of the survey design, questionnaire content, or data collection procedures. The recipient shall not represent to respondents that such data are being collected for or in association with the awarding agency without the specific written approval of the cognizant awarding agency official. However, this requirement is not intended to preclude mention of the awarding agency support of the project in response to an inquiry or acknowledgment of such support in any publication of this data.

15. Publications and Acknowledgement of Sponsorship.

Publication of results of the research project in an appropriate professional journal is encouraged as an important method of recording and reporting scientific information. The recipient agrees that in the release of information relating to the grant, such release shall include the following statement, “The project or effort depicted was or is sponsored by the Department of the Defense, Defense Threat Reduction Agency. The content of the information does not necessarily reflect the position or the policy of the federal government, and no official endorsement should be inferred.” For purposes of this provision, information includes news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association proceedings, symposia, etc.

When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing projects or programs funded in whole or in part with federal money, all recipients receiving federal funds, shall clearly state: (i) the percentage of total costs of the

Page 16 of 17
program or project which will be financed with federal money, and (ii) the dollar amount of federal funds for the project or program.

16. **Authorization to Perform Activities Abroad.**

If the award recipient is a foreign institution, the recipient assures that it has been duly authorized to operate and do business in the country or countries in which the grant is to be performed, that it has obtained all appropriate licenses, permits, and approvals required in connection with the grant's proposed activities; and that it will fully comply with all the laws, decrees, labor standards and regulations of such country or countries during the performance of the grant. U.S. Government funds may not be used in support of a project which is prohibited by law in the country or countries in which it is undertaken. DTRA does not assume responsibility for the recipient's compliance with the laws and regulations of the country or countries in which the activities are to be conducted.

17. **Inconsistency between English Version and Translation of Grant.**

The foreign recipient shall ensure that all contract correspondence that is addressed to the U.S. Government is submitted in English or with an English translation. In the event of inconsistency between the terms of the grant and any translation thereof into another language, the meaning in the English language shall control.
### AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>3. EFFECTIVE DATE</th>
<th>4. PROCUREMENT REQ. NO.</th>
<th>5. PROJECT NO (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P000063</td>
<td>23-Mar-2020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. ISSUED BY</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFENSE THREAT REDUCTION AGENTY-AC</td>
<td>HDTRA</td>
</tr>
<tr>
<td>3725 JOHN L. ROLLINS ROAD, MSC 0291</td>
<td></td>
</tr>
<tr>
<td>FORT BELVOIR VA 20110-5001</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. ADMINISTERED BY</th>
<th>LOCATION</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DODA GARDEN CITY</td>
<td>65 STEWART AVENUE</td>
<td>63309A</td>
</tr>
<tr>
<td>GARDEN CITY, NY 11530-4761</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. NAME AND ADDRESS OF CONTRACTOR</th>
<th>9A. AMENDMENT OF SOLICITATION NO.</th>
<th>9B. DATED (SEE ITEM 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOMESLTH ALLIANCE INC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>468 W 50TH ST 7TH FL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEW YORK NY 10018-2077</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>FACILITY CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3MV18</td>
<td></td>
</tr>
</tbody>
</table>

| 11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS |

- [ ] The above numbered solicitation is amended as set forth in Item 11. The hour and date specified for receipt of Offer is [ ] extended, [ ] is not extended.

**Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:**
- By completing Items 8. and 12. and retaining copies of the amendment.
- By acknowledging receipt of this amendment, each copy of the offer submitted, or by separate written communication which includes a reference to the solicitation and amendment numbers.

**PLAIN OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MUST BE IN REJECTION OF YOUR OFFER:**

**Your return of this amendment does not alter or affect any submitted offer.**

12. ACCOUNTING AND APPROPRIATION DATA (if required)

**See Schedule**

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation, etc.) SET FORTH IN ITEM 14 PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

DTFA Terms and Conditions for Grants Awards, Section 5

**E. IMPORTANT:** Contractor [x] is not. [ ] is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where applicable)

**Modification Control Number:** 0(4)

The purpose of this modification is:

1. Combine the scope and value of Option CLN 0004 and 0005 into CLN 0003.
2. Extend the POP of CLN 0003 from 07/29/2020 to 10/01/2022 at no additional cost to the Government.
3. Update Grant POC.
4. Update grant funding profile and invoice schedule.

![Image](image.png)

**EXCEPTION TO SF 30**

APPROVED BY OIRM 11-84

STANDARD FORM 30 (Rev. 10-83)

30-105-04

PRESCRIBED BY OSA

FAR (48 CFR) 33.243
SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $1,509,531.10 from $2,881,912.56 to $4,391,443.66.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0003
The estimated/max cost has increased by $1,509,531.10 from $997,623.66 to $2,507,154.76.
The total cost of this line item has increased by $1,509,531.10 from $997,623.66 to $2,507,154.76.

CLIN 0004
The CLIN extended description has changed from:
Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia
In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0004 HAS BEEN COMBINED WITH CLIN 0003. THIS OPTION IS NOT TO BE EXERCISED.

CLIN 0005
The estimated/max cost has decreased by $840,216.30 from $840,216.30 to $0.00.
The total cost of this line item has decreased by $840,216.30 from $840,216.30 to $0.00.

CLIN 0005
The CLIN extended description has changed from:
Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia
In accordance with the following attachments: SOW at Exhibit A dated 29 July 2016 and DTRA Terms and Conditions for Grant Awards dated 31 October 2016 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0005 HAS BEEN COMBINED WITH CLIN 0003. THIS OPTION IS NOT TO BE EXERCISED.
The estimated/max cost has decreased by $669,314.80 from $669,314.80 to $0.00. The total cost of this line item has decreased by $669,314.80 from $669,314.80 to $0.00.

SUBCLIN 000302 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000302</td>
<td>Fund</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Funding in support of CLIN 0003

COST

<table>
<thead>
<tr>
<th>ESTIMATED COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,599,531.10</td>
</tr>
</tbody>
</table>

ACRN AD
CIN: HDTRA10343370001

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000302:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0003 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 30-JUN-2019 TO</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>29-JUL-2020</td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 30-JUN-2019 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION</td>
<td></td>
</tr>
<tr>
<td>01-OCT-2022</td>
<td></td>
<td>AGENCY/CT-1</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN T. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation
Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $1,509,531.10 from $2,881,912.56 to $4,391,443.66.

SUBCLIN 000302:
Funding on SUBCLIN 000302 is initiated as follows:

ACRN: AD

CIN: HDTRA10343370001

A c t i n g  D a t e : 044315 097 0134 000 N 2020/2022 D 3400 09015155BR_KD_BP_TB_20
2022_0134_3400_SCNCT DTRA 410

Increase: $1,509,531.10
Total: $1,509,531.10

The following have been modified:

252.601-9000  GRANT POINTS OF CONTACT (MAY 2009)

a.  Grant Specialist:
   Name [redacted]
   Defense Threat Reduction Agency/BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone [redacted]
   Email add

b.  Grantee Business Office:
   Name: Mr. Aleksei Chmara
   Title: Authorized Organizational Representative
   Phone: 212-380-4473
   E-mail: chmara@ecohealthalliance.org

c.  Grantee Principal Investigator (PI):
   Name: Dr. Kevin Olival
   Title: Associate Vice President for Research
   Phone: 212-380-4478
   E-mail: olival@ecohealthalliance.org

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)
**FUNDING PROFILE:**
The amount of $2,507,154.76 is obligated for work to be performed during the period beginning with grant award and continuing through 10/01/2022. The Government's liability is limited to the amount obligated.

**INVOICE SCHEDULE:**

<table>
<thead>
<tr>
<th>INVOICE NO</th>
<th>DATE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30-Jul-19</td>
<td>$83,135.36</td>
</tr>
<tr>
<td>2</td>
<td>30-Aug-19</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>3</td>
<td>30-Sep-19</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>4</td>
<td>30-Oct-19</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>5</td>
<td>30-Nov-19</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>6</td>
<td>30-Dec-19</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>7</td>
<td>30-Jan-20</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>8</td>
<td>29-Feb-20</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>9</td>
<td>30-Mar-20</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>10</td>
<td>30-Apr-20</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>11</td>
<td>30-May-20</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>12</td>
<td>3-Jun-20</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>13</td>
<td>31-Jul-20</td>
<td>$62,897.34</td>
</tr>
<tr>
<td>14</td>
<td>31-Aug-20</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>15</td>
<td>31-Sep-20</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>16</td>
<td>31-Oct-20</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>17</td>
<td>30-Nov-20</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>18</td>
<td>31-Dec-20</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>19</td>
<td>31-Jan-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>20</td>
<td>28-Feb-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>21</td>
<td>31-Mar-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>22</td>
<td>30-Apr-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>23</td>
<td>31-May-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>24</td>
<td>30-Jun-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>25</td>
<td>31-Jul-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>26</td>
<td>31-Aug-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>27</td>
<td>30-Sep-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>28</td>
<td>31-Oct-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>29</td>
<td>30-Nov-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>30</td>
<td>31-Dec-21</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>31</td>
<td>31-Jan-22</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>#</td>
<td>Date</td>
<td>Amount</td>
</tr>
<tr>
<td>----</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>32</td>
<td>28-Feb-22</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>33</td>
<td>31-Mar-22</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>34</td>
<td>30-Apr-22</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>35</td>
<td>31-May-22</td>
<td>$62,897.12</td>
</tr>
<tr>
<td>36</td>
<td>30-Jun-20</td>
<td>$62,897.12</td>
</tr>
</tbody>
</table>

*The invoice amounts listed above are estimates. Submitted invoice amounts will be reflective of actual costs incurred on a monthly basis.

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO.
P00001

3. EFFECTIVE DATE
25-May-2018

4. PROCUREMENT NUMBER NO.

5. PROCUREMENT MODIFICATION CODE

6. ISSUED BY
DEFENSE THREAT REDUCTION AGENCY
DCAR
755 JOHN J. LONGHAN RD
FT BELVOIR, VA 22060-5201

7. ADMINISTERED BY
DCMA GARDEN CITY
665 STEWART AVENUE
GARDEN CITY NY 11530-3761

8. NAME AND ADDRESS OF CONTRACTOR
ECOHEALTH ALLIANCE INC
65 S. FULTON ST
NEW YORK, NY 10011-3537

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MOD. OF CONTRACT/ORDER NO.
HDTRA17-10064

10B. DATED (SEE ITEM 13)
05-Sep-2017

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended. ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
(a) By completing Items 15 and 16, and returning copies of the amendment; (b) By acknowledging receipt of the amendment on each copy of the offer submitted; or by separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE TO ACKNOWLEDGE TO BE RECORDED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. (X) Items of this amendment are decisive of an offer already submitted, such decision by letter or telegram, provided such telegram identifies reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
HDTRA Terms and Conditions

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not. ☑ is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)
Modification Control Number: 00[4]
RQN: HDTRA1724052 Amend No. 1

The purpose of this modification is to:
1. Provide funding on subCLIN 000102 in the amount of $122,582.38, in support of CLIN 0001, Yr 1 activities.
2. Provide funding on subCLIN 000201 in the amount of $979,366.52, in support of CLIN 0002, Yr 2 activities.
3. Update the invoice schedule.

All terms and conditions remain unchanged.

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/Offeror

15C. DATE SIGNED
25-May-2018

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED
25-May-2018

(Signature of person authorized to sign)

(Signature of Contracting Officer)
SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000102 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000102</td>
<td>Funding in support of CLIN 0001</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESTIMATED COST</td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>ACRN AB</td>
<td></td>
<td></td>
<td></td>
<td>$122,592.38</td>
</tr>
<tr>
<td></td>
<td>CIN: HDTRA172405201000102</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUBCLIN 000201 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000201</td>
<td>Funding in support of CLIN 0002</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESTIMATED COST</td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>ACRN AB</td>
<td></td>
<td></td>
<td></td>
<td>$979,366.52</td>
</tr>
<tr>
<td></td>
<td>CIN: HDTRA172405201000201</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000102:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000201:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office
As a result of this modification, the total funded amount for this document was increased by $1,101,958.90 from $782,330.00 to $1,884,288.90.

**SUBCLIN 000102:**
Funding on SUBCLIN 000102 is initiated as follows:

ACRN: AB

CIN: HDTRA172405201000102

Acctng Data: 044315 097 0134 000 N 20182020 D 34HQ 0901515BR KD BP OT 18 1820 0134 34HQ
SCNCT DTRA 410

Increase: $122,592.38

Total: $122,592.38

**SUBCLIN 000201:**
Funding on SUBCLIN 000201 is initiated as follows:

ACRN: AB

CIN: HDTRA172405201000201

Acctng Data: 044315 097 0134 000 N 20182020 D 34HQ 0901515BR KD BP OT 18 1820 0134 34HQ
SCNCT DTRA 410

Increase: $979,366.52

Total: $979,366.52

The following have been modified:

252,632-9000  GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:
The amount of $1,884,288.90 is obligated for work to be performed during the period beginning with grant award and continuing through 10/01/2019. Additional incremental funding planned, but not obligated, is:

Year 3 (FY20) $997,623.66
Year 4 (FY21) $840,216.30
Year 5 (FY22) $669,314.80

The Government’s liability is limited to the amount obligated.

INVOICE SCHEDULE:

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>DATE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>November 1, 2017</td>
<td>$122,592.38</td>
</tr>
<tr>
<td>2</td>
<td>December 1, 2017</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>3</td>
<td>January 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Amount</td>
</tr>
<tr>
<td>---</td>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>4</td>
<td>February 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>5</td>
<td>March 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>6</td>
<td>April 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>7</td>
<td>May 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>8</td>
<td>June 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>9</td>
<td>July 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>10</td>
<td>August 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>11</td>
<td>September 1, 2018</td>
<td>$71,120.90</td>
</tr>
<tr>
<td>12</td>
<td>October 1, 2018</td>
<td>$71,121.00</td>
</tr>
</tbody>
</table>

*The invoice amounts listed above are estimates. Submitted invoice amounts will be reflective of actual costs incurred on a monthly basis.*

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00002
3. EFFECTIVE DATE 22 May 2019
4. REQUISITION/PURCHASE REQ. NO. 662214E
5. PROJECT NO. NA0000

6. ISSUED BY CODE HDTRA
   DEFENSE THREAT REDUCTION AGENCY AC
   9252 JOHN L. HICKENLOOER ROAD, MSC 0091
   FORT BELVOIR VA 20160-5091
7. ADMINISTERED BY (Include 5 digit FSC) CODE S3393A
   DODA GARDEN CITY
   66 STEWART AVENUE
   GARDEN CITY NY 11530-4761

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
   ECOSAL HEALTH ALLIANCE INC
   DR REIN DUVAL
   490 W 50TH ST 7TH FL
   NEW YORK NY 10018-1020

9A. AMENDMENT OF SOLICITATION NO. 1164
9B. DATED (SEE ITEM 11) X 05-Sep-2017
10A. MGID. OF CONTRACT/ORDER NO. HDTRA1164 E 05-Sep-2017
10B. DATED (SEE ITEM 13) X 05-Sep-2017

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer.
☐ is extended, ☐ is not extended.
   Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
   a) By completing Items 8-13, and returning __________ copies of the amendment.
   b) By acknowledging receipt of this amendment on each copy of the offer submitted.
   c) By a separate letter or telegram which includes a reference to the solicitation and amendment numbers.
   d) USE ONE OR MORE ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED AS PERIOD
   REJECTION OF YOUR OFFER. In the event of an amendment, you desire to withdraw, or alter any offer submitted, such withdrawal or alteration
   provided in the document, shall contain reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.
   IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
   CONTRACT/ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying
   office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
   ☑ D. OTHER (Specify type of modification and authority)
   DITRA Terms and Conditions #7 - Funding increment and/or Options.

E. IMPORTANT: Contractor ☑ is not. ☐ is required to sign this document and return __________ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter
   where feasible):
   Modification Control Number: 00006
   The purpose of this Modification is to:
   1) To exercise funds for Year 3 (CLIN 0003) activities in the amount of $997,623.66
   2) All other terms and conditions of the grant award remain unchanged.

   ☐

15A. NAME AND TITLE OF SIGNER (Type or print)
   15B. CONTRACTOR/OFFEROR
   15C. DATE SIGNED 22-May-2019

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
   16B. UNITED STATES OF AMERICA
   16C. DATE SIGNED 22-May-2019

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84
STANDARD FORM 30 (Rev. 10-83)
Presented by OMA
FAR (48 CFR) 53.243
30-105-04
SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000301 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000301</td>
<td>Funding In support of Clin 0003 FFP</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

| NET AMT | $0.00 |

ACRN AC
CIN: HDTRA19311280001

$997,623.66

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000301:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0003 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 02-OCT-2019 TO 01-OCT-2020</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 30-JUN-2019 TO 29-JUL-2020</td>
<td>N/A</td>
<td>N/A</td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation:

Summary for the Payment Office:

As a result of this modification, the total funded amount for this document was increased by $997,623.66 from $1,884,288.90 to $2,881,912.56.

CLIN 0003:

AC: 044315 097 0134 000 N 20192021 D 3400 0901515BR_KD_BP_TB_19 1921_0134_3400_SCNCT
DTRA 410 (CIN SUBCLIN) was increased by $0.00 from $0.00 to $0.00
   The contract ACRN AC has been added.
   The CIN SUBCLIN has been added.

SUBCLIN 000301:
Funding on SUBCLIN 000301 is initiated as follows:

ACRN: AC

CIN: HDTRA19311280001

Accounting Data: 044315 097 0134 000 N 20192021 D 3400 0901515BR_KD_BP_TB_19
1921_0134_3400_SCNCT DTRA 410

Increase: $997,623.66
Total: $997,623.66

The following have been modified:

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:
The amount of $2,881,912.56 is obligated for work to be performed during the period beginning with grant award and continuing through 07/29/2020. The amount of $997,623.66, is obligated for work to be performed during Year 3. Additional incremental funding planned, but not obligated, is:

Option CLIN 0004 (Year 4) (FY21) $840,216.30
Option CLIN 0005 (Year 5) (FY22) $669,314.80

The Government's liability is limited to the amount obligated.

INVOICE SCHEDULE:

<table>
<thead>
<tr>
<th>INVOICE NO.</th>
<th>DATE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>July 30, 2019</td>
<td>$83,135.36</td>
</tr>
<tr>
<td>2</td>
<td>August 30, 2019</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>3</td>
<td>September 30, 2019</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>4</td>
<td>October 30, 2019</td>
<td>$83,135.30</td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Amount</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>5</td>
<td>November 30, 2019</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>6</td>
<td>December 30, 2019</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>7</td>
<td>January 30, 2020</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>8</td>
<td>February 29, 2020</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>9</td>
<td>March 30, 2020</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>10</td>
<td>April 30, 2020</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>11</td>
<td>May 30, 2020</td>
<td>$83,135.30</td>
</tr>
<tr>
<td>12</td>
<td>June 30, 2020</td>
<td>$83,135.30</td>
</tr>
</tbody>
</table>

*The invoice amounts listed above are estimates. Submitted invoice amounts will be reflective of actual costs incurred on a monthly basis.*

(End of Summary of Changes)
<table>
<thead>
<tr>
<th></th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR</td>
<td>13187</td>
<td>14516</td>
<td>12416</td>
<td>15052</td>
<td>13552</td>
</tr>
<tr>
<td>BK</td>
<td>11815</td>
<td>11815</td>
<td>11815</td>
<td>11815</td>
<td>12501</td>
</tr>
<tr>
<td>CM</td>
<td>14216</td>
<td>7988</td>
<td>16124</td>
<td>7245</td>
<td>4844</td>
</tr>
<tr>
<td>Int Conf travel</td>
<td>4900</td>
<td>4900</td>
<td>4900</td>
<td>4900</td>
<td>4900</td>
</tr>
<tr>
<td>Dom Conf travel</td>
<td>1260</td>
<td>4120</td>
<td>4120</td>
<td>4120</td>
<td>4120</td>
</tr>
<tr>
<td>Meet Assaf</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
</tr>
<tr>
<td>Total</td>
<td>41028</td>
<td>43889</td>
<td>49925</td>
<td>43682</td>
<td>40467</td>
</tr>
</tbody>
</table>

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dom Total</td>
<td>$1,810</td>
<td>$4,670</td>
<td>$4,670</td>
<td>$4,670</td>
<td>$4,670</td>
</tr>
<tr>
<td>Int'l Total</td>
<td>$39,218</td>
<td>$39,219</td>
<td>$45,255</td>
<td>$39,012</td>
<td>$35,797</td>
</tr>
<tr>
<td>Total</td>
<td>$41,028</td>
<td>$43,889</td>
<td>$49,925</td>
<td>$43,682</td>
<td>$40,467</td>
</tr>
</tbody>
</table>

39033  45191  38419  35654  38175
Good Morning,

Attached is grant HDTRA1-19-1-0033 for your records.

Thank you,

Contractor

Contract Specialist

All Native Group
**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>5. EFFECTIVE DATE</th>
<th>6. ISSUED BY</th>
<th>7. RESPONSIBLE OFFICER/CONTACT PERSON</th>
<th>8. NAME AND ADDRESS OF CONTRACTOR</th>
<th>9. AMENDMENT OF SOLICITATION NO.</th>
<th>10. MOD. OF CONTRACT/ORDER NO.</th>
<th>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>45 SUMMER STREET, ROOM 267</td>
<td>460 WORTH ST, 16 FL</td>
<td></td>
<td>10A. MOD. OF CONTRACT/ORDER NO.</td>
<td>15-Aug-2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Boston, MA 02114-2697</td>
<td>NEW YORK, NY 10014-2701</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CODE: 3M5I8</td>
<td>CODE: N6270B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

- [ ] The above numbered solicitation is amended as set forth in Item 14. The hours and date specified for receipt of Offer are not extended.
- [ ] The above numbered solicitation is amended as set forth in Item 14. The hours and date specified for receipt of Offer are not extended.
- [ ] The above numbered solicitation is amended as set forth in Item 14. The hours and date specified for receipt of Offer are not extended.

**12. ACCOUNTING AND APPROPRIATION DATA (if required)**

See Schedule

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.**

**IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14**

A. **THIS CHANGE ORDER IS ISSUED PURSUANT TO:** (Specify authority) **THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.**

B. **THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103.**

C. **THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:**

D. **OTHER** (Specify type of modification and authority)

DTRA Terms and Conditions section 5

**E. IMPORTANT:** Contractor is required to sign this document and return copies to the issuing office.

**14. DESCRIPTION OF AMENDMENT/MODIFICATION**

- Organized by OCF section headings, including solicitation/contract subject matter
- Where feasible:
  - Modification Control Number: 06(4)
  - Incremental funding of $436,10

**15. NAME AND TITLE OF SIGNER (Type or print)**

<table>
<thead>
<tr>
<th>15A. NAME AND TITLE OF SIGNER (Type or print)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15B. CONTRACTOR/OFFER OR FIRM</td>
</tr>
<tr>
<td>15C. DATE SIGNED BY</td>
</tr>
</tbody>
</table>

**16. DATE SIGNED**

<table>
<thead>
<tr>
<th>16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)</th>
<th>16B. DATE SIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>16C. DATE SIGNED BY</td>
<td></td>
</tr>
</tbody>
</table>

**SIGNATURE OF PERSON AUTHORIZED TO SIGN:**

**SIGNATURE OF CONTRACTING OFFICER:**

**STANDARD FORM 30 (Rev. 10-03)**

**APPROVED BY OMB 11-84**

**30-105-04**

**48 CFR (Rev. 10-83)**

**Prescribed by OSA**

**53.243**
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $436.10 from $998,000.90 to $998,437.00.

SUBCLIN 000102:

AB: 044315 097 0134 000 N 20192021 D 3400 0901515BR_KD_BP_TB_19 1921_0134 3400 SCNCT DTRA 140 (CIN HDTTRA19312200001) was increased by $436.10 from $996,413.90 to $996,850.00.

The following have been modified:

252.601-9000  GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [NAME]
   Defense Threat Reduction Agency/AL-ACC
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone [TELEPHONE]
   email address [EMAIL]

b. Grantee Business Office:
   Name: Dr. Aleksei Chmura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   E-mail: chmura@ecohealthalliance.org

c. Grantee Principal Investigator (PI):
   Name: Dr. William Karesh
   Title: Executive Vice President of Health and Policy
   Phone: (212) 380-4463
   E-mail: karesh@ecohealthalliance.org

(End of Summary of Changes)
AWARD/CONTRACT

1. THIS CONTRACT IS A RATED ORDER UNDER DFAS (15 CFR 703)

2. CONTRACT (Proc. Muni. No.)
   HDTRA1 1810033

3. EFFECTIVE DATE
   15 Aug 2019

4. REQUISITION/PURCHASE REQUEST PROJECT NO.

5. ISSUED BY CODE
   HDTRA1

6. ADMINISTERED BY CODE
   NG205

7. NAME AND ADDRESS OF CONTRACTOR
   BECONEHEALTH ALLIANCE INC.
   MR. ALBERTO CHURUA
   460 W 34TH ST 17TH FL
   NEW YORK NY 10001-2117

8. DELIVERY
   [ ] FOB ORIGIN [ X ] OTHER
   (See blanks)

9. DISCOUNT FOR PROMPT PAYMENT

10. SUBMIT INVOICES
    (Include with acceptable remittance)
    TO THE ADDRESS

11. SHIP TO MARK FOR CODE
    HDTRA1

12. PAYMENT WILL BE MADE BY CODE
    HDTRA1

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN
    COMPETITION:
    [ ] 10 USC 2304(c)(1) [ ] 14 USC 253(c)(1)

14. ACCOUNTING AND APPROPRIATION DATA

15A. ITEM NO. 15B. SUPPLIES/ SERVICES 15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT

SEE SCHEDULE

16. TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>X</th>
<th>SEC.</th>
<th>DESCRIPTION</th>
<th>PAGE(S)</th>
<th>(X) SEC.</th>
<th>DESCRIPTION</th>
<th>PAGE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>A</td>
<td>SOLICITATION/CONTRACT FORM</td>
<td>1</td>
<td>I</td>
<td>CONTRACT CLAUSES</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>B</td>
<td>SUPPLIES OR SERVICES AND PRICES/COSTS</td>
<td>2-5</td>
<td>J</td>
<td>LIST OF ATTACHMENTS</td>
<td>12</td>
</tr>
<tr>
<td>X</td>
<td>C</td>
<td>DESCRIPTION/ SPEC. WORK STATEMENT</td>
<td>6</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>D</td>
<td>PACKAGING AND MARKING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>E</td>
<td>INSPECTION AND ACCEPTANCE</td>
<td>7</td>
<td>K</td>
<td>REPRESENTATIONS CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>DELIVERIES OR PERFORMANCE</td>
<td>8</td>
<td>L</td>
<td>INSURANCE, CONDS. AND NOTICES TO OFFERORS</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>G</td>
<td>CONTRACT ADMINISTRATION DATA</td>
<td>9-11</td>
<td>M</td>
<td>EVALUATION FACTORS FOR AWARD</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>H</td>
<td>SPECIAL CONTRACT REQUIREMENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART II - CONTRACT CLAUSES

Contracting Officer will complete item 17. SEIZED BIDS OR NEGOTIATED PROCUREMENT OR 18. SEIZED BID PROCUREMENT AS APPLICABLE

17. I. PERFORMANCE BID AWARD (Contractor is not required to submit this document)

18. SEALING BID AWARD (Contractor is not required to seal this document)

19A. NAME AND TITLE OF SIGNER (Type or print)
   [ ] 20A. NAME OF CONTRACTING OFFICER
   [ ] 20B. DATE SIGNED
   [ ] 20C. UNITED STATES OF AMERICA

19B. NAME OF CONTRACTOR

19C. DATE SIGNED
   15-Aug-2019

AUTHORIZED FOR LOCAL REPRODUCTION

PREVIOUS EDITION IS NOT EFFECTIVE
Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td></td>
<td>1</td>
<td></td>
<td>$998,464.00</td>
<td>$998,464.00</td>
</tr>
</tbody>
</table>

YEAR 1: FRBAA14-6-2-0333
FFP
Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics.

In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.

FOB: Destination

| NET AMT | $998,464.00 |

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Funding for CLIN 0001
FFP

| NET AMT | $0.00 |

ACRN AA
CIN: HDTXA19514590001

$1,587.00
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000102</td>
<td>Funding for CLIN 0001 FFP</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NET AMT</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>ACRN AB</td>
<td></td>
<td></td>
<td></td>
<td>$996,413.90</td>
</tr>
<tr>
<td>CIN: HDTRA19312200001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0002</td>
<td>YEAR 2: FRBAA14-6-2-0333 FFP</td>
<td>1</td>
<td></td>
<td>$998,181.00</td>
<td>$998,181.00</td>
</tr>
<tr>
<td>OPTION</td>
<td>Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| NET AMT | $998,181.00 |</p>
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>OPTION</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0003</td>
<td></td>
<td>YEAR 3: FRBAA14-6-2-0333</td>
<td>1</td>
<td></td>
<td>$997,709.00</td>
<td>$997,709.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NET AMT</strong></td>
<td></td>
<td></td>
<td><strong>$997,709.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>OPTION</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0004</td>
<td></td>
<td>YEAR 4: FRBAA14-6-2-0333</td>
<td>1</td>
<td></td>
<td>$997,193.00</td>
<td>$997,193.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NET AMT</strong></td>
<td></td>
<td></td>
<td><strong>$997,193.00</strong></td>
<td></td>
</tr>
<tr>
<td>ITEM NO</td>
<td>SUPPLIES/SERVICES</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td>UNIT PRICE</td>
<td>AMOUNT</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------</td>
<td>----------</td>
<td>------</td>
<td>------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>0005</td>
<td>YEAR 5: FRBAA14-6-2-0333</td>
<td>1</td>
<td></td>
<td>$997,467.00</td>
<td>$997,467.00</td>
<td></td>
</tr>
<tr>
<td>OPTION</td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.

FOB: Destination

| NET AMT | $997,467.00 |
Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

252.601-9002 GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-14-24- FRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate, Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CFDA #: 12.531

c. Authority: 10 U.S.C. 2358 as amended
Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0002</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>0003</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>0004</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>0005</td>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
</tbody>
</table>
### DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE TO DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 19-AUG-2019 TO 18-AUG-2020</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0002</td>
<td>POP 19-AUG-2020 TO 18-AUG-2021</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>0003</td>
<td>POP 19-AUG-2021 TO 18-AUG-2022</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION)</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>0004</td>
<td>POP 19-AUG-2022 TO 18-AUG-2023</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION)</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>0005</td>
<td>POP 19-AUG-2023 TO 18-AUG-2024</td>
<td>N/A</td>
<td>(SAME AS PREVIOUS LOCATION)</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 644615 097 0134 000 N 20182020 D 34HQ 0901515BR_KD_BP_OT_18 1820_0134_34HQ_SCNCT DTRA 410
AMOUNT: $1,587.60

AB: 644615 097 0134 000 N 20192021 D 3400 0901515BR_KD_BP_TB_19 1921_0134_3400_SCNCT DTRA 410
AMOUNT: $996,413.90

ACRN CLIN/SLIN CIN AMOUNT
AA 090101 HDTRA19314590001 $1,587.60
AB 090102 HDTRA19312200001 $996,413.90

CLAUSES INCORPORATED BY REFERENCE

252.232-7007 Limitation Of Government’s Obligation APR 2014

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

d. Grant Specialist:
   Name: [REDACTED]
   Defense Threat Reduction Agency/AL-ACC
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone (703) 772-3976
   email addr

e. Grantee Business Office:
   Name: Dr. Aleksei Chmura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   E-mail: chmura@ecohealthalliance.org

f. Grantee Principal Investigator (PI):
   Name: Dr. William Karesh
   Title: Executive Vice President of Health and Policy
   Phone: (212) 380-4463
   E-mail: karesh@ecohealthalliance.org

252.601-9001 GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)
g. Grants Officer's Representative (GOR) for this Grant is:

Name: [Redacted]
Defense Threat Reduction Agency/BTRP
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6701
Telephone: [Redacted]
Email address: [Redacted]

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S REPRESENTATIVE

1. The Grants Officer's Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement's reporting requirements. Perceived deviations from the agreement's terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected; to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient's inability or unwillingness to conform to the agreement's requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
FUNDING PROFILE:
The amount of $998,000.90 is obligated for work to be performed during the period beginning with grant award and continuing through August 18, 2020. Additional incremental funding planned, but not obligated, is:

FY19  $463,10

The Government’s liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE SCHEDULE</th>
<th>Date</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>2</td>
<td>10/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>3</td>
<td>11/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>4</td>
<td>12/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>5</td>
<td>1/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>6</td>
<td>2/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>7</td>
<td>3/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>8</td>
<td>4/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>9</td>
<td>5/19/2020</td>
<td>$83,205.34</td>
</tr>
<tr>
<td>10</td>
<td>6/19/2020</td>
<td>$83,205.34</td>
</tr>
<tr>
<td>11</td>
<td>7/19/2020</td>
<td>$83,205.34</td>
</tr>
<tr>
<td>12</td>
<td>8/19/2020</td>
<td>$83,205.34</td>
</tr>
</tbody>
</table>
Section I - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Statement of Work</td>
<td>6</td>
<td>05-DEC-2018</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>DTRA Terms and Conditions</td>
<td>18</td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00002

5. EFFECTIVE DATE 24-Mar-2020

4. REQUISITION/PURCHASE REQ. NO.

8. NAME AND ADDRESS OF CONTRACTOR
ECOGAIHAL ALLIANCE INC
MISSISSIPPI SHORES
460 W JOHNSTON ST
NEW YORK NY 1001-207

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MFG. OF CONTRACT/ORDER NO.

10B. DATED (SEE ITEM 13)

X 15-Aug-2019

CODE SMMG8 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer are extended. ☐ is not extended.

Order must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:

☑ By completing Item 12 and returning __________ copies of the amendment to: ☑ By sending a telegram or teletype message which includes a reference to the solicitation and amendment numbers. ☑ By resubmitting your original offer within the modified time limit as extended.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.

IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER, NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER NO. IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103B.

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

☐ IMPORTANT: Contractor ☑ is not. ☐ is required to sign this document and return __________ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)

Modification Control Number: 0011

The purpose of this modification:

(1) Combine the scope and value of Option CLNs 0002, 0003, 0004, and 0005 into base CLIN 0001.

(2) Extend the PoP of CLIN 0001 through August 18, 2024 at no additional cost to the Government.

(3) Update Grant POC.

(4) Update grant funding profile and invoice schedule.

SMMLG8

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR 16B. UNITED STATES OF AMERICA

15C. DATE SIGNED 16C. DATE SIGNED

(Signature of person authorized to sign) ☑

(Signature of Contracting Officer) ☐

24-Mar-2020

STANDARD FORM 30 (Rev. 10-83)
APPROVED BY OIRM 11-84

FAR (48 CFR) 35.243
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $3,990,550.00 from $998,464.00 to $4,989,014.00.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0001
The unit price amount has increased by $3,990,550.00 from $998,464.00 to $4,989,014.00.
The unit of issue Lot has been added.
The total cost of this line item has increased by $3,990,550.00 from $998,464.00 to $4,989,014.00.

CLIN 0002
The CLIN extended description has changed from:

Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics. In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0002 HAS BEEN COMBINED WITH CLIN 0001. THIS OPTION IS NOT TO BE EXERCISED.

The pricing detail quantity has decreased by 1.00 from 1.00 to 0.00.
The total cost of this line item has decreased by $998,181.00 from $998,181.00 to $0.00.

CLIN 0003
The CLIN extended description has changed from:

Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics. In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0003 HAS BEEN COMBINED WITH CLIN 0001. THIS OPTION IS NOT TO BE EXERCISED.
The pricing detail quantity has decreased by 1.00 from 1.00 to 0.00.
The total cost of this line item has decreased by $997,709.00 from $997,709.00 to $0.00.

CLIN 0004
The CLIN extended description has changed from:

Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics.In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0004 HAS BEEN COMBINED WITH CLIN 0001. THIS OPTION IS NOT TO BE EXERCISED.

The pricing detail quantity has decreased by 1.00 from 1.00 to 0.00.
The total cost of this line item has decreased by $997,193.00 from $997,193.00 to $0.00.

CLIN 0005
The CLIN extended description has changed from:

Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology, and Socio-Economics.In accordance with the following attachments: SOW at Exhibit A dated December 5, 2018 and DTRA Terms and Conditions for Grant Awards, dated April 6, 2018 at Exhibit B.

To:

FOR MISSION CONTINUITY, THE SCOPE AND VALUE FROM CLIN 0005 HAS BEEN COMBINED WITH CLIN 0001. THIS OPTION IS NOT TO BE EXERCISED.

The pricing detail quantity has decreased by 1.00 from 1.00 to 0.00.
The total cost of this line item has decreased by $997,467.00 from $997,467.00 to $0.00.

SUBCLIN 000103 is added as follows:
SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been modified:

252.601-9002  GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-14-24-FRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate, Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CTDA #: 12.351

c. Authority: 10 U.S.C. 2358 as amended

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000103:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
</table>
### POP 19-AUG-2019 TO 18-AUG-2020

<table>
<thead>
<tr>
<th>Delivery Date</th>
<th>OOS</th>
<th>Address Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2019 TO 18-AUG-2020</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>Delivery Date</th>
<th>OOS</th>
<th>Address Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2019 TO 18-AUG-2024</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0002 has been changed from:

<table>
<thead>
<tr>
<th>Delivery Date</th>
<th>OOS</th>
<th>Address Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2020 TO 18-AUG-2021</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>Delivery Date</th>
<th>OOS</th>
<th>Address Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2020 TO 18-AUG-2021</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0003 has been changed from:

<table>
<thead>
<tr>
<th>Delivery Date</th>
<th>OOS</th>
<th>Address Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
</tr>
</tbody>
</table>
To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2021 TO 18-AUG-2022</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0004 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2022 TO 18-AUG-2023</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2022 TO 18-AUG-2023</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0005 has been changed from:
<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2023 TO 18-AUG-2024</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-1</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 19-AUG-2023 TO 18-AUG-2024</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-1</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $3,990,550.00 from $998,437.00 to $4,988,987.00.

SUBCLIN 000103:
Funding on SUBCLIN 000103 is initiated as follows:

ACRN: AC

CIN: HDTRA10343770001

Accting Data: 044315 097 01 34 000 N 20202022 D 3400 0901515BR_KD_BP_TB_20 2022_0134_3400_SCNCT DTRA 410

Increase: $3,990,550.00

Total: $3,990,550.00

The following have been modified:

252.632-9000 GRANT FUNDING PROFILE (MAR 2012)
FUNDING PROFILE:
The amount of $4,989,014 is obligated for work to be performed during the period beginning with grant award and continuing through August 18, 2024.

The Government’s liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>1</th>
<th>9/19/2019</th>
<th>$83,205.33</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>10/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>3</td>
<td>11/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>4</td>
<td>12/19/2019</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>5</td>
<td>1/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>6</td>
<td>2/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>7</td>
<td>3/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>8</td>
<td>4/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>9</td>
<td>5/19/2020</td>
<td>$83,205.33</td>
</tr>
<tr>
<td>10</td>
<td>6/19/2020</td>
<td>$83,205.34</td>
</tr>
<tr>
<td>11</td>
<td>7/19/2020</td>
<td>$83,205.34</td>
</tr>
<tr>
<td>12</td>
<td>8/19/2020</td>
<td>$83,205.34</td>
</tr>
<tr>
<td>13</td>
<td>9/19/2020</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>14</td>
<td>10/19/2020</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>15</td>
<td>11/19/2020</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>16</td>
<td>12/19/2020</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>17</td>
<td>1/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>18</td>
<td>2/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>19</td>
<td>3/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>20</td>
<td>4/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>21</td>
<td>5/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>22</td>
<td>6/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>23</td>
<td>7/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>24</td>
<td>8/19/2021</td>
<td>$83,181.75</td>
</tr>
<tr>
<td>25</td>
<td>9/19/2021</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>26</td>
<td>10/19/2021</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>27</td>
<td>11/19/2021</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>28</td>
<td>12/19/2021</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>29</td>
<td>1/19/2022</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>30</td>
<td>2/19/2022</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>31</td>
<td>3/19/2022</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>32</td>
<td>4/19/2022</td>
<td>$83,142.42</td>
</tr>
<tr>
<td>33</td>
<td>5/19/2022</td>
<td>$83,142.41</td>
</tr>
<tr>
<td>34</td>
<td>6/19/2022</td>
<td>$83,142.41</td>
</tr>
<tr>
<td>35</td>
<td>7/19/2022</td>
<td>$83,142.41</td>
</tr>
<tr>
<td>36</td>
<td>8/19/2022</td>
<td>$83,142.41</td>
</tr>
<tr>
<td>37</td>
<td>9/19/2022</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>38</td>
<td>10/19/2022</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>39</td>
<td>11/19/2022</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>40</td>
<td>12/19/2022</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>41</td>
<td>1/19/2023</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>42</td>
<td>2/19/2023</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>43</td>
<td>3/19/2023</td>
<td>$83,099.42</td>
</tr>
<tr>
<td>44</td>
<td>4/19/2023</td>
<td>$83,099.42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>45</td>
<td>5/19/2023</td>
<td>$83,099.41</td>
</tr>
<tr>
<td>46</td>
<td>6/19/2023</td>
<td>$83,099.41</td>
</tr>
<tr>
<td>47</td>
<td>7/19/2023</td>
<td>$83,099.41</td>
</tr>
<tr>
<td>48</td>
<td>8/19/2023</td>
<td>$83,099.41</td>
</tr>
<tr>
<td>49</td>
<td>9/19/2023</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>50</td>
<td>10/19/2023</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>51</td>
<td>11/19/2023</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>52</td>
<td>12/19/2023</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>53</td>
<td>1/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>54</td>
<td>2/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>55</td>
<td>3/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>56</td>
<td>4/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>57</td>
<td>5/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>58</td>
<td>6/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>59</td>
<td>7/19/2024</td>
<td>$83,122.25</td>
</tr>
<tr>
<td>60</td>
<td>8/19/2024</td>
<td>$83,122.25</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
Dear all,

Dr. Karesh asked me to send the attached budget.

Best,

Amanda Andre, LMSW
Program Coordinator
EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001
1.212.380.4470 (direct)
1.212.380.4465 (fax)
Caution-www.ecohealthalliance.org

EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.

On Mon, Jul 8, 2019 at 2:49 PM Caution-mailto:[] wrote:

Thank you for responding so quickly. Please send what you have, because we (Contracts) actually look at more detail than what was required for the grants.gov < Caution-http://grants.gov > submission.

Thank you,

From: William B. Karesh <karesh@ecohealthalliance.org > Caution-mailto:karesh@ecohealthalliance.org >
Sent: Monday, July 8, 2019 2:46 PM
<table>
<thead>
<tr>
<th></th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR</td>
<td>13187</td>
<td>14516</td>
<td>12416</td>
<td>15052</td>
<td>13552</td>
</tr>
<tr>
<td>BK</td>
<td>11815</td>
<td>11815</td>
<td>11815</td>
<td>11815</td>
<td>12501</td>
</tr>
<tr>
<td>CM</td>
<td>14216</td>
<td>7988</td>
<td>16124</td>
<td>7245</td>
<td>4844</td>
</tr>
<tr>
<td>Int Conf travel</td>
<td>4900</td>
<td>4900</td>
<td>4900</td>
<td>4900</td>
<td>4900</td>
</tr>
<tr>
<td>Dom Conf travel</td>
<td>1260</td>
<td>4120</td>
<td>4120</td>
<td>4120</td>
<td>1260</td>
</tr>
<tr>
<td>Meet Assaf</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41028</strong></td>
<td><strong>43889</strong></td>
<td><strong>49925</strong></td>
<td><strong>43682</strong></td>
<td><strong>40467</strong></td>
</tr>
<tr>
<td>Dom Total</td>
<td>$1,810</td>
<td>$4,670</td>
<td>$4,670</td>
<td>$4,670</td>
<td>$4,670</td>
</tr>
<tr>
<td>Intl Total</td>
<td>$39,218</td>
<td>$39,219</td>
<td>$45,255</td>
<td>$39,012</td>
<td>$35,797</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$41,028</strong></td>
<td><strong>$43,889</strong></td>
<td><strong>$49,925</strong></td>
<td><strong>$43,682</strong></td>
<td><strong>$40,467</strong></td>
</tr>
<tr>
<td></td>
<td>39033</td>
<td>45191</td>
<td>36419</td>
<td>35654</td>
<td></td>
</tr>
</tbody>
</table>
Subject: [Non-DoD Source] Re: FRBAA14-6-2-0333

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Dear [Name],

We have a budget for the project in Excel format, but it contains more itemized details than that required for submission into the proposal submission system - i.e. multiple rows in our version have to be combined to result in the totals for some of the fields we entered into grants.gov.

We can send you the version we have, but do understand that the rows will not all match one-to-one with the submission format.

Please let me know how you would like us to proceed.

William B. Karesh, D.V.M
Executive Vice President for Health and Policy

EcoHealth Alliance
460 West 34th Street - 17th Floor
New York, NY 10001 USA
President, OIE Working Group on Wildlife

Co-chair, IUCN Species Survival Commission - Wildlife Health Specialist Group

EPT Partners Liaison, USAID Emerging Pandemic Threats - PREDICT-2 Program

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On Jul 8, 2019, at 2:16 PM, [Email Address] wrote:

Good Afternoon,

Please provide DTRA with a copy of your budget/cost proposal in MS Excel. Please ensure all project years are included and all formulas are visible.

Thank you.
For the best experience, open this PDF portfolio in Acrobat X or Adobe Reader X, or later.

Get Adobe Reader Now!
BUDGET JUSTIFICATION FOR ECOHEALTH ALLIANCE

EcoHealth Alliance requests a total of $4,899,297.20 over all-years of the proposed project to support personnel, travel, equipment, consortium agreements, and applicable indirect costs.

A. Key Personnel
William B. Karesh, D.V.M., Principal Investigator (2 calendar months for all years) 3 calendar months for OY2). Dr. Karesh will be responsible for the overall coordination of this project. He will provide overall project oversight, study design development and refinement, data analysis, publication support, and annual stakeholder meeting participation. We request $48,535 in Y1 with a 5% cost of living increase each subsequent year.

Jonathan Epstein, Ph.D., Co-Investigator (1.0 calendar month in all years). Dr. Epstein will be a technical advisor to the project, advising on data interpretation, targeted animal sampling based on data as they come in over the course of the project, and laboratory techniques. He will also assist with writing and dissemination. We request $14,597 in Y1 with a 5% cost of living increase each subsequent year.

Noam Ross, Ph.D., Senior Research Scientist, Modeler (1 calendar month in all years). Dr. Ross will be a technical advisor to the project, advising on data organization, analysis, and writing with a focus on statistical analytics. We request $8,138 in Y1 with a 5% cost of living increase each subsequent year.

Emily Hagan, M.P.H., Behavioral Risk Scientist (3.0 calendar months in all years). Ms. Hagan will provide medical anthropology expertise for the questionnaires and analysis, supervise and conduct the IRB processes and trainings on the human subject work for local partners, and assist with data organization and analysis. We request $16,937 in Y1 with a 5% cost of living increase each subsequent year.

Catherine Machalaba, M.P.H., Policy Advisor (3.5 calendar months in all years). Ms. Machalaba will be a technical advisor to the project, advising on study design and risk reduction. She will conduct a risk reduction workshop in OY2 and will help develop revised biosurveillance and reporting strategies with and for Liberian partners. We request $25,050 in Y1 with a 5% cost of living increase each subsequent year.

Whitney Bagge, Ph.D., Modeler (7 calendar months Y1-OY1, 7.5 calendar months in OY2). Dr. Bagge will provide day-to-day project development and strategic management, including through regular in-person meetings and weekly phone and other direct communications with partners. She will also supervise field sampling, data analysis, and data and information dissemination through workshops, conferences, and papers, for which we request $50,225 in Y1 with a 5% cost of living increase each subsequent year.

B. Other Personnel
Amanda Andre, LMSW, Operations Assistant (5.5 calendar months in all years). 4 calendar months for OY2. Ms. Andre will be the administrative lead handling project management responsibilities related to budgeting, expenses, managing of subcontracts, and meeting scheduling and logistics. She will coordinate all meetings and travel and ensure compliance with funding and contractual requirements. We request $27,373 in Y1 with a 5% cost of living increase each subsequent year.

Fringe Benefits
Fringe benefits are calculated as 36.8% of base salary p.a. with $70,234 requested in Y1 calculated from the base salary for all Personnel. In Y2 – OY2, we budget for a 5% per year cost of living allowance increase in all salaries.

C. Equipment
No funds are requested for equipment.

D. Travel
Domestic Travel
Domestic travel is requested for one trip per year for three [b][b][b] program staff to travel from New York City to Washington, DC to meet with Co-Investigator [b][b][b] and key personnel at Georgetown University. Transportation is estimated at $400 per trip along with the government GSA per diem rates for each city. Additional domestic travel support will facilitate four EcoHealth Alliance staff presenting at two domestic conferences annually. In total, we are requesting $13,795 in each year of our proposed work.

International Travel
Foreign travel is requested for partner meetings, in-country trainings, and field research. Seven EHA employees will attend annual meetings. Two EHA staff will make additional trips each year for trainings and field research. Flights for each of these trips is estimated at $3,500 and the federal per diem rates of $200 for lodging in Monrovia, Liberia and $70 for field work as well as the $95 for meals in Monrovia, Liberia and $46 for field work are requested. Additionally, we are requesting travel for staff to present on project findings at international conferences each year with flights estimated at $1,500 and hotels and meals at the government GSA per diem rates for Vienna, Austria for International Meeting on Emerging Diseases and Surveillance (IMED). Travel costs are increased 5% each year to account for pricing increases based upon past, actual, annual price increases.

E. Participant/Trainee Support Costs
No funds are requested for participant or trainee support costs.

F. Other Direct Costs
Materials and Supplies
Co-Investigator Epstein & Modeler/Ecologist Bagge will need a new computer, equipped with Microsoft and Adobe software for which we request $5,178 in Y1.

We request $6,830, annually for material and supplies, including office and travel supplies necessary for project aims for a total of $27,320 over five years. Materials estimated in this cost include Cell Phone Communication costs, Dropbox, Adobe, and Stata costs, and basic office supplies.

Publication Costs
To facilitate the dissemination of project findings, $3,190 per year in only Y2-OY2 is requested for open access publication costs in international peer-reviewed journals.

Consultant Services
For the human behavioral risk part of the project, $1,449 is requested in Y1, $1,126 in Y2 & OY1-OY2 and $1,526 in YR 3 for New England IRB and $3,500 in Y1 for required Collaborative Institutional Training Initiative training for personnel handling human and non-human animals and samples as per IRB and IACUC requirements. For $15,000 per year is
requested. [C] will assist with partner communication, data analysis, and data and information dissemination through workshops, conferences, and papers.

Subawards/Consortium/Contractual Costs
Subcontracts for the National Public Health Institute of Liberia, Society for the Conservation of Nature-Liberia, Liberia Chimpanzee Rescue and Protection, University of Nebraska Medical Center and Georgetown University are outlined in their individual budget justifications.

H. Indirect Costs
We are requesting the EcoHealth Alliance federally approved indirect cost rate of 32% on all applicable direct costs. The USA Department of Defense’s Department of the Navy has approved this rate on 17 July 2019. We have applied our indirect cost rate to the first $25,000 of the subcontracts only in Y1.
BUDGET JUSTIFICATION FOR NATIONAL PUBLIC HEALTH INSTITUTE OF LIBERIA,
LIBERIA

The National Public Health Institute of Liberia (NPHIL) requests a total of $920,568 over all
years of the proposed project to support personnel, travel, equipment, other direct costs and
indirect costs.

A. Key Personnel

[0][6] Co-Investigator (6 calendar month for Y1-0Y2) will provide
overall project oversight for Liberia-based activities. NPHIL is charged with leading all public
health and biomedical research in Liberia, and assumes that role for this project,
leading all elements on the human subjects research side of the project as well as the
laboratory diagnostics elements. will ensure NPHIL meets project tasks and
milestones, will oversee NPHIL’s budget, and will assist with dissemination of findings through
publications and conference presentations. We do not request salary at this time as
will be fully covered by other funding sources during the project period.

[0][6] Co-Investigator (1.5 calendar month for Y1-0Y2). As head of the Liberia
Institute for Biomedical Research (LIPR), will provide direct oversight of all
laboratory activity for the project, for which $2,500 is requested starting in Y1.

[0][6] Candidate, Co-Investigator (1.5 calendar month for Y1-0Y2) directs the national reference laboratory at NPHIL and will ensure compliance with biosafety and
biosecurity project requirements; as a lecturer at the University of Liberia he will also assist with
identification and recruitment of students to work in the laboratory, activities for which $3,000 is
requested starting in Y1.

[0][6] Co-Investigator (1.5 calendar month for Y1-0Y2). As a research
scientist within NPHIL’s medical and public health research division, will participate
in training workshops, processing and testing a subset of samples, and reporting
recommendations to and for process refinements and mitigating challenges
with the day-to-day laboratory workflow, for which $2,075 is requested starting in Y1.

B. Other Personnel

Laboratory Scientists/Technicians (4 calendar months for Y1-0Y2). Four laboratory scientists
and/or technicians—two from NPHIL and two seconded from the Ministry of Agriculture—will
process and test all project samples at LIPR. They will participate in all laboratory workshops,
provide all bench activity (under the supervision of key personnel), and advise on inventory
needs and any problems implementing the laboratory protocol. We request $18,667 for all four
laboratory technicians starting in Y1.

Hospital Project Coordinators (8 calendar months for Y1-0Y2). One coordinator will be
appointed to each of two human clinical study sites (Redemption Hospital and Phebe Hospital)
operating in Y1-Y3. These coordinators will be chosen from existing staff already participating in
other febrile illness studies at the hospitals and will be responsible for participating in human
subjects research training, ensuring hospital staff are sensitized to our inclusion criteria (and
thus able to identify proper candidates), being available for consultation when patients enroll in
the study, collecting consent form and questionnaire data from the patients, and ensuring
samples are collected, stored, and transported in timely fashion. Similarly, one coordinator will
be appointed to each of two human clinical study sites (hospitals in Nimba and Lofa counties) in the option years, if funded. In an effort to train and engage Liberian nurses in public health surveillance and in research, at least one and possibly both of these sites will be staffed through Nursing for All, a non-profit that builds capacity in the nursing profession in Liberia and is presently operating at Ganta United Methodist Hospital in Nimba, one of the sites at which we would like to implement the study in OY1-2. We request $26,250 over the proposed five years of the project.

Hospital Laboratory Technicians (1 calendar month for Y1-OY2). Hospital laboratory technicians will assist with initial processing of patient samples (spinning serum, labeling, and storing) prior to transport to NPHIL. We will similarly provide salary support for technicians at the two option year hospitals if funded. We request $1,667 p.a. for these activities.

Post-doctoral Researcher (6 calendar months for Y3-OY2). Beginning in Y3, we propose to add a post-doctoral researcher to the laboratory team. Liberia does not have a PhD-granting institution, but a number of Liberians are presently undertaking PhD degree programs outside of the country; by Y3 we plan to bring one Liberian individual who has received a PhD in laboratory pathogen research into the project to work with the laboratory scientists on sample processing, testing, and data analysis, for which we request $5,000 starting in Y3.

Bachelor and Masters Students. We intend to include approximately three students per semester on the project, to include undergraduate and graduate students from the University of Liberia (Monrovia) and Cuttington University (Bong). Their duties will depend on their degree program but will include assignments at the human clinical sites (nursing, medical, public health, anthropology students); animal field collection sites (biology, animal science, ecology, anthropology); and laboratory (molecular biology, microbiology). We will preferentially choose students interested in developing their theses based on the project. Each student will receive a stipend of $500 per semester.

Administrator/Program Manager (6 months in Y1-OY2). This individual will act as the administrative lead, handling project management responsibilities related to budgeting, expenses, managing of subcontracts, and meeting scheduling and logistics, activities for which we request $5,000 p.a.

C. Equipment
The existing freezer in which PRECIECT samples are stored at LIBR will remain there when the project ends, and will be available for this project’s use, but its capacity is limited. LIBR will therefore require increased storage capacity for the specimens generated by this project (2,250 humans, up to 4,500 specimens; 3,840 animals, up to 14,550 specimens). A -80°C freezer is requested for sample storage and is estimated at $25,000. Liberia does not have a VAT and our conversations with Liberian partners indicate it is unlikely they will institute one in the near future. Government agencies and non-profits would be exempt from any such tax. If absolutely necessary, we would seek unrestricted funding sources to cover any such costs.

D. Travel
We are requesting travel for one Liberian project participant to attend a regional conference and an international conference in Y3 and OY2 to present on project findings, with flights estimated. For the regional conference flights are estimated at $750 and hotels and meals at the government GSA per diem rates for Accra, Ghana. For the international conference flights are estimated at $2,500 and hotels and meals at the government GSA per diem rates for Vienna, Austria.
In Y3 we plan to bring one Liberian individual who has received a PhD in laboratory pathogen research into the project to work with the laboratory scientists on sample processing, testing, and data analysis as a post-doctoral associate. We will fund a one-month trip for this individual to the University of Nebraska Medical Center to train in the laboratory of co-investigator Dr. [NAME]. A flight is estimated at $3,000 and hotels and meals at the government GSA per diem rates for Corahta, Nebraska.

In total, over the course of the project, we are requesting $20,038 in for International Travel.

E. Participant/Trainee Support Costs

No funds are requested for participant or trainee support costs.

F. Other Direct Costs

Materials and Supplies

We will supply the participating hospitals with all consumables required to collect patient samples, including serum tubes, EDTA tubes, cryovials, vacutainer holder, needles, syringes, nitrile gloves, and nasal swabs, for which we request $2,594 p.a. For the human clinical study implementation sites, our request also includes funding for a centrifuge to enable processing of serum at the hospital clinical laboratories ($460 each) and a tablet for data collection and tracking at each site ($229 each).

Laboratory Testing

Our laboratory request covers three primary types of molecular testing: next-generation sequencing, real-time PCR, and ELISA-based antibody serology. In Y1, we will test 300 existing PREDICT bat and rodent samples, pooled by three, via NGS Amplicon on LIBR's existing MiSeq machine. We will barcode 5% these, a process that most likely will be done outside of Liberia. In Y2-OY2, we will use a Taqman Array Card system (modified for a 96-well plate to run on LIBR's ABI 7500 sequencer) to test human samples for up to 31 pathogens at three samples per plate, and will run nasopharyngeal samples on singleplex PCR to test for key respiratory pathogens. We will run specific real-time PCR to confirm positives; NGS Amplicon to further sequence viral positive human samples (expect not more than 10% to fall into this category) and 10% of negative human samples, and specific antibody ELISAs on convalescent samples from humans who tested positive on TAC plus 20 of their neighbors. For animals in Y2-OY2, we have budgeted for specific antibody ELISAs on all animals, averaging 5 tests each, pooled by 5; NCS on 10% of animal samples pooled by three; singleplex PCR for confirmation of NGS positives (expect ~4%); a new ELISA reader, a new ELISA plate shaker, Mastermix, and miscellaneous consumables. We request $453,414 over the five years of the proposed project. Of this amount, $152,400 is for next-generation sequencing, $4,000 is for barcoding, and the remainder supports the PCR and ELISA testing, which are and will continue to be mainstays of the laboratory.

Meetings and Conferences

We request support for an annual meeting each year for 45 people including personnel from all partner institutions (EHA, NPHIL, SCNL, LCRP, UNMC, GU) as well as local stakeholders. Travel costs for United States-based participants to attend the annual meeting are covered in the EcoHealth Alliance budget. We estimate that for the three-day meeting, eight Liberian partners travelling from outside Monrovia will require transportation, meals and accommodation to be covered, and for Y3, when the annual meeting will function as a broader regional technical meeting, we will also fund two attendees from elsewhere in West Africa (likely Guinea) working...
on similar studies. Additionally, the meetings will require a room rental, lunch for all participants, and printing of materials and supplies. Overall costs are estimated at $10,000 p.a.

We will conduct a series of workshops across the study period, as outlined in the technical proposal and in more detail in Attachment 3. Workshop 1a will cover the overall research study protocol, will occur at the Y1 kickoff meeting, and will include all project participants. Workshop 2a will cover the human study protocol and human subjects research, will occur mid-Y1 and again toward the end of Y3, and will include Task 2 and 4 personnel and students. Workshops 3a and 3b will cover biosafety, biosecurity, and laboratory techniques training, will occur twice during Y1 (at the kickoff meeting and again in the middle of the year) and during Y3, and will include all Task 3 personnel. Workshop 4a will cover the animal sampling protocol and animal subjects research, will occur at the kickoff meeting and during Y3, and will include all Task 4 personnel and students. Workshop 5a will cover analysis of laboratory data (including bioinformatics), will occur during Y2 as the laboratories ramp up their sample testing, and will include Task 3 personnel. Workshop 6a will cover risk reduction analysis and opportunities, will occur during OY2, and all personnel including many from ministries not directly involved in the project will be invited to attend. Across the workshops, the number of participants will vary from 10-20 people for whom we will require catering (lunch) for all participants, room rental, and some materials and supplies. Over the five proposed years of the project, $16,940 is requested to support these workshop trainings.

Two NPHIL personnel will travel to each of the five study communities for two-day, one-night trips to share study findings with community members and discuss risk reduction opportunities in OY1-2. Lodging, meals, and printed materials and supplies are estimated at $310 per visit.

**Freezer Maintenance**

Support of $500 p.a. is requested to cover the cost of freezer maintenance (the newly-purchased freezer and LIBR’s existing freezer) to ensure they are properly maintained, calibrated and in full working order at all times.

**H. Indirect Costs**

We are requesting the federally agreed indirect cost of 10% on all direct costs.
BUDGET JUSTIFICATION FOR SOCIETY FOR CONSERVATION OF NATURE, LIBERIA

The Society for Conservation of Nature, Liberia (SCNL) requests a total of $685,069 over all years of the proposed project to support personnel, travel, equipment, and indirect costs.

A. Key Personnel

[4.6] Co-Investigator (0.6 calendar months per year for all years). As head of SCNL, [4.6] will be responsible for the oversight of all non-human animal sampling activities including preparation, staffing, implementation, and follow-up. He will further oversee the sample transport activity of both animal and human samples, for which SCNL is responsible. We do not request salary for him, since he will be fully covered by other SCNL funding sources.

B. Other Personnel

Annual support is requested for a field supervisor ($650/month), social scientist ($550/month), three field technicians ($550/month each), and two drivers ($330/month each) to make up the field research team. This team will be responsible for all aspects of animal field sampling, including planning, ordering supplies, implementation, ensuring all samples are safely and securely transferred to LIBR for testing, and any needed follow-up. This team will also administer a survey to the patients whose community they visit, administer a similar questionnaire to up to twenty additional community members, and with consent collect blood samples from these individuals for serological testing. Support is requested for an accounting assistant ($720/month) and an administrative assistant ($1,350/month) to assist with procurement, invoicing, scheduling, and field team logistics.

C. Equipment

A field vehicle for field sampling and sample transport is estimated at $45,000. Liberia does not currently have a VAT. Our conversations with Liberian partners indicate that it is unlikely that VAT will be instated in the near future. If it were, Government agencies and non-profits such as SCNL would be exempt from VAT.

D. Travel

Domestic Travel

Domestic travel support will cover fuel, vehicle maintenance, lodging and per diems for overnight trips ($50/day) for eight field team members for four week-long field sampling trips. In addition to transporting the animal samples that it collects in the field, SCNL will also be responsible for picking up and safely and securely transporting all human samples from the clinical study sites to the Liberian Institute for Biomedical Research via the standing cold chain procedures they follow for the animal samples. Vehicle maintenance is calculated at $10,942 in Y1 for the two field vehicles, with higher costs estimated for the current vehicle due to its age and the condition of roads to be utilized, with a 2% increase in cost for each subsequent year. Fuel is estimated based on km to be traveled (664 total) weekly for sample transportation costs to both Phebe Hospital and Robertsport, as well as field travel from those locations and within a 50km radius. Vehicles are estimated to have a fuel efficiency of 20km/gallon with fuel currently costing $3.80/gallon. Cost is calculated at $45,103 in Y1.

E. Participant/Trainee Support Costs

No funds are requested for participant or trainee support costs.

F. Other Direct Costs

Materials and Supplies
We request $458 in Y1 for the purchase of two hand-held tablets with cases to be utilized by the field research team for data collection and organization (animal and human). Tablets will be used to conduct surveys off-line in the field, and to upload the data collected upon returning to SCNL offices. We request $589 for the purchase of a tarp, spade and 40 pitfall traps for rodent sampling. We request $442 for the purchase of a centrifuge to enable processing of medium- and large-animal blood samples in preparation for serological testing.

Field consumables including gloves, Tyvek suits, vacutainers, syringes and needles, EDTA collection tubes, non-EDTA collection tubes, cryotubes, TRIzol, and swabs are needed to conduct field sampling. The budget for consumables will enable us to test 3,360 animals over the course of the project (Y1: 160; Y2: 1,200; Y3: 800; OY1: 800; OY2: 400) and will cover a total of 12 sampling events (Y1: 4; Y2: 3; Y3: 2; OY1: 2; OY2: 1), with $37,943 budgeted for Y1.

H. Indirect Costs
We are requesting a de minimis rate of 10% on all allowable direct costs.
<table>
<thead>
<tr>
<th>Months</th>
<th>EHA</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
<th>Salary/Key Personnel</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>$291,211.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$178,199.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>3.6</td>
<td>3.6</td>
<td>3.5</td>
<td>3.5</td>
<td>$85,884.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>$67,747.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>$86,103.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>$59,721.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.0</td>
<td>23.0</td>
<td>23.0</td>
<td>23.0</td>
<td>23.0</td>
<td>$212,924.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit/Annual Rate</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary (U)</td>
<td>$2,959.00</td>
<td>$2,959.00</td>
<td>$2,959.00</td>
<td>$2,959.00</td>
<td>$2,959.00</td>
<td>$2,959.00</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit/Annual Rate</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Direct Costs</td>
<td>$212,924.97</td>
<td>$212,924.97</td>
<td>$212,924.97</td>
<td>$212,924.97</td>
<td>$212,924.97</td>
<td>$212,924.97</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit/Annual Rate</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Costs</td>
<td>$90,491.15</td>
<td>$90,491.15</td>
<td>$90,491.15</td>
<td>$90,491.15</td>
<td>$90,491.15</td>
<td>$90,491.15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit/Annual Rate</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Expenses</td>
<td>$312,463.31</td>
<td>$312,463.31</td>
<td>$312,463.31</td>
<td>$312,463.31</td>
<td>$312,463.31</td>
<td>$312,463.31</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit/Annual Rate</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcontractor Totals</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit/Annual Rate</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td>$5,362,850.00</td>
<td></td>
</tr>
<tr>
<td>Traveler</td>
<td>Name</td>
<td>Departure</td>
<td>Arrival</td>
<td>Meals and Incidental Expenses Per Day</td>
<td>Flight Expenses</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
<td>-----------</td>
<td>---------</td>
<td>---------------------------------------</td>
<td>----------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Traveler 1</td>
<td>William Kenneway</td>
<td>1/3/04</td>
<td>New York</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
<td>$23.00</td>
</tr>
<tr>
<td>Traveler 2</td>
<td>Whiny Wage</td>
<td>2/10/04</td>
<td>New York</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
<td>$23.00</td>
</tr>
<tr>
<td>Traveler 3</td>
<td>Catherine Kittishoff</td>
<td>3/10/04</td>
<td>New York</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
<td>$23.00</td>
</tr>
</tbody>
</table>

**Domestic Travel**

<table>
<thead>
<tr>
<th>Traveler</th>
<th>Name</th>
<th>Departure</th>
<th>Arrival</th>
<th>Meals and Incidental Expenses Per Day</th>
<th>Flight Expenses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveler 1</td>
<td>William Kenneway</td>
<td>1/3/04</td>
<td>New York</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
</tr>
<tr>
<td>Traveler 2</td>
<td>Whiny Wage</td>
<td>2/10/04</td>
<td>New York</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
</tr>
<tr>
<td>Traveler 3</td>
<td>Catherine Kittishoff</td>
<td>3/10/04</td>
<td>New York</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
</tr>
</tbody>
</table>

**Total**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel</td>
<td>$32.00</td>
<td>$21.00</td>
<td>$23.00</td>
<td>$23.00</td>
<td>$109.00</td>
</tr>
<tr>
<td>Flight</td>
<td>$21.00</td>
<td>$23.00</td>
<td>$23.00</td>
<td>$23.00</td>
<td>$109.00</td>
</tr>
<tr>
<td>Total</td>
<td>$53.00</td>
<td>$44.00</td>
<td>$46.00</td>
<td>$46.00</td>
<td>$218.00</td>
</tr>
<tr>
<td>Category</td>
<td>Y1</td>
<td>Y2</td>
<td>Y3</td>
<td>Y1 Y2 Y3 Average</td>
<td>FY1 FY2 FY3 Average</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Salaries and Wages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Salary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research and Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Salaries and Wages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY1 FY2 FY3 Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Materials and Fuel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Payroll Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Payroll Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- All values are in thousands of dollars.
- Y1, Y2, Y3 represent fiscal years 2019, 2020, 2021, respectively.
- Average values are calculated for Y1, Y2, Y3.
- Total Salaries and Wages include salaries, wages, and benefits.
- Supplies include direct materials, fuel, and transportation costs.
Sampling regime

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Microvesic &amp; Pelvic</td>
<td>150</td>
<td>675</td>
<td>675</td>
<td>0</td>
<td>0</td>
<td>1500</td>
</tr>
<tr>
<td>Human NVP</td>
<td>150</td>
<td>675</td>
<td>675</td>
<td>0</td>
<td>0</td>
<td>1500</td>
</tr>
<tr>
<td>Human Vesic &amp; Leafs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>626</td>
<td>150</td>
<td>1050</td>
</tr>
<tr>
<td>Human NVP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>626</td>
<td>150</td>
<td>1050</td>
</tr>
<tr>
<td>Community samples for serology</td>
<td>0</td>
<td>0</td>
<td>606</td>
<td>100</td>
<td>150</td>
<td>750</td>
</tr>
<tr>
<td>Human Individuals Subtotal</td>
<td>150</td>
<td>675</td>
<td>675</td>
<td>0</td>
<td>0</td>
<td>1500</td>
</tr>
<tr>
<td>Human serology Subtotal</td>
<td>0</td>
<td>0</td>
<td>626</td>
<td>150</td>
<td>1050</td>
<td>1050</td>
</tr>
<tr>
<td>Animal serology Subtotal</td>
<td>0</td>
<td>0</td>
<td>606</td>
<td>100</td>
<td>150</td>
<td>750</td>
</tr>
<tr>
<td>Existing PREDICT samples (no sampling cost - just lab)</td>
<td>320</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>320</td>
</tr>
<tr>
<td>Bat, rodent blood</td>
<td>320</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>320</td>
</tr>
<tr>
<td>Bat, rodent serology</td>
<td>320</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>320</td>
</tr>
<tr>
<td>Animal positive (82)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>All species serology</td>
<td>440</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>440</td>
</tr>
<tr>
<td>Animal targeted community sampling (24)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>All species serology</td>
<td>440</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>440</td>
</tr>
<tr>
<td>Annual serology Subtotal</td>
<td>440</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Animal targeted community sampling (24)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Annual serology Subtotal</td>
<td>440</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Lab regime & budget

<table>
<thead>
<tr>
<th>Test (green=animal, blue=human)</th>
<th>Unit cost ($)</th>
<th>Units/Year 1</th>
<th>Units/Year 2</th>
<th>Units/Year 3</th>
<th>Units/Year 4</th>
<th>Units/Year 5</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG Amplification on PREDICT samples</td>
<td>100</td>
<td>100</td>
<td>5000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Resolving (DNA) tests and readings</td>
<td>250</td>
<td>15</td>
<td>626</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PCR (DNA) on human blood samples</td>
<td>626</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Single plus cycle time PCR on NVP samples</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Specific real-time PCR on positives (estimates 10%)</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MG Amplification on all viral-positive human samples (25%) and 20% of negative human samples</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Specific antibody ELISA on follow-up human samples (positive human plus 20 neighbors)</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Specific antibody ELISA (animal) (4 animals, average 3 tests each)</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MG Amplification on all viral-positive human samples (25%) and 20% of negative human samples</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Specific antibody ELISA on follow-up human samples (positive human plus 20 neighbors)</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Specific antibody ELISA (animal) (4 animals, average 3 tests each)</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Annual serology Subtotal</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Rough estimate $100,000

<table>
<thead>
<tr>
<th>Test (green=animal, blue=human)</th>
<th>Unit cost ($)</th>
<th>Units/Year 1</th>
<th>Units/Year 2</th>
<th>Units/Year 3</th>
<th>Units/Year 4</th>
<th>Units/Year 5</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$14,067</td>
<td>$137,827</td>
<td>$136,475</td>
<td>$9,442</td>
<td>$9,861</td>
<td>$136,475</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$34,560</td>
<td>$136,475</td>
<td>$136,475</td>
<td>$9,442</td>
<td>$9,861</td>
<td>$136,475</td>
<td></td>
</tr>
</tbody>
</table>

Rough estimate $495,414
<table>
<thead>
<tr>
<th></th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>CY1</th>
<th>CY2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1 = Y2 = Y3 = CY1 = CY2</td>
<td>$12,500.00</td>
<td>$12,500.00</td>
<td>$12,500.00</td>
<td>$12,500.00</td>
<td>$12,500.00</td>
<td>$75,000.00</td>
</tr>
</tbody>
</table>

**Note:**
- **Columns:** Y1, Y2, Y3, CY1, CY2, Total
- **Rows:** Each column represents a category of expenses.
- **Total:** The sum of all categories.
<table>
<thead>
<tr>
<th>Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARIES</td>
<td>1</td>
</tr>
<tr>
<td>TRAVEL</td>
<td>2</td>
</tr>
<tr>
<td>OTHER DIRECT COSTS</td>
<td>4</td>
</tr>
<tr>
<td>Date</td>
<td>Employee ID</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>000083</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>100097</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>100002</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>100030</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>100015</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>100016</td>
</tr>
<tr>
<td>01/31/2020</td>
<td>000068</td>
</tr>
<tr>
<td>Date</td>
<td>Departure</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Mon. Feb 24, 2020</td>
<td>2151 Acela</td>
</tr>
<tr>
<td>Thu. Feb 27, 2020</td>
<td>2160 Acela</td>
</tr>
<tr>
<td>Time</td>
<td>Duration</td>
</tr>
<tr>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>6:29 PM – 11:58 PM</td>
<td>8h 29m</td>
</tr>
<tr>
<td>4:25 PM – 9:58 PM</td>
<td>8h 33m</td>
</tr>
<tr>
<td>6:00 AM – 12:52 PM</td>
<td>9h 52m</td>
</tr>
<tr>
<td>4:57 PM – 9:58 PM</td>
<td>8h 1m</td>
</tr>
<tr>
<td>1:25 PM – 6:38 PM</td>
<td>8h 13m</td>
</tr>
<tr>
<td>7:45 AM – 12:37 PM</td>
<td>7h 52m</td>
</tr>
<tr>
<td>Contact Information</td>
<td>Date</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>EcoHealth Alliance</td>
<td>5/3/2018</td>
</tr>
<tr>
<td>Melinda Rostal</td>
<td></td>
</tr>
<tr>
<td>460 W 34th St., 17th Floor</td>
<td></td>
</tr>
<tr>
<td>New York, NY 10001</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P.O. No.</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Due on receipt</td>
</tr>
</tbody>
</table>

NOT-FOR-PROFIT REGULAR SUBSCRIPTION (One Year)
Unlimited access to CITI Program series including Human Subjects Research (HSR), Good Clinical Practice (GCP), Information Privacy and Security (IPS), Animal Care and Use (ACU), and Responsible Conduct of Research (RCR) including the Conflicts of Interest (COI) course (custom module setup fees will apply for institution-specific modules).

PAYMENT OPTIONS:
1. CHECK PAYMENTS: Please make check payable to Citi Program, a division of BRANY, and mail to the address listed above.

2. CREDIT CARD PAYMENTS: Please complete the Credit Card Authorization Form and submit by fax to (844)529-5929. To access the form, click here or copy and paste the link below: https://www.citiprogram.org/citidocuments/CCAFpdf.pdf

3. ELECTRONIC FUNDS TRANSFER PAYMENTS: To request information for EFTs, please email: admin@citiprogram.org and insert title: EFT Information Requested.

Case #373112

This offer will expire SIX MONTHS from the date listed above

| Total | $3,500.00 |
Here’s what’s in your bag.
Get free shipping and free returns on all orders.

Magic Keyboard - US English
5
$495.00

Add a gift message

Order by 5pm, delivers:
Today within 2 hours - Fastest
Thu, Nov 7 - Free
Delivery options for: "000"+ -

Remove

13-inch MacBook Air - Space Gray
1
$1,699.00

Show product details

AppleCare+ for MacBook/MacBook Air
Automatically registered with your Apple hardware
$249.00

Remove

Add a gift message or gift wrap

Order today, delivers:
Nov '16 - Nov 19 - Free
Delivery options for: "000"+ -

Pickup:
Today at Apple West 14th Street
Show more stores

Magic Mouse 2 - Silver
5
$395.00

Remove
<table>
<thead>
<tr>
<th>Date</th>
<th>Paygroup</th>
<th>Rate</th>
<th>Hours</th>
<th>Payroll Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/29/2019</td>
<td>100091</td>
<td>5,850.00</td>
<td></td>
<td>$140,400.00</td>
</tr>
</tbody>
</table>

Hourly Rate at termination: $68.18
Add 10% overhead, benefits, et.: $75.00
# 2020 IRB Fee Schedule

**New England IRB**

<table>
<thead>
<tr>
<th>Services Rendered</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Review</strong></td>
<td></td>
</tr>
<tr>
<td>Initial Study Review (includes protocol, study materials and 1 Consent Form)</td>
<td>$1,449</td>
</tr>
<tr>
<td>Review of Central Principal Investigator (PI)/Change of PI/Co-PI</td>
<td>$851 / PI</td>
</tr>
<tr>
<td>Non-Scheduled IRB Meeting</td>
<td>$1,995</td>
</tr>
<tr>
<td>Each Additional Informed Consent Form (per ICF / per PI)</td>
<td>$373</td>
</tr>
<tr>
<td>Canadian Protocol Level Review</td>
<td>$1,449</td>
</tr>
<tr>
<td><strong>Continuing Review</strong></td>
<td></td>
</tr>
<tr>
<td>Continuing Review of Study</td>
<td>$1,126</td>
</tr>
<tr>
<td>Continuing Review of Central Principal Investigator</td>
<td>$875 / PI</td>
</tr>
<tr>
<td>Ongoing Oversight (non-exempt research not requiring continuing review)</td>
<td>$630 / PI</td>
</tr>
<tr>
<td><strong>Change to Research After Initial Review</strong></td>
<td></td>
</tr>
<tr>
<td>New / Revised Informed Consent (per consent)</td>
<td>$402 / PI</td>
</tr>
<tr>
<td>Protocol Amendment / Clarification Letter (No Revision to ICF)</td>
<td>$440 / PI</td>
</tr>
<tr>
<td>Protocol Amendment (With Revision to the ICF)</td>
<td>$537 / PI</td>
</tr>
<tr>
<td>Review of Revised Product Information</td>
<td></td>
</tr>
<tr>
<td>(i.e. Clinical Investigator Brochure, Package Insert, DSMB reports)</td>
<td>$255 / Document</td>
</tr>
<tr>
<td>Review of Recruitment Services &amp; Supplemental Materials (Per Document)</td>
<td>$303</td>
</tr>
<tr>
<td>Distribution/Processing Fee</td>
<td>$130 / PI</td>
</tr>
<tr>
<td><strong>Translation Services</strong></td>
<td>Variable</td>
</tr>
<tr>
<td>Translation Review Administration Fee</td>
<td></td>
</tr>
<tr>
<td>Distribution/Processing Fee</td>
<td>$318 / Submission</td>
</tr>
<tr>
<td>Translation Vendor Facilitation</td>
<td>$130 / PI</td>
</tr>
<tr>
<td>(when WCG Preferred Vendor is not Used)</td>
<td>$100 / PI</td>
</tr>
<tr>
<td><strong>Close Out of Research</strong></td>
<td></td>
</tr>
<tr>
<td>Study Close Out – Study Level</td>
<td>$318</td>
</tr>
<tr>
<td>Principal Investigator Close Out</td>
<td>$265 / PI</td>
</tr>
<tr>
<td><strong>Other Services and Fees</strong></td>
<td></td>
</tr>
<tr>
<td>Site Visit</td>
<td>Cost Plus $1,166</td>
</tr>
<tr>
<td>Duplication Request/Retrieval (Per Document)</td>
<td>$212</td>
</tr>
<tr>
<td>Administrative Fee for Submission not Using Connexus/IRBNet</td>
<td>$75 / Submission</td>
</tr>
<tr>
<td>Master Protocol / Complex Design Protocol Review</td>
<td>Contact BD</td>
</tr>
<tr>
<td>IRB Exemption Review</td>
<td>$1,097</td>
</tr>
<tr>
<td>New or Modified Generic or Non-Protocol Related Material (for sites/institutions)</td>
<td></td>
</tr>
<tr>
<td>Annual Review of Generic or Non-Protocol Related Material</td>
<td>$911</td>
</tr>
<tr>
<td>Clinical Trial List Service (Per Study) – Optional Service</td>
<td>$911</td>
</tr>
<tr>
<td>Clinical Trial List Service Annual Renewal (Per Study)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$2,500</td>
</tr>
<tr>
<td></td>
<td>$1,000</td>
</tr>
</tbody>
</table>

**TERMS:** Net 30 days unless otherwise agreed to in writing. Late payments may be subject to a monthly finance charge of 1.5% of the amount owed from the due date until payment in full. WCG shall be entitled to recover all reasonable attorney's fees, costs and expenses associated with any efforts to recover payment for overdue invoices. Fees are subject to change without notice.

**Effective:** January 1, 2020
### Software Fees

**Quote #** 115815

<table>
<thead>
<tr>
<th>Terms</th>
<th>NET 30</th>
</tr>
</thead>
</table>

**Contact**

<table>
<thead>
<tr>
<th></th>
<th>Megan Walsh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="mailto:walsh@ecohealthalliance.org">walsh@ecohealthalliance.org</a></td>
</tr>
<tr>
<td></td>
<td>(212) 380-4462</td>
</tr>
</tbody>
</table>

**Quote Date** 8/19/2019

**Expires** 8/26/2019

---

<table>
<thead>
<tr>
<th>EcoHealth Alliance</th>
<th>EcoHealth Alliance</th>
<th>EcoHealth Alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megan Walsh</td>
<td>Accounts Payable</td>
<td>Megan Walsh</td>
</tr>
<tr>
<td>460 W 34th St FL 17</td>
<td>New York, NY 10001</td>
<td>460 W 34th St FL 17</td>
</tr>
<tr>
<td>United States</td>
<td>United States</td>
<td>United States</td>
</tr>
<tr>
<td>(212) 380-4462</td>
<td>(212) 380-4462</td>
<td>(212) 380-4460</td>
</tr>
<tr>
<td><a href="mailto:walsh@ecohealthalliance.org">walsh@ecohealthalliance.org</a></td>
<td><a href="mailto:walsh@ecohealthalliance.org">walsh@ecohealthalliance.org</a></td>
<td><a href="mailto:walsh@ecohealthalliance.org">walsh@ecohealthalliance.org</a></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Adobe subscription renewal</th>
<th>Electronic Delivery</th>
</tr>
</thead>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Adobe Acrobat Pro DC for Teams 12 month subscription renewal</td>
<td>$177.00</td>
<td>2019-09-18</td>
</tr>
<tr>
<td>15 Adobe Creative Cloud for Teams 12 month subscription renewal</td>
<td>$370.00</td>
<td>2019-09-18</td>
</tr>
<tr>
<td></td>
<td>$4,425.00</td>
<td>2020-09-17</td>
</tr>
<tr>
<td></td>
<td>$5,550.00</td>
<td>2020-09-17</td>
</tr>
</tbody>
</table>

**Sub Total:** $9,975.00

**Shipping and Handling:** $0.00

**Tax Rate:** (0.08675) $0.00

**Total:** $9,975.00

---

Please note:

Return policies vary per manufacturer. (Apple and McAfee both have a no returns policy)

Custom configured items/built-to-order items are non-returnable.

Start dates and end dates for renewals may change based on the manufacturer’s guidelines, policies, renewal order date, or date of activation.

Price is subject to change based on potential fluctuation of trade tariff regulation.
Dropbox Inc.
333 Brannan Street
San Francisco, CA 94107
United States
billing-support@dropbox.com

Invoice for EcoHealth Alliance

<table>
<thead>
<tr>
<th>TO</th>
<th>DATE</th>
<th>INVOICE ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megan Walsh</td>
<td>February 25, 2019 6:50 AM GMT</td>
<td>SLSWTLN1NSJ</td>
</tr>
</tbody>
</table>
| walsh@ecohealthalliance.org
10001
United States |

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PRICE</th>
<th>DISCOUNT</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropbox Business Advanced Plan (includes 3 licenses) + 60 Additional Licenses + Unlimited API Call Rate Limit + Unlimited Extended Version History (2/25/2019 to 2/25/2020)</td>
<td>$500.00 $12,000.00 $0.00 $0.00</td>
<td>30% 30% 30% 30%</td>
<td>$420.00 $8,400.00 $0.00 $0.00</td>
</tr>
</tbody>
</table>

Total                                                                 $8,820.00

All amounts shown are in USD.
Clarivate Analytics
Philadelphia, PA 19130
1500 Spring Garden Street, Suite 400
Philadelphia, PA 19130

To: Megan Walsh, Department Head, EcoHealth Alliance

Re: Your EndNote X9 Upgrade License Quote

Sent by e-mail: 10/16/2018

Thank you for your interest in our products. Please accept this letter (via e-mail) as our quote for Endnote X9.

<table>
<thead>
<tr>
<th>License Type</th>
<th>Total Users</th>
<th>Total Price (excludes state tax, if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endnote X9 Upgrade License (US$99.95 each)</td>
<td>40</td>
<td>US$3,998.00</td>
</tr>
</tbody>
</table>

Promotional Pricing Valid 11/16/2018

Purchasing Instructions:
If applicable, send your institution’s Tax-Exempt Certificate for your state’s tax to be excluded from your order.
CONTACT ___________________________ to receive EndNote.

Premium access to EndNote Web – Free
Training and support - $0.00 – Free
Shipping – Digital Download - 50.00 – Free

You may place your order on a purchase order (terms are Net 30), by check/money order drawn on a U.S. bank or Visa/MasterCard/American Express.

Regards,

[Signature]
Account Manager
## Invoice IN88282-1

<table>
<thead>
<tr>
<th>Order #</th>
<th>88282</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms</td>
<td>NET 30</td>
</tr>
<tr>
<td>Contact</td>
<td>Megan Walsh&lt;br&gt; <a href="mailto:Walsh@ecohealthalliance.org">Walsh@ecohealthalliance.org</a>&lt;br&gt; (212) 380-4462</td>
</tr>
<tr>
<td>Invoice Date</td>
<td>4/11/2018</td>
</tr>
<tr>
<td>Due Date</td>
<td>5/11/2018</td>
</tr>
</tbody>
</table>

**Sales Rep:** [Signature]

---

**EcoHealth Alliance**<br> Accounts Payable<br> 450 W 34th St Fl 17<br> New York, NY 10001<br> UNITED STATES<br> walsh@ecohealthalliance.org<br> (212) 380-4462

---

**CCB Technology**<br> Accounts Receivable<br> 2823 Carlisle Ave.<br> Racine, WI 53404<br> (800) 342-4222

---

### (10) Office 2016 Standard Edition licenses

<table>
<thead>
<tr>
<th>#</th>
<th>Supplier</th>
<th>SKU</th>
<th>Description</th>
<th>Unit Price</th>
<th>Quantity</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microsoft Corporation</td>
<td>021-10552</td>
<td>Microsoft Office 2016 Standard Edition license</td>
<td>$94.00</td>
<td>1</td>
<td>$94.00</td>
</tr>
</tbody>
</table>

**Sub Total:** $940.00

Shipping and Handling: $0.00

Tax Rate: 0.00000

**Total:** $940.00

Credits/Payments: $0.00

**Total Due:** $940.00

### Shipping Location

<table>
<thead>
<tr>
<th>1</th>
<th>Supplier</th>
<th>Address</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EcoHealth Alliance Megan Walsh</td>
<td>460 W 34th St Fl 17</td>
<td>New York</td>
<td>NY</td>
<td>10001</td>
<td>10</td>
</tr>
</tbody>
</table>

### Shipping Detail

<table>
<thead>
<tr>
<th>4/10/2018</th>
<th>Supplier</th>
<th>Address</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/10/2018</td>
<td>Microsoft Corporation</td>
<td>021-10552</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tracking Numbers

<table>
<thead>
<tr>
<th>4/10/2018</th>
<th>Supplier</th>
<th>Address</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/10/2018</td>
<td>Other</td>
<td>VIRTUAL (Unrecognized Number)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Please note:

Return policies vary per manufacturer. (Apple and McAfee both have a no returns policy)

Custom configured items/built-to-order items are non-returnable.

Start dates and end dates for renewals may change based on the manufacturer's guidelines, policies, renewal order date, or date of activation.
ECOHEALTH ALLIANCE

Usage From: 10/01/19 - 10/31/19

Important Messages:

**New! Call Recording is now available for Business Hosted Voice services. Contact your Account Executive for details.**

**New York Sales Tax Breakdown For Our Common Bundles**
- **Internet/Voice Bundle**
  - 66% of the total charge is attributable to Internet access service and 34% is attributable to voice service. For purposes of calculating the NY sales tax,
  - 24.5% of the voice fee is attributable to interstate/international service.

- **Toll Free Bundle or Audio Conference Bundle**
  - For purposes of calculating the NY sales tax, 76% of the fee is attributable to interstate/international service.

- **Enterprise Voice Bundle**
  - For purposes of calculating the NY sales tax, 24.5% of the fee is attributable to interstate/international service.

---

**Enhanced Caller ID!**
Altice Business’ newest enhancement is now included in Altice Business Voice services at no additional cost. Not only do we help take the guesswork out of who's calling you, but now we can help detect robocalls too.

**Visit the Customer Portal**
View your invoice, service inventory, pay online, see Call Detail reports and more. Simply go to portal.alticebusiness.com. New access is available through the Request Access button. In person payments can no longer be accepted.
### Usage From

<table>
<thead>
<tr>
<th>Account Number</th>
<th>Usage From</th>
<th>10/01/19 - 10/31/19</th>
<th>Cost 52804</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Taxes and Surcharges

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Total Service Charges

<table>
<thead>
<tr>
<th>Description</th>
<th>From Date</th>
<th>To Date</th>
<th>AVG</th>
<th>Non-Recurring</th>
<th>Recurring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Services

- 10/22/2019 Payment - Thank You
- 3.934.66

### Payments, Credits and Adjustments

- 32394.60
- 32394.60
- 32394.60
- 32394.60
- 32394.60
- 32394.60
- 32394.60
- 32394.60

### Additional Information

- ECOHEALTH ALLIANCE
- alticebusiness.com
Open Access Publication Fees

1. See all Calls for Papers and learn more about publishing in a Collection.

Criteria for Publication

1. The study presents the results of original research.
2. Results reported have not been published elsewhere.
3. Experiments, statistics, and other analyses are performed to a high technical standard and are described in sufficient detail.
4. Conclusions are presented in an appropriate fashion and are supported by the data.
5. The article is presented in an intelligible fashion and is written in standard English.
6. The research meets all applicable standards for the ethics of experimentation and research integrity.
7. The article adheres to appropriate reporting guidelines and community standards for data availability.

PLOS ONE encourages researchers to share early versions of their manuscripts via preprint server, either before or after submission; posting to a preprint server will not preclude consideration of your manuscript.

Peer Review at PLOS ONE

PLOS ONE is a fully peer reviewed journal with a rigorous multi-stage editorial screening and assessment process.

First, we undertake an initial in-house quality check to identify potential issues such as competing interest, compliance with ethical standards for studies involving human and animal subjects, financial disclosures, data availability, and other scientific and policy requirements. Submissions may be returned to authors for changes or clarifications at this stage.

After passing quality control, each manuscript is placed with a member of the Editorial Board who conducts peer review and makes the decision to accept, invite revision, or reject the submitted manuscript. Read the detailed Editorial and Peer Review Process overview.

Ready to Submit?

About

Publication fees

PLOS ONE publication fees are US$1595 per manuscript and will be billed upon acceptance. Authors’ ability to pay publication fees will never be a consideration in the decision whether to publish. Read more about publication fees and publication fee support.

Indexing and archiving

See publishing details for all PLOS journal titles, including ISSN and indexing and archiving information.

PLOS

PLOS is a nonprofit Open Access publisher, innovator and advocacy organization with a mission to advance progress in science and medicine by leading a transformation in research communication.

Contact

Visit the Contact page for details about whom to contact with different queries.

Give Feedback
<table>
<thead>
<tr>
<th>DTRA Questions</th>
<th>EHA Responses</th>
<th>Documentation Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Please provide documentation to support the proposed salaries (key and</td>
<td>Please see the attached documentation of the salaries of current staff as well</td>
<td>PG. 1</td>
</tr>
<tr>
<td>other personnel)</td>
<td>as that of the positions created by this grant.</td>
<td></td>
</tr>
<tr>
<td>2. For domestic travel, please provide documentation (screenshots, links,</td>
<td>A detailed breakdown is provided in the FRBAA14 6-2-0436 Detailed Budget and</td>
<td>PG. 2-3</td>
</tr>
<tr>
<td>quotes, etc.) for transportation cost</td>
<td>documentation of all items is provided in the EHA Documentation file.</td>
<td></td>
</tr>
<tr>
<td>3. Please provide documentation (quotes, screen shots, links, etc.) for</td>
<td>A detailed breakdown is provided in the FRBAA14 6-2-0436 Detailed Budget,</td>
<td>PG. 4-15</td>
</tr>
<tr>
<td>consultant services to support the proposed cost.</td>
<td>Hummingbird RB has been acquired by New England RB since original</td>
<td></td>
</tr>
<tr>
<td></td>
<td>submission. Additionally, Key Personnel is no longer employed at EHA but</td>
<td></td>
</tr>
<tr>
<td></td>
<td>will rather work on this project as a consultant. Please see attached</td>
<td></td>
</tr>
<tr>
<td></td>
<td>documentation for all consultant costs.</td>
<td></td>
</tr>
<tr>
<td>4. Please provide a breakdown of the proposed materials and supplies, to</td>
<td>A detailed breakdown is provided in the FRBAA14 6-2-0436 Detailed Budget and</td>
<td>PG. 4-15</td>
</tr>
<tr>
<td>include quantities and unit prices. Also, provide documentation (quotes,</td>
<td>documentation of all items is provided in the EHA Documentation file.</td>
<td></td>
</tr>
<tr>
<td>screen shots, links, etc.) to support the proposed cost.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Domestic conference location</td>
<td>A detailed breakdown is provided in the FRBAA14 6-2-0436 Detailed Budget for</td>
<td>PG. 4-15</td>
</tr>
<tr>
<td></td>
<td>domestic conferences. There are two domestic conferences included in the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>budget one the ASTMH in Maryland along with WGA. For price estimates, the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2019 conference was held in Tahoe City. Documentation is provided for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>flights from New York to the closest airport in Reno, NV.</td>
<td></td>
</tr>
<tr>
<td>6. Departure location that the staff will be leaving from to present on</td>
<td>Staff will be departing from New York City to attend IMAED in Austria.</td>
<td></td>
</tr>
<tr>
<td>project findings at the international conference in Austria</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DTRA Questions</td>
<td>UCPR Responses</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Please provide documentation to support the proposed salaries (Key and other personnel)</td>
<td>UCPR is being subcontracted as a consultancy for the expertise of the director who has years field experience working on EIDs generally, and in Liberia specifically. His previous contract with DHA for work on the PREDICT project is attached as salary support.</td>
</tr>
<tr>
<td>2</td>
<td>For all travel propose whether domestic and international, please provide departure and arrival locations, number of trips, purpose of each trip, length of each trip, number of travelers, etc.</td>
<td>A detailed breakdown is provided in the FBM-18-09-0-0026 Detailed Budget. Hotels, meals and incidentals are at the federal per diem levels. Each year there are two international trips: one from Monrovia, Liberia to New York, New York for 7 days to collaborate with Emory University staff, and one trip to an international conference to present project findings. For budgeting purposes, this trip is from Monrovia, Liberia to Vienna, Austria to attend IMED for 4 days.</td>
</tr>
<tr>
<td>3</td>
<td>Please provide a breakdown of the proposed materials and supplies, to include quantities and unit prices. Also, provide documentation (quotes, screen shots, links, etc.) to support the proposed cost.</td>
<td>A computer will be purchased for use during this project, price justification provided in the UCPR Documentation file.</td>
</tr>
<tr>
<td>4</td>
<td>Please provide any current agreements with or submissions to either OCMA or OCRA. Please also explain how the rates in these documents are utilized in the proposal calculations</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMRA Questions</td>
<td>UHRC Question</td>
<td>Documentation Page Number</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Please provide documentation to support the proposed salaries (fry and other personnel).</td>
<td>Proposed from UHRC will be working together to conduct work while another agency conducts work and is no longer requesting the proposed salaries. ASU will be another operating partner and neither seek funding under this project.</td>
<td>N/A</td>
</tr>
<tr>
<td>For all travel proposed (domestic or international), please provide detailed itinerary, duration of trips, number of trips, etc.</td>
<td>Proposed from UHRC will be working together to conduct work while another agency conducts work and is no longer requesting the proposed salaries. ASU will be another operating partner and neither seek funding under this project.</td>
<td>N/A</td>
</tr>
<tr>
<td>Please provide any current agreements with collaborators to other UHRC or UHRC.</td>
<td>Proposed from UHRC will be working together to conduct work while another agency conducts work and is no longer requesting the proposed salaries. ASU will be another operating partner and neither seek funding under this project.</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTRA Questions</td>
<td>SCNl Responses</td>
<td>Documentation Page Number</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Please provide documentation to support all the proposed salaries (key and other personnel)</td>
<td>Please see the attached documentation of the salaries of current staff.</td>
<td>PG.1</td>
</tr>
<tr>
<td>One (1) nurse and two (2) administrative assistants were noted in the budget narrative but not included in budget. If they are needed please update budget to reflect as such</td>
<td>A detailed breakdown is provided in the HRBA14-0-2-0416 Detailed Budget. For this project, a nurse is not requested for SCNL. There will be a social scientist, a field supervisor, three field technicians, two drivers, a full-time administrative assistant and a full-time accounting assistant.</td>
<td>PG.1</td>
</tr>
<tr>
<td>For all travel proposed whether domestic and international, please provide (screenshots or links) the departure and arrival locations, number of trips, purpose of each trip, length of each trip, number of travelers, etc.</td>
<td>A detailed breakdown is provided in the HRBA14-0-2-0416 Detailed Budget.</td>
<td>PG.3-18</td>
</tr>
<tr>
<td>Please provide a breakdown of the proposed materials and equipment, to include quantities and unit prices. Please provide documentation (quotes, screen shots, links, etc.) to support the proposed prices.</td>
<td>A detailed breakdown is provided in the HRBA14-0-2-0416 Detailed Budget. Equipment costs are for the purchase of a field vehicle with quotes from vendor included.</td>
<td>PG.19-24</td>
</tr>
<tr>
<td>Please provide any current agreements with or submissions to either DOMA or DCAA. Please also explain how the rates in these documents are utilized in the proposal calculations</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>DTRA Questions</td>
<td>GU-CGHS Responses</td>
<td>Documentation Page Number</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>1  Please provide documentation to support the proposed salaries.</td>
<td>Please see attached letter from Prof. Director of the Center for Global Science and Security confirming the salary rates in the GU-CGHS Documentation file.</td>
<td>Pg 1</td>
</tr>
<tr>
<td>2  For all travel proposed (domestic and international), please provide a breakdown of the travel costs (airfare, ground transportation, lodging, per diem, etc.).</td>
<td>A detailed breakdown is provided in the HR&amp;A14-6-20436-81D (Detailed Budget and Incentive Travel, meals, lodging). The rates are at the federal per diem levels. Taxi costs are estimated at $75 for transportation to and from airports, and $25 per day in country transportation. Flights are the average price on a Fly America Act allowable flight, with transportation provided in the GU-CGHS Documentation file.</td>
<td>Pg 2-3</td>
</tr>
<tr>
<td>3  Please provide documentation to support ODCI (screenshots/links, quotes, etc.)</td>
<td>A detailed breakdown is provided in the HR&amp;A14-6-20436-81D (Detailed Budget and Incentive Travel, meals, lodging). The rates are at the federal per diem levels. Taxi costs are estimated at $75 for transportation to and from airports, and $25 per day in country transportation. Flights are the average price on a Fly America Act allowable flight, with transportation provided in the GU-CGHS Documentation file.</td>
<td>Pg 4-10</td>
</tr>
<tr>
<td>4  Please provide any current agreements with or submissions to either OGMA or DCAA. Please also explain how the rates in these documents are utilized in the proposal calculation.</td>
<td>Please see attached NCA&amp;A, confirming federally approved indirect cost rate of 55% for research projects under the proposed period of performance in the GU-CGHS Documentation file.</td>
<td>Pg 11-14</td>
</tr>
<tr>
<td>OTRA Questions</td>
<td>NPHIL Responses</td>
<td>Documentation Page Number</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>1  Please provide documentation to support the proposed salaries (key and other personnel).</td>
<td>Please see the attached documentation of the salaries of current staff.</td>
<td>PG.1</td>
</tr>
<tr>
<td>2  Please provide a breakdown of the proposed materials and equipment, to include quantities and unit prices. Please provide documentation (quotes, screen shots, links, etc.) to support the proposed prices.</td>
<td>A detailed breakdown is provided in the FRAMA14-6-2-0416 Detailed Budget.</td>
<td>PG. 2-4</td>
</tr>
<tr>
<td>3  Please provide documentation to support ODCs (screen shots, quotes, links, etc.)</td>
<td>A detailed breakdown is provided in the FRAMA14-6-2-0416 Detailed Budget documentation of all items is provided in the NHIIL. Documentation File.</td>
<td>PG.5.21</td>
</tr>
<tr>
<td>4  Please provide any current agreements/contracts or summaries to support or verify the proposal. Also, explain how the rates in these documents are utilized in the proposal.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>5  Per FAR 820.439(a)(1), Equipment is unallowable as direct charges. Total direct cost includes capital expenditures (building, individual items of equipment, alterations and renovations). Year 2 needs to be revised to not include equipment in proposed indirect rate cost.</td>
<td>A detailed breakdown is provided in the FRAMA14-6-2-0416 Detailed Budget. Year 2 has been updated to remove indirect from capital equipment.</td>
<td></td>
</tr>
</tbody>
</table>
Project Title: Reducing the threat from high-risk pathogens causing febrile illness in Liberia

Document Date: July 26, 2019

Objective: This project will build Liberian capacity for threat reduction through an integrated human-animal surveillance approach to high consequence zoonotic pathogens associated with human acute febrile illness (AFI) including Ebola virus, Lassa virus, and other emerging infections. We will identify and characterize the etiological agents of infectious AFI in Liberia, particularly among patients with a history of animal contact. Many AFI causative agents may go undetected empirically by common rapid diagnostic tests or by existing surveillance platforms. We will work to mitigate this challenge through scientific discovery, hypothesis testing, and capacity building while leveraging significant U.S. government and other investment in workforce building and laboratory infrastructure. Training provided to local partners in critical biosecurity and biosafety skillsets will include: sample transport and laboratory biosafety and biosecurity; human and animal sampling approaches; performance of both routine and advanced molecular diagnostic assays; cold-chain transport implementation; and data analysis and reporting. As many emerging diseases have been inadequately studied in Liberia, this project will provide fundamental baseline knowledge of pathogens circulating and potentially causing human illness. Its outcomes will suggest opportunities for improved clinical training, tailored case definitions, and other methods to improve identification rates for especially dangerous pathogens at the index case level and prior to widespread transmission. The desired endpoint is a broad, sustainable surveillance program that enhances public and global health security.

Scope: The grantee proposes a five-year multi-disciplinary study incorporating the epidemiology, ecology, and microbiology of AFI in Liberia. The grantee team shall focus on the following major goals and milestones:

1. Identify causative agents of AFI in Liberia
   - Establish an evidence-based research platform for assessing and addressing high-consequence pathogens in Liberia (Y1)
   - Enroll human patients and undertake sampling (Y1-3 & OY1-2)
   - Undertake sample processing and testing (Y1-3 & OY1-2)

2. Identify evidence for zoonotic transmission of high-consequence AFI pathogens
   - Establish an evidence-based research platform for assessing and addressing high-consequence pathogens in Liberia (Y1)
   - Undertake sample processing and testing (Y1-3 & OY1-2)
   - Undertake preliminary animal sampling (Y1)
   - Visit communities: human-animal interface assessment, animal sampling, and human serology (Y2-3 & OY1-2)
   - Analyze data (Y2-3 & OY1-2)

3. Identify risk factors for zoonotic AFI in humans
   - Establish an evidence-based research platform for assessing and addressing high-consequence pathogens in Liberia (Y1)
   - Undertake preliminary animal sampling (Y1)
   - Visit communities: human-animal interface assessment, animal sampling, and human serology (Y2-3 & OY1-2)
Reduction of the threat from high-risk pathogens causing febrile illness in Liberia

PI: William B. Karesh

Thrust Area 6 - Cooperative Counter Weapons of Mass Destruction Research with Global Partners

Broad Agency Announcement HDTRA1-14-24-FRCWMDDBAA

- Analyze data (Y2-3 & OY1-2)
- Disseminate information to stakeholders (Y2-3 & OY1-2)

**Background:** Limited detection and diagnostic capacity by definition results in a limited ability of clinicians and public health professionals to accurately identify infectious agents. Febrile illness can be caused by pathogens other than malaria and typhoid that may include dozens of pathogens unassessed by health providers, including hemorrhagic fever viruses; bacterial Select Agents such as *Burkholderia mallei/pseudomallei*, *Yersinia pestis*, and *Coxiella burnetti*; and any number of as-yet unknown pathogens. Because the incidence of such agents has not been assessed in Liberia, febrile illness thus presents an unquantified and undifferentiated burden to Liberian health and the health care system and continues to do so. Liberia’s public health authorities do not assess incidence of febrile illness. Some studies are just beginning to assess this. Other published studies have reported on causative agents of infectious fever in other low- and middle-income countries (LMIC), including in West Africa. In low resource settings, and particularly where malaria is endemic, patients presenting with febrile illness may be treated presumptively for malaria and may not receive an accurate diagnosis. Co-infections may also be common, particularly with malaria parasites. Where studies have sought to investigate the source of febrile illness, high-risk pathogens of proliferation concern such as *Brucella*, dengue virus, and viral hemorrhagic fevers have been observed. The specific challenge for Liberian health authorities is that pathogens that result in a burden of febrile illness in the population—and the zoonotic transmission pathways that may drive it—have not been systematically nor comprehensively identified.

**Preliminary Data:** This project will leverage more than four years of human and animal data collected during the USAID PREDICT Ebola Host Project in Liberia and in neighboring countries. To date, our team in Liberia has enrolled 585 people and sampled 5387 wild and domestic animals. That project has focused on determining the animal reservoir of Zaire ebolavirus and human behavior/activities to evaluate risk factors for spillover to people. Our research team, which included U.S. and Liberian partners, made the first discovery of the virus in a bat in West Africa. Partner discoveries have included a virus new to science, Bombali ebolavirus, in a bat in Sierra Leone. Anthropological investigation of the risk factors associated with zoonotic spillover events were also extensively addressed; data are still being collated and analyzed, but preliminary evaluation reveals trends in animal contact that vary by country, gender, age, and occupation. The data suggest that in the general Liberian population, some communities are nearly evenly split (up to 60%/40%) with members that have and do not have animal contact as defined by the survey; this informs our own study design in that it provides a sound statistical basis testing the questions at the root of our hypotheses, including whether animal contact is a risk factor for certain zoonotic febrile infections.

Most of the work of the Ebola Host Project is presently being prepared for publication. Key references available include:


Reducing the threat from high-risk pathogens causing febrile illness in Liberia
Title: William B. Karesh
Thrust Area 6 - Cooperative Counter Weapons of Mass Destruction Research with Global Partners
Broad Agency Announcement HDTRA1-14-24-FRCWMBAA

Tasks/Scientific Goals: (Format: Year #s).Task #: Sub-task#)

TASK 1
1.1: Establish an evidence-based research platform for assessing and addressing high-consequence pathogens in Liberia

The grantee shall oversee refinement and finalization of human and animal study protocols and data collection instruments. This stage incorporates training in the protection of human subjects and animal subjects; training in laboratory biosafety, biosecurity, and safe disposal of samples or sampling materials after laboratory work (which will adhere to guidelines in the BMBL 5th edition, sections III – VI); laboratory diagnostic techniques; and any necessary revisions to original sampling and testing approach based on DTRA feedback and discussion at the kick-off meeting. We will refine our human subjects data collection tools, piloting our instruments within our research network to assure validity and reliability of the questionnaires. A database will be created for secure data entry and data storage of human subjects data. MOH will assign personnel to train clinical staff and oversee study in clinics in Monrovia and Bong. NPHIL and CVL will assign personnel to laboratory. EHA and Liberian partners will host kick-off meeting in Monrovia, Liberia to which all partners will be invited. Each study partner will present on its roles and specific desired outcomes to support its agency’s priorities. In addition, we will invite other researchers undertaking febrile illness and related research in-country, such as the U.S. Centers for Disease Control and Prevention (AFI study), the Walter Reed Army Institute of Research (Joint West Africa Research Group), and the Henry Jackson Foundation (sepsis study). Human subjects research and lab training workshops will occur during kick-off.

1.1.1 Refine and finalize human and animal study protocols and data collection instruments
1.1.2 Secure and finalize all research permits (human and animal) including IRB, IACUC, and national approvals in Liberia
1.1.3 Assign MOH, NPHIL, and CVL staff to field and laboratory positions
1.1.4 Host kick-off meeting in Liberia
1.1.5 Conduct Workshop 1a: overall research protocol (concurrent with Task 1.1.4)

TASK 2
1.2 – O2.2: Enroll human patients and undertake sampling

We will enroll febrile patients at two hospitals in Y1-3 and two hospitals in Y4-5 to collect blood and respiratory samples and transport them to the Liberia Institute for Biomedical Research (LIBR) for testing. Cross-sectional sampling will be used to provide a representative sample of a relatively urban or relatively rural population (depending on site) of individuals with fever. Longitudinal sampling of target populations (not individuals) across up to 2.5 years per clinical study site will maximize the opportunity for detection and possibly reveal seasonal trends in infection or other time-related changes in trends. Sampling will be based on available volume in the clinical sites but is designed to assure detection of rare pathogens and answering questions about the relative proportion of febrile illness caused by each; we are targeting 1,500 patients at the first two hospitals total, and 1,500 at the second set of sites in the option years. We will review historical and concurrent surveillance reports for the study counties and for neighboring counties as comparators. MOH will provide a locally hired on-site project coordinator to work with the hospital team and oversee the study protocol (train clinicians and nurses; be alerted when febrile patients arrive; work with hospital staff to oversee informed consent, enrollment, sample collection, and interviews). will train study staff in human subjects research and patient
recruitment; biosafety, safe and secure sample collection, handling, packaging, and transport; and implementation of the study protocol. Training will provide the principles for safe and ethical human subjects research; and project-specific teachings to ensure staff understand, practice, and can implement the study protocol (enrollment determination, informed consent, and questionnaire administration (demographic information, animal ownership), sample acquisition, data entry, and sample packaging and readying for transport).

1.2.1, 3.2.1 Conduct Workshop 2a: IRB/human subjects research
1.2.2-O2.2.2 Locally-hired project coordinator reports to hospital at each study site
1.2.3-O2.2.3 Enroll patients (continuous)

TASK 3

1.3 – O2.3: Undertake sample processing and testing

LIBR reception personnel will be briefed on the study protocol and will notify the project supervisor on receipt of the samples, at which point study-specific inventory and storage procedures will be followed. LIBR has an ABI 7000 Sequence Detection System in operation on which the laboratory scientists and technicians are well trained; a MiSeq system for NGS that is available but requires staff training; and ELISA platforms for serology. NPHIL will budget for and be responsible for ordering needed consumables throughout the project, and UNMC will provide assistance, training, and oversight. LIBR staff are already trained in real-time PCR and ELISA platforms; UNMC will refresh these skills and provide additional training via two one-week didactic and hands-on workshops Y1; another dedicated workshop in Y3; and in other years if needed via visits to the laboratory. These will cover execution of specific pathogen tests, advanced techniques (NGS), and results interpretation (including NGS bioinformatics); sample inventory management; and biorisk management. UNMC will provide oversight and mentorship through their at least twice-yearly working visits to Monrovia and the laboratory as well as video and teleconference. UNMC will leverage its additional DTRA work at LIBR (under funding consideration) to assist with skill-building among laboratory scientists and technicians there. UNMC will assess competence at each visit via a standardized evaluation form to use as a basis for targeted future training.

1.3.1-O2.3.1 Provide necessary equipment and consumables to NPHIL laboratory (continuous)
1.3.2, 3.3.2 Conduct Workshop 3a: laboratory biosafety and biosecurity, sample disposition
1.3.3, 3.3.3 Conduct Workshop 3b: laboratory sample testing techniques
1.3.4-O2.3.4 Provide continuous on-the-job training in laboratory techniques
1.3.5 Submit annual report (Y1)
2.3.6 Host workshop on results interpretation/bioinformatics
3.3.7 Host regional technical ad networking workshop

TASK 4

1.4 – 3.4 Undertake preliminary animal sampling

While laboratory training is beginning, preliminary field animal sampling will begin in Y1 with sampling in communities selected based on previous cases of AFI from historical hospital admissions trends, including some communities from which the study site hospitals draw patients. We will review a sampling of hospital records from Monrovia and Bong in search of geographic trends in AFI presentations going back three years, and begin randomized sampling
of peridomestic and wild animals in four communities identified as part of this process and continue every three months. In five-day/five-night trips we will target approximately 50 bats, 50 rodents, 50 livestock (including chickens if poultry-transmitted infection is suspected), and 10 dogs per sampling event, allowing for approximately 640 animals sampled in Y1 to include blood and oral/nasopharyngeal specimens, and feces and urine when possible. Our teams are trained in species identification, and we will also plan to barcode approximately 5% of individual bats and rodents in Y1 to improve species determination and team training. All animals will be non-lethally sampled with strict adherence to U.S. IACUC-approved protocols following those currently used by EHA scientists globally (Attachment 3) and using bat and rodent sampling protocols we developed for the PREDICT project (Attachment 3). All personnel undertaking animal sampling will be trained to ensure competency with a combination of didactic and practical training. SCNL will transfer samples to LIBR consistent with PREDICT protocols (Attachment 3).

1.4.1. 3.4.1 Conduct Workshop 4b: IRB/human subjects research (for animal teams)
1.4.2 Review hospital records in search of geographic trends in acute febrile illness presentations
1.4.3 Sample in communities identified as part of this process and continue every three months

TASK 5
1.5 – O2.5: Visit communities: human-animal interface assessment, animal sampling, and human serology

Animal sampling will continue in Y2, expanding to communities of enrolled patients, sampling in and around study enrollees’ homes and surrounding areas; we plan to reach three communities in Y2. This task predominantly supports Hypothesis 3. It is designed to: a) assess the risk interface between people and animals; b) strategically target and sample animal species for the pathogens/antibodies they are most likely to have based on what is already known about pathogen-host proclivity; and c) enable follow-up serology on patients and their community neighbors. We will sample five communities in the catchment areas of Redemption and Phebe Hospital, targeting 400 animals per community, and the patient plus 20 neighbors per community for human interviews and blood sampling. In option years, we will target three communities with the same numbers of animal and human subjects per community.

2.5.1-2.5.2 Review study patient records for geographic trends in AFI presentations
2.5.2-2.5.3 Undertake sampling in and around study enrollees’ homes
2.5.3-2.5.4 Undertake sampling from broader patients’ communities
2.5.4-2.5.5 Administer human-animal interface assessment
2.5.5-2.5.6 Collect human samples for serology

TASK 6
2.6 – O2.6: Analyze data

We will compare any diagnoses established at the clinical sites to laboratory results; and compare clinical study site diagnoses and laboratory results to national weekly and monthly county surveillance records. We will estimate population in catchment areas (from where the patient population comes) to develop prevalence estimates of each detected pathogen. We will compare phylogenetic sequence data from humans and animals to identify possible shared strains and infer transmission. Using the questionnaire data comparisons of exposure variables across
varying demographics measures in study sites will be conducted to characterize high risk behaviors and statistical analysis will be employed to identify differences between groups with a 95% probability of detecting a difference. As appropriate, multivariate analysis will be utilized to evaluate the relationship between the positive biological findings and key measures of contact to evaluate the factors that influence and may have led to AFI pathogen exposure. The pathogen and human interface data collected in this study; characterization of zoonotic potential through phylogenetic analyses undertaken in this and other studies (such as PREDICT); and additional data such as available spatial, ecological, and environmental data will inform models designed to help tease correlation from causation. The data will thus provide the foundation of an OY2 risk reduction workshop. We will also compare diagnostic results for endemic agents to reports for these diagnoses in the preceding years to allow for control for any changed practices (even if subconscious) in our target counties based on the project team’s presence; this will also allow for a controlled comparison of the impact on incidence of any differential diagnosis or testing interventions we may implement in OY1 and OY2. We will develop recommendations for adapted differential diagnostic protocols and testing practices.

2.6.1-O2.6.1 Undertake data analysis

TASK 7
2.7-O2.7: Disseminate information to stakeholders
We will host the annual stakeholders meeting to which we will invite all project partners as well as others doing related research in country. We will discuss preliminary data and analyses and use these to inform any needed modifications to forward sampling strategy. We will review protocols for biosafety, specimen transport, and animal handling at each annual meeting. We will provide support travel for at least one (1) Liberian scientist to present at an international conference. We will share samples as appropriate with other in-country projects to ensure synergies. We will compile and summarize research results and share with all partners and other in-country researchers as appropriate and use it to develop an annual report for DTRA. In Y3, we will broaden annual stakeholders meeting to include regional partners from Guinea and possibly other adjacent countries; share information about ongoing research; plan cross-border study for OY1. We will broaden outreach in Y3 and OY2 to communities that have engaged in sampling to share results and discuss preliminary risk mitigation strategies. Project data will provide the foundation of an OY2 risk reduction workshop at the annual meeting to engage multi-sectoral Liberian participants to review statistical evaluation of diagnostic data, identify key risk interfaces, assess economic options for prevention and control, and develop threat reduction measures. Workshop products include 1) development of priorities for refined PCR and serological tests based on study findings, 2) recommendations for an updated national surveillance and reporting strategy and plan, 3) inclusion of stakeholders (e.g., National Disaster Management Authority, the Forestry Development Authority, the Ministry of Finance) to consider options for risk and impact reduction and generate policy recommendations. We will work with MOH and MOA to develop written educational products designed for laypersons to explain project results, community impact, and risk mitigation, and thank community members for their participation.

2.7.1-O2.7.1 Host annual stakeholders meeting
2.7.2-O2.7.2 Present to DTRA at Annual Technical Review
2.7.3-O2.7.3 Submit annual report
2.7.4-O2.7.4 Share specimens if available and appropriate with other in-country researchers
2.7.5, O2.7.5 Support Liberian scientist to present at international conference
3.7.6 Host regional technical and networking workshop
3.7.7-O2.7.7 Prepare/submit up to two (2) peer-reviewed manuscripts
3.7.8, O2.7.8 Engage sampled communities for follow-up education
O2.7.9 Conduct Workshop 6a: risk reduction workshop

Cost estimate: Y1: $995,517.56  Y2: $989,251.55  Y3: $996,113.74  OY1: $962,716.26
OY2: $969,218.86

Performance Schedule:
<table>
<thead>
<tr>
<th>Task</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task 1: Establish evidence-based research initiative for high-consequence pathogens in Liberia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Refine and finalize human and animal study protocols</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Secure and finalize all research permits (human and animal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Assign MOH, NPHIL, and CVL staff to field and lab positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Host kick-off meeting in Liberia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Conduct Workshop 1a: overall research protocol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 2: Enroll human patients and undertake sampling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Conduct Workshop 2a: IRB/human subjects research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Local project coordinator reports to hospital at each study site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Enroll patients (continuous)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 3: Undertake sample processing and testing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Provide equipment and consumables to LIBR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2 Conduct Workshop 3a: biosafety/biosecurity, sample disp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Conduct Workshop 3b: laboratory sample testing techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4 Provide on-the-job training in lab techniques (continuous)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5 Submit Y1 annual report</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6 Conduct Workshop 5a: results interpretation, bioinformatics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7 Host regional technical and networking workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 4: Preliminary animal sampling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Conduct Workshop 4a: IACUC/animal subjects research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2 Review hospital records for geo. trends in AFI presentations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3 Sample animals in select communities (preliminary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 5: Visit communities: interface assessment, animal sampling, human serology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1 Review study patient records for geographic AFI trends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2 Administer human-animal interface assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3 Undertake animal sampling in/around study enrollees’ homes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4 Undertake animal sampling from patients’ communities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5 Collect human samples for serology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 6: Analyze data</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1 Undertake data analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task 7: Disseminate research results to stakeholders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1 Host annual Stakeholders meeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2 Present to DTRA at Annual Technical Review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3 Submit annual report</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.4 Share specimens if appropriate w/other in-country researchers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5 Support Liberian scientist to international conference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.6 Host regional technical and networking workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7 Prepare/submit up to two (2) peer-reviewed manuscripts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.8 Engage sampled communities for follow-up education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.9 Conduct Workshop 6a: risk reduction workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BUDGET JUSTIFICATION FOR GEORGETOWN UNIVERSITY CENTER FOR GLOBAL HEALTH AND SECURITY, UNITED STATES

The Georgetown University Center for Global Health and Security requests a total of $196,834 over all years of the proposed project to support personnel, travel, other direct costs, and indirect costs.

A. Key Personnel

Co-Investigator (1.2 calendar months for Y1, .6 calendar months for Y2-0Y2), will provide subject matter expertise in support of the execution of the project, specifically related to study design and analysis and dissemination of findings for which $11,477 is requested in Y1, with a 2% increase each subsequent year. Time will vary over the five years of the project based on involvement in specific tasks.

Co-Investigator (1.2 calendar months for Y1, Y3, OY2, .6 calendar months for Y1, OY1), will serve as the GU PI for the award, and will be the lead for all aspects of GU’s contribution to the project, notably related to project design and analysis and dissemination of the findings for which $10,819 is requested in Y1, with a 2% increase each subsequent year. Time will vary over the five years of the project based on involvement in specific tasks.

Fringe Benefits
Fringe benefits are calculated as 32.4% of base salary p.a. with $7,224 requested in Y1 for Key Personnel.

B. Other Personnel
No funds are requested for other personnel.

C. Equipment
No funds are requested for equipment.

D. Travel

International Travel
International travel will be used to support Dr. Sorrell to travel from Frankfurt, Germany to Monrovia, Liberia to attend the kick off meeting in Y1 and annual meetings in Y3 and OY2 for six days, and to continue onto the field in Y1 and OY2 for an additional 5 days. Dr. Standley will travel from Washington, DC to Monrovia, Liberia to attend the kick off meeting in Y1 and annual meeting in OY2 for six days, and to continue onto the field in Y1 and OY2 for an additional 5 days. Flights for all trips are priced at $1,500, along with $75 each way for airport taxis as well as $25 per day for in-country transportation. The federal per diem rates for Monrovia and Other are utilized. A total of $18,811 is requested for international travel over the five proposed project years.

E. Participant/Trainee Support Costs
No funds are requested for participant or trainee support costs.

F. Other Direct Costs

Materials and Supplies
We request $55 in Y1 to purchase an encrypted storage device and $30 to purchase 3 USB drives. Over the five years of the project we request $331 for other office supplies including pens ($51), notebooks ($75) and printing ($205).

Telecommunications
We request $550 over the five years of the project to support telecommunication costs including a Skype subscription ($25 p.a.), mobile phone charges for project communication, including roaming charges while on international travel in Liberia ($285 total) and local airtime and data ($90 total). A cell phone for travel will be purchased in Y1 for $50.

H. Indirect Costs
We are requesting the federally agreed indirect cost of 55.5% on all direct costs.
<table>
<thead>
<tr>
<th>Category</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARIES</td>
<td>1</td>
</tr>
<tr>
<td>TRAVEL</td>
<td>2</td>
</tr>
<tr>
<td>OTHER DIRECT COSTS</td>
<td>4</td>
</tr>
<tr>
<td>Supplies</td>
<td>4</td>
</tr>
<tr>
<td>Communications</td>
<td>8</td>
</tr>
<tr>
<td>RATE AGREEMENT</td>
<td>11</td>
</tr>
</tbody>
</table>
EcoHealth Alliance  
460 West 34th St – 17th floor  
New York, NY 10001

February 4, 2020

To Whom It May Concern:

This letter is to confirm the base salary rates used for the development of the proposal “Reducing the threat from high-risk pathogens causing febrile illness in Liberia”, submitted to the Defense Threat Reduction Agency under Broad Agency Announcement HDTRA1-14-24-FRCWMDBAA.

I can confirm the following base annual salary rates for the two Center for Global Health Science and Security personnel for the proposed period of performance of the project:

- (some text redacted) $108,191.00
- (some text redacted) $114,767.00

We are projecting 10% effort for (some text redacted) in Y1, Y3, and OY2 of the project, and 5% in Y2 and OY1. For (some text redacted) we are projecting 10% effort in Y1 and 5% effort thereafter. We use an assumption of a 2% annual salary increase, effective from the start of our fiscal year (July 1), when generating our proposal budgets. This is our standard practice across all submitted proposals.

If further evidence of salary levels is required, I would be happy to discuss this with you further over the phone or via email. My contact information is provided below.

Sincerely,

[Signature]

Director  
Center for Global Health Science and Security  
Georgetown University
<table>
<thead>
<tr>
<th>Time</th>
<th>Duration</th>
<th>Stops</th>
<th>Airlines</th>
<th>Price</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 PM – 8:10 PM</td>
<td>2h 10m</td>
<td>2</td>
<td>United, Brussels Airlines, Lilithanza</td>
<td>$1,175</td>
<td>Mon, Mar 16</td>
</tr>
<tr>
<td>7:10 PM – 8:10 PM</td>
<td>2h 0m</td>
<td>2</td>
<td>Brussels Airlines, United, Lilithanza</td>
<td>$1,375</td>
<td>Mon, Mar 16</td>
</tr>
<tr>
<td>10:15 PM – 8:10 PM</td>
<td>4h 55m</td>
<td>3</td>
<td>United, Brussels Airlines, Lilithanza</td>
<td>$1,390</td>
<td>Mon, Mar 16</td>
</tr>
<tr>
<td>10:55 PM – 8:10 PM</td>
<td>4h 15m</td>
<td>3</td>
<td>United, Brussels Airlines, Lilithanza</td>
<td>$1,390</td>
<td>Mon, Mar 16</td>
</tr>
<tr>
<td>7:20 PM – 8:10 PM</td>
<td>2h 50m</td>
<td>3</td>
<td>Brussels Airlines, United, Lilithanza</td>
<td>$1,727</td>
<td>Mon, Mar 16</td>
</tr>
</tbody>
</table>
Round trip 1 passenger Economy

- Frankfurt
- Monrovia Roberts
- Mon, Mar 16
- Fri, Mar 20

Bags  Stops  Airlines  Price  Times  Connecting airports  More

Track prices

Prices are currently high for your trip.

Departing flights

- 9:25 AM – 8:10 PM
  - Luftfranza, Brussels Airlines
  - 11h 45m
  - 2 stops
  - $690

- 9:25 PM – 8:10 PM
  - Luftfranza, Brussels Airlines
  - 23h 45m
  - 2 stops
  - $640

5 more flights
WD 2TB Elements Portable External Hard Drive - USB 3.0 - WDBU6Y0020BBK

$54.99
FREE Shipping & FREE Returns

FREE delivery: Today
Order within 7 days!
Details
In Stock.

Add to Cart
Buy Now

Ships from and sold by Amazon.com.

Add a Protection Plan:

Add other items:

- USB 3.0 and USB 2.0 Compatibility
- Fast data transfers
- Improve PC Performance
Oxford 3-Subject Poly Notebook, 150 Sheets, 8.5 in x 11 in, Black Cover, College Ruled, 3 Subject (32541Z) - 1 Pack - As seen on Amazon's Choice

Features:
- For study notes that last: Oxford 3-Subject Poly notebooks are tear- & moisture-resistant so your important notes will survive through spills, mists, and crowded backpacks.
- GEL PENS & HIGHLIGHTERS WELCOME: Each notebook contains 150 sheets of smooth paper that resists ink smearing & bleed-through for printable, A+ notes.
- Keep only the pages you want: Oxford micro-perforated sheets are designed so the notes you don't want stay, and the notes you don't detach easily without effort or fuss.
- Carry as needed: 3-hole punched spiral notebooks let you carry multiple notebooks in your 3-ring binder or zip binder for maximum versatility.
- The right ruling: these college-ruled notebooks fit more writing per page than wide-ruled, 150 double-sided sheets with red margin lines.

Compare with similar items
Add to Cart
Buy Now
Similar item to consider

Get FREE delivery Today if you order 150 of qualifying items within 7 hrs and 2 mins and choose this date at checkout.

Details:
In Stock.

Add to Baby Registry
Add gift options
PILOT G2 Premium Refillable & Retractable Rolling Ball Gel Pens, Fine Point, Black Ink, 12 Count (31020)

by Pilot

FBA

List Price

$10.80

Save 
$10.80

You Save 
94% (12 pens)

Save an extra $1.21 on your first Subscribe & Save order.

Details

Get FREE delivery Today if you order $35 of qualifying items within 7 hrs and 4 mins and choose this date at checkout. Details.

In Stock.

Ships from and sold by Amazon.com.

- THE IDEAL PEN FOR OVERACHIEVERS: The smooth writing, long-lasting Pilot G2 Premium Gel Ink Pen features a comfortable rubber grip & is available in Ultra fine, fine, fine, & bold point.
- LONGEST LASTING, REFILLABLE GEL INK: Proven to be the longest writing gel ink pen among top brands, the smooth-writing, refillable G2 gel ink pen is a classic choice for all your writing needs.
- PERFECTLY SUITED FOR YOU: If you love the original Pilot G2, you'll want to try our full G2 line of Mint, Metallic, Music, & Fashion gel ink.
Choose a calling option

Select and continue:

- $5.00  Up to 5 mins
- $10.00  Up to 15 mins
- $25.00  Up to 40 mins

Continue

Call around the world
Select a plan
Use rebel.
Roaming with T-Mobile

- Magenta T-Mobile ONE and Simple Choice plans give you unlimited 2G data and texting in more than 210 countries and destinations at no extra charge, while voice calls are $0.25/minute. (Look up calling and messaging rates)
- Use our International Roaming checklist to go over everything you need to know about using your phone abroad.
- If you're in a destination where international roaming is not included, you can still use calling and messaging services but data is turned off by default.
  - You can turn on data by dialing #RON#
  - As data is used, you will receive free text messages notifying you of the incurred charges.
  - If you want to turn data back off, dial #ROF#
- If you want to prevent any accidental usage, you can also block voice, messaging, and data when roaming internationally.
- To see what plan you're on, or switch to Magenta, check out Change your plan.

International travel with older plans

If you're not on a Magenta T-Mobile ONE, Essentials, or a Simple Choice plan and you'll be traveling outside the U.S., you can add World Roaming to each line. To learn how, read Change your services.
BLU Advance S5 HD – Unlocked Single Sim Smartphone, 16GB+1GB RAM - Black

by BLU

37 reviews

Amazon's Choice

Now $49.99

FREE Shipping & FREE Returns

Buy Now

Sold by BLU Products and Fulfilled by Amazon.

Add a Protection Plan:

Add gift options

Add to your Dash Buttons

Next-level power.
Samsung BAR Plus 32GB - 200MB/s USB 3.1 Flash Drive
Champagne Silver (MUF-32BE3/AM)
by Samsung

List Price: $34.99
Price: $9.91
Add to Cart & FREE Returns!

Free Amazon Tech Support Included
Silver

32 GB

52 GB 64 GB 128 GB 256 GB

- Redefine everyday file transfers with speeds up to 200MB/s
- Reliable and secure storage for your photos, videos, music, and files
- Rugged metal casing for durability with key ring to prevent loss
- Safeguard your data (Waterproof, shockproof, magnet proof, temperature proof, x-ray proof)
- USB 3.1 flash drive with backwards compatibility (USB 3.0, USB 2.0)

Compare with similar items
New 128 GB $39.99 FREE Shipping

Add a Protection Plan:

$9.91
ON-TIME FREE Same-Day & FREE Returns
Get FREE delivery Today if you order $33 of qualifying items within 7 hrs and 5 mins and choose this date at checkout.
Details:
Ships from and sold by
Amazon.com.
COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 15-30196603A  DATE: 11/19/2019
ORGANIZATION:  FILING REF.: The preceding
Georgetown University  agreement was dated
2121 Wisconsin Avenue, NW  06/10/2019
Suite 431
Washington, DC 20007

The rates approved in this agreement are for use on grants, contracts and other
agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

<table>
<thead>
<tr>
<th>RATE TYPES:</th>
<th>FIXED</th>
<th>FINAL</th>
<th>PROV. (PROVISIONAL)</th>
<th>PRED. (PREDETERMINED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFECTIVE PERIOD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%) LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINAL</td>
<td>07/01/2018</td>
<td>06/30/2019</td>
<td>55.50 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2019</td>
<td>06/30/2020</td>
<td>55.50 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2020</td>
<td>06/30/2022</td>
<td>56.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>FINAL</td>
<td>07/01/2018</td>
<td>06/30/2019</td>
<td>42.00 On-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2019</td>
<td>06/30/2020</td>
<td>42.00 On-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2020</td>
<td>06/30/2022</td>
<td>44.00 On-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>FINAL</td>
<td>07/01/2018</td>
<td>06/30/2019</td>
<td>35.50 On-Campus</td>
<td>Other Sponsored Activities</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2019</td>
<td>06/30/2022</td>
<td>35.50 On-Campus</td>
<td>Other Sponsored Activities</td>
</tr>
<tr>
<td>FINAL</td>
<td>07/01/2018</td>
<td>06/30/2019</td>
<td>26.00 Off-Campus</td>
<td>All Programs</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2019</td>
<td>06/30/2022</td>
<td>26.00 Off-Campus</td>
<td>All Programs</td>
</tr>
</tbody>
</table>
**BASE**

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and subgrants and subcontracts up to the first $25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each sub-grant and subcontract in excess of $25,000.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%) LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROV.</td>
<td>07/01/2022</td>
<td>Until Amended</td>
<td></td>
<td>Use same rates and conditions as those cited for fiscal year ending June 30, 2022.</td>
</tr>
</tbody>
</table>
## SECTION I: FRINGE BENEFIT RATES**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%)</th>
<th>LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIXED</td>
<td>7/1/2019</td>
<td>6/30/2020</td>
<td>32.40</td>
<td>All</td>
<td>Full-Time Employees</td>
</tr>
<tr>
<td>FIXED</td>
<td>7/1/2019</td>
<td>6/30/2020</td>
<td>21.20</td>
<td>All</td>
<td>University Fellows</td>
</tr>
<tr>
<td>FIXED</td>
<td>7/1/2019</td>
<td>6/30/2020</td>
<td>8.30</td>
<td>All</td>
<td>Temporary Workers</td>
</tr>
<tr>
<td>PROV.</td>
<td>7/1/2020</td>
<td>Until</td>
<td>amended</td>
<td></td>
<td>Use same rates and conditions as those cited for fiscal year ending June 30, 2020.</td>
</tr>
</tbody>
</table>

** DESCRIPTION OF FRINGE BENEFITS RATE BASE: **

Salaries and wages.
SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

The fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate(s) are listed below.

TREATMENT OF PAID ABSENCES

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

OFF-CAMPUS DEFINITION: For all activities performed in facilities not owned by the institution and to which rent is directly allocated to the project(s), the off-campus rate will apply. Actual costs will be apportioned between on-campus and off-campus components. Each portion will bear the appropriate rate.

Fringe Benefits include: FICA, Retirement, Disability Insurance, Life Insurance, Employee Tuition Remission, Group Hospitalization, Labor Union, Sabbatical Leave, Workers' Compensation, Unemployment Insurance, Dental Insurance, FAS No. 106 Post Retirement Benefits other than Pension and Fringe Benefit Administration.

Fringe benefit rates exclude student salaries and wages.

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or $5,000.

*This agreement updates the F&A rates only. All other terms and conditions remain unchanged.*

**A Fringe Benefit rate proposal for FYE 06/30/2019 is due in our office by 12/31/2019. Next F&A rate proposal for FYE 06/30/2021 is due in our office by 12/31/2021.**
SECTION III: GENERAL

A. LIMITATIONS:
The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:
This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:
If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:
The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:
If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected program, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

Georgetown University

[INSTITUTION]

[INSTITUTION]

[SIGNATURE]

[NAMES]

[TITLE]

[DATE]

2/6/2019

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

[DEPARTMENT]

[SIGNATURE]

[NAME]

[TITLE]

[DATE]

2/19/2019

3149

RHS REPRESENTATIVE:

[REPRESENTATIVE]
Good Afternoon,

Attached you will find the award documentation for Grant number HDTRA1-20-1-0016, proposal FRBA14-6-2-0436. Please confirm once you have received this email.

V/r

Contractor

Contract Specialist · Broadleaf

Defense Threat Reduction Agency (DTRA)
### Award/Contract

**2. CONTRACT NUMBER/MODIFICATION NO.** HDTRA1-2010-016

**3. EFFECTIVE DATE** 01 Jun 2020

**5. ISSUED BY** DEFENSE THREAT REDUCTION AGENCY-CYBER

**7. NAME AND ADDRESS OF CONTRACTOR** B2COHEALTH ALLIANCE INC.

**9. DELIVERY** FOB ORIGIN

**10. SUBMIT INVOICES TO** Address provided above

**11. SHIP TO/MARK FOR** DEFENSE THREAT REDUCTION AGENCY-CYBER

**12. PAYMENT WILL BE MADE TO** OFFICE OF NAVAL RESEARCH/MASS

**13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:**

**14. ACCOUNTING AND APPROPRIATION DATA** See Schedule

**15A. ITEM NO.**

**15B. SUPPLIES/ SERVICES**

**15C. QUANTITY**

**15D. UNIT**

**15E. UNIT PRICE**

**15F. AMOUNT**

### See Schedule

### 16. Table of Contents

<table>
<thead>
<tr>
<th>X</th>
<th>SEC</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>SOLICITATION/CONTRACT FORM</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>SUPPLIES OR SERVICES AND PRICES/COSTS</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>DESCRIPTION/SPEC/WORK STATEMENT</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>PACKAGING AND MARKING</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>INSPECTION AND ACCEPTANCE</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>DELIVERIES OR PERFORMANCE</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>CONTRACT ADMINISTRATION DATA</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>SPECIAL CONTRACT REQUIREMENTS</td>
</tr>
</tbody>
</table>

**16G. TOTAL AMOUNT OF CONTRACT** $4,312,318.05

### Part I - The Schedule

**X** | **SEC** | **DESCRIPTION** | **PAGE(S)** | **X** | **SEC** | **DESCRIPTION** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>CONTRACT CLAUSES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>LIST OF ATTACHMENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>EVALUATION FACTORS FOR AWARD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**17A. CONTRACTOR'S NEGOTIATED AGREEMENT**

**17B. THE CONTRACTOR WILL COMPLETE ITEM 17**

**18A. NAME OF CONTRACTING OFFICER**

**18B. NAME OF CONTRACTOR**

**18C. DATE SIGNED** 27-May-2020

**19A. NAME AND TITLE OF SIGNER**

**19B. NAME OF CONTRACTOR**

**19C. DATE SIGNED**

**20A. NAME OF CONTRACTING OFFICER**

**20B. UNITED STATES OF AMERICA**

**20C. DATE SIGNED**

### Standard Form (July 9, 2013)

**Prescribed by DoD:** PAR 14 CFR 52.227-1

**Authorized for Local Reproduction**

**PREVIOUS EDITION IS NOT VALID**
### Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>FRBAA14-6-2-0436</td>
<td>1</td>
<td>Lot</td>
<td>$4,912,818.06</td>
<td>$4,912,818.06</td>
</tr>
</tbody>
</table>

**Comment:** Reducing the threat from high-risk pathogens causing febrile illness in Liberia. In accordance with the following attachments: SOW at attachment 1 dated 7/26/2019 and DTRA Terms and Conditions for Grant Awards dated 4/18/2018 at attachment 2.

**FOB:** Destination

**U009**

---

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td>Funding in support of CLIN 0001</td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**FOB:**

---

**ACRN AA**

**CIN: HDTRA10335520001**

**NET AMT**

$4,912,818.06
Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

252.601-9002  GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-11-16-
   BRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate,
   Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CFDA #: 12.351

c. Authority: 10 U.S.C 2358 as amended
**Section E - Inspection and Acceptance**

**INSPECTION AND ACCEPTANCE TERMS**

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>N/A</td>
<td>N/A</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 01-JUN-2020 TO 31-MAY-2025</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 044315 097 0134 000 N 20202022 D 3400 0901515BR_KD_BP_TB_20_2022_0134_3400_SCNCT_DTRA 410
AMOUNT: $4,912,818.06

<table>
<thead>
<tr>
<th>ACRN</th>
<th>CLIN/SLIN</th>
<th>CIN</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>000101</td>
<td></td>
<td>$4,912,818.06</td>
</tr>
</tbody>
</table>

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

d. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone: [Redacted]
   email address: [Redacted]

e. Grantee Business Office:
   Name: Dr. Aleksa Chmura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   E-mail: chmura@ecohealthalliance.org

f. Grantee Principal Investigator (PI):
   Name: Dr. William Karesh
   Title: Executive Vice President of Health and Policy
   Phone: (212) 380-4463
   Email: karesh@ecohealthalliance.org

252.601-9001 GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)

g. Grants Officer’s Representative (GOR) for this Grant is:
   Name: [Redacted]
   Defense Threat Reduction Agency/
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone: [Redacted]
   email address: [Redacted]
b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
FUNDING PROFILE:

The amount of $4,912,818.06 is obligated for work to be performed during the period beginning with grant award and continuing through May 31, 2025.

The Government's liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>INVOICE SCHEDULE</th>
<th>6/30/2020</th>
<th>$81,880.36</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>2</td>
<td>8/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>3</td>
<td>9/30/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>4</td>
<td>10/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>5</td>
<td>11/30/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>6</td>
<td>12/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>7</td>
<td>1/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>8</td>
<td>2/28/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>9</td>
<td>3/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>10</td>
<td>4/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>11</td>
<td>5/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>12</td>
<td>6/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>13</td>
<td>7/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>14</td>
<td>8/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>15</td>
<td>9/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>16</td>
<td>10/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>17</td>
<td>11/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>18</td>
<td>12/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>19</td>
<td>1/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>20</td>
<td>2/28/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>21</td>
<td>3/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>22</td>
<td>4/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>23</td>
<td>5/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>24</td>
<td>6/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>25</td>
<td>7/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>26</td>
<td>8/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>27</td>
<td>9/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>28</td>
<td>10/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>29</td>
<td>11/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>30</td>
<td>12/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>31</td>
<td>1/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>32</td>
<td>2/28/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>33</td>
<td>3/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>34</td>
<td>4/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>35</td>
<td>5/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>36</td>
<td>6/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>37</td>
<td>7/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>38</td>
<td>8/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>39</td>
<td>9/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>40</td>
<td>10/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>41</td>
<td>11/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>42</td>
<td>12/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>43</td>
<td>1/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>44</td>
<td>2/29/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Amount</td>
</tr>
<tr>
<td>---</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>46</td>
<td>3/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>47</td>
<td>4/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>48</td>
<td>5/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>49</td>
<td>6/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>50</td>
<td>7/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>51</td>
<td>8/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>52</td>
<td>9/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>53</td>
<td>10/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>54</td>
<td>11/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>55</td>
<td>12/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>56</td>
<td>1/31/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>57</td>
<td>2/28/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>58</td>
<td>3/31/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>59</td>
<td>4/30/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>60</td>
<td>5/31/2025</td>
<td>$81,880.30</td>
</tr>
</tbody>
</table>
### Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 1</td>
<td>Statement of Work</td>
<td>8</td>
<td>26-JUL-2019</td>
</tr>
<tr>
<td>Attachment 2</td>
<td>Terms and Conditions</td>
<td>18</td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>
### Award/Contract

**2. CONTRACT PROV. PAGES NO.**

HDT1A 2010016

**3. EFFECTIVE DATE**

01 Jun 2020

**5. ISSUED BY CODE**

HDT1A

**6. ADMINISTERED BY CODE**

NG025

**7. NAME AND ADDRESS OF CONTRACTOR**

BCSC HEALTH ALLIANCE INC.

MRS. ALI HAKIMI

465 W 26TH ST

NEW YORK NY 10001-2317

**12. PAYMENT WILL BE MADE BY**

DFAS COLUMBUS CENTER

DFAS CONMINT HUMINT ENTITLEMENT OPERATIONS

P.O. BOX 92137

COLUMBUS OH 43210-9217

**13A. ITEM NO.**

15B. SUPPLIES/SERVICES

15C. QUANTITY

15D. UNIT

15E. UNIT PRICE

15F. AMOUNT

**SEE SCHEDULE**

<table>
<thead>
<tr>
<th>(X) SEC</th>
<th>DESCRIPTION</th>
<th>PAGE(S)</th>
<th>(X) SEC</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOLICITATION/CONTRACT FORM</td>
<td>1</td>
<td>1</td>
<td>CONTRACT CLAUSES</td>
</tr>
<tr>
<td>2</td>
<td>SUPPLIES OR SERVICES AND PRICES COSTS</td>
<td>2</td>
<td>3</td>
<td>LIST OF ATTACHMENTS</td>
</tr>
<tr>
<td>3</td>
<td>DESCRIPTION SPEC/WORK STATEMENT</td>
<td>3</td>
<td>4</td>
<td>REPRESENTATIONS CERTIFICATIONS AND OTHER STATEMENTS OF OFFICERS</td>
</tr>
<tr>
<td>4</td>
<td>INSPECTION AND ACCEPTANCE</td>
<td>4</td>
<td>5</td>
<td>INSRS. CONDS. AND NOTICES TO OFFICERS</td>
</tr>
<tr>
<td>5</td>
<td>DELIVERIES OR PERFORMANCE</td>
<td>5</td>
<td>6</td>
<td>SPECIAL CONTRACT REQUIREMENTS</td>
</tr>
<tr>
<td>6</td>
<td>CONTRACT ADMINISTRATION DATA</td>
<td>6-9</td>
<td>7</td>
<td>EVALUATION FACTORS FOR AWARD</td>
</tr>
</tbody>
</table>

**16. TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>X</th>
<th>SEC</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>SOLICITATION/CONTRACT FORM</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>SUPPLIES OR SERVICES AND PRICES COSTS</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>DESCRIPTION SPEC/WORK STATEMENT</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>INSPECTION AND ACCEPTANCE</td>
</tr>
<tr>
<td>5</td>
<td>E</td>
<td>DELIVERIES OR PERFORMANCE</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>CONTRACT ADMINISTRATION DATA</td>
</tr>
<tr>
<td>7</td>
<td>G</td>
<td>SPECIAL CONTRACT REQUIREMENTS</td>
</tr>
</tbody>
</table>

**15G. TOTAL AMOUNT OF CONTRACT**

$4,912,818.05

**19A. NAME AND TITLE OF SIGNER**

| 20A. NAME OF CONTRACTING OFFICER |
|---|----------------------------------|
| (Print or type) | (Print or type) |

**19B. NAME OF CONTRACTOR**

| 20B. UNITED STATES OF AMERICA |
|---|-----------------------------|
| (Print or type) | (Print or type) |

| 20C. DATE SIGNED |
|---|-----------------|
| 01 Jun 2020 | 27-May-2020 |

Authorized for local reproduction

Printed edition is NOT usable

Prescribed by: DA-01404670, 15-21-2012

**STANDARD FORM**

DA-40-020-09-01

THIS CONTRACT IS A RATED ORDER UNDER DFS AS 15 CFR 702

**REQUISITION/PURCHASE REQUEST/PROJECT NO.**

**ISSUING DEPARTMENT**

DEFENSE THREAT REDUCTION AGENCY

1750 JOHN H. KINGHORN ROAD MSC 6201

FORT BELVOIR VA 22060-6201

**DELIVERY**

<table>
<thead>
<tr>
<th>X</th>
<th>FOB ORIGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>OTHER (See Section)</td>
</tr>
</tbody>
</table>

**DISCOUNT FOR PROMPT PAYMENT**

**SUBMIT INVOICES TO THE ADDRESS SHOWN**

**CODE**

3MM3

**FACILITY CODE**

HDT1A

**SHIP TO/MARK FOR CODE**

HDT1A

**AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION**

| 10 U.S.C. 2304(c) |
| 141 U.S.C. 253b (c) |

**ACCOUNTING AND APPROPRIATION DATA**

See Schedule
Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td></td>
<td>1</td>
<td>Lot</td>
<td>$4,912,818.06</td>
<td>$4,912,818.06</td>
</tr>
<tr>
<td></td>
<td>Year 1: FRBAA14-6-2-0436 FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reducing the threat from high-risk pathogens causing febrile illness in Liberia. In accordance with the following attachments: SOW at attachment 1 dated 7/26/2019 and DTRA Terms and Conditions for Grant Awards dated 4/18/2018 at attachment 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>U009</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| NET AMT | $4,912,818.06 |

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>Funding in support of CLIN 0001 FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| NET AMT | $0.00 |

ACRN AA
CIN: HDTRA10335520001

| NET AMT | $4,912,818.06 |
Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

252.601-9002  GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-11-16-
   BRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate,
   Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CFDA #: 12.351

c. Authority: 10 U.S.C 2358 as amended
**INSPECTION AND ACCEPTANCE TERMS**

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>N/A</td>
<td>N/A</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>00001</td>
<td>POP 01-JUN-2020 TO 31-MAY-2025</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-I</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22050-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

<table>
<thead>
<tr>
<th>ACRN</th>
<th>CLIN/SLIN</th>
<th>CIN</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>000101</td>
<td>HDTRA10355520091</td>
<td>$4,912.818.06</td>
</tr>
</tbody>
</table>

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

d. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone: [Redacted]
   email: [Redacted]

e. Grantee Business Office:
   Name: Dr. Alessei Chmura
   Title: Authorized Organizational Representative
   Phone: (212) 380-4473
   E-mail: chmura@ecohealthalliance.org

f. Grantee Principal Investigator (PI):
   Name: Dr. William Karesh
   Title: Executive Vice President of Health and Policy
   Phone: (212) 380-4463
   E-mail: karesh@ecohealthalliance.org

252.601-9001 GRANTS OFFICER'S REPRESENTATIVE (GOR) (MAY 2009)

g. Grants Officer's Representative (GOR) for this Grant is:
   Name: [Redacted]
   Defense Threat Reduction Agency/
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   telephone: [Redacted]
   email: [Redacted]
b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S REPRESENTATIVE

1. The Grants Officer's Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement's reporting requirements. Perceived deviations from the agreement's terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient's inability or unwillingness to conform to the agreement's requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA or any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
FUNDING PROFILE:

The amount of $4,912,818.06 is obligated for work to be performed during the period beginning with grant award and continuing through May 31, 2025.

The Government’s liability is limited to the amount obligated.

<table>
<thead>
<tr>
<th>Invoice</th>
<th>Date</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6/30/2020</td>
<td>$81,880.36</td>
</tr>
<tr>
<td>2</td>
<td>7/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>3</td>
<td>8/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>4</td>
<td>9/30/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>5</td>
<td>10/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>6</td>
<td>11/30/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>7</td>
<td>12/31/2020</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>8</td>
<td>1/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>9</td>
<td>2/28/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>10</td>
<td>3/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>11</td>
<td>4/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>12</td>
<td>5/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>13</td>
<td>6/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>14</td>
<td>7/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>15</td>
<td>8/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>16</td>
<td>9/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>17</td>
<td>10/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>18</td>
<td>11/30/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>19</td>
<td>12/31/2021</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>20</td>
<td>1/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>21</td>
<td>2/28/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>22</td>
<td>3/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>23</td>
<td>4/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>24</td>
<td>5/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>25</td>
<td>6/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>26</td>
<td>7/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>27</td>
<td>8/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>28</td>
<td>9/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>29</td>
<td>10/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>30</td>
<td>11/30/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>31</td>
<td>12/31/2022</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>32</td>
<td>1/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>33</td>
<td>2/28/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>34</td>
<td>3/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>35</td>
<td>4/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>36</td>
<td>5/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>37</td>
<td>6/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>38</td>
<td>7/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>39</td>
<td>8/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>40</td>
<td>9/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>41</td>
<td>10/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>42</td>
<td>11/30/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>43</td>
<td>12/31/2023</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>44</td>
<td>1/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>45</td>
<td>2/29/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Amount</td>
</tr>
<tr>
<td>---</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>46</td>
<td>3/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>47</td>
<td>4/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>48</td>
<td>5/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>49</td>
<td>6/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>50</td>
<td>7/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>51</td>
<td>8/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>52</td>
<td>9/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>53</td>
<td>10/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>54</td>
<td>11/30/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>55</td>
<td>12/31/2024</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>56</td>
<td>1/31/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>57</td>
<td>2/28/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>58</td>
<td>3/31/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>59</td>
<td>4/30/2025</td>
<td>$81,880.30</td>
</tr>
<tr>
<td>60</td>
<td>5/31/2025</td>
<td>$81,880.30</td>
</tr>
</tbody>
</table>
Section I - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 1</td>
<td>Statement of Work</td>
<td>8</td>
<td>26-JUL-2019</td>
</tr>
<tr>
<td>Attachment 2</td>
<td>Terms and Conditions</td>
<td>18</td>
<td>06-APR-2018</td>
</tr>
</tbody>
</table>
LIBERIA CHIMPANZEE RESCUE AND PROTECTION
DOCUMENTATION TABLE OF CONTENTS

SALARY .................................................................................................................. 1

OTHER DIRECT COSTS .......................................................................................... 2
CONSULTANCY CONTRACT

NAME: [Redacted]

ADDRESS: Liberian Institute for Biomedical Research
           Charleston, Margibi County
           Liberia

REFERENCE LOG #: P2Y5JDESMOND03

PROJECT TITLE: PREDICT-2 Liberia (Ebola Host Project)

PERIOD: 01 OCTOBER 2018  30 SEPTEMBER 2019

PHONE: [Redacted]

E-MAIL: 

FUNDING SOURCE: 07-306-7119-52039

CONTRACT AMOUNT: US $146,000

Amendment to the Original Terms & Conditions:

Item 1 Agreement Amount is revised as follows:
   a) delete $150, 203.16
   b) replace with $150,727.15 to include 523.99 to cover additional Y5 expenses.

Item 2 – All other terms and conditions of this Subward Agreement that are not inconsistent with
this Amendment remain unchanged and in full force and effect.

Dr. Peter Daszak
President, EcoHealth Alliance

__________________________
Consultant

__________________________
DATE

December 3, 2019
DATE
Here’s what’s in your bag.
Get free shipping and free returns on all orders.

Magic Keyboard - US English 5 $495.00

Add a gift message

Order by 5pm, delivers:
Today within 2 hours - Fastest
Thu, Nov 7 - Free
Delivery options for: 1000**

AppleCare+ for MacBook/MacBook Air
Automatically registered with your Apple hardware

13-inch MacBook Air - Space Gray 1 $1,699.00

Show product details

AppleCare+ for MacBook/MacBook Air $249.00

Add a gift message or gift wrap

Order today, delivers:
Nov 16 - Nov 19 - Free
Delivery options for:

Magic Mouse 2 - Silver 5 $395.00

Remove
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARIES</td>
<td>1</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>2</td>
</tr>
<tr>
<td>LAB/SAMPLING COSTS</td>
<td>4</td>
</tr>
<tr>
<td>TRAVEL</td>
<td>15</td>
</tr>
</tbody>
</table>
March 2, 2020

Eco Health Alliance
460 West 34 Street
17th Floor,
New York City
USA

Re: Confirmation of Incentives to be paid Key and other personnel working on the DTRA Grants

Dear Sir/Madam,

I extend compliments as I write you this communication verifying salaries of Key personnel enlisted and budgeted for in the DTRA grant proposal.

The salaries proposed in the budget are percentages of their individual base salaries. The key staffs on the project will be working on a Full Time Equivalent bases.

Thanks so much for your kind consideration and please be assured that our office is willing at all times to provide you additional clarifications as may be required.

Best Regards,

(0)(6)

Deputy Director General for Administration (Acting)
Shopping Cart

Item Subtotal: $29,884.66

STIRLING ULT FREEZER SU780XLE
120V/240V
75845-814
Direct from Supplier
EA 1 $22,958.40 $22,958.40

Availability: Shipped directly from GLOBAL COOLING, INC. If availability is critical, please call VWR Customer Support at 1-800-932-5000

LN2 BACK-UP SYSTEM FACTORY INSTALLED
75846-036
Direct from Supplier
EA 1 $3,439.37 $3,439.37

Availability: Shipped directly from GLOBAL COOLING, INC. If availability is critical, please call VWR Customer Support at 1-800-932-5000

SKELETON RACK SOLUTION 2 INCH BOXES
75845-886
Direct from Supplier
EA 1 $3,486.89 $3,486.89

Availability: Shipped directly from GLOBAL COOLING, INC. If availability is critical, please call VWR Customer Support at 1-800-932-5000

Have a promotion code?
Apply Promotion Code

https://us.vwr.com/store/cart/cart.jsp
Build your cart from:
- Shopping List
- Frequently Ordered Items
- Uploaded Products to Cart

Please note that you will receive an order acknowledgment after order placement that contains updated product delivery information.
March 22, 2020

FoodHealth Alliance
460 West 34th Street
17th Floor,
New York City
USA

Re: Laboratory test cost confirmation

Dear [Name],

I am writing to confirm the laboratory testing costs associated with the project titled: *Reducing the threat from high-risk pathogens causing febrile illness in Liberia.*

Based on an analysis of previous costs associated with testing biological samples in similar projects, we estimate a cost of $33.74 per sample.

Thanks so much for your kind consideration and please be assured that our office is willing at all times to provide you additional clarifications as may be required.

Best Regards,

[Signature]

Deputy Director General for Administration (Acting)
BD Syringe with Sub-Q Needle

Syringe: Becton Dickinson; With Sub-Q needle; 1mL, 26 gauge; Slip Tip; 100/Pk.

Manufacturer: BD 309597

Catalog No. 14-829-10F

$35.25 / Pack of 100
$213.21 / Case of 8 PK

Due to product restrictions, please Sign in to purchase or view availability for this product.
BD Disposable Syringes with Luer-Lok™ Tips

Unique integrated BD Luer-Lok™ tip syringe with clear barrel. BD Medical™ Disposable Syringes with Luer-Lok™ Tips are sterile and disposable.

Manufacturer: BD 309657

Catalog No. 14-823-435

$33.25 / Pack of 200
$98.88 / Case of 4 PK

Due to product restrictions, please sign in to purchase or view availability for this product.
BD Vacutainer™ Eclipse™ Blood Collection Needle

Provides fast, easy needle-tip protection. BD Vacutainer™ Eclipse™ Blood Collection Needle is a multi-sample blood collection needle with an integrated safety shield that offers a simple, effective way to collect blood while reducing the possibility of needle stick injuries.

**Manufacturer:** BD 368607

View more versions of this product
BD General Use and PrecisionGlide Hypodermic Needles

Fit any Luer-Lok®, slip tip, or eccentric tip syringe

Manufacturer: BD 305165

View more versions of this product

Catalog No. 14-826C

$19.25 / Pack of 100

$150.38 / Case of 10 PK

Sign in to purchase or view availability for this product.
BD Vacutainer™ Plastic Blood Collection Tubes with K2EDTA: Hemogard™ Closure

Evacuated blood collection tubes for whole blood hematology determinations

Manufacturer: BD 367899

$43.30 / Pack of 100
$337.00 / Case of 10 PK

Due to product restrictions, please Sign In to purchase or view availability for this product.
Puritan™ Polyester-Tipped Applicators

Ideal for specimen collection, testing and screening

Manufacturer: Puritan™ 25806 2PD

View more versions of this product

Catalog No. 22-029-574

$30.00 / Pack of 200

$231.23 / Case of 10 PK

Qty: Check Availability
Fisherbrand™ Extended Cuff Nitrile Exam Gloves

Choose a glove with exceptional durability and added protection. The Fisherbrand™ Extended Cuff Nitrile Gloves are extra-thick, fully textured for a superior grip and are tested for use with chemotherapy drug exposure.

$39.05

Specifications

Certifications/Compliance: ASTM D6319, FDA 21 CFR 177-2600, 10993-1 2003, FDA 510(k), Tested for use with chemotherapy drugs

Coating Material: Textured

Color: Teal

Length (English): 12 in.

Length (Metric): 30.5 cm

View More Specs
Thermo Scientific™ Nunc™ Biobanking and Cell Culture Cryogenic Tubes

Store samples from general cold storage to the vapor phase of liquid nitrogen with Thermo Scientific™ Nunc™ Biobanking and Cell Culture Cryogenic Tubes.

Manufacturer: Thermo Scientific™ 368632

View more versions of this product

Catalog No. 12-565-171N

$546.00 / Pack of 450

$1,614.00 / Case of 4 PK

Qty Check Availability
BD Vacutainer™ Venous Blood Collection Tubes: Vacutainer Plus™ Plastic Serum Tubes, Silicone-Coated, with Conventional Stopper

Use for serum determinations in chemistry, serology and immunohematology

Manufacturer: BD 368660

View more versions of this product
Tablets and case: $228.98 each

Get a $15 credit when you purchase $50 or more in Amazon Gift Cards (restrictions apply)

SupCase Unicorn Beetle Pro Series
Designed for Galaxy Tab A 10.1 (2019 Release), Full-Body Rugged Heavy Duty Protective Case with Built-in Screen Protector for Galaxy Tab A 10.1 Inch 2019 (Black)
In Stock
Eligible for FREE Shipping
This is a gift item (in stock)
QTY: 1
Delete
Save for later
Compare with similar items
Price $26.99

Samsung Galaxy Tab A 10.1 32 Gb Wifi Tablet Black (2019)
In Stock
Eligible for FREE Shipping
Gift options not available. Manage now
QTY: 1
Delete
Save for later
Compare with similar items
Price $201.99

Subtotal (13 items): $1,225.87
Updated Subtotal (16 items): $1,831.81

- Fire HD 10 Case 2017...
- Galaxy Tab A 10.1 Case...
- Amazon Fire / Tablet...
- Solo Galaxy Tab A...

Do you have a gift card or promotional code? We’ll ask you to enter your claim code when it’s time to pay.

Customers who shopped for SupCase Unicorn Beetle Pro Series Designed for... also shopped for:

Gift ideas inspired by your shopping history
BD Vacutainer™ Tube Holder

Low-cost, single-use holder compliant with OSHA regulations

Manufacturer: BD 364815

Catalog No. 22-289-953

$23.05 / Pack of 250

$91.90 / Case of 4 PK

Due to product restrictions, please Sign In to purchase or view availability for this product.
**CHECK PAYMENT VOUCHER**

Project (s): **Predict**  
Date: **June 14, 2019**

Pay to: **Golden Gate (Liberia) Inc.**

Check Number: **00973713**

<table>
<thead>
<tr>
<th>Account Code</th>
<th>Budget Code</th>
<th>Description payment or Narrative</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Payment to Golden Gate (Liberia) Inc. to acquire workshop and catering service for the launch of the forest health futures project on June 19, 2019</strong></td>
<td><strong>USD 2,255.00</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>USD 2,255.00</strong></td>
</tr>
</tbody>
</table>

Amount in words: **Two thousand two hundred fifty five United States dollars**

Prepared by:  
Date: **June 14, 2019**

Approved by:  
Date: **June 14, 2019**

Received by:  
Date: **17/06/19**

*Help Conserve Liberia's Natural Resources*
<table>
<thead>
<tr>
<th>Rate (USD)</th>
<th>Offer (USD)</th>
<th>Description</th>
<th>City</th>
<th>Duration</th>
<th>Date</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2,255.00</td>
<td></td>
<td>10% GST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2,060.00</td>
<td></td>
<td>1/Bottle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$50.00</td>
<td></td>
<td>Extra water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$4,000.00</td>
<td></td>
<td>Hall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$600.00</td>
<td></td>
<td>Breakfast, Lunch &amp; Coffee Break</td>
<td>50 Pers.</td>
<td>1 Day.</td>
<td>32/Person</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amount in Words: Two Thousand Two Hundred and Fifty Five United States Dollars Only.

QUOTATION # 2019/0528/0916

To: EcoHealth Alliance,

28th May, 2019,

GOLDEN GATE (LIBERIA) INC

利比里亚金门集团有限公司
GOLDEN

APR 10, 2019

Received from
Catherine Machado
Six Hundred Eighty Two
US Dollars

Payment for Workshop on APR 10, 2019

$682.00

[Signature]
<table>
<thead>
<tr>
<th>S.T.</th>
<th>DESCRIPTION</th>
<th>TOTAL(USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The President &amp; Lunch (20)</td>
<td>$420.00</td>
</tr>
<tr>
<td></td>
<td>Min. Conference Room</td>
<td>$200.00</td>
</tr>
<tr>
<td></td>
<td>TAX GST</td>
<td>$82.00</td>
</tr>
<tr>
<td></td>
<td>Amount Due: Six Hundred And Eighty Two United State Dollars Only</td>
<td>$688.20</td>
</tr>
</tbody>
</table>
SOCIETY FOR THE CONSERVATION OF NATURE OF LIBERIA
DOCUMENTATION TABLE OF CONTENTS

SALARIES ........................................................................................................1

VEHICLE EQUIPMENT/TRAVEL ......................................................................2

OTHER DIRECT COSTS ..................................................................................19
Executive Director
Society for Conservation of Nature of Liberia
Congo Town, Monrovia

March 2, 2020

To: DTRA C-WMD Thrust Area 6 Program

This letter is intended to confirm the salary levels for following positions for the project, Reducing the threat from high-risk pathogens causing febrile illness in Liberia: social scientist (1), field technician (3), field supervisor (1), driver (2), administrative assistant (1), accounting assistant (1).

<table>
<thead>
<tr>
<th>Position</th>
<th>No. of Staff</th>
<th>Monthly Salary</th>
<th>Percent Covered</th>
<th>Annual Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Scientist</td>
<td>1</td>
<td>$550.00</td>
<td>100%</td>
<td>$6,600.00</td>
</tr>
<tr>
<td>Field Technician</td>
<td>3</td>
<td>$550.00</td>
<td>100%</td>
<td>$19,800.00</td>
</tr>
<tr>
<td>Field Supervisor</td>
<td>1</td>
<td>$650.00</td>
<td>100%</td>
<td>$7,800.00</td>
</tr>
<tr>
<td>Administrative Asst.</td>
<td>1</td>
<td>$1,350.00</td>
<td>50%</td>
<td>$8,100.00</td>
</tr>
<tr>
<td>Accounting Asst.</td>
<td>1</td>
<td>$720.00</td>
<td>50%</td>
<td>$4,320.00</td>
</tr>
<tr>
<td>Driver</td>
<td>2</td>
<td>$330.00</td>
<td>100%</td>
<td>$7,290.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>$4150.00</strong></td>
<td><strong>NA</strong></td>
<td><strong>$54,540.00</strong></td>
</tr>
</tbody>
</table>

These salary levels are based on funding levels for previous projects of a similar nature, primarily the USAID funded PREDICT project. Please feel free to contact me if you have any questions or need additional information.

Sincerely yours,

[Signature]

[Logo]

Help Conserve Liberia's Natural Resources
Dear Mr Desmond,

Thank you for your enquiry. We have pleasure in attaching our quotation as requested.

**Freight Service Details - Consignment No 1 HZJ79L-TJMR5-A2**

- **Shipped From:** Gibraltar, Gibraltar
- **Destination:** Monrovia, Liberia
- **Estimated Time of Sailing (ETS) Gibraltar:** 11/06/2019
- **Estimated Time of Arrival (ETA) Monrovia, Liberia:** 23/07/2019
- **Transit time in days:** 42
- **Costs:** 161,903 JPY
- **Frequency:** Every 10 days
- **Freight Method:** Monrovia, Liberia via Valencia RORO

**Important Shipping Information**

**Alternate Routes Freight Service Details - Consignment No 1 HZJ79L-TJMR5-A2**

- **Destination:** Monrovia, Liberia
- **Estimated Time of Sailing (ETS) Gibraltar:** 11/06/2019
- **Estimated Time of Arrival (ETA) Monrovia, Liberia:** 30/06/2019
- **Transit time in days:** 19
- **Costs:** 227,352 JPY
- **Insurance:** 60,729 JPY
- **Frequency:** Weekly
- **Freight Method:** Monrovia, Liberia via Algeciras FCL

**Important Shipping Information**

**Delivery**

* Kindly note that the quoted ETS/ETA dates are subject to change and will be confirmed at the time of order. Shipping dates will depend on stock levels as well as on our workshop workload, both of which can change on a daily basis.

* If delivery is via Container, please note that off-loading and de-stuffing charges may apply at destination and are the responsibility of the buyer.

* Kindly also note that our vehicle stock is available on a first come first served basis and we recommend that you place your order as soon as possible to ensure availability.

**Batch Summary**

<table>
<thead>
<tr>
<th>Batch Summary</th>
<th>CIF Monrovia, Liberia via Valencia RORO (Incorporated 2010)</th>
<th>4,662,571 JPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch Summary</td>
<td>CIF Jan 2021</td>
<td>44,931.21 INDICATIVE USD</td>
</tr>
</tbody>
</table>

**Vehicle & Fleet Insurance**

TGS has partnered with the leading international insurance firm Clements, to offer its customers competitive world-wide insurance coverage specifically designed for Aid & Humanitarian organisations. Through this partnership, TGS can provide insurance cover on a global flat rate for your vehicle or fleet and includes towing, theft, rental reimbursements amongst other benefits, as listed below:

- Worldwide comprehensive cover
- A simple, fast and hassle-free claim procedure
- In addition to the physical damage cover, the policy may be adjusted to your needs and include optional modules (such as excess liability, political violence, personal accident, duty coverage)
- Customers will benefit from a unique premium discount structure if specific accessories or services are also purchased with your vehicle.
If interested, please contact us for additional information or request for quotation - sales@toyotagib.com

Download a copy of our insurance flyer on this link - ~

Incoterms
Batch 1: CIF
With CIF terms, the buyer is responsible for customs clearance at destination.

Payment Terms
Bank transfer with order

Batch 1: Warranty Service - Liberia: 36 Months or 100,000 Kms (whichever comes first)
Full Toyota warranty and after-sales service is included in the price of the vehicles supplied by Toyota Gibraltar Stockholdings Ltd (TGS). It's important to note that unauthorised dealers cannot offer Toyota approved in-country warranty and after-sales service. A free pre-delivery inspection (PDI) and the issue of the Toyota Warranty Booklet will be carried out by the local Toyota Distributor. Please note that the local Toyota Distributor may charge for the installation of unassembled accessories, such as roof rack(s). The Distributor will also carry out a 1000 Kms service check, free of charge except for lubricants, fluids or filters used, and will arrange the application of warranty if necessary. Please note that non-Toyota equipment fitted as a TGS option is not endorsed by Toyota and consequently shall not benefit from the Toyota warranty and warranty service. This non-Toyota equipment will be separately warranted by TGS who will match the conditions of the warranty of the original manufacturer. It is important that the Pre-Delivery Inspection is carried out by the Toyota Distributor before the vehicle is put into operational use.

Batch 1: Warranty Service - Note
Please note that any spare parts purchased from TGS may not be accepted or used by the local distributor during routine maintenance or servicing of your vehicle(s) at their premises.

Batch 1 - The Main Official Toyota Distributor is located in Monrovia

Validity
Prices are valid until the 7th June 2019, this does not include indicative prices provided in alternative currencies. Please note that the freight price is only valid for the number of vehicles quoted. Any changes in quantities will require a revised quotation.

Spare Parts Service
We have enclosed details of Spare Parts Packages available for each model. Please note the service package is shown with and without tyres: the maintenance package includes tyres as standard. Please also note that when spare parts are shipped with vehicles, considerable savings can be made as the parts will be freighted inside the vehicle free of charge to the final destination. We hope that our quotation is of interest and look forward to hearing from you. Should you have any queries or require more information, please do not hesitate to contact us quoting our reference.

Yours sincerely

(Signature)
Sales Executive
Direct: 00563
E-Mail: sales@toyotagib.com

Company Registration Number: 58794
Land Cruiser 79 Single Cabin Pick-Up, 3 seater (Airbags, Air Conditioning, ABS), Model: HZJ79L-TJMRS SFX: A2

General Specifications (For use in extreme climatic and physical conditions)

**Transmission**
- 5 speed, Manual, Brakes: Front: Disc, Rear: Drum

**Drive Type:**
- 4x4

**Tyres**
- Road: Front: 7.50R16-5.50F, Rear: 7.50R16-5.50F, Steel

**Suspensions**
- Front: Coil, Rear: Leaf

**Wheelbase**
- LWB 3120 mm, Ground Clearance: 255 mm

**Weight**
- Kerb Weight: 2140kg, Gross Vehicle Weight: 3290kg, Payload: 1060kg

**Seats**

**Dimensions**
- Length: 5195mm, Width: 1790mm, Height: 1975mm, Volume: 18.4m³ all excluding accessories

**Colour**
- White

**Country of Origin**
- Japan

**Engine Model**
- 1HZ - 4164cc, Diesel (Tank 90-901), 6 cylinders, BHP: 129, KW: 96, Cooling (Water), electrics 12 Volts

**No of doors**
- 2

**Standard Features:**
- Outside rear view mirror - Door
- Rear step bumper
- Semi-sealed halogen headlamps
- Side steps
- Towing hook: front (eye) with rear
- Puddle hook
- Windscreen - green tinted laminated
- Interior
- Fuel gauge
- Sun visors (D&P)
- Fuel level warning light
- Timing belt replacement warning light
- Glove box: w/lock
- Transfer: 4WD lever & knob
- Heaters: front
- Trip Meter
- Odometer: digital
- Vinyl floor covering
- Interior light: centre
- Voltage meter warning light
- Interior rear view mirror (day and night)
- Interior temperature gauge
- Mileage meter
- Heat exchanger
- Fan: Electric
- Refrigerator: Front
- Electrical: Fused
- R.C.D.:

**Engine & Chassis**
- Engine oil cooler
- Fuel injection w/ fuel filter
- Full-floating rear axle
- High altitude compensator
- Power steering
- Stabiliser bar - front & rear
- Transfer box protection
- Exterior
- Air cleaner
- Ashtray
- Assist grip x 3
- Bottle Holder (Front) - Back Panel (Pick-up)
- Brake fluid level warning light
- Cigarette lighter
- Clock: digital
- Dash silencer: interior only
- Door ajar warning
- Seats: front x 3 & back x 2 (Drivers seat & passenger "Black"
- Footrest - Driver
- Lockable fuel cap
- Mud guards: front & rear

**Basic Price**
- Ex-Works Gibraltar, Standard Vehicle: 2,835,000 JPY

**Factory Options Included In Price**
- Airbags / Driver & Front passenger
- Air conditioning (non-CPC)
- ABS Brakes

**TGS Options**
- 2nd battery with split diode and battery holder
- Fuel pre-filter kit (incl. 2x spare filters) (W/SECOND BATTERY OPTION ONLY)
- Supply 8x FS1001 Fiberglass spare fuel filters
- pioneer MX, FM radio-cd, MFS player, Bluetooth, AUX jack & USB (removable)
- Basic safety pack (Extinguisher/Triangles/First Aid Kit/Repairs/ petrol/Solar Flashlight
- Emergency escape tool, USB charger
- Set of locking wheel nuts (not fitted)
- Transit safety box (to secure easily removable items)
- 2nd spare wheel - Michelin XSB5018 (sand tyre)
- Change tyres to Michelin XM7501R6 sand tyre
- Original carrier extension for 2nd spare wheel (7501R6)
- Vinyl spare wheel cover with TGS logo
- Axle (front and rear) and gearbox breather extension kit
- Recovery point (fitted at the front)
- Vehicle tool kit (7 piece tool kit/brochure cases/solar flashlighthouse/gloves)
- 12V LED Worklamp with magnetic base
- 2L moulded plastic Jerry can (diesel) with flexible spout
- Electric 12V winch with synthetic rope and heavy duty bull bar
- Front windscreen repair kit
- High lift jack 120cm incl. fitting inside the cargo bed
- Jerry can holder (single), externally mounted in load area
- Platform for the high lift jack

**Page 3 of 11**
<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic differential lock FR-RR incl. pump up kit 6m &amp; air pressure guage</td>
<td>425,300</td>
</tr>
<tr>
<td>Rear white PVC canopy with stainless steel frame and rear windows</td>
<td>154,300</td>
</tr>
<tr>
<td>Replacement rear bumper bar LC79, inc. Hi-Lift jack ing points</td>
<td>125,500</td>
</tr>
<tr>
<td>Winch recovery accessories in storage bag</td>
<td>40,700</td>
</tr>
</tbody>
</table>

**TGS Options Total Price**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>per unit</td>
<td>1,558,800 JPY</td>
</tr>
<tr>
<td><strong>Sub-Total Price</strong></td>
<td>4,093,600 JPY</td>
</tr>
</tbody>
</table>

**Parts packages included**

- Freight
  - Monrovia, Liberia via Valencia ROPO: 161,693 JPY
- Insurance
  - Please note that all claims have an Excess Clause (Deductible) applied. This means that the first £1,200 (or equivalent) of a claim is not payable by the insurance company: 59,998 JPY

**Total Unit Price**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4,852,571 JPY</td>
</tr>
</tbody>
</table>

**Grand Total**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Unit CIF Monrovia, Liberia via Valencia ROPO (Incoterms 2010)</td>
<td>4,852,571 JPY</td>
</tr>
<tr>
<td>1 Unit CIF Monrovia, Liberia via Valencia ROPO (Incoterms 2010)</td>
<td>44,931.21 INDICATIVE USD</td>
</tr>
</tbody>
</table>

**Stock Availability**

HZJ79L-TJMRS-42 Availability: In Stock: 58 Units, MAY: 15 Units, JUN: 8 Units.
HZJ79L-DK-TJMRS Service Pack for HZJ79L-TJMRS-A2

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>Unit Price</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AIR FILTER</td>
<td>5</td>
<td>5,905</td>
<td>29,525</td>
</tr>
<tr>
<td>2</td>
<td>BRAKE FLUID DOT 4 1L</td>
<td>2</td>
<td>1,829</td>
<td>3,658</td>
</tr>
<tr>
<td>3</td>
<td>BULB KIT H4 - TYPE 1 KIT: H4</td>
<td>1</td>
<td>1,420</td>
<td>1,420</td>
</tr>
<tr>
<td>4</td>
<td>COOLANT 1L LLG CONCENTRATE</td>
<td>1</td>
<td>1,166</td>
<td>1,166</td>
</tr>
<tr>
<td>5</td>
<td>COOLER COMPRESSOR BELT</td>
<td>1</td>
<td>1,908</td>
<td>1,908</td>
</tr>
<tr>
<td>6</td>
<td>ENGINE OIL 15W40 5L</td>
<td>5</td>
<td>3,106</td>
<td>15,530</td>
</tr>
<tr>
<td>7</td>
<td>FAN &amp; ALTERNATOR BELT</td>
<td>1</td>
<td>1,811</td>
<td>1,811</td>
</tr>
<tr>
<td>8</td>
<td>FLAP INNER-TUBE 750R16</td>
<td>4</td>
<td>1,440</td>
<td>5,760</td>
</tr>
<tr>
<td>9</td>
<td>FRONT BRAKE DISCPADS KIT</td>
<td>1</td>
<td>14,883</td>
<td>14,883</td>
</tr>
<tr>
<td>10</td>
<td>FRONT WIPER BLADE (LEFT)</td>
<td>2</td>
<td>2,101</td>
<td>4,202</td>
</tr>
<tr>
<td>11</td>
<td>FRONT WIPER BLADE (RIGHT)</td>
<td>2</td>
<td>1,043</td>
<td>3,886</td>
</tr>
<tr>
<td>12</td>
<td>FUEL FILTER</td>
<td>8</td>
<td>4,812</td>
<td>36,496</td>
</tr>
<tr>
<td>13</td>
<td>INNER TUBE 750R16</td>
<td>4</td>
<td>2,165</td>
<td>8,664</td>
</tr>
<tr>
<td>14</td>
<td>OIL FILTER</td>
<td>10</td>
<td>2,367</td>
<td>23,670</td>
</tr>
<tr>
<td>15</td>
<td>OIL SUMP PLUG GASKET</td>
<td>10</td>
<td>129</td>
<td>1,290</td>
</tr>
<tr>
<td>16</td>
<td>RADIATOR HOSE NO.1</td>
<td>1</td>
<td>2,206</td>
<td>2,206</td>
</tr>
<tr>
<td>17</td>
<td>RADIATOR HOSE NO.2</td>
<td>1</td>
<td>2,050</td>
<td>2,050</td>
</tr>
<tr>
<td>18</td>
<td>TYRE DUNLOP QUALIFIER T621 750R16C 114/112S RBL TT</td>
<td>4</td>
<td>29,496</td>
<td>117,984</td>
</tr>
<tr>
<td>19</td>
<td>WINDSCREEN WASHER FLUID CONCENTRATE -50 C 0.24L</td>
<td>5</td>
<td>228</td>
<td>1,140</td>
</tr>
</tbody>
</table>

Total: 278,259
Discount 19% 41,889

Total: JPY 237,370
Total: INDICATIVE USD 2,197.67
**TGS Workshop Fitted Options**


**HZJ79L-TMRS-A2 - A2, Land Cruiser 79 Single Cabin Pick-Up, 3 seater (Airbags, Air Conditioning, ABS)**

This is a partial list of the most frequently requested Options and Accessories that can be fitted by our Workshop. Most of these items are held in stock, but please check availability with our sales team prior to confirming your order. If an item that you require does not appear on this list, we will be happy to provide a full quotation on request.

**IMPORTANT**: Please note that the estimated shipment date may be affected if any further options are required other than those quoted. This would depend upon the number and type of options chosen, so please contact our sales team for further information.

### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options Category: Protection equipment</td>
<td></td>
</tr>
<tr>
<td>SBS 6 x lap Type Seat Belts (Only to be used with JUM4 Option)</td>
<td>42,100 JPY</td>
</tr>
<tr>
<td>SGB Aluminium 6mm skull plate LC70 series</td>
<td>46,400 JPY</td>
</tr>
<tr>
<td>FLP Front acrylic light protectors</td>
<td>10,200 JPY</td>
</tr>
<tr>
<td>MB Mesh barrier for factory deck guard LC79</td>
<td>58,100 JPY</td>
</tr>
<tr>
<td>RLP Rear light protectors</td>
<td>16,300 JPY</td>
</tr>
<tr>
<td>REVCAM Reversing camera &amp; monitor system</td>
<td>78,500 JPY</td>
</tr>
<tr>
<td>EX1 Use for extinguisher, including fitting</td>
<td>5,200 JPY</td>
</tr>
<tr>
<td>SAFETY Basic safety pack (Extends Tripod/Triangle/Anti-roll/Restrictor/Vest/Solar Flight light)</td>
<td>15,700 JPY</td>
</tr>
<tr>
<td>EET Emergency escape tool, USB charger</td>
<td>2,100 JPY</td>
</tr>
<tr>
<td>HAMMER Escape hammer for breaking side glass, inc seat belt cutter</td>
<td>6,300 JPY</td>
</tr>
<tr>
<td>VEST High visibility vest</td>
<td>550 JPY</td>
</tr>
<tr>
<td>REV BUZZ Reversing buzzer 97d(B) @ 1m</td>
<td>17,200 JPY</td>
</tr>
<tr>
<td>BUL STM SP5 Heavy duty black smart bull bar including front bumper</td>
<td>185,600 JPY</td>
</tr>
<tr>
<td>BUL SP5 Heavy duty bull bar including front bumper</td>
<td>117,500 JPY</td>
</tr>
<tr>
<td>ULP Universal joint protection, front and rear</td>
<td>58,800 JPY</td>
</tr>
<tr>
<td>TRI Warning triangle</td>
<td>800 JPY</td>
</tr>
</tbody>
</table>

### Options Category: Recovery & towing equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUMP Heavy-duty jum p pack</td>
<td>15,600 JPY</td>
</tr>
<tr>
<td>RRSTOW 50mm tow ball (REQUIRES REPLACEMENT REAR BAR)</td>
<td>14,600 JPY</td>
</tr>
<tr>
<td>AIR Air Jack (6,000kg rated)</td>
<td>52,400 JPY</td>
</tr>
<tr>
<td>BGS ATP All terrain vehicle mobility bag stops</td>
<td>86,100 JPY</td>
</tr>
<tr>
<td>JACK Bottle Jack Stone telescopic</td>
<td>9,800 JPY</td>
</tr>
<tr>
<td>PBELNI Combined ball &amp; pin coupling (REQUIRES REPLACEMENT REAR BAR)</td>
<td>47,300 JPY</td>
</tr>
<tr>
<td>WB E Electric 12V winch with synthetic rope and heavy duty bull bar</td>
<td>236,900 JPY</td>
</tr>
<tr>
<td>SANDT R Flexible sand tracks (1 pair)</td>
<td>22,800 JPY</td>
</tr>
<tr>
<td>SMOVEL Fording shovel</td>
<td>8,400 JPY</td>
</tr>
<tr>
<td>WIN-HND Hand winch 240kg pull, 160kg lift + 20m rope</td>
<td>43,000 JPY</td>
</tr>
<tr>
<td>HIJ High lift jack 120cm incl. fitting inside the cargo bed</td>
<td>38,600 JPY</td>
</tr>
<tr>
<td>HULLFMT Lifting adapter for Hi-lift jack</td>
<td>8,200 JPY</td>
</tr>
<tr>
<td>HUJBAS Platform for the high lift jack</td>
<td>9,500 JPY</td>
</tr>
<tr>
<td>RECOV2 Recovery kit for recovery point in storage bag</td>
<td>15,700 JPY</td>
</tr>
<tr>
<td>RECOVTR Recovery tracks (1 pair)</td>
<td>30,900 JPY</td>
</tr>
<tr>
<td>ROPE Tow rope, 8000kg rolling load capacity</td>
<td>4,700 JPY</td>
</tr>
<tr>
<td>RECOV Winch recovery accessories in storage bag</td>
<td>40,700 JPY</td>
</tr>
<tr>
<td>RECOVFR Recovery point (fitted at the front)</td>
<td>28,900 JPY</td>
</tr>
<tr>
<td>RECOVPR Recovery point (fitted at the rear)</td>
<td>35,200 JPY</td>
</tr>
</tbody>
</table>

### Options Category: 4x4 equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAMPED 12v LED Worklamp with magnetic base</td>
<td>14,400 JPY</td>
</tr>
<tr>
<td>FOS2 2 x 55W fog lamps (ONLY WITH BULL BAR OPTION)</td>
<td>36,600 JPY</td>
</tr>
<tr>
<td>JERFUEL 20L moulded plastic Jerry can (diesel) with flexible spout</td>
<td>10,900 JPY</td>
</tr>
<tr>
<td>JERWAT 20L moulded plastic water Jerry can</td>
<td>5,660 JPY</td>
</tr>
<tr>
<td>SPO3 2x 100W rectangular spot/driving lights (ONLY WITH BULL BAR OPTION)</td>
<td>57,100 JPY</td>
</tr>
<tr>
<td>SPO3 2x 100W rectangular spot/driving lights (ONLY WITH SMART BAR OPTION)</td>
<td>64,000 JPY</td>
</tr>
<tr>
<td>Part Code</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SP02</td>
<td>2x 65W round spot lights (ONLY WITH BULL BAR OPTION)</td>
</tr>
<tr>
<td>LAMPH51S</td>
<td>Cordless LED rechargeable inspection lamp</td>
</tr>
<tr>
<td>WIBSW3T2</td>
<td>Electric 12V winch with synthetic rope fitted onto SRS Smart bull bar</td>
</tr>
<tr>
<td>WLS</td>
<td>Flashing LED warning lights blue (pair) at the front</td>
</tr>
<tr>
<td>JEHDF</td>
<td>Jerry can holder (double), externally mounted</td>
</tr>
<tr>
<td>HFR</td>
<td>Heavy duty roof rack (NOT FITTED)</td>
</tr>
<tr>
<td>JEH</td>
<td>Jerry can holder (single), externally mounted in load area</td>
</tr>
<tr>
<td>JEH2</td>
<td>Jerry can holder (single), roof rack mountable</td>
</tr>
<tr>
<td>DIFFH80K</td>
<td>Pneumatic differential lock (rear only) incl. pump up kit 6m &amp; air pressure gauge</td>
</tr>
<tr>
<td>DIFHT4K</td>
<td>Pneumatic differential lock RR+RR incl. pump up kit 6m &amp; air pressure gauge</td>
</tr>
<tr>
<td>TAR</td>
<td>Rear white PVC canopy with stainless steel frame and rear windows</td>
</tr>
<tr>
<td>RFGR5</td>
<td>Replacement rear bumper bar LC79, inc. H-Lift parking pins</td>
</tr>
<tr>
<td>TORCH</td>
<td>Solar flashlight</td>
</tr>
<tr>
<td>GPS564</td>
<td>Garmin GPSMAP 64 navigator with dash mount &amp; 12V socket adapter</td>
</tr>
<tr>
<td>MAP</td>
<td>Map lamp on 105mm flexible fitting</td>
</tr>
<tr>
<td>MAGL577</td>
<td>Rechargeable Maglite torch (NOT FITTED)</td>
</tr>
<tr>
<td>ROLBAR</td>
<td>Hi light bar</td>
</tr>
<tr>
<td>AXLBRE</td>
<td>Axle (front and rear) and gearbox breather extension kit</td>
</tr>
<tr>
<td>GTK</td>
<td>Garage tool kit with 21 assorted tools</td>
</tr>
<tr>
<td>VTK</td>
<td>Vehicle tool kit (7-piece tool kit/bumper covers/solar flash/flashlight)</td>
</tr>
<tr>
<td>WTK</td>
<td>Workshop tool kit</td>
</tr>
</tbody>
</table>

**Options Category: Tyres & accessories**

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Price (JPY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWC01</td>
<td>Roof rack mountable carrier for 2nd spare wheel</td>
<td>9,300</td>
</tr>
<tr>
<td>TYRPG</td>
<td>Tyre air pressure gauge</td>
<td>1,700</td>
</tr>
<tr>
<td>COMP10</td>
<td>12v air compressor (fitted) w/tyre inflator kit &amp; gauge</td>
<td>74,500</td>
</tr>
<tr>
<td>LEVER76</td>
<td>2 x tyre levers 80mm long</td>
<td>9,600</td>
</tr>
<tr>
<td>SW1</td>
<td>2nd spare wheel - Michelin XG 750R16 (sand tyre)</td>
<td>50,700</td>
</tr>
<tr>
<td>SW2</td>
<td>2nd spare wheel as per standard specs. (Dunlop)</td>
<td>50,100</td>
</tr>
<tr>
<td>TMY</td>
<td>Change tyres to Michelin 7.5R16 4X4 O/R XZL (MUD)</td>
<td>100,000</td>
</tr>
<tr>
<td>TYX</td>
<td>Change tyres to Michelin AGILIS HD 750R16</td>
<td>89,600</td>
</tr>
<tr>
<td>TYS</td>
<td>Change tyres to Michelin XG 750R16 sand tyre</td>
<td>91,900</td>
</tr>
<tr>
<td>PUNTUB</td>
<td>Inner tube repair kit</td>
<td>1,500</td>
</tr>
<tr>
<td>STRUP</td>
<td>Manual air pump with manometer</td>
<td>19,500</td>
</tr>
<tr>
<td>SWC2</td>
<td>Original carrier extension for 2nd spare wheel (235/65R16)</td>
<td>5,600</td>
</tr>
<tr>
<td>SWC2</td>
<td>Original carrier extension for 2nd spare wheel (750R16)</td>
<td>5,500</td>
</tr>
<tr>
<td>COMKIT</td>
<td>Portable 12V air compressor kit - incl. inflation kit</td>
<td>49,100</td>
</tr>
<tr>
<td>SNO</td>
<td>Snow chains 750R16 (2 pairs)</td>
<td>48,600</td>
</tr>
</tbody>
</table>

**Options Category: Communications**

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Price (JPY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFAK</td>
<td>Antenna bracket for Codan radio (w/o bull bar) (SR5 airbag compatible)</td>
<td>38,100</td>
</tr>
<tr>
<td>CGCML01</td>
<td>Codan CALM option (requires a Codan radio)</td>
<td>158,100</td>
</tr>
<tr>
<td>CODENV1</td>
<td>Codan HF mobile radio Envoy X1 with SS40 antenna, 100 channels</td>
<td>599,200</td>
</tr>
<tr>
<td>CODENV2</td>
<td>Codan HF mobile radio Envoy X2 with 3040 antenna, 1000 channels</td>
<td>729,300</td>
</tr>
<tr>
<td>NVS2</td>
<td>Codan NVS 3040 antenna kit placed inside the vehicle</td>
<td>51,400</td>
</tr>
<tr>
<td>GPSEB</td>
<td>Enable GPS capability (CODAN Envoy)</td>
<td>34,000</td>
</tr>
<tr>
<td>CODTPS</td>
<td>Envoy programming software including USB &amp; memory stick cables</td>
<td>52,700</td>
</tr>
<tr>
<td>GSPENV</td>
<td>GPS receiver/antenna for Codan Envoy/NGT STS radio (Fitted)</td>
<td>89,900</td>
</tr>
<tr>
<td>SATHDI</td>
<td>Indium PTT 9575 satellite phone with vehicle docking adapter (NO SIM CARD)</td>
<td>443,900</td>
</tr>
<tr>
<td>VHFIM1</td>
<td>Radio VHF Motorola D4601, 1,000 channels, 1-25W, 136-174MHz w/keypad</td>
<td>141,200</td>
</tr>
</tbody>
</table>

**Options Category: General equipment**

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Price (JPY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEDAL1</td>
<td>Aluminium bed liner (floor and tailgate only)</td>
<td>229,500</td>
</tr>
<tr>
<td>JUN4</td>
<td>Supply and fit 4 inward facing folding seats for 0 persons</td>
<td>195,800</td>
</tr>
<tr>
<td>FILTG</td>
<td>Fuel pre-filter kit (incl. 2x spare filters)</td>
<td>53,000</td>
</tr>
<tr>
<td>FILTFGB</td>
<td>Fuel pre-filter kit (+ incl. 2x spare filters) (W/SECOND BATTERY OPTION ONLY)</td>
<td>38,500</td>
</tr>
<tr>
<td>FLAPO</td>
<td>Flap pole holder mounted on the passenger side of vehicle</td>
<td>15,400</td>
</tr>
<tr>
<td>WRK</td>
<td>Front windscreen repair kit</td>
<td>2,300</td>
</tr>
<tr>
<td>RCBD</td>
<td>Pioneer AM, FM radio, CD, MP3 player, bluetooth, AUX jack &amp; USB (removable)</td>
<td>25,600</td>
</tr>
<tr>
<td>COOL14</td>
<td>Portable cool box 14L, 12V</td>
<td>21,600</td>
</tr>
<tr>
<td>SECBI</td>
<td>Seat covers LC79 Sub HD 3 seater (fitted)</td>
<td>27,100</td>
</tr>
<tr>
<td>Category</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>JUM4</td>
<td>Supply and fit 4 inward facing holding seats for 8 persons</td>
<td>0</td>
</tr>
<tr>
<td>CASE1</td>
<td>Aluminum case</td>
<td>7,500</td>
</tr>
<tr>
<td>FLAGM</td>
<td>Ambassador magnetic flag holder</td>
<td>11,500</td>
</tr>
<tr>
<td>GWF</td>
<td>Owner's manual in French</td>
<td>4,400</td>
</tr>
<tr>
<td>WSMCDE</td>
<td>Repair manual in English CD format HJ2#08/2014</td>
<td>53,800</td>
</tr>
<tr>
<td><strong>Options Category: Ambulance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRAP</td>
<td>Emergency First Aid blanket</td>
<td>1,200</td>
</tr>
<tr>
<td>FAK</td>
<td>First aid kit recommended by British Red Cross</td>
<td>1,400</td>
</tr>
<tr>
<td>RII</td>
<td>Rescue blanket 150x200cm</td>
<td>2,900</td>
</tr>
<tr>
<td><strong>Options Category: Power solutions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BATISS</td>
<td>2nd battery with IBS battery management and battery holder</td>
<td>143,300</td>
</tr>
<tr>
<td>BAT</td>
<td>2nd battery with split Nicole and battery holder</td>
<td>110,800</td>
</tr>
<tr>
<td>BATT</td>
<td>Battery reinforcement (for factory battery)</td>
<td>5,200</td>
</tr>
<tr>
<td>POWERPACK</td>
<td>Emergency vehicle power pack 12V/200HP</td>
<td>156,600</td>
</tr>
<tr>
<td>SCOKRR</td>
<td>12V 2nd lighter socket mounted in rear</td>
<td>21,000</td>
</tr>
<tr>
<td>WINISSO</td>
<td>Isolator Switch, Winch</td>
<td>14,700</td>
</tr>
<tr>
<td>INVER</td>
<td>Power Inverter 600W (12V DC to 220V AC)</td>
<td>35,100</td>
</tr>
<tr>
<td><strong>Options Category: Packages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IREOPE</td>
<td>Recovery package (electric)</td>
<td>0</td>
</tr>
<tr>
<td>IREOPM</td>
<td>Recovery package (manual)</td>
<td>0</td>
</tr>
<tr>
<td>SANDP</td>
<td>Sand package</td>
<td>0</td>
</tr>
<tr>
<td>VEPE</td>
<td>Vehicle Emergency package</td>
<td>0</td>
</tr>
<tr>
<td>VSP</td>
<td>Vehicle security package</td>
<td>0</td>
</tr>
<tr>
<td><strong>Options Category: Fleet Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACKY1B</td>
<td>Global Satellite and GSM Vehicle Tracking Device 2226 (with non-activated SIM card)</td>
<td>155,600</td>
</tr>
<tr>
<td>TRACKF1T</td>
<td>Global GSM Portable Vehicle Tracking Quick-Fit Device 6731 (with activated SIM card)</td>
<td>31,300</td>
</tr>
<tr>
<td>TRACKGSM</td>
<td>Global GSM Vehicle Tracking Device 6141 (with non-activated SIM card)</td>
<td>56,500</td>
</tr>
<tr>
<td>TPMF1R1</td>
<td>Trupoint monthly fee and portable GSM Quick-Fit subscription package (1 year)</td>
<td>39,900</td>
</tr>
<tr>
<td>TPMGSM1</td>
<td>Trupoint online management software (including security) and GSM subscription package (1 year) &lt;100 assets</td>
<td>47,700</td>
</tr>
<tr>
<td>TPMGSM2</td>
<td>Trupoint online management software (including security) and GSM subscription package (1 year) &gt;100 assets</td>
<td>42,100</td>
</tr>
<tr>
<td>TPMHYB1</td>
<td>Trupoint online management software (including security) and HYBRID subscription package (1 year) &lt;100 assets</td>
<td>90,500</td>
</tr>
<tr>
<td>TPMHYB2</td>
<td>Trupoint online management software (including security) and HYBRID subscription package (1 year) &gt;100 assets</td>
<td>84,900</td>
</tr>
<tr>
<td>TPSGSM1</td>
<td>Trupoint online security software and GSM subscription package (1 year) &lt;100 assets</td>
<td>44,900</td>
</tr>
<tr>
<td>TPSGSM2</td>
<td>Trupoint online security software and GSM subscription package (1 year) &gt;100 assets</td>
<td>38,400</td>
</tr>
<tr>
<td>TPSSHB1</td>
<td>Trupoint online security software and HYBRID subscription package (1 year), &lt;100 assets</td>
<td>86,800</td>
</tr>
<tr>
<td><strong>Options Category: Security equipment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G2VS1</td>
<td>Vehicle Security Grilli - Front Windscreen, headlamps &amp; taillights</td>
<td>133,200</td>
</tr>
<tr>
<td>FCCGF</td>
<td>Fog lamps for factory LC70 series frontal bumper</td>
<td>88,000</td>
</tr>
<tr>
<td>RIB</td>
<td>External roll cage, 6 point fixing</td>
<td>599,400</td>
</tr>
<tr>
<td>IMMOJ</td>
<td>Ignition immobiliser key switch</td>
<td>12,500</td>
</tr>
<tr>
<td>MUL</td>
<td>MULTI-LOCK transmission (gear) lock</td>
<td>44,200</td>
</tr>
<tr>
<td>ALML</td>
<td>Remote control alarm with sirens and engine immobilizer</td>
<td>69,800</td>
</tr>
<tr>
<td>NUT</td>
<td>Set of locking wheel nuts (not fitted)</td>
<td>4,600</td>
</tr>
<tr>
<td>TUBO</td>
<td>Steering wheel lock &quot;FURBOLOCK&quot; - theft deterrent</td>
<td>9,000</td>
</tr>
<tr>
<td>LOC</td>
<td>Steering wheel/pedal lock</td>
<td>6,500</td>
</tr>
<tr>
<td>TSB</td>
<td>Transit safety box (to secure easily removable items)</td>
<td>22,100</td>
</tr>
<tr>
<td>ETHC</td>
<td>Window stickers on all vehicle windows (maximum 7 figures)</td>
<td>21,300</td>
</tr>
<tr>
<td>KEYSR70</td>
<td>Additional Master Key 70#</td>
<td>4,600</td>
</tr>
<tr>
<td>KEYSB70</td>
<td>Additional Sub Key 70#</td>
<td>5,100</td>
</tr>
<tr>
<td>KEYTRANS</td>
<td>Transmitter, Door Control 70#</td>
<td>30,700</td>
</tr>
<tr>
<td><strong>Options Category: Decals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRBCBL8</td>
<td>Blue Cross on White Background on Front Doors &amp; Bonnet</td>
<td>9,800</td>
</tr>
<tr>
<td><strong>Options Category: Customized Option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Amount (JPY)</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>GZVCP</td>
<td>MOBILE COMMAND POST CONVERSION LC79 SCB</td>
<td>3,772,900</td>
</tr>
<tr>
<td>CONV2</td>
<td>Personnel Carrier - Conversion LC79 Sob</td>
<td>0</td>
</tr>
</tbody>
</table>

Company Registration Number: 56794
TGS Compatible Parts Packages


TGS recommends the following genuine parts but if you require greater or lesser amounts of any of the parts mentioned, or wish to change specific parts, we are entirely flexible and will tailor the package to your exact instructions.


This Spare parts Package contains parts which are required for normal maintenance requirements during the first two years or 50,000kms of ownership. In addition it contains a comprehensive selection of emergency parts.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>Unit Price</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ABSORBER, SHOCK, FR</td>
<td>2</td>
<td>7,725</td>
<td>15,450</td>
</tr>
<tr>
<td>2</td>
<td>ABSORBER SET, SHOCK,</td>
<td>2</td>
<td>7,699</td>
<td>15,398</td>
</tr>
<tr>
<td>3</td>
<td>GASKET KIT, ENGINE</td>
<td>1</td>
<td>13,668</td>
<td>13,668</td>
</tr>
<tr>
<td>4</td>
<td>SHOE KIT, BRAKE, RR</td>
<td>1</td>
<td>15,371</td>
<td>15,371</td>
</tr>
<tr>
<td>5</td>
<td>FRONT/REAR AXLE HUB SEAL</td>
<td>2</td>
<td>2,443</td>
<td>4,886</td>
</tr>
<tr>
<td>6</td>
<td>OIL SUMP PLUG GASKET</td>
<td>10</td>
<td>129</td>
<td>1,290</td>
</tr>
<tr>
<td>7</td>
<td>WINDSCREEN WASHER FLUID CONCENTRATE -50 C 0.25L</td>
<td>5</td>
<td>228</td>
<td>1,140</td>
</tr>
<tr>
<td>8</td>
<td>CLUTCH RELEASE CYLINDER REPAIR KIT</td>
<td>1</td>
<td>2,855</td>
<td>2,855</td>
</tr>
<tr>
<td>9</td>
<td>FRONT BRAKE DISC PADS KIT</td>
<td>1</td>
<td>14,883</td>
<td>14,883</td>
</tr>
<tr>
<td>10</td>
<td>ENGINE OIL 15W40 5L</td>
<td>5</td>
<td>3,106</td>
<td>15,530</td>
</tr>
<tr>
<td>11</td>
<td>ENGINE COOLANT LIQUID CONCENTRATE 5L</td>
<td>1</td>
<td>4,348</td>
<td>4,348</td>
</tr>
<tr>
<td>12</td>
<td>CYLINDER HEAD COVER GASKET</td>
<td>1</td>
<td>1,730</td>
<td>1,730</td>
</tr>
<tr>
<td>13</td>
<td>WATER PUMP</td>
<td>1</td>
<td>16,750</td>
<td>16,750</td>
</tr>
<tr>
<td>14</td>
<td>THERMOSTAT GASKET</td>
<td>1</td>
<td>435</td>
<td>435</td>
</tr>
<tr>
<td>15</td>
<td>RADIATOR HOSE NO.1</td>
<td>1</td>
<td>2,306</td>
<td>2,306</td>
</tr>
<tr>
<td>16</td>
<td>RADIATOR HOSE NO.2</td>
<td>1</td>
<td>2,060</td>
<td>2,060</td>
</tr>
<tr>
<td>17</td>
<td>EXHAUST CUSHION</td>
<td>4</td>
<td>1,028</td>
<td>4,112</td>
</tr>
<tr>
<td>18</td>
<td>AIR FILTER</td>
<td>5</td>
<td>5,805</td>
<td>29,525</td>
</tr>
<tr>
<td>19</td>
<td>GLOW PLUG</td>
<td>6</td>
<td>3,512</td>
<td>21,072</td>
</tr>
<tr>
<td>20</td>
<td>INJECTOR NOZZLE</td>
<td>2</td>
<td>5,938</td>
<td>56,028</td>
</tr>
<tr>
<td>21</td>
<td>WHEEL 5.5x16 TYPE H STEEL 5C70</td>
<td>1</td>
<td>23,111</td>
<td>23,111</td>
</tr>
<tr>
<td>22</td>
<td>STEERING DAMPER</td>
<td>1</td>
<td>25,719</td>
<td>26,719</td>
</tr>
<tr>
<td>23</td>
<td>FRONT WIPER BLADE (RIGHT)</td>
<td>1</td>
<td>1,140</td>
<td>1,140</td>
</tr>
<tr>
<td>24</td>
<td>FRONT WIPER BLADE (LEFT)</td>
<td>2</td>
<td>2,101</td>
<td>4,202</td>
</tr>
<tr>
<td>25</td>
<td>REAR AXLE SHAFT OIL SEAL (LEFT/RIGHT)</td>
<td>2</td>
<td>579</td>
<td>1,158</td>
</tr>
<tr>
<td>26</td>
<td>OIL FILTER</td>
<td>10</td>
<td>2,637</td>
<td>26,370</td>
</tr>
<tr>
<td>27</td>
<td>PAN &amp; ALTERNATOR BELT</td>
<td>1</td>
<td>1,811</td>
<td>1,811</td>
</tr>
<tr>
<td>28</td>
<td>THERMOSTAT</td>
<td>1</td>
<td>4,527</td>
<td>4,527</td>
</tr>
<tr>
<td>29</td>
<td>WHEEL NUT</td>
<td>10</td>
<td>600</td>
<td>6,000</td>
</tr>
<tr>
<td>30</td>
<td>COOLER COMPRESSOR BELT</td>
<td>1</td>
<td>1,908</td>
<td>1,908</td>
</tr>
<tr>
<td>31</td>
<td>BULB KIT H4 - TYPE 1 KIT; H4</td>
<td>1</td>
<td>1,420</td>
<td>1,420</td>
</tr>
<tr>
<td>32</td>
<td>BRAKE FLUID DOT4 1L</td>
<td>2</td>
<td>1,820</td>
<td>3,640</td>
</tr>
<tr>
<td>33</td>
<td>FUEL FILTER</td>
<td>8</td>
<td>4,812</td>
<td>38,500</td>
</tr>
</tbody>
</table>

Total: 380,030
Discount 15.00%: 57,005

Total: 323,025
Total: INDICATIVE USD 2,991.00

GRAND TOTAL including tyres

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>Unit Price</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>FLAP INNER-TUBE 750R16</td>
<td>1,440</td>
<td>4</td>
<td>5,760</td>
</tr>
<tr>
<td>35</td>
<td>TYRE DUNLOP QUALIFIER TG21 750R16C 114/112S RBL TT</td>
<td>29,496</td>
<td>4</td>
<td>117,984</td>
</tr>
<tr>
<td>36</td>
<td>INNER TUBE 750R16</td>
<td>2,195</td>
<td>4</td>
<td>8,864</td>
</tr>
</tbody>
</table>

Total: 132,408
Discount 15.00%: 19,861

TOTAL: 435,572
Total: INDICATIVE USD 4,033.00

This spare parts package contains parts which are required for normal maintenance requirements during the first two years or 50,000kms of ownership. In addition it contains a comprehensive selection of emergency parts.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>Unit Price</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ABSORBER, SHOCK, FR</td>
<td>2</td>
<td>7,725</td>
<td>15,450</td>
</tr>
<tr>
<td>2</td>
<td>ABSORBER SET, SHOCK,</td>
<td>2</td>
<td>7,690</td>
<td>15,380</td>
</tr>
<tr>
<td>3</td>
<td>FRONT/REAR AXLE HUB SEAL</td>
<td>2</td>
<td>2,443</td>
<td>4,886</td>
</tr>
<tr>
<td>4</td>
<td>SHOE KIT, BRAKE, RR</td>
<td>1</td>
<td>15,371</td>
<td>15,371</td>
</tr>
<tr>
<td>5</td>
<td>GASKET KIT, ENGINE</td>
<td>1</td>
<td>13,662</td>
<td>13,662</td>
</tr>
<tr>
<td>6</td>
<td>WINDSCREEN WASHER FLUID CONCENTRATE -50 C 0.25L</td>
<td>1</td>
<td>2,655</td>
<td>2,655</td>
</tr>
<tr>
<td>7</td>
<td>CLUTCH RELEASE CYLINDER REPAIR KIT</td>
<td>1</td>
<td>1,683</td>
<td>1,683</td>
</tr>
<tr>
<td>8</td>
<td>FRONT BRAKE DISC PADS KIT</td>
<td>1</td>
<td>14,883</td>
<td>14,883</td>
</tr>
<tr>
<td>9</td>
<td>ENGINE OIL 15W40 5L</td>
<td>1</td>
<td>3,186</td>
<td>15,900</td>
</tr>
<tr>
<td>10</td>
<td>ENGINE COOLANT LIQUID CONCENTRATE 5L</td>
<td>1</td>
<td>4,345</td>
<td>4,345</td>
</tr>
<tr>
<td>11</td>
<td>CYLINDER HEAD COVER GASKET</td>
<td>1</td>
<td>1,730</td>
<td>1,730</td>
</tr>
<tr>
<td>12</td>
<td>WATER PUMP</td>
<td>1</td>
<td>11,900</td>
<td>11,900</td>
</tr>
<tr>
<td>13</td>
<td>THERMOSTAT GASKET</td>
<td>1</td>
<td>435</td>
<td>435</td>
</tr>
<tr>
<td>14</td>
<td>RADIATOR HOSE NO. 1</td>
<td>1</td>
<td>2,296</td>
<td>2,296</td>
</tr>
<tr>
<td>15</td>
<td>RADIATOR HOSE NO. 2</td>
<td>1</td>
<td>2,680</td>
<td>2,680</td>
</tr>
<tr>
<td>16</td>
<td>EXHAUST CUSHION</td>
<td>1</td>
<td>1,028</td>
<td>1,028</td>
</tr>
<tr>
<td>17</td>
<td>AIR FILTER</td>
<td>5</td>
<td>5,905</td>
<td>29,525</td>
</tr>
<tr>
<td>18</td>
<td>GLOW PLUG</td>
<td>6</td>
<td>3,512</td>
<td>21,072</td>
</tr>
<tr>
<td>19</td>
<td>INJECTOR NOZZLE</td>
<td>6</td>
<td>9,338</td>
<td>56,028</td>
</tr>
<tr>
<td>20</td>
<td>WHEEL 5.50F-18 TYPE H STEEL LC70</td>
<td>1</td>
<td>21,111</td>
<td>21,111</td>
</tr>
<tr>
<td>21</td>
<td>STEERING DAMPER</td>
<td>1</td>
<td>25,719</td>
<td>25,719</td>
</tr>
<tr>
<td>22</td>
<td>FRONT WIPER BLADE (RIGHT)</td>
<td>2</td>
<td>2,500</td>
<td>3,500</td>
</tr>
<tr>
<td>23</td>
<td>FRONT WIPER BLADE (LEFT)</td>
<td>2</td>
<td>1,990</td>
<td>2,980</td>
</tr>
<tr>
<td>24</td>
<td>OIL SUMP PLUG GASKET</td>
<td>2</td>
<td>1,290</td>
<td>1,290</td>
</tr>
<tr>
<td>25</td>
<td>REAR AXLE SHAFT OIL SEAL (LEFT/RIGHT)</td>
<td>10</td>
<td>2,867</td>
<td>28,670</td>
</tr>
<tr>
<td>26</td>
<td>OIL FILTER</td>
<td>10</td>
<td>2,867</td>
<td>28,670</td>
</tr>
<tr>
<td>27</td>
<td>FAN &amp; ALTERNATOR BELT</td>
<td>1</td>
<td>1,811</td>
<td>1,811</td>
</tr>
<tr>
<td>28</td>
<td>THERMOSTAT</td>
<td>1</td>
<td>1,811</td>
<td>1,811</td>
</tr>
<tr>
<td>29</td>
<td>WHEEL NUT</td>
<td>10</td>
<td>6,666</td>
<td>66,666</td>
</tr>
<tr>
<td>30</td>
<td>COOLER COMPRESSOR BELT</td>
<td>1</td>
<td>1,908</td>
<td>1,908</td>
</tr>
<tr>
<td>31</td>
<td>BULB KIT H4 - TYPE1 KIT: H4</td>
<td>1</td>
<td>1,420</td>
<td>1,420</td>
</tr>
<tr>
<td>32</td>
<td>BRAKE FLUID DOT4 1L</td>
<td>2</td>
<td>1,829</td>
<td>3,658</td>
</tr>
<tr>
<td>33</td>
<td>FUEL FILTER</td>
<td>8</td>
<td>4,812</td>
<td>38,496</td>
</tr>
</tbody>
</table>

**Total:** 376,946
Discount 15.00% 56,542
**TOTAL:** JPY 320,404
**Total:** INDICATIVE USD 2,967.00

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>Unit Price</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>FLAP INNER-TUBE 750R16</td>
<td>1,440</td>
<td>4</td>
<td>5,760</td>
</tr>
<tr>
<td>35</td>
<td>TYPE DUNLOP QUALIFIER T021 750R16C 114/112S RBL TT</td>
<td>29,490</td>
<td>4</td>
<td>117,964</td>
</tr>
<tr>
<td>36</td>
<td>INNER TUBE 750R16</td>
<td>2,156</td>
<td>4</td>
<td>8,664</td>
</tr>
</tbody>
</table>

**Total:** 132,408
Discount 15.00% 19,861
**TOTAL:** JPY 432,951
**Total:** INDICATIVE USD 4,009.00

---

**Grand Total including tyres**
March 20, 2020

Dear [Name],

This letter is intended to confirm the approximate costs for field sampling per animal. These costs are based on extensive field operations for the USAID funded PREDICT project in which nearly 6000 animals (bats and rodents) were sampled. We estimate that the field costs for consumables is approximately $27.03 per animal sampled.

We are using this rate for the proposed project: Reducing the threat from high-risk pathogens causing febrile illness in Liberia. Please feel free to contact me if you have any questions or need additional information.

Sincerely yours,

[Name]

Executive Director/SCNL

Help Conserve Liberia’s Natural Resources
March 20, 2020

Dear [Name],

Due to difficult road conditions in Liberia and the age of the vehicle, a White Toyota Land Cruiser (2012 – model: HZJ76L-RKMR, JTEEB71J407015751), our vehicle costs per month over the past 12 months have been approximately $428.00 for a total of $5136 annually. This costs were incurred during extensive field work under the USAID funded PREDICT project. In addition, in order to make this vehicle roadworthy for fieldwork it will require an investment of $670. The annual total for year 1 is $10,942.00 notwithstanding the purchase of a new vehicle, also included in the budget.

Sincerely yours,

[Name]

Executive Director/SCNL

Help Conserve Liberia's Natural Resources
Tablets and case: $228.98 each

Get a $15 credit when you purchase $50 or more in Amazon Gift Cards (restrictions apply)

Shop new HoliDeals

Your order qualifies for FREE Shipping. Choose this option at checkout. See details.

Subtotal (13 items): $1,225.87

This order contains a gift

Proceed to checkout

Sponsored Products related to items in your cart

Fire HD 10 Case 2017...

See all buying options

Galaxy Tab A 10.1 Case...

See all buying options

Amazon Fire 7 Tablet...

See all buying options

Soho Galaxy Tab A, ...

See all buying options

Subtotal (13 items): $1,225.87

Updated Subtotal (16 items): $1,831.84

The price and availability of items at Amazon.com are subject to change. The Cart is a temporary place to store a list of your items and reflects each item's most recent price. Learn more.

Do you have a gift card or promotional code? We'll ask you to enter them when it's time to pay.

Customers who shopped for SupCase Unicorn Beetle Pro Series Designed for... also shopped for:

Gift ideas inspired by your shopping history
Fisherbrand™ Portable Centrifuge Kit

Fisherbrand Portable Centrifuge Kit offers a convenient way to spin down and prepare samples outside of a conventional laboratory environment.

Includes:
- Fisherbrand Standard Centrifuge
- 6 Place 1.5/2.0mL tube rotor
- 16 Place 0.2mL tube rotor (singles or 2 x 8 strip)
- 6 tube adaptors (0.2mL)
- 6 tube adaptors (0.5mL)
- 4 Replacement O-Rings
- Storage case for rotors and adaptors
- 16 place tube rack
- Low voltage, double insulated power adapter with 4 interchangeable plugs
- Fisherbrand Transport Box
- 16 place tube rack insert
- Transport Box dividers
- Centrifuge cradle
- 12V Car Adapter

Description

Features:
- Enables the processing of samples before deterioration can take place
- Can be used in remote environments where a normal electrical supply is not an option
- Kit enables immediate on-site testing for faster results
- Kit includes its own 12V car adapter and a 12V DC power adapter
- Carry the centrifuge and its components securely in the Fisherbrand Transport Box
- Fisherbrand transport box is transparent so samples contained can be viewed and their integrity checked

Compliance

https://www.fishersci.com/shop/products/portable-centrifuge-kit/14127556
Meets all global certifications. Suitable for worldwide voltages 100 to 240 VAC 50/60 Hz

**Warranty and Services**

2-Year warranty

**Specifications**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>6 x 1.5/2mL tubes (rotor 1: adapters for 0.5mL and 0.2mL tubes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Speed</td>
<td>6000rpm</td>
</tr>
<tr>
<td>Hertz</td>
<td>50 to 60Hz</td>
</tr>
<tr>
<td>Max. RCF</td>
<td>2999 x G</td>
</tr>
<tr>
<td>Type</td>
<td>Mini-centrifuge kit</td>
</tr>
<tr>
<td>Voltage</td>
<td>100/240V</td>
</tr>
<tr>
<td>Electrical Requirements</td>
<td>Universal plug; Car adapter</td>
</tr>
<tr>
<td>Includes</td>
<td>Mini Centrifuge, 12V car adapter, 12V DC power adapter, transport box, 16-place micro tube rack</td>
</tr>
<tr>
<td>Refrigerated</td>
<td>No</td>
</tr>
<tr>
<td>For Use With (Equipment)</td>
<td>Mini centrifuge</td>
</tr>
<tr>
<td>Product Line</td>
<td>Centrifuges and Microcentrifuges</td>
</tr>
</tbody>
</table>
Grip Catch and Release Rodent Trap — 12 1/2 in. x 8 in. x 6 1/2 in., Model# 54257

Item# 68611  New — Write a Review

Reg. $14.99
Sale $11.99 Order today to guarantee this price
Save $3.00

Ship It
Backordered Online — will ship in 30 or more Business Days

- Multi-catch technology allows you to catch multiple pests at one time without the need to reset the trap again and again
- Size of the opening can be adjusted to accommodate the size of the rodent being trapped
- Simple hinged bottom makes for easy removal and reuse
- Steel construction resists rust and corrosion
- Easy-to-use design

Product Summary

This non-mechanical Grip Catch and Release Rodent Trap with multi-catch technology is the ideal and humane way to trap and relocate larger rodents, rats, squirrels, chipmunks and other similarly-sized gnawing rodents and animal pests. Fully assembled and ready to use. 12 1/2 in. L x 8 in. W x 6 in. H.

What's Included
(1) Live catch mouse trap

Features + Benefits

- Multi-catch technology allows you to catch multiple pests at one time without the need to reset the trap again and again
- Size of the opening can be adjusted to accommodate the size of the rodent being trapped
- Simple hinged bottom makes for easy removal and reuse
- Steel construction resists rust and corrosion
- Easy-to-use design

Key Specs

<table>
<thead>
<tr>
<th>Item#</th>
<th>68611</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Grip</td>
</tr>
<tr>
<td>Manufacturer's Warranty</td>
<td>3 month parts/no labor</td>
</tr>
<tr>
<td>Ship Weight</td>
<td>2.0 lbs</td>
</tr>
<tr>
<td>Indoor/Outdoor Use</td>
<td>Indoor/outdoor</td>
</tr>
<tr>
<td>Material Type</td>
<td>Steel</td>
</tr>
</tbody>
</table>

Includes 1 trap
Assembly Required No
Dimensions L x W x H (in.) 12 1/2 x 8 x 6 1/2
Product Weight (lbs.) 2
## Compare with Most Popular Rodent Control

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Currently Viewing</th>
<th>Reg. Price</th>
<th>Sale Price</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>168919</td>
<td>Victor Sonic Pest Chaser Rodent Repeller — Model#: MT92</td>
<td>Grip Catch and Release Rodent Trap — 12 1/2in. x 8in. x 6 1/2in.</td>
<td>$44.99</td>
<td>$39.99</td>
<td>$5.00</td>
</tr>
<tr>
<td>375290</td>
<td>Around the Home Metal Mole Trap — Model#: EMT 17</td>
<td>BirdX Pest-X Electronic Pest Chaser — Model#: PX-110</td>
<td>$29.99</td>
<td>$24.99</td>
<td>$5.00</td>
</tr>
<tr>
<td>168439</td>
<td>Sonic Molechaser Pest Repeller — Aluminum Covers 11,250 sq. ft.</td>
<td>Grip Catch and Release Rodent Trap — 12 1/2in. x 8in. x 6 1/2in., Model#: 54257</td>
<td>$19.99</td>
<td>$17.99</td>
<td>$2.00</td>
</tr>
</tbody>
</table>

### Indoor/Outdoor Use
- Indoor
- Outdoor
- Outdoor/indoor
- Indoor

### Coverage
- 11,250 sq. ft.
- 500 sq. ft.
- 1 trap
- 110V AC

### Material Type
- Plastic
- Steel
- Aluminum
- Plastic

### Includes
- 110 dB signal
- Irritating sonic pulse
- Battery
- No

### Power Source
- Electric
- Battery
- No
- No

### Assembly Required
- No
- No
- No
- No

### Dimensions L x W x H (in.)
- 3 1/2 x 5 1/2 x 3 1/2
- 6 x 6 x 12
- 11 1/2 x 8 x 6 1/2
- 3 x 2.5 x 1.5

### Product Weight (lbs.)
- No
- No
- No
- No
Uline WOVEN POLY TARP
40X60IN

Manufacturer: Uline S8401

This product was recently added by customer request, and is available for your convenience. We strive to provide our customers with a one-stop shop for the entire scientific supplies category. More relevant content may be added as customer demand increases.
Table of Contents

EHA Salary documentation........................................................................................................2
Comparison of Rental car vs purchase.....................................................................................3
Shipping Invoice.....................................................................................................................8
Label printer labels................................................................................................................9
Label printer, resin and software for printer...........................................................................10
Computers, mouse and keyboard...........................................................................................11
Arc GIS software..................................................................................................................14
Field Supplies and Items to Build Capacity at TVLA.............................................................16
  Field supplies.....................................................................................................................16
  Biosafety Equipment ..........................................................................................................20
  Items to build capacity at TVLA .......................................................................................23
Tablets and cases ..................................................................................................................26
Tomahawk Traps ....................................................................................................................27
Tattoo equipment for marking hares....................................................................................30
Rodent ear tages ....................................................................................................................31
Portable anesthesia machine, carrying case and anesthetic drugs .....................................32
Equipment ...........................................................................................................................36
Documentation of HummingbirdIRB costs .........................................................................49
Documentation of price of ethical clearance in Tanzania .....................................................51
Documentation of cost of conducting research in Tanzania ...............................................53
Documentation of costs associated with Y3 workshop supplies ......................................57
Documentation of Open Access journal publication fees ...............................................60
Documentation of Software fees .........................................................................................61
Fringe Benefit Policy .............................................................................................................65
Negotiated Indirect Rate ......................................................................................................67
Documentation of example of domestic conference registration rate (APHA) ..................69
Documentation of example of domestic conference flight (APHA) ..................................70
Documentation of example of international conference registration rate (ICEID) ............71
Documentation of example of international conference flight (ICEID) .............................70
Documentation of Recruitment costs for Tanzanian Post-doctoral fellow ....................74
Documentation of hotel conference rental for the annual stakeholders’ meeting and the OY2 symposium ..................................................................................................................78
Documentation of portion of Internet/Communications applied to this grant..................81
Documentation of example of Internet/Communications bill ............................................82
Documentation of server costs ...........................................................................................84
Documentation of Consumer Price Index for NYC/Newark/Jersey City ............................85
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Employee ID</th>
<th>Status</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/01/2019-06-30-2020</td>
<td>Andre, Amanda</td>
<td>600083</td>
<td>Regular</td>
<td>55,706.00</td>
</tr>
<tr>
<td>07/01/2019-06-30-2020</td>
<td>Kenedy, William</td>
<td>300013</td>
<td>Regular</td>
<td>28,408.00</td>
</tr>
<tr>
<td>07/01/2019-06-30-2020</td>
<td>Riosal, Melinda</td>
<td>100014</td>
<td>Regular</td>
<td>101,200.00</td>
</tr>
<tr>
<td>07/01/2019-06-30-2020</td>
<td>Zanataa, Teresa</td>
<td>150011</td>
<td>Regular</td>
<td>178,070.00</td>
</tr>
<tr>
<td>07/01/2019-06-30-2020</td>
<td>Research Assistant TBD</td>
<td></td>
<td>Regular</td>
<td>98,000.00</td>
</tr>
<tr>
<td>07/01/2019-06-30-2020</td>
<td>Post Doc TBD</td>
<td></td>
<td>Regular</td>
<td>65,000.00</td>
</tr>
</tbody>
</table>
Rental car vs purchase of vehicles

Holiday Autos
Your car hire to Dar International Airport - complete your booking
November 4, 2019 at 12:38 PM

$103.74 per day
Total: $3112.27
Pick-up date:
Dar International Airport
Thu, 14 Nov 2019 12:00
Return date:
Dar International Airport
Sat, 14 Dec 2019 12:00

Toyota Prado or similar

Pick-up location:
In terminal counter, shuttle to car

Fuel Policy:
Fuel: Pick up and return full.
Important information

Fuel policy
Full to Full

Your vehicle will be supplied with a full tank of fuel. To avoid incurring fuel charges, you will need to return it with the same amount of fuel as it had when you collected it. You may be required to leave a fuel deposit reserved or charged on your credit card, this will be released or refunded when you return the car full. Missing fuel will be charged on your return. The price per litre charged by the rental agent may be significantly higher than the price at the local service station. A refuelling charge may also be applicable.

Fuel charges are payable at the rental desk unless otherwise stated in the top section of rate details.

Mileage policy
Limited

Charge: 0.8 per kilometer. (Includes tax)
Kilometers included per day: 120

Special equipment/optional extras
Booster seat: 10 USD (Excludes tax); On request
Child toddler seat: 10 USD (Excludes tax); On request
Infant child seat: 10 USD (Excludes tax); On request
GPS: 10 USD per day. Includes 14% tax; On request

Special equipment/optional extras may be requested at the time of booking, but they are not included in the rental price. They are paid in the local currency at the rental desk.

Conditions of optional extras
Please note the following: The price of optional extras is subject to change without notice.

We use cookies to give you the best experience on our website. By using our website you agree to our use of cookies in accordance with our .

Accept
Kilometers included per day: 120

Special equipment/optional extras
Booster seat: 10 USD (Excludes tax); On request
Child toddler seat: 10 USD (Excludes tax); On request
Infant child seat: 10 USD (Excludes tax); On request
GPS: 10 USD per day, includes 14% tax; On request

Special equipment/optional extras may be requested at the time of booking, but they are not included in the rental price. They are paid in the local currency at the rental desk.

Conditions of optional extras
Please note the following: The price of optional extras is subject to change without notice. Optional extras are subject to availability. Charges made at the desk may be subject to local/airport surcharges.

Travel Restrictions
All international/state cross-border travel is disallowed.

Vehicles are prohibited to enter or be driven through the National Parks and Game Reserves within Tanzania. Should the renter drive the rented vehicle into the national park, a penalty of $1000 (non-refundable) will be charged. For a comprehensive list of all National Parks and Game Reserves kindly visit the Tanzania National Parks website.

Car types
The vehicle displayed and models listed are the most common vehicles used by our car rental partners. We cannot guarantee the make or model of the actual vehicle, will be the same as the vehicle displayed on our website.
2018 Toyota Land Cruiser Prado

TX
TOYOTA LAND CRUISER PRADO (TX 4WD)
24,200 km | Automatic | No Accident | Condition | 2,900 cc

Car Price (FOB) US$32,216
Estimated Total Price US$34,989

- The price is not fixed. Let's try to negotiate
- Selected
- Estimated price
- Nearest port: DEQ, SALAM
- Charges payment

Contact seller/trader:

1. I want to negotiate the best price.
2. I want to know the shipping schedule.
3. I want to know about the condition of the car.

Specific information

- VIN (Vehicle Identification Number) (Car All No.): TRUJ5D-0084***
- Model Code: TRUJ5GW
- Registration Year/Month: 2018/03
Manufacturer Year / Month: Confirm with the Seller
W / Age: 24,960 km
Transmission: Automatic
Engine Capacity (Displacement): 2,700cc
Fuel: Gasoline-Petrol
Body Style: SUV
Body Style: -
Steering: Right
Exterior Color: Black
Interior Color: Black
Drive Type: 4-wheeler drive
Door: 5
Number of Seats: 5
Dimension: 4790mm x 1890mm x 1850mm = 16,646m³
Condition: Used
ID: 5/2110 1911 24120615
Remarks: Very clean interior
Comment: No accident, run great, Low mileage
Entry Date: Dec 28 2019 (JST)

Options
Safety
- Driver Airbag
- Anti-Lock Brakes
- Passenger Airbag
- Alarm

Comfort
- Power Steering
- Air Conditioning
- Remote Keyless Entry
- Navigation System
- A/C Rear
- Cruise Control
- Digital Meter
- Tilt Steering

Sound System
- CD Player
- AM/FM Radio
- AM/FM Stereo
- DVD
- CD Changer
- Aftermarket Speaker
- Hard Disc
- Satellite Radio

Windows
- Power Windows
- Rear Window Defroster
- Tinted Glass
- Rear Window Wiper

Other Features
- Power Door Locks
- Alloy Wheels
- Power Mirrors
- Sunroof
- Third Row Seat
- Power Sliding Door

Other selling points:
- No Accident History
- Maintenance Records Available
- One Owner

- New Tires
- Non-Smoker
- Fully Loaded
- Performance Tires
- Turbo
- Upgraded Sound System
- Custom Wheels
- Reported Car

Seat
- Leather Seats
- Power Seats
- Child Seat
- Bucket Seat
<table>
<thead>
<tr>
<th>Invoice</th>
<th>Description</th>
<th>Discount</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZYP004758177</td>
<td>Shipping for AL to Brazzaville</td>
<td>$0.00</td>
<td>$5,010.78</td>
</tr>
</tbody>
</table>

**Total**: $0.00       $5,010.78

---

**DHL Express OUTBOUND INVOICE**

**DHL Express USA INC**
16416 Northchase Dr
Houston TX 77060

**ECOHEALTH ALLIANCE ACCOUNTS PAYABLE**
460 W 34TH ST FL 17
NEW YORK NY 10001

---

**Waybill**: ZYP004758177
**Ship Date**: 08/07/2019
**Account**: ECOHEALTH ALLIANCE

**Destination**: Brazzaville, Republic of Congo

<table>
<thead>
<tr>
<th>Qte</th>
<th>Description</th>
<th>PC / Wgt</th>
<th>Tnd Wgt</th>
<th>Billed Wgt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>17.02 lb</td>
<td>17.02 lb</td>
</tr>
</tbody>
</table>

**Extra Charge Description**
- **Charge**: EXTRA WORK (VENDOC) 4.3322 lb
- **Charge**: DUTIES TAXED (H) 15.00
- **Charge**: NON STANDARD (CGRP) 0.10
- **Charge**: EXTRA SURCHARGES 191.16

**Total Due (USD)**: $5,010.78
Here is Your Custom Quotation

Customer
Mindy Rostal (212) 380-4489
EcoHealth Alliance, Inc.
460 West 34th Street
17th Floor
New York, NY 10001
US

Printer Labels

Application- 685 2.75” x 0.6875” clear Sens-A-Mark® CryoLabel®, 1.0” x 0.6875” silver

Product Size- 2.75 X 0.6875 Rectangle with 0.078125 C. Radius

Colors- Silver

Materials- Stock#685 2.0 mil Gloss Clear TT CryoLabel® Plastic W/Permanent Acrylic Adhesive

Best Used Within 12 Months Of Manufacture

Finishing- Finished in Rolls of 5,000, 1 Across, on a 3” Core.
See Note, 6.2” OD

Notes-

<table>
<thead>
<tr>
<th>Quantity</th>
<th>50,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price (1000):</td>
<td>$26.69</td>
</tr>
<tr>
<td>Total</td>
<td>$1,334.50</td>
</tr>
<tr>
<td>Grand Total</td>
<td>$1,334.50</td>
</tr>
</tbody>
</table>

SHIP DATE: 7-10 business days ARO (After Receipt of Order). Prep fees may change when design received. Valid 30 days. E-mailed POs requested. Confirmed by e-mail. All EXW (Ex Works) Keene, NH. Qty may vary +/-10% w/order considered complete. End User responsible for thorough Product testing. Customer is responsible for paying all applicable shipping charges, sales/use taxes and for all applicable import taxes/duties/customs fees.

ALL SALES ARE EXPRESSLY LIMITED TO THESE TERMS AND THE TERMS AND CONDITIONS AT BARCODE-LABELS.COM/TERMS. SELLER OBJECTS TO ANY DIFFERENT OR ADDITIONAL TERMS.

Thank You,
Ed August
Account Manager
## Printer, Resin and Software

**Ordered By:**
EcoHealth Alliance, Inc.
Attn: Mindy Rostal (212) 380-4489
460 West 34th Street
17th Floor
New York NY 10001 US

**Ship To:**
EcoHealth Alliance, Inc.
460 West 34th Street
17th Floor
New York, NY 10001
US
Attn: Mindy Rostal

### We Would Like To Confirm Your Estimate With The Following:

<table>
<thead>
<tr>
<th>Ordered</th>
<th>Product Number</th>
<th>Description</th>
<th>Price</th>
<th>Prod. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95123</td>
<td>Zebra ZT230 printer, 300dpi, USB &amp; serial ports ZPL, US power cord &amp; plug, tear bar, USB cable, 6ips, 4.09&quot; print width</td>
<td>$1,290.20</td>
<td>$1,290.20</td>
</tr>
<tr>
<td>1</td>
<td>95131</td>
<td>Zebra ZT230 printer, 300dpi, USB/parallel &amp; Ethernet ZPL, USB cable, tear bar, US power cord &amp; plug, 6ips, 4.09&quot; print width</td>
<td>$1,625.45</td>
<td>$1,625.45</td>
</tr>
<tr>
<td>4</td>
<td>T68433300</td>
<td>4.33&quot; x 300 meter EIMINC® T68 premium resin ribbon note: 1 ribbon per 14.537 (685.275&quot; x 0.6875&quot;) labels</td>
<td>$28.89</td>
<td>$115.56</td>
</tr>
<tr>
<td>1</td>
<td>SEA-BTP-1</td>
<td>Seagull BarTender® 2019 Professional Application license plus one Printer license, includes one-year standard support</td>
<td>$450.45</td>
<td>$450.45</td>
</tr>
<tr>
<td>1</td>
<td>MISC2</td>
<td>FREE, FAST, FUN, FRIENDLY &amp; FLEXIBLE TECH SUPPORT <a href="mailto:techsupport@eiminc.com">techsupport@eiminc.com</a> or (800) 535-6987</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>1</td>
<td>MISC5</td>
<td>Shipping &amp; handling not included. Customer is responsible for paying all applicable sales/use taxes and import taxes/duties/ customs fees.</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**Total:** $2,411.71

---

ALL SALES ARE EXPRESSLY LIMITED TO THESE TERMS AND THE TERMS AND CONDITIONS AT BARCODE-LABELS.COM/TERMS. SELLER OBJECTS TO ANY DIFFERENT OR ADDITIONAL TERMS.
### Here’s what’s in your bag.

Get free shipping and free returns on all orders.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Price</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magic Keyboard - US English</td>
<td>5</td>
<td>$495.00</td>
<td>Remove</td>
</tr>
<tr>
<td>13-inch MacBook Air - Space Gray</td>
<td>1</td>
<td>$1,699.00</td>
<td>Remove</td>
</tr>
<tr>
<td>AppleCare+ for MacBook/MacBook Air</td>
<td></td>
<td>$249.00</td>
<td>Remove</td>
</tr>
<tr>
<td>Magic Mouse 2 - Silver</td>
<td>5</td>
<td>$395.00</td>
<td>Remove</td>
</tr>
</tbody>
</table>
Add a gift message

Order by 5pm, delivers:
Today within 2 hours - Fastest
Thru, Nov 7 - Free
Delivery options for: 1000** **

Pickup:
Today at Apple West 14th Street
Show more stores

13-inch MacBook Air - Space Gray

Price: $1,699.00

AppleCare+ for MacBook/MacBook Air
Automatically registered with your Apple hardware.
Price: $249.00

Add a gift message or gift wrap

Order today, delivers:
Nov 7 - Nov 19 - Free
Delivery options for: 1000** **

Pickup:
Ships to store. Available Nov 19 at
Apple West 14th Street
Show more stores

13-inch MacBook Air - Space Gray

Price: $1,699.00

AppleCare+ for MacBook/MacBook Air
Automatically registered with your Apple hardware.
Price: $249.00

Add a gift message or gift wrap

Order today, delivers:
Nov 7 - Nov 19 - Free
Delivery options for: 1000** **

Pickup:
Ships to store. Available Nov 19 at
Apple West 14th Street
Show more stores
A few recommendations.
## Basic
- Create beautiful maps
- Visualize in 2D and 3D
- Analyze geographic information
- Edit and manage geospatial data
- Publish and share

$700 / year  
Quantity – 0 +

## Standard
- Create beautiful maps
- Visualize in 2D and 3D
- Analyze geographic information
- Enable multiuser editing
- Perform advanced geospatial data management
- Publish and share

$2,750 / year  
Quantity – 0 +

## Advanced
- Create beautiful maps and advanced cartographic products
- Visualize in 2D and 3D
- Analyze geographic information with advanced tools
- Enable multiuser editing
- Perform advanced geospatial data management
- Publish and share
- Utilize extensive database management tools

$3,800 / year  
Quantity – 0 +
# Field Supplies

## Cart

**Account:** 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacutainer™ Venous Blood Collection Tubes: Vacutainer Plus™ Plastic Serum Tubes, Silicone-Coated, with Conventional Stopper, Catalog number 23-621-018 by BD 368045 Regulated Diameter (Metric) Outer...</td>
<td>$42.25 / Pack of 100</td>
<td>9</td>
<td>$2,984.94</td>
</tr>
<tr>
<td>Nunc™ Biobanking and Cell Culture Cryogenic Tubes</td>
<td>$241.93 / Pack of 450</td>
<td>9</td>
<td>$8,709.57</td>
</tr>
</tbody>
</table>

### Order Summary

- **Subtotal:** $61,326.04
- **Shipping and Handling:** $1,134.08
- **Hazardous material charge:** $23.25
- **Shipping fuel surcharge:** $4.45
- **Shipping charge:** $1,106.38
- **Estimated Tax:** $0.00

*Extra charges may apply for products that require special services.*

*Additional handling charges determined by direct ship manufacturers may apply.*

## Generate a Web Quc

View All Quotes | What's this? FAQ
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacutainer™ Venous Blood Collection Tubes: Vacutainer Plus™ Plastic Serum Tubes. Silicone-Coated, with Conventional Stopper Catalog number 02-657-27 by BD 366668 Regulated Diameter (Metric) Outer....</td>
<td>$34.00</td>
<td>3</td>
<td>$784.86</td>
</tr>
<tr>
<td></td>
<td>Pack of 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case of 10 PK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In Stock (3) - Estimated delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11/07/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC MTUBE 1.3ML SERUM/PK100</td>
<td>$36.50</td>
<td>10</td>
<td>$365.00</td>
</tr>
<tr>
<td>Catalog number NC9444309 by Sarstedt Inc 41.1501.105</td>
<td>Pack of 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ships from manufacturer - Usually Ships in 2 Business Days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacutainer™ Tube Holder</td>
<td>$22.99</td>
<td>5</td>
<td>$459.50</td>
</tr>
<tr>
<td>Catalog number 22-289-953 by BD 364815 Regulated HLDR 1-USE NOSTCKBL 250/PK RX</td>
<td>Pack of 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$91.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case of 4 PK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In Stock (5) - Estimated delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11/07/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacutainer™ Eclipse™ Blood Collection Needle</td>
<td>$42.55</td>
<td>5</td>
<td>$1,697.50</td>
</tr>
<tr>
<td>Catalog number 02-683-101 by BD 368607 Regulated</td>
<td>Pack of 48</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$339.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case of 10 PK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Monoject™ Supra/Hone™ Thin Wall Blood Collection Needles</strong></td>
<td></td>
<td>2</td>
<td>$541.78</td>
</tr>
<tr>
<td>Catalog number 22-030573 by Covidien 8881216066</td>
<td>$31.83</td>
<td>Pack of 100</td>
<td>$3183</td>
</tr>
<tr>
<td>Regulated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needle Gauge: 22 G</td>
<td>$270.89</td>
<td>Case of 10 PK</td>
<td>$2708.90</td>
</tr>
<tr>
<td><strong>On Order (2) - Estimated delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/13/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3cc Syringes</strong></td>
<td></td>
<td>3</td>
<td>$590.19</td>
</tr>
<tr>
<td>Catalog number 14-840-77 by Excel International 26200</td>
<td>$24.00</td>
<td>Pack of 100</td>
<td>$2400</td>
</tr>
<tr>
<td>Regulated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Termination: Luer-lock</td>
<td>$196.73</td>
<td>Case of 10 PK</td>
<td>$1967.30</td>
</tr>
<tr>
<td><strong>In Stock (2) - Estimated delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monoject™ Softpack</strong></td>
<td></td>
<td>3</td>
<td>$655.08</td>
</tr>
<tr>
<td>Hypodermic Needles with Polypropylene Hub</td>
<td>$25.86</td>
<td>Pack of 100</td>
<td>$258.60</td>
</tr>
<tr>
<td>Catalog number 05-561-22 by Covidien 8881250222</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulated</td>
<td>$218.36</td>
<td>Case of 10 PK</td>
<td>$2183.60</td>
</tr>
<tr>
<td>Needle Gauge: 22 G, Length (English) Needle: 1 in., Length (Metric) Needl...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------</td>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td>Syringe with Sub-Q Needle by BD 309597 Regulated SYRINGE TB 26GX5B 1CC 100PK RX</td>
<td>$35.25 / Pack of 100</td>
<td>2</td>
<td>$426.42</td>
</tr>
<tr>
<td>In Stock (1) - Estimated delivery 11/11/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (2) - Estimated delivery 11/26/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graham Field Thumb Dressing Forceps by Graham-Field™ 2750 Length (English): 5 in., Length (Metric): 127 mm</td>
<td>$9.00 / Each</td>
<td>4</td>
<td>$36.00</td>
</tr>
<tr>
<td>On Order (4) - Estimated delivery 12/13/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ 50mL Graduated Polypropylene Centrifuge Tube 50ML 500/CS</td>
<td>$415.00 / Case of 500</td>
<td>6</td>
<td>$2,490.00</td>
</tr>
<tr>
<td>In Stock (6) - Estimated delivery 11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Biosafety Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisherbrand™ Extended Cuff Nitrile Exam Gloves</td>
<td>$39.05 / Pack of 50</td>
<td>5</td>
<td>$1,662.50</td>
</tr>
<tr>
<td>Catalog number 19-041-170D Size: X-Large</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ Extended Cuff Nitrile Exam Gloves</td>
<td>$39.05 / Pack of 50</td>
<td>7</td>
<td>$2,327.50</td>
</tr>
<tr>
<td>Catalog number 19-041-170B Size: Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ Extended Cuff Nitrile Exam Gloves</td>
<td>$39.05 / Pack of 50</td>
<td>4</td>
<td>$1,330.00</td>
</tr>
<tr>
<td>Catalog number 19-041-170A Size: Small</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharps Disposal Containers</td>
<td>$228.33 / Case of 20</td>
<td>3</td>
<td>$684.99</td>
</tr>
<tr>
<td>Catalog number 14-830-124 by Covidien 8970</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity (English): 2 gal.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity (Metric): 7.6 L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closure Type: Rotor Lid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Stock (5) - Estimated delivery 11/07/2019

On Order (7) - Estimated delivery 11/15/2019

In Stock (4) - Estimated delivery 11/07/2019
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Color Polyethylene Liner</td>
<td>$38.13 /</td>
<td>3</td>
<td>$114.39</td>
</tr>
<tr>
<td>Printed with BioHazard Symbol, 2 mil Thick, 16 x 14 x 36 inch</td>
<td>Pack of 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bags, 50 per Package</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catalog number 30-998-764</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>by Research Products International Corp 246107</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships in 1 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>KleenGuard™ A60 Bloodborne Pathogen and Chemical Splash Protection Coveralls</strong></td>
<td>$470.00 /</td>
<td>22</td>
<td>$10,340.00</td>
</tr>
<tr>
<td>Case of 24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>On Order (22) - Estimated delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/10/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>KleenGuard™ A60 Bloodborne Pathogen and Chemical Splash Protection Coveralls</strong></td>
<td>$470.00 /</td>
<td>23</td>
<td>$10,810.00</td>
</tr>
<tr>
<td>Case of 24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>In Stock (10) - Estimated delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>On Order (13) - Estimated delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/10/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>Comfort Plus Disposable Filtering Facepiece Respirator, N95</td>
<td>$44.41 /</td>
<td>14</td>
<td>$436.00</td>
</tr>
<tr>
<td>by 3M™ 8211</td>
<td>Pack of</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Certifications/Compliance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIOSH 42 CFR Part 84, N95</td>
<td>$314.00 /</td>
<td>Case of 8</td>
<td>$314.00</td>
</tr>
<tr>
<td>NIOSH TC-84A-1299, Design T...</td>
<td>PK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (3) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (1) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/27/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualitative Fit-Test Kit, Bitter</td>
<td>$436.00 /</td>
<td>1</td>
<td>$436.00</td>
</tr>
<tr>
<td>by 3M™ FT30</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Type: Bitter Fit Test Kit, Quantity: 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (1) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/11/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metaliks™ Eyewear</td>
<td>$32.30 /</td>
<td>10</td>
<td>$323.00</td>
</tr>
<tr>
<td>by 3M™ 1155400000020</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame Color: Bronze, Lens Type: Anti-fog, Lens Tint: Clear</td>
<td>$282.50 /</td>
<td>Case of 20</td>
<td>$282.50</td>
</tr>
<tr>
<td>On Order (10) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/06/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------</td>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>Ethanol, 70% Solution, Molecular Biology Grade, Denatured, Fisher BioReagents™</td>
<td>$82.00 / Each</td>
<td>1</td>
<td>$82.00</td>
</tr>
<tr>
<td>Catalog number BP82031GAL, Quantity: 1 gal., Packaging: Poly Bottle</td>
<td>$264.00 / EA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On Order (1) - Estimated delivery 11/11/2019

**Items for Building TVLA Capacity**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSG Series Countertop Refrigerator</td>
<td>$2,740.00 / Each</td>
<td>1</td>
<td>$2,740.00</td>
</tr>
<tr>
<td>Catalog number TSG2055A by Thermo Scientific™</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSG2055A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSG CT SOLID DOOR, 5-15P</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ships from manufacturer - Usually Ships in 3 Business Days

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisherbrand™ Traceable™ Refrigerator/Freezer Plus Thermometer</td>
<td>$101.00 / Each</td>
<td>1</td>
<td>$101.00</td>
</tr>
<tr>
<td>Catalog number 15-077-721 5ML VACCN THRMTR .5 DEG 1EA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On Order (1) - Estimated delivery 11/21/2019

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp Assembly for FLx800™ Microplate Reader</td>
<td>$174.10 / Each</td>
<td>1</td>
<td>$174.10</td>
</tr>
<tr>
<td>Catalog number BT7080500 by BioTek™ 7080500 LAMP ASSEMBLY FOR FLX800</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This item is not returnable. View return policy

Ships from manufacturer - Usually Ships in 5 Business Days
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMC-2000 Series Compound Microscope by Laxco™ LMC2PH1 Head Style: Binocular, Lighting Type: 3w LED, Phase Contrast, Magnification Power: 10X, 20X, 4...</td>
<td>$3,347.30 / Each</td>
<td>1</td>
<td>$3,347.30</td>
</tr>
<tr>
<td>Ships from manufacturer - Usually Ships in 18 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[DW-20] Deionized Water Distiller with Gauge Catalog number 50-187-1175 by Labomed Inc DW20</td>
<td>$2,458.50 / Each</td>
<td>1</td>
<td>$2,458.50</td>
</tr>
<tr>
<td>Ships from manufacturer - Usually Ships in 40 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24006 ISFET POCKET PH METER Catalog number NC1478483 by Deltatrak Inc 24006</td>
<td>$257.92 / Each</td>
<td>1</td>
<td>$257.92</td>
</tr>
<tr>
<td>Ships from manufacturer - Usually Ships in 2 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add all items to a list
CappWash™ Microplate Washer, APS BE

CappWash™ is the ideal washing tool for small-scale immuno-assays

- Compact and made for small-scale work
- Unique twin-tower design
- Simple washing matches all well types
- No programming and no office wiring connection required

The vacuum pump is available for NFSV connections.

Fitting into even the tightest budget, CappWash™ is a perfect alternative for washing microplates and strips.

**Order Now**

**ORDER**  Q and A

<table>
<thead>
<tr>
<th>Description</th>
<th>Supplier No.</th>
<th>VWR Catalog Number</th>
<th>Unit</th>
<th>Availability</th>
<th>Price</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CappWash™ Kit, Inc. 21, 2W, 18V, W-1, WB-3, WB-4, and W-1000 (3 meters)</td>
<td>W12KIF-18V</td>
<td>490135-9014</td>
<td>Each</td>
<td>Ordered Upon Request</td>
<td>$1,513.48</td>
<td>1</td>
</tr>
</tbody>
</table>

**Add to Cart**

**Add to Shopping List**  Add to Quote

Existing List: New List

Enter List Name: 0
Tablets and case: $228.98 each

Get a $15 credit when you purchase $50 or more in Amazon Gift Cards (restrictions apply)

SupCase Unicorn Beetle Pro Series $26.99
Designed for Galaxy Tab A 10.1 (2019 Release), Full-Body Rugged Heavy Duty Protective Case with Built-in Screen Protector for Galaxy Tab A 10.1 Inch 2019 (Black)

Samsung Galaxy Tab A 10.1 32 GB Wifi $201.99
Tablet Black (2019)

Subtotal (13 items): $1,225.87
Updated Subtotal (16 items): $1,831.84

Customers who shopped for SupCase Unicorn Beetle Pro Series Designed for... also shopped for:

Gift ideas inspired by your shopping history
Ordering multiple items? We may be able to reduce shipping cost for your order. Please read this memo. Thank you!

If you are ordering many different items our website may not accurately calculate shipping for you. We can combine products and ship them together in boxes to save shipping cost. During the final stage of the checkout process select the "Double Check My Shipping Cost" option as your payment method. We will contact you with a quote for reduced shipping. You can also call us at 800-272-8727 and we can quote you by phone.

CONTINUE SHOPPING

CLEAR CART

PROCEED TO CHECKOUT
LFAHD - 9 x 3 x 3.5 - Folding, Aluminum Trap

$27.23 - 33 +

$898.59

200 - Collapsible Squirrel Trap with Two Trap Doors

ADD POWDER COATING.

(+15%)

ADD A PLASTIC TRAP COVER FOR THIS TRAP.

(+$16.45)

$44.82 - 40 +

$1,792.80
205 - Collapsible Cat, Opossum, Rabbit Trap with One Trap Door 📦
CODE: 205

ADD POWDER COATING: ☑
(+$15%)

ADD A PLASTIC TRAP COVER FOR THIS TRAP ☑
(+$25.95)

$63.45

60 +

$3,807.00

Gift certificate or promo code

Subtotal $6,498.39
FedEx (CHANGE) $357.54

TOTAL COST $6,855.93
Tattoo kit to mark hares

Get a $15 credit when you purchase $50 or more in Amazon Gift Cards (restrictions apply)

Subtotal (3 items): $85.32

Price

Proceed to checkout

Your recently viewed items

Grand Champion 1/4 inch Tattoo 0-9
In Stock
$15.00

Grand Champion 1/4 inch Tattoo Kit with Case
In Stock
$63.00

Spontaneously Replicon
1/4
$133.87

Sponsored Products related to items in your cart

Your cart: 0 items

Samsung Galaxy Tab A 10.1 32 GB 2019 was removed from Shopping Cart.

Subtotal (3 items): $85.32

The price and availability of items at Amazon.com are subject to change. The Cart is a temporary place to store a list of your items and reflects each item's most recent price. For more information, do you have a gift card or promotional code? We'll ask you to enter your claim code when it's time to pay.
Laser Etched Ear Tags, One-Sided

1,000 Laser Etched Ear Tags (Custom Specified Numbering)

Item #: INSI005-TLSZ

$315  $315

Subtotal: $315

Shipping and tax will be calculated when we process your order and will be added to the amount you are charged.

Total: $315

Update Cart

Login To Checkout
Forget your password?
Checkout as Guest

Discount Code

Apply

© 2006 - 2019 Kent Scientific Corporation. All rights reserved.
# Anesthesia Machine

**Shopping Cart**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Move to Quote</th>
<th>Unit Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal circle 1 circuit</td>
<td>$30.00</td>
<td>1</td>
<td>$30.00</td>
<td></td>
</tr>
<tr>
<td>Harvard Apparatus Single Animal Tabletop Isoflurane Anesthesia System with Small Induction Box</td>
<td>$2,963.00</td>
<td>1</td>
<td>$2,963.00</td>
<td></td>
</tr>
<tr>
<td>Cat Ventilation/Anesthesia Mask, Small, 5.1 cm (2 in) diameter, molded on 15 mm standard male connections</td>
<td>$15.00</td>
<td>1</td>
<td>$15.00</td>
<td></td>
</tr>
</tbody>
</table>

Continue Shopping  
Update Shopping Cart

**Estimate Shipping and Tax**  
Discount Codes

| Subtotal | $3,008.00 |
| Grand Total | $3,008.00 |
Pelican 1610 roll model case
With Fold Down Handle & Wheels. Available in Black and ready for shipping in 24 hrs. or less. Desert Tan and OD Green colors are available upon request. Shipment lead time and minimum quantities apply.

Case to carry anesthesia machine

1610 Case Part Numbers:

APP-1610K
Price $215.95
IN STOCK
Empty case, no foam. Eсутиže
No stock charge applies.

APP-1610F
Price $256.95
IN STOCK
Foam Filled
Empty case, no foam. Eсутиže
stock charge applies.

APP-1614PD
Price $332.14
Pelican case 1610 with Padded Dividers
(Nore stock charge applies)

Available in Black or Desert Tan Available in Black or Desert Tan

Individual compartments are equipped with individual lockers and optional keyless lock system.
Anesthesia Medications

CHECKOUT

HOME > MY ACCOUNT > CHECKOUT

Load Items from Saved Order

Navigate to Saved List

SAVE ORDER [MY-ACCOUNT/CHECKOUT] CART

CHECKOUT [MY-ACCOUNT/CHECKOUT?=PROMOTIONS]

Estimate total: $3,072.98
ISOThESIA (ISOFLURANE) SOLUTION

Availability
This item is scheduled to arrive the next business day. It is not for transportation by air.

Brand Products
Practice Preferred

Unit Price $27.83
Unit Total $1,141.03

SKU 029405
Size 250mL
Case Qty 6
In Stock In Stock: 1620

ISOThESIA (ISOFLURANE) SOLUTION

Availability
This item is scheduled to arrive the next business day. It is not for transportation by air.

Brand Products
Practice Preferred

Unit Price $17.82
Unit Total $1,283.04

SKU 029404
Size 100mL
Case Qty 6
In Stock In Stock: 116

KETATHESIA INJECTION, 100MG/ML C3N

DIAZEPAM INJECTION, 5MG/ML C4
## Equipment

### Cart

**Account:** 8849300003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorvall™ ST 16 Centrifuge Series</td>
<td>$6,680.00 / Each</td>
<td>1</td>
<td>$6,680.00</td>
</tr>
<tr>
<td>Description: Sorvall ST 16 Centrifuge, Capacity: 4 x 400mL, Electrical Requirements: 230V 50/60Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually Ships in 27 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ Isotemp™ -86°C Ultra-Low Temperature Chest Freezers, 20 cu. ft.</td>
<td>$15,630.00 / Each</td>
<td>1</td>
<td>$15,630.00</td>
</tr>
<tr>
<td>Catalog number 1920CD Electrical Requirements: 208 - 230 V 60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually Ships in 35 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Order Summary

- **Subtotal:** $22,310.00
- **Shipping and Handling:** $424.99
- **Shipping charge:** $424.99
- **Estimated Tax:** $0.00

*Extra charges may apply for products that require special services.*

*Additional handling charges determined by direct ship manufacturers may apply.*

**Generate a Web Quc**

View All Quotes | What's this? | FAQ

▼ Add all items to a list
**Generator**

**Genset Model**
- C22 D5, 22kVA Standby, 20kVA, Diesel, Open

**Bill of Material**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Standby Power (ESP)</td>
<td></td>
</tr>
<tr>
<td>Emissions Level</td>
<td>No Certification</td>
</tr>
<tr>
<td>Local Codes and/or Regulation</td>
<td>CE</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>200/115, 3 Phase, Wye, 4 Wire</td>
</tr>
<tr>
<td>Engine</td>
<td>X2.5G2</td>
</tr>
<tr>
<td>Engine Air Cleaner - Duty Rating</td>
<td>Heavy Duty</td>
</tr>
<tr>
<td>Engine Oil Heater</td>
<td>None Supplied</td>
</tr>
<tr>
<td>Engine Speed Governing</td>
<td>Mechanical Droop Governor</td>
</tr>
<tr>
<td>Engine Coolant Heater</td>
<td>None Supplied</td>
</tr>
<tr>
<td>Sub-Base Anti-Vibration Mounts</td>
<td>None Supplied</td>
</tr>
<tr>
<td>Main Generator</td>
<td>SOL2G1, 50 Hertz (Hz), 200V and 480V, 163C, Emergency Standby Power (ESP)</td>
</tr>
<tr>
<td>Generator Accessories</td>
<td></td>
</tr>
<tr>
<td>Voltage Regulator - Torque Match</td>
<td></td>
</tr>
<tr>
<td>Main Generator Heater</td>
<td>None Supplied</td>
</tr>
<tr>
<td>Exhaust System</td>
<td></td>
</tr>
<tr>
<td>Silencer Grade</td>
<td>Residential, Flange On Connection Inlet 3 Inch, Outlet 3 Inch, Side Entry</td>
</tr>
<tr>
<td>Exhaust System Accessories</td>
<td>Bellows, System Fixing Kit</td>
</tr>
<tr>
<td>Cooling System</td>
<td></td>
</tr>
<tr>
<td>Genset Mounted Radiator, 50C / 122F, Genset Mounted</td>
<td></td>
</tr>
<tr>
<td>Engine Coolant Mixture</td>
<td>50% Antifreeze, 50% Water</td>
</tr>
<tr>
<td>Primary Electrical Isolation Device</td>
<td></td>
</tr>
<tr>
<td>One Circuit breaker</td>
<td></td>
</tr>
<tr>
<td>Primary Electrical Isolation Device</td>
<td></td>
</tr>
<tr>
<td>80A MCB, 440V IEC, 4 Pole, 100%, Left</td>
<td></td>
</tr>
<tr>
<td>Entrance Box / Terminal Housing</td>
<td></td>
</tr>
<tr>
<td>Cable Entrance Box Required</td>
<td>None Supplied</td>
</tr>
<tr>
<td>Control System Options</td>
<td></td>
</tr>
<tr>
<td>PowerStart 0660</td>
<td></td>
</tr>
<tr>
<td>Control Panel Mounting (Viewed From Generator End)</td>
<td>Left Facing</td>
</tr>
</tbody>
</table>
Control Language: English

Warning: Low Battery Voltage

Emergency Stop Switch - External

Control Cabinet Heater: None Supplied

Starting Batteries

Pure Lead-Tin Thin Plate Valve Regulated Lead-Acid (VRLA) Battery - Maintenance Free

Battery Charger

Set Mounted, 6A, 110 - 240 V

Genset Testing

Genset Testing: Standard Factory Test

Test Records: Certified Test

Warranty

Standby, 40 Months, 800 Hours

Literature Language

English

Packing

Cover - Shipping

Net package price, .................. $7,900.00 + applicable taxes

Notes:

1. Spec sheet provided to quote
2. Price includes freight Factory via standard ground to nearest port of generator manufacturer,
   Shipping to final destination Tanzania by others and not included in this quote.
3. Price does not include field connections, installation or rigging.
4. This proposal is based on information supplied to Cummins which may or may not have been
   correct or complete. The customer is responsible for reviewing this proposal for compliance with
   the complete and final drawings and specifications.
5. All quotations automatically expire thirty (30) days from date issued.

We thank you for giving us the opportunity to quote this equipment. If you need any further assistance or
clarification, please do not hesitate to contact us

Sincerely,

[b]([8]

Senior Sales Representative

38
Diesel generator set  
X2.5 series engine  

15 kVA - 28 kVA 50 Hz  
10.8 kW - 20 kW 60 Hz

Description

This Cummins® commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for Stationary Standby, Prime Power, and Continuous Duty applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Optional excitation boost system (EBS) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads and fault clearing short-circuits capability.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Control system - PowerStart control, microprocessor-based generator set monitoring and control system provides a simple operator interface to the generator set, manual and remote start/stop control and shutdown fault indication.

Enclosures - Optional weather-protective and sound attenuated enclosure.

Warranty - Backed by a comprehensive warranty and worldwide distributor network.

<table>
<thead>
<tr>
<th>Model</th>
<th>3-Phase ratings</th>
<th>1-Phase ratings*</th>
<th>Data sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standby rating</td>
<td>Prime rating</td>
<td>Standby rating</td>
</tr>
<tr>
<td></td>
<td>50 Hz kVA (kW)</td>
<td>60 Hz kVA (kVA)</td>
<td>50 Hz kVA (kW)</td>
</tr>
<tr>
<td>C12 D5</td>
<td>13 (12)</td>
<td>15 (12)</td>
<td>13 (15)</td>
</tr>
<tr>
<td>C22 D5</td>
<td>22 (18)</td>
<td>20 (18)</td>
<td>17 (17)</td>
</tr>
<tr>
<td>C12 D6</td>
<td>12 (13)</td>
<td>10.8 (13.6)</td>
<td>12 (12)</td>
</tr>
<tr>
<td>C16 D6</td>
<td>16 (20)</td>
<td>15 (18)</td>
<td>16 (16)</td>
</tr>
<tr>
<td>C20 D6</td>
<td>20 (25)</td>
<td>18 (22)</td>
<td>20 (20)</td>
</tr>
</tbody>
</table>

*1.0 PF
Generator set specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor regulation class</td>
<td>ISO 8528 G2</td>
</tr>
<tr>
<td>Voltage regulation, no load to full load</td>
<td>± 2.5%</td>
</tr>
<tr>
<td>Random voltage variation</td>
<td>± 2.5%</td>
</tr>
<tr>
<td>Frequency regulation</td>
<td>Droop</td>
</tr>
<tr>
<td>Random frequency variation</td>
<td>± 0.75%</td>
</tr>
<tr>
<td>Radio frequency emissions compliance</td>
<td>BS EN 61800-6-1 / BS EN 61000-6-3</td>
</tr>
</tbody>
</table>

Engine specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>4 cycle, in-line, naturally aspirated</td>
</tr>
<tr>
<td>Bore</td>
<td>91.4 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>127 mm</td>
</tr>
<tr>
<td>Displacement</td>
<td>2.5 liter (153 in³)</td>
</tr>
<tr>
<td>Cylinder block</td>
<td>Alloy cast iron, in-line, 3 cylinder</td>
</tr>
<tr>
<td>Battery charging alternator</td>
<td>36 A</td>
</tr>
<tr>
<td>Starting voltage</td>
<td>12 volt, negative ground</td>
</tr>
<tr>
<td>Fuel system</td>
<td>Direct injection</td>
</tr>
<tr>
<td>Fuel filter</td>
<td>Spin on fuel filters with water separator</td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Dry replaceable element</td>
</tr>
<tr>
<td>Lube oil filter type(s)</td>
<td>Spin on full flow filter, filtration efficiency 25 micron 99% (min)</td>
</tr>
<tr>
<td>Standard cooling system</td>
<td>122 °F (50 °C) ambient radiator with coolant recovery system</td>
</tr>
</tbody>
</table>

Alternator specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Brushless, single bearing</td>
</tr>
<tr>
<td>Stator</td>
<td>2/3 pitch</td>
</tr>
<tr>
<td>Insulation system</td>
<td>Class H</td>
</tr>
<tr>
<td>Standard temperature rise</td>
<td>125-163 °C</td>
</tr>
<tr>
<td>Exciter type</td>
<td>Self excited</td>
</tr>
<tr>
<td>Phase rotation</td>
<td>A (U), B (V), C (W)</td>
</tr>
<tr>
<td>Alternator cooling</td>
<td>Direct drive centrifugal blower fan</td>
</tr>
<tr>
<td>AC waveform Total Harmonic Distortion (THDv)</td>
<td>No load to full linear load &lt; 5%. For any single harmonic &lt; 2.5%</td>
</tr>
<tr>
<td>Telephone Influence Factor (TIF)</td>
<td>&lt; 75 (for 60 Hz)</td>
</tr>
<tr>
<td>Telephone Harmonic Factor (THF)</td>
<td>&lt; 2% (for 50 Hz)</td>
</tr>
</tbody>
</table>

Available voltages

### 50 Hz Line-Line/Line-Neutral

<table>
<thead>
<tr>
<th>Phase</th>
<th>1-phase</th>
<th>3-phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>415/240</td>
<td>208/120</td>
</tr>
<tr>
<td>2</td>
<td>400/230</td>
<td>200/115</td>
</tr>
<tr>
<td>3</td>
<td>380/220</td>
<td>190/110</td>
</tr>
</tbody>
</table>

### 60 Hz Line-Line/Line-Neutral

<table>
<thead>
<tr>
<th>Phase</th>
<th>1-phase</th>
<th>3-phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>230</td>
<td>480/277</td>
</tr>
<tr>
<td>2</td>
<td>440/255</td>
<td>220/127</td>
</tr>
<tr>
<td>3</td>
<td>418/240</td>
<td>240</td>
</tr>
</tbody>
</table>

Note: Consult factory for other voltages.

Generator set options

**Engine**
- Electronic engine governing
- Coolant heater 120/240 V

**Cooling**
- Antifreeze 50/50 (Ethylene glycol)

**Enclosure**
- Optional silent power canopy

**Base frame**
- Dual skin fully contained fuel tank

**Warranty**
- 2 years for Prime application
- 5 years for Standby application
- 1500/3000 hours service kit
- Optional language literature
- Engine oil heater 120/240 V
- External fuel fill (3 way valve)

Note: Some options may not be available on all models - consult factory for availability.
Control system

Generator set control PowerStart 600 – The PowerStart control is a microprocessor-based generator set monitoring and control system. The control provides a simple operator interface to the generator set, auto/ manual and remote start/stop control and shutdown fault indication. The integration of all control functions into a single control provides enhanced reliability and performance compared to conventional generator set control systems. This control has been designed and tested to meet the harsh environment in which gensets are typically applied.

- The PowerStart generator set control is suitable for use on a wide range of generator sets in non-paralleling applications. It is suitable for use with reconnectable or non-reconnectable generators. It can be configured for either 50 Hz or 60 Hz and voltage and power connection from 190-600 VAC line-to-line.
- This control includes an intuitive operator interface that allows for complete genset control as well as system metering, fault annunciation, maintenance alarm, over imbalance current, configuration and diagnostics. The interface includes seven generator set status LED lamps with both internationally accepted symbols and English text to comply with customer needs. The interface also includes an LED backlit LCD display with tactile feel soft-switches for easy operation and screen navigation. The manual/auto/stop switch function is integrated into the interface panel.
- All data on the control can be viewed by scrolling through screens with the navigation keys. The control displays the current active fault and a time-ordered history of the five previous faults.
- Power for this control is derived from the generator set starting batteries and functions over a voltage range from 8VDC to 16 VDC.

Major Features

- Integrated 128x64 Pixel monochrome graphic LCD Display
- 12 and 24V battery operation
- Genset monitoring-monitor status of all critical engine and alternator functions
- Digital genset metering (AC and DC)
- Genset battery monitoring system to warn against a weak battery connection
- Configurable for single phase or three phase or split phase AC metering
- Engine starting includes solid state output to operate external relay to start the engine, fuel shut off (FSO) and glow plug
- Genset Protection: protects engine and alternator
- Real time clock for fault and event stamping
- Fuel level measurement using 4-20mA input sensor
- Exerciser clock and time of delay start/stop initiate a test without load.
- Maintenance due alarm based on engine running time and real time clock
- Auto Main Failure (AMF) Provides load transfer operation in open transition mode
- AMF Test with or without load options
- Utility Voltage monitoring and protection
- Remote start capability in Auto mode
- Advanced service ability using Inpower™ a PC based Software service tool
- Modbus interface for interconnecting to customer PLC/BMS
- Configurable Inputs and Outputs
- Environmental protection: The Control is designed for reliable operation in harsh environment
- Warranty and service backed by a comprehensive warranty and worldwide distributor service network
- Certification-suitable for use on generator sets that are designed, manufactured, tested and certified relevant ISO, IEC and CE standards.

Base control functions

LCD capability

LED INDICATING LAMPS

- For Genset Running, Remote Start, AMF Test Active, Genset Shutdown, Warning, Load connected to Genset, Load connected to Utility, Manual Mode, Stop Mode and Auto Mode.

LCD display

- 128 x 64 Pixel Monochrome Graphics display

OPERATION INTERFACE

Six tactile feel soft switches for LCD navigation, genset operation and control setup. These switches are indicated by internationally accepted symbols and English text.

OPERATOR ADJUSTMENTS

- The LCD includes provisions for necessary set up and adjustment functions.
- Data Log includes engine run time and controller runtime Fault History.
- Provides a record of the most recent fault Condition with Engine run time stamp, RTC stamp and occurrences
- Up to 5 events are stored in the control non-volatile memory.
AMF FUNCTIONALITY

When Auto Mains Failure is enabled and controller is in Auto Mode and if utility goes off then control starts the Genset automatically and transfers load onto Genset. If Utility returns and is healthy then load again gets retransferred onto Utility. AMF provides load transfer operation in Open Transition transfer mode.

FUEL LEVEL FEATURE

The Control will show the warning fault when the fuel level in the tank goes below the predefined threshold. Control includes time delays to prevent nuisance warning signals.

Exercise Scheduler

It is used only when genset is in Auto mode. It is used to start a Scheduler schedule at No Load condition. A trim Exercise Scheduler Enable is available to enable or disable the feature.

Maintenance

Maintenance due alarm based on Engine Running Time or Real time clock

Control data

Access to the control software part number and software version are provided from the LCD or InPower™.

Alternator data

- Voltage (single or three phase line-to-line and line-to-neutral)
- Current (single or three phase)
- kVA, kVAR, kW, Power Factor (Three phase and total)
- Frequency
- Totalized positive and negative kWh, kVARh, kVAh

Utility AC data

- Voltage (three/single phase LL and LN) - Frequency

ENGINE DATA

- Starting battery voltage
- Engine running hours
- Engine temperature
- Engine oil pressure

Service adjustments

- The control includes provisions for adjustment and calibration of generator set control functions. Functions include:
  - Voltage selection
  - Frequency selection
  - Genset and Utility AC Motor Calibration

ENGINE CONTROL

- CT ratio, and Genset ratings setup
- Start/Stop time delay setup
- Real time clock setup with daylight saving
- AMF Setup with test mode and transfer/retransfer time delays
- Modbus baud rate, parity setup
- Exercise scheduler repeat interval, Day, time and duration setup
- Maintenance due setup
- LCD brightness and contrast control

Battery operation

- Control will operate on 12V/24V batteries

Auto start mode

Accepts a ground signal from remote devices to automatically start the generator set. The remote start signal will also wake up the control from sleep mode. The control can incorporate a time delay start and stop.

Emergency stop

The control annunciates when an emergency stop signal is received and the generator set immediately shuts down. The generator set is prevented from running or cranking with the switch engaged E-stop switch.

Sleep mode

The control includes a configurable low current draw state to minimize starting battery current draw when the genset is not operating.

Engine starting

The control supports automatic engine starting. Primary and backup start disconnects are achieved by battery charging alternator feedback or main alternator output frequency. The control also supports configurable glow plug control when applicable.

Cycle cranking

Configurable for the number of starting cycles (1 to 7) and duration of crank and rest periods. Control includes starter protection algorithms to prevent the operator from specifying a starting sequence that might be damaging.

Time delay start and stop (cooldown)

Configurable for time delay of 0-300 seconds prior to starting after receiving a remote start signal and for
time delay of 0-600 seconds prior to shutdown after signal to stop in normal operation modes. Default for both time delay periods is 0 seconds.

Auto Mains Failure functions
AMF primarily means that the genset controller is controlling both the genset breaker and a utility breaker in a transfer pair arrangement. AMF is only for use in a single genset / single utility arrangement. AMF’s primary job is to keep loads powered. AMF completely manages the system by automatically starting the genset and transferring load when it detects utility failure. AMF has numerous built-in configurable sensors to determine the availability of the utility and genset sources. Sensors include under voltage, overvoltage, over/under frequency and breaker failure. PS0600 control supports only open transition (Break before Make) AMF functionality.

AMF Test mode
AMF supports test mode with or without load options along with test mode duration.

Load Transfer Switch Type
AMF breaker outputs can be continuous (contact pair) or pulsed (GTEC) type based on load transfer switch selection.

Undervoltage sensor
- Three phase LL and LN undervoltage sensing for pickup 85-100% and dropout adjustable from 75-98% of nominal and dropout adjustable delay from 0.1-30 sec

Overvoltage sensor
- Three phase LL and LN overvoltage sensing for dropout adjustable from 105-135% of nominal and dropout adjustable delay from 0.5-120 sec

Over/under frequency sensor
- Underfrequency sensing for pickup 85-100% and dropout adjustable from 70-85% of nominal and dropout adjustable delay from 0.1-15 sec
- Overfrequency sensing for dropout adjustable from 105-115% of nominal and dropout adjustable delay from 0.1-15 sec

Timers
- Control provides transfer time delays including
  Time delay engine start (0-3600 sec), time delay normal to emergency (0-300 sec) and programmed transition delay (0-600 sec). impending failure.
- Cranking lockout - The control will not allow the starter to attempt to engage or to crank the engine when the engine is running.
- Control provides retransfer time delays including time delay emergency to normal (0-1800 sec) and programmed transition delay (0-600 sec), time delay engine cooldown (0-3600 sec)

Protective functions:
On operation of a protective function, the control will indicate a fault by illuminating the appropriate status LED, as well as display the fault code and fault description on the LCD. The nature of the fault and time of occurrence are logged in the control. The service manual and InPower™ Service Tool provide service keys and procedures based on the service codes provided. In Power is used to configure settings.

Configurable alarm input
The control accepts maximum three alarm inputs (contact closed to ground) to cause a shutdown or warning response from the control.

Emergency stop
- Annunciator whenever an emergency stop signal is received from external switch.

Engine protection
- Low lube oil pressure warning/shutdown - Level is pre-set to match the capabilities of the engine used. Control includes time delays to prevent nuisance shutdown signals.
- High coolant temperature warning/shutdown - Level is pre-set to match the capabilities of the engine used. Control includes time delays to prevent nuisance shutdown signals.
- Low coolant temperature warning - Indicates that engine temperature may not be high enough for 1 min. and start or proper load acceptance.
- Sensor failure indication - Logic is provided on the base control to detect analog sensor or interconnecting wiring failures.

General engine protection:
Low Fuel Level Warning - Indicates that engine fuel level reached the Low Fuel Level Warning Threshold (30% by default).

Charging Alternator Failure Warning - Indicates that engine charging alternator voltage reached the low/high charging alternator threshold when charging alternator enable trim is enabled.

- Low and high battery voltage warning - Indicates status of battery charging system (failure) by continuously monitoring battery voltage.
- Weak battery warning - The control will test the battery each time the generator set is signaled to start and indicate a warning if the battery indicates
- Fail to start shutdown - The control will indicate a fault if the generator set fails to start by the completion of the engine crack sequence.

**ALTERNATOR PROTECTION**

**Battleshort Mode**

- When enabled and Battle short switch is active, the control will allow non-critical shutdown faults to be bypassed. If a bypass shutdown fault occurs, the fault code and description will still be annunciated, but the genset will not shutdown. This will be followed by a fail to shutdown fault. Emergency stop critical shutdown faults are not bypassed.

Please refer to control service and operator manual for list of critical faults

**High AC voltage shutdown (59)**

- Output voltage on any phase exceeds preset values. Values adjustable from 105-125% of nominal voltage, with time delay adjustable from 1-10 seconds. Default value is 110% for 5 seconds.

**Low AC voltage shutdown (27)**

- Voltage on any phase has dropped below a preset value. Adjustable over a range of 50-95% of voltage, time delay 2-20 seconds. Default value is 90% for 5 seconds.

**Under frequency shutdown (81 u)**

- Generator set output frequency cannot be maintained. Settings are adjustable from 2-10 Hz below nominal governor set point, for a 500-2000 half cycles delay. Default: 5 Hz, 1000 half cycles.

**Over frequency shutdown/warning (81 o)**

- Generator set is operating at a potentially damaging frequency level. Settings are adjustable from 2-10 Hz above nominal governor set point for 100-2000 half cycles delay. Default: 5 Hz, 1000 half cycles.

**Loss of sensing voltage shutdown**

- Shutdown of generator set will occur on loss of voltage sensing inputs to the control.

**Current Imbalance Warning Fault**

- Issues warning when current imbalance is observed per phase when genset is in running state.

**High Current warning/shutdown (51)**

- Implementation of the thermal damage curve with instantaneous trip level calculated based on current transformer ratio and application power rating.

**Auto Mains Failure Protections:**

- Breaker/ATS Switch fail to close warning - when the control signals a ATS switch to close, it will monitor the ATS switch feedback contacts and verifies that switch is closed. If the control does not sense ATS switch closure within an adjustable time period of the close signal, the fail to close warning will be initiated.

- Breaker/ATS Switch fail to open warning - when the control signals a ATS switch to open, it will monitor the ATS switch feedback contacts and verifies that switch is opened. If the control does not sense ATS switch opened within an adjustable time period after the open signal, the fail to open warning will be initiated.

---

**Environment**

The control is designed for proper operation without recalibration in ambient temperatures from -15 °C (5 °F) to +70 °C (158 °F), and for storage from -20 °C (-4 °F) to +80 °C (176 °F). Control will operate with humidity up to 95%, non-condensing. The control board is conformal coated to provide resistance to dust and moisture. The single membrane surface, which is impervious to effects of dust, moisture, oil and exhaust fumes. This panel uses a sealed membrane to provide long reliable service life in harsh environments. The control is specifically designed and tested for resistance to RFI/EMI and to resist effects of vibration to provide a long reliable life when mounted on a generator set. The control includes transient voltage surge suppression to provide compliance to referenced standards.

**FIELD CONTROL INTERFACE**

Input signals to the control include:
configured to AMF specific outputs (Utility/ Genset CB Open/ Close driver) when Auto mains failure is enabled.

Communications connections include:

Control provides one RS-485 port which can be used either for PCTool interface or Modbus master interface based on protocol selection from LCD or Inpower™.

- Modbus RS485 port: Allows the control to communicate with external devices such as PLCs using Modbus protocol.

- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running InPower™ software.

- Note — An RS-485 or USB to RS-232 converter is required for communication between control and PC.

Software

InPower (beyond 11.5.2.0 version) is a PC-based software service tool that is designed to directly communicate to Power Start generator sets and transfer switches, to facilitate service and monitoring of these products.

Certifications

PowerStart meets or exceeds the requirements of the following codes and standards:

- Remote start
- Emergency stop
- Configurable customer inputs:
  Control includes (1 Control includes 3 input signals which can be configured for diagnostic inputs. Out of which 1st input can also be configured as Battle short input. 2nd and 3rd inputs get configured to Utility CB status and Genset CB status when Auto mains failure is enabled.)

Output signals from the control include:

Control includes 6 configurable outputs which can be configured to Diagnostic Output, Glow Plug, Ready to load, L series governor, Configurable output 3, Configurable output 4, Configurable output 5 and Configurable output 6 get

- CE marking: The control is suitable for use on generator sets to be CE-marked. EN 50081-1,2 residential/light industrial emissions or industrial emissions.
- EN 50082-1,2 residential/light industrial or industrial susceptibility.
- ISO 7637-2, level 2; DC supply surge voltage test.
- PowerStart control and generator sets are designed and manufactured in ISO 9001 certified facilities.

Warranty

All components and subsystems are covered by an express limited one year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available.
Ratings definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

This outline drawing is to provide representative configuration details for Model series only.
See respective model data sheet for specific model outline drawing number.

Do not use for installation design

<table>
<thead>
<tr>
<th>Model</th>
<th>Length “A” mm</th>
<th>Width “B” mm</th>
<th>Height “C” mm</th>
<th>Dry wt. kg</th>
<th>Wet wt. kg</th>
<th>Length “A” mm</th>
<th>Width “B” mm</th>
<th>Height “C” mm</th>
<th>Dry wt. kg</th>
<th>Wet wt. kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>C17 D6</td>
<td>1567</td>
<td>930</td>
<td>1382</td>
<td>630.5</td>
<td>672.5</td>
<td>2082</td>
<td>987</td>
<td>1524</td>
<td>942.5</td>
<td>964.5</td>
</tr>
<tr>
<td>C22 D5</td>
<td>1567</td>
<td>930</td>
<td>1282</td>
<td>650.3</td>
<td>693.5</td>
<td>2082</td>
<td>987</td>
<td>1524</td>
<td>970.5</td>
<td>992.5</td>
</tr>
<tr>
<td>C28 D5</td>
<td>1567</td>
<td>930</td>
<td>1282</td>
<td>694.3</td>
<td>716.3</td>
<td>2082</td>
<td>987</td>
<td>1524</td>
<td>1014.3</td>
<td>1036.3</td>
</tr>
<tr>
<td>C12 D6</td>
<td>1567</td>
<td>930</td>
<td>1282</td>
<td>601.5</td>
<td>623.5</td>
<td>2082</td>
<td>987</td>
<td>1524</td>
<td>921.5</td>
<td>943.5</td>
</tr>
<tr>
<td>C16 D6</td>
<td>1567</td>
<td>930</td>
<td>1282</td>
<td>633.5</td>
<td>655.5</td>
<td>2082</td>
<td>987</td>
<td>1524</td>
<td>953.5</td>
<td>975.5</td>
</tr>
<tr>
<td>C20 D6</td>
<td>1567</td>
<td>930</td>
<td>1282</td>
<td>633.5</td>
<td>655.5</td>
<td>2082</td>
<td>987</td>
<td>1524</td>
<td>953.5</td>
<td>975.5</td>
</tr>
</tbody>
</table>

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

ISO 9001: This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.

CE: The 50 Hz generator sets are available with CE certification.
Vehicle: Note this is the same quote as used to compare the rental car option to the purchase option.

**2018 Toyota Land Cruiser Prado**

**TX**

TOYOTA LAND CRUISER PRADO (TX 4WD)

24,286 km | Automatic | 1 No Accident | Baseline Period | 2/90c

**FOB Price**: US$32,216

**Estimated Total Price**: US$34,098

- The price is not fixed. Let's try to negotiate.
- Calculated CIF + Breeding fee
- Nearest port: BAHRAIN SALAM
- For Change destination

1. **Contact agent trading**

I want to negotiate the best price.
I want to know the shipping schedule.
I want to know about the condition of the car.

**Specific Information**

- VIN (Vehicle identification Number): TRJ1550084111
- Model Code: TRJ155W
- Registration Year/Month: 2018/03

**Add to Favorites**: Send
**Options**

**Safety**
- Driver Airbag
- Anti-Lock Brakes
- Passenger Airbag
- Alarm

**Comfort**
- Power Steering
- A/C/Cruise
- Remote Keyless Entry
- Navigation System
- A/C/Heater
- Cruise Control
- Digital Meter
- Tilt Steering

**Sound System**
- CD Player
- AM/FM Radio
- AM/FM Stereo
- DVD
- CD Changer
- Aftermarket Speaker
- Hard Disc
- Satellite Radio

**Windows**
- Power Windows
- Rear Window Defroster
- Tinted Glass
- Rear Window Wiper

**Other Features**
- Power Door Locks
- Alloy Wheels
- Power Mirrors
- Sunroof
- Third Row Seats
- Power Sliding Door

**Other selling points**
- 1 Owner
- No Accident History
- Maintenance Records Available
- Non-Smoker
- Fully Loaded
- Performance Tires
- Turbo
- Upgraded Sound System
- Custom Wheels
- Reported Car

**Leather Seats**
- Power Seats
- Child Seat
- Bucket Seat
Hummingbird IRB payments are made every 6 months 1/2

Hummingbird IRB
c/o NEIRB, 197 1st Avenue, Suite 250
Needham, MA  02494 US
(855) 447-2123
ddennett@hummingbirdirb.com
http://hummingbirdirb.com

BILL TO
Melinda Rostal
EcoHealth Alliance (2)
460 West 34th Street - 17th floor
New York, NY  10001

INVOICE # 1088
DATE 12/16/2015
DUE DATE 12/31/2015
TERMS Net 15

<table>
<thead>
<tr>
<th>Continuing Review (phase II-IV)</th>
<th>1,000.00</th>
<th>1,000.00</th>
</tr>
</thead>
</table>

Thank you for your business.

PAYMENT

BALANCE DUE

1,000.00

$0.00
Hummingbird IRB payments are made every 6 months 2/2

Hummingbird IRB

c/o NEIRB, 197 1st Avenue, Suite 250
Needham, MA 02494 US
(855) 447-2123
ddennett@hummingbirdirb.com
http://hummingbirdirb.com

BILL TO
Emily Hagan
EcoHealth Alliance
460 West 34th Street - 17th floor
New York, NY 10001

INVOICE # 1065
DATE 06/17/2016
DUE DATE 07/02/2016
TERMS Net 15

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Review (Phase II-IV) New Investigator (Karesh) &amp; Site - Hummingbird IRB #2014-25/Defense Threat Reduction Agency - 2nd installment</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

Thank you for your business.

PAYMENT

BALANCE DUE

1,000.00

$0.00
Ethical Clearance in Tanzania

For KCMC application the following is required:

1/ Pay Slip (500$ if it is an Ordinary study / 700 $ if it is a Clinical Trial.)
2/ Cover letter
3/ Application Form - CRERC FORM 2
4/ Full Protocol
5/ Questionnaires / Informed Consent forms (in English and Swahili)
6/ Investigators CVs - CRERC FORM 13

For NIMR application the following is required: (see next page)

1/ Pay Slip (600 USD if it is an Ordinary study / 2,100 USD if it is a Clinical Trial)
2/ Cover letter
3/ NIMR Application Form
4/ KCMC EC - Approval Certificate. (Approval from international collaborating institution if applicable)
4/ Full Protocol
5/ Investigators CVs - CRERC FORM 13
6/ Letter from RMO
7/ Material Transfer Agreement (if samples will be transferred)
8/ Data Transfer Agreement (if data will be transferred)
9/ Informed Consent forms (in English and Swahili)
10/ Questionnaires (in English and Swahili)

Please make sure to use the following format while preparing the submission to KCMC and NIMR:

1. Abstract
2. Introduction
3. Literature review
4. Problem statement
5. Rationale of the study
6. Broad Objective and specific objectives should clearly be stipulated
7. Methodology which should include 1. Study design, study area, study population, inclusion and exclusion criteria, sample size and sample size techniques, data collection methods and tools, study variables
8. Ethical considerations and limitation of the study
9. Dissemination of the results
10. The budget (and Budget justification) should have 10% - 25% overhead costs
<table>
<thead>
<tr>
<th>Services</th>
<th>Tanzanian TShs</th>
<th>International US$</th>
<th>Tanzanian TShs</th>
<th>International US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Fee</td>
<td>100,000.00</td>
<td>100</td>
<td>100,000.00</td>
<td>100</td>
</tr>
<tr>
<td>Clearance for Health Research Proposal</td>
<td>300,000.00</td>
<td>500</td>
<td>150,000.00</td>
<td>250</td>
</tr>
<tr>
<td>Clearance for (Clinical Trial)</td>
<td>2,000,000.00</td>
<td>2,000</td>
<td>1,000,000.00</td>
<td>750</td>
</tr>
<tr>
<td>Renewal of Ethical Approval (Ordinary)</td>
<td>100,000.00</td>
<td>100</td>
<td>100,000.00</td>
<td>100</td>
</tr>
<tr>
<td>Renewal of (Clinical Trial)</td>
<td>200,000.00</td>
<td>200</td>
<td>200,000.00</td>
<td>200</td>
</tr>
<tr>
<td>Expedited Review (Ordinary)</td>
<td>600,000.00</td>
<td>1,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Expedited Review (Clinical Trial)</td>
<td>3,000,000.00</td>
<td>4,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amendment (Ordinary)</td>
<td>200,000.00</td>
<td>300</td>
<td>100,000.00</td>
<td>150</td>
</tr>
<tr>
<td>Amendment (Clinical Trial)</td>
<td>500,000.00</td>
<td>500</td>
<td>250,000.00</td>
<td>250</td>
</tr>
</tbody>
</table>

*Always indicate the name of Principal Investigators and please attach the Deport Slip to your proposal on submission to the Secretariat National Ethics Review Committee*
LOGICAL PRESENTATION OF REQUIREMENTS FOR APPLICATION OF RESEARCH CLEARANCE AND PERMIT AT COSTECH

The objective of the analysis that led to this presentation was to find a much more easier to understand presentation of the requirements to the prospective applicants.

GENERAL REQUIREMENTS: These apply to all applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreigners Affiliated to Local Research and Higher Learning Institutions</th>
<th>Others (Tanzanian, Non Tanzanians, affiliated in a foreign country, affiliated locally, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Detailed curriculum vitae</td>
<td>Required for all involved researchers</td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td>2 Full research proposal</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>3 Sponsor cover letter</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>4 Support letter from local collaborating institution / contact person</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>5 Recommendation letter for endorsement of the proposed research within the institution</td>
<td>Required</td>
<td>Not applicable</td>
</tr>
<tr>
<td>6 Front-page of passport</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>7 Proof of payment non-refundable application fees</td>
<td>50 USD</td>
<td>50 USD</td>
</tr>
<tr>
<td>8 Application form</td>
<td>Required</td>
<td>Required</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR SPECIFIC SCENARIOS

a) Research related to medical, public health, drugs, clinical trials, and wildlife issues require special clearance from relevant authorities, i.e., National Institute of Medical Research (NIMR) for the study that involves medical, public health and/or human subject (health); Tanzania Food and Drug Authority for Clinical Trials; and Tanzania Wildlife Research Institute (TAWIRI) for the study that involves wildlife and natural resources conservation.

b) In case of joining a new researcher to an on-going research which has already been granted a research permit, a Principal Investigator shall submit a request of research permit for a new member to COSTECH at least 2 months prior to his/her joining the research team with detailed curriculum vitae, clear justification and roles for an additional staff/researcher to the on-going project.

c) It is anticipated that the PI will remain responsible for the entire lifetime of the project, unless circumstances necessitate a change of PI. In such rare situation the head of hosting research institution shall write to notify COSTECH within 6 months since termination of outgoing PI. This will be done in writing explaining the reason for the changes and suitability of a newly identified PI. The letter requesting for amendment, accompanied by an up to date progress report shall be subjected to approval process before continuing with the research. It is the responsibility of the hosting institution to submit the request for change of PI within specified time.

POST CLEARANCE

a) After the research has been cleared, the PI will be notified by email. All FOREIGNERS who then wishes to undertake research activities in the country under the cleared research project will be required to apply for permit by presenting a proof of payment of research permit fees (300 USD) and three passport size photos.
b) All researchers granted research permit that involve collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA) / Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research project.

c) An Applicant who has been permitted to conduct research in Tanzania is obliged to submit soft and two (2) hard copies (printed) and soft copy of his/her research report /thesis with COSTECH on completion of research.

d) COSTECH will have an access to data and research premises of the permitted research projects.

e) A Principal Investigator (PI) permitted to conduct research in Tanzania is obliged to submit a quarterly/annually report.

f) Persons who have not submitted satisfactory final reports / thesis on previous research work in Tanzania may not be cleared for new projects. Attention will be drawn to the sponsoring institutions and referees on shared responsibility of making sure that researchers sponsored by them observe the foregoing regulations. A breach of the regulations could result in refusal of permits for other researchers sponsored by same institutions or referees.

g) Any patent or intellectual property and royalty emanating from any research approved by the National Research Registration Committee (NRRC) should be owned by the respective research institutions involved.
# Supplies for Y3 Workshops

## Cart

Account: 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eppendorf Tubes™ 5.0mL with Screw Cap</td>
<td>$93.00</td>
<td>3</td>
<td>$279.00</td>
</tr>
<tr>
<td>Catalog number: 13-864-407 by Eppendorf™ 0030122321</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Range (Metric): -85°C to 100°C, Color: Clear, Clean Claims: Pyrogen-, Dn...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>On Order (3) - Estimated delivery 12/23/2019</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce™ 96-Well Microplates</td>
<td>$138.40</td>
<td>2</td>
<td>$276.80</td>
</tr>
<tr>
<td>Catalog number: P115042 by Thermo Scientific™ 15042</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description: Pierce 96-Well Polystyrene Plates, White Opaque</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ships from manufacturer - Usually Ships in 1 Business Days</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART™ Barrier Specialty Pipette Tips</td>
<td>$191.70</td>
<td>1</td>
<td>$191.70</td>
</tr>
<tr>
<td>Catalog number: 21-402-185 by Thermo Scientific™ 2770</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip Style: Ergonomic, Volume (Metric): 200µL, Compatibility: Thermo Scientific™ Finnp...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>In Stock (1) - Estimated delivery 11/29/2019</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Order Summary

- **Subtotal**: $1,413.60
- **Shipping and Handling**: $105.59
- **Shipping fuel surcharge**: $4.45
- **Shipping charge**: $101.14
- **Estimated Tax**: $0.00

*Extra charges may apply for products that require special services.*

*Additional handling charges determined by direct ship manufacturers may apply.*

**Generate a Web Quc**

View All Quotes | What's this? | missing translation for 'faq'

1 of 3

11/26/19, 2:48 PM
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART™ Barrier Specialty Pipette Tips</td>
<td>$227.00</td>
<td>1</td>
<td>$227.00</td>
</tr>
<tr>
<td>by Thermo Scientific™ 2279</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip Style: Ergonomic, Volume (Metric): 1000µL, Compatibility: Thermo Scientific™ Finn...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (1) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/29/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART™ Non-Filtered Standard Hinged Rack Pipette Tips</td>
<td>$129.10</td>
<td>1</td>
<td>$129.10</td>
</tr>
<tr>
<td>by Thermo Scientific™ 310105HR</td>
<td>$129.10</td>
<td>1</td>
<td>$129.10</td>
</tr>
<tr>
<td>Volume (Metric): 1000µL, Description: ART Non-filtered Low Retention, Sterility...</td>
<td>$471.00</td>
<td>1</td>
<td>$471.00</td>
</tr>
<tr>
<td>On Order (1) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/05/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ Sure One™ Low Retention Non-Filtered Pipette Tips, 200 µL, Standard Length</td>
<td>$79.00</td>
<td>2</td>
<td>$158.00</td>
</tr>
<tr>
<td>by Pack of 960</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging: Hinged Rack, Sterility: Sterile</td>
<td>$356.00</td>
<td>1</td>
<td>$356.00</td>
</tr>
<tr>
<td>On Order (2) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01/03/2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td>Fisherbrand™ Sure One™ Low Retention Non-Filtered Pipette Tips, 10 μL Micro Length</td>
<td>$76.00</td>
<td>2</td>
<td>$152.00</td>
</tr>
<tr>
<td>Catalog number 02-707-011 Packaging: Hinged Rack, Sterility: Sterile</td>
<td>$342.00 / Case of 5 PK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On Order (2) - Estimated delivery 01/03/2020

Add all items to a list
Open Access Publication Fees

Criteria for Publication

1. The study presents the results of original research.
2. Results reported have not been published elsewhere.
3. Experiments, statistics, and other analyses are performed to a high technical standard and are described in sufficient detail.
4. Conclusions are presented in an appropriate fashion and are supported by the data.
5. The article is presented in an intelligible fashion and is written in standard English.
6. The research meets all applicable standards for the ethics of experimentation and research integrity.
7. The article adheres to appropriate reporting guidelines and community standards for data availability.

PLOS ONE encourages researchers to share early versions of their manuscripts via preprint server, either before or after submission. Posting to a preprint server will not prejudice consideration of your manuscript.

Peer Review at PLOS ONE

PLOS ONE is a fully peer reviewed journal with a rigorous multi-stage editorial screening and assessment process.

First, we undertake an initial in-house quality check to identify potential issues such as competing interest, compliance with ethical standards for studies involving human and animal subjects, financial disclosures, data availability, and other scientific and policy requirements. Submissions may be returned to authors for changes or clarifications at this stage.

After passing quality control, each manuscript is placed with a member of the Editorial Board who conducts peer review and makes the decision to accept, invite revision, or reject the submitted manuscript. Read the detailed Editorial and Peer Review Process overview.

Ready to Submit?

About

Publication fees

PLOS ONE publication fees are US$1595 per manuscript and will be billed upon acceptance. Authors’ ability to pay publication fees will never be a consideration in the decision whether to publish. Read more about publication fees and publication fee support.

Indexing and archiving

See publishing details for all PLOS journal titles, including ISSN and indexing and archiving information.

PLOS

PLOS is a nonprofit Open Access publisher, innovator and advocacy organization with a mission to advance progress in science and medicine by leading a transformation in research communication.

Contact

Visit the Contact page for details about whom to contact with different queries.

Give Feedback
### Quotation

<table>
<thead>
<tr>
<th>Quote #</th>
<th>115815</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms</td>
<td>NET 30</td>
</tr>
<tr>
<td>Contact</td>
<td>Megan Walsh&lt;br&gt;<a href="mailto:walsh@ecohalthaliance.org">walsh@ecohalthaliance.org</a>&lt;br&gt;(212) 380-4462</td>
</tr>
<tr>
<td>Quote Date</td>
<td>8/19/2019</td>
</tr>
<tr>
<td>Expires</td>
<td>8/26/2019</td>
</tr>
</tbody>
</table>

**Sales Rep:** Tom Haven<br>tom.haven@ecotechnology.com<br>p. (800) 342-4222

---

**EcoHealth Alliance**<br>Megan Walsh<br>460 W 34th St Fl 17<br>New York, NY 10001<br>UNITED STATES<br>(212) 380-4462<br>walsh@ecohalthaliance.org

---

### Adobe subscription renewal

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Price</th>
<th>Expire Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Acrobat Pro DC for Teams 12 month subscription renewal</td>
<td>25</td>
<td>$177.00</td>
<td>2019-09-18</td>
</tr>
<tr>
<td>Adobe Creative Cloud for Teams 12 month subscription renewal</td>
<td>15</td>
<td>$370.00</td>
<td>2019-09-18</td>
</tr>
</tbody>
</table>

| Sub Total: | $9,975.00 |
| Shipping and Handling: | $0.00 |
| Tax Rate: (0.08675) | $0.00 |

**Total** $9,975.00

---

Please note:

Return policies vary per manufacturer. (Apple and McAfee both have a no returns policy)

Custom configured items/built-to-order items are non-returnable.

Start dates and end dates for renewals may change based on the manufacturer's guidelines, policies, renewal order date, or date of activation.

Price is subject to change based on potential fluctuation of trade tariff regulation.

---

Quote #115815
Invoice for EcoHealth Alliance

<table>
<thead>
<tr>
<th>TO</th>
<th>DATE</th>
<th>INVOICE ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megan Walsh</td>
<td>February 25, 2019 6:50 AM GMT</td>
<td>SLSWTLNSKNSJ</td>
</tr>
<tr>
<td>w Walsh</td>
<td>10001</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PRICE</th>
<th>DISCOUNT</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropbox Business Advanced Plan (includes 3 licenses) + 60 Additional Licenses + Unlimited API Call Rate Limit + Unlimited Extended Version History [2/25/2019 to 2/25/2020]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropbox Business Advanced Plan (includes 3 licenses)</td>
<td>$500.00</td>
<td>30%</td>
<td>$420.00</td>
</tr>
<tr>
<td>60 Additional Licenses</td>
<td>$12,000.00</td>
<td>30%</td>
<td>$8,400.00</td>
</tr>
<tr>
<td>Unlimited API Call Rate Limit</td>
<td>$0.00</td>
<td>30%</td>
<td>$0.00</td>
</tr>
<tr>
<td>Unlimited Extended Version History</td>
<td>$0.00</td>
<td>30%</td>
<td>$0.00</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$8,820.00</td>
</tr>
</tbody>
</table>

All amounts shown are in USD.
Clarivate Analytics
Philadelphia, PA 19130
1500 Spring Garden Street, Suite 400
Philadelphia, PA 19130

To: Megan Walsh, Department Head, EcoHealth Alliance

Re: Your EndNote X9 Upgrade License Quote

Sent by e-mail: 10/16/2018

Thank you for your interest in our products. Please accept this letter (via e-mail) as our quote for Endnote X9.

<table>
<thead>
<tr>
<th>License Type</th>
<th>Total Users</th>
<th>Total Price (excludes state tax, if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endnote X9 Upgrade License</td>
<td>40</td>
<td>US$3,998.00</td>
</tr>
<tr>
<td>(US$99.95 each)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Promotional Pricing Valid 11/16/2018

Purchasing Instructions:
If applicable, send your institution’s Tax-Exempt Certificate for your state’s tax to be excluded from your order.

Contact (610) 962-0666 or (610) 962-6666 to receive EndNote.

Premium access to EndNote Web – Free
Training and support - $0.00 – Free
Shipping – Digital Download - $0.00 – Free

You may place your order on a purchase order (terms are Net 30), by check/money order drawn on a U.S. bank or Visa/MasterCard/American Express.

Regards,

[Signature]
Account Manager

[Signature]
<table>
<thead>
<tr>
<th>Order #</th>
<th>88282</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms</td>
<td>NET 30</td>
</tr>
</tbody>
</table>
| Contact | Megan Walsh  
walsh@ecohealthalliance.org  
(212) 380-4462 |
| Invoice Date | 4/11/2018 |
| Due Date | 5/11/2018 |
| Sales Rep | Tom Haven  
tom.haven@ecotechnology.com  
p. (800) 342-4222 |

<table>
<thead>
<tr>
<th>(10) Office 2016 Standard Edition licenses</th>
<th>Per Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microsoft Corporation</td>
</tr>
<tr>
<td><strong>Sub Total:</strong></td>
<td>$940.00</td>
</tr>
<tr>
<td><strong>Shipping and Handling:</strong></td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Tax Rate:</strong> (0.00000)</td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$940.00</strong></td>
</tr>
<tr>
<td><strong>Credits/Payments:</strong></td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Total Due:</strong></td>
<td><strong>$940.00</strong></td>
</tr>
</tbody>
</table>

**Shipping Location**

1 | EcoHealth Alliance Megan Walsh 460 W 34th St Fl 17 New York, NY 10001 UNITED STATES  
(212) 380-4462  
walsh@ecohealthalliance.org | 10 | $940.00 |

**Shipping Detail**

4/10/2018 | Microsoft Corporation | 021-10552 |

**Tracking Numbers**

4/10/2018 | Other | VIRTUAL (Unrecognized Number)*

Please note:

Return policies vary per manufacturer. (Apple and McAfee both have a no returns policy)

Custom configured items/built-to-order items are non-returnable.

Start dates and end dates for renewals may change based on the manufacturer’s guidelines, policies, renewal order date, or date of activation.
Fringe Benefits

Fringe Benefits Allocation Policy

Compensated absences, including vacations, sick, holidays and personal days are considered salaries and wages and, as such, are recorded as salaries and wages when used.

No separate claims are made for those costs under fringe benefits costs category. Compensated absences earned, but not used, are not carried over to the next fiscal year. There is a grace period of using the earned compensated absences by September 30.

All employees are covered for Social Security, NYC commuter taxes, payroll transit taxes, Worker’s compensation insurance and unemployment.

Employees working 35 hours or more per week are eligible:

- Health Insurance, including medical, dental and vision;
- Life Insurance;
- 403(B) pension plan (After nine (9) months of employment);
- Short and long term disability.

Employees working more than 20 hours but less than 35 hours per week are eligible for the following fringe benefits:

- Life Insurance;
- Short-Term/long-Term Disability;
- 403(B) pension plan (After nine (9) months of employment).

Fringe Benefits are tracked by employees and charged directly or indirectly in the same manner as employees’ salaries and wages.

Although, the costs principles policy for fringe benefits has not changed, effective fiscal year 2020 starting July 1, 2019, EcoHealth Alliance no longer negotiates a fringe benefits rate with the Department of Defense.

For funding proposals, fiscal year 2019 actual data will be used to budget fringe benefit costs. For billing, invoicing and reporting purposes to federal and non-federal donors the actual benefits will be allocated and requested.
Schedule of Fringe Benefits

<table>
<thead>
<tr>
<th>Categories</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salaries and Wages</strong></td>
<td>$ 4,426,650</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>A</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>782,523</td>
</tr>
<tr>
<td>Health Insurance payments in lieu of benefit</td>
<td>11,898</td>
</tr>
<tr>
<td>Vision Care</td>
<td>2,509</td>
</tr>
<tr>
<td>Washington DC Family Leave Ins</td>
<td>218</td>
</tr>
<tr>
<td>Washington Unemployment Insurance</td>
<td>133</td>
</tr>
<tr>
<td>Life Insurance ST/LT Disability/Dental</td>
<td>121,563</td>
</tr>
<tr>
<td>NYS Unemployment Ins (NYSUI)</td>
<td>9,483</td>
</tr>
<tr>
<td>NYS Disability Insurance</td>
<td>2,276</td>
</tr>
<tr>
<td>Pension Expense</td>
<td>305,704</td>
</tr>
<tr>
<td>Tuition Reimbursement expense</td>
<td>12,834</td>
</tr>
<tr>
<td>NYS Commuter Tax</td>
<td>14,145</td>
</tr>
<tr>
<td>Payroll Transit Tax - Federal</td>
<td>12,734</td>
</tr>
<tr>
<td>Payroll Transit Tax New York</td>
<td>5,457</td>
</tr>
<tr>
<td>FSA Fees</td>
<td>32,723</td>
</tr>
<tr>
<td>Social Security Employer Expense</td>
<td>295,392</td>
</tr>
<tr>
<td>Washington DC Unemployment Tax</td>
<td>243</td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>19,173</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 1,629,007</td>
</tr>
<tr>
<td><strong>Fringe Benefits Rate</strong></td>
<td>% 36.80</td>
</tr>
<tr>
<td><strong>B/A</strong></td>
<td></td>
</tr>
</tbody>
</table>
NEGLIGENCE AGREEMENT

INSTITUTION: ECOHEALTH ALLIANCE, INC.
460 WEST 34TH ST. 17TH FlR
NEW YORK, NY 10001-2320

The Indirect Cost rate contained herein is for use on grants, contracts and/or other agreements issued or awarded to the EcoHealth Alliance, Inc. by all Federal Agencies of the United States of America, in accordance with the provisions and cost principles mandated by 2 CFR Part 200. The rate shall be used for forward pricing and billing purposes for the EcoHealth Alliance, Inc. Fiscal Year 2020. This rate agreement supersedes all previous rate agreements/determinations for Fiscal Year 2020.

Section I: RATES - TYPE: PROVISIONAL (PROV)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE</th>
<th>BASIS</th>
<th>APPLICABLE TO</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prov.</td>
<td>07/01/19</td>
<td>06/30/20</td>
<td>32.0%</td>
<td>(a)</td>
<td>All</td>
<td>All</td>
</tr>
</tbody>
</table>

DISTRIBUTION BASIS:

(a) Total direct costs excluding capital expenditures (buildings, individual items of equipment, alterations and renovations), the portion of each subaward in excess of $25,000, participant support costs, and flow-through funds.

SECTION II - GENERAL TERMS AND CONDITIONS

A. LIMITATIONS: Use of the rate set forth under Section I is subject to availability of funds and to any other statutory or administrative limitations. The rate is applicable to a given grant or contract or other agreement only to the extent that funds are available. Acceptance of the rate agreed to herein is predicated upon the following conditions: (1) that no costs other than those incurred by the organization were included in this indirect cost pool as finally accepted and that such costs are legal obligations of the organization and allowable under governing cost principles; (2) that the same costs that have been treated as indirect costs are not claimed as direct costs; (3) that similar types of costs have been accorded consistent accounting treatment; and (4) that the information provided by the organization which was used as a basis for acceptance of the rate agreed to herein, and expressly relied upon by the Government in negotiating and accepting the said rate is not subsequently found to be materially incomplete or inaccurate.
B. **ACCOUNTING CHANGES:** The rate contained in Section I of this agreement is based on the accounting system in effect at the time the agreement was negotiated. Changes to the method(s) of accounting for costs, which affect the amount of reimbursement resulting from the use of the rate require the prior written approval of the authorized representative of the cognizant agency for indirect costs. Such changes include but are not limited to changes in the charging of a particular type of cost from indirect to direct. Failure to obtain such approval may result in subsequent cost disallowances.

C. **PROVISIONAL RATES:** The provisional rate contained in this agreement is subject to unilateral amendment by the Government or bilateral amendment by the contracting parties at any time.

D. **USE BY OTHER FEDERAL AGENCIES:** The rate set forth in Section I is negotiated in accordance with and under the authority set forth in 2 CFR Part 200. Accordingly, such rate shall be applied to the extent provided in such regulations to grants, contracts, and other agreements to which 2 CFR Part 200 applies, subject to any limitations in part A of this section. Copies of this document may be provided by either party to other federal agencies to provide such agencies with documentary notice of this agreement and its terms and conditions.

E. **SPECIAL REMARKS:** The Government's agreement with the rate set forth in Section I is not an acceptance of the EcoHealth Alliance, Inc.'s accounting practices or methodologies. Any reliance by the Government on cost data or methodologies submitted by EcoHealth Alliance, Inc. is on a non-precedence-setting basis and does not imply Government acceptance.

**Accepted:**

FOR ECOHEALTH ALLIANCE, INC.:  

FOR THE U.S. GOVERNMENT:

ARMINE ARUSTAMYAN  
Chief Financial Officer  

[b][b][b]  
Contracting Officer  

07-17-19  
Date  
7/17/19  
Date  

For information concerning this agreement contact:  
[b][b][b]  
Office of Naval Research  
875 North Randolph Street  
Arlington, VA 22203-1995  

Page 2 of 2
Example of cost of registration for domestic conference APHA it is either $546 + $225 or $871 - we used the former for our budget.

<table>
<thead>
<tr>
<th>Membership Dues</th>
<th>Final After Sept. 12</th>
<th>Advance Sept. 12</th>
<th>Early-Bird Aug. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$225</td>
<td>$665</td>
<td>$606</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$665</td>
<td>$606</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$665</td>
<td>$606</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$407</td>
<td>$372</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$407</td>
<td>$372</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$292</td>
<td>$282</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$435</td>
<td>$390</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$990</td>
<td>$931</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$427</td>
<td>$417</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$415</td>
<td>$380</td>
</tr>
</tbody>
</table>

**Notes:**
- Full Conference Registration:
  - Member perks!
  - Members save up to $100 on registration!
- Regular Member: $546
- Company/Consultant Individual: $546
- Agency Individual: $537
- Discounted Regular (salary < $45,000): $337
- Retired: $337
- Student: $247
- Early-Career Professional: $345
- Non-Member: $871
- Non-Member Student: $382
- Guest (Non-Public Health): $345

Meals are not included in registration fees.
Example of cost of flight costs for domestic conference APHA.

<table>
<thead>
<tr>
<th>Flight</th>
<th>Departure</th>
<th>Arrival</th>
<th>Duration</th>
<th>Carrier</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM - 12:10 PM</td>
<td>New York</td>
<td>6h 10m</td>
<td>Nonstop</td>
<td>United</td>
<td>$595</td>
</tr>
<tr>
<td>8:30 AM - 12:01 PM</td>
<td>New York</td>
<td>6h 31m</td>
<td>Nonstop</td>
<td>JetBlue</td>
<td>$639</td>
</tr>
<tr>
<td>8:05 AM - 11:40 AM</td>
<td>New York</td>
<td>6h 35m</td>
<td>Nonstop</td>
<td>Delta</td>
<td>$645</td>
</tr>
</tbody>
</table>
Conference Code: 20FR07CEID

About  Call for Papers  Important Dates  Committee  Registration Fees  Conference Photos  HyperCF

Program

Participation Type  Early Registration Fees  Registration Fees
Non-Student Oral/Poster Presenter Registration  € 450  € 500
Student Oral/Poster Presenter Registration  € 350  € 400
Listener Registration  € 250  € 300
Additional Paper Publication  € 100

All conference materials and services will be delivered digitally to the participant with the online conference management system. Conference registration includes the following digital materials and services:

- e-certificates [for Authors: Certificate of Attendance and Presentation; for Listeners: Certificate of Attendance; for Chairs: Certificate of Attendance and Appreciation; for Presenters: Certificate of Best Presentation (if conferred based appraisal)]
- e-program
- e-book
- e-name badge
- e-receipt
- e-presentation

Presentation Types:

- Physical presentation is an oral conferencing presentation that is made using digital technology including embedded digital elements (texts, tables, graphs, or videos) for PowerPoint sharing.
- Digital presentation is a digital conferencing presentation that is made using digital technology including embedded digital elements (texts, tables, graphs, or videos) for PowerPoint sharing.

Early Bird Registration

Early Bird registration is valid until 2020-06-19 23:59:59

Online Credit Card Processing

Online payment option available for all and junior delegates. Conference participants can make online credit card payments for conference registration fees.
Invoice for legal services associated with an O-1 Visa

BILL TO
EcoHealth Alliance
460 West 34th Street
17th Floor
New York, NY 10001-2320

ATTORNEY

PARALEGAL

O-1 Visa by EcoHealth Alliance for Pad

FEDEX International Shipping Charge 12/15/2016

For your convenience you can pay online at:
https://secure.lawpay.com/pages/npzlawgroup/operating

PAYMENT

BALANCE DUE

$142.26
YOUR RESERVATION

Location: YOTEL New York
Nights: 8
From: Aug 01 2020
To: Aug 09 2020
Room 1: Solo

Guests
1 x Guests
Book now and save 30%

Sleeps 1
Super-fast WiFi
Refreshing rain shower
Spacious double bed

Rates
YOTEL member
Pay later
Rate summary
$129.44

Book now and save 30%
Pay now
Rate summary
$133.44

Flexible
Pay later
Rate summary
$190.62

Total cabin cost: $1067.50
Javits tax: $157.45
NYC sales and occupancy tax: $157.45
City and state tax: $157.45
Facility fee: $280.00

Total taxes and fees: $752.35
Total (including taxes and fees): $1854.85

We can only hold your selected cabin(s) for twenty minutes in the online booking process, after that we will have to let them go.

Confirm Booking
| Country | Domestic | Region | Bag 1 | Bag 2 | Bag 3 | Bag 4+
|---------|----------|--------|------|------|------|------
| Brazil  | $150     |        | $0   | $0   | $0   | $0   |
| Colombia| $150     |        | $0   | $0   | $0   | $0   |
| Ecuador | $40      |        | $0   | $0   | $0   | $0   |
| Guyana  | $65      |        | $0   | $0   | $0   | $0   |
| Panama  | $400     |        | $0   | $0   | $0   | $0   |
| Peru    | $40      |        | $0   | $0   | $0   | $0   |
| Venezuela| $650   |        | $0   | $0   | $0   | $0   |

Changes: Standard-sized 1st bag is free and additional bags fee applies when returning back to Cuba.
Attention: Melinda Rostal DVM, MPH  
Company: EcoHealth Alliance  
Telephone: 1.212.380.4489  
Email: rostal@ecohealthalliance.org  
Quotation date: 07 October 2019

Quotation in respect of: EcoHealth Alliance

Dear Melinda,

Thank you for the opportunity and for considering the Sheraton Pretoria as a destination for your event.

I'm excited to share with you our proposal.

Attached a detailed quotation to ensure we deliver on all your goals and ideas. I'm looking forward to be working with you and should you require any additional information, please contact me directly.

Please note that no venue or rooms have been blocked off on your behalf and this quote is only valid for 48 hours.

Have an excellent day and I'm looking forward to your response.

Best regards,

[Signature]

Sales and Marketing Coordinator
### Quotation

<table>
<thead>
<tr>
<th>DATE</th>
<th>DAYS</th>
<th>PAX</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
<th>DEBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21 NOV 2019</td>
<td>5</td>
<td>1</td>
<td>Classic King Room / Single occupancy</td>
<td>R1 050.00</td>
<td>R1 050.00</td>
</tr>
<tr>
<td>18-22 NOV 2019</td>
<td>4</td>
<td>3</td>
<td>Classic King Room / Single occupancy</td>
<td>R1 050.00</td>
<td>R1 260.00</td>
</tr>
<tr>
<td>19-20 NOV 2019</td>
<td>1</td>
<td>2</td>
<td>Classic King Room / Single occupancy (including Breakfast)</td>
<td>R1 350.00</td>
<td>R2 709.00</td>
</tr>
<tr>
<td>19-21 NOV 2019</td>
<td>2</td>
<td>1</td>
<td>Classic King Room / Double occupancy (including Breakfast)</td>
<td>R1 750.00</td>
<td>R3 509.00</td>
</tr>
<tr>
<td>19-22 NOV 2019</td>
<td>3</td>
<td>2</td>
<td>Classic King Room / Single occupancy (including Breakfast)</td>
<td>R1 350.00</td>
<td>R1 109.00</td>
</tr>
<tr>
<td>20-21 NOV 2019</td>
<td>1</td>
<td>4</td>
<td>Classic King Room / Single occupancy (including Breakfast)</td>
<td>R1 350.00</td>
<td>R1 409.00</td>
</tr>
<tr>
<td>20-21 NOV 2019</td>
<td>1</td>
<td>1</td>
<td>Classic King Room / Single occupancy</td>
<td>R1 050.00</td>
<td>R1 050.00</td>
</tr>
</tbody>
</table>

**TOTAL**  R3 650.00

### EVENT REQUIREMENTS

<table>
<thead>
<tr>
<th>DATE</th>
<th>PAX</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
<th>DEBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-Nov-19</td>
<td>50</td>
<td>Full Day Conference Package (including Lunch)</td>
<td>Jacaranda 1</td>
<td>R430.00</td>
</tr>
<tr>
<td>19-Nov-19</td>
<td>6</td>
<td>Buffet Dinner (Magnolia Restaurant!)</td>
<td></td>
<td>R330.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1x Softdrink</td>
<td></td>
<td>R45.00</td>
</tr>
<tr>
<td>19-Nov-19</td>
<td>1</td>
<td>Venue Hire for 12 PAX MOPANI</td>
<td></td>
<td>R3 500.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Screen</td>
<td></td>
<td>R300.00</td>
</tr>
<tr>
<td>29-Nov-19</td>
<td>2</td>
<td>Buffet Dinner (Magnolia Restaurant!)</td>
<td></td>
<td>R330.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1x Softdrink</td>
<td></td>
<td>R45.00</td>
</tr>
<tr>
<td>21-Nov-19</td>
<td>2</td>
<td>Buffet Dinner (Magnolia Restaurant!)</td>
<td></td>
<td>R330.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1x Softdrink</td>
<td></td>
<td>R45.00</td>
</tr>
<tr>
<td>22-Nov-19</td>
<td>2</td>
<td>Buffet Dinner (Magnolia Restaurant!)</td>
<td></td>
<td>R330.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1x Softdrink</td>
<td></td>
<td>R45.00</td>
</tr>
</tbody>
</table>

**Classroom**

**TOTAL**  R43 650.00

**NOTE:** The Day Conference Package includes the following:
- Arrival Tea/Coffee/Juice/Palettes
- Mid-morning Tea/Coffee/Juice/Savoury Snacks
- Buffet Lunch in Magnolia - Chef’s Choice (12:30 - 14:00)
- 1 x Refreshment included with Lunch
- Afternoon Tea/Coffee/Juice/Biscuits
- Water, Milks, Pens, Paper
- Parking
- Venue Hire included
- Wi-Fi, Screen, Data Projector, Flipchart, and Markers
- PA System & Microphone included

**Rates are inclusive of VAT**

**TOTAL**  R82 250.00

### TERMS & CONDITIONS

The Sheraton Pretoria Hotel reserves the right to change its rates without prior notification, to review rates and conditions offered in this quotation in instances where full disclosure on the conference/group booking is not given, examples being - name of conference, type of conference, number of overall delegates attending the conference, specific dates, etc.

Venues are subject to availability. The allocation of a suitable venue for the event is to the discretion of the hotel.

Should you require me to reserve a venue on your behalf, kindly forward me written confirmation as soon as possible whereupon a contract and payment details will be sent to you. Please note that we work on a live system and availability changes on a daily basis.

Please note that no venue or rooms have been blocked off on your behalf and this quote is only valid for 48 hours.

### CANCELLATION POLICY

Between 60 to 31 days prior to arrival, a charge of 50% of the contracted value will be levied.
Between 30 to 15 days prior to arrival, a charge of 75% of the contracted value will be levied.
Between 14 to 0 days prior to arrival, a charge of 100% of the contracted value will be levied.

(Full Cancellation Policy will be sent with the contract)

If you have any questions please call: Conferencing: +27 12 429 0909
December 4th, 2019

To Whom it May Concern,

We estimate that the monthly proportion of the Altice Business bill that will be charged to the CCHF grant for communication and internet access is $333.33.

Sincerely,

[Signature]

Human Resources and Office Manager

walsh@ecohealthalliance.org

212-380-4477
ECOHEALTH ALLIANCE

Usage From: 10/01/19 - 10/31/19

Important Messages:

New! Call Recording is now available for Business Hosted Voice services. Contact your Account Executive for details.

New York Sales Tax Breakdown For Our Common Bundles
Internet/Voice Bundle
66% of the total charge is attributable to Internet access service and 34% is attributable to voice service. For purposes of calculating the NY sales tax, 24.5% of the voice fee is attributable to interstate/international service.

Toll Free Bundle or Audio Conference Bundle
For purposes of calculating the NY sales tax, 76% of the fee is attributable to interstate/international service.

Enterprise Voice Bundle
For purposes of calculating the NY sales tax, 24.5% of the fee is attributable to interstate/international service.

To contact Altice Business, please call (866) 611-3434 or (516) 803-6000, or feel free to e-mail us at Care@AlticeUSA.com

Enhanced Caller IDI
Altice Businesses newest enhancement is now included in Altice Business Voice services at no additional cost. Not only do we help take the guesswork out of who?'s calling you, but now we can help detect robocalls too.

Visit the Customer Portal
View your invoice, service inventory, pay online, see Call Detail reports and more. Simply go to portal.alticebusiness.com. New access is available through the Request Access button. In person payments can no longer be accepted.
**TAXES AND SURCHARGES:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$23.69</td>
</tr>
<tr>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>$11.00</td>
</tr>
<tr>
<td></td>
<td>$24.90</td>
</tr>
<tr>
<td></td>
<td>$24.00</td>
</tr>
<tr>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

**TOTAL SERVICE CHARGES:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11/01/2019 - 11/30/2019</td>
</tr>
<tr>
<td></td>
<td>11/01/2019 - 11/30/2019</td>
</tr>
<tr>
<td></td>
<td>11/01/2019 - 11/30/2019</td>
</tr>
<tr>
<td></td>
<td>11/01/2019 - 11/30/2019</td>
</tr>
</tbody>
</table>

**SERVICES:**

- DID Reserve (20 Numbers - 3 Yr)
- Primary Rate Interface - ISDN
- Managed Router
- 100MB/50C Internetvoice Bundle

10/22/2019 Payment. Thank You

**PAYMENTS, CREDITS AND ADJUSTMENTS:**
Ibex Pro GPU

Base Price

- Ubuntu Server 18.04 LTS (64-bit)
- 1x 20 Cores Gold 6230 (2.1 up to 3.9 GHz - 40 Threads - Max memory speed 2933 MHz) $2,229.00
- 1x 512 GB Quad Channel DDR4 @ 2933 MHz (8x 64GB) $2,699.00
- 1x 20 Cores Gold 6230 (2.1 up to 3.9 GHz - 40 Threads - Max memory speed 2933 MHz) $2,519.00
- 1x 512 GB Quad Channel DDR4 @ 2933 MHz (8x 64GB) $2,029.00
- 1x 4,332 Cores 11GB GeForce RTX 2060 Ti with 4332 CUDA Cores $1,329.00
- 1x 2 TB NVMe Install on PCI SSD
- 1x 16 TB HDD 7200 RPM (8x 2TB) $2,759.00
- 10 Gb Dual Port Ethernet Network Adapter (Included)
- Limited 1 Year Labor and 3 Year Parts Warranty

This product is custom built and non-cancellable, non-refundable.

Product total: $20,263.00
New York–New Jersey Information Office

Consumer Price Index Overview Table – New York-New Jersey

Consumer Price Index for All Urban Consumers, all items, in the U.S., Northeast, Middle Atlantic, and a metropolitan area, not seasonally adjusted
(1982-84=100 unless otherwise noted)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. City Average</td>
<td>[ ]</td>
<td>251.107</td>
<td>256.759</td>
<td>257.346</td>
<td>2.4</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Northeast region(1)</td>
<td>[ ]</td>
<td>265.139</td>
<td>270.563</td>
<td>270.348</td>
<td>2.2</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Northeast City Size Class (population)</td>
<td>[ ]</td>
<td>268.112</td>
<td>274.058</td>
<td>273.930</td>
<td>2.0</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>A (greater than 2,500,000)</td>
<td>[ ]</td>
<td>156.258</td>
<td>159.106</td>
<td>158.912</td>
<td>2.5</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>B/C (2,500,000 or less)</td>
<td>[ ]</td>
<td>101.578</td>
<td>103.535</td>
<td>103.518</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Middle Atlantic(2)</td>
<td>[ ]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metropolitan area</td>
<td>[ ]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York-Newark-Jersey City</td>
<td>[ ]</td>
<td>273.641</td>
<td>279.338</td>
<td>279.255</td>
<td>1.9</td>
<td>1.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Footnotes
(2) The Middle Atlantic division includes New Jersey, New York, and Pennsylvania.

Source: Consumer Price Index
The Consumer Price Index (CPI) measures changes in prices of all goods and services purchased for consumption by urban households.
KCRI Budget Justification

A. Senior Personnel

We request a total of $3,000 to support Key Personnel over the five years of the proposed project. Co-PI, Epidemiologist, will commit 1.2 months per year. We request salary of $6,000 in Year 1. Co-PI [REDACTED] is the Research Director of KCRI and holds a PhD in Public Health and Epidemiology. Co-PI [REDACTED] will contribute to the study design, lead the implementation of field work with human subjects and the laboratory analysis of human samples, provide training and mentorship, develop policy recommendations and facilitate collaboration with stakeholders.

B. Other Personnel

We request a total of $2,400 to support Other Personnel over the five years of the proposed project.

Technicians. We request $2,000 per year in Y1-2 for a laboratory technician, who will commit 1 month per year to aliquot the serum samples that come in from the field and store them. Laboratory technician will increase the time commitment to 2 months per year, and laboratory technician will be hired committing 12 months per year, for which we are requesting $12,000.

Nurses. We request $4,000 over the five years of the project for two nurses. In Y1-2, we request support for a nurse who will commit 1 month per year at a rate of $6,000 per month. We estimate that $12,000 will pay for blood samples from participants in the serosurvey (Task 2). In Year 1 of the project, we will hire a nurse who will commit 2 months for the year in order to collect blood samples for the incidence study.

Administrator. We request $2,400 in Y1 to support a Program Administrator, who will assist Co-PI [REDACTED] in the administration of the project. We request a total of $12,000 over the five years of the project.

Anthropologist/Epidemiologist. We request $600 for an Anthropologist/Epidemiologist, with a 3% increase in subsequent years, who will commit 12.0 months Y1-2, 6 months in Year 1 of the project, and 6 months in Year 3 to contribute to the development of the serosurvey and incidence studies, field data collection and data analysis.

We request $10,500 over the five years of the project to support a Finance Specialist, who will commit 84 months per year for Y1-5. The Finance Specialist will work with project staff to ensure timely invoicing for all program expenses.
D. Travel

We request $3,500, with a 3% annual increase, for travel. This will cover a travel stipend of $35 per day for 100 days in each of Y1 and Y2 for the original serosurvey and 15 days in Y1 for the incidence study while they are working in the field. We request $18,000 over the five years.

E. Participant Support Costs

We request a total of $1,800 for a CCHFV Diagnostics Training Workshop Y3 of the project. We will host a workshop to train participants from local and national public health laboratories to conduct CCHFV ELISA and PCR testing as well as to understand the importance of including CCHFV as a differential diagnosis.

F. Other Direct Costs

We request a total of $8,000 for other direct costs over the five years of the proposed project. We request $2,400 for the storage of samples in Y1 of the project, and an increase of 5% in each subsequent year for a total of $13,166 over the five years of the project. We request $14,000 for laboratory access and utilization for the processing of human IgG ELISA samples in Y3 of the project, and an increase of 5% in Y4 for a total of $29,000 over the five years of the project. There is a separate cost to perform the tests, for which we request a total of $42,656. $10,000 in Y3 to perform 800 tests and $31,991 in Y4 to perform 2400 tests all at a cost of 30,000 Tanzanian Shilling, or $13.33 USD, per test.

H. Indirect Costs

We request a total of $4,000 in overhead, a rate of 10% per year, over the five years of the proposed project.
<table>
<thead>
<tr>
<th>Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>Pg. 2</td>
</tr>
<tr>
<td>Laboratory Access and Utilization</td>
<td>Pg. 3</td>
</tr>
<tr>
<td>Sample Storage</td>
<td>Pg. 4</td>
</tr>
<tr>
<td>Venue Cost</td>
<td>Pg. 5</td>
</tr>
<tr>
<td>Testing Costs</td>
<td>Pg. 6</td>
</tr>
<tr>
<td>Participant Support Cost Travel</td>
<td>Pg. 7</td>
</tr>
</tbody>
</table>
Dear Melinda Rosta

I am writing to confirm the salaries mentioned in Cremaan Congo Hemorrhagic Fever study for KCRI personnel as listed below.

<table>
<thead>
<tr>
<th>Personnel-KCRI</th>
<th>Annual salary</th>
<th>Monthly salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientist – Local PI</td>
<td>$60,000.00</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>Senior- Lab Technician 1</td>
<td>$24,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Lab Technician 2</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Lab Technician 3</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Nurse 1</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Nurse 2</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Administrator</td>
<td>$24,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Anthropologist/epidemiologist</td>
<td>$24,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Scientist 2 -Veterinary</td>
<td>$30,000.00</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>Scientist 3-Physician</td>
<td>$30,000.00</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>Finance</td>
<td>$30,000.00</td>
<td>$2,500.00</td>
</tr>
</tbody>
</table>

CPA(T)
Chief accountant - KCRI
Laboratory Access/Rental Fee

TO: ...........................................
...........................................
...........................................

INVOICE

<table>
<thead>
<tr>
<th>S/N</th>
<th>DESCRIPTION</th>
<th>AMOUNT (TSHS/US$EU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUB TOTAL

TOTAL

Amount in words

BANK DETAILS:
BANK NAME: ..............
ACCOUNT NAME: ...........
ACCOUNT No. ............
BRANCH: .................
SWIFT CODE: ............
SORT CODE: .............
Sample Storage Fee

TO: ..........................................................

Kilimanjaro Clinical Research Institute
Academic Centre for Evidence Based Health Interventions
Institution of the Good Samaritan Foundation
P.O. Box 2236
KCRI-KCMC
MOSHI
Tel: +255(27)2754201
Fax: +255(27)2753368
Email: kcriadmin@kcri.ac.tz
Website: www.kcri.ac.tz

INVOICE

<table>
<thead>
<tr>
<th>S/N</th>
<th>DESCRIPTION</th>
<th>AMOUNT (TSHS/US$/EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUB TOTAL

TOTAL

Amount in words

BANK DETAILS:

<table>
<thead>
<tr>
<th>BANK NAME:</th>
<th>ACCOUNT NAME:</th>
<th>ACCOUNT No.:</th>
<th>BRANCH:</th>
<th>SWIFT CODE:</th>
<th>SORT CODE:</th>
</tr>
</thead>
</table>

(0)(0)
Serial No: 1338

Venue Fee for Workshop in Y3

TO: ..............................................................
.......................................................................
Dear Dr. Melinda Rostal,

I am writing to confirm the agreed upon testing and travel costs for the Crimean-Congo Hemorrhagic Fever: Reducing an Emerging Health Threat in Tanzania Project.

We have agreed to a fee of $13.33 per ELISA.

We have agreed to use the travel rate of $35 per day for our nurse while in the field.

Sincerely,

[Signature]

CPA
Chief accountant – KCRI
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>BALANCE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Salary</td>
<td>3,360,000.00</td>
<td></td>
</tr>
<tr>
<td>PSSSF</td>
<td>-168,000.00</td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td>-809,460.00</td>
<td></td>
</tr>
<tr>
<td>Nat'l Health Ins Fund: Employee</td>
<td>-100,800.00</td>
<td></td>
</tr>
<tr>
<td><strong>NET AMOUNT DUE</strong></td>
<td>31/10/2019</td>
<td>2,281,740.00</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>BALANCE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Salary</td>
<td></td>
<td>1,490,000.00</td>
</tr>
<tr>
<td>Health &amp; Life Sickness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td></td>
<td>74,000.00</td>
</tr>
<tr>
<td>Medicare Fund Employer</td>
<td></td>
<td>256,500.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>444,480.00</td>
</tr>
<tr>
<td>NET AMOUNT DUE</td>
<td></td>
<td>1,041,020.00</td>
</tr>
</tbody>
</table>
One Health Coordination Desk (OHCD-PMO) Budget Justification

A. Senior Personnel

We request a total of S$14,000 to support Key Personnel over the five years of the proposed project.

Research Scientist, Molecular Epidemiologist, will commit 0.5 months per year for which we request salary support of S$21,000 in Year 1, with a 3% increase per annum (p.a.). The Animal Health Focal Person at the Ministry of Livestock and Fisheries will join meetings, assist with keeping the government ministries apprised of our activities, contribute to the development of the epidemiological plan as well as facilitate communication to stakeholders. In order to prepare for and facilitate the policy workshop and CCHF Symposium, time will increase in Year 2 for a total of S$7,200 over the five years of the project.

Research Scientist, Public Health Specialist, will commit 0.5 months per year for which we request salary support of S$23,000 in Year 1, with a 3% increase p.a. Dr. [Redacted] is the Animal Health Focal Person at the Ministry of Livestock and Fisheries. OHCD will join meetings, assist with keeping the government ministries apprised of our activities, contribute to the development of the epidemiological plan as well as facilitate communication to stakeholders. In order to prepare for and facilitate the policy workshop and CCHF Symposium, time will increase to 1.0 months per year in Year 2 for a total of S$7,200 over the five years of the project.

D. Travel

We request a total of S$3,185 to support local travel for them in Tanzania over the five years of the proposed project.

We request $600 in Y1 so that both [Redacted] and [Redacted] may attend project meetings held in Tanzania and take other meetings to improve One Health stakeholder relationships.

Travel expenses will increase at a rate of 3% per year over the five years of the project.

H. Indirect Costs

We request a total of S$3,500 in overhead over the five years of the project. The rate of overhead will be 10% each year, starting with S$110 in Y1.
1. Salaries
   • (b)(6) Project Manager
   • Virologist
   • Virologist
   • Technician
   • Technician

2. Other Direct Costs (excluding facilities)
   • International Travel, London to Dar es Salaam, Tanzania
   • Materials and supplies
   • Sample shipment

3. Appendix 1
   • Screen shot of international travel, London to Dar es Salaam, Tanzania

4. Indirect cost rate

5. Rate agreement

6. Facilities cost
   • Overall cost
   • Cost allocation for BSL-4 laboratory
Date: 4th November 2019

Melinda Rostal DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance
Rift Valley Fever Virus Project Manager
EcoHealth Alliance
460 West 34th Street – 17th Floor
New York, NY 10001

Dear Melinda

Salary confirmation for DTRA CCHF Grant

I hereby confirm that the current per annum salary of our key personnel as of today’s date is as follows:

<table>
<thead>
<tr>
<th>Salary</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>£66,609.96</td>
</tr>
<tr>
<td>2</td>
<td>£94,889.04</td>
</tr>
<tr>
<td>3</td>
<td>£75,891.24</td>
</tr>
<tr>
<td>4</td>
<td>£56,501.28</td>
</tr>
<tr>
<td>5</td>
<td>£53,813.64</td>
</tr>
</tbody>
</table>

Above salaries include oncosts (NI & Pension). Please note the above salaries are subject to annual inflation.

Yours Sincerely

[Signature]

Senior Finance Manager
Date: 4th November 2019

Melinda Rosta, DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance
Rift valley Fever Virus Project Manager
EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

Dear Melinda,

PHE Other Direct Costs (exc. Facilities) confirmation for DTRA CCHF Tanzania grant:

PHE have cost 6,600 (which converted $7,119 in original justification) for materials and supplies to conduct 100 CCHFV virus neutralization assays to confirm the positive ELISA results on the wildlife samples.

This budget is broken down as follows:

1. Travel budget £1500
   This would be for senior PHE scientist to attend meeting in the field in Tanzania. The costing is based on a projected flight cost of approx. £800 (see Appendix 1- page 3) with the remainder for travel to/from airports and accommodation and sustenance. PHE involvement would be in 2023/24 so it is not possible at this moment to forecast accurate costs for these items but any shortfall in budget will be covered by PHE.

2. Materials and supplies £3600
   Agreed with to supply 100x CCHF virus neutralisation tests for £36 per test.
   Materials include CCHF antibodies, IgG, cells and general laboratory consumables.

3. Postage of samples
   Samples would be taken from the field laboratory and shipped on dry ice under UN packing code 3373 to PHE Porton Down site. The quotation provided by Dangerous Goods International for each delivery would be £525.60.

This postage cost is £1051.20.
The grand total for all other direct cost would be £6119.34. The costs of the items are based on the current prices. The reason to request the additional £480 is to cover the inflationary costs over the 4 years between now and when we anticipate activity to start.

Your Sincerely,

Senior Scientific Project Manager
Tel: 
Email:
Select your departure to Dar es Salaam Sat, Apr 11

Prices are roundtrip per person, include all taxes and fees, but do not include baggage fees.

**1 Stop** • Arrival Time - Afternoon (12:00pm - 5:59pm) • LGW (London) •

**Sort & Filter**

**Sort by**

- Price (Lowest)

- **Stops**
  - 1 Stop (31) • $850
  - 2+ Stops (70) • $717

- **Airlines included**
  - From: Details & baggage fees

**Schedule**

- **LGW** • 9:45pm - 2:40pm +1
  - Emirates
  - Very Good Flight (8.2/10)
  - Details & baggage fees

- **LGW** • 10:00am - 2:40pm +1
  - Emirates
  - Poor Flight (4.2/10)

- **LGW** • 14h 55m (1 stop)
  - LGW - 2h 40m in DXB - DAR

- **LGW** • 26h 40m (1 stop)
  - LGW - 14h 15m in DXB - DAR

**Fare**

- $1,066 roundtrip

---

**Multiple Options**

- Roundtrip
- One Way
- Multi-city

- London, England, UK (LON) • Dar es Salaam, Tanzania (DAR)

- 04/11/2020 • 04/18/2020

---

1 Traveler, All Airlines, Economy / Coach Show options
Date: 4th November 2019

Melinda Rostal DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance
Rift valley Fever Virus Project Manager
EcoHealth Alliance
450 West 34th Street – 17th floor
New York, NY 10001

Dear Melinda,

PHE Briefing Note on current agreements and submissions with DCAA and DCMA for DTRA
CCHF Tanzania grant:

PHE have an agreed rate of 37.6% for indirect costs for use on grants, contracts and other
agreements with the Federal Government. This is enclosed with email dated 5th November 2019
(Public Health England RA). Please note this is an increase from the 37.5% rate the original costings
were based upon, the rate has since been updated since the original proposal was submitted.

This agreement was with the US federal government on behalf of the Department of Health and
Human Services. PHE is currently undertaking several contracts funded via US federal agencies
NIAID, BARDA and FDA on a range of projects in the area of infectious disease research.

PHE also have a current submission for US-DTRA FRCWMD funding as follows:

Grant agreement: 12753455
Title: Ecological and Epidemiological Investigation of Crimean-Congo hemorrhagic fever virus
(CCHFV) in Azerbaijan.
This application is in final stage and is still under consideration. The rate of 37.5% indirect costs was
used in the submission.

Your Sincerely,

[Signature Block]

Senior Scientific Project Manager
Tel: [Number]
Email: [Email]
NONPROFIT RATE AGREEMENT

EIN: 1900215920 A1
DATE: 08/05/2019

ORGANIZATION:
FILING REF.: The preceding
Public Health England
agreement was dated
Porton Down, Salisbury
12/06/2017
Wiltshire, England SP4 0JG

The rates approved in this agreement are for use on grants, contracts and other
agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

<table>
<thead>
<tr>
<th>RATE TYPES:</th>
<th>FIXED</th>
<th>FINAL</th>
<th>PROV. (PROVISIONAL)</th>
<th>PRED. (PREDETERMINED)</th>
</tr>
</thead>
</table>

**EFFECTIVE PERIOD**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%)</th>
<th>LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINAL</td>
<td>04/01/2017</td>
<td>03/31/2018</td>
<td>37.80</td>
<td>On-Site</td>
<td>All Programs</td>
</tr>
<tr>
<td>PROV.</td>
<td>04/01/2018</td>
<td>03/31/2021</td>
<td>37.80</td>
<td>On-Site</td>
<td>All Programs</td>
</tr>
</tbody>
</table>

**BASE**

Total direct costs excluding capital expenditures (buildings, individual items
of equipment; alterations and renovations) and subawards.
SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

Fringe benefits applicable to direct salaries and wages are treated as direct costs.

TREATMENT OF PAID ABSENCES

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

In accordance with HHS Grants AAGAM, Part 3.01.101, no indirect cost is awarded on grants from the Department of Health and Human Services.

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or $5,000.

Your next proposal for fiscal year ending 03/31/2019 is due in our office by 09/30/2019.
SECTION III: GENERAL

A. LIMITATIONS:
The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its indirect cost pool, as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The rate costs that have been treated as indirect costs are not claimed as direct costs; (3) Similar types of costs have been recorded consistent accounting standards; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rates would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING DEVICES:
This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes in the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the originating agency. Such changes include, but are not limited to, changes in the classifying of a particular type of cost from indirect to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:
If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by this rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future period to compensate for the difference between the rate used in establishing the fixed rate and actual costs.

D. USE OF OTHER FEDERAL AGENCIES:
The terms in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of this Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:
If any Federal, non-Federal, grant or other agreement is reimbursing indirect costs by a means other than the approved rate(s) in this Agreement, the organization should: (1) credit such costs to the affected programs, and (2) apply the approved rates to the appropriate base to identify the proper amount of indirect costs allocable to these programs.

BY THE INSTITUTION:

ON BEHALF OF THE FEDERAL GOVERNMENT:

[Signature]

[Title]

(Date)
Date: 4th November 2019

Melinda Rostal DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance
Rift valley Fever Virus Project Manager
EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

Dear Melinda,

PHE Facilities cost confirmation for DTRA CCHF Tanzania grant:

PHE have cost £5,896 for two weeks use of the high containment biosafety level 4 laboratory at PHE Porton Down site. The standard laboratory rental rate is set at £2948 per week for this laboratory.

The laboratory recharges are generated from a model that allocates a cost based on the specific lab or portion of a lab for the specific time period of use. The cost is a proportion of the total costs of the site allocated to the labs based on the weighted cost of subjective headings.

Table 1 (overleaf, page 2) shows a breakdown of the percentage cost allocations to each heading.

Your Sincerely,

[Signature]

Senior Scientific Project Manager
Tel: [Number]
Email: [Email]
Table 1. Cost allocations for PHE High Containment BSL-4 laboratory

<table>
<thead>
<tr>
<th>Item</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCOR base contract</td>
<td>44.12</td>
</tr>
<tr>
<td>Equip Rep &amp; Maint</td>
<td>24.40</td>
</tr>
<tr>
<td>Other - Engineering services</td>
<td>14.61</td>
</tr>
<tr>
<td>Telecom charges</td>
<td>-</td>
</tr>
<tr>
<td>Rates</td>
<td>0.34</td>
</tr>
<tr>
<td>Gas Building 1</td>
<td>0.16</td>
</tr>
<tr>
<td>Gas Incinerator</td>
<td>-</td>
</tr>
<tr>
<td>Gas Process load / autoclave</td>
<td>6.09</td>
</tr>
<tr>
<td>Electricity share 1</td>
<td>0.55</td>
</tr>
<tr>
<td>Electricity share 2</td>
<td>0.47</td>
</tr>
<tr>
<td>Oil</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>0.20</td>
</tr>
<tr>
<td>Accom hire</td>
<td>-</td>
</tr>
<tr>
<td>Waste Disposal</td>
<td>-</td>
</tr>
<tr>
<td>SubCont Fac Mgt</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
</tr>
<tr>
<td>Security</td>
<td>-</td>
</tr>
<tr>
<td>Soft Services Mgt</td>
<td>-</td>
</tr>
<tr>
<td>Capital Proj Mgt</td>
<td>2.36</td>
</tr>
<tr>
<td>FM Engineering</td>
<td>3.16</td>
</tr>
<tr>
<td>Site Mgt</td>
<td>-</td>
</tr>
<tr>
<td>Dep Alloc</td>
<td>-</td>
</tr>
<tr>
<td>Dep Site</td>
<td>0.40</td>
</tr>
<tr>
<td>Dep MB</td>
<td>2.34</td>
</tr>
<tr>
<td>Dep all but MB</td>
<td>-</td>
</tr>
<tr>
<td>Incinerator</td>
<td>0.50</td>
</tr>
<tr>
<td>Site share costs</td>
<td>0.28</td>
</tr>
<tr>
<td>Total charge</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Note: EMCOR are our Facilities managers
Public Health England-Porton Down Budget Justification

A. Senior Personnel
We request a total of $\text{S}$ to support Key Personnel (KP) during the project. Research Scientist, Virologist will commit 0 months in OY2 of the project. KP will engage with project partners, supervise and collate scientific reporting from PHE. We request a total of $\text{S}$.

B. Other Personnel
We request a total of $\text{S}$ to support Other Personnel during the proposed project.

Technicians. Two CL4 laboratory will commit 1 month each in OY2 in order to confirm 100 wildlife samples using virus neutralization assays. CCIFV is a Hazard Group 4 pathogen necessitating work with infectious substances to be carried out at Containment Level 4, and the UK operates a dual worker or buddy system for all laboratory work with HG4 pathogens. We request $\text{S}$ per month for a total of $\text{S}$ for both.

Project Manager. The project manager will commit 0.5 months in OY2 in order to manage staff and ensure efficient project progress. We request $\text{S}$ in OY2. The project manager will also set up DEFFRA license applications for sample transport and liaise with colleagues in Tanzania on sample details.

F. Other Direct Costs
We request a total of $\text{S}$ for direct costs during the project.

Materials and Supplies
We will conduct 100 CCIFV virus neutralization assays to confirm the positive ELISA results on the wildlife samples, as this has not previously been assessed for this multispecies commercial ELISA. We request $\text{S}$ in OY2 to conduct the testing.

Facility Rental
CCIFV is a Hazard Group 4 pathogen necessitating work with infectious substances to be carried out at Containment Level 4. We request $\text{S}$ in OY2 to support the use of the CL-4 laboratory for 2 weeks in order to complete the testing indicated above.
H. Indirect Costs

We are requesting the federally agreed indirect cost of ___% of all direct costs during the project. We request $______ in FY2.
Key Personnel

We request a total of $13,273 to support Key Personnel over the five years of the proposed project.

Research Scientist, Disease Ecologist, will commit 1.0 months per year. We request salary of $2,444 in Year 1, with a 5% increase for Y2-Y5, respectively. As Chief Research Officer who holds a PhD in ecosystem and population health, specifically on disease ecology, will support the wildlife sampling team, create the animal epidemiological study design, implementation and analysis and facilitate communication with stakeholders.

Other Personnel

We request a total of $4,400 to support Other Personnel over the five years of the proposed project. Be paid $60 per day for food, accommodation, and will be working for 0 days ($60 x 0 days) for a total of $7,200, for Year 1 and Year 2 of the project.

Travel

We request a total of $1,590 to support international travel over the five years of the proposed project, with $360 in Y1. International travel expenses will increase at a rate of 5% per year throughout the project.
Melinda Rostal DVM, MPH  
Senior Research Scientist  
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance.  
Rift Valley Fever Virus Project Manager.  
EcoHealth Alliance.  
480 West 34th Street – 17th floor.  
New York, NY 10001  

Dear Melinda.  

RE: SALARY FOR DR. JULIUS D. KEYYU AND SUBSISTENCE (NIGHT OUT) ALLOWANCE DURING FIELD WORK  

Please refer to the above heading and also to communications regarding implementation of the Cnmean Congo Haemorrhagic Fever (CCHF) project  

The Tanzania Wildlife Research Institute (TAWIRI) is a parastatal organisation under the Ministry of Natural Resources and Tourism (TAWIRI) established by Act. No. 4 of 1980 of the Parliament (CAP 260 R.E. 2002), with the mandate to conduct, promote and oversee wildlife research in Tanzania.  

This letter is to confirm that the monthly salary of Dr. Julius D. Keyyu is Five Million Eighty Hundred and Eight Thousand Tanzanian Shillings (TZS 5,808,000/=), and that the rate for daily subsistence (night out) allowance during field work as per the Government is TZS 120,000 (USD 60) per day to cater for accommodation and food.  

Do not hesitate to contact me in case you need any clarification.  

Yours sincerely,  
Tanzania Wildlife Research Institute  

FOR: DIRECTOR GENERAL  

TAWIRI is responsible for the coordination of all wildlife research in Tanzania.
TVLA Budget Justification

A. Key Personnel

We request a total of $ to support Key Personnel over the five years of the proposed project. Co-PI, Entomologist, will commit 1 month per year. We request salary of $30,614 in Year 1 with a 3% increase for Y2–Y5, respectively. Her time increase in Y3 to 60 months in order to support the testing of samples in the TVLA laboratory. Co-PI is the Chief Executive of TVLA and holds a PhD in medical entomology. Co-PI will conduct or supervise the identification and diagnostic testing of animals and ticks, oversee the design, implementation and analysis of the animal study and facilitate communication with stakeholders.

B. Other Personnel

We request a total of $23, to support Other Personnel over the five years of the proposed project.

Laboratory Technicians.

There will be three technicians, who will commit 6 months per year in Y1 and Y2 to assist with the installation of the equipment purchased for the TVLA laboratory in Arusha (e.g. generator for the building, an ultrafreezer – see EcoHealth Alliance Y1 part C for a full list of items to be installed), for which we are requesting $ . Salaries will increase 3% in subsequent years. They will commit to months for Y3 in order to assist with the diagnostic testing of samples. For this we are requesting $ over the five years of the project. During Year 3 we will hire three additional technicians to conduct the diagnostic testing of samples and tick identification. This includes one ELISA technician and one PCR technician that will be based in Arusha and who will commit 12 months per year for Y3 to assist with sera and ticks, respectively, for which we request $ 00 per technician . The technician hired to identify ticks will be contracted for 12 months from the TVLA lab in Tanga, for which we request .

D. Travel

We request a total of $ to support travel over the five years of the proposed project.

In order to complete the tick identifications in Y3 of the project, we request $ 0 that will cover 15-day trips to Arusha. Transportation is calculated at $50 per day ($50/day x trips $ 00) and overnights are calculated at an average cost of $ per day , for trips of days each ($ /day x days x trips = $ ). Co-PI will require one trip per year during Y1, Y2, Y4, and Y5 for project meetings and to visit stakeholders, calculated at $50 per day for transportation, and $ per day for days of field visit ($1 per day). During Y3 when there is active laboratory work and tick identifications ongoing, co-PI will make trips to visit the laboratory in Arusha.
E. Participant Support Costs

We request a total of $1,800 for a CCHF Diagnostics Training Workshop held at TVLA during Y3 of the project. These funds will be used to support the travel costs of attendees during the 5-day workshop.

F. Other Direct Costs

We request a total of $13, for other direct costs over the five years of the proposed project. We request $123,89 for testing during Y3 of the project, including PCR testing and serology. We request $30,656 for testing covering 1,200 cattle samples, 1,800 small mammal samples and 200 wildlife samples, at a discounted rate of $9.58 (the rate is discount as the University of Glasgow is providing the multispecies ELISA kits for analysis). We request $93,238 for testing covering 200 wildlife samples and 3296 tick pools, at a cost of $60,000 Tanzanian Shilling, or $26.87 USD, per test.

We request $10,30 over the five years of the project for supplies. There will be a cost of $2,000 each year in fuel for the generator to maintain samples (which will begin to be collected in Year 1) at ~80°C during power outages. In Y3 only, we request $30 for a 100 pack of 20 mL Petri dishes.

H. Indirect Costs

We request a total of $19, of overhead, a rate of 10% per year on other direct costs, over the five years of the proposed project.
Budget Documentation – Tanzanian Veterinary Laboratory Agency

1. Salaries, Travel, ODCs, ......................................................................................................................2
   • Salaries
     i. Medical Entomologist
     ii. Other Personnel: General Laboratory Technician
   • Travel
     i. Tanzanian Government per diem
     ii. Travel to Arusha from Dar es Salaam
   • Other Direct Costs
     i. Testing breakdown
     ii. Generator usage and cost breakdown

2. Other Direct Costs ..........................................................................................................................3
   • Supplies: Petri dishes
   • Generator shelter cost estimate
Dear Dr. Melinda,

**RE: CONFIRMATION AND JUSTIFICATION OF THE TVLA BUDGET**

Senior Personnel.

A Co-PI, and a Medical Entomologist, will commit 1 month per year. Her monthly salary is documented below and is approximately $3,000 in Year 1, with a 3% increase for Y2-OY2, respectively.

Other Personnel:

The average salary for a general laboratory technician at TVLA Laboratory in Arusha is $450 per month or $5,400 per year.

**Travel**

We confirm that the *Tanzanian Government Rate per night* is $55 and transportation to Arusha is $50.

**Other Direct Costs**

TVLA Arusha has agreed to the following diagnostic assay table for the CCHF project.

<table>
<thead>
<tr>
<th>Assay</th>
<th>Number of Samples</th>
<th>Cost per Assay</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELISA</td>
<td>3200</td>
<td>$9.58</td>
<td>$30,656</td>
</tr>
<tr>
<td>PCR</td>
<td>3,496</td>
<td>$26.67</td>
<td>$93,238</td>
</tr>
</tbody>
</table>

We estimate that we will need the generator for 26.6 hours per month ($1.25/L*5 hours/L*26.6 hours/month*12 months/year = $2000). In Y3 only, we request $300 for a 100 pack of 20 mL Petri dishes.

Grateful if this request will be considered
Faithfully yours,

[Signature]

**DIRECTOR OF FINANCE AND ADMINISTRATION – TVLA**

05/11/2019
## Cart

**Account:** 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisherbrand™ Petri Dishes Specialty Catalog number FB0875711 Type: Deep Dish, Size: 100 x 25mm</td>
<td>$160.00 / Case of 325</td>
<td>2</td>
<td>$320.00</td>
</tr>
</tbody>
</table>

In Stock (2) - Estimated delivery 12/03/2019

### Order Summary

- **Subtotal:** $320.00
- **Shipping and Handling:** $26.39
- **Shipping fuel surcharge:** $4.45
- **Shipping charge:** $21.94
- **Estimated Tax:** $0.00

*Extra charges may apply for products that require special services.*

**Generate a Web Quc**

View All Quotes | What's this? | missing translation for 'faq'

1 of 1 12/2/19, 9:17 AM
TANZANIA VETERINARY LABORATORY AGENCY
P.O.Box 1068 ARUSHA.

Being cost for the USD 1,500.00
construction of a generator shelter
at TVLA, Arusha.

USD 1,500.00

1,500.00
University of Glasgow (UoG)

A. Senior Personnel

We request a total of $S$ to support co-PI/Key Personnel (KP) over the five years of the proposed project.

Co-PI, will commit 1.2 months (mo.) per annum (p.a.) for all five years, with an increase of approximately (allowing for exchange rates) 3% annually. We request $S$ in Y1 and $S9$, 6 total. Co-PI will provide key support and oversight for the field epidemiological studies by contributing to the design and implementation of the field study, liaising with partner institutions and stakeholders in Tanzania and linking with policy makers at national, regional and international levels for the dissemination of findings and development of guidelines.

PhD, Research Scientist, Virological, will commit 0.6 mo. p.a. for all five years with an increase of approximately 3% annually. We request $S$ in Y1 and $S9$, for all five years. Key Personnel will provide oversight, support and training for CCHFV serological and molecular analyses and will coordinate activities with collaborating laboratories (Public Health England, Pirbright Institute).

B. Other Personnel

We request a total of $S$ to support Other Personnel over the five years of the proposed project.

Technician, a full-time laboratory technician based in Key Laboratory will commit 3 mo. per year in Y1-2 and OY1. We request $S5$ in Y1 and a 4% increase annually. The technician will commit 12 mo. per year in Y3 and OY1 as the incountry laboratory work will be conducted during these two years. We request $S6$ in Y3, totalling $S9$ across all five years. The laboratory technician will support the laboratory analyses, including optimisation of assays, and establish laboratory diagnostic capacity in Tanzania.

Administrator, will commit 1.2 months p.a. for all five years with an approximately (allowing for exchange rates) 3% increase annually. We request $S5$ in Y1 and a total of $S9$ for all five years. A highly experienced international project manager, will provide support for financial management and reporting, sub-contracts and agreements, ethical clearance, procurement and shipment of supplies.

D. Travel

We request a total of $S3$ for international travel across all five years.

We request $S$ per year for either co-PI or the laboratory technician in Y1-OY1. Each trip is estimated $S5$. Additionally, we request $S$ per year.
In OY2 we request a trip for KP Willett.

We request 500 in Y3 for research visas. We request a permit for the technician in Y1 to assist with the installation of capacity building equipment at TVLA, 2 permits per year in Y2. OY1 for the technician and co-PI and one permit in OY2 for co-PI.

We request 250 in Y1 with a 3% increase across all years.

E. Participant Support Costs

We request 500 in Y3 for travel subsistence costs for participants ($5 per day x 5 days x 10 participants x 2 trainings). Costs for the UoG trainer are covered by travel costs.

F. Other Direct Costs

We request a total of 600 in other direct costs across the 5 years.

In Y1 and OY1 we request 500 for the shipment of samples from Tanzania to the University of Glasgow. This is for quality assurance of assays carried out in Tanzania and based on recent estimates for similar shipments provided by researchers within this laboratory performing similar experiments to those in the project. These costs were extracted from the University of Glasgow purchasing system Agroso.

Including antibody reagents, secondary antibody conjugates, specific control sera, buffers, blocking agents and substrates for ELISA. This will produce sufficient reagent to...
facilitate ELISA analyses at KCR1, UoG and the laboratories participating in the workshops. The same funds will be used to purchase CCHF Multispecies ELISA kits (e.g. animals can be tested per kit) at the end of Y2 for analyses at TVLA on the 3,200 animal samples in Y3 and a contingency of kits sufficient to process an additional 1000 samples in each of Y4 and Y5 for confirmatory analyses and assay validation at UoG. Thus, we request a sufficient number of kits to test 5,000 samples over the three years.

- cell culture plasticware/media for the synthesis and purification of recombinant antigens (for the human ELISA) - culture flasks, plates, media and supplements, ELISA plates, plate sealers, reservoirs, pipettes, tips and tubes. This includes using pre-cast polyacrylamide gels, buffers and supplies for the IEF transfer system, Sarstedt tubes and storage boxes for sera.
- for molecular biologicals, nucleic acid purification kits, restriction enzymes and kits for mutagenesis and sequencing for vector preparation and cloning, and transfection. Also included in this category are preparing primers and probes for viral detection by real-time PCR for TVLA to use, confirmatory testing primers for sub-cloning and mutagenesis, and small-scale sequence confirmation of plasmid constructs - general laboratory supplies, including microcentrifuge tubes, plates, petri dishes, fine chemicals.

H. Indirect Costs

We request a total of £43,000 in overhead, a rate of 10% per year on other direct costs, over the five years of the proposed project.

Deleted: also
Deleted: of sufficient
Deleted: (8) 205 per kit * 7 kits = £5,435
Deleted: (4) 851.125 per kit * 3 kits = £3,843.50 and Y5
Deleted: (2 kits = £3,410)
Deleted: 20
Deleted: 15,200.410 - 12 kits * £1,268 - £84,488
Deleted: 
Deleted: This includes
Deleted: We request £3,322 in Y2 to prepare sufficient reagents for KCR1 to begin testing at the start of Y3 and increasing to £3,914 p.a. in Y4 and £4,191 for full production to be used by KCR1, given the laboratories participating in the training and for UoG to confirm the results in 1000 samples.
Deleted: We request £2,539 p.a. (2-001) for
Deleted: and general laboratory costs.
Deleted: 3792
Budget Documentation – University of Glasgow

1) Salaries .......................................................... Pg. 2

2) International Travel ........................................ Pg. 3 - 8
   • Glasgow to Kilimanjaro/Arusha
   • Kilimanjaro/Arusha to Dar es Salaam
   • Glasgow to Dar es Salaam
   • Research Permits

3) Other Direct Costs ........................................ Pg. 9 - 16
   • Shipping Costs
   • Lab Consumables
   • Diagnostics
One Health Approach to Understanding the Epidemiology of Crimean-Congo Haemorrhagic Fever virus in Tanzania

Dear Mindy,

Please see below salary information, as requested by DTRA.

<table>
<thead>
<tr>
<th>Name</th>
<th>Basic Annual Starting Salary</th>
<th>Annual Increment Date</th>
<th>Inflationary Uplift 2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>$130,046</td>
<td>1st August</td>
<td>1st August</td>
</tr>
<tr>
<td>Professor</td>
<td>$100,642</td>
<td>1st August</td>
<td>1st August</td>
</tr>
<tr>
<td></td>
<td>$31,832</td>
<td>1st May</td>
<td>1st August</td>
</tr>
<tr>
<td></td>
<td>$55,644</td>
<td>1st December</td>
<td>1st August</td>
</tr>
</tbody>
</table>

Senior Project Coordinator

College of Medical, Veterinary and Life Sciences
Room 329, Wolfson Medical School Building
University of Glasgow
Glasgow, G12 8QQ

Email
Tel:

Web: http://www.gla.ac.uk/colleges/mvls/

The University of Glasgow, Charity Number SC004401
Flight costs

Trip Summary

Trip Summary

Rates are quoted in US dollars

✈ 64502 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔ Nice Job! You picked one of our cheapest flights.
   Book now so you don't miss out on this price!

Mon, Jan 13

From: Glasgow Intl. (GLA)
To: Kilimanjaro Intl. (JRO)

✈ Qatar Airways

5:20pm  ➔  2:05pm  17h 45m, 2 stops
GLA      JRO  LHR, DOH
Arrives Tue, Jan 14

Show flight and baggage fee details

Mon, Jan 20

From: Kilimanjaro Intl. (JRO)
To: Glasgow Intl. (GLA)

✈ British Airways

3:15pm  ➔  10:50am  22h 35m, 3 stops
JRO      GLA  DAR, DOH, LHR
Arrives Tue, Jan 21

Show flight and baggage fee details

Change flights

Upgrade your flight

Get more comforts and benefits by adding an upgrade.

Kilimanjaro Intl. (JRO) ➔ Glasgow Intl. (GLA)

22h 35m
- Relax while packing! Get free bags.
- Enjoy more flexibility with free cancellation.
- Choose seats at no extra charge.

Show upgrades

Standard Economy
Cabin: Economy/Coach

 учитываются

Included

2 of 4

11/24/19, 1:18 PM
Review your trip

Trip Summary

Trip Summary

Trip Total: $320.45

Rates are quoted in US dollars

✈ 64520 customers protected their flight in the last 7 days. Add flight protection when you check out.

☑ Nice Job! You picked one of our cheapest flights.
   Book now so you don’t miss out on this price!

Mon, Jan 13

From Kilimanjaro Intl. (JRO)
To Julius Nyerere Intl. (DAR)

✈ Hahn Air Systems

Cheapest

7:30am ➔ 1:20pm
JRO DAR
5h 50m, 1 stop
2NZ

Show flight and baggage fee details

Mon, Jan 20

From Julius Nyerere Intl. (DAR)
To Kilimanjaro Intl. (JRO)

✈ PrecisionAir

Cheapest

3:10pm ➔ 4:30pm
DAR JRO
1h 20m, Nonstop

Show flight and baggage fee details

Change flights

Unlock up to 42% off select hotels when you book this flight
Your discount lasts until your trip starts

Important Flight Information

See more

Continue Booking

✈ 64520 customers protected their flight in the last 7 days. Add flight protection when you check out.
Round trip 1 passenger Economy

Glasgow GLA ➔ Dar es Salaam DAR

Sun, Jan 5 ➔ Sat, Jan 11

Bags 1 stop or fewer Airlines Price Times Connecting airports More

Track prices

Departing flights

8:50 PM - 3:00 PM

15h 10m 1 stop

GLA-DAR 1 stop 513 USD

1 longer or more expensive flight
Permit Costs

LOGICAL PRESENTATION OF REQUIREMENTS FOR APPLICATION OF RESEARCH CLEARANCE AND PERMIT AT COSTECH

The objective of the analysis that led to this presentation was to find a much more easier to understand presentation of the requirements to the prospective applicants.

GENERAL REQUIREMENTS: These apply to all applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreigners Affiliated to Local Research and Higher Learning Institutions</th>
<th>Others (Tanzanian, Non Tanzanians, affiliated in a foreign country, affiliated locally, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Detailed curriculum vitae</td>
<td>Required for all involved researchers</td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td>2 Full research proposal</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>3 Sponsor cover letter</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>4 Support letter from local collaborating institution / contact person</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>5 Recommendation letter for endorsement of the proposed research within the institution</td>
<td>Required</td>
<td>Not applicable</td>
</tr>
<tr>
<td>6 Front-page of passport</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>7 Proof of payment non-refundable application fees</td>
<td>50 USD</td>
<td>50 USD</td>
</tr>
<tr>
<td>8 Application form</td>
<td>Required</td>
<td>Required</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR SPECIFIC SCENARIOS

a) Research related to medical, public health, drugs, clinical trials, and wildlife issues require special clearance from relevant authorities i.e National Institute of Medical Research (NIMR) for the study that involves medical, public health and/or human subject (health); Tanzania Food and Drug Authority for Clinical Trials; and Tanzania Wildlife Research Institute (TAWIRI) for the study that involves wildlife and natural resources conservation.

b) In case of joining a new researcher to an on-going research which has already been granted a research permit, a Principal Investigator shall submit a request of research permit for a new member to COSTECH at least 2 months prior to his/her joining the research team with detailed curriculum vitae, clear justification and roles for an additional staff/researcher to the on-going project.

c) It is anticipated that the PI will remain responsible for the entire lifetime of the project, unless circumstances necessitate a change of PI. In such rare situation the head of hosting research institution shall write to notify COSTECH within 6 months since termination of outgoing PI. This will be done in writing explaining the reason for the changes and suitability of a newly identified PI. The letter requesting for amendment, accompanied by an up to date progress report shall be subjected to approval process before continuing with the research. It is the responsibility of the hosting institution to submit the request for change of PI within specified time.

POST CLEARANCE

a) After the research has been cleared, the PI will be notified by email. All FOREIGNERS who then wishes to undertake research activities in the country under the cleared research project will be required to apply for permit by presenting a proof of payment of research permit fees (300 USD) and three passport size photos.
Shipping Costs

Non haz RNA & DNA Samples
University of Glasgow
0516

Conditions:
Validity: This Quote is Valid for 9 Months from the date of issue
Currency: GBP

Terms:
Please note our payment terms are 30 days from the date of invoice unless more restrictive terms are advised during account application. A charge of 0.567% per month will apply to post due balances on a par diem basis.

<table>
<thead>
<tr>
<th>Description</th>
<th>Transport</th>
<th>Packaging, Supply &amp; extra charges</th>
<th>Temperature Monitoring:</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non haz RNA &amp; DNA Samples</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malta / PZA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glasgow / GBR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Via Transfer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>819.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>199.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>329.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>296.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td>Frozen (Dry Ice)</td>
<td>2,397.36</td>
</tr>
</tbody>
</table>

Conditions:
The above quote is subject to variation depending on the final weight of the shipment.

Price for one shipment including PPS:

All quoted charges are exclusive of VAT. Export Brokerage has been added to this quotation if applicable. Any applicable export customs brokerage charges have not been included in this quotation unless specified. Any brokerage services performed by WC will be charged at 5%. If WC are instructed by an external broker for this service then the charges could apply in addition to this rate.

All shipments collected or delivered on a local weekend day or public holiday will incur a surcharge of £150. Any additional attempts are required to either collect or deliver shipments or pre/authorise re-usable packaging then a charge of £56 + Applicable drive charged will be applied.

Charges for re-usable packaging (VIP / GTC) may be subject to extra rental days if the shipment duration exceeds 7 days or if the packaging is not made available on delivery. Dry Ice shipments will be monitored and replenishments (if required) will be charged in addition to the above quoted amounts.

Acknowledgement:

All weights are approximate and are subject to change depending on any specific collection time and delivery requirements advised at booking.

The Fuel & Security surcharge is applied to the base, overweight and overcharge charges only. This rate is reviewed on a quarterly basis and will be charged at the current rate at the time of shipping.

Notes:

The current Fuel & Security surcharge is: 15.6%
Materials and consumables costs are based upon the average actual annual expenditure (over 4 years) by researchers within this laboratory performing similar experiments to those in the project. These costs were extracted from the University of Glasgow purchasing system Agresso.

<table>
<thead>
<tr>
<th>Account Code</th>
<th>Date</th>
<th>Description</th>
<th>Amount GBP</th>
<th>Dollar Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>10/11/17</td>
<td>20057290 Specimen bag</td>
<td>506.00</td>
<td>694.84</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>10/11/17</td>
<td>carriage</td>
<td>8.55</td>
<td>11.74</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>10/11/17</td>
<td>20056402 Thermal control unit fibreboard outer refu</td>
<td>16.70</td>
<td>22.93</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>10/11/17</td>
<td>20056402 Thermal control unit fibreboard outer refu</td>
<td>10.26</td>
<td>14.09</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>10/11/17</td>
<td>97256</td>
<td>36.30</td>
<td>51.95</td>
</tr>
<tr>
<td>SMALL EQUIPMENT (AS CONS)</td>
<td>10/12/17</td>
<td>S7108110010100ul 8 channel multichannel pipetteO</td>
<td>340.00</td>
<td>486.89</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>10/26/17</td>
<td>98215</td>
<td>112.53</td>
<td>154.53</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>10/26/17</td>
<td>98215</td>
<td>192.10</td>
<td>263.79</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>11/10/17</td>
<td>98695</td>
<td>177.60</td>
<td>243.88</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/14/17</td>
<td>100439</td>
<td>72.60</td>
<td>99.69</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/20/17</td>
<td>101801</td>
<td>73.18</td>
<td>100.49</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>11/20/17</td>
<td>101801</td>
<td>11.00</td>
<td>15.11</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>11/20/17</td>
<td>101801</td>
<td>5.65</td>
<td>7.76</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/29/17</td>
<td>102403</td>
<td>146.07</td>
<td>200.58</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>11/29/17</td>
<td>102403</td>
<td>13.75</td>
<td>18.88</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>11/29/17</td>
<td>102403</td>
<td>0.40</td>
<td>0.55</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>11/30/17</td>
<td>HWB L4 Lab biochemicals Oct17 for N Logan</td>
<td>8.68</td>
<td>11.92</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>11/30/17</td>
<td>HWB L4 Lab organic chemicals Oct17 for N Logan</td>
<td>0.43</td>
<td>0.59</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/30/17</td>
<td>HWB L4 Lab plasticware Oct17 for N Logan</td>
<td>2.89</td>
<td>3.97</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/30/17</td>
<td>HWB L4 Cell Culture plasticware Oct17 for N Logan</td>
<td>16.71</td>
<td>22.95</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>11/30/17</td>
<td>HWB L4 Lab other lab supplies Oct17 for N Logan</td>
<td>0.59</td>
<td>0.81</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>11/30/17</td>
<td>HWB L4 Lab freight Oct17 for N Logan</td>
<td>0.82</td>
<td>1.13</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>11/30/17</td>
<td>HWB L4 Cell Culture cleaning materials Oct17 for N I</td>
<td>1.87</td>
<td>2.57</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>11/30/17</td>
<td>HWB L4 Lab cleaning materials Oct17 for N Logan</td>
<td>0.60</td>
<td>0.82</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>11/30/17</td>
<td>HWB L4 Cell Culture workshop cons Oct17 for N Loga</td>
<td>13.33</td>
<td>18.30</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/GLASGOW UNITED KINGDOM</td>
<td>7.62</td>
<td>10.46</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/GLASGOW UNITED KINGDOM</td>
<td>0.26</td>
<td>0.36</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/7574213301/LEEDS UNITED KINGDOM</td>
<td>0.26</td>
<td>0.36</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/7574213301/LEEDS UNITED KINGDOM</td>
<td>7.62</td>
<td>10.46</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/GLASGOW UNITED KINGDOM</td>
<td>76.80</td>
<td>105.46</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/8/18</td>
<td>104669</td>
<td>73.18</td>
<td>100.49</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>1/8/18</td>
<td>104669</td>
<td>0.88</td>
<td>1.21</td>
</tr>
<tr>
<td>Category</td>
<td>Date</td>
<td>Code</td>
<td>Amount 1</td>
<td>Amount 2</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------</td>
<td>------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/24/18</td>
<td>105736</td>
<td>255.66</td>
<td>351.07</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>1/24/18</td>
<td>105736</td>
<td>0.82</td>
<td>1.13</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture bonded alcohols Nov17 for N Log</td>
<td>2.46</td>
<td>3.38</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>1/31/18</td>
<td>HWB L4 Lab bonded alcohols Dec17 for N Logan</td>
<td>0.75</td>
<td>1.03</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAI</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture disp of chemical waste Nov17 fc</td>
<td>0.48</td>
<td>0.66</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>1/31/18</td>
<td>HWB L4 Lab disp of clinical waste Nov17 for N Logar</td>
<td>3.31</td>
<td>4.55</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>1/31/18</td>
<td>HWB L4 Lab organic chemicals Nov17 for N Logan</td>
<td>2.32</td>
<td>3.19</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Lab plasticware Nov17 for N Logan</td>
<td>11.30</td>
<td>15.52</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture plasticware Dec17 for N Logan</td>
<td>90.09</td>
<td>123.71</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture plasticware Nov17 for N Logan</td>
<td>73.17</td>
<td>100.48</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Lab plasticware Dec17 for N Logan</td>
<td>5.79</td>
<td>7.95</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture other lab supplies Nov17 for N LG</td>
<td>14.34</td>
<td>19.69</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Dec17 for N</td>
<td>8.42</td>
<td>11.56</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Nov17 for N</td>
<td>8.77</td>
<td>12.04</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>1/31/18</td>
<td>HWB L4 Lab cleaning materials Nov17 for N Logan</td>
<td>5.28</td>
<td>7.25</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>1/31/18</td>
<td>HWB L4 Lab stationery Nov17 for N Logan</td>
<td>0.62</td>
<td>0.85</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/5/18</td>
<td>106442</td>
<td>170.56</td>
<td>234.21</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/8/18</td>
<td>106760</td>
<td>157.34</td>
<td>216.06</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>2/27/18</td>
<td>X8 ZEOCIN 100MGML PACK OF 8 X 125ML</td>
<td>240.78</td>
<td>330.64</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture bonded alcohols Jan18 for N Log</td>
<td>2.39</td>
<td>3.28</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture plasticware Jan18 for N Logan</td>
<td>36.18</td>
<td>49.68</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/28/18</td>
<td>HWB L4 Lab plasticware Jan18 for N Logan</td>
<td>5.05</td>
<td>6.93</td>
</tr>
<tr>
<td>COMPUTER CONSUMABLES</td>
<td>2/28/18</td>
<td>HWB L4 Lab computer consumables Jan18 for N Log</td>
<td>4.07</td>
<td>5.59</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture cleaning materials Jan18 for N LG</td>
<td>22.94</td>
<td>31.50</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>2/28/18</td>
<td>HWB L4 Lab cleaning materials Jan18 for N Logan</td>
<td>1.85</td>
<td>2.54</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>2/28/18</td>
<td>HWB L4 Lab stationery Jan18 for N Logan</td>
<td>0.15</td>
<td>0.21</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture stationery Jan18 for N Logan</td>
<td>0.10</td>
<td>0.14</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture workshop consumables Jan18 fc</td>
<td>83.33</td>
<td>114.43</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/5/18</td>
<td>109015</td>
<td>205.03</td>
<td>281.55</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/15/18</td>
<td>109649</td>
<td>109.77</td>
<td>150.74</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>3/15/18</td>
<td>109649</td>
<td>9.00</td>
<td>12.36</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>3/15/18</td>
<td>109649</td>
<td>2.75</td>
<td>3.78</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>3/21/18</td>
<td>110057</td>
<td>120.71</td>
<td>165.76</td>
</tr>
<tr>
<td>Category</td>
<td>Date</td>
<td>Description</td>
<td>Price 1</td>
<td>Price 2</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
<td>------------------------------------------------------------------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>3/31/18</td>
<td>HWB L4 Lab biochemicals Feb18 for N Logan</td>
<td>19.25</td>
<td>26.43</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>3/31/18</td>
<td>HWB L4 Lab bonded alcohols Feb18 for N Logan</td>
<td>0.77</td>
<td>1.06</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAIL</td>
<td>3/31/18</td>
<td>HWB L4 Lab disp of chemical waste Feb18 for N Logan</td>
<td>0.31</td>
<td>0.43</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/31/18</td>
<td>HWB L4 Cell Culture plasticware Feb18 for N Logan</td>
<td>35.39</td>
<td>48.60</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/31/18</td>
<td>HWB L4 Lab plasticware Feb18 for N Logan</td>
<td>6.21</td>
<td>8.53</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>3/31/18</td>
<td>HWB L4 Lab other lab supplies Feb18 for N Logan</td>
<td>9.96</td>
<td>13.68</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>3/31/18</td>
<td>HWB L4 Lab cleaning materials Feb18 for N Logan</td>
<td>7.20</td>
<td>9.89</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>3/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Feb18 for N</td>
<td>1.87</td>
<td>2.57</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUPPLIES</td>
<td>3/31/18</td>
<td>HWB L4 Lab stationery Feb18 for N Logan</td>
<td>0.62</td>
<td>0.85</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>4/12/18</td>
<td>111183</td>
<td>192.66</td>
<td>264.56</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>4/16/18</td>
<td>111305</td>
<td>15.29</td>
<td>21.00</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUPPLIES</td>
<td>4/16/18</td>
<td>111305</td>
<td>7.10</td>
<td>9.75</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>4/25/18</td>
<td>order number for oligo card required</td>
<td>90.00</td>
<td>123.59</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture bonded alcohols Mar18 for N Lo</td>
<td>2.39</td>
<td>3.28</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture disp of clinical waste Mar18 for</td>
<td>1.74</td>
<td>2.39</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>4/30/18</td>
<td>HWB L4 Lab disp of clinical waste Mar18 for N</td>
<td>0.87</td>
<td>1.19</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>4/30/18</td>
<td>112103</td>
<td>54.89</td>
<td>75.37</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture plasticware Mar18 for N Logan</td>
<td>74.40</td>
<td>102.17</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>4/30/18</td>
<td>HWB L4 Lab plasticware Mar18 for N Logan</td>
<td>2.89</td>
<td>3.97</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>4/30/18</td>
<td>112103</td>
<td>2.86</td>
<td>3.93</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture tissue culture Mar18 for N Loga</td>
<td>12.66</td>
<td>17.38</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture other lab supplies Mar18 for N Lo</td>
<td>14.34</td>
<td>19.69</td>
</tr>
<tr>
<td>LAB EQUIPMENT MAINTENANCE</td>
<td>4/30/18</td>
<td>Repairs</td>
<td>142.00</td>
<td>194.99</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture cleaning materials Mar18 for N</td>
<td>5.29</td>
<td>7.26</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture workshop consumables Mar18 f</td>
<td>1.67</td>
<td>2.29</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>5/4/18</td>
<td>1934975 HIGH-FIDELITY MASTER MIX</td>
<td>106.75</td>
<td>146.59</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>5/14/18</td>
<td>1937687 E6300S</td>
<td>124.25</td>
<td>170.62</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>5/17/18</td>
<td>1938305 RABBIT ANTI-HUMAN &amp; LIGHT CHAIN ANTI</td>
<td>98.00</td>
<td>134.57</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>5/17/18</td>
<td>113025</td>
<td>146.07</td>
<td>200.58</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>5/17/18</td>
<td>113025</td>
<td>8.25</td>
<td>11.33</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>5/17/18</td>
<td>1938305 RABBIT ANTI-HUMAN &amp; LIGHT CHAIN ANTI</td>
<td>30.00</td>
<td>41.20</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>5/23/18</td>
<td>113380</td>
<td>109.77</td>
<td>150.74</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>5/30/18</td>
<td>113791</td>
<td>73.18</td>
<td>100.49</td>
</tr>
<tr>
<td>Category</td>
<td>Code</td>
<td>Description</td>
<td>5/30/18</td>
<td>6/30/18</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 5/30/18</td>
<td>113791</td>
<td>HWB L4 Cell Culture disp of chemical waste Apr18 fc</td>
<td>22.22</td>
<td>30.51</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAI 5/31/18</td>
<td></td>
<td>HWB L4 Cell Culture plasticware Apr18 for N Logan</td>
<td>34.42</td>
<td>47.27</td>
</tr>
<tr>
<td>PLASTICWARE 5/31/18</td>
<td></td>
<td>HWB L4 Lab other lab supplies Apr18 for N Logan</td>
<td>44.37</td>
<td>60.93</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 5/31/18</td>
<td></td>
<td>HWB L4 Cell Culture other lab supplies Apr18 for N L</td>
<td>1.78</td>
<td>2.44</td>
</tr>
<tr>
<td>CLEANING MATERIALS 5/31/18</td>
<td></td>
<td>HWB L4 Lab cleaning materials Apr18 for N Logan</td>
<td>2.03</td>
<td>2.79</td>
</tr>
<tr>
<td>CLEANING MATERIALS 5/31/18</td>
<td></td>
<td>HWB L4 Cell Culture cleaning materials Apr18 for N L</td>
<td>1.50</td>
<td>2.06</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP 5/31/18</td>
<td></td>
<td>HWB L4 Lab stationery Apr18 for N Logan</td>
<td>7.18</td>
<td>9.86</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES 5/31/18</td>
<td></td>
<td>HWB L4 Lab cleaning materials Apr18 for N Logan</td>
<td>0.62</td>
<td>0.85</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES 5/31/18</td>
<td></td>
<td>HWB L4 Lab workshop consumables Apr18 for N Logan</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>BIOCHEMICALS 6/6/18</td>
<td>114194</td>
<td>HWB L4 Cell Culture workshop consumables Apr18 fc</td>
<td>42.22</td>
<td>57.98</td>
</tr>
<tr>
<td>PLASTICWARE 6/6/18</td>
<td>114180</td>
<td></td>
<td>28.80</td>
<td>39.55</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/7/18</td>
<td>114316</td>
<td></td>
<td>218.96</td>
<td>300.68</td>
</tr>
<tr>
<td>BIOCHEMICALS 6/13/18</td>
<td>114716</td>
<td></td>
<td>15.16</td>
<td>29.82</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/13/18</td>
<td>114716</td>
<td></td>
<td>52.50</td>
<td>72.90</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/13/18</td>
<td>114316</td>
<td></td>
<td>8.25</td>
<td>11.33</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP 6/13/18</td>
<td>114716</td>
<td></td>
<td>45.48</td>
<td>62.45</td>
</tr>
<tr>
<td>PLASTICWARE 6/18/18</td>
<td>114954</td>
<td></td>
<td>0.34</td>
<td>0.47</td>
</tr>
<tr>
<td>PLASTICWARE 6/26/18</td>
<td>115526</td>
<td></td>
<td>109.77</td>
<td>150.74</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/26/18</td>
<td>115526</td>
<td></td>
<td>146.36</td>
<td>200.98</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/26/18</td>
<td>115526</td>
<td></td>
<td>8.14</td>
<td>11.18</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/28/18</td>
<td>115713</td>
<td></td>
<td>16.50</td>
<td>22.66</td>
</tr>
<tr>
<td>PLASTICWARE 6/30/18</td>
<td></td>
<td>Transfer Gar scube stores order 111897 for biochem</td>
<td>130.26</td>
<td>178.87</td>
</tr>
<tr>
<td>BIOCHEMICALS 6/30/18</td>
<td></td>
<td>Transfer Gar scube stores order 99847/102244/10271 for biochem</td>
<td>1.08</td>
<td>1.48</td>
</tr>
<tr>
<td>BONDED ALCOHOLS 6/30/18</td>
<td></td>
<td>HWB L4 Cell Culture bonded alcohols May18 for N Logan</td>
<td>0.73</td>
<td>1.00</td>
</tr>
<tr>
<td>INORGANIC CHEMICALS 6/30/18</td>
<td></td>
<td>HWB L4 Lab inorganic chemicals May18 for N Logan</td>
<td>1103.06</td>
<td>1514.72</td>
</tr>
<tr>
<td>PLASTICWARE 6/30/18</td>
<td></td>
<td>HWB L4 Cell Culture plasticware May18 for N Logan</td>
<td>91.23</td>
<td>125.28</td>
</tr>
<tr>
<td>PLASTICWARE 6/30/18</td>
<td></td>
<td>HWB L4 Lab plasticware May18 for N Logan</td>
<td>6.67</td>
<td>9.16</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/30/18</td>
<td></td>
<td>Part transfer Gar scube stores order 104245 for tissue</td>
<td>10.10</td>
<td>13.87</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>HWB L4 Lab other lab supplies May18 for N Logan</td>
<td>1.31</td>
<td>1.80</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>HWB L4 Cell Culture other lab supplies May18 for N L</td>
<td>12.90</td>
<td>17.71</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>CVR Communal Consumable Charge 2017/18 for BW</td>
<td>1000.00</td>
<td>1373.20</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>CVR Communal Consumable Charge 2017/18 for MT</td>
<td>667.00</td>
<td>915.92</td>
</tr>
<tr>
<td>Category</td>
<td>Date</td>
<td>Description</td>
<td>Unit</td>
<td>Cost</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------</td>
<td>------------------------------------------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>6/30/18</td>
<td>HWB L4 Lab cleaning materials May18 for N Logan</td>
<td></td>
<td>18.47</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>6/30/18</td>
<td>HWB L4 Cell Culture cleaning materials May18 for N Logan</td>
<td></td>
<td>18.90</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture bonded alcohols Jul18 for N Logan</td>
<td></td>
<td>4.30</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>7/31/18</td>
<td>HWB L4 Lab bonded alcohols Jul18 for N Logan</td>
<td></td>
<td>2.44</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>7/31/18</td>
<td>HWB L4 Lab bonded alcohols Jun18 for N Logan</td>
<td></td>
<td>3.08</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAI</td>
<td>7/31/18</td>
<td>HWB L4 Lab disp of chemical waste Jun18 for N Logan</td>
<td></td>
<td>45.64</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture disp of clinical waste Mar18 adj</td>
<td></td>
<td>-3.48</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>7/31/18</td>
<td>HWB L4 Lab disp of clinical waste Mar18 adj for N Loc</td>
<td></td>
<td>-1.74</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>7/31/18</td>
<td>HWB L4 Lab disp of clinical waste Nov17 adj for N Loc</td>
<td></td>
<td>-6.62</td>
</tr>
<tr>
<td>INORGANIC CHEMICALS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture inorganic chemicals Jul18 for N Logan</td>
<td></td>
<td>2.22</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab organic chemicals Jul18 for N Logan</td>
<td></td>
<td>0.86</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture plasticware Jun18 for N Logan</td>
<td></td>
<td>232.54</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture plasticware Jul18 for N Logan</td>
<td></td>
<td>303.62</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Lab plasticware Jun18 for N Logan</td>
<td></td>
<td>15.40</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Lab plasticware Jul18 for N Logan</td>
<td></td>
<td>9.73</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>7/31/18</td>
<td>HWB L4 Lab tissue culture Jul18 for N Logan</td>
<td></td>
<td>61.02</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture other lab supplies Jun18 for N Loc</td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Jul18 for N Loc</td>
<td></td>
<td>4.93</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab cleaning materials Jun18 for N Logan</td>
<td></td>
<td>2.48</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab cleaning materials Jul18 for N Logan</td>
<td></td>
<td>2.16</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Jun18 for N Loc</td>
<td></td>
<td>19.28</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUPPLIES</td>
<td>7/31/18</td>
<td>HWB L4 Lab stationery Jun18 for N Logan</td>
<td></td>
<td>1.24</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture workshop consumables Mar18 adj</td>
<td></td>
<td>-3.34</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture workshop cons Oct17 adj for N Loc</td>
<td></td>
<td>-26.66</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture workshop consumables Apr18 adj</td>
<td></td>
<td>-84.44</td>
</tr>
<tr>
<td>OTHER JANITORIAL COSTS</td>
<td>7/31/18</td>
<td>HWB L4 Lab other janitorial costs Jul18 for N Logan</td>
<td></td>
<td>7.62</td>
</tr>
<tr>
<td>OTHER JANITORIAL COSTS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture other janitorial costs Jul18 for N Loc</td>
<td></td>
<td>23.78</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>8/20/18</td>
<td>HWB L4 Cell Culture other lab supplies May18 for N Loc</td>
<td></td>
<td>119591</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>8/29/18</td>
<td>Tempus Blood RNA Tube</td>
<td></td>
<td>146.07</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>8/30/18</td>
<td>Tempus Blood RNA Tube</td>
<td></td>
<td>120084</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>9/6/18</td>
<td>SP5020 10 X casein solution</td>
<td></td>
<td>2302.80</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>9/12/18</td>
<td>SP5020 10 X casein solution</td>
<td></td>
<td>3162.20</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>9/12/18</td>
<td>SP5020 10 X casein solution</td>
<td></td>
<td>78.00</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>9/12/18</td>
<td>SP5020 10 X casein solution</td>
<td></td>
<td>133.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>183.57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.23</td>
</tr>
<tr>
<td>Category</td>
<td>Code</td>
<td>Description</td>
<td>£</td>
<td>$</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Other Laboratory Supplies: 9/12/18</td>
<td>120748</td>
<td>6066759 Steadylite plus 1000ml kit as per quote 215</td>
<td>14.46</td>
<td>19.86</td>
</tr>
<tr>
<td>Mail Courier and Freight: 9/13/18</td>
<td></td>
<td>6066759 Steadylite plus 1000ml kit as per quote 215</td>
<td>982.13</td>
<td>1348.66</td>
</tr>
<tr>
<td>Plasticware: 9/21/18</td>
<td>121304</td>
<td></td>
<td>170.27</td>
<td>233.81</td>
</tr>
<tr>
<td>Tissue Culture and Bacter: 9/21/18</td>
<td>121304</td>
<td></td>
<td>22.86</td>
<td>31.39</td>
</tr>
<tr>
<td>Lab Equipment Maintenance: 9/27/18</td>
<td></td>
<td>1450-471/normalisation standard/QUOTE 21570833</td>
<td>390.00</td>
<td>535.55</td>
</tr>
<tr>
<td>Mail Courier and Freight: 9/27/18</td>
<td></td>
<td>1450-471/normalisation standard/QUOTE 21570833</td>
<td>35.00</td>
<td>48.06</td>
</tr>
<tr>
<td>Biochemicals: 9/30/18</td>
<td></td>
<td>HWB L4 Lab biochemistry Aug18 for N Logan</td>
<td>19.80</td>
<td>27.19</td>
</tr>
<tr>
<td>Bonded Alcohols: 9/30/18</td>
<td></td>
<td>HWB L4 Cell Culture bonded alcohols Aug18 for N Logan</td>
<td>2.15</td>
<td>2.95</td>
</tr>
<tr>
<td>Organic Chemicals: 9/30/18</td>
<td></td>
<td>HWB L4 Lab organic chemicals Aug18 for N Logan</td>
<td>2.03</td>
<td>2.79</td>
</tr>
<tr>
<td>Plasticware: 9/30/18</td>
<td></td>
<td>HWB L4 Cell Culture plasticware Aug18 for N Logan</td>
<td>85.51</td>
<td>117.42</td>
</tr>
<tr>
<td>Tissue Culture and Bacter: 9/30/18</td>
<td></td>
<td>HWB L4 Lab tissue culture Aug18 for N Logan</td>
<td>19.96</td>
<td>27.41</td>
</tr>
<tr>
<td>Other Laboratory Supplies: 9/30/18</td>
<td></td>
<td>HWB L4 Lab other lab supplies Aug18 for N Logan</td>
<td>0.23</td>
<td>0.32</td>
</tr>
<tr>
<td>Cleaning Materials: 9/30/18</td>
<td></td>
<td>HWB L4 Lab cleaning materials Aug18 for N Logan</td>
<td>1.25</td>
<td>1.72</td>
</tr>
<tr>
<td>Cleaning Materials: 9/30/18</td>
<td></td>
<td>HWB L4 Cell Culture cleaning materials Aug18 for N</td>
<td>3.64</td>
<td>5.00</td>
</tr>
<tr>
<td>Other Janitorial Costs: 9/30/18</td>
<td></td>
<td>HWB L4 Lab other janitorial costs Aug18 for N Logan</td>
<td>6.88</td>
<td>9.45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>£ 14,067.33</td>
<td>$ 19,317.26</td>
</tr>
</tbody>
</table>
### Order confirmation

**Delivery address:**
The Store -School of Veterinary Medicine
Level 1 Urquhart Building
Garscube Estate
464 Bearsden Road
G61 1QH Glasgow

**ROAYME UNI**

**Attention:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Designation</th>
<th>Qty</th>
<th>Unit Price</th>
<th>% Discount</th>
<th>Net Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>CGHPDA-5P-E23 ID Screen® CCHF Double Antigen Multi-species</td>
<td>1.00</td>
<td>1 060,00</td>
<td></td>
<td>1 060,00</td>
<td>1 060,00</td>
</tr>
</tbody>
</table>

Exp. : 09/2020 5 Plates - Double Antigen

**Transport**

- FEDEX
- DAP Glasgow

**Total Qty:** 1,00

**Payment terms:** Swift Bank Transfer at 30 days

---

**Coordinated banks:**
Banque Dupuy de Paree Montpellier
Code Bank 12399

**New account in Dollars:** HSBC Montpellier code banque 30056 code guichet 00967

**Account name:** UNIGLASGOW

**Date:** 15/10/2018

**Your contact:**

- Anna Greatrex (Int.)
- Katja NOOR COROUGE

**Invoicing Address:**
University of Glasgow - Finance Office
Main Building, East Quadrangle
G12 8QQ Glasgow, Scotland
ROYAUME UNI

**Tel:**
**Fax:**
**VAT:** GB 671 798 693
**Siret:**

**Shic:** 30,00

**Amount subjected to VAT:**

**Exo:** 1 090,00

**Total:**
**EUR:** 1 090,00
Budget Justification

He serves as Country Representative

He
Bulleted: Budget Justification
WSU Global Animal Health: Tanzania (GAHT)

Note: Cost calculations are rounded to nearest dollar

Senior/Key Personnel

E:10 [Co-Investigator, 2.4 cal, 0.8 years (years 3-5)]

Dr. Lina van den Eijden, a Clinical Assistant Professor at Washington State University’s Paul G. Allen School for Global Animal Health, is based in the UK. Dr. Lina van den Eijden has conducted zoonotic disease research since 2009 and has extensive experience with project leadership within the African and One Health research contexts. She serves as Country Representative of WSU’s non-profit subsidiary Global Animal Health Tanzania (GAHT), legally registered in Tanzania to facilitate in-country research and support research capacity-building activities on zoonotic infectious diseases. Dr. Lina van den Eijden will commit 20% effort to the project in Years 1 and 2 and 15.67% effort in Year 3. She will oversee all GAHT activities and supervise GAHT project staff, assist in the coordination of the field activities, serve as liaison with high-level Ministerial collaborators and interested parties within the Government of the United Republic of Tanzania, and will collaborate with the PI on data analysis and the drafting of manuscripts, reports, and policy documents. Salary requested: $28,192 in Year 1 and budget to inflate at 3% annually. Fringe benefits: $4,715. Fringe benefits are calculated at 18% of salary. Year 1 request: $32,907.

Senior/Key Personnel Total, 5-year project period: $32,907.

B. Other Personnel

WSU Global Animal Health Tanzania (GAHT) maintains an office in Arusha, Tanzania, to support WSU investigators. Travel (Incurred) [1]

Travel is requested for the Project Coordinator to carry out project activities. Travel includes:

Two road trips, 3 days each in Years 1 and 2 to field sites to oversee animal health team activities and sampling procedures. Year 1 budget includes lodging and meal per diem ($157/day x 6 days x 2 trips = $942) and fuel (220 km per trip: $10 x 2 trips = $20) = $1,162; 3% inflation in Year 2.

One 2-day trip in Years 1 and 2 to visit the wildlife sampling field team. Year 1 costs include return flight Arusha to Soroa, Indonesia, and lodging and per diem ($197/day x 2 days = $394), $555, budgeted with 3% inflation Year 2.

Field costs in Years 1 and 2, total $3,614.

One trip, 2 days each annually to Dar es Salaam and/or Dodoma for meetings with United Republic of Tanzania Ministry officials and other stakeholders. Year 1 costs...
Budget Documentation – Washington State University

1) Salaries

- Assistant Professor
- Administrative Manager, GAHT
- Program Coordinator, GAHT
- October 2019 GAHT Payroll information, with Tsh to USD exchange rate
- Draft employment contract, TBN, Project Veterinarian
- Draft employment contract, TBN, Field Assistant

2) GAHT Fringe Benefits

3) Other Direct Costs

- Permits
- Vehicle Maintenance
- Vehicle Insurance
- Supplies
- Medical Waste Disposal, KCMC
- Draft Personal Service / Consultant Contract, TBN, Mammologist
- Estimate of Translation Services

4) Indirect Cost Rate

5) Travel

- London to Arusha, TZ
- Arusha to Seronera, TZ
- Arusha to Dar es Salaam, TZ
- London to Europe
- Lodging and meal per diem rates, TZ
## Appointments as of 10/22/19

<table>
<thead>
<tr>
<th>Sel</th>
<th>Posn</th>
<th>Titl</th>
<th>Title</th>
<th>Begin</th>
<th>End</th>
<th>FT Rate</th>
<th>FTE</th>
<th>Pay Rate</th>
<th>TTPS</th>
<th>mTytvcp</th>
<th>Dept</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>114863</td>
<td>0267</td>
<td></td>
<td>010119</td>
<td>093021</td>
<td>10913.44</td>
<td>1.0000</td>
<td>10913.44/H</td>
<td>Y7NY</td>
<td>8620</td>
<td></td>
</tr>
</tbody>
</table>

Enter Sel number and press <Enter>
August 1st, 2019

Mji Mwema Area/Kiganubuntu
Dar es Salaam
TANZANIA

Dear [Name],

RE: APPOINTMENT AS ADMINISTRATIVE MANAGER FOR GLOBAL ANIMAL HEALTH TANZANIA

The Washington State University–Global Animal Health Tanzania (GAHT) program is pleased to offer you the position indicated below.

Position Title: Administrative Manager
Working Title: Administrative Manager
Place of Recruitment: Arusha
Location of Work: Global Animal Health Tanzania, Uzunguni Area, Sekou Toure Road, Gynkhana, Arusha
Reporting: School for Global Animal Health, Director of Finance and Administration

Appointment Duration: 1st of September 2019 to 31st of August 2020
Gross Monthly Salary: 5,762,000 TZS $2,516.68
Start Date: 1st of September, 2019

Your position is responsible for the overall administrative coordination of Global Animal Health Tanzania (GAHT), a Non-Governmental Organization (NGO) in Arusha, Tanzania. In this position you will serve as the primary financial and personnel officer for GAHT and will operate with a broad level of independent judgment and decision making authority. You will report directly to the Paul G. Allen School for Global Animal Health, Director of Finance and Administration, an academic unit of Washington State University. You will manage the administrative functions of GAHT personnel, procurement, contracts, and finance units for GAHT. You will also manage the requisite NGO registrations and official documents, ensuring all are in order and filed with the respective United Republic of Tanzania agencies. Your responsibilities include assisting the Director of Finance and Administration and the President of

Global Animal Health-Tanzania Improving Public Health and Catalyzing Human Opportunity
Rivergardens Business Park, Usa River, Arusha
PO Box 1642, Arusha, Tanzania
Telephone: Office Line +255-688321020
www.globalhealth.wsu.edu
GAHT in the development of long-and-short-term strategic plans for GAHT as a sustainable and responsive NGO, leading and managing administrative activities associated with the GAHT office, and ensuring operations are aligned with GAHT and Washington State University policies and procedures as well as in compliance with United Republic of Tanzania laws, regulations, and policies.

A detailed description of the position scope of work is provided in the position description that will be given to you upon reporting.

Note: See attached position description

The terms of engagement are as follows:

1. **Engagement Duration**: The period of service is for one (1) year from the start date indicated herein above (1st of September, 2019 to 31st of August, 2020), on a renewable basis upon consultation with and advice from the Director of Finance and Administration and approval of the officers of GAHT. Renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal, even where you may have had a previous renewal of contract.

2. **Working Hours**: The normal working hours are 40 hours a week from 8:00am to 5:00pm, with one-hour lunch break, from Monday to Friday. At times you will be expected to work outside of the normal working hours, however the position is not eligible for overtime due to the senior level of the employment. You will have teleconference meetings, normally weekly, with the Paul G. Allen School for Global Animal Health administrative team as well as with faculty engaged in research in Tanzania. These meetings, due to time zone difference, are likely to be scheduled outside of your normal working hours.

3. **Salary**: You will be paid a Gross Monthly Salary of 5,762,000 TZS. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract.

The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

4. **Benefits**: In addition to the salary, you will receive health insurance that you can enlist up to four immediate dependents who must be either your spouse or your legal child (biological child, legally adopted child or a child over whom you have a court mandated guardianship or custody).

5. **Annual Leave**: You will be entitled to annual leave of 22 days per year. These should be utilized within the duration of the contract through mutual agreement between you and your supervisor. You are also entitled to sick leave, maternity leave and compassionate leave as stipulated by law.

6. **Confidentiality**: During and after the term of employment (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to 3rd parties.
You will be required to complete training regarding prevention of discrimination and sexual harassment within six months of your date of hire. Information regarding this training is available at the following web site: hrw.wsu.edu/dishp.

All GAHT employees are required to adhere to the institution’s policies and procedures. Please return a copy of this letter to Dr. Guy Palmer, President of GAHT, indicating whether you accept or decline the offer, not later than the 12th of August, 2019.

We are confident you will find this opportunity both challenging and rewarding, and we are delighted that you have chosen to pursue your career with the Global Animal Health Tanzania program.

Sincerely,

Regents Professor
Senior Executive Director, Global Health
Washington State University
President, Global Animal Health-Tanzania

Director of Finance and Administration
School for Global Animal Health
Secretary-Treasurer, Global Animal Health Tanzania

Acceptance

[Signature]

1. [Signature]

I, [Signature], (ID NO.), do hereby accept/decline (delete whichever is not applicable) the appointment and terms provided therefor.

Signature

Date: August 5, 2019
March 22, 2019

P.O. Box 772,
Arusha, Tanzania

Dear [Name],

RE: APPOINTMENT AS PROGRAM COORDINATOR FOR GAHT

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to renew your position as indicated below.

Position Title: Program Coordinator

Working Title: Country Coordinator

Place of Recruitment: Arusha

Location of work: Global Animal Health Tanzania, Uzunguni Area, Sekou Toure Road, Gymkhana, Arusha

Reporting: School for Global Animal Health Administrative Manager

Appointment Duration: 16th April, 2019 to 15th April, 2020

Gross Monthly Salary: 4,095,793.97 TSH $1788.93

Start Date: 16th of April 2019

The position provides coordination and oversight for the numerous research projects that are carried out by Washington State University (WSU) and GAHT employees in Tanzania. Responsibilities include overseeing the purchase of supplies, disbursing funds, maintaining financial records for each project, managing reimbursements, processing payroll, managing all in country banking issues, working closely with in country auditors and legal counsel, assisting researchers in various research activities, organizing project related meetings and seminars, and managing the Arusha based GAHT office. Your position will report directly to School for Global Animal Health Administrative Manager. Additionally, you will receive direction and leadership from GAHT officers and WSU faculty coordinating research in Tanzania and from the Washington State University administrative team, most directly from School for Global Animal Health Fiscal Analyst 3.

A detailed description of the position scope of work is provided in the position description.

Note: See attached position description
The terms of engagement are as follows:

1. **Engagement Duration:** The period of service is for one (1) year from the start date indicated herein above (16 April 2019 to 15 April 2020), on a renewable basis upon consultation with and advice from the GAHT officers, and Administrative Manager Rebecca Manning. The contemplated renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal even where you may have had a previous renewal of contract.

3. **Working Hours:** The normal working hours are 40 hours a week from 8:00am to 5:00pm, with one-hour lunch break, from Monday to Friday. At times the Program Coordinator will be expected to work outside of the normal working hours, however the position is not eligible for overtime due to the senior level of the employee. Weekly you will have skype meetings, which due to time zone difference are likely to be scheduled outside of normal working hours, with WSU Research faculty and administrative team.

4. **Salary:** You will be paid a Gross Monthly Salary of 4,095,793.97 TZS. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract.

The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

5. **Benefits:** In addition to the salary, you will receive health insurance that can enlist up to four immediate dependents who must be either your spouse or your legal child, biological or adopted or a child over whom you have a court mandated guardianship or custody.

6. **Annual Leave:** You will be entitled to annual leave of 22 days per year. These should be utilized within the duration of the contract through mutual agreement between you and WSU research faculty. The employee is also entitled to sick leave, maternity leave and compassionate leave as stipulated by law.

7. **Confidentiality:** During and after the term of employment (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to 3rd parties.

All GAHT employees are required to adhere to the institution’s policies and procedures. Please return a copy of this letter to Dr. Guy Palmer President of GAHT, indicating whether you accept or decline the offer, not later than April 15, 2019.
We are confident you will find this opportunity both challenging and rewarding, and we look forward to continuing to work with you at the Global Animal Health Tanzania program.

Sincerely,

[Signature]

Regents Professor
Senior Executive Director, School for Global Animal Health at Washington State University
President, Global Animal Health-Tanzania

Acceptance

I, .................................................. (ID No ................................) do hereby accept /decline (delete whichever is not applicable) the appointment and terms provided thereto

April 11th 2019

Signature

Date
Dear,

RE: APPOINTMENT AS PROJECT VETERINARIAN FOR GAHT

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to offer you the position indicated below.

Position Title: Project Veterinarian
Place of Recruitment: Arusha
Location of work: Arusha and Meru Region, Tanzania
Reporting: [ ]
Appointment Duration: One year
Gross Monthly Salary: 5,146,800 Tsh $2,379
Start Date: XXXX

The role of the Project Veterinarian is to participate in field activities for collection of biological samples from livestock and wildlife species, including collection of samples and management of sample transport to laboratory facilities, and collection of survey data.

The terms of engagement are as follows:

1. **Engagement Duration:** The period of service is for one (1) year from the start date indicated herein above (xx/xx/xxxx to xx/xx/xxxx). The Contemplated renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal even where you may have had a previous renewal of contract. You also recognize that your position may be retrenched in the event of cessation or reduction funding and you accept that you will be retrenched by being given one (1) month notice and other minimum terms required by local legislation.

2. **Working Hours:** The normal working hours are 40 hours a week from 8:30am to 5:30pm, with one-hour lunch break, from Monday to Friday. Occasionally you may be required to work beyond 40 hours and anything beyond 13 hours per week shall be considered overtime. Overtime shall be paid in accordance with local legislation requirements but only in instances where you have received prior written approval to work overtime.
3. **Salary**: You will be paid a Gross Monthly Salary of 5,166,800 Tsh. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract.

The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

4. **Benefits**: In addition to the salary, you will receive health insurance that can enlist up to four immediate dependents who must be either your spouse or your legal child (biological child, legally adopted child or a child over whom you have a court mandated guardianship or custody).

5. **Annual Leave**: Upon completing 12 months of continuous service, you will be entitled to annual leave of 28 consecutive days per year. These should be utilized within the duration of the contract through mutual agreement between you and the Country Director. Employees are also entitled to sick leave, maternity leave, paternity leave and compassionate leave as stipulated by law and clarified in the Employee Handbook.

6. **Bereavement**: In the case where the employee loses an immediate family member (child or spouse) the organization will provide 1,000,000Tsh as a support to the employee. Furthermore, when the employee dies GAHT will assist the family on funeral arrangements by providing them with 3,000,000Tsh.

7. **Confidentiality**: During the term of employment, (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to third parties.

All GAHT employees are required to adhere to the institution’s policies and procedures as issued from time to time.

Please return a copy of this letter to the GAHT Country Coordinator, indicating whether you accept or decline the offer by XXXX.

We are confident you will find this new opportunity both challenging and rewarding, and are delighted that you have chosen to pursue your career with the Global Animal Health Tanzania program.

Sincerely,

..................................................

[Signature]

Regents Professor
Washington State University
Chairperson, Global Animal Health-Tanzania

**Acceptance**

I, ................................................................., do hereby accept/decline (delete whichever is not applicable) the appointment and terms provided thereto.

..................................................

Signature

..................................................

Date
Dear,

**RE: APPOINTMENT AS FIELD ASSISTANT FOR GAHT**

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to offer you the position indicated below.

**Position Title:** Field Assistant  
**Place of Recruitment:** Arusha  
**Location of work:** Arusha and Mera Region, Tanzania  
**Reporting:** (b)(6) or Country Director  
**Appointment Duration:** One year  
**Gross Monthly Salary:** 1,144,800 Tsh $1000  
**Full time equivalent:** 50%  
**Start Date:** XXXX

The role of the Field Assistant is to drive project vehicles and assist with field activities.

The terms of engagement are as follows:

**1. Engagement Duration:** The period of service is for one (1) year from the start date indicated herein above (xx/xx/xxx to xx/xx/xxx). The Contemplated renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal even where you may have had a previous renewal of contract. You also recognize that your position may be retrenched in the event of cessation or reduction funding and you accept that you will be retrenched by being given one (1) month notice and other minimum terms required by local legislation.

**2. Probation:** You shall be subjected to a three-month probation period, after which a performance assessment will be conducted by the Country Director. Confirmation of appointment is subject to the satisfactory completion of the probationary period and approval by the Country Director.

During the probation period either party may terminate the contract for whatever reason upon giving one (1) week notice in writing or payment in lieu of such notice.

Thereafter either party may terminate the contract upon giving a minimum of 28 days’ notice in writing or payment in lieu of such notice.
3. **Working Hours:** The Field Assistant is expected to work the equivalent of 50% of a 40 hour per week full-time appointment. As this is not a full-time position, the hours of work will vary from week to week.

4. **Salary:** You will be paid a Gross Monthly Salary of 1,144,800 Tsh. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract. The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

5. **Annual Leave:** Upon completing 12 months of continuous service you will be entitled to annual leave of 6 working days per year. These should be utilized within the duration of the contract through mutual agreement between you and the Country Director. Employees are also entitled to sick leave, maternity leave, paternity leave and compassionate leave as stipulated by law and clarified in the Employee Handbook.

6. **Confidentiality:** During the term of employment, (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to third parties.

All GAHT employees are required to adhere to the institution’s policies and procedures. These policies are summarized in the Employee Handbook, which will be issued to all employees.

Please return a copy of this letter to the GAHT Country Director, indicating whether you accept or decline the offer, not later than XXXX.

We are confident you will find this new opportunity both challenging and rewarding, and are delighted that you have chosen to pursue your career with the Global Animal Health Tanzania program.

Sincerely,

...................................................

[Signature]

**Acceptance**

I, .................................................................do hereby accept/decline (delete whichever is not applicable) the appointment and terms provided thereto.

_____________________________  ________________________
Signature                         Date
HEALTH INSURANCE AND OTHER BENEFITS COSTS FOR GAHT EMPLOYEES

There are three major benefits for GAH employees (local staff) as follows:

1. 22 days per year as annual leave
2. 10% of gross salary as social security contribution, and
3. Health insurance for staff and up to 4 immediate dependents (spouse and children). The annual health insurance is TZS 22,725,629 equivalent to USD 9,900. Below is the proof of payments of Health Insurance for GAHT 7 employees for the period June 2019 – June 2020.

Paid 20,574,101.40 for field team’s insurance

<table>
<thead>
<tr>
<th>Description/Comment</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Membership</td>
<td>20,718,426.10</td>
</tr>
<tr>
<td></td>
<td>20,725,629.00</td>
</tr>
<tr>
<td></td>
<td>20,718,426.10</td>
</tr>
</tbody>
</table>

As per the terms and conditions of the policy, the above amount is payable by the 31st of December each year.
<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Management</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Exchange Rates as of 31 October 2021</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>EUR</th>
<th>USD</th>
<th>GBP</th>
<th>AUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.10.2021</td>
<td>0.87</td>
<td>1.18</td>
<td>0.73</td>
<td>1.42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exchange Rate</th>
<th>0.87</th>
<th>1.18</th>
<th>0.73</th>
<th>1.42</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR USD</td>
<td>1.18</td>
<td>1.42</td>
<td>1.15</td>
<td>0.95</td>
</tr>
<tr>
<td>EUR GBP</td>
<td>1.15</td>
<td>1.23</td>
<td>0.83</td>
<td>0.76</td>
</tr>
<tr>
<td>EUR AUD</td>
<td>1.42</td>
<td>1.05</td>
<td>0.87</td>
<td>0.64</td>
</tr>
</tbody>
</table>

**Employee Compensation**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Pay</td>
<td>2,000.00</td>
</tr>
<tr>
<td>Housing Allowance</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Travel Allowance</td>
<td>500.00</td>
</tr>
<tr>
<td>Total Compensation</td>
<td>3,500.00</td>
</tr>
</tbody>
</table>

**Summary**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Pay</td>
<td>2,000.00</td>
</tr>
<tr>
<td>Housing Allowance</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Travel Allowance</td>
<td>500.00</td>
</tr>
<tr>
<td>Total Compensation</td>
<td>3,500.00</td>
</tr>
</tbody>
</table>

**Note:** The document includes various financial tables and calculations related to budget documentation.
LOGICAL PRESENTATION OF REQUIREMENTS FOR APPLICATION OF RESEARCH CLEARANCE AND PERMIT AT COSTECH

The objective of the analysis that led to this presentation was to find a much more easier to understand presentation of the requirements to the prospective applicants.

GENERAL REQUIREMENTS: These apply to all applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreigners Affiliated to Local Research and Higher Learning Institutions</th>
<th>Others (Tanzanian, Non Tanzanians, affiliated in a foreign country, affiliated locally, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Detailed curriculum vitae</td>
<td>Required for all involved researchers</td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td>2 Full research proposal</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>3 Sponsor cover letter</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>4 Support letter from local collaborating institution / contact person</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>5 Recommendation letter for endorsement of the proposed research within the institution</td>
<td>Required</td>
<td>Not applicable</td>
</tr>
<tr>
<td>6 Front-page of passport</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>7 Proof of payment non-refundable application fees</td>
<td>50 USD</td>
<td>50 USD</td>
</tr>
<tr>
<td>8 Application form</td>
<td>Required</td>
<td>Required</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR SPECIFIC SCENARIOS

a) Research related to medical, public health, drugs, clinical trials, and wildlife issues require special clearance from relevant authorities i.e National Institute of Medical Research (NIMR) for the study that involves medical, public health and / or human subject (health); Tanzania Food and Drug Authority for Clinical Trials; and Tanzania Wildlife Research Institute (TAWIRI) for the study that involves wildlife and natural resources conservation.

b) In case of joining a new researcher to an on-going research which has already been granted a research permit, a Principal Investigator shall submit a request of research permit for a new member to COSTECH at least 2 months prior to his/her joining the research team with detailed curriculum vitae, clear justification and roles for an additional staff / researcher to the on-going project.

c) It is anticipated that the PI will remain responsible for the entire lifetime of the project, unless circumstances necessitate a change of PI. In such rare situation the head of hosting research institution shall write to notify COSTECH within 6 months since termination of outgoing PI. This will be done in writing explaining the reason for the changes and suitability of a newly identified PI. The letter requesting for amendment, accompanied by an up to date progress report shall be subjected to approval process before continuing with the research. It is the responsibility of the hosting institution to submit the request for change of PI within specified time.

POST CLEARANCE

a) After the research has been cleared, the PI will be notified by email. All FOREIGNERS who then wishes to undertake research activities in the country under the cleared research project will be required to apply for permit by presenting a proof of payment of research permit fees (300 USD) and three passport size photos.
b) All researchers granted research permit that involve collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA) / Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research project.

c) An Applicant who has been permitted to conduct research in Tanzania is obliged to submit soft and two (2) hard copies (printed) and soft copy of his/her research report /thesis with COSTECH on completion of research.

d) COSTECH will have an access to data and research premises of the permitted research projects.

e) A Principal Investigator (PI) permitted to conduct research in Tanzania is obliged to submit a quarterly/annually report.

f) Persons who have not submitted satisfactory final reports / thesis on previous research work in Tanzania may not be cleared for new projects. Attention will be drawn to the sponsoring institutions and referees on shared responsibility of making sure that researchers sponsored by them observe the foregoing regulations. A breach of the regulations could result in refusal of permits for other researchers sponsored by same institutions or referees.

g) Any patent or intellectual property and royalty emanating from any research approved by the National Research Registration Committee (NRRC) should be owned by the respective research institutions involved.
Average Annual Maintenance Costs for a vehicle.

Tyre changing every after 15,000km estimated 3 times a year. 5 tyres each TZS 480,000 ($210)
Routine Maintenance (replacement of bush, fuel filter, air filter, shock absorbers, brake pads, and engine oil changing, etc) every after 5,000 km estimated each TZS 1,428,059.60 ($624)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Price (TZS)</th>
<th>Subtotal (TZS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock absorbers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brake pads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine oil changing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total:** TZS 1,428,059.60
UAP Insurance Tanzania Ltd

RECEIPT

Payment receipt number: APR000000017
On behalf of: GLOBAL ANIMAL HEALTH
Currency: TANZANIAN SHILLINGS
Amount: 315000.00
Account in use: NCW150212111132
Method of payment: Credit Card
Check number: 111

Date: 07/02/2012

Note: The recipient should retain the remittance advice for tax purposes.
OFFICE SUPPLIES

The list of office supplies is not exhaustive and we do not have recent comprehensive list yet. Several items were purchased a couple of days ago as seen in the documents below. Note that similar purchase can occur throughout the year USD 2,000. Below is the likely list of supplies and receipt for some of items that we purchased.

<table>
<thead>
<tr>
<th>Item</th>
<th>Average Price, TBS</th>
<th>USD Equivalent</th>
<th>Item</th>
<th>Average Price, TBS</th>
<th>USD Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4 Printer paper</td>
<td>60,000.00</td>
<td>25.90</td>
<td>Hole puncher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiral bound notebooks</td>
<td>15,000.00</td>
<td>6.18</td>
<td>Legal pads</td>
<td>5,000.00</td>
<td>2.15</td>
</tr>
<tr>
<td>Box files</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Manila folders</td>
<td>4,000.00</td>
<td>1.72</td>
</tr>
<tr>
<td>Stapler</td>
<td>7,500.00</td>
<td>3.23</td>
<td>Hanging folders</td>
<td>4,500.00</td>
<td>1.94</td>
</tr>
<tr>
<td>Punching machine</td>
<td>6,000.00</td>
<td>2.58</td>
<td>Paper clips</td>
<td>4,500.00</td>
<td>1.94</td>
</tr>
<tr>
<td>Pen</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Binder clips</td>
<td>12,000.00</td>
<td>5.16</td>
</tr>
<tr>
<td>Pencils</td>
<td>2,500.00</td>
<td>1.06</td>
<td>Masking Tape</td>
<td>3,500.00</td>
<td>1.48</td>
</tr>
<tr>
<td>Highlighters</td>
<td>4,500.00</td>
<td>1.94</td>
<td>Marking Tape</td>
<td>4,500.00</td>
<td>1.94</td>
</tr>
<tr>
<td>Glue</td>
<td>6,000.00</td>
<td>2.58</td>
<td>White glue</td>
<td>3,000.00</td>
<td>1.29</td>
</tr>
<tr>
<td>Scissors</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Pencil sharpener</td>
<td>2,500.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Ruler</td>
<td>1,000.00</td>
<td>0.43</td>
<td>Erasers</td>
<td>1,500.00</td>
<td>0.65</td>
</tr>
<tr>
<td>Stapler 12x12</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Ink pad</td>
<td>5,500.00</td>
<td>2.31</td>
</tr>
<tr>
<td>Sticker notes</td>
<td>4,000.00</td>
<td>1.72</td>
<td>Correction fluid</td>
<td>2,500.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Writing pads</td>
<td>6,000.00</td>
<td>2.58</td>
<td>Garbage bags</td>
<td>12,000.00</td>
<td>5.16</td>
</tr>
<tr>
<td>Electric extension cables</td>
<td>25,000.00</td>
<td>10.56</td>
<td>Broom</td>
<td>4,500.00</td>
<td>1.94</td>
</tr>
<tr>
<td>Desk Fan</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Dusters</td>
<td>7,500.00</td>
<td>3.23</td>
</tr>
<tr>
<td>Office Tray</td>
<td>25,000.00</td>
<td>10.75</td>
<td>Disinfectants</td>
<td>40,000.00</td>
<td>17.29</td>
</tr>
<tr>
<td>Paper Shredder</td>
<td>3,000.00</td>
<td>1.30</td>
<td>Window cleaner</td>
<td>12,000.00</td>
<td>5.16</td>
</tr>
<tr>
<td>Notice board</td>
<td>20,000.00</td>
<td>8.60</td>
<td>Water dispenser refill</td>
<td>5,000.00</td>
<td>2.15</td>
</tr>
<tr>
<td>Curtains</td>
<td>50,000.00</td>
<td>21.50</td>
<td>Coffee</td>
<td>12,000.00</td>
<td>5.16</td>
</tr>
<tr>
<td>Envelopes</td>
<td>5,000.00</td>
<td>2.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greeting cards</td>
<td>4,000.00</td>
<td>1.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiral note books - 5</td>
<td>3,000.00</td>
<td>1.30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# INVOICE

KILIMANJARO CHRISTIAN MEDICAL CENTRE

Customer:

- **Name:** Global Animal Health Tanzania

---

**Date:** 21/11/2019

**No:** 0069

---

<table>
<thead>
<tr>
<th>S/NO</th>
<th>Qty</th>
<th>Particulars</th>
<th>PRICE</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Annual Disposal Fee</td>
<td>USD 525.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>US Dollar Five Hundred twenty five only.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Deposit Account No:**

---

**Account Name:**

**Account Number:**

**Bank Name:**

**Branch Name:**

**SWIFT Code:**

**Branch Code:**

---

**SUB TOTAL:**

**OTHER CHARGES:**

**TOTAL:**

USD 525.00
This contract is made and entered into by and between the state of Washington, Washington State University, hereinafter referred to as the “UNIVERSITY”, and the below named firm or individual, hereinafter referred to as “CONTRACTOR.”

NAME
ADDRESS
CITY STATE AND ZIP
TELEPHONE
EMAIL
FEDERAL ID NO.
WASHINGTON STATE UBI NO.
WSU VENDOR NO.
STATE OF WA OMWBE CERTIFICATION No.

1. PURPOSE
The purpose of this Contract is to provide expertise for a federally funded project entitled, “Crimean Congo Hemorrhagic Fever: Reducing an emerging health threat in Tanzania,” University lead investigator [Redacted] CONTRACTOR will serve as the project mammologist.

2. SCOPE OF WORK
A. The CONTRACTOR will provide services, and otherwise do all things necessary for or incidental to the performance of work, as set forth below:
   1. Assist field teams with the live trapping, sample collection and identification of small mammal species
   2. Ensure proper documentation of the species identified
   3. Write bi-monthly reports and submit to the University lead investigator, which will include a summary of field activities
   4. Attend study meetings as requested and report on progress of work

B. Exhibits A and B contain the General Terms and Conditions governing work to be performed under this contract, the nature of the working relationship between the UNIVERSITY and the CONTRACTOR, and specific obligations of both parties.

C. The CONTRACTOR shall produce the following deliverables by the dates indicated in the chart below:

<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION OF DELIVERABLE ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• A schedule of travel to be undertaken with field teams to conduct sampling activities and species identification of small mammals</td>
</tr>
<tr>
<td></td>
<td>• Bi-monthly reports of field activities and species identification</td>
</tr>
<tr>
<td></td>
<td>• Attendance at study related meetings as requested</td>
</tr>
</tbody>
</table>
3. **PERIOD OF PERFORMANCE**

The period of performance under this contract will be from xxxx through xxxx.

The execution of this Contract shall constitute a ratification of that earlier verbal agreement between the parties, the terms and conditions of which are contained herein. Accordingly, the beginning date of performance under this Contract shall be xxxx regardless of the date of execution. UNIVERSITY shall reimburse the CONTRACTOR for those costs incurred in performance hereunder, for that period between the beginning date of performance and the date of execution of this Contract.

4. **COMPENSATION AND PAYMENT**

All compensation amounts and funds due to CONTRACTOR are stated in U.S. Dollars (USD Payments will be made in Tanzania Shilling by UNIVERSITY’S Local Affiliate, PFK Limited and non-government agency, Global Animal Health Tanzania (GAHT). UNIVERSITY and GAHT will not compensate CONTRACTOR for currency exchange fluctuations through the issuance of payment.

Payments to CONTRACTOR will be subjected to all Tanzanian tax regulation.

UNIVERSITY shall pay an amount not to exceed $12,000.00 for the performance of all things necessary for or incidental to the performance of work as set forth in the Scope of Work. CONTRACTOR'S compensation for services rendered shall be based on the following rates or in accordance with the following terms:

A. **Fees:** At the rate of $500.00 per month an amount not to exceed $6,000.00 per year; which amount is included in the not-to-exceed compensation amount.

B. **Expenses:** The UNIVERSITY shall provide coverage of travel expenses related to official work that has been approved in advance by the Project Manager, including:

1. Lodging and subsistence necessary during periods of required travel.

5. **BILLING PROCEDURES**

UNIVERSITY will pay CONTRACTOR upon receipt of properly completed invoices, which may be submitted to the Contract Manager via email. The billing address for invoices is:

Washington State University  
Controllers Office  
Attn: WSU Contract XXXX  
P.O. Box 641025  
Pullman, WA 99164-1025

Mail Code 7090

The invoices shall describe and document to the UNIVERSITY’S satisfaction a description of the work performed, the progress of the project, and fees. If expenses are invoiced, provide a detailed breakdown of each type. Any single expense in the amount of $50.00 or more must be accompanied by a receipt in order to receive reimbursement.

Payment shall be considered timely if made by the UNIVERSITY within thirty (30) days after receipt of properly completed invoices. Payment shall be sent to the address designated by the CONTRACTOR.

The UNIVERSITY may, in its sole discretion, terminate the contract or withhold payments claimed by the CONTRACTOR for services rendered if the CONTRACTOR fails to satisfactorily comply with any term or condition of this contract.

No payments in advance or in anticipation of services or supplies to be provided under this contract shall be made by the UNIVERSITY.
6. **CONTRACT MANAGEMENT**

A. The Contract Manager for each of the parties shall be the contact person for all communications regarding the performance of this contract and billing.

- **CONTRACT MANAGER FOR THE CONTRACTOR**
  - NAME: [Redacted]
  - ADDRESS: Paul G. Allen School for Global Animal Health
  - ADDRESS: P.O. Box 647090
  - TELEPHONE: [Redacted]
  - EMAIL: DES Training Completed? yes

- **CONTRACT MANAGER FOR THE UNIVERSITY**
  - NAME: [Redacted]
  - ADDRESS: Pullman, WA 99164-7090
  - TELEPHONE: [Redacted]
  - EMAIL: DES Training Completed? no

B. The Project Manager for each of the parties will be point of contact for scope of work. Project Manager for UNIVERSITY will receive and accept deliverables and determine if CONTRACTOR has satisfactorily completed the scope of work.

- **PROJECT MANAGER FOR THE CONTRACTOR**
  - NAME: [Redacted]
  - ADDRESS: P. O. Box 647090
  - ADDRESS: Pullman, WA 99164-7090
  - TELEPHONE: [Redacted]
  - EMAIL: DES Training Completed? [Redacted]

- **PROJECT MANAGER FOR THE UNIVERSITY**
  - NAME: [Redacted]
  - ADDRESS: Pullman, WA 99164-7090
  - TELEPHONE: [Redacted]
  - EMAIL: DES Training Completed? [Redacted]

7. **INSURANCE**

The CONTRACTOR shall insure themselves and any persons working for their organization; and they shall be exclusively liable for any claims arising from them and/or their employees, from performance of their obligations of this Contract.

CONTRACTOR shall submit to UNIVERSITY within 15 days of the Contract effective date, a certificate of insurance that outlines the coverage and limits defined in the Insurance section. The mailing address for certificate holder is:

Washington State University
Contract ####
PO Box 641020
Pullman, WA 99164-1020

8. **ASSURANCES**

UNIVERSITY and the CONTRACTOR agree that all activity pursuant to this contract will be in accordance with all the applicable current federal, state and local laws, rules, and regulations.
9. **ORDER OF PRECEDENCE**

Each of the Exhibits listed below is by this reference hereby incorporated into this contract. In the event of an inconsistency in this contract, the inconsistency shall be resolved by giving precedence in the following order:

1. Applicable Federal and state of Washington statutes and regulations
2. Special Terms and Conditions as contained in this basic contract instrument
3. Exhibit B – FAR Terms and Conditions (for Federal Grant Funded Purchases only)
4. Exhibit A  UNIVERSITY General Terms and Conditions
5. Any other provision, term or material incorporated herein by reference or otherwise incorporated.

10. **ENTIRE AGREEMENT**

This contract including referenced exhibits represents all the terms and conditions agreed upon by the parties. No other statements or representations, written or oral, shall be deemed a part hereof.

11. **CONFORMANCE**

If any provision of this contract violates any statute or rule of law of the state of Washington, it is considered modified to conform to that statute or rule of law.

12. **APPROVAL**

This contract shall be subject to the written approval of the UNIVERSITY'S authorized representative and shall not be binding until so approved. The contract may be altered, amended, or waived only by a written amendment executed by both parties.

This CONTRACT, consisting of FOUR pages and two attachments named Exhibit A and Exhibit B, is executed by the persons signing below who warrant that they have the authority to execute the agreement.

**TYPE CONTRACTOR NAME HERE**

**WASHINGTON STATE UNIVERSITY**

Signature Date  [Signature]
Name of signatory
Title of signatory
Email address of signatory

[Signature]

Date  [Date]  
Associate Director, Purchasing
GENERAL TERMS AND CONDITIONS FOR PERSONAL SERVICES CONTRACT

DEFINITIONS
As used throughout this CONTRACT, the following terms shall have the meaning set forth below:

A. "UNIVERSITY" shall mean Washington State University, an institution of higher education of the State of Washington, any division, section, office, unit or other entity of the UNIVERSITY, or any of the officers or other officials lawfully representing that UNIVERSITY.

B. "AGENT" shall mean the delegated individual authorized in writing to act on the UNIVERSITY's behalf.

C. "CONTRACTOR" shall mean that firm, provider, organization, individual or other entity performing service(s) under this contract and shall include all employees of the CONTRACTOR.

D. "SUBCONTRACTOR" shall mean one not in the employment of the CONTRACTOR, who is performing all or part of those services under this contract under a separate contract with the CONTRACTOR. The terms "SUBCONTRACTOR" and "SUBCONTRACTORS" means SUBCONTRACTOR(s) in any tier.

ACCESS TO DATA
In compliance with RCW 39.26.180, the CONTRACTOR shall provide access to data generated under this contract to UNIVERSITY, the Joint Legislative Audit and Review Committee, and the State Auditor at no additional cost. This includes access to all information that supports the findings, conclusions, and recommendations of the CONTRACTOR'S reports, including computer models and methodology for those models.

ADVANCE PAYMENTS PROHIBITED
In accordance with state law, no payments in advance of or in anticipation of goods or services to be provided under this CONTRACT shall be made by the UNIVERSITY.

AMENDMENTS
This CONTRACT may be amended by mutual agreement of the parties. Such amendments shall not be binding unless they are in writing and signed by personnel authorized to bind each of the parties.

ASSIGNMENT
Neither this contract, nor any claim arising under this contract, shall be transferred or assigned by the CONTRACTOR without prior written consent of the UNIVERSITY.

ATTORNEYS’ FEES
In the event of litigation or other action brought to enforce contract terms, each party agrees to bear its own attorney fees and costs.

CONFIDENTIALITY/SAFEGUARDING OF INFORMATION
The CONTRACTOR shall not use or disclose any information concerning the UNIVERSITY, or information that may be classified as confidential, for any purpose not directly connected with the administration of this contract, except with prior written consent of the UNIVERSITY, or as may be required by law.

CONFLICT OF INTEREST
Notwithstanding any determination by the Executive Ethics Board or other tribunal, the UNIVERSITY may, in its sole discretion, by written notice to the CONTRACTOR terminate this contract if it is found after due notice and examination by the UNIVERSITY that there is a violation of the Ethics in Public Service Act, Chapter 42.52 RCW; or any similar statute involving the CONTRACTOR in the procurement of, or performance under this contract.

In the event this contract is terminated as provided above, the UNIVERSITY shall be entitled to pursue the same remedies against the CONTRACTOR as it could pursue in the event of a breach of the contract by the CONTRACTOR. The rights and remedies of the UNIVERSITY provided for in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law. The existence of facts upon which the AGENT makes any determination under this clause shall be an issue and may be reviewed as provided in the "Disputes" clause of this contract.
COPYRIGHT PROVISIONS

Unless otherwise provided, all materials produced under this contract shall be considered "works for hire" as defined by the U.S. Copyright Act and shall be owned by the UNIVERSITY. The UNIVERSITY shall be considered the author of such materials. In the event the materials are not considered "works for hire" under the U.S. Copyright laws, CONTRACTOR hereby irrevocably assigns all right, title, and interest in materials, including all intellectual property rights, to the UNIVERSITY effective from the moment of creation of such materials.

Materials means all items in any format and includes, but is not limited to, data, reports, documents, pamphlets, advertisements, books, magazines, surveys, studies, computer programs, films, tapes, and/or sound reproductions. Ownership includes the right to copyright, patent, register and the ability to transfer these rights.

For materials that are delivered under the contract, but that incorporate pre-existing materials not produced under the contract, CONTRACTOR hereby grants to the UNIVERSITY a nonexclusive, royalty-free, irrevocable license (with rights to sublicense others) in such materials to translate, reproduce, distribute, prepare derivative works, publicly perform, and publicly display. The CONTRACTOR warrants and represents that CONTRACTOR has all rights and permissions, including intellectual property rights, moral rights and rights of publicity, necessary to grant such a license to the UNIVERSITY.

The CONTRACTOR shall exert all reasonable effort to advise the UNIVERSITY, at the time of delivery of materials furnished under this contract, of all known or potential invasions of privacy contained therein and of any portion of such document that was not produced in the performance of this contract.

The UNIVERSITY shall receive prompt written notice of each notice or claim of infringement received by the CONTRACTOR with respect to any data delivered under this contract. The UNIVERSITY shall have the right to modify or remove any restrictive markings placed upon the data by the CONTRACTOR.

COVENANT AGAINST CONTINGENT FEES

The CONTRACTOR warrants that no person or selling agent has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting bona fide employees or bona fide established agents maintained by the CONTRACTOR for securing business.

The UNIVERSITY shall have the right, in the event of breach of this clause by the CONTRACTOR, to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration or recover by other means the full amount of such commission, percentage, brokerage or contingent fee.

DISALLOWED COSTS

The Contractor is responsible for any audit exceptions or costs disallowed by the UNIVERSITY that are incurred by the Contractor or its Subcontractors.

DISPUTES

In the event that a dispute arises under this Contract that the parties can't resolve, they shall allow the dispute to be decided by a Dispute Panel in the following manner: each party to this Contract shall appoint one member to the Dispute Panel, and the members so appointed shall jointly appoint an additional member to the Dispute Panel. The Dispute Panel shall review the facts, contract terms and applicable statutes and rules and make a determination of the dispute. The determination of the Dispute Panel shall be final and binding on the parties hereto. The parties shall equally share the costs, if any, for the services of the Dispute Panel.

Nothing in this contract shall be construed to limit the parties’ choice of a mutually acceptable alternate dispute resolution method in addition to the dispute resolution procedure outlined above.

DUPLICATE PAYMENT

The UNIVERSITY shall not pay the CONTRACTOR, if the CONTRACTOR has charged or will charge Washington State University, the State of Washington or any other party under any other contract or agreement, for the same services or expenses.
FUNDING CONTINGENCY
In the event funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date of this contract and prior to normal completion, the UNIVERSITY may terminate the contract under the "Termination for Convenience" clause, without the ten-day notice requirement, subject to renegotiation at the UNIVERSITY'S discretion under those new funding limitations and conditions.

GOVERNING LAW
This contract shall be construed and interpreted in accordance with the laws of the State of Washington, and the venue of any action brought hereunder shall be in the Superior Court for Whitman County.

INDEMNIFICATION
To the fullest extent permitted by law, CONTRACTOR shall indemnify, defend, and hold harmless Washington State University, the State of Washington, agencies of the State and all officials, agents and employees of the State, from and against all claims for injuries or death arising out of or resulting from the performance of the contract. "Claim," as used in this contract, means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorney's fees, attributable for bodily injury, sickness, disease, or death, or injury to or destruction of tangible property including loss of use resulting therefrom.

CONTRACOR'S obligations to indemnify, defend, and hold harmless includes any claim by CONTRACTORS' agents, employees, representatives, or any subcontractor or its employees.

CONTRACOR expressly agrees to indemnify, defend, and hold harmless Washington State University and the State of Washington for any claim arising out of or incident to CONTRACTORS' or any subcontractor's performance or failure to perform the contract. CONTRACTORS' obligation to indemnify, defend, and hold harmless Washington State University and the State of Washington shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials.

CONTRACOR waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless Washington State University and the State of Washington and its agencies, officials, agents or employees.

INDEPENDENT CAPACITY OF THE CONTRACTOR
The parties intend that an independent contractor relationship will be created by this contract. The CONTRACTOR and his or her employees or agents performing under this contract are not employees or agents of the UNIVERSITY. The CONTRACTOR will not hold himself/herself out as or claim to be an officer or employee of the UNIVERSITY or of the State of Washington by reason hereof, nor shall the CONTRACTOR make any claim of right, privilege or benefit that would accrue to such employee under law. Conduct and control of the work will be solely with the CONTRACTOR.

INDUSTRIAL INSURANCE COVERAGE
The CONTRACTOR shall comply with the provisions of Title 51 RCW, Industrial Insurance. If the CONTRACTOR fails to provide industrial insurance coverage or fails to pay premiums or penalties on behalf of its employees, as may be required by law, UNIVERSITY may collect from the CONTRACTOR the full amount payable to the Industrial Insurance Accident Fund. The UNIVERSITY may deduct the amount owed by the CONTRACTOR to the accident fund from the amount payable to the CONTRACTOR by the UNIVERSITY under this contract, and transmit the deducted amount to the Department of Labor and Industries, (L&I) Division of Insurance Services. This provision does not waive any of L&I's rights to collect from the CONTRACTOR.

LICENSING, ACCREDITATION AND REGISTRATION
The CONTRACTOR shall comply with all applicable local, state, and federal licensing, accreditation and registration requirements/standards, necessary for the performance of this contract.

LIMITATION OF AUTHORITY
Only a WSU UNIVERSITY'S personnel authorized in writing to bind UNIVERSITY (delegation to be made prior to action) shall have the express, implied, or apparent authority to alter, amend, modify, or waive any clause or condition of this contract. Any alterations, amendments, modifications, or waivers made by UNIVERSITY personnel or employees without such written authority will not be effective or binding unless also made in writing and signed by an authorized UNIVERSITY representative.
Nondiscrimination
During the performance of this contract, the CONTRACTOR shall comply with all federal and state nondiscrimination laws, regulations and policies, including the AMERICANS WITH DISABILITIES ACT (ADA) OF 1990, PUBLIC LAW 101-336, also referred to as the "ADA" 28 CFR Part 35.

In the event of the CONTRACTOR'S non-compliance or refusal to comply with any nondiscrimination law, regulation, or policy, this contract may be rescinded, canceled or terminated in whole or in part, and the CONTRACTOR may be declared ineligible for further contracts with the UNIVERSITY. The CONTRACTOR shall, however, be given a reasonable time in which to cure this noncompliance. Any dispute may be resolved in accordance with the "Disputes" procedure set forth herein.

Privacy
Personal information including, but not limited to, "Protected Health Information," collected, used, or acquired in connection with this contract shall be protected against unauthorized use, disclosure, modification or loss. CONTRACTOR shall ensure its directors, officers, employees, subcontractors or agents use personal information solely for the purposes of accomplishing the services set forth herein. CONTRACTOR and its subcontractors agree not to release, divulge, publish, transfer, sell or otherwise make known to unauthorized persons personal information without the express written consent of the UNIVERSITY or as otherwise required by law.

Any breach of this provision may result in termination of the contract and the demand for return of all personal information. The CONTRACTOR agrees to indemnify and hold harmless the UNIVERSITY for any damages related to the CONTRACTOR'S unauthorized use of personal information.

Publicity
The CONTRACTOR agrees to submit to the UNIVERSITY all advertising and publicity matters relating to this contract wherein the UNIVERSITY'S name is mentioned or language used from which the connection of the UNIVERSITY'S name may, in the UNIVERSITY'S judgment, be inferred or implied. The CONTRACTOR agrees not to publish or use such advertising and publicity matters without the prior written consent of the UNIVERSITY.

Records Maintenance
The CONTRACTOR shall maintain books, records, documents, data and other evidence relating to this contract and performance of the services described herein, including but not limited to accounting procedures and practices that sufficiently and properly reflect all direct and indirect costs of any nature expended in the performance of this contract.

The CONTRACTOR shall retain such records for a period of six years following the date of final payment. At no additional cost, these records, including materials generated under the contract, shall be subject at all reasonable times to inspection, review or audit by the UNIVERSITY, personnel duly authorized by the UNIVERSITY, the Office of the State Auditor, and federal and state officials so authorized by law, regulation or agreement.

If any litigation, claim or audit is started before the expiration of the six (6) year period, the records shall be retained until all litigation, claims, or audit findings involving the records have been resolved.

Registration with Department of Revenue
If required to do so by law, the CONTRACTOR shall complete registration with the Washington State Department of Revenue and be responsible for payment of all taxes due on payments made under this contract.

Right of Inspection
The CONTRACTOR shall provide right of access to its facilities to the UNIVERSITY, or any of its officers, or to any other authorized agent or official of the state of Washington or the federal government, at all reasonable times, in order to monitor and evaluate performance, compliance, and/or quality assurance under this contract.

Severability
The provisions of this contract are intended to be severable. If any term or provision is illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the contract.
SITE SECURITY
While on UNIVERSITY premises, CONTRACTOR, its agents, employees, or subcontractors shall conform in all respects with UNIVERSITY's physical, fire or other security policies or regulations.

SUBCONTRACTING
Neither the CONTRACTOR nor any approved SUBCONTRACTOR shall enter into subcontracts for any of the work contemplated under this Contract without obtaining prior written approval of the UNIVERSITY. In no event shall the existence of the subcontract operate to release or reduce the liability of the CONTRACTOR to the UNIVERSITY for any breach in the performance of the CONTRACTOR's duties. This clause does not include contracts of employment between the contractor and personnel assigned to work under this contract.

Additionally, the CONTRACTOR is responsible for ensuring that all terms, conditions, assurances and certifications set forth in this CONTRACT are carried forward to any subcontracts. CONTRACTOR and its subcontractors agree not to release, divulge, publish, transfer, sell or otherwise make known to unauthorized persons personal information without the express written consent of the UNIVERSITY or as provided by law.

TAXES
All payments accrued because of payroll taxes, unemployment contributions, any other related taxes, insurance or other expenses for the CONTRACTOR or its staff shall be the sole responsibility of the CONTRACTOR.

TERMINATION FOR CAUSE
In the event the UNIVERSITY determines the CONTRACTOR has failed to comply with the conditions of this contract in a timely manner, the UNIVERSITY has the right to suspend or terminate this contract. Before suspending or terminating the contract, the UNIVERSITY shall notify the CONTRACTOR in writing of the need to take corrective action. If corrective action is not taken within 30 calendar days of date of notice, the contract may be terminated or suspended.

In the event of termination or suspension, the CONTRACTOR shall be liable for damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, e.g., cost of the competitive bidding, mailing, advertising and staff time.

The UNIVERSITY reserves the right to suspend all or part of the contract, withhold further payments, or prohibit the CONTRACTOR from incurring additional obligations of funds during investigation of the alleged compliance breach and pending corrective action by the CONTRACTOR or a decision by the UNIVERSITY to terminate the contract. A termination shall be deemed a “Termination for Convenience” if it is determined that the CONTRACTOR: (1) was not in default; or (2) failure to perform was outside of his or her control, fault or negligence.

The rights and remedies of the UNIVERSITY provided in this contract are not exclusive and are, in addition to any other rights and remedies, provided by law.

TERMINATION FOR CONVENIENCE
Except as otherwise provided in this Contract, the UNIVERSITY may, by 30 calendar days written notice terminate this Contract, in whole or in part. If this Contract is so terminated, the UNIVERSITY shall be liable only for payment required under the terms of this contract for services rendered or goods delivered prior to the effective date of termination.

TERMINATION PROCEDURES
Upon termination of this CONTRACT, the UNIVERSITY, in addition to any other rights provided in this CONTRACT, may require the CONTRACTOR to deliver to the UNIVERSITY any property specifically produced or acquired for the performance of such part of this contract as has been terminated. The provisions of the "Treatment of Assets" clause shall apply in such property transfer.

The UNIVERSITY shall pay to the CONTRACTOR the agreed upon price, if separately stated, for completed work and services accepted by the UNIVERSITY, and the amount agreed upon by the CONTRACTOR and the UNIVERSITY for (i) completed work and services for which no separate price is stated, (ii) partially completed work and services, (iii) other property or services that are accepted by the UNIVERSITY, and (iv) the protection and preservation of property, unless the termination is for default, in which case the AGENT shall determine the extent of the liability of the UNIVERSITY. Failure to agree with such determination shall be a dispute within the meaning of the "Disputes" clause of this contract. The UNIVERSITY may, in good faith, withhold from any amounts due the CONTRACTOR such sum as the AGENT determines to be necessary to protect the UNIVERSITY against potential loss or liability.
The rights and remedies of the UNIVERSITY provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

After receipt of a notice of termination, and except as otherwise directed by the UNIVERSITY, the CONTRACTOR shall:

1. Stop work under the contract on the date, and to the extent specified, in the notice;
2. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the contract that is not terminated;
3. Assign to the UNIVERSITY, in the manner, at the times, and to the extent directed by the UNIVERSITY, all of the rights, title, and interest of the CONTRACTOR under the orders and subcontracts so terminated, in which case the UNIVERSITY has the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
4. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the UNIVERSITY to the extent UNIVERSITY may require, which approval or ratification shall be final for all the purposes of this clause;
5. Transfer title to the UNIVERSITY and deliver in the manner, at the times, and to the extent directed by the UNIVERSITY any property which, if the contract had been completed, would have been required to be furnished to the UNIVERSITY;
6. Complete performance of such part of the work as shall not have been terminated by the UNIVERSITY, and
7. Take such action as may be necessary, or as the UNIVERSITY may direct, for the protection and preservation of the property related to this contract, which is in the possession of the CONTRACTOR and in which the UNIVERSITY has or may acquire an interest.

TREATMENT OF ASSETS
A. Title to all property furnished by the UNIVERSITY shall remain in the UNIVERSITY. Title to all property furnished by the CONTRACTOR, for the cost of which the CONTRACTOR is entitled to be reimbursed as a direct item of cost under this contract, shall pass to and vest in the UNIVERSITY upon delivery of such property by the CONTRACTOR. Title to other property, the cost of which is reimbursable to the CONTRACTOR under this contract, shall pass to and vest in the UNIVERSITY upon (i) issuance for use of such property in the performance of this contract or (ii) commencement of use of such property in the performance of this contract, or (iii) reimbursement of the cost thereof by the UNIVERSITY in whole or in part, whichever first occurs.

B. Any property of the UNIVERSITY furnished to the CONTRACTOR shall, unless otherwise provided herein or approved by the UNIVERSITY, be used only for the performance of this contract.

C. The CONTRACTOR shall be responsible for any loss or damage to property of the UNIVERSITY that results from the negligence of the CONTRACTOR or which results from the failure on the part of the CONTRACTOR to maintain and administer that property in accordance with sound management practices.

D. If any UNIVERSITY property is lost, destroyed or damaged, the CONTRACTOR shall immediately notify the UNIVERSITY and shall take all reasonable steps to protect the property from further damage.

E. The CONTRACTOR shall surrender to the UNIVERSITY all property of the UNIVERSITY prior to settlement upon completion, termination or cancellation of this contract.

F. All reference to the CONTRACTOR under this clause shall also include CONTRACTOR’S employees, agents or SUBCONTRACTORS.

WAIVER
Waiver of any default or breach shall not be deemed a waiver of any subsequent default or breach. Any waiver shall not be construed to be a modification of the terms of this contract unless stated to be such in writing and signed by authorized representative of the UNIVERSITY.
CONTRACT TERMS AND CONDITIONS FOR FEDERAL GRANT FUNDED PURCHASES

The WASHINGTON STATE UNIVERSITY by and through its Board of Regents has entered into an agreement with the United States of America. This Contract is entered into with the Contractor in furtherance of the performance of the work required by that agreement. When interpreting applicable provisions of 2 CFR Part 200 and its appendices, “Federal Agency” or “Federal Awarding Agency” shall refer to the agency of the United States Government from whom the Washington State University (“WSU”) has received grant funds to be expended under this Contract, “Non-Federal Entity” shall refer to the Washington State University. “Contractor” shall refer to the contractor with whom the Washington State University has entered into this contract and “Contract” shall refer to this contract between the Washington State University and Contractor.

By accepting this order or by entering into this Contract, a Contract between the Washington State University and the Contractor is formed. Contractor agrees to furnish the subject matter required by this order or Contract and agrees to all terms and conditions included by Washington State University, including the terms and conditions specified below. Any other applicable provisions of 2 CFR Part 200 are hereby incorporated by reference and shall have full force and effect.

1. **Breach, Default, Termination:** The Washington State University reserves the right to pursue all available legal, administrative, contractual or equitable remedies in the event of Contractor’s breach of contract or violation of any term of this contract. The Washington State University shall have the right to terminate this contract for cause, and shall retain all rights and remedies against Contractor. The Washington State University shall also have the right to terminate this Contract for convenience upon thirty (30) days notice to Contractor. Breach and/or Termination of this Contract shall be addressed in the manner prescribed in the WSU Standards Terms and Conditions.

2. **Equal Employment Opportunity:** Except as otherwise provided in 41 CFR Part 60, all “federally assisted construction contracts,” as defined in 41 CFR Part 60-1.3 are subject to the Equal Opportunity clause contained in 41 CFR 60-1.4(b), incorporated by reference. Furthermore, the Equal Opportunity clause contained in 41 CFR 60-1.4(b) applies to all nonexempt subcontracts entered into by Contractor under this Contract, and Contractor agrees to include the Equal Opportunity clause contained in 41 CFR 60-1.4(b) in all nonexempt subcontracts.

3. **Davis-Bacon Act, as amended (40 U.S.C. 3141-3148):** Where applicable, all prime construction contracts in excess of $2,000 shall comply with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the Davis-Bacon Act, contractors must pay wages to laborers and mechanics at a rate not less than prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must pay wages not less than once per week. If the Davis-Bacon Act applies to this Contract award of this Contract is conditioned upon the acceptance of the wage determination. The Washington State University will report all suspected or reported violations of the Davis-Bacon Act to the Federal Awarding Agency.

4. **Copeland “Anti-Kickback” Act (40 U.S.C. 3145):** Where applicable, all prime construction contracts over $2,000 are subject to the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 5, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Washington State University will report all suspected or reported violations to the Federal Awarding Agency. The Act provides that each contractor or subrecipient shall be prohibited from inducting, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he is otherwise entitled. The recipient shall report all suspected or reported violations to the Federal awarding agency.

5. **Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708):** Where applicable, all contracts over $100,000 which will involve the use of mechanics or laborers shall comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each Contractor is required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 apply to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
6. Rights to Inventions Made Under a Contract or Agreement: For Contracts awarded by the Washington State University under a "funding agreement," as defined in 37 CFR 401.2(a), between a Federal Awarding Agency and the Washington State University, if the Washington State University or Contractor wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under the "funding agreement," the Washington State University or Contractor must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

7. Clean Air Act (42 U.S.C. 7401-7671q): For Contracts and subgrants over $150,000, the Washington State University and Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q). The Washington State University shall report violations to the Federal Awarding Agency and the Regional Office of the Environmental Protection Agency (EPA).

8. Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended: For Contracts and subgrants over $150,000, the Washington State University and Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). The Washington State University shall report violations to the Federal Awarding Agency and the Regional Office of the Environmental Protection Agency (EPA).


10. Debarment and Suspension (Executive Orders 12549 and 12689): The Washington State University's award of this Contract is conditioned upon the Contractor's current and continued eligibility. Contractor is eligible unless Contractor is listed on the government-wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), "Debarment and Suspension." The Excluded Parties List System in SAM contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. If a contractor is listed on the Excluded Parties List System in SAM, Contractor shall have the obligation to promptly inform a Washington State University contract manager, and this Contract shall be immediately terminated without liability on the part of the Washington State University or the Federal Awarding Agency.

11. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352): For Contracts over $150,000, Contractor warrants it filed the required certification prior to Contract award and payment. Contractor certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Contractor shall require such certification and disclosure from any subcontractors used. Any further subcontractors must certify and disclose to the subcontractor awarding the subcontract. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures under this Contract shall be forwarded up from tier to tier up to the Washington State University.

12. Solid Waste Disposal Act (42 USC 6901-6992k): Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
December 4, 2019

RE: TRANSLATION SERVICES ESTIMATES

We will be translating the survey tools from English into Swahili and vernacular tribal languages. Translation services will be sourced in Arusha town and are estimated at:

$800 Year 1;
$872 Year 4;
$1,672 total

Sincerely Yours,

[Signature]

Administrative Manager/Finance and Operations

Global Animal Health Tanzania.
COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 
ORGANIZATION: 
Washington State University 
French Admin. Bldg., Rm. 240Q 
P.O. Box 641025 
Pullman, WA 99164-1025 

DATE: 12/09/2015 
FILING REF.: The preceding agreement was dated 07/08/2014 

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

<table>
<thead>
<tr>
<th>RATE TYPES</th>
<th>FIXED</th>
<th>FINAL</th>
<th>PROV. (PROVISIONAL)</th>
<th>PRED. (PREDETERMINED)</th>
</tr>
</thead>
</table>

**EFFECTIVE PERIOD**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%) LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2016</td>
<td>51.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2016</td>
<td>06/30/2017</td>
<td>52.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2017</td>
<td>06/30/2019</td>
<td>53.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>26.00 Off-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>57.50 On-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>26.00 Off-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>36.00 On-Campus</td>
<td>Other Sponsored Activities</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>26.00 Off-Campus</td>
<td>Other Sponsored Activities</td>
</tr>
<tr>
<td>PROV.</td>
<td>07/01/2019</td>
<td>Until Amended</td>
<td></td>
<td>Use same rates and conditions as those cited for fiscal year ending June 30, 2019.</td>
</tr>
</tbody>
</table>

*BASE*

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and subgrants and subcontracts up to the first $25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subgrant and subcontract in excess of $25,000.
**SECTION I: FRINGE BENEFIT RATES**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%)</th>
<th>LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIXED</td>
<td>7/1/2015</td>
<td>6/30/2016</td>
<td>33.60</td>
<td>CEEC (2)</td>
<td>Admin/Prof Employees, Faculty</td>
</tr>
<tr>
<td>FIXED</td>
<td>7/1/2015</td>
<td>6/30/2016</td>
<td>35.00</td>
<td>CEEC (1)</td>
<td>Classified Employees</td>
</tr>
</tbody>
</table>

**DESCRIPTION OF FRINGE BENEFITS RATE BASE:**
Salaries and wages excluding vacation, holiday, sick leave pay and other paid absences, and direct charged fringe benefits.

(1) Cooperative Extension Energy Office
SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

Except for CEEO employees (Admin/Prof/Faculty and Classified Categories only), this organization charges the actual cost of each fringe benefit direct to Federal projects. However, it uses a fringe benefit rate which is applied to salaries and wages in budgeting fringe benefit costs under project proposals.

The following fringe benefits are treated as direct costs: SOCIAL SECURITY, WORKERS COMPENSATION, HEALTH/LIFE/DISABILITY INSURANCE, UNEMPLOYMENT COMPENSATION, RETIREMENT (TIAA/CREF, PERS), AND QUALIFIED STUDENT TUITION REDUCTION (TUITION REMISSION).

For CEEO employees (Admin/Prof/Faculty and Classified Categories only), this organization uses a fringe benefit rate which is applied to salaries for budgeting and charging purposes for Federal projects. The following fringe benefits are included in CEEO fringe benefit rate: PAID ABSENCES.

The following fringe benefits are treated as direct costs: SOCIAL SECURITY, WORKERS COMPENSATION, HEALTH/LIFE/DISABILITY INSURANCE, UNEMPLOYMENT COMPENSATION, RETIREMENT (TIAA/CREF, PERS).

TREATMENT OF PAID ABSENCES:

Except for CEEO employees (Admin/Prof/Faculty and Classified Categories only), vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are charged to Federal projects as part of the normal charge for salaries and wages. Separate charges for the cost of these absences are not made.

For CEEO (Admin/Prof/Faculty and Classified Categories only), the cost of vacation, holiday, sick leave pay, and other paid absences are included in a fringe benefit rate and are not included in direct charges for salaries. Charges for salaries must exclude those paid to CEEO employees (Admin/Prof/Faculty and Classified Categories only) for periods when they are on vacation, holiday, or sick leave, or are otherwise absent from work.
DEFINITION OF OFF-CAMPUS:
A project is considered off-campus if the activity is conducted at locations other than in University owned or operated facilities and indirect costs associated with physical plant and library are not considered applicable to the project.

DEFINITION OF EQUIPMENT:
Equipment is defined as tangible nonexpendable personal property having a useful life of more than one year and an acquisition cost of $5,000 or more per unit.

NEXT PROPOSALS DUE DATES:
Your next Facilities & Administrative proposal based on fiscal year ending 06/30/2018 is due in our office by 12/31/2018, and your next fringe benefits proposal based on your fiscal year ending 6/30/2015 is due in our office by 12/31/2015.
SECTION III: GENERAL

A. LIMITATIONS:
The rates in this Agreement are subject to any statutory or administrative regulations and apply to any grant, contract, or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted, such costs are legal obligations of the organization and are allocable under the operating cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accounted consistent accounting treatments and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rates would be subject to renegotiation as the discretion of the Federal Government.

B. ACCOUNTING CHANGES:
This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the handling of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowance.

C. FIXED RATES:
If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. OR BY OTHER FEDERAL AGENCIES:
The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts, and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:
If any Federal contract, grant, or other agreement is reimbursing facilities and administrative costs by a name other than the approved rates in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

Washington State University

[Signature]

ASSOC. VICE PRESIDENT OF FINANCE

JANUARY 6, 2016

OR BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

[Signature]

Director, Cost Allocation Services

[Signature]

[Date] 12/9/2015

FEDERAL REPRESENTATIVE:

[Signature]

Telephone:

Page 5 of 5
### ORGANIZED RESEARCH

<table>
<thead>
<tr>
<th></th>
<th>On-Campus</th>
<th>Off-Campus</th>
<th>On-Campus</th>
<th>Off-Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY 1, 2015 THROUGH JUNE 30, 2016</td>
<td>5.3%</td>
<td>7.1%</td>
<td>7.3%</td>
<td>7.3%</td>
</tr>
<tr>
<td>JULY 1, 2016 THROUGH JUNE 30, 2017</td>
<td>2.7%</td>
<td>2.6%</td>
<td>2.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>JULY 1, 2017 THROUGH JUNE 30, 2019</td>
<td>15.3%</td>
<td>12.8%</td>
<td>32.9%</td>
<td>32.9%</td>
</tr>
<tr>
<td>BUILDING</td>
<td>0.3%</td>
<td>2.7%</td>
<td>2.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>1.0%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>OPERATIONS &amp; MAINTENANCE</td>
<td>8.5%</td>
<td>9.2%</td>
<td>9.2%</td>
<td>9.2%</td>
</tr>
<tr>
<td>GENERAL ADMINISTRATION</td>
<td>14.8%</td>
<td>14.2%</td>
<td>14.2%</td>
<td>14.2%</td>
</tr>
<tr>
<td>DEPARTMENT ADMINISTRATION</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>SPONSORED PROJECTS ADMINISTRATION</td>
<td>26.0%</td>
<td>26.0%</td>
<td>26.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>ADMINISTRATION COMPONENTS</td>
<td>51.0%</td>
<td>26.0%</td>
<td>52.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>51.0%</td>
<td>26.0%</td>
<td>52.0%</td>
<td>26.0%</td>
</tr>
</tbody>
</table>

### INSTRUCTION & DEPARTMENT RESEARCH

<table>
<thead>
<tr>
<th></th>
<th>On-Campus</th>
<th>Off-Campus</th>
<th>On-Campus</th>
<th>Off-Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY 1, 2015 THROUGH JUNE 30, 2019</td>
<td>10.5%</td>
<td>2.5%</td>
<td>6.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>JULY 1, 2016 THROUGH JUNE 30, 2017</td>
<td>1.5%</td>
<td>0.5%</td>
<td>1.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>JULY 1, 2017 THROUGH JUNE 30, 2019</td>
<td>11.5%</td>
<td>5.5%</td>
<td>11.5%</td>
<td>5.5%</td>
</tr>
<tr>
<td>BUILDING</td>
<td>1.5%</td>
<td>0.5%</td>
<td>1.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>6.5%</td>
<td>1.0%</td>
<td>6.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>OPERATIONS &amp; MAINTENANCE</td>
<td>7.8%</td>
<td>9.4%</td>
<td>7.8%</td>
<td>9.4%</td>
</tr>
<tr>
<td>GENERAL ADMINISTRATION</td>
<td>11.2%</td>
<td>13.9%</td>
<td>11.2%</td>
<td>13.9%</td>
</tr>
<tr>
<td>DEPARTMENT ADMINISTRATION</td>
<td>0.4%</td>
<td>0.7%</td>
<td>0.4%</td>
<td>0.7%</td>
</tr>
<tr>
<td>SPONSORED PROJECTS ADMINISTRATION</td>
<td>26.0%</td>
<td>26.0%</td>
<td>26.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>ADMINISTRATION COMPONENTS</td>
<td>57.5%</td>
<td>26.0%</td>
<td>57.5%</td>
<td>26.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>57.5%</td>
<td>26.0%</td>
<td>57.5%</td>
<td>26.0%</td>
</tr>
</tbody>
</table>

Administrative Components are capped at 26.0% in accordance with OMB A-21, dated July 26, 1993.

**ASSOC. VICE PRESIDENT OF FINANCE**

**JANUARY 6, 2016**
Review your trip

Trip Summary

Rates are quoted in US dollars

✈️ 71052 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔️ Nice Job! You picked one of our cheapest flights.

Book now so you don’t miss out on this price!

Sun, Feb 2

From Heathrow (LHR) To Kilimanjaro Intl. (JRO)

Kenya Airways

5:25pm ➔ 9:30am 13h 5m, 1 stop

LHR JRO

NBO

Arrives Mon, Feb 3

Show flight and baggage fee details

Sat, Feb 8

From Kilimanjaro Intl. (JRO) To Heathrow (LHR)

Kenya Airways

9:35pm ➔ 10:45am 16h 10m, 2 stops

JRO LHR

DAR, AMS

Arrives Sun, Feb 9

Show flight and baggage fee details

Trip Total: $964.60
Unlock up to 42% off select hotels when you book this flight
Your discount lasts until your trip starts

Continue Booking

✈ 71052 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔ Free Cancellation within 24 hours of booking!

Add your property to Expedia

Get the Expedia App - text yourself a link

Enter your phone number

Or scan the QR code!

By providing your number, you agree to receive a one-time automated text message with a link to get the app. Our app offers promotions and booking services. No purchase necessary. Standard text message rates may apply.

Explore More:

Expedia

About Expedia  Jobs  Investor Relations  Advertising  Newsroom
About Our Ads  Privacy Policy  Terms of Use  Site Map  Accessibility
Support

Expedia Rewards

Expedia Rewards  Redeem Your Points  Use Partner Points
VIP Access Hotels  Expedia Rewards Credit Cards

Expedia Links

Low Cost Flights  Rental Car Finder  Expedia Rewards  Travel Blog
New Hotels  Accommodations

Expedia Sitemaps

PROFORMA INVOICE

To: ****Cash Sales
Dar Es Salaam, Tanzania

Proforma#: TZ1909-2483/TS
Date: 25/09/2019
Currency: USD.

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR TICKET</td>
<td>Passenger Name: D(S) AIR EXCEL</td>
<td>241.00</td>
</tr>
<tr>
<td></td>
<td>11-Oct-19 041 Serengeti 11:05 Arusha 12:10</td>
<td></td>
</tr>
</tbody>
</table>

Amount in Words (USD): Two Hundred Forty One And Forty One Cents Only

Total Amount (USD): 241.00

Amount in Words (TZS): Five Hundred Fifty Nine Thousand One Hundred Twenty And Twenty Cents Only

Total Amount (TZS): 559,120.00

For Rickshaw Travels Ltd.

Account Name: The Rickshaw Travels Ltd
Bank of Africa Tanzania Ltd
PO Box 3074, Dar es Salaam, Tanzania
Account Number: 18203127006 (USD) | 18203127013 (TZS)
Swift Code: EUAFTZRZ

Diamond Trust Bank (T) Ltd
PO Box 115, Dar es Salaam, Tanzania
Account Number: 0172640002 (USD) | 0172640001 (TZS)
Swift Code: DTKETZTZ

*This is a computer-generated document and no signature is required.*
### Passenger Information

<table>
<thead>
<tr>
<th>1. Passenger 1</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email Address</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Contact Information

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Your Flight Summary

**Departure**

<table>
<thead>
<tr>
<th>Country</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Flight**

<table>
<thead>
<tr>
<th>Trip Code</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Return**

<table>
<thead>
<tr>
<th>Country</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Flight**

<table>
<thead>
<tr>
<th>Trip Code</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Amount** $177

**Returned** $228.40

**Total** $305.40
Trip Summary
Trip Summary
Rates are quoted in US dollars

✈ 500,993 customers protected their flight in the last 7 days. Add flight protection when you check out.

✓ Nice Job! You picked one of our cheapest flights.
Book now so you don’t miss out on this price!

Sun, Feb 9
From Heathrow (LHR)
To Roissy-Charles de Gaulle (CDG)

✈ Alitalia

4:55pm → 11:30pm
LHR CDG FCO
5h 35m, 1 stop

Fare Rules and Restrictions:
• Pay to choose your seat
• Bring a carry-on bag

Show flight and baggage fee details

Sat, Feb 15
From Roissy-Charles de Gaulle (CDG)
To Heathrow (LHR)

✈ Air France

4:10pm → 4:35pm
CDG LHR
1h 25m, Nonstop

Fare Rules and Restrictions:
• Pay to choose your seat
• Bring a carry-on bag

Show flight and baggage fee details

Change flights

Upgrade your flight
Get more comforts and benefits by adding an upgrade.

Heathrow (LHR) → Roissy-Charles de Gaulle (CDG)
5h 35m
• Relax while packing: Get free bags
• Enjoy more flexibility with free cancellation
• Choose seats at no extra charge

Show upgrades

Trip Total: $315.25
Only 7 tickets left at this price!
### Foreign Per Diem Rates In U.S. Dollars
**DSSR 925**

**Country:** TANZANIA  
**Publication Date:** 11/01/2019

| Country Name | Post Name   | Season Begin | Season End | Maximum Lodging Rate | M & IE Rate | Maximum Per Diem Rate | Footnote | Effective Date |
|--------------|-------------|--------------|------------|----------------------|-------------|-----------------------|----------|----------------|}
| TANZANIA     | Arusha      | 01/01        | 12/31      | 143                  | 91          | 234                   | View     | 06/01/2019     |
| TANZANIA     | Dar Es Salaam| 01/01        | 12/31      | 207                  | 106         | 313                   | View     | 06/01/2019     |
| TANZANIA     | Dodoma      | 01/01        | 12/31      | 112                  | 60          | 172                   | N/A      | 06/01/2019     |
| TANZANIA     | Morogoro    | 01/01        | 12/31      | 137                  | 60          | 197                   | View     | 06/01/2014     |
| TANZANIA     | Other       | 01/01        | 12/31      | 110                  | 47          | 157                   | View     | 06/01/2014     |
| TANZANIA     | Zanzibar    | 01/01        | 12/31      | 187                  | 106         | 293                   | View     | 06/01/2019     |
All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Dear [Redacted],

Mr. Joe Ricardi will speak to you about the difference in the total between when the budget was originally submitted on March 26, 2019 and when we submitted the documentation you requested for all costs on December 5, 2019. Unfortunately, our offices are closed both today and Monday for the observation of Memorial Day. He will be able to speak to you on Tuesday.

He has your [Redacted] phone number.

Kind regards,

Mindy

Melinda Rostal DVM, MPH, PhD
Principal Scientist, Vector-Borne Diseases

Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street, Suite 1701
New York, NY 10001

1.212.380.4489 (direct)
Caution-www.ecohealthalliance.org < Caution-http://www.ecohealthalliance.org >

EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

On May 22, 2020, at 9:31 AM [Redacted] wrote:
Good Morning,

I noticed the proposal came in at $4,848,483.14 but the detail excel spreadsheet I have, that was emailed on 12/16/19, states $4,995,106.37.

V/r

[Redacted]
Contractor

Contract Specialist  *  Broadleaf

Defense Threat Reduction Agency (DTRA)

Office Phone [Redacted]

[Redacted]
Dear [b][5]

I have reattached the documentation here. All of the documentation is 23.8MB, perhaps that is why it did not go through? I will split it into three emails and send smaller emails. Please confirm receipt of the three emails. 1. The budget, response, 01 EHA Justification, 02. KCRI Justification, 02 KCRI documentation. Please note that the 01 EHA documentation was the largest file (11.3MB) and so that one was sent in the second email.

Please find attached the documentation requested for our FRBAA14-6-2-0356 cost proposal. We have responded to the clarification questions and indicated both the document and page number where the full documentation/justification may be viewed. For each partner we have provided two files:

(a) a PDF document of our updated justification using tracked changes according the the current costs for all items based on the documentation
(b) a PDF of the documentation that was requested on the clarification sheet

We have also included an Excel spreadsheet that includes our calculations for all costs and all partners corresponding to our updated justifications and documentation. Necessarily and following the documentation now provided, various costs have changed since our initial submission in April 2018 and our budget has been updated accordingly. Therefore, our overall budget request has also increased to $4,995,166.37 with annual amounts as follows.

Y1: $999,888.16
Y2: $997,047.51
Y3: $999,782.70
OY1: $998,704.80
OY2: $999,683.19.

Please email anytime or contact me directly at +1.212.380.4489 with any questions about our documentation, cost proposal, or other details.

Best,

Mindy

Melinda Rostal DVM, MPH
Principal Scientist, Vector-Borne Diseases

Rift Valley Fever Virus Project Manager
**KCRI Budget Justification**

**A. Senior Personnel**

We request a total of S3,000 to support Key Personnel over the five years of the proposed project.

**Blandina Mmbaga**, Co-PI. Epidemiologist, will commit 1.2 months per year. We request salary of S6,000 in Year 1. Co-PI Mmbaga is the Research Director of KCRI and holds a PhD in Public Health and Epidemiology. Co-PI Mmbaga will contribute to the study design, lead the implementation of field work with human subjects and the laboratory analysis of human samples, provide training and mentorship, develop policy recommendations and facilitate collaboration with stakeholders.

**B. Other Personnel**

We request a total of S2,000 to support Other Personnel over the five years of the proposed project.

**Technicians.** We request S2,000 per year in Y1-2 for a laboratory technician, who will commit 1 months per year to aliquot the serum samples that come in from the field and store them. Laboratory technician will increase the time commitment to 2 months and laboratory technician will be hired committing 12 months per year, for which we are requesting per technician to complete the ELISA testing on the human sera collected in Y1, Y2 and Y4.

**Nurses.** We request S4,000 over the five years of the project for two nurses. In Y1-2, we request support for nurse who will commit 3 months per year at a rate of S12,000 who will collect blood samples from participants in the serosurvey (Task 2). In Y1-2 of the project, we request support for nurse who will commit 3 months per year in order to collect blood samples for the incidence study.

**Administrator.** We request S2,400 in Y1 to support a Program Administrator, who will assist Co-PI Mmbaga in the administration of the project. We request a total of S12,000 over the five years of the project.

**Anthropologist/Epidemiologist.** We request S1,000 for an Anthropologist/Epidemiologist, with a 3% increase in subsequent years, who will commit 12.0 months per year in Y1-2, Y4 and 6 months in Y3 to contribute to the development of the serosurvey and incidence studies, field data collection and data analysis.

We request S10,500 over the five years of the project to support a Finance Specialist who will commit .84 months per year for Y1-5. The Finance Specialist will work with project staff to ensure timely invoicing for all program expenses.
D. Travel

We request $3,500, with a 3% annual increase, for travel. This will cover a travel stipend of $35 per day for 100 days in each of Y1 and Y2 for the original serosurvey and 15 days in Y1 for the incidence study while they are working in the field. We request $18,000 over the five years.

E. Participant Support Costs

We request a total of $1,800 for a CCHFV Diagnostics Training Workshop Y3 of the project. We will host a workshop to train participants from local and national public health laboratories to conduct CCHFV ELISA and PCR testing as well as to understand the importance of including CCHFV as a differential diagnosis.

F. Other Direct Costs

We request a total of $8,000 for other direct costs over the five years of the proposed project. We request $2,400 for the storage of samples in Y1 of the project, and an increase of 5% in each subsequent year for a total of $13,000 over the five years of the project. We request $14,000 for laboratory access and utilization for the processing of human IgG ELISA samples in Y3 of the project, and an increase of 5% in Y4 for a total of $29,000 over the five years of the project. There is a separate cost to perform the tests, for which we request a total of $42,656, $10,660 in Y3 to perform 800 tests and $31,990 in Y4 to perform 2400 tests all at a cost of $30,000 Tanzanian Shilling, or $13,333 USD, per test.

H. Indirect Costs

We request a total of $4,000 in overhead, a rate of 10% per year, over the five years of the proposed project.
<table>
<thead>
<tr>
<th>DTRA Questions</th>
<th>KCBR Responses</th>
<th>Document and Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Please provide documentation to support the proposed salaries (base, per diem, and other personnel)</td>
<td>Please see the attached documentation of the salaries of current staff at KCBR. 02 - FMAB 6-2-0346 - KCBR Documentation Pg 2</td>
<td></td>
</tr>
<tr>
<td>2. Please break down OBCs and provide documentation to justify any costs.</td>
<td>We have provided the requested documentation in the documentation and updated justification files. 02 - FMAB 6-2-0346 - KCBR Documentation Pg 3 - 4 02 - FMAB 0 7 0346 - KCBR Budget Justification Pg 2</td>
<td></td>
</tr>
<tr>
<td>3. For all travel proposed (domestic and international), please provide documentation of the duration, purpose, and number of trips, etc.</td>
<td>Travel costs include a standard of $75 per diem (government rate) for 200 flights at $175 per trip and an additional $100 for each trip. 02 - FMAB 6-2-0346 - KCBR Documentation Pg 6 - 7 02 - FMAB 0 8-0346 - KCBR Budget Justification Pg 2</td>
<td></td>
</tr>
<tr>
<td>4. For all travel proposed (domestic and international), please provide a breakdown of the travel costs (flights, ground transportation, lodging, per diem, etc.)</td>
<td>Please see above explanation of travel costs 02 - FMAB 8-2-0346 - KCBR Documentation Pg 8 - 9 02 - FMAB 0 9-0346 - KCBR Budget Justification Pg 2</td>
<td></td>
</tr>
<tr>
<td>SIRG Questions</td>
<td>Generic Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1. Please provide documentation of the salaries of current staff at OMCs.</td>
<td>Please see the attached documentation of the salaries of current staff at OMCs.</td>
<td>GBRA0034-0-1036, OMC documentation Pg 1-2</td>
</tr>
<tr>
<td>2. For all travel required whether domestic and international, please provide documentation of the trip destinations, dates, length of stay, number of people, etc.</td>
<td>Dr. Abraham and Dr. Brinckley's travel agency report.</td>
<td>GBRA0034-6.1-036, OMC documentation Pg 1, 06, 09-01, 09-05, 09-07, OMC documentation Pg 1</td>
</tr>
<tr>
<td>3. For all travel required (domestic and international), please provide documentation of the travel arrangements (transportation, lodging, purchase, etc.).</td>
<td>Please see attached documentation for travel arrangements.</td>
<td>GBRA0034-0-1036, OMC documentation Pg 1</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTRA Questions</td>
<td>Public Health Response</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td>Please provide documentation to justify costs as listed with dates.</td>
<td>Please provide documentation to justify costs as listed with dates.</td>
<td></td>
</tr>
<tr>
<td>Please break down DTRA and provide documentation to justify costs.</td>
<td>Please break down DTRA and provide documentation to justify costs.</td>
<td></td>
</tr>
<tr>
<td>Please provide a breakdown of the proposed materials and equipment, to include assembly and installation. Please provide documentation to justify cost.</td>
<td>Please provide a breakdown of the proposed materials and equipment, to include assembly and installation. Please provide documentation to justify cost.</td>
<td></td>
</tr>
<tr>
<td>Please provide any support agreements with or understandings by other DTRA or DTRA. Please also explain how the success will be determined. These documents are utilized in the proposal calculations.</td>
<td>Please provide any support agreements with or understandings by other DTRA or DTRA. Please also explain how the success will be determined. These documents are utilized in the proposal calculations.</td>
<td></td>
</tr>
<tr>
<td>Please provide documentation to justify facility costs.</td>
<td>Please provide documentation to justify facility costs.</td>
<td></td>
</tr>
<tr>
<td>DTRA Questions</td>
<td>TAWIRI Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Please provide documentation to support the proposed salaries (key personnel and other personnel)</td>
<td>Please see the attached documentation of the salaries of current staff at TAWIRI</td>
<td>05 - RMAA1-36-0756 - TAWIRIDocumentation Pg 1</td>
</tr>
<tr>
<td>EIRG Questions</td>
<td>TRGA Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>1. Please provide documentation in support of the asserted benefits (e.g., personnel) for the attached documentation of the activities of current staff at TRGA.</td>
<td>Please see the attached documentation of the activities of current staff at TRGA.</td>
<td>DR-19804-034-2-0396 - TRGA Documentation Pg 2</td>
</tr>
<tr>
<td>2. For the proposed changes in equipment, provide a breakdown of the new equipment, expected implementation timeframe, logistics per item, etc.</td>
<td>We have provided a breakdown of all proposed changes in the attached Budget justification. (Note: DR-19804-034-2-0396 - TRGA Budget, within this Pg 1)</td>
<td>DR-19804-034-2-0396 - TRGA Budget, within this Pg 1</td>
</tr>
<tr>
<td>3. Please provide documentation to support QSC from standards, quotes, etc.</td>
<td>We have provided documentation in support of the QSC in the documentation file.</td>
<td>DR-19804-034-2-0396 - TRGA Documentation Pg 2</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QTHA Question</td>
<td>UNR Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1. Please provide documentation to support the appropriateness of personnel and offer personnel.</td>
<td>Response: The attached documentation details the roles of personnel involved.</td>
<td>07 - F8446.1-0.0.0085 - Doc 3. Documentation Fig.1</td>
</tr>
<tr>
<td>2. For all travel requested, whether domestic or international, please provide the breakdown of the destination, distance, number of trips, purpose of such trips, length of stay, number of travelers, etc.</td>
<td>Response: The breakdown of travel details is included in the attached documentation.</td>
<td>07 - F8446.1-0.0.0206 - Doc 3. Documentation Fig.2 - F8446.1-0.0066 - Doc 3. Budget Calculation Fig.2.2</td>
</tr>
<tr>
<td>3. For all travel requested, please provide a breakdown of the total costs, including transportation, lodging, and such details.</td>
<td>The breakdown of all costs associated with travel is included in the attached documentation.</td>
<td>07 - F8446.1-0.0.0206 - Doc 3. Budget Calculation Fig.2.2</td>
</tr>
<tr>
<td>4. Please provide documentation to support costs (salaries, benefits, etc.)</td>
<td>Response: The costs are detailed in the attached documentation, including any benefits. Full explanation of costs is included in the attached documentation.</td>
<td>07 - F8446.1-0.0.0206 - Doc 3. Budget Calculation Fig.2.5</td>
</tr>
<tr>
<td>5. Please provide documentation to support any travel requested.</td>
<td>No response provided in the attached documentation.</td>
<td>07 - F8446.2.0.0 - Doc 3. Budget Calculation Fig.2.5</td>
</tr>
</tbody>
</table>
Budget Documentation – Kilimanjaro Clinical Research Institute

1) Salaries .................................................................................................................. Pg. 2
2) Laboratory Access and Utilization ................................................................. Pg. 3
3) Sample Storage .................................................................................................. Pg. 4
4) Venue Cost ........................................................................................................ Pg. 5
5) Testing Costs ..................................................................................................... Pg. 6
6) Participant Support Cost Travel ...................................................................... Pg. 7
Dear Melinda Rostal

I am writing to confirm the salaries mentioned in Cremea Congo Hemorrhagic Fever study for KCRI personnel as listed below.

<table>
<thead>
<tr>
<th>Personnel-KCRI</th>
<th>Annual salary</th>
<th>Monthly salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientist – Local PI</td>
<td>$60,000.00</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>Senior- Lab Technician 1</td>
<td>$24,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Lab Technician 2</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Lab Technician 3</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Nurse 1</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Nurse 2</td>
<td>$12,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Administrator</td>
<td>$24,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Anthropologist/epidemiologist</td>
<td>$24,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Scientist 2 -Veterinary</td>
<td>$30,000.00</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>Scientist 3-Physician</td>
<td>$30,000.00</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>Finance</td>
<td>$30,000.00</td>
<td>$2,500.00</td>
</tr>
</tbody>
</table>

CPA(T) Gilbert Shao
Chief accountant - KCRI
Laboratory Access/Rental Fee

<table>
<thead>
<tr>
<th>S/N</th>
<th>DESCRIPTION</th>
<th>AMOUNT (TSHS/US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1,200</td>
</tr>
</tbody>
</table>

SUB TOTAL

TOTAL

Amount in words

BANK DETAILS:

BANK NAME:

ACCOUNT NAME:

ACCOUNT No.

BRANCH:

SWIFT CODE:

SORT CODE:
Sample Storage Fee

---

**INVOICE**

<table>
<thead>
<tr>
<th>S/N</th>
<th>DESCRIPTION</th>
<th>AMOUNT (TSHS/US$/(€)/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUB TOTAL

TOTAL

Amount in words

---

**BANK DETAILS:**

**BANK NAME:**

**ACCOUNT NAME:**

**ACCOUNT No.:**

**BRANCH:**

**SWIFT CODE:**

**SORT CODE:**
Venue Fee for Workshop in Y3

<table>
<thead>
<tr>
<th>S/N</th>
<th>DESCRIPTION</th>
<th>AMOUNT (TSHS/US$/E/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB TOTAL**

**TOTAL**

Amount in words

Bank Details:

Bank Name: 

Account Name: 

Account No.: 

Branch: 

Swift Code: 

Sort Code:
Dear Dr. Melinda Rostal,

I am writing to confirm the agreed upon testing and travel costs for the Crimean-Congo Hemorrhagic Fever: Reducing an Emerging Health Threat in Tanzania Project.

We have agreed to a fee of $13.33 per ELISA.

We have agreed to use the travel rate of $35 per day for our nurse while in the field.

Sincerely,

CPA(T) Gilbert Shao  
Chief accountant – KCRI
<table>
<thead>
<tr>
<th>Title</th>
<th>Subtitle</th>
<th>Data Column 1</th>
<th>Data Column 2</th>
<th>Data Column 3</th>
<th>Data Column 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column 1</td>
<td>Column 2</td>
<td>Data 1</td>
<td>Data 2</td>
<td>Data 3</td>
<td>Data 4</td>
</tr>
<tr>
<td>Column 3</td>
<td>Column 4</td>
<td>Data 5</td>
<td>Data 6</td>
<td>Data 7</td>
<td>Data 8</td>
</tr>
<tr>
<td>Column 5</td>
<td>Column 6</td>
<td>Data 9</td>
<td>Data 10</td>
<td>Data 11</td>
<td>Data 12</td>
</tr>
<tr>
<td>Column 7</td>
<td>Column 8</td>
<td>Data 13</td>
<td>Data 14</td>
<td>Data 15</td>
<td>Data 16</td>
</tr>
</tbody>
</table>

**Notes:**
- Additional notes and information related to the table.
- Any relevant footnotes or references.
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data 1</td>
<td>Data 2</td>
<td>Data 3</td>
<td>Data 4</td>
<td>Data 5</td>
</tr>
<tr>
<td>Data 6</td>
<td>Data 7</td>
<td>Data 8</td>
<td>Data 9</td>
<td>Data 10</td>
</tr>
<tr>
<td>Data 11</td>
<td>Data 12</td>
<td>Data 13</td>
<td>Data 14</td>
<td>Data 15</td>
</tr>
<tr>
<td>Data 16</td>
<td>Data 17</td>
<td>Data 18</td>
<td>Data 19</td>
<td>Data 20</td>
</tr>
<tr>
<td>Data 21</td>
<td>Data 22</td>
<td>Data 23</td>
<td>Data 24</td>
<td>Data 25</td>
</tr>
<tr>
<td>Data 26</td>
<td>Data 27</td>
<td>Data 28</td>
<td>Data 29</td>
<td>Data 30</td>
</tr>
<tr>
<td>Data 31</td>
<td>Data 32</td>
<td>Data 33</td>
<td>Data 34</td>
<td>Data 35</td>
</tr>
<tr>
<td>Data 36</td>
<td>Data 37</td>
<td>Data 38</td>
<td>Data 39</td>
<td>Data 40</td>
</tr>
</tbody>
</table>

- Column 1 represents the first set of data.
- Column 2 follows the first column with a new set of data.
- Column 3 continues with a third set of data.
- Column 4 contains a fourth set of data.
- Column 5 concludes with the fifth set of data.
<table>
<thead>
<tr>
<th>Item</th>
<th>Number of Units</th>
<th>Price per Unit</th>
<th>Total Amount</th>
<th>Taxes</th>
<th>2%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating Stove</td>
<td>$789.50</td>
<td>4</td>
<td>3,158.00</td>
<td>$ 789.50</td>
<td>112.50</td>
<td>396.50</td>
</tr>
<tr>
<td>Outdoor Furniture</td>
<td>$899.00</td>
<td>2</td>
<td>1,798.00</td>
<td>$ 899.00</td>
<td>129.00</td>
<td>449.00</td>
</tr>
<tr>
<td>Entertainment Center</td>
<td>$1,899.00</td>
<td>1</td>
<td>1,899.00</td>
<td>$ 1,899.00</td>
<td>246.00</td>
<td>949.00</td>
</tr>
<tr>
<td>Kitchen Appliances</td>
<td>$999.00</td>
<td>1</td>
<td>999.00</td>
<td>$ 999.00</td>
<td>126.00</td>
<td>409.00</td>
</tr>
<tr>
<td>Home Security System</td>
<td>$2,399.00</td>
<td>1</td>
<td>2,399.00</td>
<td>$ 2,399.00</td>
<td>348.00</td>
<td>963.00</td>
</tr>
<tr>
<td>Lawn Mower</td>
<td>$399.00</td>
<td>3</td>
<td>1,197.00</td>
<td>$ 399.00</td>
<td>120.00</td>
<td>399.00</td>
</tr>
<tr>
<td>Exercise Equipment</td>
<td>$499.00</td>
<td>2</td>
<td>998.00</td>
<td>$ 499.00</td>
<td>122.00</td>
<td>499.00</td>
</tr>
<tr>
<td>Gaming Console</td>
<td>$399.00</td>
<td>1</td>
<td>399.00</td>
<td>$ 399.00</td>
<td>97.00</td>
<td>399.00</td>
</tr>
<tr>
<td>Home Office Furniture</td>
<td>$799.00</td>
<td>1</td>
<td>799.00</td>
<td>$ 799.00</td>
<td>119.00</td>
<td>399.00</td>
</tr>
<tr>
<td>Home Theater System</td>
<td>$2,999.00</td>
<td>1</td>
<td>2,999.00</td>
<td>$ 2,999.00</td>
<td>397.00</td>
<td>999.00</td>
</tr>
<tr>
<td>Total</td>
<td>$12,495.00</td>
<td></td>
<td>12,495.00</td>
<td>$ 1,798.00</td>
<td>246.00</td>
<td>7,479.00</td>
</tr>
</tbody>
</table>

**Subtotal:** $12,495.00

**Sales Tax:** $1,798.00 (14% of subtotal)

**Total with Tax:** $14,293.00

**2%:** $285.86

**10%:** $1,429.30
<table>
<thead>
<tr>
<th>Visa and Permit</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSTech application fee</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>COSTech clearance fee</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Research fees (non-Tanzanian)</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
</tr>
<tr>
<td>TAWIRI Protected Area Permit</td>
<td>2000</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping samples</td>
<td></td>
<td></td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>KCMC ethics approval</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - submit protocol</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - application fee</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - Expedited Review</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - Renewal</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>NIMR - amendment</td>
<td>600</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost per Person</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rostal EHA</td>
<td>4150</td>
<td>4150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Field Coordinator EHA</td>
<td>4150</td>
<td>4150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Cleaveland UoG</td>
<td>0</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Technician UoG</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Lankester SU</td>
<td>4150</td>
<td>4150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Veterinarian WSU</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Field Assistant WSU</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>PhD Student WSU</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Masters' students EHA</td>
<td>0</td>
<td>50</td>
<td>100</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Post-doctoral fellow</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>
One Health Coordination Desk (OHCD-PMO) Budget Justification

A. Senior Personnel

We request a total of $14, to support Key Personnel over the five years of the proposed project.

**Dr. Justina Assenga**, Research Scientist, Molecular Epidemiologist, will commit 0 months per year for which we request salary support of $2 in Year 1, with a 3% increase per annum (p.a.). Dr. Justina Assenga is the Animal Health Focal Person at the Ministry of Livestock and Fisheries One Health Coordination Desk and will join meetings, assist with keeping the government ministries apprised of our activities, contribute to the development of the epidemiological plan as well as facilitate communication to stakeholders. In order to prepare for and facilitate the policy workshop and CCHF Symposium, Dr. Assenga’s time will increase in Year 2 for a total of $7, for the five years of the project.

**Dr. Jubilate Bernard**, Research Scientist, Public Health Specialist, will commit 0 months per year for which we request salary support of $25 in Year 1, with a 3% increase p.a. Dr. Jubilate Bernard is the Animal Health Focal Person at the Ministry of Livestock and Fisheries One Health Coordination Desk and will join meetings, assist with keeping the government ministries apprised of our activities, contribute to the development of the epidemiological plan as well as facilitate communication to stakeholders. In order to prepare for and facilitate the policy workshop and CCHF Symposium, Dr. Bernard’s time will increase to months per year in Year 2 for a total of $7, over the five years of the project.

D. Travel

We request a total of $3,185 to support local travel for them in Tanzania over the five years of the proposed project.

We request $600 in Y1 so that both Dr. Assenga and Dr. Bernard may attend project meetings held in Tanzania and take other meetings to improve One Health stakeholder relationships.

Travel expenses will increase at a rate of 3% per year over the five years of the project.

H. Indirect Costs

We request a total of $ in overhead over the five years of the project. The rate of overhead will be 10% each year, starting with $11 in Y1.
EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4489 (direct)
1.212.380.4465 (fax)
www.ecohealthalliance.org [http://www.ecohealthalliance.org/]

Visit our blog: www.ecohealthalliance.org/blog [http://www.ecohealthalliance.org/blog/]

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

--- Original Message -----
From: Dr. Melinda Rostal <rostal@ecohealthalliance.org [mailto:rostal@ecohealthalliance.org]>
Sent: Monday, December 16, 2019 2:19 PM
To: [mailto]
Cc: Aleksei Chmura <chmura@ecohealthalliance.org [mailto:chmura@ecohealthalliance.org]>
; Joe Riccardi <riccardi@ecohealthalliance.org [mailto:riccardi@ecohealthalliance.org]>
; Amanda Andre <amanda.andre@ecohealthalliance.org [mailto:amanda.andre@ecohealthalliance.org]>
; Whitney Bagge <bagge@ecohealthalliance.org [mailto:bagge@ecohealthalliance.org]>
Subject: [Non-DoD Source Re: FRBAA14-6-2-0356 Clarification Questions

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Dear [B][8]

I just wanted to confirm that you had received the documentation that I sent to you on December 5.

Kind regards,

Mindy

Melinda Rostal DVM, MPH
Principal Scientist, Vector-Borne Diseases
Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4489 (direct)
1.212.380.4465 (fax)


EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On Dec 5, 2019, at 10:50 PM, Dr. Melinda Rostal <rostal@ecohealthalliance.org > < Caution-mailto:rostal@ecohealthalliance.org >> wrote:

Dear [b][8]

Please find attached the documentation requested for our FRBAA14-6-2-0356 cost proposal. We have responded to the clarification questions and indicated both the document and page number where the full documentation justification may be viewed. For each partner we have provided two files:

(a) a PDF document of our updated justification using tracked changes according to the current costs for all items based on the documentation
(b) a PDF of the documentation that was requested on the clarification sheet

We have also included an Excel spreadsheet that includes our calculations for all costs and all partners corresponding to our updated justifications and documentation. Necessarily and following the documentation now provided, various costs have changed since our initial submission in April 2018 and our budget has been updated accordingly. Therefore, our overall budget request has also increased to $4,995,106.37 with annual amounts as follows.

Y1: $999,888.16
Y2: $997,047.51
Y3: $999,782.70
OY1: $998,704.80
OY2: $999,683.19.

Please email anytime or contact me directly at -1.651.308.5498 with any questions about our documentation, cost proposal, or other details.

Best,
Mindy

PREDICT 2 Surveillance Coordinator for EcoHealth Alliance

Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street, Suite 1701
New York, NY 10001

1.212.380.4489 (direct)
Caution-www.ecohealthalliance.org
Caution-http://www.ecohealthalliance.org/

EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

On Oct 29, 2019, at 10:45 AM [6] wrote:

Good Morning,

We have reviewed your cost proposal and are requesting responses to the attached clarification questions.
Please provide responses as soon as possible so that we can move forward with grant award. Please let me know if you have any questions.

V/r

[Name of Contractor]

Contract Specialist • TENICA

Defense Threat Reduction Agency (DTRA)

Office Phone: [Phone number]

Caution:

<FRBAA14-6-2-0356_Clarifications.xlsx>
Here is the final batch (03 One Health Desk Justification, 03 One Health Desk documentation, 04 Public Health England Justification and 04 Public Health England documentation, 05 TAWIRI Justification, 05 TAWIRI documentation, 06 TVLA Justification, 06 TVLA documentation, 07 University of Glasgow Justification, 07 University of Glasgow documentation, 08 Washington State University/GAIT Justification and 08 Washington State University/GAIT documentation).

Best,
Mindy

Melinda Rostal DVM, MPH
Principal Scientist, Vector-Borne Diseases

Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street 17th floor
New York, NY 10001

1.212.380.4489 (direct)
1.212.380.4465 (fax)
www.ecohealthalliance.org <http://www.ecohealthalliance.org/>

Visit our blog: www.ecohealthalliance.org/blog <http://www.ecohealthalliance.org/blog>

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On Dec 16, 2019, at 2:24 PM, [b](6) wrote:

Thanks for following up because I did not receive that email on the 5th. I have checked all my folders and nothing comes up.
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>BALANCE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Salary</td>
<td>3,360,000.00</td>
<td></td>
</tr>
<tr>
<td>PSSSF</td>
<td>-168,000.00</td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td>-809,460.00</td>
<td></td>
</tr>
<tr>
<td>Natl Health Ins Fund Employee</td>
<td>-100,800.00</td>
<td></td>
</tr>
<tr>
<td><strong>NET AMOUNT DUE</strong></td>
<td>31/10/2019</td>
<td>2,281,740.00</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>BALANCE</td>
<td>AMOUNT</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Basic Salary</td>
<td>1,490,000.00</td>
<td>1,490,000.00</td>
</tr>
<tr>
<td>Health Care Society</td>
<td></td>
<td>74,900.00</td>
</tr>
<tr>
<td>Pension</td>
<td></td>
<td>2,700,000.00</td>
</tr>
<tr>
<td>Net Bank from Fund Employer</td>
<td></td>
<td>44,400.00</td>
</tr>
<tr>
<td><strong>NET AMOUNT DUE</strong></td>
<td><strong>20/09/2019</strong></td>
<td><strong>1,041,020.00</strong></td>
</tr>
</tbody>
</table>
One Health Coordination Desk (OHCD-PMO) Budget Justification

A. Senior Personnel

We request a total of $14, to support Key Personnel over the five years of the proposed project.

Dr. Justine Assenga, Research Scientist, Molecular Epidemiologist, will commit 0 months per year for which we request salary support of $2, in Year 1, with a 3% increase per annum (p.a.). Dr. Justine Assenga is the Animal Health Focal Person at the Ministry of Livestock and Fisheries One Health Coordination Desk and will join meetings, assist with keeping the government ministries apprised of our activities, contribute to the development of the epidemiological plan as well as facilitate communication to stakeholders. In order to prepare for and facilitate the policy workshop and CCHF Symposium, Dr. Assenga's time will increase in Year 2 for a total of $7, over the five years of the project.

Dr. Jubilate Bernard, Research Scientist, Public Health Specialist, will commit 0 months per year for which we request salary support of $23 in Year 1, with a 3% increase p.a. Dr. Jubilate Bernard is the Animal Health Focal Person at the Ministry of Livestock and Fisheries One Health Coordination Desk and will join meetings, assist with keeping the government ministries apprised of our activities, contribute to the development of the epidemiological plan as well as facilitate communication to stakeholders. In order to prepare for and facilitate the policy workshop and CCHF Symposium, Dr. Bernard's time will increase to 12 months per year in Year 2 for a total of $7, over the five years of the project.

D. Travel

We request a total of $3,185 to support local travel for them in Tanzania over the five years of the proposed project.

We request $600 in Year 1 so that both Dr. Assenga and Dr. Bernard may attend project meetings held in Tanzania and take other meetings to improve One Health stakeholder relationships.

Travel expenses will increase at a rate of 3% per year over the five years of the project.

H. Indirect Costs

We request a total of $5 in overhead over the five years of the project. The rate of overhead will be 10% each year, starting with $1 in Year 1.
Budget Documentation – Public Health England

1. Salaries..................................................................................................................2
   - Neil McLeod, Project Manager
   - Roger Hewson, Virologist
   - Stuart Dowall, Virologist
   - Kevin Richards, Technician
   - James Pitman, Technician
2. Other Direct Costs (excluding facilities).............................................................3
   - International Travel, London to Dar es Salaam, Tanzania
   - Materials and supplies
   - Sample shipment
3. Appendix 1.............................................................................................................5
   - Screen shot of international travel, London to Dar es Salaam, Tanzania
4. Indirect cost rate....................................................................................................6
5. Rate agreement.....................................................................................................7
6. Facilities cost..........................................................................................................10
   - Overall cost
   - Cost allocation for BSL-4 laboratory
Date: 4th November 2019

Melinda Rostal DVM, MPH  
Senior Research Scientist  
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance  
Rift Valley Fever Virus Project Manager  
EcoHealth Alliance  
460 West 34th Street – 17th Floor  
New York, NY 10001

Dear Melinda

Salary confirmation for DTRA CCHF Grant

I hereby confirm that the current per annum salary of our key personnel as of today’s date is as follows:

Neil McLeod - £66,609.96

Roger Hewson - £94,889.04

Stuart Dowall – £75,891.24

Kevin Richards - £56,501.28

James Pitman - £53,813.64

Above salaries include oncosts (NI & Pension). Please note the above salaries are subject to annual inflation.

Yours Sincerely

Ian Lang  
Senior Finance Manager
Date: 4th November 2019

Melinda Rostal DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance
Rift valley Fever Virus Project Manager
EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

Dear Melinda,

PHE Other Direct Costs (exc. Facilities) confirmation for DTRA CCHF Tanzania grant:

PHE have cost £6,800 (which converted $7,119 in original justification) for materials and supplies to conduct 100 CCHFV virus neutralization assays to confirm the positive ELISA results on the wildlife samples

This budget is broken down as follows:

1. **Travel Budget £1500**
   This would be for senior PHE scientist to attend meeting in the field in Tanzania. The costing is based on a projected flight cost of approx. £800 (see Appendix 1- page 3) with the remainder for travel to/from airports and accommodation and sustenance. PHE involvement would be in 2023/24 so it is not possible at this moment to forecast accurate costs for these items but any shortfall in budget will be covered by PHE.

2. **Materials and supplies £3600**

   Agreed with to supply 100x CCHF virus neutralisation tests for £36 per test.

   Materials include CCHF antibodies, IgG, cells and general laboratory consumables.

3. **Postage of samples**

   Samples would be taken from the field laboratory and shipped on dry ice under UN packing code 3373 to PHE Porton Down site. The quotation provided by Dangerous Goods International for each delivery would be £525.60.

   This postage cost is £1051.20.
The grand total for all other direct cost would be £6119.34. The costs of the items are based on the current prices. The reason to request the additional £480 is to cover the inflationary costs over the 4 years between now and when we anticipate activity to start.

Your Sincerely,

Neil McLeod  
Senior Scientific Project Manager  
Tel: + 44 (0)1980 619907  
Email: neil.mcleod@phe.gov.uk
Select your departure to Dar es Salaam Sat, Apr 11

Prices are roundtrip per person, include all taxes and fees, but do not include baggage fees.

1 Stop ×  Arrival time - Afternoon (12:00pm - 5:59pm) ×  LGW (London) ×

Sort & Filter

Sort by
- Price (Lowest)

Stops
- From:
  - 1 Stop (31) $850
  - 2+ Stops (70) $717

Airlines included
- From:
  - Details & baggage fees

9:45pm - 2:40pm +1
Emirates
Very Good Flight (8.2/10)
LGW - 2h 40m in DXB - DAR
14h 55m (1 stop)

10:00am - 2:40pm +1
Emirates
Poor Flight (4.2/10)
LGW - 14h 15m in DXB - DAR
26h 40m (1 stop)
Date: 4th November 2019

Melinda Rostal DVM, MPH  
Senior Research Scientist  
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance  
Rift valley Fever Virus Project Manager  
EcoHealth Alliance  
460 West 34th Street – 17th floor  
New York, NY 10001

Dear Melinda,

PHE Briefing Note on current agreements and submissions with DCAA and DCMA for DTRA  
CCHF Tanzania grant:

PHE have an agreed rate of 37.8% for indirect costs for use on grants, contracts and other agreements with the Federal Government. This is enclosed with email dated 5th November 2019 (Public Health England RA). Please note this is an increase from the 37.5% rate the original costings were based upon, the rate has since been updated since the original proposal was submitted. 

This agreement was with the US federal government on behalf of the Department of Health and Human Services. PHE is currently undertaking several contracts funded via US federal agencies NIAID, BARDA and FDA on a range of projects in the area of infectious disease research. 

PHE also have a current submission for US-DTRA FRCWMD funding as follows: 

Grant agreement: 12753455  
Title: Ecological and Epidemiological Investigation of Crimean-Congo hemorrhagic fever virus (CCHFV) in Azerbaijan.  
This application is in final stage and is still under consideration. The rate of 37.5% indirect costs was used in the submission. 

Your Sincerely,

[Signature]

Neil McLeod  
Senior Scientific Project Manager  
Tel: +44 (0)1980 619907  
Email:
NONPROFIT RATE AGREEMENT

EIN: 1900215920A1
DATE: 08/05/2019
ORGANIZATION:
FILING REF.: The preceding
Public Health England
agreement was dated
Porton Down, Salisbury
12/06/2017
Wiltshire, England SP4 0JG

The rates approved in this agreement are for use on grants, contracts and other
agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>固定</th>
<th>最终</th>
<th>Provisional</th>
<th>Predetermined</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFECTIVE PERIOD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FROM</td>
<td>TO</td>
<td>RATE (%)</td>
<td>LOCATION</td>
<td>APPLICABLE TO</td>
</tr>
<tr>
<td>FINAL</td>
<td>04/01/2017</td>
<td>03/31/2018</td>
<td>37.80 On-Site</td>
<td>All Programs</td>
</tr>
<tr>
<td>PROV.</td>
<td>04/01/2018</td>
<td>03/31/2021</td>
<td>37.80 On-Site</td>
<td>All Programs</td>
</tr>
</tbody>
</table>

BASE

Total direct costs excluding capital expenditures (buildings, individual items
of equipment; alterations and renovations) and subawards.
SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

Fringe benefits applicable to direct salaries and wages are treated as direct costs.

TREATMENT OF PAID ABSENCES

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

In accordance with HHS Grants AAGAM, Part 3.01.101, no indirect cost is awarded on grants from the Department of Health and Human Services.

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or $5,000.

Your next proposal for fiscal year ending 03/31/2019 is due in our office by 09/30/2019.
SECTION III: GENERAL

A. LIMITATIONS:
The rate in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in the indirect cost pool as finally accepted, such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The rate costs that have been treated as indirect costs are not claimed as direct costs; (3) Similar types of costs have been recorded consistent with accounting consistency, and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rates would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:
This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the grantmaking agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from indirect to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:
If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:
The terms in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of this Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:
If any Federal, State, local or other agreement to reimburse indirect costs by a means other than the approved rate(s) in this Agreement, the organization should: (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of indirect costs allocable to these programs.

BY THE INSTITUTION:
Public Health England

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

[Signature]

[Name]

Deputy Director, Cost Allocation Services

[Title]

8/5/2019

[Date]

[Signature]

[Name]

[Title]

[Date]
Date: 4th November 2019

Melinda Rostal DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance
Rift valley Fever Virus Project Manager
EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

Dear Melinda,

PHE Facilities cost confirmation for DTRA CCHF Tanzania grant:

PHE have costed £5,895 for two weeks use of the high containment biosafety level 4 laboratory at PHE Porton Down site. The standard laboratory rental rate is set at £2948 per week for this laboratory.

The laboratory recharges are generated from a model that allocates a cost based on the specific lab or portion of a lab for the specific time period of use. The cost is a proportion of the total costs of the site allocated to the labs based on the weighted cost of subjective headings.
Table 1 (overleaf, page 2) shows a breakdown of the percentage cost allocations to each heading.

Your Sincerely,

[Signature]

Neil McLeod
Senior Scientific Project Manager
Tel: +44 (0)1980 819907
Email:
Table 1. Cost allocations for PHE High Containment BSL-4 laboratory

<table>
<thead>
<tr>
<th>Item</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCOR base contract</td>
<td>44.12</td>
</tr>
<tr>
<td>Equip Rep &amp; Maint</td>
<td>24.40</td>
</tr>
<tr>
<td>Other - Engineering services</td>
<td>14.61</td>
</tr>
<tr>
<td>Telecom charges</td>
<td>-</td>
</tr>
<tr>
<td>Rates</td>
<td>0.34</td>
</tr>
<tr>
<td>Gas Building 1</td>
<td>0.16</td>
</tr>
<tr>
<td>Gas Incinerator</td>
<td>-</td>
</tr>
<tr>
<td>Gas Process load / autoclave</td>
<td>6.09</td>
</tr>
<tr>
<td>Electricity share 1</td>
<td>0.55</td>
</tr>
<tr>
<td>Electricity share 2</td>
<td>0.47</td>
</tr>
<tr>
<td>Oil</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>0.20</td>
</tr>
<tr>
<td>Accom hire</td>
<td>-</td>
</tr>
<tr>
<td>Waste Disposal</td>
<td>-</td>
</tr>
<tr>
<td>SubCont Fac Mgt</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
</tr>
<tr>
<td>Security</td>
<td>-</td>
</tr>
<tr>
<td>Soft Services Mgt</td>
<td>-</td>
</tr>
<tr>
<td>Capital Proj Mgt</td>
<td>2.36</td>
</tr>
<tr>
<td>FM Engineering</td>
<td>3.16</td>
</tr>
<tr>
<td>Site Mgt</td>
<td>-</td>
</tr>
<tr>
<td>Dep Alloc</td>
<td>-</td>
</tr>
<tr>
<td>Dep Site</td>
<td>0.40</td>
</tr>
<tr>
<td>Dep MB</td>
<td>2.34</td>
</tr>
<tr>
<td>Dep all but MB</td>
<td>-</td>
</tr>
<tr>
<td>Incinerator</td>
<td>0.50</td>
</tr>
<tr>
<td>Site share costs</td>
<td>0.28</td>
</tr>
<tr>
<td>Total charge</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Note: EMCOR are our Facilities managers
Public Health England-Porton Down Budget Justification

A. Senior Personnel

We request a total of S$100,000 to support Key Personnel (KP) during the project.

Roger Hewson, Ph.D., Research Scientist, Virologist will commit 0.5 months in OY2 of the project. KP Hewson will engage with project partners, supervise and collate scientific reporting from PHE. We request a total of S$100,000.

B. Other Personnel

We request a total of S$60,000 to support Other Personnel during the proposed project.

Technicians. Two CL4 laboratory personnel will commit 1 month each in OY2 in order to confirm 100 wildlife samples using virus neutralization assays. CCHFV is a Hazard Group 4 pathogen necessitating work with infectious substances to be carried out at Containment Level 4, and the UK operates a dual worker or buddy system for all laboratory work with H4 pathogens. We request S$30,000 per month for a total of S$60,000 for both.

Project Manager. The project manager will commit 0.5 months in OY2 in order to manage staff and ensure efficient project progress. We request S$20,000 in OY2. The project manager will also set up DEFFRA license applications for sample transport and liaise with colleagues in Tanzania on sample details.

F. Other Direct Costs

We request a total of S$7,000 for direct costs during the project.

Materials and Supplies

We will conduct 100 CCHFV virus neutralization assays to confirm the positive ELISA results on the wildlife samples, as this has not previously been assessed for this multispecies commercial ELISA. We request S$30,000 in OY2 to conduct the testing.

Facility Rental

CCHFV is a Hazard Group 4 pathogen necessitating work with infectious substances to be carried out at Containment Level 4. We request S$20,000 in OY2 to support the use of the CL-4 laboratory for 2 weeks in order to complete the testing indicated above.
H. Indirect Costs

We are requesting the federally agreed indirect cost of 5% on all direct costs during the project. We request $________ in OY2.
TAWIRI  Budget Justification

Key Personnel
We request a total of $13,273 to support Key Personnel over the five years of the proposed project.

Julius Dotto Kewyu, Research Scientist, Disease Ecologist, will commit 1.0 months per year. We request salary of $2,400 in Year 1, with a 3% increase for Y2-Y5, respectively. Dr. Julius D. Kewyu is a Chief Research Officer who holds a PhD in ecosystem and population health specifically on disease ecology. Dr Kewyu will support the wildlife sampling team, create the animal epidemiological study design, implementation and analysis and facilitate communication with stakeholders.

Other Personnel
We request a total of $4,344 to support Other Personnel over the five years of the proposed project.

will be paid $60 per day for food and accommodation, working for 0 days ($60 x 0 days) for a total of $7,200, for Year 1 and Year 2 of the project.

Travel
We request a total of $1,590 to support international travel over the five years of the proposed project request. $300 in Y1. International travel expenses will increase at a rate of 3% per year throughout the project.

We
Melinda Rostal DVM, MPH
Senior Research Scientist
PREDICT 2 Surveillance Coordinator for EcoHealth Alliance.
Rift Valley Fever Virus Project Manager.
EcoHealth Alliance.
460 West 34th Street – 17th floor.
New York, NY 10001

Dear Melinda,

RE: SALARY FOR DR. JULIUS D. KEYUY AND SUBSISTENCE (NIGHT OUT) ALLOWANCE DURING FIELD WORK

Please refer to the above heading and also to communications regarding implementation of the Crimean Congo Haemorrhagic Fever (CCHF) project.

The Tanzania Wildlife Research Institute (TAWIRI) is a parastatal organisation under the Ministry of Natural Resources and Tourism (TAWIRI) established by Act. No. 4 of 1980 of the Parliament (CAP 260 R.E. 2002), with the mandate to conduct, promote and oversee wildlife research in Tanzania.

This letter is to confirm that the monthly salary of Dr Julius D. Keyyu is Five Million Eighty Hundred and Eight Thousand Tanzanian Shillings (TZS 5,808,000/=), and that the rate for daily subsistence (night out) allowance during field work as per the Government is TZS 120,000 (USD 60) per day to cater for accommodation and food.

Do not hesitate to contact me in case you need any clarification.

Yours sincerely,

TANZANIA WILDLIFE RESEARCH INSTITUTE

Dr. Victor Kakengi
FOR: DIRECTOR GENERAL

TAWIRI is responsible for the co-ordination of all wildlife research in Tanzania.
Budget Documentation – Tanzanian Veterinary Laboratory Agency

1. Salaries, Travel, ODCs,.................................................................2
   • Salaries
     i. Furaha Mrama, Medical Entomologist
     ii. Other Personnel: General Laboratory Technician
   • Travel
     i. Tanzanian Government per diem
     ii. Travel to Arusha from Dar es Salaam
   • Other Direct Costs
     i. Testing breakdown
     ii. Generator usage and cost breakdown

2. Other Direct Costs.................................................................3
   • Supplies: Petri dishes
   • Generator shelter cost estimate
Dear Dr. Melinda,

RE: CONFIRMATION AND JUSTIFICATION OF THE TVLA BUDGET

Senior Personnel.

Dr. Furaha Mramba, a Co-PI, and a Medical Entomologist, will commit 1 month per year. Her monthly salary is documented below and is approximately $3,000 in Year 1, with a 3% increase for Y2-OY2, respectively.

Other Personnel:

The average salary for a general laboratory technician at TVLA Laboratory in Arusha is $450 per month or $5,400 per year.

Travel

We confirm that the Tanzanian Government Rate per night is $55 and transportation to Arusha is $50.

Other Direct Costs

TVLA Arusha has agreed to the following diagnostic assay table for the CCHF project.

<table>
<thead>
<tr>
<th>Assay</th>
<th>Number of Samples</th>
<th>Cost per Assay</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELISA</td>
<td>3200</td>
<td>$9.58</td>
<td>$30,656</td>
</tr>
<tr>
<td>PCR</td>
<td>3,496</td>
<td>$26.67</td>
<td>$93,238</td>
</tr>
</tbody>
</table>

We estimate that we will need the generator for 26.6 hours per month ($1.25/L*$5 hours/L*$26.6 hours/month*12 months/year = $2000). In Y3 only, we request $300 for a 100 pack of 20 mL Petri dishes.

Grateful if this request will be considered

Faithfully yours,

Dr. Joseph Masambu
DIRECTOR OF FINANCE AND ADMINISTRATION - TVLA
Cart

Account: 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisherbrand™ Petri Dishes Specialty</td>
<td>$160.00 / Case of 325</td>
<td>2</td>
<td>$320.00</td>
</tr>
</tbody>
</table>

In Stock (2) - Estimated delivery 12/03/2019

Order Summary

- Subtotal: $320.00
- Shipping and Handling*: $26.39
- Shipping fuel surcharge: $4.45
- Shipping charge: $21.94
- Estimated Tax: $0.00

*Extra charges may apply for products that require special services.

Generate a Web Quc

View All Quotes | What's this? | missing translation for 'faq'

1 of 1
12/2/19, 9:17 AM
TANZANIA VETERINARY LABORATORY AGENCY
PO. BOX 1068 ARUSHA.

Being cost for the USD 1,500.00
construction of a
Generator shelter
at TVLA, Arusha.

USD 1,500.00

1,500.00
TVLA Budget Justification

A. Key Personnel
We request a total of $5 to support Key Personnel over the five years of the proposed project.

Dr. Furuha Mramba, Co-PI, Entomologist, will commit 1 month per year. We request salary of $3,000 in Year 1, with a 3% increase for Y2- Y5, respectively. Her time is spent in Y3 to 6 months in order to support the testing of samples in the TVLA laboratory. Co-PI Mramba is the Chief Executive of TVLA and holds a PhD in medical entomology. Co-PI Mramba will conduct or supervise the identification and diagnostic testing of animals and ticks, oversee the design, implementation and analysis of the animal study and facilitate communication with stakeholders.

B. Other Personnel
We request a total of $23, to support Other Personnel over the five years of the proposed project.

Laboratory Technicians.
There will be three technicians, who will commit months per year in Y1 and Y2 to assist with the installation of the equipment purchased for the TVLA laboratory in Arusha (e.g., generator for the building, an ultrafreezer – see the EcoHealth Alliance Y1 part C for a full list of items to be installed), for which we are requesting $5,000. Salaries will increase 3% in subsequent years. They will commit to months for Y3 in order to assist with the diagnostic testing of samples. For this we are requesting $5,000 over the five years of the project.

During Year 3 we will hire three additional technicians to conduct the diagnostic testing of samples and tick identification. This includes one ELISA technician and one PCR technician that will be based in Arusha and who will commit 12 months per year for Y3 to assist with sera and ticks, respectively, for which we request $5,000 per technician. The technician hired to identify ticks will be contracted for 12 months from the TVLA lab in Tanga, for which we request $5,000.

D. Travel
We request a total of $5 to support travel over the five years of the proposed project.

In order to complete the tick identifications in Y3 of the project, we request $5,000 that will cover 6-day trips to Arusha. Transportation is calculated at $50 per day (550/day x trips x 7 days x trips = $5,950). The technician hired to identify ticks will be contracted for 12 months from the TVLA lab in Tanga, for which we request $5,000.

Co-PI Mramba will require one trip per year during Y1, Y2, Y4, and Y5 for project meetings and to visit stakeholders, calculated at $50 per day for transportation, and $4,000 per day for 3 days for field visit ($1,000 per year). During Y3 when there is active laboratory work and tick identifications ongoing, Co-PI Mramba will make trips to visit the laboratory in Arusha.
E. Participant Support Costs

We request a total of $1,800 for a CCHF Diagnostics Training Workshop held at TVLA during Y3 of the project. These funds will be used to support the travel costs of personnel during the 5-day workshop.

F. Other Direct Costs

We request a total of $13, for other direct costs over the five years of the proposed project. We request $123,894 for testing during Y3 of the project, including PCR testing and serology. We request $30,656 for testing covering 1,200 cattle samples, 1,800 small mammal samples and 200 wildlife samples, at a discounted rate of $9.58 (the rate is discounted as the University of Glasgow is providing the multispecies ELISA kits for analysis). We request $93,338 for testing covering 200 wildlife samples and 3296 tick pools, at a cost of 60,000 Tanzanian Shilling, or $26.67 USD, per test.

We request $10,300 over the five years of the project for supplies. There will be a cost of $2,000 each year in fuel for the generator to maintain samples (which will begin to be collected in Year 1) at -80°C during power outages. In Y3 only, we request $30 for a 100 pack of 20 mL Petri dishes.

H. Indirect Costs

We request a total of $19,328 in overhead, a rate of 10% per year on other direct costs, over the five years of the proposed project.
University of Glasgow (UoG)

A. Senior Personnel

We request a total of $S$ to support co-PI/Key Personnel (KP) over the five years of the proposed project.

Sarah Cleaveland, Ph.D., co-PI, will commit 12 months (mo.) per annum (p.a.) for all five years with an increase of approximately (allowing for exchange rates) 3% annually. We request $S$ in Y1 and $S$ in Y2. Total Co-PI Cleaveland will provide key support and oversight for the field epidemiological studies by contributing to the design and implementation of the field study, liaising with partner institutions and stakeholders in Tanzania and linking with policy makers at national, regional, and international levels for the dissemination of findings and development of guidelines.

Brian Willett, Ph.D., Research Scientist, Viral Immunologist, will commit 0.6 mo. p.a. for all five years with an increase of approximately 3% annually. We request $S$ in Y1 and $S$ in Y2, for all five years. Key Personnel Willett will provide oversight, support and training for CCHFV serological and molecular analyses and will coordinate activities with collaborating laboratories (Public Health England, Pirbright Institute).

B. Other Personnel

We request a total of $S$ to support Other Personnel over the five years of the proposed project.

Technician. A full-time laboratory technician based in KP Willett’s laboratory will commit 3 mo. per year in Y1 and Y2. We request $S$ in Y1 with a 4% increase annually. The technician will commit 12 mo. per year in Y3 and Y4 as the in-country laboratory work will be conducted during these two years. We request $S$ in Y3, totaling $S$ across all five years. The laboratory technician will support the laboratory analyses, including optimisation of assays, and establishment of laboratory diagnostic capacity in Tanzania.

John Claxton, Administrator, will commit 12 months p.a. for all five years with an approximately (allowing for exchange rates) 3% increase annually. We request $S$ in Y1 and a total of $S$ for all five years. Mr. Claxton, a highly experienced international project manager, will provide support for financial management and reporting, sub-contracts and agreements, ethical clearance, procurement and shipment of supplies.

D. Travel

We request a total of $S$ for international travel across all five years.

We request $S$ per year for either co-PI Cleaveland or the laboratory technician in Y1-0Y1. Each trip is estimated $S$ flight
In OY2 we request a trip for KP Willett.

We request a trip, over five years for research visas. We request a permit for the technician in Y1 to assist with the installation of capacity building equipment at TVLA. 2 permits per year in Y2 and Y1 for the technician and co-PI Cleveland and one permit in OY2 for co-PI Cleveland. We request $2,000 in Y1 with a 3% increase across all years.

E. Participant Support Costs

We request $3,000 in Y3 for travel subsistence costs for participants ($50 per day * 5 days * 10 participants * 2 trainings). Costs for the UoG trainer are covered by travel costs.

F. Other Direct Costs

We request a total of $6, in other direct costs across 5 years.

In Y1 and OY1 we request $5,000 for the shipment of samples from Tanzania to the University of Glasgow. This is required for quality assurance of assays carried out in Tanzania and based on recent estimates for similar shipments provided by researchers within this laboratory. We request a total of $8,500 for laboratory consumables costs across the 5 years. Materials and consumables costs are based upon the average actual annual expenditure over 4 years by researchers within the laboratory performing similar experiments to those in the project. These costs were extracted from the University of Glasgow purchasing system Agroco, including antibody reagents, secondary antibody conjugates, specific control sera, buffers, blocking agents and substrates for ELISA. This will produce sufficient reagent to
facilitate ELISA analyses at KCR1, UoG and the laboratories participating in the workshops. The funds will be used to purchase CCHF multispecies ELISA kits (420 animals can be tested per kit) at the end of Y2 for analyses at TVLA on the 3,200 animal samples in Y3 and a contingency of kits sufficient to process an additional 1,000 samples in each of Y4 and Y5 for confirmatory analyses and assay validation at UoG. Thus, we request a sufficient number of kits to test 5,600 samples over the three years.

- Cell culture plasticware/media for the synthesis and purification of recombinant antigens (for the human ELISA) - culture flasks, plates, media and supplements, ELISA plates, plate sealers, reservoirs, pipettes, tips and tubes. This includes using pre-cast polyacrylamide gels, buffers and supplies for the IFFO transfer system, Sarstedt tubes and storage boxes for sera.
- for molecular biologicals, nucleic acid purification kits, restriction enzymes and kits for mutagenesis and sequencing for vector preparation and cloning, and transfection. Also included in this category are preparing primers and probes for viral detection by real-time PCR for TVLA to use, confirmatory testing primers for sub-cloning and mutagenesis, and small-scale sequencing confirmation of plasmid constructs.
- general laboratory supplies, including microcentrifuge tubes, plates, petri dishes, fine chemicals.

**H. Indirect Costs**

We request a total of £43,000 in overhead, a rate of 10% per year on other direct costs, over the five years of the proposed project.
Budget Documentation – University of Glasgow

1) Salaries ................................................................. Pg. 2

2) International Travel ................................................ Pg. 3 - 8
   • Glasgow to Kilimanjaro/Arusha
   • Kilimanjaro/Arusha to Dar es Salaam
   • Glasgow to Dar es Salaam
   • Research Permits

3) Other Direct Costs ..................................................... Pg. 9 - 16
   • Shipping Costs
   • Lab Consumables
   • Diagnostics
One Health Approach to Understanding the Epidemiology of Crimean-Congo Haemorrhagic Fever virus in Tanzania

Dear Mindy,

Please see below salary information, as requested by DTRA.

<table>
<thead>
<tr>
<th>Name</th>
<th>Basic Annual Starting Salary</th>
<th>Annual Increment Date</th>
<th>Inflationary Uplift 2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Sarah Cleaveland</td>
<td>$130,046</td>
<td>1st August</td>
<td>1st August</td>
</tr>
<tr>
<td>Professor Brian Willets</td>
<td>$100,642</td>
<td>1st August</td>
<td>1st August</td>
</tr>
<tr>
<td>Ryan Carter</td>
<td>$31,832</td>
<td>1st May</td>
<td>1st August</td>
</tr>
<tr>
<td>John Claxton</td>
<td>$55,644</td>
<td>1st December</td>
<td>1st August</td>
</tr>
</tbody>
</table>

Dr Debbi MacMillan
Senior Project Coordinator

College of Medical, Veterinary and Life Sciences
Room 329, Wolfson Medical School Building
University of Glasgow
Glasgow, G12 8QQ

Email: Debbi.Macmillan@glasgow.ac.uk
Tel: +44 (0)141 330 4105

Web: http://www.gla.ac.uk/colleges/mvls/

The University of Glasgow, Charity Number SC004401
Flight costs

Trip Summary

Trip Summary $

Rates are quoted in US dollars

84502 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔ Nice Job! You picked one of our cheapest flights.
Book now so you don't miss out on this price!

Mon, Jan 13
From Glasgow Intl. (GLA)
To Kilimanjaro Intl. (JRO)
Qatar Airways
Cheapest
5:20pm → 2:05pm 17h 45m, 2 stops
GLA JRO LHR, DOH
Arrives Tue, Jan 14

Show flight and baggage fee details $

Mon, Jan 20
From Kilimanjaro Intl. (JRO)
To Glasgow Intl. (GLA)
British Airways
Cheapest
3:15pm → 10:50am 22h 35m, 3 stops
JRO GLA DAR, DOH, LHR
Arrives Tue, Jan 21

Show flight and baggage fee details $

Change flights

Upgrade your flight
Get more comforts and benefits by adding an upgrade.

Kilimanjaro Intl. (JRO) → Glasgow Intl. (GLA)
22h 35m
- Relax while packing! Get free bags.
- Enjoy more flexibility with free cancellation.
- Choose seats at no extra charge.
Show upgrades $

Included

Standard Economy
Cabin: Economy/Coach

● Checked Bags
● Seat Choice
✔ Carry On Bag
✓ Cancellation

Trio Total: $1,437.06

from
+ $752.11
for all travelers
Review your trip

Trip Summary

Rates are quoted in US dollars

✈ 64520 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔ Nice Job! You picked one of our cheapest flights.
   Book now so you don’t miss out on this price!

Mon, Jan 13  From Kilimanjaro Intl. (JRO)
              To Julius Nyerere Intl. (DAR)
_flight Systems

7:30am       →       1:20pm
JRO           DAR
5h 50m, 1 stop
ZNZ

Show flight and baggage fee details ⇔

Mon, Jan 20  From Julius Nyerere Intl. (DAR)
              To Kilimanjaro Intl. (JRO)
PrecisionAir

3:10pm       →       4:30pm
DAR           JRO
1h 20m, Nonstop

Show flight and baggage fee details ⇔

Change flights

Unlock up to 42% off select hotels when you book this flight
Your discount lasts until your trip starts

Important Flight Information
See more ⇔

Continue Booking

✈ 64520 customers protected their flight in the last 7 days. Add flight protection when you check out.
Round trip  1 passenger  Economy

Glasgow GLA  ➔  Dar es Salaam DAR  Sun, Jan 5  ➔  Sat, Jan 11

Bags  1 stop or fewer  Airlines  Price  Times  Connecting airports  More

Track prices:

Departing flights:

Each price includes taxes and fees for 1 adult. Additional baggage and other fees may apply.

8:50 PM - 3:00 PM
15h 10m
1 stop

513.74 CAD

1 longer or more expensive flight
Permit Costs

LOGICAL PRESENTATION OF REQUIREMENTS FOR APPLICATION OF

The objective of the analysis that led to this presentation was to find a much more easier to understand presentation of the requirements to the prospective applicants.

**GENERAL REQUIREMENTS:** These apply to all applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreigners Affiliated to Local Research and Higher Learning Institutions</th>
<th>Others (Tanzanian, Non Tanzanians, affiliated in a foreign country, affiliated locally, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detailed curriculum vitae</td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td>2</td>
<td>Full research proposal</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>3</td>
<td>Sponsor cover letter</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>4</td>
<td>Support letter from local collaborating institution / contact person</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>5</td>
<td>Recommendation letter for endorsement of the proposed research within the institution</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not applicable</td>
</tr>
<tr>
<td>6</td>
<td>Front-page of passport</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>7</td>
<td>Proof of payment non-refundable application fees</td>
<td>D(4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B(4)</td>
</tr>
<tr>
<td>8</td>
<td>Application form</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR SPECIFIC SCENARIOS

a) Research related to medical, public health, drugs, clinical trials, and wildlife issues require special clearance from relevant authorities i.e National Institute of Medical Research (NIMR) for the study that involves medical, public health and / or human subject (health); Tanzania Food and Drug Authority for Clinical Trials; and Tanzania Wildlife Research Institute (TAWIRI) for the study that involves wildlife and natural resources conservation.

b) In case of joining a new researcher to an on-going research which has already been granted a research permit, a Principal Investigator shall submit a request of research permit for a new member to COSTECH at least 2 months prior to his/her joining the research team with detailed curriculum vitae, clear justification and roles for an additional staff / researcher to the on-going project.

c) It is anticipated that the PI will remain responsible for the entire lifetime of the project, unless circumstances necessitate a change of PI. In such rare situation the head of hosting research institution shall write to notify COSTECH within 6 months since termination of outgoing PI. This will be done in writing explaining the reason for the changes and suitability of a newly identified PI. The letter requesting for amendment, accompanied by an up to date progress report shall be subjected to approval process before continuing with the research. It is the responsibility of the hosting institution to submit the request for change of PI within specified time.

POST CLEARANCE

a) After the research has been cleared, the PI will be notified by email. All FOREIGNERS who then wishes to undertake research activities in the country under the cleared research project will be required to and three passport size photos.
The United Republic of Tanzania
MINISTRY OF NATURAL RESOURCES AND TOURISM

General Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Wooden Bar</td>
<td>1</td>
<td>VES = 33,000.00</td>
<td>VES = 33,000.00</td>
</tr>
<tr>
<td>Smaller Wooden Bar</td>
<td>1</td>
<td>VES = 2,000.00</td>
<td>VES = 2,000.00</td>
</tr>
<tr>
<td>Total Amount</td>
<td></td>
<td></td>
<td>VES = 35,000.00</td>
</tr>
</tbody>
</table>

Notes: Wooden Bars, Three Dimensional Eight Hundred
Shipping Costs

All work is carried out subject to current terms and conditions shown on the HWEI. Full conditions are available on http://www.worldcourier.com/us-conditions-of-carriage. By accepting this quote, you enter into an agreement to pay according to these terms.

The current Fuel & Security surcharge is 15.6%.

<table>
<thead>
<tr>
<th>Description</th>
<th>Origin City, Country</th>
<th>Destination City, Country</th>
<th>Routing</th>
<th>Weight (kg)</th>
<th>G/W per kg</th>
<th>Total</th>
<th>Packaging, Supply &amp; surcharges</th>
<th>Temperature Monitoring</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non haz RNA &amp; DNA Samples</td>
<td>Mextyz</td>
<td>Glasgow / GB</td>
<td>Via</td>
<td>26.0</td>
<td>17.08</td>
<td>870.30</td>
<td>810.56</td>
<td>55.00</td>
<td>319.00</td>
</tr>
</tbody>
</table>

**Conditions:**

The above quote is subject to variations depending on the final weight of the shipment.

- If the weight of the shipment exceeds the maximum allowed weight, the surcharge for the additional weight will be applied using the formula: 
  \[ \text{Surcharge} = (W - X) \times Y \]
  where \( W \) is the actual weight, \( X \) is the maximum allowed weight, and \( Y \) is the surcharge rate.

- Additional attempts are required due to unforeseen delays or changes in service. Additional charges may apply.

- Final origin and destination drive charges are subject to variation based on exact pick up and delivery locations.

- If information is submitted during the quoting process, the displayed amount will be estimated based on a central point for the named city and subject to change.

- Customs, Taxes / Duty have not been included in this quote. Taxes / Duty will be charged according to local regulations.

- Alike Warehousing and storage charges will be charged in addition when applicable.

- This quote is only valid if confirmed in writing.

- All rates shown are subject to change depending on any specific collection time and delivery requirements.

- All rates shown are specific to each package.

- All rates are subject to change based on the current fuel price.

- The Fuel & Security surcharge is applied to the base, overweight and overcharge charges only. This rate is reviewed on a quarterly basis and will be charged at the current rate of the time of shipping.
Materials and consumables costs are based upon the average actual annual expenditure (over 4 years) by researchers within this laboratory performing similar experiments to those in the project. These costs were extracted from the University of Glasgow purchasing system Agresso.

<table>
<thead>
<tr>
<th>Account Type</th>
<th>Date</th>
<th>Description</th>
<th>Amount GBP</th>
<th>Dollar cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>10/11/17</td>
<td>20057290 Specimen bag</td>
<td>506.00</td>
<td>694.84</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>10/11/17</td>
<td>carriage</td>
<td>8.55</td>
<td>11.74</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>10/11/17</td>
<td>20056402 Thermal control unit fibreboard outer refu</td>
<td>16.70</td>
<td>22.93</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>10/11/17</td>
<td>20056402 Thermal control unit fibreboard outer refu</td>
<td>10.26</td>
<td>14.09</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>10/11/17</td>
<td>97256</td>
<td>36.30</td>
<td>49.85</td>
</tr>
<tr>
<td>SMALL EQUIPMENT (AS CONS)</td>
<td>10/12/17</td>
<td>S7108110010100ul 8 channel multichannel pipette</td>
<td>340.00</td>
<td>466.89</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>10/26/17</td>
<td>98215</td>
<td>112.53</td>
<td>154.53</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>10/26/17</td>
<td>98215</td>
<td>192.10</td>
<td>263.79</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>11/10/17</td>
<td>98695</td>
<td>177.60</td>
<td>243.88</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/14/17</td>
<td>100439</td>
<td>72.60</td>
<td>99.69</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/20/17</td>
<td>101801</td>
<td>73.18</td>
<td>100.49</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIA</td>
<td>11/20/17</td>
<td>101801</td>
<td>11.00</td>
<td>15.11</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>11/20/17</td>
<td>101801</td>
<td>5.65</td>
<td>7.76</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/29/17</td>
<td>102403</td>
<td>146.07</td>
<td>200.58</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIA</td>
<td>11/29/17</td>
<td>102403</td>
<td>13.75</td>
<td>18.88</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>11/29/17</td>
<td>102403</td>
<td>0.40</td>
<td>0.55</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>11/30/17</td>
<td>HWB L4 Lab biochemicals Oct17 for N Logan</td>
<td>8.68</td>
<td>11.92</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>11/30/17</td>
<td>HWB L4 Lab organic chemicals Oct17 for N Logan</td>
<td>0.43</td>
<td>0.59</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/30/17</td>
<td>HWB L4 Lab plasticware Oct17 for N Logan</td>
<td>2.89</td>
<td>3.97</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>11/30/17</td>
<td>HWB L4 Cell Culture plasticware Oct17 for N Logan</td>
<td>16.71</td>
<td>22.95</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>11/30/17</td>
<td>HWB L4 Lab other lab supplies Oct17 for N Logan</td>
<td>0.59</td>
<td>0.81</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>11/30/17</td>
<td>HWB L4 Lab freight Oct17 for N Logan</td>
<td>0.82</td>
<td>1.13</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>11/30/17</td>
<td>HWB L4 Cell Culture cleaning materials Oct17 for N I</td>
<td>1.87</td>
<td>2.57</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>11/30/17</td>
<td>HWB L4 Lab cleaning materials Oct17 for N Logan</td>
<td>0.60</td>
<td>0.82</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>11/30/17</td>
<td>HWB L4 Cell Culture workshop cons Oct17 for N Logan</td>
<td>13.33</td>
<td>18.30</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/GLASGOW UNITED KINGDOM</td>
<td>7.62</td>
<td>10.46</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/GLASGOW UNITED KINGDOM</td>
<td>0.26</td>
<td>0.36</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/LEEDS UNITED KINGDOM</td>
<td>0.26</td>
<td>0.36</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/LEEDS UNITED KINGDOM</td>
<td>7.62</td>
<td>10.46</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>12/6/17</td>
<td>DHL/3746273661/GLASGOW UNITED KINGDOM</td>
<td>76.80</td>
<td>105.46</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/8/18</td>
<td>104669</td>
<td>73.18</td>
<td>100.49</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>1/8/18</td>
<td>104669</td>
<td>0.88</td>
<td>1.21</td>
</tr>
<tr>
<td>Category</td>
<td>Date</td>
<td>Item Description</td>
<td>Quantity</td>
<td>Unit Cost</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------</td>
<td>--------------------------------------------------------</td>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/24/18</td>
<td>105736</td>
<td></td>
<td>255.66</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>1/24/18</td>
<td>105736</td>
<td></td>
<td>351.07</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture bonded alcohols Nov17 for N Logan</td>
<td>2.46</td>
<td>0.82</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>1/31/18</td>
<td>HWB L4 Lab bonded alcohols Dec17 for N Logan</td>
<td>0.75</td>
<td>1.13</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAI</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture disp of chemical waste Nov17 for N Logan</td>
<td>0.48</td>
<td>3.38</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>1/31/18</td>
<td>HWB L4 Lab disp of clinical waste Nov17 for N Logar</td>
<td>3.31</td>
<td>1.03</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>1/31/18</td>
<td>HWB L4 Lab organic chemicals Nov17 for N Logan</td>
<td>2.32</td>
<td>4.55</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Lab plasticware Nov17 for N Logan</td>
<td>11.30</td>
<td>3.19</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture plasticware Dec17 for N Logan</td>
<td>90.09</td>
<td>7.95</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture plasticware Nov17 for N Logan</td>
<td>73.17</td>
<td>100.48</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>1/31/18</td>
<td>HWB L4 Lab plasticware Dec17 for N Logan</td>
<td>5.79</td>
<td>7.95</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture other lab supplies Nov17 for N Log</td>
<td>14.34</td>
<td>19.69</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Dec17 for N</td>
<td>8.42</td>
<td>11.56</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>1/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Nov17 for N</td>
<td>8.77</td>
<td>12.04</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>1/31/18</td>
<td>HWB L4 Lab cleaning materials Nov17 for N Logan</td>
<td>5.28</td>
<td>7.25</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>1/31/18</td>
<td>HWB L4 Lab stationery Nov17 for N Logan</td>
<td>0.62</td>
<td>0.85</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/5/18</td>
<td>106442</td>
<td></td>
<td>170.56</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/8/18</td>
<td>106760</td>
<td></td>
<td>216.06</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>2/27/18</td>
<td>X8 ZEOCIN 100MGML PACK OF 8 X 125ML</td>
<td></td>
<td>240.78</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture bonded alcohols Jan18 for N Logan</td>
<td>2.39</td>
<td>3.28</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture plasticware Jan18 for N Logan</td>
<td>36.18</td>
<td>49.68</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>2/28/18</td>
<td>HWB L4 Lab plasticware Jan18 for N Logan</td>
<td>5.05</td>
<td>6.93</td>
</tr>
<tr>
<td>COMPUTER CONSUMABLES</td>
<td>2/28/18</td>
<td>HWB L4 Lab computer consumables Jan18 for N Log</td>
<td>4.07</td>
<td>5.59</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture cleaning materials Jan18 for N Log</td>
<td>22.94</td>
<td>31.50</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>2/28/18</td>
<td>HWB L4 Lab cleaning materials Jan18 for N Log</td>
<td>1.85</td>
<td>2.54</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>2/28/18</td>
<td>HWB L4 Lab stationery Jan18 for N Logan</td>
<td>0.15</td>
<td>0.21</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture stationery Jan18 for N Logan</td>
<td>0.10</td>
<td>0.14</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>2/28/18</td>
<td>HWB L4 Cell Culture workshop consumables Jan18 for N Log</td>
<td>83.33</td>
<td>114.43</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/5/18</td>
<td>109015</td>
<td></td>
<td>205.03</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/15/18</td>
<td>109649</td>
<td></td>
<td>281.55</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>3/15/18</td>
<td>109649</td>
<td></td>
<td>109.77</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>3/15/18</td>
<td>109649</td>
<td></td>
<td>150.74</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>3/21/18</td>
<td>110057</td>
<td></td>
<td>120.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>165.76</td>
</tr>
<tr>
<td>Category</td>
<td>Date</td>
<td>Description</td>
<td>Quantity</td>
<td>Cost</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>3/31/18</td>
<td>HWB L4 Lab biochemicals Feb18 for N Logan</td>
<td></td>
<td>19.25</td>
</tr>
<tr>
<td></td>
<td>3/31/18</td>
<td>HWB L4 Lab bonded alcohols Feb18 for N Logan</td>
<td></td>
<td>0.77</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RA</td>
<td>3/31/18</td>
<td>HWB L4 Lab disp of chemical waste Feb18 for N Log</td>
<td></td>
<td>0.31</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/31/18</td>
<td>HWB L4 Cell Culture plasticware Feb18 for N Logan</td>
<td></td>
<td>35.39</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>3/31/18</td>
<td>HWB L4 Lab plasticware Feb18 for N Logan</td>
<td></td>
<td>6.21</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>3/31/18</td>
<td>HWB L4 Lab other lab supplies Feb18 for N Logan</td>
<td></td>
<td>9.96</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>3/31/18</td>
<td>HWB L4 Lab cleaning materials Feb18 for N Logan</td>
<td></td>
<td>7.20</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>3/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Feb18 for N</td>
<td></td>
<td>1.87</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUPPLIES</td>
<td>3/31/18</td>
<td>HWB L4 Lab stationery Feb18 for N Logan</td>
<td></td>
<td>0.62</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>4/12/18</td>
<td>111183</td>
<td></td>
<td>192.66</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>4/16/18</td>
<td>111305</td>
<td></td>
<td>15.29</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUPPLIES</td>
<td>4/16/18</td>
<td>111305</td>
<td></td>
<td>7.10</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>4/25/18</td>
<td>order number for oligo card required</td>
<td></td>
<td>90.00</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture bonded alcohols Mar18 for N Lo</td>
<td></td>
<td>2.39</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture disp of clinical waste Mar18 for</td>
<td></td>
<td>1.74</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>4/30/18</td>
<td>HWB L4 Lab disp of clinical waste Mar18 for N Logar</td>
<td></td>
<td>0.87</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>4/30/18</td>
<td>112103</td>
<td></td>
<td>54.89</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture plasticware Mar18 for N Logan</td>
<td></td>
<td>74.40</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>4/30/18</td>
<td>HWB L4 Lab plasticware Mar18 for N Logan</td>
<td></td>
<td>2.89</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>4/30/18</td>
<td>112103</td>
<td></td>
<td>2.86</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture tissue culture Mar18 for N Loga</td>
<td></td>
<td>12.66</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture other lab supplies Mar18 for N</td>
<td></td>
<td>14.34</td>
</tr>
<tr>
<td>LAB EQUIPMENT MAINTENANCE</td>
<td>4/30/18</td>
<td>Repairs</td>
<td></td>
<td>142.00</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture cleaning materials Mar18 for N</td>
<td></td>
<td>5.29</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>4/30/18</td>
<td>HWB L4 Cell Culture workshop consumables Mar18 f</td>
<td></td>
<td>1.67</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>5/4/18</td>
<td>1934975 HIGH-FIDELITY MASTER MIX</td>
<td></td>
<td>106.75</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>5/14/18</td>
<td>1937687 E6300S</td>
<td></td>
<td>124.25</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>5/17/18</td>
<td>1938305 RABBIT ANTI-HUMAN &amp; LIGHT CHAIN ANTI</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>5/17/18</td>
<td>113025</td>
<td></td>
<td>146.07</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER</td>
<td>5/17/18</td>
<td>113025</td>
<td></td>
<td>8.25</td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT</td>
<td>5/17/18</td>
<td>1938305 RABBIT ANTI-HUMAN &amp; LIGHT CHAIN ANTI</td>
<td></td>
<td>30.00</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>5/23/18</td>
<td>113380</td>
<td></td>
<td>109.77</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>5/30/18</td>
<td>113791</td>
<td></td>
<td>73.18</td>
</tr>
<tr>
<td>Description</td>
<td>Code</td>
<td>Quantity</td>
<td>Unit</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>--------</td>
<td>----------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 5/30/18</td>
<td>113791</td>
<td>22.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAW 5/31/18</td>
<td></td>
<td>30.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 5/31/18</td>
<td></td>
<td>34.42</td>
<td>47.27</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 5/31/18</td>
<td></td>
<td>44.37</td>
<td>60.93</td>
<td></td>
</tr>
<tr>
<td>CLEANING MATERIALS 5/31/18</td>
<td></td>
<td>1.78</td>
<td>2.44</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 5/31/18</td>
<td></td>
<td>2.03</td>
<td>2.79</td>
<td></td>
</tr>
<tr>
<td>CLEANING MATERIALS 5/31/18</td>
<td></td>
<td>1.50</td>
<td>2.06</td>
<td></td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP 5/31/18</td>
<td></td>
<td>7.18</td>
<td>9.86</td>
<td></td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES 5/31/18</td>
<td></td>
<td>0.62</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES 5/31/18</td>
<td></td>
<td>0.06</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>BIOCHEMICALS 6/6/18</td>
<td>114194</td>
<td>42.22</td>
<td>57.98</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/6/18</td>
<td></td>
<td>28.80</td>
<td>39.55</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/7/18</td>
<td>114180</td>
<td>218.96</td>
<td>300.68</td>
<td></td>
</tr>
<tr>
<td>BIOCHEMICALS 6/13/18</td>
<td>114316</td>
<td>15.16</td>
<td>20.82</td>
<td></td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/13/18</td>
<td>114716</td>
<td>52.50</td>
<td>72.09</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/13/18</td>
<td></td>
<td>8.25</td>
<td>11.33</td>
<td></td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUP 6/13/18</td>
<td></td>
<td>45.48</td>
<td>62.45</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/18/18</td>
<td>114954</td>
<td>0.34</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/26/18</td>
<td>115526</td>
<td>109.77</td>
<td>150.74</td>
<td></td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/26/18</td>
<td></td>
<td>146.36</td>
<td>200.98</td>
<td></td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/26/18</td>
<td>115526</td>
<td>8.14</td>
<td>11.18</td>
<td></td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/26/18</td>
<td></td>
<td>15.50</td>
<td>22.66</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/28/18</td>
<td>115713</td>
<td>133.68</td>
<td>183.57</td>
<td></td>
</tr>
<tr>
<td>BIOCHEMICALS 6/30/18</td>
<td></td>
<td>130.26</td>
<td>178.87</td>
<td></td>
</tr>
<tr>
<td>BONDED ALCOHOLS 6/30/18</td>
<td></td>
<td>1.08</td>
<td>1.48</td>
<td></td>
</tr>
<tr>
<td>INORGANIC CHEMICALS 6/30/18</td>
<td></td>
<td>0.73</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/30/18</td>
<td></td>
<td>1103.06</td>
<td>1514.72</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/30/18</td>
<td></td>
<td>91.23</td>
<td>125.28</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE 6/30/18</td>
<td></td>
<td>6.67</td>
<td>9.16</td>
<td></td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTER 6/30/18</td>
<td></td>
<td>10.10</td>
<td>13.87</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>1.31</td>
<td>1.80</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>12.90</td>
<td>17.71</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>1000.00</td>
<td>1373.20</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES 6/30/18</td>
<td></td>
<td>667.00</td>
<td>915.92</td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Date</td>
<td>Description</td>
<td>Units</td>
<td>Price</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>6/30/18</td>
<td>HWB L4 Lab cleaning materials May18 for N Logan</td>
<td></td>
<td>18.47</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>6/30/18</td>
<td>HWB L4 Cell Culture cleaning materials May18 for N</td>
<td></td>
<td>18.90</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture bonded alcohols Jul18 for N Loga</td>
<td></td>
<td>4.30</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>7/31/18</td>
<td>HWB L4 Lab bonded alcohols Jul18 for N Logan</td>
<td></td>
<td>2.44</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>7/31/18</td>
<td>HWB L4 Lab bonded alcohols Jun18 for N Logan</td>
<td></td>
<td>3.08</td>
</tr>
<tr>
<td>DISPOSAL OF CHEMICAL &amp; RAW MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab disp of chemical waste Jun18 for N Loga</td>
<td></td>
<td>45.64</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture disp of clinical waste Mar18 adj</td>
<td></td>
<td>-3.48</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>7/31/18</td>
<td>HWB L4 Lab disp of clinical waste Mar18 adj for N Loga</td>
<td></td>
<td>-1.74</td>
</tr>
<tr>
<td>DISPOSAL OF CLINICAL WASTE</td>
<td>7/31/18</td>
<td>HWB L4 Lab disp of clinical waste Nov17 adj for N Loga</td>
<td></td>
<td>-6.62</td>
</tr>
<tr>
<td>INORGANIC CHEMICALS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture inorganic chemicals Jul18 for N</td>
<td></td>
<td>2.22</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab organic chemicals Jul18 for N Logan</td>
<td></td>
<td>0.86</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture plasticware Jun18 for N Logan</td>
<td></td>
<td>232.54</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture plasticware Jul18 for N Logan</td>
<td></td>
<td>303.62</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>7/31/18</td>
<td>HWB L4 Lab plasticware Jun18 for N Logan</td>
<td></td>
<td>15.40</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIOTRON</td>
<td>7/31/18</td>
<td>HWB L4 Lab tissue culture Jul18 for N Logan</td>
<td></td>
<td>61.02</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture other lab supplies Jun18 for N Loga</td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Jul18 for N</td>
<td></td>
<td>4.93</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab cleaning materials Jun18 for N Logan</td>
<td></td>
<td>2.48</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Lab cleaning materials Jul18 for N Logan</td>
<td></td>
<td>2.16</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture cleaning materials Jun18 for N Loga</td>
<td></td>
<td>19.28</td>
</tr>
<tr>
<td>STATIONERY AND OFFICE SUPPLIES</td>
<td>7/31/18</td>
<td>HWB L4 Lab stationery Jun18 for N Logan</td>
<td></td>
<td>1.24</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture workshop consumables Mar18 adj</td>
<td></td>
<td>-3.34</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture workshop cons Oct17 adj for N Loga</td>
<td></td>
<td>-26.66</td>
</tr>
<tr>
<td>WORKSHOP CONSUMABLES</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture workshop consumables Apr18 adj</td>
<td></td>
<td>-84.44</td>
</tr>
<tr>
<td>OTHER JANITORIAL COSTS</td>
<td>7/31/18</td>
<td>HWB L4 Lab other janitorial costs Jul18 for N Loga</td>
<td></td>
<td>7.62</td>
</tr>
<tr>
<td>OTHER JANITORIAL COSTS</td>
<td>7/31/18</td>
<td>HWB L4 Cell Culture other janitorial costs Jul18 for N</td>
<td></td>
<td>23.78</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIOTRON</td>
<td>8/20/18</td>
<td>119591</td>
<td></td>
<td>8.28</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>8/29/18</td>
<td>120084</td>
<td></td>
<td>146.07</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES</td>
<td>8/30/18</td>
<td>Tempus Blood RNA Tube</td>
<td></td>
<td>2302.80</td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>9/6/18</td>
<td>SP5020 10 X casein solution</td>
<td></td>
<td>78.00</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>9/12/18</td>
<td>120748</td>
<td></td>
<td>133.68</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIOTRON</td>
<td>9/12/18</td>
<td>120748</td>
<td></td>
<td>3.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.23</td>
</tr>
<tr>
<td>Description</td>
<td>Code</td>
<td>Amount 1</td>
<td>Amount 2</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES: 9/12/18</td>
<td>120748</td>
<td>14.46</td>
<td>19.86</td>
<td></td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES: 9/13/18</td>
<td>6066759 SteadyLite plus 1000ml kit as per quote 215</td>
<td>982.13</td>
<td>1348.66</td>
<td></td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT: 9/13/18</td>
<td>6066759 SteadyLite plus 1000ml kit as per quote 215</td>
<td>17.25</td>
<td>23.69</td>
<td></td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>9/21/18</td>
<td>121304</td>
<td>170.27</td>
<td>233.81</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIA: 9/21/18</td>
<td>121304</td>
<td>22.86</td>
<td>31.39</td>
<td></td>
</tr>
<tr>
<td>LAB EQUIPMENT MAINTENANCE: 9/27/18</td>
<td>1450-471/normalisation standard/QUOTE 21570833</td>
<td>390.00</td>
<td>535.55</td>
<td></td>
</tr>
<tr>
<td>MAIL COURIER AND FREIGHT: 9/27/18</td>
<td>1450-471/normalisation standard/QUOTE 21570833</td>
<td>35.00</td>
<td>48.06</td>
<td></td>
</tr>
<tr>
<td>BIOCHEMICALS</td>
<td>9/30/18</td>
<td>HWB L4 Lab biochemicals Aug18 for N Logan</td>
<td>19.80</td>
<td>27.19</td>
</tr>
<tr>
<td>BONDED ALCOHOLS</td>
<td>9/30/18</td>
<td>HWB L4 Cell Culture bonded alcohols Aug18 for N Lo</td>
<td>2.15</td>
<td>2.95</td>
</tr>
<tr>
<td>ORGANIC CHEMICALS</td>
<td>9/30/18</td>
<td>HWB L4 Lab organic chemicals Aug18 for N Logan</td>
<td>2.03</td>
<td>2.79</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>9/30/18</td>
<td>HWB L4 Cell Culture plasticware Aug18 for N Logan</td>
<td>85.51</td>
<td>117.42</td>
</tr>
<tr>
<td>PLASTICWARE</td>
<td>9/30/18</td>
<td>HWB L4 Lab plasticware Aug18 for N Logan</td>
<td>13.64</td>
<td>18.73</td>
</tr>
<tr>
<td>TISSUE CULTURE AND BACTERIA: 9/30/18</td>
<td>9/30/18</td>
<td>HWB L4 Lab tissue culture Aug18 for N Logan</td>
<td>19.96</td>
<td>27.41</td>
</tr>
<tr>
<td>OTHER LABORATORY SUPPLIES: 9/30/18</td>
<td>9/30/18</td>
<td>HWB L4 Lab other lab supplies Aug18 for N Logan</td>
<td>0.23</td>
<td>0.32</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>9/30/18</td>
<td>HWB L4 Lab cleaning materials Aug18 for N Logan</td>
<td>1.25</td>
<td>1.72</td>
</tr>
<tr>
<td>CLEANING MATERIALS</td>
<td>9/30/18</td>
<td>HWB L4 Cell Culture cleaning materials Aug18 for N</td>
<td>3.64</td>
<td>5.00</td>
</tr>
<tr>
<td>OTHER JANITORIAL COSTS</td>
<td>9/30/18</td>
<td>HWB L4 Lab other janitorial costs Aug18 for N Logan</td>
<td>6.88</td>
<td>9.45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>£ 14,067.33</td>
<td>$ 19,317.26</td>
<td></td>
</tr>
</tbody>
</table>
## Order confirmation

**Anna Greatrex (Int.)**  
**Katja NOOR COROUGE**

**Invoicing Address**  
University of Glasgow - Finance Office  
Main Building, East Quadrangle  
G12 8QQ Glasgow, Scotland  
ROYAUME UNI

**Tel:**  
**Fax:**  
**VAT:** GB 671 798 093  
**Siret:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Designation</th>
<th>Qty</th>
<th>Unit Price</th>
<th>% Discount</th>
<th>Net Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGHFPA-5P-E23</td>
<td>ID Screen® CCHF Double Antigen Multi-species</td>
<td>1.00</td>
<td>1 060.00</td>
<td>0.00</td>
<td>1 060.00</td>
<td>1 060.00</td>
</tr>
</tbody>
</table>

Exp. : 09/2020  
5 Plates - Double Antigen

Total Qty : 1.00

<table>
<thead>
<tr>
<th>Transport</th>
<th>Incoterms © 2010</th>
<th>Amount</th>
<th>EUR</th>
<th>1 090.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEDEX</td>
<td>DAP Glasgow</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shi : 30.00  
Amount subject to VAT : 
Exo : 1 090.00

**TOTAL**  
**EUR** 1 090.00

Payment terms: Swift Bank Transfer at 30 days

Orders are generally sent within 48 hours

**Coordonnées bancaires :** Banque Dupuy de Parseval Montpellier  
Code Banque 12399  
Code Guichet 00031  
N°Compte 40000765077 Cie 27  
IBAN FR76 1293 9000 3140 6007 6057 727 SWIFT BIC : BDUPFR2S  
New account in Dollars : HSBC Montpellier code banque 30056 code guichet 00967  
n°compte 00670031413 cie : 64  
IBAN : FR76 3005 6008 6709 6700 0141 364 SWIFT BIC CCFRFRPP
BULLET 1: Budget Justification

Washington State University /
WSU Global Animal Health: Tanzania (GAHT)

Note: Cost calculations are rounded to nearest dollar

Senior/Key Personnel

Dr. Felice Lankester, Co-Investigator, 2.4 cal. woe (years 1-3), 2.2 cal. woe (years 4-6)

Dr. Lankester is a Clinical Assistant Professor at Washington State University's Paul G. Allen School for Global Animal Health. Now based in the UK, Dr. Lankester has conducted zoonotic disease research since 2009 and has extensive experience with project leadership within the African and One Health research contexts. He serves as Country Representative of WSU's non-profit subsidiary Global Animal Health Tanzania (GAHT), legally registered in Tanzania to facilitate in-country research and support research capacity-building activities on zoonotic infectious diseases. Dr. Lankester will commit 20% effort to the project in Years 1-2 and 15.67% effort in Years 3-5. He will oversee all GAHT activities and supervise GAHT project staff, assist in the coordination of the field activities, serve as liaison with high-level Ministerial collaborators and interested parties within the Government of the United Republic of Tanzania, and will collaborate with the PI on data analysis and the drafting of manuscripts, reports, and policy documents. Salary request for Dr. Lankester is $20,000 in Year 1 and budget to inflate at 3% annually.

Fringe benefits for Dr. Lankester are calculated at 18% of salary. Year 1 request: $3,571

Senior/Key Personnel Total, 6 year project period: $127,180

II. Other Personnel

WSU Global Animal Health Tanzania (GAHT) maintains an office in Arusha, TZ, to support WSU investigators.

Move up (insertion) [1]

Move up (1): Travel support within Tanzania is also requested for Dr. Lankester and the Project Coordinator to carry out project activities. Dr. Lankester's travel includes:

- Two road trips, 3 days each in Years 1 and 2 to field sites to oversee animal health team activities and sampling procedures. Year 1 budget includes lodging and meal per diem ($157/day x 3 days x 2 trips = $942) and fuel for 720 km per trip ($100 x 2 trips = $200) = $1,242. 3% inflation in Year 2.
- One 2-day trip in Years 1 and 2 to visit the wildlife sampling field team. Year 1 costs include return flight Arusha to Sorongera (SAR1) and lodging and per diem ($165/day x 2 days = $330). 3% inflation Year 2.
- Field costs, Years 1 and 2. Total $3,640.

One trip, 2 days each annually to Dar es Salaam and/or Dodoma for meetings with United Republic of Tanzania Ministry officials and other stakeholders. Year 1 costs.
Budget Documentation – Washington State University

1) Salaries.........................................................................................................................2
   - Dr. Felix Lankester, Assistant Professor
   - Mr. Godfrey Kassanga, Administrative Manager, GAHT
   - Ms. Sarah Mollel, Program Coordinator, GAHT
   - October 2019 GAHT Payroll information, with Tsh to USD exchange rate
   - Draft employment contract, TBN, Project Veterinarian
   - Draft employment contract, TBN, Field Assistant

2) GAHT Fringe Benefits..............................................................................................13

3) Other Direct Costs....................................................................................................15
   - Permits
   - Vehicle Maintenance
   - Vehicle Insurance
   - Supplies
   - Medical Waste Disposal, KCMC
   - Draft Personal Service / Consultant Contract, TBN, Mammologist
   - Estimate of Translation Services

4) Indirect Cost Rate.....................................................................................................39

5) Travel.........................................................................................................................45
   - London to Arusha, TZ
   - Arusha to Seronera, TZ
   - Arusha to Dar es Salaam, TZ
   - London to Europe
   - Lodging and meal per diem rates, TZ
DEPPS System
Employee Appointment Select

WSU No. 11363621
Name: LANCASTER, FELIX

<table>
<thead>
<tr>
<th>Sel</th>
<th>Posn</th>
<th>Title</th>
<th>Title</th>
<th>Begin</th>
<th>End</th>
<th>FT Rate</th>
<th>FTE</th>
<th>Pay Rate</th>
<th>Dept</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>114852</td>
<td>0267</td>
<td></td>
<td>01-11-19</td>
<td>09-30-21</td>
<td>10915.44</td>
<td>1.0000</td>
<td>10915.44</td>
<td>N E Y7NY</td>
</tr>
</tbody>
</table>

Enter Sel number and press <Enter>
August 1st, 2019

Godfrey A. Kassanga
Mjimwema Area/Kigamboni
Dar es salaam
TANZANIA

Dear Godfrey Kassanga,

RE: APPOINTMENT AS ADMINISTRATIVE MANAGER FOR GLOBAL ANIMAL HEALTH TANZANIA

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to offer you the position indicated below.

Position Title: Administrative Manager
Working Title: Administrative Manager
Place of Recruitment: Arusha
Location of work: Global Animal Health Tanzania, Uzunguni Area, Sekou Toure Road, Gymkhana, Arusha
Reporting: School for Global Animal Health,
            Director of Finance and Administration

Appointment Duration: 1st of September 2019 to 31st of August 2020
Gross Monthly Salary: 5,762,000 TZS $2,516.68
Start Date: 1st of September, 2019

Your position is responsible for the overall administrative coordination of Global Animal Health Tanzania (GAHT), a Non-Governmental Organization (NGO) in Arusha, Tanzania. In this position you will serve as the primary financial and personnel officer for GAHT and will operate with a broad level of independent judgment and decision making authority. You will report directly to the Paul G. Allen School for Global Animal Health, Director of Finance and Administration, an academic unit of Washington State University. You will manage the administrative functions of GAHT personnel, procurement, contracts, and finance units for GAHT. You will also manage the requisite NGO registrations and official documents, ensuring all are in order and filed with the respective United Republic of Tanzania agencies. Your responsibilities include assisting the Director of Finance and Administration and the President of

Global Animal Health-Tanzania Improving Public Health and Catalyzing Human Opportunity
Rivergardens Business Park, Usa River, Arusha
PO Box 1642, Arusha, Tanzania
Telephone: Office Line +255-688521020
www.globalhealth.wsu.edu
GAHT in the development of long-and-short-term strategic plans for GAHT as a sustainable and responsive NGO, leading and managing administrative activities associated with the GAHT office, and ensuring operations are aligned with GAHT and Washington State University policies and procedures as well as in compliance with United Republic of Tanzania laws, regulations, and policies.

A detailed description of the position scope of work is provided in the position description that will be given to you upon reporting.

Note: See attached position description

The terms of engagement are as follows:

1. **Engagement Duration:** The period of service is for one (1) year from the start date indicated herein above (1st of September, 2019 to 31st of August, 2020), on a renewable basis upon consultation with and advice from the Director of Finance and Administration and approval of the officers of GAHT. Renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal, even where you may have had a previous renewal of contract.

2. **Working Hours:** The normal working hours are 40 hours a week from 8:00am to 5:00pm, with one-hour lunch break, from Monday to Friday. At times you will be expected to work outside of the normal working hours, however the position is not eligible for overtime due to the senior level of the employment. You will have teleconference meetings, normally weekly, with the Paul G. Allen School for Global Animal Health administrative team as well as with faculty engaged in research in Tanzania. These meetings, due to time zone difference, are likely to be scheduled outside of your normal working hours.

3. **Salary:** You will be paid a Gross Monthly Salary of 5,762,000 TZS. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract.

   The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

4. **Benefits:** In addition to the salary, you will receive health insurance that you can enlist up to four immediate dependents who must be either your spouse or your legal child (biological child, legally adopted child or a child over whom you have a court mandated guardianship or custody).

5. **Annual Leave:** You will be entitled to annual leave of 22 days per year. These should be utilized within the duration of the contract through mutual agreement between you and your supervisor. You are also entitled to sick leave, maternity leave and compassionate leave as stipulated by law.

6. **Confidentiality:** During and after the term of employment (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to 3rd parties.
You will be required to complete training regarding prevention of discrimination and sexual harassment within six months of your date of hire. Information regarding this training is available at the following web site: hrs.wsu.edu/dshp.

All GAHT employees are required to adhere to the institution’s policies and procedures. Please return a copy of this letter to Dr. Guy Palmer, President of GAHT, indicating whether you accept or decline the offer, not later than the 12th of August, 2019.

We are confident you will find this opportunity both challenging and rewarding, and we are delighted that you have chosen to pursue your career with the Global Animal Health Tanzania program.

Sincerely,

Dr. Guy Palmer
Regents Professor
Senior Executive Director, Global Health
Washington State University
President, Global Animal Health-Tanzania

Rebecca Manning
Director of Finance and Administration
School for Global Animal Health
Secretary-Treasurer, Global Animal Health Tanzania

Acceptance

[Signature]

[Name and ID number]

I hereby accept (delete whichever is not applicable) the appointment and terms provided thereto.

[Signature]

[Date]
March 22, 2019

Sarah Mollel
P.O. Box 772,
Arusha, Tanzania

Dear Sarah Mollel,

RE: APPOINTMENT AS PROGRAM COORDINATOR FOR GAHT

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to renew your position as indicated below.

Position Title: Program Coordinator
Working Title: Country Coordinator
Place of Recruitment: Arusha
Location of work: Global Animal Health Tanzania, Uzunguni Area, Sekou Toure Road, Gymkhana, Arusha
Reporting: School for Global Animal Health Administrative Manager
Appointment Duration: 16th April, 2019 to 15th April, 2020
Gross Monthly Salary: 4,095,793.97 TSH  $1788.93
Start Date: 16th of April 2019

The position provides coordination and oversight for the numerous research projects that are carried out by Washington State University (WSU) and GAHT employees in Tanzania. Responsibilities include overseeing the purchase of supplies, disbursing funds, maintaining financial records for each project, managing reimbursements, processing payroll, managing all in-country banking issues, working closely with in-country auditors and legal counsel, assisting researchers in various research activities, organizing project related meetings and seminars, and managing the Arusha based GAHT office. Your position will report directly to School for Global Animal Health Administrative Manager. Additionally, you will receive direction and leadership from GAHT officers and WSU faculty coordinating research in Tanzania, and from the Washington State University administrative team, most directly from School for Global Animal Health Fiscal Analyst 3.

A detailed description of the position scope of work is provided in the position description.

Note: See attached position description
The terms of engagement are as follows:

1. **Engagement Duration:** The period of service is for one (1) year from the start date indicated herein above (16 April 2019 to 15 April 2020), on a renewable basis upon consultation with and advice from the GAHT officers, and Administrative Manager Rebecca Manning. The contemplated renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal even where you may have had a previous renewal of contract.

2. **Working Hours:** The normal working hours are 40 hours a week from 8:00am to 5:00pm, with one-hour lunch break, from Monday to Friday. At times the Program Coordinator will be expected to work outside of the normal working hours, however the position is not eligible for overtime due to the senior level of the employee. Weekly you will have Skype meetings, which due to time zone difference are likely to be scheduled outside of normal working hours, with WSU Research faculty and administrative team.

3. **Salary:** You will be paid a Gross Monthly Salary of 4,095,793.97 TZS. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract.

The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

4. **Benefits:** In addition to the salary, you will receive health insurance that can enlist up to four immediate dependents who must be either your spouse or your legal child (biological child, legally adopted child or a child over whom you have a court mandated guardianship or custody).

5. **Annual Leave:** You will be entitled to annual leave of 22 days per year. These should be utilized within the duration of the contract through mutual agreement between you and WSU research faculty. The employee is also entitled to sick leave, maternity leave and compassionate leave as stipulated by law.

6. **Confidentiality:** During and after the term of employment (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to 3rd parties.

All GAHT employees are required to adhere to the institution’s policies and procedures. Please return a copy of this letter to Dr. Guy Palmer President of GAHT, indicating whether you accept or decline the offer, not later than April 15, 2019.
We are confident you will find this opportunity both challenging and rewarding, and we look forward to continuing to work with you at the Global Animal Health Tanzania program.

Sincerely,

[Signature]

Dr. Guy Palmer  
Regents Professor  
Senior Executive Director, School for Global Animal Health at Washington State University  
President, Global Animal Health-Tanzania

Acceptance

[Signature]  
April 11th 2019  
Date
Dear,

RE: APPOINTMENT AS PROJECT VETERINARIAN FOR GAHT

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to offer you the position indicated below.

Position Title: Project Veterinarian
Place of Recruitment: Arusha
Location of work: Arusha and Mera Region, Tanzania
Reporting: Dr. Felix Lankester
Appointment Duration: One year
Gross Monthly Salary: 5,446,800 Tsh $2,379
Start Date: XXXX

The role of the Project Veterinarian is to participate in field activities for collection of biological samples from livestock and wildlife species, including collection of samples and management of sample transport to laboratory facilities, and collection of survey data.

The terms of engagement are as follows:

1. Engagement Duration: The period of service is for one (1) year from the start date indicated herein above (xx/xx/xxxx to xx/xx/xxxx). The Contemplated renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal even where you may have had a previous renewal of contract. You also recognize that your position may be retrenched in the event of cessation or reduction appointment and you accept that you will be retrenched by being given one (1) month notice and other minimum terms required by local legislation.

2. Working Hours: The normal working hours are 40 hours a week from 8:30am to 5:30pm, with one-hour lunch break, from Monday to Friday. Occasionally you may be required to work beyond 40 hours and anything beyond 45 hours per week shall be considered overtime. Overtime shall be paid in accordance with local legislation requirements but only in instances where you have received prior written approval to work overtime.
3. **Salary:** You will be paid a Gross Monthly Salary of 5,446,800 Tsh. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract.

The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

4. **Benefits:** In addition to the salary, you will receive health insurance that can enlist up to four immediate dependents who must be either your spouse or your legal child (biological child, legally adopted child or a child over whom you have a court mandated guardianship or custody).

5. **Annual Leave:** Upon completing 12 months of continuous service, you will be entitled to annual leave of 28 consecutive days per year. These should be utilized within the duration of the contract through mutual agreement between you and the Country Director. Employees are also entitled to sick leave, maternity leave, paternity leave and compassionate leave as stipulated by law and clarified in the Employee Handbook.

6. **Bereavement:** In the case where the employee loses his immediate family member (child or spouse) the organization will provide 1,000,000 Tsh as a support to the employee. Furthermore, when the employee dies GAHT will assist the family on funeral arrangements by providing them with 3,000,000 Tsh.

7. **Confidentiality:** During the term of employment, (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to third parties.

All GAHT employees are required to adhere to the institution’s policies and procedures as issued from time to time.

Please return a copy of this letter to the GAHT Country Coordinator, indicating whether you accept or decline the offer by XXXX.

We are confident you will find this new opportunity both challenging and rewarding, and are delighted that you have chosen to pursue your career with the Global Animal Health Tanzania program.

Sincerely,

---------------------------------------------

Dr. Guy Palmer
Regents Professor
Washington State University
Chairperson, Global Animal Health-Tanzania

**Acceptance**

I, .................................................................................. do hereby accept/decline (delete whichever is not applicable) the appointment and terms provided thereto.

_________________________________________  ___________________________
Signature                                      Date
Date

Name
Address

Dear,

RE: APPOINTMENT AS FIELD ASSISTANT FOR GAHT

The Washington State University-Global Animal Health Tanzania (GAHT) program is pleased to offer you the position indicated below.

Position Title: Field Assistant
Place of Recruitment: Arusha
Location of work: Arusha and Mera Region, Tanzania
Reporting: Dr. Felix Lankester or Country Director
Appointment Duration: One year
Gross Monthly Salary: 1,144,800 Tsh $1000
Full time equivalent: 50%
Start Date: XXXX

The role of the Field Assistant is to drive project vehicles and assist with field activities.

The terms of engagement are as follows:

1. Engagement Duration: The period of service is for one (1) year from the start date indicated herein above (xx/xx/xxx to xx/xx/xxx). The Contemplated renewal is not automatic and no action or omission by the GAHT program or its management shall constitute or support any expectation of renewal even where you may have had a previous renewal of contract. You also recognize that your position may be retrenched in the event of cessation or reduction funding and you accept that you will be retrenched by being given one (1) month notice and other minimum terms required by local legislation.

2. Probation: You shall be subjected to a three-month probation period, after which a performance assessment will be conducted by the Country Director. Confirmation of appointment is subject to the satisfactory completion of the probationary period and approval by the Country Director.

During the probation period either party may terminate the contract for whatever reason upon giving one (1) week notice in writing or payment in lieu of such notice.

Thereafter either party may terminate the contract upon giving a minimum of 28 days’ notice in writing or payment in lieu of such notice.
3. Working Hours: The Field Assistant is expected to work the equivalent of 50% of a 40 hour per week full-time appointment. As this is not a full-time position, the hours of work will vary from week to week.

4. Salary: You will be paid a Gross Monthly Salary of 1,144,800 Tsh. The salary is paid in arrears at the end of each working month for the duration of engagement as per the employment contract. The said gross salary shall be subjected to statutory deductions as provided in relevant Legislation including but not limited to PAYE (income tax) and pension deductions.

5. Annual Leave: Upon completing 12 months of continuous service you will be entitled to annual leave of 6 working days per year. These should be utilized within the duration of the contract through mutual agreement between you and the Country Director. Employees are also entitled to sick leave, maternity leave, paternity leave and compassionate leave as stipulated by law and clarified in the Employee Handbook.

6. Confidentiality: During the term of employment, (unless expressly authorized in writing) all information respecting the organization, management, policy, finances and others shall be confidential and not subject to disclosure to third parties.

All GAHT employees are required to adhere to the institution’s policies and procedures. These policies are summarized in the Employee Handbook, which will be issued to all employees.

Please return a copy of this letter to the GAHT Country Director, indicating whether you accept or decline the offer, not later than XXXX.

We are confident you will find this new opportunity both challenging and rewarding, and are delighted that you have chosen to pursue your career with the Global Animal Health Tanzania program.

Sincerely,

...................................................

Dr. Guy Palmer
Regents Professor
Washington State University
Chairman, Global Animal Health-Tanzania

Acceptance

I, ..........................................................do hereby accept/decline (delete whichever is not applicable) the appointment and terms provided thereto.

..........................................................  .......................................................... Signature  Date
HEALTH INSURANCE AND OTHER BENEFITS COSTS FOR GAHT EMPLOYEES

There are three major benefits for GAH employees (local staff) as follows;

1. 22 days per year as annual leave
2. 10% of gross salary as social security contribution, and
3. Health insurance for staff and up to 4 immediate dependents (spouse and children). The annual health insurance is TZS 22,725,629 equivalent to USD 9,900. Below is the proof of payments of Health Insurance for GAHT 7 employees for the period June 2019 – June 2020.

Paid 20,574,101.40 for field team’s insurance
LOGICAL PRESENTATION OF REQUIREMENTS FOR APPLICATION OF

The objective of the analysis that led to this presentation was to find a much more easier to understand presentation of the requirements to the prospective applicants.

GENERAL REQUIREMENTS: These apply to all applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreigners Affiliated to Local Research and Higher Learning Institutions</th>
<th>Others (Tanzanian, Non Tanzanians, affiliated in a foreign country, affiliated locally, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detailed curriculum vitae</td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td>2</td>
<td>Full research proposal</td>
<td>Required</td>
</tr>
<tr>
<td>3</td>
<td>Sponsor cover letter</td>
<td>Required</td>
</tr>
<tr>
<td>4</td>
<td>Support letter from local collaborating institution / contact person</td>
<td>Required</td>
</tr>
<tr>
<td>5</td>
<td>Recommendation letter for endorsement of the proposed research within the institution</td>
<td>Required</td>
</tr>
<tr>
<td>6</td>
<td>Front-page of passport</td>
<td>Required</td>
</tr>
<tr>
<td>7</td>
<td>Proof of payment non-refundable application fees</td>
<td>b(4)</td>
</tr>
<tr>
<td>8</td>
<td>Application form</td>
<td>Required</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR SPECIFIC SCENARIOS

a) Research related to medical, public health, drugs, clinical trials, and wildlife issues require special clearance from relevant authorities i.e National Institute of Medical Research (NIMR) for the study that involves medical, public health and/or human subject (health); Tanzania Food and Drug Authority for Clinical Trials; and Tanzania Wildlife Research Institute (TAWIRI) for the study that involves wildlife and natural resources conservation.

b) In case of joining a new researcher to an on-going research which has already been granted a research permit, a Principal Investigator shall submit a request of research permit for a new member to COSTECH at least 2 months prior to his/her joining the research team with detailed curriculum vitae, clear justification and roles for an additional staff/researcher to the on-going project.

c) It is anticipated that the PI will remain responsible for the entire lifetime of the project, unless circumstances necessitate a change of PI. In such rare situation the head of hosting research institution shall write to notify COSTECH within 6 months since termination of outgoing PI. This will be done in writing explaining the reason for the changes and suitability of a newly identified PI. The letter requesting for amendment, accompanied by an up to date progress report shall be subjected to approval process before continuing with the research. It is the responsibility of the hosting institution to submit the request for change of PI within specified time.

POST CLEARANCE

a) After the research has been cleared, the PI will be notified by email. All FOREIGNERS who then wishes to undertake research activities in the country under the cleared research project will be required to (b)(4) and three passport size photos.
b) All researchers granted research permit that involve collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA) / Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research project.

c) An Applicant who has been permitted to conduct research in Tanzania is obliged to submit soft and two (2) hard copies (printed) and soft copy of his/her research report /thesis with COSTECH on completion of research.

d) COSTECH will have an access to data and research premises of the permitted research projects.

e) A Principal Investigator (PI) permitted to conduct research in Tanzania is obliged to submit a quarterly/annually report.

f) Persons who have not submitted satisfactory final reports / thesis on previous research work in Tanzania may not be cleared for new projects. Attention will be drawn to the sponsoring institutions and referees on shared responsibility of making sure that researchers sponsored by them observe the foregoing regulations. A breach of the regulations could result in refusal of permits for other researchers sponsored by same institutions or referees.

g) Any patent or intellectual property and royalty emanating from any research approved by the National Research Registration Committee (NRRC) should be owned by the respective research institutions involved.
**General Description**

**Research Work for Landscapes Under The Rangeland Project Concept: Landsat Data: Tanzania**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3</td>
<td>4)</td>
<td>1</td>
<td>(3</td>
</tr>
</tbody>
</table>

Amount in Words: Ten Thousand Eight Hundred and Eighty-Three Shillings

**First Page**

- To be filled by the person responsible for the budget

**Horizon**

- To be filled by the person responsible for the budget

- To be filled by the person responsible for the budget

- To be filled by the person responsible for the budget

- To be filled by the person responsible for the budget
Average Annual Maintenance Costs for a vehicle.

Tyre changing every after 15,000km estimated 3 times a year. 5 tyres each TZS 480,000 ($210)
Routine Maintenance (replacement of bush, fuel filter, air filter, shock absorbers, brake pads, and engine oil changing, etc) every after 5,000 km estimated each TZS 1,428,059.60 ($624)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock Absorbers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brake Pads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Oil Change</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total: TZS 1,428,059.60 ($624)
Vehicle insurance: Tsh
3,121,041 / 2,289.52 = $1,363
<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment receipt number</td>
<td>APR00200817</td>
</tr>
<tr>
<td>On behalf of</td>
<td>CANAMAN HEALTH CANADA</td>
</tr>
<tr>
<td>Currency</td>
<td>Tanzania Pound</td>
</tr>
<tr>
<td>Amount</td>
<td>315,391,900</td>
</tr>
<tr>
<td>Method of payment</td>
<td>Bank Transfer</td>
</tr>
<tr>
<td>Cheque number</td>
<td>124</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
</tr>
<tr>
<td>Client name</td>
<td>CANAMAN HEALTH CANADA</td>
</tr>
<tr>
<td>Type of claim</td>
<td>000494 Animal Health</td>
</tr>
<tr>
<td>W8 (Wage)</td>
<td>124</td>
</tr>
<tr>
<td>Claim number</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
</tr>
</tbody>
</table>

Note: The receipt is subject to the terms and conditions of the agreement.
OFFICE SUPPLIES

The list of office supplies is not exhaustive and we do not have recent comprehensive list yet. Several items were purchased a couple of days ago as seen in the documents below. Note that similar purchase can occur throughout the year USD 2,000. Below is the likely list of supplies and receipt for some of items that we purchased.

<table>
<thead>
<tr>
<th>Item</th>
<th>Average Price, TES</th>
<th>USD Equivalent</th>
<th>Item</th>
<th>Average Price, TES</th>
<th>USD Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4 Printer paper</td>
<td>60,000.00</td>
<td>25.88</td>
<td>Hole puncher</td>
<td>15,000.00</td>
<td>8.11</td>
</tr>
<tr>
<td>Spiral bound notebooks</td>
<td>25,000.00</td>
<td>11.25</td>
<td>Legal pads</td>
<td>10,000.00</td>
<td>4.54</td>
</tr>
<tr>
<td>Box files</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Manila folders</td>
<td>4,000.00</td>
<td>1.72</td>
</tr>
<tr>
<td>Stapler</td>
<td>7,000.00</td>
<td>2.91</td>
<td>Hanging folders</td>
<td>5,000.00</td>
<td>2.27</td>
</tr>
<tr>
<td>Punching machine</td>
<td>10,000.00</td>
<td>4.38</td>
<td>Paper clips</td>
<td>5,000.00</td>
<td>2.27</td>
</tr>
<tr>
<td>Pens</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Book binder</td>
<td>12,000.00</td>
<td>5.26</td>
</tr>
<tr>
<td>Pencils</td>
<td>2,000.00</td>
<td>0.86</td>
<td>Masking tape</td>
<td>2,500.00</td>
<td>1.13</td>
</tr>
<tr>
<td>Highlighter</td>
<td>4,000.00</td>
<td>1.72</td>
<td>Packing tape</td>
<td>5,000.00</td>
<td>2.27</td>
</tr>
<tr>
<td>Glue</td>
<td>5,000.00</td>
<td>2.15</td>
<td>White glue</td>
<td>2,500.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Scissors</td>
<td>5,000.00</td>
<td>2.31</td>
<td>Pencil sharpener</td>
<td>2,500.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Ruler</td>
<td>1,000.00</td>
<td>0.44</td>
<td>Erasers</td>
<td>1,000.00</td>
<td>0.44</td>
</tr>
<tr>
<td>Staplings</td>
<td>3,000.00</td>
<td>1.31</td>
<td>Ink pen</td>
<td>3,000.00</td>
<td>1.31</td>
</tr>
<tr>
<td>Sticker notes</td>
<td>4,000.00</td>
<td>1.72</td>
<td>Correction fluid</td>
<td>2,500.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Writing pads</td>
<td>6,000.00</td>
<td>2.68</td>
<td>Garbage bags</td>
<td>12,000.00</td>
<td>5.13</td>
</tr>
<tr>
<td>Electric extension cables</td>
<td>20,000.00</td>
<td>8.89</td>
<td>Board</td>
<td>6,000.00</td>
<td>2.59</td>
</tr>
<tr>
<td>DOG TUBE</td>
<td>5,000.00</td>
<td>2.15</td>
<td>Board</td>
<td>7,000.00</td>
<td>3.01</td>
</tr>
<tr>
<td>Office tray</td>
<td>25,000.00</td>
<td>10.75</td>
<td>Disinfectants</td>
<td>40,000.00</td>
<td>17.28</td>
</tr>
<tr>
<td>Paper shredder</td>
<td>15,000.00</td>
<td>6.52</td>
<td>Window cleaner</td>
<td>12,000.00</td>
<td>5.13</td>
</tr>
<tr>
<td>Notice board</td>
<td>10,000.00</td>
<td>4.38</td>
<td>Waste dispenser refill</td>
<td>5,000.00</td>
<td>2.27</td>
</tr>
<tr>
<td>Cartilage</td>
<td>350,000.00</td>
<td>153.50</td>
<td>Coffee</td>
<td>12,000.00</td>
<td>5.13</td>
</tr>
<tr>
<td>Envelopes</td>
<td>5,000.00</td>
<td>2.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Envelope books</td>
<td>2,000.00</td>
<td>0.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiral notebooks</td>
<td>6,000.00</td>
<td>2.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Customer**
Name: Global Animal Health Tanzania

**Invoice**

**KILIMANJARO CHRISTIAN MEDICAL CENTRE**
Kilimanjaro Christian Medical Centre
An Institution of the Good Samaritan Foundation
P.O. Box 3010, Moshi, Tanzania
Telephone: 255 27 2754377/83// Fax: 255 27 2754381
Email: kcmcadmin@kcmc.ac.tz
Website: http://www.kcmc.ac.tz

**Date:** 21/11/2019

**No:** 0069

<table>
<thead>
<tr>
<th>S/NO</th>
<th>Qty</th>
<th>Particulars</th>
<th>PRICE</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Annual Dispens - fee</td>
<td>USD 525</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>US Dollar Five Hundred twenty five only.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Deposit Account No**

**Account Name:** DIRECTOR KCMC

**Account Number:** 017105000986

**Bank Name:** NATIONAL BANK OF COMMERCE (NBC)

**Branch Name:** MOSHI BRANCH

**SWIFT Code:** NBCBZTGM

**Branch Code:** 017

**SUB TOTAL**

**OTHER CHARGES**

**TOTAL**

USD 525
WSU CONTRACT #### DRAFT1
CONTRACT FOR PERSONAL SERVICES
BETWEEN
WASHINGTON STATE UNIVERSITY
AND

This contract is made and entered into by and between the state of Washington, Washington State University, hereinafter referred to as the "UNIVERSITY", and the below named firm or individual, hereinafter referred to as "CONTRACTOR."

NAME
ADDRESS
CITY STATE AND ZIP
TELEPHONE
EMAIL
FEDERAL ID NO.
WASHINGTON STATE UBI NO
WSU VENDOR NO.
STATE OF WA OMWBE CERTIFICATION
No.

1. PURPOSE
The purpose of this Contract is to provide expertise for a federally funded project entitled, "Crimean Congo Hemorrhagic Fever: Reducing an emerging health threat in Tanzania," University lead investigator Dr. Felix Lankester. CONTRACTOR will serve as the project mammologist.

2. SCOPE OF WORK
A. The CONTRACTOR will provide services, and otherwise do all things necessary for or incidental to the performance of work, as set forth below:
   1. Assist field teams with the live trapping, sample collection and identification of small mammal species
   2. Ensure proper documentation of the species identified
   3. Write bi-monthly reports and submit to the University lead investigator, which will include a summary of field activities
   4. Attend study meetings as requested and report on progress of work

B. Exhibits A and B contain the General Terms and Conditions governing work to be performed under this contract, the nature of the working relationship between the UNIVERSITY and the CONTRACTOR, and specific obligations of both parties.

C. The CONTRACTOR shall produce the following deliverables by the dates indicated in the chart below:

<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION OF DELIVERABLE ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• A schedule of travel to be undertaken with field teams to conduct sampling activities and species identification of small mammals</td>
</tr>
<tr>
<td></td>
<td>• Bi-monthly reports of field activities and species identification</td>
</tr>
<tr>
<td></td>
<td>• Attendance at study related meetings as requested</td>
</tr>
</tbody>
</table>
3. **PERIOD OF PERFORMANCE**

The period of performance under this contract will be from xxxx through xxxx.

The execution of this Contract shall constitute a ratification of that earlier verbal agreement between the parties, the terms and conditions of which are contained herein. Accordingly, the beginning date of performance under this Contract shall be xxxx regardless of the date of execution. UNIVERSITY shall reimburse the CONTRACTOR for those costs incurred in performance hereunder, for that period between the beginning date of performance and the date of execution of this Contract.

4. **COMPENSATION AND PAYMENT**

All compensation amounts and funds due to CONTRACTOR are stated in U.S. Dollars (USD Payments will be made in Tanzania Shilling by UNIVERSITY’S Local Affiliate, PFK Limited and non-government agency, Global Animal Health Tanzania (GAHT). UNIVERSITY and GAHT will not compensate CONTRACTOR for currency exchange fluctuations through the issuance of payment.

Payments to CONTRACTOR will be subjected to all Tanzanian tax regulation.

UNIVERSITY shall pay an amount not to exceed $12,000.00 for the performance of all things necessary for or incidental to the performance of work as set forth in the Scope of Work. CONTRACTOR’S compensation for services rendered shall be based on the following rates or in accordance with the following terms:

A. **Fees:** At the rate of $500.00 per month an amount not to exceed $6,000.00 per year; which amount is included in the not-to-exceed compensation amount.

B. **Expenses:** The UNIVERSITY shall provide coverage of travel expenses related to official work that has been approved in advance by the Project Manager, including:

1. Lodging and subsistence necessary during periods of required travel.

5. **BILLING PROCEDURES**

UNIVERSITY will pay CONTRACTOR upon receipt of properly completed invoices, which may be submitted to the Contract Manager via email. The billing address for invoices is:

Washington State University
Controllers Office
Attn: WSU Contract XXXX~ Rebecca Manning, Mail Code 7090
P.O. Box 641025
Pullman, WA 99164-1025

The invoices shall describe and document to the UNIVERSITY’S satisfaction a description of the work performed, the progress of the project, and fees. If expenses are invoiced, provide a detailed breakdown of each type. Any single expense in the amount of $50.00 or more must be accompanied by a receipt in order to receive reimbursement.

Payment shall be considered timely if made by the UNIVERSITY within thirty (30) days after receipt of properly completed invoices. Payment shall be sent to the address designated by the CONTRACTOR.

The UNIVERSITY may, in its sole discretion, terminate the contract or withhold payments claimed by the CONTRACTOR for services rendered if the CONTRACTOR fails to satisfactorily comply with any term or condition of this contract.

No payments in advance or in anticipation of services or supplies to be provided under this contract shall be made by the UNIVERSITY.
6. CONTRACT MANAGEMENT

A. The Contract Manager for each of the parties shall be the contact person for all communications regarding the performance of this contract and billing.

   CONTRACT MANAGER FOR THE CONTRACTOR
   NAME
   ADDRESS

   CONTRACT MANAGER FOR THE UNIVERSITY
   Rebecca Manning
   Paul G. Allen School for Global Animal Health
   P.O. Box 647090
   Pullman, WA 99164-7090
   509-335-5861
   manningr@wsu.edu
   DES Training Completed? yes no

B. The Project Manager for each of the parties will be the point of contact for scope of work. Project Manager for UNIVERSITY will receive and accept deliverables and determine if CONTRACTOR has satisfactorily completed the scope of work.

   PROJECT MANAGER FOR THE CONTRACTOR
   NAME
   ADDRESS

   PROJECT MANAGER FOR THE UNIVERSITY
   Dr. Felix Lankester
   P. O. Box 647090
   Pullman, WA 99164-7090
   +44 7426 426831
   Felix.lankester@wsu.edu

7. INSURANCE

The CONTRACTOR shall insure themselves and any persons working for their organization; and they shall be exclusively liable for any claims arising from them and/or their employees, from performance of their obligations of this Contract.

CONTRACTOR shall submit to UNIVERSITY within 15 days of the Contract effective date, a certificate of insurance that outlines the coverage and limits defined in the Insurance section. The mailing address for certificate holder is:

Washington State University
Contract ######
PO Box 641020
Pullman, WA 99164-1020

8. ASSURANCES

UNIVERSITY and the CONTRACTOR agree that all activity pursuant to this contract will be in accordance with all the applicable current federal, state and local laws, rules, and regulations.
9. ORDER OF PRECEDENCE

Each of the Exhibits listed below is by this reference hereby incorporated into this contract. In the event of an inconsistency in this contract, the inconsistency shall be resolved by giving precedence in the following order:

1. Applicable Federal and state of Washington statutes and regulations
2. Special Terms and Conditions as contained in this basic contract instrument
3. Exhibit B – FAR Terms and Conditions (for Federal Grant Funded Purchases only)
4. Exhibit A – UNIVERSITY General Terms and Conditions
5. Any other provision, term or material incorporated herein by reference or otherwise incorporated.

10. ENTIRE AGREEMENT

This contract including referenced exhibits represents all the terms and conditions agreed upon by the parties. No other statements or representations, written or oral, shall be deemed a part hereof.

11. CONFORMANCE

If any provision of this contract violates any statute or rule of law of the state of Washington, it is considered modified to conform to that statute or rule of law.

12. APPROVAL

This contract shall be subject to the written approval of the UNIVERSITY’S authorized representative and shall not be binding until so approved. The contract may be altered, amended, or waived only by a written amendment executed by both parties.

This CONTRACT, consisting of FOUR pages and two attachments named Exhibit A and Exhibit B, is executed by the persons signing below who warrant that they have the authority to execute the agreement.

TYPE CONTRACTOR NAME HERE

<table>
<thead>
<tr>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of signatory</td>
<td></td>
</tr>
<tr>
<td>Title of signatory</td>
<td></td>
</tr>
<tr>
<td>Email address of signatory</td>
<td></td>
</tr>
</tbody>
</table>

WASHINGTON STATE UNIVERSITY

<table>
<thead>
<tr>
<th>Patty Gropp, C.P.M</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Director, Purchasing</td>
<td></td>
</tr>
</tbody>
</table>
GENERAL TERMS AND CONDITIONS FOR PERSONAL SERVICES CONTRACT

DEFINITIONS
As used throughout this CONTRACT, the following terms shall have the meaning set forth below:

A. "UNIVERSITY" shall mean Washington State University, an institution of higher education of the State of Washington, any division, section, office, unit or other entity of the UNIVERSITY, or any of the officers or other officials lawfully representing that UNIVERSITY.

B. "AGENT" shall mean the delegated individual authorized in writing to act on the UNIVERSITY'S behalf.

C. "CONTRACTOR" shall mean that firm, provider, organization, individual or other entity performing service(s) under this contract, and shall include all employees of the CONTRACTOR.

D. "SUBCONTRACTOR" shall mean one not in the employment of the CONTRACTOR, who is performing all or part of those services under this contract under a separate contract with the CONTRACTOR. The terms "SUBCONTRACTOR” and "SUBCONTRACTORS" means SUBCONTRACTOR(s) in any tier.

ACCESS TO DATA
In compliance with RCW 39.26.180, the CONTRACTOR shall provide access to data generated under this contract to UNIVERSITY, the Joint Legislative Audit and Review Committee, and the State Auditor at no additional cost. This includes access to all information that supports the findings, conclusions, and recommendations of the CONTRACTOR'S reports, including computer models and methodology for those models.

ADVANCE PAYMENTS PROHIBITED
In accordance with state law, no payments in advance of or in anticipation of goods or services to be provided under this CONTRACT shall be made by the UNIVERSITY.

AMENDMENTS
This CONTRACT may be amended by mutual agreement of the parties. Such amendments shall not be binding unless they are in writing and signed by personnel authorized to bind each of the parties.

ASSIGNMENT
Neither this contract, nor any claim arising under this contract, shall be transferred or assigned by the CONTRACTOR without prior written consent of the UNIVERSITY.

ATTORNEYS’ FEES
In the event of litigation or other action brought to enforce contract terms, each party agrees to bear its own attorney fees and costs.

CONFIDENTIALITY/SAFEGUARDING OF INFORMATION
The CONTRACTOR shall not use or disclose any information concerning the UNIVERSITY, or information that may be classified as confidential, for any purpose not directly connected with the administration of this contract, except with prior written consent of the UNIVERSITY, or as may be required by law.

CONFLICT OF INTEREST
Notwithstanding any determination by the Executive Ethics Board or other tribunal, the UNIVERSITY may, in its sole discretion, by written notice to the CONTRACTOR terminate this contract if it is found after due notice and examination by the UNIVERSITY that there is a violation of the Ethics in Public Service Act, Chapter 42.52 RCW; or any similar statute involving the CONTRACTOR in the procurement of, or performance under this contract.

In the event this contract is terminated as provided above, the UNIVERSITY shall be entitled to pursue the same remedies against the CONTRACTOR as it could pursue in the event of a breach of the contract by the CONTRACTOR. The rights and remedies of the UNIVERSITY provided for in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law. The existence of facts upon which the AGENT makes any determination under this clause shall be an issue and may be reviewed as provided in the “Disputes” clause of this contract.
COPYRIGHT PROVISIONS
Unless otherwise provided, all materials produced under this contract shall be considered "works for hire" as defined by the U.S. Copyright Act and shall be owned by the UNIVERSITY. The UNIVERSITY shall be considered the author of such materials. In the event the materials are not considered "works for hire" under the U.S. Copyright laws, CONTRACTOR hereby irrevocably assigns all right, title, and interest in materials, including all intellectual property rights, to the UNIVERSITY effective from the moment of creation of such materials.

Materials means all items in any format and includes, but is not limited to, data, reports, documents, pamphlets, advertisements, books, magazines, surveys, studies, computer programs, films, tapes, and sound reproductions. Ownership includes the right to copyright, patent, register and the ability to transfer these rights.

For materials that are delivered under the contract, but that incorporate pre-existing materials not produced under the contract, CONTRACTOR hereby grants to the UNIVERSITY a nonexclusive, royalty-free, irrevocable license (with rights to sublicense others) in such materials to translate, reproduce, distribute, prepare derivative works, publicly perform, and publicly display. The CONTRACTOR warrants and represents that CONTRACTOR has all rights and permissions, including intellectual property rights, moral rights and rights of publicity, necessary to grant such a license to the UNIVERSITY.

The CONTRACTOR shall exert all reasonable effort to advise the UNIVERSITY, at the time of delivery of materials furnished under this contract, of all known or potential invasions of privacy contained therein and of any portion of such document that was not produced in the performance of this contract.

The UNIVERSITY shall receive prompt written notice of each notice or claim of infringement received by the CONTRACTOR with respect to any data delivered under this contract. The UNIVERSITY shall have the right to modify or remove any restrictive markings placed upon the data by the CONTRACTOR.

COVENANT AGAINST CONTINGENT FEES
The CONTRACTOR warrants that no person or selling agent has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting bona fide employees or bona fide established agents maintained by the CONTRACTOR for securing business.

The UNIVERSITY shall have the right, in the event of breach of this clause by the CONTRACTOR, to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration or recover by other means the full amount of such commission, percentage, brokerage or contingent fee.

DISALLOWED COSTS
The Contractor is responsible for any audit exceptions or costs disallowed by the UNIVERSITY that are incurred by the Contractor or its Subcontractors.

DISPUTES
In the event that a dispute arises under this Contract that the parties can't resolve, they shall allow the dispute to be decided by a Dispute Panel in the following manner: each party to this Contract shall appoint one member to the Dispute Panel, and the members so appointed shall jointly appoint an additional member to the Dispute Panel. The Dispute Panel shall review the facts, contract terms and applicable statutes and rules and make a determination of the dispute. The determination of the Dispute Panel shall be final and binding on the parties hereto. The parties shall equally share the costs, if any, for the services of the Dispute Panel.

Nothing in this contract shall be construed to limit the parties' choice of a mutually acceptable alternate dispute resolution method in addition to the dispute resolution procedure outlined above.

DUPLICATE PAYMENT
The UNIVERSITY shall not pay the CONTRACTOR, if the CONTRACTOR has charged or will charge Washington State University, the State of Washington or any other party under any other contract or agreement, for the same services or expenses.
FUNDING CONTINGENCY
In the event funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date of this contract and prior to normal completion, the UNIVERSITY may terminate the contract under the “Termination for Convenience” clause, without the ten-day notice requirement, subject to renegotiation at the UNIVERSITY’s discretion under those new funding limitations and conditions.

GOVERNING LAW
This contract shall be construed and interpreted in accordance with the laws of the State of Washington, and the venue of any action brought hereunder shall be in the Superior Court for Whitman County.

INDEMNIFICATION
To the fullest extent permitted by law, CONTRACTOR shall indemnify, defend, and hold harmless Washington State University, the State of Washington, agencies of the State and all officials, agents and employees of the State, from and against all claims for injuries or death arising out of or resulting from the performance of the contract. “Claim,” as used in this contract, means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorney’s fees, attributable for bodily injury, sickness, disease, or death, or injury to or destruction of tangible property including loss of use resulting therefrom.

CONTRACTOR’s obligations to indemnify, defend, and hold harmless includes any claim by CONTRACTORS’ agents, employees, representatives, or any subcontractor or its employees.

CONTRACTOR expressly agrees to indemnify, defend, and hold harmless Washington State University and the State of Washington for any claim arising out of or incident to CONTRACTOR’s or any subcontractor’s performance or failure to perform the contract. CONTRACTOR’s obligation to indemnify, defend, and hold harmless Washington State University and the State of Washington shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials.

CONTRACTOR waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless Washington State University and the State of Washington and its agencies, officials, agents or employees.

INDEPENDENT CAPACITY OF THE CONTRACTOR
The parties intend that an independent contractor relationship will be created by this contract. The CONTRACTOR and his or her employees or agents performing under this contract are not employees or agents of the UNIVERSITY. The CONTRACTOR will not hold himself/herself out as or claim to be an officer or employee of the UNIVERSITY or of the State of Washington by reason hereof, nor will the CONTRACTOR make any claim of right, privilege or benefit that would accrue to such employee under law. Control and control of the work will be solely with the CONTRACTOR.

INDUSTRIAL INSURANCE COVERAGE
The CONTRACTOR shall comply with the provisions of Title 51 RCW, Industrial Insurance. If the CONTRACTOR fails to provide industrial insurance coverage or fails to pay premiums or penalties on behalf of its employees, as may be required by law, UNIVERSITY may collect from the CONTRACTOR the full amount payable to the Industrial Insurance accident fund. The UNIVERSITY may deduct the amount owed by the CONTRACTOR to the accident fund from the amount payable to the CONTRACTOR by the UNIVERSITY under this contract, and transmit the deducted amount to the Department of Labor and Industries, (L&I) Division of Insurance Services. This provision does not waive any of L&I’s rights to collect from the CONTRACTOR.

LICENSE, ACCREDITATION AND REGISTRATION
The CONTRACTOR shall comply with all applicable local, state, and federal licensing, accreditation and registration requirements/standards, necessary for the performance of this contract.

LIMITATION OF AUTHORITY
Only a WSU UNIVERSITY’S personnel authorized in writing to bind UNIVERSITY (delegation to be made prior to action) shall have the express, implied, or apparent authority to alter, amend, modify, or waive any clause or condition of this contract. Any alterations, amendment, modifications, or waivers made by UNIVERSITY personnel or employees without such written authority will not be effective or binding unless also made in writing and signed by an authorized UNIVERSITY representative.
NONDISCRIMINATION
During the performance of this contract, the CONTRACTOR shall comply with all federal and state nondiscrimination laws, regulations and policies, including the AMERICANS WITH DISABILITIES ACT (ADA) OF 1990, PUBLIC LAW 101-336, also referred to as the "ADA" 28 CFR Part 35.

In the event of the CONTRACTOR'S non-compliance or refusal to comply with any nondiscrimination law, regulation, or policy, this contract may be rescinded, canceled or terminated in whole or in part, and the CONTRACTOR may be declared ineligible for further contracts with the UNIVERSITY. The CONTRACTOR shall, however, be given a reasonable time in which to cure this noncompliance. Any dispute may be resolved in accordance with the "Disputes" procedure set forth herein.

PRIVACY
Personal information including, but not limited to, "Protected Health Information," collected, used, or acquired in connection with this contract shall be protected against unauthorized use, disclosure, modification or loss. CONTRACTOR shall ensure its directors, officers, employees, subcontractors or agents use personal information solely for the purposes of accomplishing the services set forth herein. CONTRACTOR and its subcontractors agree not to release, divulge, publish, transfer, sell or otherwise make known to unauthorized persons personal information without the express written consent of the UNIVERSITY or as otherwise required by law.

Any breach of this provision may result in termination of the contract and the demand for return of all personal information. The CONTRACTOR agrees to indemnify and hold harmless the UNIVERSITY for any damages related to the CONTRACTOR'S unauthorized use of personal information.

PUBLICITY
The CONTRACTOR agrees to submit to the UNIVERSITY all advertising and publicity matters relating to this contract wherein the UNIVERSITY'S name is mentioned or language used from which the connection of the UNIVERSITY'S name may, in the UNIVERSITY'S judgment, be inferred or implied. The CONTRACTOR agrees not to publish or use such advertising and publicity matters without the prior written consent of the UNIVERSITY.

RECORDS MAINTENANCE
The CONTRACTOR shall maintain books, records, documents, data and other evidence relating to this contract and performance of the services described herein, including but not limited to accounting procedures and practices that sufficiently and properly reflect all direct and indirect costs of any nature expended in the performance of this contract.

CONTRACTOR shall retain such records for a period of six years following the date of final payment. At no additional cost, these records, including materials generated under the contract, shall be subject at all reasonable times to inspection, review or audit by the UNIVERSITY, personnel duly authorized by the UNIVERSITY, the Office of the State Auditor, and federal and state officials so authorized by law, regulation or agreement.

If any litigation, claim or audit is started before the expiration of the six (6) year period, the records shall be retained until all litigation, claims, or audit findings involving the records have been resolved.

REGISTRATION WITH DEPARTMENT OF REVENUE
If required to do so by law, the CONTRACTOR shall complete registration with the Washington State Department of Revenue and be responsible for payment of all taxes due on payments made under this contract.

RIGHT OF INSPECTION
The CONTRACTOR shall provide right of access to its facilities to the UNIVERSITY, or any of its officers, or to any other authorized agent or official of the state of Washington or the federal government, at all reasonable times, in order to monitor and evaluate performance, compliance, and/or quality assurance under this contract.

SEVERABILITY
The provisions of this contract are intended to be severable. If any term or provision is illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the contract.
SITE SECURITY
While on UNIVERSITY premises, CONTRACTOR, its agents, employees, or subcontractors shall conform in all respects with UNIVERSITY'S physical, fire or other security policies or regulations.

SUBCONTRACTING
Neither the CONTRACTOR nor any approved SUBCONTRACTOR shall enter into subcontracts for any of the work contemplated under this Contract without obtaining prior written approval of the UNIVERSITY. In no event shall the existence of the subcontract operate to release or reduce the liability of the CONTRACTOR to the UNIVERSITY for any breach in the performance of the CONTRACTOR's duties. This clause does not include contracts of employment between the contractor and personnel assigned to work under this contract.

Additionally, the CONTRACTOR is responsible for ensuring that all terms, conditions, assurances and certifications set forth in this CONTRACT are carried forward to any subcontracts. CONTRACTOR and its subcontractors agree not to release, divulge, publish, transfer, sell or otherwise make known to unauthorized persons personal information without the expressed written consent of the UNIVERSITY or as provided by law.

TAXES
All payments accrued because of payroll taxes, unemployment contributions, any other related taxes, insurance or other expenses for the CONTRACTOR or its staff shall be the sole responsibility of the CONTRACTOR.

TERMINATION FOR CAUSE
In the event the UNIVERSITY determines the CONTRACTOR has failed to comply with the conditions of this contract in a timely manner, the UNIVERSITY has the right to suspend or terminate this contract. Before suspending or terminating the contract, the UNIVERSITY shall notify the CONTRACTOR in writing of the need to take corrective action. If corrective action is not taken within 30 calendar days of date of notice, the contract may be terminated or suspended.

In the event of termination or suspension, the CONTRACTOR shall be liable for damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, e.g., cost of the competitive bidding, mailing, advertising and staff time.

The UNIVERSITY reserves the right to suspend all or part of the contract, withhold further payments, or prohibit the CONTRACTOR from incurring additional obligations of funds during investigation of the alleged compliance breach and pending corrective action by the CONTRACTOR or a decision by the UNIVERSITY to terminate the contract. A termination shall be deemed a "Termination for Convenience" if it is determined that the CONTRACTOR: (1) was not in default; or (2) failure to perform was outside of his or her control, fault or negligence.

The rights and remedies of the UNIVERSITY provided in this contract are not exclusive and are, in addition to any other rights and remedies, provided by law.

TERMINATION FOR CONVENIENCE
Except as otherwise provided in this Contract, the UNIVERSITY may, by 30 calendar days written notice terminate this Contract, in whole or in part. If this Contract is so terminated, the UNIVERSITY shall be liable only for payment required under the terms of this contract for services rendered or goods delivered prior to the effective date of termination.

TERMINATION PROCEDURES
Upon termination of this CONTRACT, the UNIVERSITY, in addition to any other rights provided in this CONTRACT, may require the CONTRACTOR to deliver to the UNIVERSITY any property specifically produced or acquired for the performance of such part of this contract as has been terminated. The provisions of the "Treatment of Assets" clause shall apply in such property transfer.

The UNIVERSITY shall pay to the CONTRACTOR the agreed upon price, if separately stated, for completed work and services accepted by the UNIVERSITY, and the amount agreed upon by the CONTRACTOR and the UNIVERSITY for (i) completed work and services for which no separate price is stated, (ii) partially completed work and services, (iii) other property or services that are accepted by the UNIVERSITY, and (iv) the protection and preservation of property, unless the termination is for default, in which case the AGENT shall determine the extent of the liability of the UNIVERSITY. Failure to agree with such determination shall be a dispute within the meaning of the "Disputes" clause of this contract. The UNIVERSITY may, in good faith, withhold from any amounts due the CONTRACTOR such sum as the AGENT determines to be necessary to protect the UNIVERSITY against potential loss or liability.
The rights and remedies of the UNIVERSITY provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

After receipt of a notice of termination, and except as otherwise directed by the UNIVERSITY, the CONTRACTOR shall:

1. Stop work under the contract on the date, and to the extent specified, in the notice;
2. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the contract that is not terminated;
3. Assign to the UNIVERSITY, in the manner, at the times, and to the extent directed by the UNIVERSITY, all of the rights, title, and interest of the CONTRACTOR under the orders and subcontracts so terminated, in which case the UNIVERSITY has the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
4. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the UNIVERSITY to the extent UNIVERSITY may require, which approval or ratification shall be final for all the purposes of this clause;
5. Transfer title to the UNIVERSITY and deliver in the manner, at the times, and to the extent directed by the UNIVERSITY any property which, if the contract had been completed, would have been required to be furnished to the UNIVERSITY;
6. Complete performance of such part of the work as shall not have been terminated by the UNIVERSITY; and
7. Take such action as may be necessary, or as the UNIVERSITY may direct, for the protection and preservation of the property related to this contract, which is in the possession of the CONTRACTOR and in which the UNIVERSITY has or may acquire an interest.

TREATMENT OF ASSETS

A. Title to all property furnished by the UNIVERSITY shall remain in the UNIVERSITY. Title to all property furnished by the CONTRACTOR, for the cost of which the CONTRACTOR is entitled to be reimbursed as a direct item of cost under this contract, shall pass to and vest in the UNIVERSITY upon delivery of such property by the CONTRACTOR. Title to other property, the cost of which is reimbursable to the CONTRACTOR under this contract, shall pass to and vest in the UNIVERSITY upon (i) issuance for use of such property in the performance of this contract, or (ii) commencement of use of such property in the performance of this contract, or (iii) reimbursement of the cost thereof by the UNIVERSITY in whole or in part, whichever first occurs.

B. Any property of the UNIVERSITY furnished to the CONTRACTOR shall, unless otherwise provided herein or approved by the UNIVERSITY, be used only for the performance of this contract.

C. The CONTRACTOR shall be responsible for any loss or damage to property of the UNIVERSITY that results from the negligence of the CONTRACTOR or which results from the failure on the part of the CONTRACTOR to maintain and administer that property in accordance with sound management practices.

D. If any UNIVERSITY property is lost, destroyed or damaged, the CONTRACTOR shall immediately notify the UNIVERSITY and shall take all reasonable steps to protect the property from further damage.

E. The CONTRACTOR shall surrender to the UNIVERSITY all property of the UNIVERSITY prior to settlement upon completion, termination or cancellation of this contract

F. All reference to the CONTRACTOR under this clause shall also include CONTRACTOR'S employees, agents or SUBCONTRACTORS.

WAIVER

Waiver of any default or breach shall not be deemed a waiver of any subsequent default or breach. Any waiver shall not be construed to be a modification of the terms of this contract unless stated to be such in writing and signed by an authorized representative of the UNIVERSITY.
CONTRACT TERMS AND CONDITIONS FOR FEDERAL GRANT FUNDED PURCHASES

The WASHINGTON STATE UNIVERSITY by and through its Board of Regents has entered into an agreement with the United States of America. This Contract is entered into with the Contractor in furtherance of the performance of the work required by that agreement. When interpreting applicable provisions of 2 CFR Part 200 and its appendices, “Federal Agency” or “Federal Awarding Agency” shall refer to the agency of the United States Government from whom the Washington State University (“WSU”) has received grant funds to be expended under this Contract, “Non-Federal Entity” shall refer to the Washington State University, “Contractor” shall refer to the contractor with whom the Washington State University has entered into this contract and “Contract” shall refer to this contract between the Washington State University and Contractor.

By accepting this order or by entering into this Contract, a Contract between the Washington State University and the Contractor is formed. Contractor agrees to furnish the subject matter required by this order or Contract and agrees to all terms and conditions included by Washington State University, including the terms and conditions specified below. Any other applicable provisions of 2 CFR Part 200 are hereby incorporated by reference and shall have full force and effect.

1. Breach, Default, Termination: The Washington State University reserves the right to pursue all available legal, administrative, contractual or equitable remedies in the event of Contractor’s breach of contract or violation of any term of this contract. The Washington State University shall have the right to terminate this contract for cause, and shall retain all rights and remedies against Contractor. The Washington State University shall also have the right to terminate this Contract for convenience upon thirty (30) days’ notice to Contractor. Breach and/or Termination of this Contract shall be addressed in the manner prescribed in the WSU Standards Terms and Conditions.

2. Equal Employment Opportunity: Except as otherwise provided in 41 CFR Part 60, all “federally assisted construction contracts,” as defined in 41 CFR Part 60-1.3 are subject to the Equal Opportunity clause contained in 41 CFR 60-1.4(b), incorporated by reference. Furthermore, the Equal Opportunity clause contained in 41 CFR 60-1.4(b) applies to all nonexempt subcontracts entered into by Contractor under this Contract, and Contractor agrees to include the Equal Opportunity clause contained in 41 CFR 60-1.4(b) in all nonexempt subcontracts.

3. Davis-Bacon Act, as amended (40 U.S.C. 3141-3148): Where applicable, all prime construction contracts in excess of $2,000 shall comply with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the Davis-Bacon Act, contractors must pay wages to laborers and mechanics at a rate not less than prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must pay wages not less than once per week. If the Davis-Bacon Act applies to this Contract award of this Contract is conditioned upon the acceptance of the wage determination. The Washington State University will report all suspected or reported violations of the Davis-Bacon Act to the Federal Awarding Agency.

4. Copeland “Anti-Kickback” Act (40 U.S.C. 3145): Where applicable, all prime construction contracts over $2,000 are subject to the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 5, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Washington State University will report all suspected or reported violations to the Federal Awarding Agency. The Act provides that each contractor or subrecipient shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he is otherwise entitled. The recipient shall report all suspected or reported violations to the Federal Awarding agency.

5. Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708): Where applicable, all contracts over $100,000 which will involve the use of mechanics or laborers shall comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each Contractor is required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 apply to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
6. Rights to Inventions Made Under a Contract or Agreement: For Contracts awarded by the Washington State University under a “funding agreement,” as defined in 37 CFR 401.2(a) between a Federal Awarding Agency and the Washington State University, if the Washington State University or Contractor wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under the “funding agreement,” the Washington State University or Contractor must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.

7. Clean Air Act (42 U.S.C. 7401-7671q): For Contracts and subgrants over $150,000, the Washington State University and Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q). The Washington State University shall report violations to the Federal Awarding Agency and the Regional Office of the Environmental Protection Agency (EPA).

8. Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended: For Contracts and subgrants over $150,000, the Washington State University and Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). The Washington State University shall report violations to the federal Awarding Agency and the Regional Office of the Environmental Protection Agency (EPA).


10. Debarment and Suspension (Executive Orders 12549 and 12689): The Washington State University’s award of this Contract is conditioned upon the Contractor’s current and continued eligibility. Contractor is eligible unless Contractor is listed on the government-wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), “Debarment and Suspension.” The Excluded Parties List System in SAM contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. If a contractor is listed on the Excluded Parties List System in SAM, Contractor shall have the obligation to promptly inform a Washington State University contract manager, and this Contract shall be immediately terminated without liability on the part of the Washington State University or the Federal Awarding Agency.

11. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352): For Contracts over $150,000, Contractor warrants it filed the required certification prior to Contract award and payment. Contractor certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Contractor shall require such certification and disclosure from any subcontractors used. Any further subcontractors must certify and disclose to the subcontractor awarding the subcontract. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures under this Contract shall be forwarded up from tier to tier up to the Washington State University.

12. Solid Waste Disposal Act (42 USC 6901-6992k): Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
December 4, 2019

RE: TRANSLATION SERVICES ESTIMATES

We will be translating the survey tools from English into Swahili and vernacular tribal languages. Translation services will be sourced in Arusha town and are estimated at:

$800 Year 1;
$872 Year 4.
$1,672 total

Sincerely Yours,

[Signature]

Godfrey A. Kassanga
Administrative Manager/Finance and Operations
Global Animal Health Tanzania.
COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 
ORGANIZATION: 
Washington State University 
French Admin. Bldg., Rm. 240Q 
P.O. Box 641025 
Fullman, WA 99164-1025

DATE: 12/09/2015 
FILING REF: The preceding agreement was dated 07/08/2014

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

RATE TYPES: FIXED FINAL PROV. (PROVISIONAL) PRED. (PREDETERMINED)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%) LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2016</td>
<td>51.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2016</td>
<td>06/30/2017</td>
<td>52.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2017</td>
<td>06/30/2019</td>
<td>53.00 On-Campus</td>
<td>Organized Research</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>57.50 On-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2015</td>
<td>06/30/2019</td>
<td>26.00 Off-Campus</td>
<td>Instruction</td>
</tr>
<tr>
<td>PRED.</td>
<td>07/01/2019</td>
<td>06/30/2019</td>
<td>36.00 On-Campus</td>
<td>Other Sponsored Activities</td>
</tr>
<tr>
<td>PROV.</td>
<td>07/01/2019</td>
<td>Until Amended</td>
<td>Use same rates and conditions as those cited for fiscal year ending June 30, 2019.</td>
<td></td>
</tr>
</tbody>
</table>

*BASE

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and subgrants and subcontracts up to the first $25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subgrant and subcontract in excess of $25,000.
**SECTION I: FRINGE BENEFIT RATES**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE(%) LOCATION</th>
<th>APPLICABLE TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIXED</td>
<td>7/1/2015</td>
<td>6/30/2016</td>
<td>33.60 CEEO (1)</td>
<td>Admin/Prof Employees, Faculty</td>
</tr>
<tr>
<td>FIXED</td>
<td>7/1/2015</td>
<td>6/30/2016</td>
<td>35.00 CEEO (1)</td>
<td>Classified Employees</td>
</tr>
</tbody>
</table>

**DESCRIPTION OF FRINGE BENEFITS RATE BASE:**
Salaries and wages excluding vacation, holiday, sick leave pay and other paid absences, and direct charged fringe benefits.

(1) Cooperative Extension Energy Office
SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

Except for CCEO employees (Admin/Prof/Faculty and Classified Categories only), this organization charges the actual cost of each fringe benefit direct to Federal projects. However, it uses a fringe benefit rate which is applied to salaries and wages in budgeting fringe benefit costs under project proposals.

The following fringe benefits are treated as direct costs: SOCIAL SECURITY, WORKERS COMPENSATION, HEALTH/LIFE/DISABILITY INSURANCE, UNEMPLOYMENT COMPENSATION, RETIREMENT (TIAA/CREF, PERS), AND QUALIFIED STUDENT TUITION REDUCTION (TUITION REMISSION).

For CCEO employees (Admin/Prof/Faculty and Classified Categories only), this organization uses a fringe benefit rate which is applied to salaries for budgeting and charging purposes for Federal projects. The following fringe benefits are included in CCEO fringe benefit rate: PAID ABSENCES.

The following fringe benefits are treated as direct costs: SOCIAL SECURITY, WORKERS COMPENSATION, HEALTH/LIFE/DISABILITY INSURANCE, UNEMPLOYMENT COMPENSATION, RETIREMENT (TIAA/CREF, PERS).

TREATMENT OF PAID ABSENCES:

Except for CCEO employees (Admin/Prof/Faculty and Classified Categories only), vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are charged to Federal projects as part of the normal charge for salaries and wages. Separate charges for the cost of these absences are not made.

For CCEO (Admin/Prof/Faculty and Classified Categories only), the cost of vacation, holiday, sick leave pay, and other paid absences are included in a fringe benefit rate and are not included in direct charges for salaries. Charges for salaries must exclude those paid to CCEO employees (Admin/Prof/Faculty and Classified Categories only) for periods when they are on vacation, holiday, or sick leave, or are otherwise absent from work.
DEFINITION OF OFF-CAMPUS:
A project is considered off-campus if the activity is conducted at locations other than in University owned or operated facilities and indirect costs associated with physical plant and library are not considered applicable to the project.

DEFINITION OF EQUIPMENT:
Equipment is defined as tangible nonexpendable personal property having a useful life of more than one year and an acquisition cost of $5,000 or more per unit.

NEXT PROPOSALS DUE DATES:
Your next Facilities & Administrative proposal based on fiscal year ending 06/30/2018 is due in our office by 12/31/2018, and your next fringe benefits proposal based on your fiscal year ending 6/30/2015 is due in our office by 12/31/2015.
SECTION III: GENERAL

A. LIMITATIONS:
The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in the facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the operating cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rates would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:
This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the manner of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowance.

C. FIXED RATES:
If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate at a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:
The rates in this Agreement were approved in accordance with the authority in Title 2 or the Code of Federal Regulations, Part 200 2 C.F.R. 200, and should be applied to grants, contracts and other agreements covered by 2 C.F.R. 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:
If any formal contract, grant, or other agreement is reimbursing facilities and administrative costs by a name other than the approved rates in this Agreement, the organization must (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:
Washington State University

[Signature]
Matthew A. Skinner
Assoc. Vice President of Finance

DATE: JANUARY 6, 2016

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

[Agency]

Arif M. Karim

[Signature]
Arif Karim

[Title]
Director, Cost Allocation Services

[Date]
11/9/2015

[Signature]
Helen Fung

[Position]

[Telephone]
(415) 437-7820
## Organized Research

<table>
<thead>
<tr>
<th></th>
<th>July 1, 2015 Through June 30, 2016</th>
<th>July 1, 2016 Through June 30, 2017</th>
<th>July 1, 2017 Through June 30, 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On-Campus</td>
<td>Off-Campus</td>
<td>On-Campus</td>
</tr>
<tr>
<td>Building</td>
<td>5.1%</td>
<td>7.1%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Equipment</td>
<td>2.7%</td>
<td>2.6%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
<td>15.3%</td>
<td>12.8%</td>
<td>12.9%</td>
</tr>
<tr>
<td>Interest</td>
<td>0.3%</td>
<td>2.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Library</td>
<td>1.0%</td>
<td>0.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Utility Cost Adjustment</td>
<td></td>
<td></td>
<td>0.7%</td>
</tr>
<tr>
<td>General Administration</td>
<td>8.5%</td>
<td>9.2%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Department Administration</td>
<td>14.6%</td>
<td>14.2%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Sponsored Projects Administration</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Student Services Administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration Components</td>
<td>26.0%</td>
<td>26.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>Total</td>
<td>51.0%</td>
<td>26.0%</td>
<td>52.0%</td>
</tr>
</tbody>
</table>

## Instructional & Department Research

<table>
<thead>
<tr>
<th></th>
<th>July 1, 2015 Through June 30, 2019</th>
<th>July 1, 2016 Through June 30, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On-Campus</td>
<td>Off-Campus</td>
</tr>
<tr>
<td>Building</td>
<td>10.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Equipment</td>
<td>1.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
<td>11.5%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Interest</td>
<td>1.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Library</td>
<td>6.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>General Administration</td>
<td>7.4%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Department Administration</td>
<td>11.2%</td>
<td>13.9%</td>
</tr>
<tr>
<td>Sponsored Projects Administration</td>
<td>0.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Student Services Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration Components</td>
<td>26.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>Total</td>
<td>57.5%</td>
<td>26.0%</td>
</tr>
</tbody>
</table>

Administrative components are capped at 26.0% in accordance with OMB A-23, dated July 26, 1993.

Concur:  

[Signature]

Assoc. Vice President of Finance

JANUARY 6, 2016
Review your trip

Trip Summary

Rates are quoted in US dollars.

✈️ 71052 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔ Nice Job! You picked one of our cheapest flights.
   Book now so you don't miss out on this price!

Sun, Feb 2  From Heathrow (LHR) To Kilimanjaro Intl. (JRO)
Kenya Airways

5:25pm  →  9:30am  13h 5m, 1 stop
LHR  JRO
NBO
Arrives Mon, Feb 3

Show flight and baggage fee details ✗

Sat, Feb 8  From Kilimanjaro Intl. (JRO) To Heathrow (LHR)
Kenya Airways

9:35pm  →  10:45am  16h 10m, 2 stops
JRO  LHR
DAR, AMS
Arrives Sun, Feb 9

Show flight and baggage fee details ✗
Unlock up to 42% off select hotels when you book this flight
Your discount lasts until your trip starts

Continue Booking

✈️ 71052 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔️ Free Cancellation within 24 hours of booking!

Add your property to Expedia

Get the Expedia App - text yourself a link

Up to 30% hotel discounts for app users
Access real customer reviews
Helpful in-trip updates

Enter your phone number
Or scan the QR code!

Send

By providing your number, you agree to receive a one-time automated text message with a link to get the app. Our app offers promotions and booking services. No purchase necessary. Standard text message rates may apply.

Explore More:

Expedia
About Expedia  Jobs  Investor Relations  Advertising  Newsroom
About Our Ads  Privacy Policy  Terms of Use  Site Map  Accessibility
Support

Expedia Rewards
Expedia Rewards  Redeem Your Points  Use Partner Points
VIP Access Hotels  Expedia Rewards Credit Cards

Expedia Links
Low Cost Flights  Rental Car Finder  Expedia Rewards  Travel Blog
New Hotels  Accommodations

Expedia Sitemaps

**PROFORMA INVOICE**

To:  
****Cash Sales

Dar Es Salaam, Tanzania

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
</table>
| AIR TICKET       | Passenger Name: FELIX LANKESTER AIR EXCEL
|                  | 11-Oct-19 041 Serengeti 11:05 Arusha 12:10                                  | 241.00   |

<table>
<thead>
<tr>
<th>Amount in Words (USD):</th>
<th>Total Amount (USD.)</th>
<th>241.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Hundred Forty One And Forty One Cents Only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount in Words (TZS):</th>
<th>Total Amount (TZS.)</th>
<th>559,120.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five Hundred Fifty Nine Thousand One Hundred Twenty And Twenty Cents Only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Rickshaw Travels Ltd.

Account Name: The Rickshaw Travels Ltd
Bank of Africa Tanzania Ltd
PO Box 3054, Dar es Salaam, Tanzania
Account Number: 10209127006 (USD) | 10209127013 (TZS)
Swift Code: EUAFTTZTZ

Diamond Trust Bank [T] Ltd
PO Box 115, Dar es Salaam, Tanzania
Account Number: 0172640002 (USD) | 017264001 (TSH)
Swift Code: DTKETTZTZ

*This is a computer-generated document and no signature is required.*
**Passenger Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Relationship</th>
<th>Department</th>
<th>Ticket Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Contact Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Relationship</th>
<th>Department</th>
<th>Phone Number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Your Flight Summary**

**Departure**

- **City**: Salt Lake City, UT 84112
- **Flight**: 07/07/2017
- **Passenger**: 3
- **Total Cost**: $177

**Return**

- **City**: Salt Lake City, UT 84112
- **Flight**: 07/07/2017
- **Passenger**: 3
- **Total Cost**: $177
Trip Summary

Trip Summary 📌

Trip Total: $315.25
Only 7 tickets left at this price!

Rates are quoted in US dollars.

⚠️ 50,000 customers protected their flight in the last 7 days. Add flight protection when you check out.

✔ Nice Job! You picked one of our cheapest flights.
Book now so you don’t miss out on this price!

Sun, Feb 9
From: Heathrow (LHR)
To: Roissy-Charles de Gaulle (CDG)
Airline: Alitalia

4:55pm ➔ 11:30pm
LHR ➔ CDG
5h 35m, 1 stop

Fare Rules and Restrictions:
• Pay to choose your seat
• Bring a carry-on bag

Show flight and baggage fee details 📊

Sat, Feb 15
From: Roissy-Charles de Gaulle (CDG)
To: Heathrow (LHR)
Airline: Air France

4:10pm ➔ 4:35pm
CDG ➔ LHR
1h 25m, Nonstop

Fare Rules and Restrictions:
• Pay to choose your seat
• Bring a carry-on bag

Show flight and baggage fee details 📊

Change flights

Upgrade your flight
Get more comforts and benefits by adding an upgrade.

Heathrow (LHR) ➔ Roissy-Charles de Gaulle (CDG)
5h 35m
• Relax while packing: Get free bags
• Enjoy more flexibility with free cancellation
• Choose seats at no extra charge

Show upgrades 📊

+$58.61
for all travelers
## Foreign Per Diem Rates In U.S. Dollars
### DSSR 925

**Country:** TANZANIA  
**Publication Date:** 11/01/2019

<table>
<thead>
<tr>
<th>Country Name</th>
<th>Post Name</th>
<th>Season Begin</th>
<th>Season End</th>
<th>Maximum Lodging Rate</th>
<th>M &amp; IE Rate</th>
<th>Maximum Per Diem Rate</th>
<th>Footnote</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>TANZANIA</td>
<td>Arusha</td>
<td>01/01</td>
<td>12/31</td>
<td>143</td>
<td>91</td>
<td>234</td>
<td>View</td>
<td>06/01/2019</td>
</tr>
<tr>
<td>TANZANIA</td>
<td>Dar Es Salaam</td>
<td>01/01</td>
<td>12/31</td>
<td>207</td>
<td>106</td>
<td>313</td>
<td>View</td>
<td>06/01/2019</td>
</tr>
<tr>
<td>TANZANIA</td>
<td>Dodoma</td>
<td>01/01</td>
<td>12/31</td>
<td>112</td>
<td>60</td>
<td>172</td>
<td>N/A</td>
<td>06/01/2019</td>
</tr>
<tr>
<td>TANZANIA</td>
<td>Morogoro</td>
<td>01/01</td>
<td>12/31</td>
<td>137</td>
<td>60</td>
<td>197</td>
<td>View</td>
<td>06/01/2014</td>
</tr>
<tr>
<td>TANZANIA</td>
<td>Other</td>
<td>01/01</td>
<td>12/31</td>
<td>110</td>
<td>47</td>
<td>157</td>
<td>View</td>
<td>06/01/2014</td>
</tr>
<tr>
<td>TANZANIA</td>
<td>Zanzibar</td>
<td>01/01</td>
<td>12/31</td>
<td>187</td>
<td>106</td>
<td>293</td>
<td>View</td>
<td>06/01/2019</td>
</tr>
</tbody>
</table>
Can you please send it again and I will confirm as soon as I receive it.

---Original Message---

From: Dr. Melinda Rostal <rostal@ecohealthalliance.org>
Sent: Monday, December 16, 2019 2:19 PM
To: [email]
Cc: Aleksei Chmura <chmura@ecohealthalliance.org>; Joe Riccardi <riccardi@ecohealthalliance.org>; Amanda Andre <amanda.andre@ecohealthalliance.org>; Whitney Bagge <bagge@ecohealthalliance.org>

Subject: [Non-DoD Source] FRBAA14-6-2-0356 Clarification Questions

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Des

I just wanted to confirm that you had received the documentation that I sent to you on December 5.

Kind regards,
Mindy
Melinda Rostal DVM, MPH
Principal Scientist, Vector-Borne Diseases
Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4489 (direct)
1.212.380.4465 (fax)


EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On Dec 5, 2019, at 10:50 PM, Dr. Melinda Rostal <rostal@ecohealthalliance.org> wrote:
Please find attached the documentation requested for our FRBAA14-6-2-0356 cost proposal. We have responded to the clarification questions and indicated both the document and page number where the full documentation/justification may be viewed. For each partner we have provided two files:

(a) a PDF document of our updated justification using tracked changes according the current costs for all items based on the documentation
(b) a PDF of the documentation that was requested on the clarification sheet

We have also included an Excel spreadsheet that includes our calculations for all costs and all partners corresponding to our updated justifications and documentation. Necessarily and following the documentation now provided, various costs have changed since our initial submission in April 2018 and our budget has been updated accordingly. Therefore, our overall budget request has also increased to $4,995,106.37 with annual amounts as follows.

Y1: $999,888.16  
Y2: $997,047.51  
Y3: $999,782.70  
OY1: $998,704.80  
OY2: $999,683.19.

Please email anytime or contact me directly at 1.651.308.5498 with any questions about our documentation, cost proposal, or other details.

Best,

Mindy

<FRBAA14-6-2-0356_Clarifications.xlsx>  
<FRBAA14-6-2-0356_Detailed Budget.xlsx>  
<01 - FRBAA14-6-2-0356 - EHA Budget Justification.pdf>  
<01 - FRBAA14-6-2-0356 - EHA Documentation.pdf>  
<02 - FRBAA14-6-2-0356 - KCRI_Budget Justification.pdf>  
<02 - FRBAA14-6-2-0356 - KCRI Documentation.pdf>  
<03 - FRBAA14-6-2-0356 - OHCD PMO Documentation.pdf>  
<03 - FRBAA14-6-2-0356 - OHCD PMO_Budget Justification.pdf>  
<04 - FRBAA14-6-2-0356 - PHE Documentation.pdf>  
<04 - FRBAA14-6-2-0356 - PHE_Budget Justification.pdf>  
<05 - FRBAA14-6-2-0356 - TAWIRI Budget Justification.pdf>  
<05 - FRBAA14-6-2-0356 - TAWIRI Documentation.pdf>  
<06 - FRBAA14-6-2-0356 - TVLA Budget Justification.pdf>  
<06 - FRBAA14-6-2-0356 - TVLA Documentation.pdf>  
<07 - FRBAA14-6-2-0356 - UoG Budget Justification.pdf>  
<07 - FRBAA14-6-2-0356 - UoG Documentation.pdf>  
<08 - FRBAA14-6-2-0356 - WSU Budget Justification.pdf>  
<08 - FRBAA14-6-2-0356 - WSU Documentation.pdf>

Melinda Rostal DVM, MPH
Senior Research Scientist

PREDICT 2 Surveillance Coordinator for EcoHealth Alliance

Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street, Suite 1701
New York, NY 10001

1.212.380.4489 (direct)

EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

On Oct 29, 2019, at 10:45 AM<sub>(b)(6)</sub>
<mailto:<(b)(5)>) wrote:

Good Morning,

We have reviewed your cost proposal and are requesting responses to the attached clarification questions. Please provide responses as soon as possible so that we can move forward with grant award. Please let me know if you have any questions.

V/r

[Redacted] Contractor
Contract Specialist • TENICA
Defense Threat Reduction Agency (DTRA)
Office Phone<sub>(b)(5)</sub>
Caution: <FRBAA14-6-2-0356_Clarifications.xlsx>
Here is the second batch (01 EHA documentation only):

Melinda Rostal DVM, MPH  
Principal Scientist, Vector-Borne Diseases  
Rift Valley Fever Virus Project Manager  

EcoHealth Alliance  
460 West 34th Street – 17th Floor  
New York, NY 10001  

1.212.380.4489 (direct)  
1.212.380.4465 (fax)  
www.ecohealthalliance.org <http://www.ecohealthalliance.org/>  

Visit our blog: www.ecohealthalliance.org/blog <http://www.ecohealthalliance.org/blog>  

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

---

On Dec 16, 2019, at 2:24 PM, [mailto] wrote:

Thanks for following up because I did not receive that email on the 5th. I have checked all my folders and nothing comes up.

Can you please send it again and I will confirm as soon as I receive it.

-----Original Message-----
From: Dr. Melinda Rostal <rostal@ecohealthalliance.org <mailto:rostal@ecohealthalliance.org>>
Sent: Monday, December 16, 2019 2:19 PM
To: [mailto]
Cc: Aleksa Chmura <chmura@ecohealthalliance.org <mailto:chmura@ecohealthalliance.org>>; Joe Riccardi <riccardi@ecohealthalliance.org <mailto:riccardi@ecohealthalliance.org>>; Amanda Andre <andre@ecohealthalliance.org <mailto:andre@ecohealthalliance.org>>; Whitney Bagge <bagge@ecohealthalliance.org <mailto:bagge@ecohealthalliance.org>>
Subject: [Non-DoD Source] Re: FRBAA14-6-2-0356 Clarification Questions

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the
Table of Contents

EHA Salary documentation..................................................................................................................2
Comparison of Rental car vs purchase............................................................................................3
Shipping Invoice..................................................................................................................................8
Label printer labels..............................................................................................................................9
Label printer, resin and software for printer..................................................................................10
Computers, mouse and keyboard......................................................................................................11
Arc GIS software...............................................................................................................................14
Field Supplies and Items to Build Capacity at TVLA.................................................................16
  Field supplies.................................................................................................................................16
  Biosafety Equipment ......................................................................................................................20
  Items to build capacity at TVLA ....................................................................................................23
Tablets and cases ..............................................................................................................................26
Tomahawk Traps ..............................................................................................................................27
Tattoo equipment for marking hares...............................................................................................30
Rodent ear tages ..............................................................................................................................31
Portable anesthesia machine, carrying case and anesthetic drugs ..................................................32
Equipment ........................................................................................................................................36
Documentation of HummingbirdIRB costs .....................................................................................49
Documentation of price of ethical clearance in Tanzania ...............................................................51
Documentation of cost of conducting research in Tanzania .........................................................53
Documentation of costs associated with Y3 workshop supplies ....................................................57
Documentation of Open Access journal publication fees...............................................................60
Documentation of Software fees......................................................................................................61
Fringe Benefit Policy .........................................................................................................................65
Negotiated Indirect Rate ...................................................................................................................67
Documentation of example of domestic conference registration rate (APHA) .........................69
Documentation of example of domestic conference flight (APHA) ..............................................70
Documentation of example of international conference registration rate (ICEID) .....................71
Documentation of example of international conference flight (ICEID) ........................................70
Documentation of Recruitment costs for Tanzanian Post-doctoral fellow ...................................74
Documentation of hotel conference rental for the annual stakeholders’ meeting and the OY2 symposium ........................................................................................................................................78
Documentation of portion of Internet/Communications applied to this grant .........................81
Documentation of example of Internet/Communications bill ......................................................82
Documentation of server costs........................................................................................................84
Documentation of Consumer Price Index for NYC/Newark/Jersey City ......................................85
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>SD2</th>
<th>Title</th>
<th>Rate Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/01/2019- 06/30/2020</td>
<td>Andre, Amanda</td>
<td>600063</td>
<td>Regular</td>
<td>55,766.00</td>
</tr>
<tr>
<td>07/01/2019- 06/30/2020</td>
<td>Kenneth, William</td>
<td>500013</td>
<td>Regular</td>
<td>104,108.00</td>
</tr>
<tr>
<td>07/01/2019- 06/30/2020</td>
<td>Rascal, Melinda</td>
<td>100019</td>
<td>Regular</td>
<td>101,290.00</td>
</tr>
<tr>
<td>07/01/2019- 06/30/2020</td>
<td>Zambane-Torrello, Carlos</td>
<td>100011</td>
<td>Regular</td>
<td>175,070.00</td>
</tr>
<tr>
<td>07/01/2019- 06/30/2020</td>
<td>Research Assistant TBD</td>
<td></td>
<td>Regular</td>
<td>98,500.00</td>
</tr>
<tr>
<td>07/01/2019- 06/30/2020</td>
<td>Post Doc/Post Grad TBD</td>
<td></td>
<td>Regular</td>
<td>65,000.00</td>
</tr>
</tbody>
</table>
Rental car vs purchase of vehicles

Holiday Autos
Your car hire to Dar International Airport - complete your booking
November 4, 2019 at 12:38 PM

$103.74 per day
Total: $3112.27

Pick-up date:
Dar International Airport
Thu, 14 Nov 2019 12:00

Return date:
Dar International Airport
Sat, 14 Dec 2019 12:00

Toyota Prado or similar

5 people
5 luggage
5 bags

Pick-up location:
In terminal counter, shuttle to car

Fuel Policy:
Fuel: Pick up and return full.
Important information

Fuel policy
Full to Full

Your vehicle will be supplied with a full tank of fuel. To avoid incurring fuel charges, you will need to return it with the same amount of fuel as it had when you collected it. You may be required to leave a fuel deposit reserved or charged on your credit card, this will be released or refunded when you return the car full. Missing fuel will be charged on your return. The price per litre charged by the rental agent may be significantly higher than the price at the local service station. A refuelling charge may also be applicable.

Fuel charges are payable at the rental desk unless otherwise stated in the top section of rate details.

Mileage policy
Limited

Special equipment/optional extras
Booster seat: 10 USD (Excludes tax); On request
Child toddler seat: 10 USD (Excludes tax); On request
Infant child seat: 10 USD (Excludes tax); On request
GPS: 10 USD per day. Includes 14% tax; On request

Special equipment/optional extras may be requested at the time of booking, but they are not included in the rental price. They are paid in the local currency at the rental desk.

Conditions of optional extras
Please note the following: The price of optional extras is subject to change without notice.

We use cookies to give you the best experience on our website. By using our website you agree to our use of cookies in accordance with our .

Accept
Kilometers included per day: 120

**Special equipment/optional extras**
Booster seat: 10 USD (Excludes tax): On request
Child toddler seat: 10 USD (Excludes tax): On request
Infant child seat: 10 USD (Excludes tax): On request
GPS: 10 USD per day. Includes 14% tax: On request

Special equipment/optional extras may be requested at the time of booking, but they are not included in the rental price. They are paid in the local currency at the rental desk.

**Conditions of optional extras**
Please note the following: The price of optional extras is subject to change without notice. Optional extras are subject to availability. Charges made at the desk may be subject to local/airport surcharges.

**Travel Restrictions**
All international/state cross-border travel is disallowed.

Vehicles are prohibited to enter or be driven through the National Parks and Game Reserves within Tanzania. Should the renter drive the rented vehicle into the national park, a penalty of $1000 (non-refundable) will be charged. For a comprehensive list of all National Parks and Game Reserves kindly visit the Tanzania National Parks website.

**Car types**
The vehicle displayed and models listed are the most common vehicles used by our car rental partners. We cannot guarantee the make or model of the rental vehicle. The vehicle displayed can be subject to change without notice.
2018 Toyota Land Cruiser Prado

TX

TOYOTA LAND CRUISER PRADO (TX 4WD)

24,200 km | Automatic | No Accident | Condition: Perfect | 2,900cc

FOB US$32,216

Estimated Total Price: US$34,098

- The price is not fixed. Let’s try to negotiate.
- Before inspection
- Nearest port: DAKRAS SALAM
- Location: TRUJISOW

Contact your trading partner

1. I want to know the shipping schedule.
2. I want to know the condition of the car.
3. I want to negotiate the best price.

Specific Information

- Vin: TRJ55-0084***
- Model Code: TRJ55OW
- Registration Year: 2018/03

Add to Favorite: Send
**Options**

**Safety**
- Driver Airbag
- Anti-Lock Brakes
- Passenger Airbag
- Alarm

**Comfort**
- Power Steering
- A/C/Heater
- Remote Keyless Entry
- Navigation System
- A/C/Cool
- Cruise Control
- Digital Meter
- Tilt Steering

**Sound System**
- CD Player
- AM/FM Radio
- AM/FM Stereo
- DVD
- CD Changer
- Aftermarket Speaker
- Hard Disc
- Satellite Radio

**Windows**
- Power Windows
- Rear Window Defroster
- Tinted Glass
- Rear Window Wiper

**Other Features**
- Power Door Locks
- Alloy Wheels
- Power Mirrors
- Sunroof
- Third Row Seat
- Power Slide Door

**Other selling points**
- No Accident History
- Maintenance Records Available
- One Owner

<table>
<thead>
<tr>
<th>No. 1</th>
<th>Non-Smoker</th>
<th>Fully Loaded</th>
<th>Performance Tires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo</td>
<td>Upgraded Sound System</td>
<td>Custom Wheels</td>
<td>Reported Car</td>
</tr>
</tbody>
</table>

**Seat**
- Leather Seats
- Power Seats
- Child Seat
- Bucket Seat
### Materials and Supplies - Example of shipping supplies to Africa

Total: $0.00  $5,010.78

---

**EcoHealth Alliance, Inc.**

**Payee:** DHL Airways

**Vendor ID:** DHL

**Account #:**

**Description:** ZYP004758177 Shipping for AL to Brazzaville

**Discount:** $0.00  **Amount:** $5,010.78

---

**DHL Express OUTBOUND INVOICE**

DHL Express USA INC
16416 Northchase Dr
Houston TX 77060

ECOHEALTH ALLIANCE ACCOUNTS PAYABLE
460 W 34TH ST FL 17
NEW YORK NY 10001

---

**Waybill:** ZYP004758177

**Origin:** Houston

**Destination:** Brazzaville

---

**Total Due (USD):** $5,010.78

---

**Weight Code:**
- A = Customer Actual Weight
- V = Customer Volumetric Weight
- R = DHL Actual Weight
- W = DHL Volumetric Weight

---

Remit To: DHL Express - USA, 16592 Collections Center Drive, Chicago IL 60691

Federal ID: 94-3380425
Here is Your Custom Quotation

Customer
Mindy Rostal (212) 380-4489
EcoHealth Alliance, Inc.
460 West 34th Street
17th Floor
New York, NY 10001
US

Printer Labels

Application- 685 2.75" x 0.6875" clear Sens-A-Mark® CryoLabel®, 1.0" x 0.6875" silver

Product Size- 2.75 X 0.6875 Rectangle with 0.078125 C. Radius

Colors- Silver

Materials- Stock#685 2.0 mil Gloss Clear TT CryoLabel® Plastic W/Permanent Acrylic Adhesive

Best Used Within 12 Months Of Manufacture

Finishing- Finished in Rolls of 5,000, 1 Across, on a 3" Core.

See Note, 6.2" OD

Notes-

<table>
<thead>
<tr>
<th>Quantity</th>
<th>50,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price (10000):</td>
<td>$26.69</td>
</tr>
<tr>
<td>Total</td>
<td>$1,334.50</td>
</tr>
<tr>
<td>Grand Total</td>
<td>$1,334.50</td>
</tr>
</tbody>
</table>

SHIP DATE: 7-10 business days ARO (After Receipt of Order). Prep fees may change when design received. Valid 30 days. E-mailed POs requested; Confirmed by e-mail. All EXW (Ex Works) Keene, NH. Qty may vary +/-10% w/order considered complete. End User responsible for thorough Product testing. Customer is responsible for paying all applicable shipping charges, sales/use taxes and for all applicable import taxes/duties/customs fees.

ALL SALES ARE EXPRESSLY LIMITED TO THESE TERMS AND THE TERMS AND CONDITIONS AT BARCODE-LABELS.COM/TERMS. SELLER OBJECTS TO ANY DIFFERENT OR ADDITIONAL TERMS.

Thank You,
Ed August
Account Manager
## Printer, Resin and Software

**Ordered By:**
EcoHealth Alliance, Inc.
Attn: Mindy Rosta (212) 380-4489
460 West 34th Street
17th Floor
New York NY 10001 US

**Ship To:**
EcoHealth Alliance, Inc.
460 West 34th Street
17th Floor
New York, NY 10001
US
Attn: Mindy Rosta

We Would Like To Confirm Your Estimate With The Following:

<table>
<thead>
<tr>
<th>Ordered</th>
<th>Product Number</th>
<th>Description</th>
<th>Price</th>
<th>Prod. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95123</td>
<td>Zebra ZT230 printer, 300dpi, USB &amp; serial ports ZPL. US power cord &amp; plug, tear bar. USB cable, 6ips, 4.09&quot; print width</td>
<td>$1,290.20</td>
<td>Each</td>
</tr>
<tr>
<td>1</td>
<td>95131</td>
<td>Zebra ZT230 printer, 300dpi, USB/parallel &amp; Ethernet ZPL, USB cable, tear bar; US power cord &amp; plug, 6ips, 4.09&quot; print width</td>
<td>$1,625.45</td>
<td>Each</td>
</tr>
<tr>
<td>4</td>
<td>T68433300</td>
<td>4.33&quot; x 300 meter EIMINC® T68 premium resin ribbon note: 1 ribbon per 14.537 (685.275&quot; x 0.6875&quot;) labels</td>
<td>$28.89</td>
<td>Each</td>
</tr>
<tr>
<td>1</td>
<td>SEA-BTP-1</td>
<td>Seagull BarTender® 2019 Professional Application license plus one Printer license, includes one-year standard support</td>
<td>$450.45</td>
<td>Each</td>
</tr>
<tr>
<td>1</td>
<td>MISC2</td>
<td>FREE, FAST, FUN, FRIENDLY &amp; FLEXIBLE TECH SUPPORT <a href="mailto:techsupport@eiminc.com">techsupport@eiminc.com</a> or (800) 535-6987</td>
<td>$0.00</td>
<td>Each</td>
</tr>
<tr>
<td>1</td>
<td>MISC5</td>
<td>Shipping &amp; handling not included. Customer is responsible for paying all applicable sales/use taxes and import taxes/duties/customs fees.</td>
<td>$0.00</td>
<td>Each</td>
</tr>
</tbody>
</table>

ALL SALES ARE EXPRESSLY LIMITED TO THESE TERMS AND THE TERMS AND CONDITIONS AT BARCODE-LABELS.COM/TERMS. SELLER OBJECTS TO ANY DIFFERENT OR ADDITIONAL TERMS.

---

**Ed August**
Sales Representative

Emily De Maria
Customer Service
Computers (with AppleCare), mouse and keyboard units: $2126 each

Here's what's in your bag.
Get free shipping and free returns on all orders.

Magic Keyboard - US English  5  $495.00
Add a gift message
Remove

Order by 5pm, delivers:
Today within 2 hours - Fastest
Thu, Nov 7 - Free
Delivery options for: 1000**

13-inch MacBook Air - Space Gray  1  $1,699.00
Show product details
AppleCare+ for MacBook/MacBook Air
Automatically registered with your Apple hardware
$249.00
Remove

Add a gift message or gift wrap
Add

Order today, delivers:
Nov 15 - Nov 19 - Free
Delivery options for: 1000**

Magic Mouse 2 - Silver  5  $395.00
Remove
13-inch MacBook Air - Space Gray  
$1,699.00

AppleCare+ for MacBook/MacBook Air  
Automatically registered with your Apple hardware.  
$249.00

Add a gift message or gift wrap

Order today, delivers:
Nov 15 - Nov 19 - Free  
Delivery options for:  

Pickup:
Ships to store. Available Nov 19 at Apple West 14th Street  
Show more stores

13-inch MacBook Air - Space Gray  
$1,699.00

AppleCare+ for MacBook/MacBook Air  
Automatically registered with your Apple hardware.  
$249.00

Add a gift message or gift wrap

Order today, delivers:
Nov 15 - Nov 19 - Free  
Delivery options for:  

Pickup:
Ships to store. Available Nov 19 at Apple West 14th Street  
Show more stores
A few recommendations.
Basic

- Create beautiful maps
- Visualize in 2D and 3D
- Analyze geographic information
- Edit and manage geospatial data
- Publish and share

$700 / year
Quantity — 0 +

Standard

- Create beautiful maps
- Visualize in 2D and 3D
- Analyze geographic information
- Enable multiuser editing
- Perform advanced geospatial data management
- Publish and share

$2,750 / year
Quantity — 0 +

Advanced

- Create beautiful maps and advanced cartographic products
- Visualize in 2D and 3D
- Analyze geographic information with advanced tools
- Enable multiuser editing
- Perform advanced geospatial data management
- Publish and share
- Utilize extensive database management tools

$3,800 / year
Quantity — 0 +
Field Supplies

Cart

Account: 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vacutainer™ Venous Blood Collection Tubes: Vacutainer</strong></td>
<td>$42.25 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plus™ Plastic Serum Tubes, Silicone-Coated, with</strong></td>
<td>Pack of 100</td>
<td></td>
<td>$2,984.94</td>
</tr>
<tr>
<td><strong>Conventional Stopper</strong></td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td><strong>Catalog number 23-021-018 by BD 368045</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regulated Diameter (Metric) Outer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (4) - Estimated delivery 11/08/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (5) - Estimated delivery 11/20/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Nunc™ Biobanking and Cell Culture Cryogenic Tubes                   | $241.93 /  |
| **Catalog number 12-965-171N by Thermo Scientific™ 368632**       | Pack of 450 |     | $8,709.57      |
| **Capacity (Metric): 1.8mL, Thread Style: Internal, Length (Metric): 49mm, Desc...** |           | 9   |                |
| In Stock (3) - Estimated delivery 11/07/2019                        |           |     |                |
| On Order (6) - Estimated delivery 11/20/2019                        |           |     |                |

Order Summary

Subtotal $61,326.04

Shipping and Handling* $1,134.08

Hazardous material charge $23.25

Shipping fuel surcharge $4.45

Shipping charge $1,106.38

Estimated Tax $0.00

*Extra charges may apply for products that require special services.

*Additional handling charges determined by direct ship manufacturers may apply.

Generate a Web Quc

View All Quotes | What's this? | FAQ
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacutainer™ Venous Blood Collection Tubes: Vacutainer Plus™ Plastic Serum Tubes, Silicone-Coated, with Conventional Stopper Catalog number 02-657-27 by BD 366668 Regulated Diameter (Metric) Outer...</td>
<td>$34.00 / Pack of 100</td>
<td>3</td>
<td>$784.86</td>
</tr>
<tr>
<td>In Stock (3) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC MTUBE 1.3ML SERUM/PK100</td>
<td>$36.50 / Pack of 100</td>
<td>10</td>
<td>$365.00</td>
</tr>
<tr>
<td>Catalog number NC9444309 by Sarstedt Inc 41.1501.105</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships in 2 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacutainer™ Tube Holder Catalog number 22-289-953 by BD 364815 Regulated HLDR 1-USE NOSTCKBL 250/PK RX</td>
<td>$22.99 / Pack of 250</td>
<td>5</td>
<td>$459.50</td>
</tr>
<tr>
<td>In Stock (5) - Estimated delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacutainer™ Eclipse™ Blood Collection Needle Catalog number 02-683-101 by BD 368607 Regulated Gauge: 21g, Includes: Built-in safety shield, Color: Green hub</td>
<td>$42.55 / Pack of 48</td>
<td>5</td>
<td>$1,697.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Monoject™ Supra/Hone™ Thin Wall Blood Collection Needles</strong>&lt;br&gt; Catalog number: 22-030573&lt;br&gt; by Covidien 8881216066&lt;br&gt; Regulated&lt;br&gt; Needle Gauge: 22 G</td>
<td></td>
<td>2</td>
<td>$541.78</td>
</tr>
<tr>
<td><strong>On Order</strong> (2) - Estimated delivery&lt;br&gt; 11/13/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3cc Syringes</strong>&lt;br&gt; Catalog number: 14-840-77&lt;br&gt; by Excel International 26200&lt;br&gt; Regulated&lt;br&gt; Termination: Luer-lock</td>
<td></td>
<td>3</td>
<td>$590.19</td>
</tr>
<tr>
<td><strong>In Stock</strong> (2) - Estimated delivery&lt;br&gt; 11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monoject™ Softpack</strong>&lt;br&gt; Hypodermic Needles with Polypropylene Hub&lt;br&gt; Catalog number: 05-561-22&lt;br&gt; by Covidien 8881250222&lt;br&gt; Regulated&lt;br&gt; Needle Gauge: 22 G, Length (English) Needle: 1 in., Length (Metric) Needle...</td>
<td></td>
<td>3</td>
<td>$655.08</td>
</tr>
<tr>
<td><strong>On Order</strong> (1) - Estimated delivery&lt;br&gt; 11/21/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>-------------</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>Syringe with Sub-Q Needle by BD 309597</td>
<td>$35.25 /</td>
<td>2</td>
<td>$426.42</td>
</tr>
<tr>
<td>Catalog number 14-829-10F</td>
<td>Pack of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulated SYRINGE TB 26GX58 1CC 100PK RX</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (1) - Estimated delivery 11/11/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (2) - Estimated delivery 11/26/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graham Field Thumb Dressing Forceps by Graham-Field™</td>
<td>$9.00 /</td>
<td>4</td>
<td>$36.00</td>
</tr>
<tr>
<td>Catalog number 19-027503</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2750 Length (English): 5 in.,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (Metric): 127 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (2) - Estimated delivery 11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (4) - Estimated delivery 12/13/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ 50mL Graduated Polypropylene Centrifuge</td>
<td>$415.00 /</td>
<td>5</td>
<td>$2,490.00</td>
</tr>
<tr>
<td>Tube by Fisherbrand™</td>
<td>Case of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catalog number 14-375-150</td>
<td>500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CENT TB FREESTANDING 50ML 500/CS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (6) - Estimated delivery 11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Biosafety Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
</table>
| Fisherbrand™ Extended Cuff Nitrile Exam Gloves  
Catalog number 19-041-170D  
Size: X-Large | $39.05 / Pack of 50  
$332.50 / Case of 10 PK | 5 | $1,662.50 |

**In Stock (5) - Estimated delivery 11/07/2019**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
</table>
| Fisherbrand™ Extended Cuff Nitrile Exam Gloves  
Catalog number 19-041-170B  
Size: Medium | $39.05 / Pack of 50  
$332.50 / Case of 10 PK | 7 | $2,327.50 |

**On Order (7) - Estimated delivery 11/15/2019**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
</table>
| Fisherbrand™ Extended Cuff Nitrile Exam Gloves  
Catalog number 19-041-170A  
Size: Small | $39.05 / Pack of 50  
$332.50 / Case of 10 PK | 4 | $1,330.00 |

**In Stock (4) - Estimated delivery 11/07/2019**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
</table>
| Sharps Disposal Containers  
Catalog number 14-830-124 by Covidien 8970  
Capacity (English): 2 gal., Capacity (Metric): 7.6 L, Closure Type: Rotor Lid | $228.33 / Case of 20 | 3 | $684.99 |
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Color Polyethylene Liner Printed with BioHazard Symbol, 2 mil Thick, 16 x 14 x 36 inch Bags, 50 per Package Catalog number 30-998-764 by Research Products International Corp 246107</td>
<td>$38.13 / Pack of 50</td>
<td>3</td>
<td>$114.39</td>
</tr>
<tr>
<td>Ships from manufacturer - Usually Ships in 1 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KleenGuard™ A60 Bloodborne Pathogen and Chemical Splash Protection Coveralls Catalog number 19-057-404B by Kimberly-Clark Professional™ 45023 Closure Type: Zipper front, Description: Hooded, seamless z...</td>
<td>$470.00 / Case of 24</td>
<td>22</td>
<td>$10,340.00</td>
</tr>
<tr>
<td>On Order (22) - Estimated delivery 12/10/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KleenGuard™ A60 Bloodborne Pathogen and Chemical Splash Protection Coveralls Catalog number 19-057-404A by Kimberly-Clark Professional™ 45022 Closure Type: Zipper front, Description: Hooded, seamless z...</td>
<td>$470.00 / Case of 24</td>
<td>23</td>
<td>$10,810.00</td>
</tr>
<tr>
<td>In Stock (10) - Estimated delivery 11/07/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (13) - Estimated delivery 12/10/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>-------------</td>
<td>-----</td>
<td>--------------</td>
</tr>
<tr>
<td>Comfort Plus Disposable Filtering Facepiece Respirator, N95</td>
<td>$44.41 /</td>
<td>14</td>
<td>$439.60</td>
</tr>
<tr>
<td>by 3M™ 8211</td>
<td>Pack of 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification/Compliance:</td>
<td>$314.00 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIOSH 42 CFR Part 84, N95</td>
<td>Case of 8 PK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIOSH TC-84A-1299</td>
<td>Design T...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Stock (3) - Estimated delivery</td>
<td>11/07/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (11) - Estimated delivery</td>
<td>11/27/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualitative Fit-Test Kit, Bitter</td>
<td>$436.00 /</td>
<td>1</td>
<td>$436.00</td>
</tr>
<tr>
<td>by 3M™ FT30</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Type: Bitter Fit Test Kit, Quantity: 1</td>
<td>In Stock (1) - Estimated delivery</td>
<td>11/11/2019</td>
<td></td>
</tr>
<tr>
<td>Metaliks™ Eyewear</td>
<td>$32.30 /</td>
<td>10</td>
<td>$323.00</td>
</tr>
<tr>
<td>by 3M™ 1155400000020</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame Color: Bronze, Lens Type: Anti-fog, Lens Tint: Clear</td>
<td>$282.50 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Order (10) - Estimated delivery</td>
<td>12/06/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td>Ethanol, 70% Solution, Molecular Biology Grade, Denatured, Fisher BioReagents™</td>
<td>$82.00 / Each</td>
<td>1</td>
<td>$82.00</td>
</tr>
<tr>
<td>Catalog number BP82031GAL, Quantity: 1 gal., Packaging: Poly Bottle</td>
<td>$264.00 / Case of 4 EA</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

On Order (1) - Estimated delivery 11/11/2019

Items for Building TVLA Capacity

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSG Series Countertop Refrigerator</td>
<td>$2,740.00 / Each</td>
<td>1</td>
<td>$2,740.00</td>
</tr>
<tr>
<td>Catalog number TSG205SA by Thermo Scientific™</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSG205SA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSG CT SOLID DOOR, 5-15P</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ships from manufacturer - Usually Ships in 3 Business Days

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisherbrand™ Traceable™ Refrigerator/Freezer Plus Thermometer</td>
<td>$101.00 / Each</td>
<td>1</td>
<td>$101.00</td>
</tr>
<tr>
<td>Catalog number 15-677-721 5ML VACCN THRMT TRM .5 DEG 1EA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On Order (1) - Estimated delivery 11/21/2019

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp Assembly for FLx800™ Microplate Reader</td>
<td>$174.10 / Each</td>
<td>1</td>
<td>$174.10</td>
</tr>
<tr>
<td>Catalog number BT7080500 by BioTek™ 7080500 LAMP ASSEMBLY FOR FLX800</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This item is not returnable. View return policy

Ships from manufacturer - Usually Ships in 5 Business Days
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMC-2000 Series Compound Microscope,</td>
<td>$3,347.30</td>
<td>1</td>
<td>$3,347.30</td>
</tr>
<tr>
<td>Catalog number LMC2PH1 by Laxco™ LMC2PH1</td>
<td>/ Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Style: Binocular,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting Type: 3w LED,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase Contrast,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnification Power: 10X, 20X, 4...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships in 18 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[DW-20] Deionized Water Distiller with Gauge</td>
<td>$2,458.50</td>
<td>1</td>
<td>$2,458.50</td>
</tr>
<tr>
<td>Catalog number 50-167-1175 by Labomed Inc DW20</td>
<td>/ Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships in 40 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24006 ISFET POCKET PH METER</td>
<td>$257.92</td>
<td>1</td>
<td>$257.92</td>
</tr>
<tr>
<td>Catalog number NC1478483 by DeltaTrak Inc 24006</td>
<td>/ Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships from manufacturer - Usually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships in 2 Business Days</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Add all items to a list*
CappWash™ APS BE

CappWash™ is the ideal washing tool for small-scale immunoassays.

- Compact and made for small-scale work
- Unique track-mine design
- Single wash/rinse matches well with design
- No programming and no additional wiring connection required

The vacuum pump is available for 15SV connections.

Fitting into even the tightest budget, CappWash™ is a perfect alternative for washing microplates and strips.

Order Now

| ORDER | Q and A |

<table>
<thead>
<tr>
<th>Description</th>
<th>Supplier No.</th>
<th>VWR Catalog Number</th>
<th>Unit</th>
<th>Availability</th>
<th>Price</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CappWash™ K1, Inc. 100 W-7, WP-125 W-B1, WB-3, WB-4, and W-1000 (3 meters)</td>
<td>W-1251F-125V</td>
<td>480315-834</td>
<td>Each</td>
<td>Ordered Upon Request</td>
<td>$80.00</td>
<td>1</td>
</tr>
<tr>
<td>CappWash™ K2, Inc. 100 W-7, WP-125 W-B1, WB-3, WB-4, and W-1000 (3 meters)</td>
<td>W-1251F-125V</td>
<td>480315-834</td>
<td>Each</td>
<td>Ordered Upon Request</td>
<td>$80.00</td>
<td>1</td>
</tr>
</tbody>
</table>
Tablets and case: $228.98 each

Get a $15 credit when you purchase $50 or more in Amazon Gift Cards (restrictions apply)

SupCase Unicorn Beetle Pro Series
Designed for Galaxy Tab A 10.1 (2019 Release), Full-Body Rugged Heavy Duty Protective Case with Built-in Screen Protector for Galaxy Tab A 10.1 Inch 2019 (Black)
In Stock
Eligible for FREE Shipping

Samsung Galaxy Tab A 10.1 32 Gb Wifi Tablet Black (2019)
In Stock
Eligible for FREE Shipping

Subtotal (13 items): $1,225.87
Updated Subtotal (16 items): $1,831.84

The price and availability of items at Amazon.com are subject to change. The Cart is a temporary place to store a list of your items and reflects each item's most recent price. Learn more.

Do you have a gift card or promotional code? We'll ask you to enter your claim code when it's time to pay.

Customers who shopped for SupCase Unicorn Beetle Pro Series Designed for... also shopped for:

Gift ideas inspired by your shopping history
Traps

Tomahawk Live Trap

All categories  Search products

Home  Cart contents

Ordering multiple items? We may be able to reduce shipping cost for your order. Please read this memo. Thank you!

If you are ordering many different items our website may not accurately calculate shipping for you. We can combine products and ship them together in boxes to save shipping cost. During the final stage of the checkout process select the "Double Check My Shipping Cost" option as your payment method. We will contact you with a quote for reduced shipping. You can also call us at 800-272-8727 and we can quote you by phone.

\[ \text{CART CONTENTS} \]

Continue shopping

Clear cart

Proceed to checkout
LFAHD - 9 x 3 x 3.5 - Folding, Aluminum Trap

CODE:LFAHD

$27.23

- 33 +

$898.59

200 - Collapsible Squirrel Trap with Two Trap Doors

CODE:200

ADD POWDER COATING:

(-15%)

ADD A PLASTIC TRAP COVER FOR THIS TRAP:

(+$16.45)

$44.82

- 40 +

$1,792.80
205 - Collapsible Cat, Opossum, Rabbit Trap with One Trap Door

CODE: 205

ADD POWDER COATING: (4+15%)

ADD A PLASTIC TRAP COVER FOR THIS TRAP: (4+$25.95)

$63.45

- 60 +

$3,807.00

Gift certificate or promo code

Subtotal $6,498.39
FedEx (CHANGE) $357.54

TOTAL COST $6,855.93
Tattoo kit to mark hares

Get a $15 credit when you purchase $50 or more in Amazon Gift Cards (restrictions apply)

Subtotal (3 items): $85.32

Speedball 2-Ounce India Ink, Super Black
In Stock
Price $7.32
Proceed to checkout

Grand Champion 1/4 inch Tattoo 0-9
In Stock
Price $15.00

Grand Champion 1/4 inch Tattoo Kit with Case
Only 10 left in stock - order soon.
Price $63.00

Samsung Galaxy Tab A 10.1 32 GB Wi-Fi Tablet (2019) was removed from Shopping Cart.

Subtotal (3 items): $85.32

The price and availability of items at Amazon.com are subject to change. The Cart is a temporary place to store a list of your items and reflects each item's most recent price. Learn more.

Do you have a gift card or promotional code? We’ll ask you to enter your claim code when it’s time to pay.

Sponsored Products related to items in your cart

Page 1 of 3

ZZHOOK Calligraphy Ink Bottle, 3 X 4 Ounce Dip

Dandelion Pink Calligraphy Pens Set, 12 Piece Kit
## Products

### Items (1)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Etched Ear Tags, One-Sided</td>
<td>1</td>
<td>$315</td>
</tr>
<tr>
<td>1,000 Laser Etched Ear Tags (Custom Specified Numbering)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary**

**Subtotal:** $315

*Shipping and tax will be calculated when we process your order and will be added to the amount you are charged.*

**Total:** $315

Discount Code

Apply

© 2006 - 2019 Kent Scientific Corporation. All rights reserved.
## Shopping Cart

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Move to Quote</th>
<th>Unit Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Anesthesia F-Circuit 12 in</td>
<td></td>
<td>$30.00</td>
<td>1</td>
<td>$30.00</td>
</tr>
<tr>
<td>Harvard Apparatus Single Animal Tabletop Isoflurane Anesthesia System with Small Induction Box</td>
<td></td>
<td>$2,963.00</td>
<td>1</td>
<td>$2,963.00</td>
</tr>
<tr>
<td>Cat Ventilation/Anesthesia Mask, Small, 5.1 cm (2 in) diameter, molded on 15 mm standard male connections</td>
<td></td>
<td>$15.00</td>
<td>1</td>
<td>$15.00</td>
</tr>
</tbody>
</table>

Continue Shopping

Estimate Shipping and Tax

Discount Codes

Enter your coupon code if you have

<table>
<thead>
<tr>
<th>Subtotal</th>
<th>$3,008.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total</td>
<td>$3,008.00</td>
</tr>
</tbody>
</table>
Pelican 1610 roll model case

With Fold Down Handle & Wheels. Available in Black and ready for shipping in 1-24 hrs. or less. Desert Tan and OD Green colors are available upon request longer lead time and minimum quantities apply.

Case to carry anesthesia machine

1610 Case Part Numbers:

APP-1610K
Price $215.95

IN STOCK

APP-1610F
Price $256.95

IN STOCK

APP-1614PD
Price $332.14

Pelican case 1610 with Padded Dividers (Note: stocking charge applies)
Anesthesia Medications

CHECKOUT

HOME > MY ACCOUNT > CHECKOUT

Load Items from Saved Order

Navigate to Saved List

SAVE ORDER

CHECKOUT

Estimate total: $3,072.98
ISOThERIA (ISOFLURANE) SOLUTION

Availability: This item is scheduled to arrive the next business day. It is not for transportation by air.

Brand Products
Practice Preferred

Unit Price $27.83
Unit Total $1,141.03

SKU: 029405
Size: 230mL
Case Qty: 6
In Stock: In Stock: 1,620

ISOThERIA (ISOFLURANE) SOLUTION

Availability: This item is scheduled to arrive the next business day. It is not for transportation by air.

Brand Products
Practice Preferred

Unit Price $17.82
Unit Total $1,283.04

SKU: 029404
Size: 100mL
Case Qty: 6
In Stock: In Stock: 116

KETATHERIA INJECTION, 100MG/ML C3N

DIAZEPAM INJECTION, 5MG/ML C4
## Equipment

### Cart

**Account:** 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorvall™ ST 16 Centrifuge Series</td>
<td>$6,680.00 / Each</td>
<td>1</td>
<td>$6,680.00</td>
</tr>
<tr>
<td>Catalog number 75-604-240 by Thermo Scientific™ 75004240</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description: Sorvall ST 16 Centrifuge, Capacity: 4 x 400mL, Electrical Requirements: 230V 50/60Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Ships from manufacturer* - Usually Ships in 27 Business Days

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisherbrand™ Isotemp™ -86°C Ultra-Low Temperature Chest Freezers, 20 cu. ft.</td>
<td>$15,630.00 / Each</td>
<td>1</td>
<td>$15,630.00</td>
</tr>
<tr>
<td>Catalog number 1920CD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Requirements: 208 - 230 V 60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Ships from manufacturer* - Usually Ships in 35 Business Days

### Order Summary

- Subtotal: $22,310.00
- Shipping and Handling*: $424.99
- Shipping charge: $424.99
- Estimated Tax: $0.00

*Extra charges may apply for products that require special services.

*Additional handling charges determined by direct ship manufacturers may apply.

---

View All Quotes | What's this? | FAQ

Add all items to a list
**Generator**

**Genset Model**

- C22 D5, 22kVA Standby, 20kVA, Diesel, Open

**Bill of Material**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Standby Power (ESP)</td>
<td></td>
</tr>
<tr>
<td>Emissions Level</td>
<td>No Certification</td>
</tr>
<tr>
<td>Local Codes and/or Regulation</td>
<td>CE</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>200/115, 3 Phase, Wye, 4 Wire</td>
</tr>
</tbody>
</table>

**Engine**

- X2.5G2
- Engine Air Cleaner - Duty Rating: Heavy Duty
- Engine Oil Heater: None Supplied
- Engine Speed Governing: Mechanical Droop Governor
- Engine Coolant Heater: None Supplied

**Sub-Base Anti-Vibration Mounts**

- None Supplied

**Main Generator**

- G012G1, 50 Hertz (Hz), 200V and 480V, 163C, Emergency Standby Power (ESP)
- Generator Accessories
- Voltage Regulator - Torque Match
- Main Generator Heater: None Supplied

**Exhaust System**

- Silencer Grade: Residential, Flange On Connection Inlet 3 Inch, Outlet 3 Inch, Side Entry
- Exhaust System Accessories: Bellows, System Fixing Kit

**Cooling System**

- Genset Mounted Radiator, 50°C / 122°F, Genset Mounted
- Engine Coolant Mixture: 50% Antifreeze, 50% Water

**Primary Electrical Isolation Device**

- One Circuit Breaker

**Primary Electrical Isolation Device**

- 80A MCB, 440V IEC, 4 Pole, 100%, Left

**Entrance Box / Terminal Housing**

- Cable Entrance Box Required: None Supplied

**Control System Options**

- PowerStart 6000
- Control Panel Mounting (Viewed From Generator End): Left Facing
Control Language: English

Warning - Low Battery Voltage

Emergency Stop Switch - External

Control Cabinet Heater: None Supplied

Starting Batteries

Pure Lead-Tin Thin Plate Valve Regulated Lead-Acid (VRLA) Battery - Maintenance Free

Battery Charger

Set Mounted, 6A, 110 - 240 V

Genset Testing

Genset Testing: Standard Factory Test

Test Records: Certified Test

Warranty

Standby, 40 Months, 800 Hours

Literature Language

English

Packing

Cover - Shipping

Net package price: $\text{[4]}$

Notes:

1. Spec sheet provided to quote
2. Price includes freight Factory via standard ground to nearest port of generator manufacturer. Shipping to final destination Tanzania by others and not included in this quote.
3. Price does not include field connections, installation or rigging.
4. This proposal is based on information supplied to Cummins which may or may not have been correct or complete. The customer is responsible for reviewing this proposal for compliance with the complete and final drawings and specifications.
5. All quotations automatically expire thirty (30) days from date issued.

We thank you for giving us the opportunity to quote this equipment. If you need any further assistance or clarification, please do not hesitate to contact us

Sincerely,

Colm Kelly

Senior Sales Representative
Diesel generator set
X2.5 series engine
15 kVA - 28 kVA 50 Hz
10.8 kW - 20 kW 60 Hz

Description
This Cummins® commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for Stationary Standby, Prime Power, and Continuous Duty applications.

Features
Cummins heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Optional excitation boost system (EBS) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads and fault clearing short-circuits capability.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Control system - PowerStart control, microprocessor-based generator set monitoring and control system provides a simple operator interface to the generator set, manual and remote start/stop control and shutdown fault indication.

Enclosures - Optional weather-protective and sound attenuated enclosure.

Warranty - Backed by a comprehensive warranty and worldwide distributor network.

<table>
<thead>
<tr>
<th>Model</th>
<th>3-Phase ratings</th>
<th>1-Phase ratings*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standby rating</td>
<td>Prime rating</td>
</tr>
<tr>
<td></td>
<td>50 Hz kW (kVA)</td>
<td>60 Hz kW (kVA)</td>
</tr>
<tr>
<td>C12 D5</td>
<td>15 (12)</td>
<td>13 (13)</td>
</tr>
<tr>
<td>C22 D5</td>
<td>22 (18)</td>
<td>19 (19)</td>
</tr>
<tr>
<td>C12 D6</td>
<td>12 (13)</td>
<td>10.9 (13.6)</td>
</tr>
<tr>
<td>C16 D6</td>
<td>16 (20)</td>
<td>15 (18)</td>
</tr>
<tr>
<td>C20 D6</td>
<td>20 (23)</td>
<td>18 (22)</td>
</tr>
</tbody>
</table>

*1.0 PF

Data sheet
Generator set specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor regulation class</td>
<td>ISO 8528 G2</td>
</tr>
<tr>
<td>Voltage regulation, no load to full load</td>
<td>± 2.5%</td>
</tr>
<tr>
<td>Random voltage variation</td>
<td>± 2.5%</td>
</tr>
<tr>
<td>Frequency regulation</td>
<td>Droop</td>
</tr>
<tr>
<td>Random frequency variation</td>
<td>± 0.75 %</td>
</tr>
<tr>
<td>Radio frequency emissions compliance</td>
<td>BS EN 61600-6-1 / BS EN 61000-6-3</td>
</tr>
</tbody>
</table>

Engine specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>4 cycle, in-line, naturally aspirated</td>
</tr>
<tr>
<td>Bore</td>
<td>91.4 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>127 mm</td>
</tr>
<tr>
<td>Displacement</td>
<td>2.5 liter (153 in³)</td>
</tr>
<tr>
<td>Cylinder block</td>
<td>Alloy cast iron, in-line, 3 cylinder</td>
</tr>
<tr>
<td>Battery charging alternator</td>
<td>36 A</td>
</tr>
<tr>
<td>Starting voltage</td>
<td>12 volt, negative ground</td>
</tr>
<tr>
<td>Fuel system</td>
<td>Direct injection</td>
</tr>
<tr>
<td>Fuel filter</td>
<td>Spin on fuel filters with water separator</td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Dry replaceable element</td>
</tr>
<tr>
<td>Lube oil filter type(s)</td>
<td>Spin on full flow filter, filtration efficiency 25 micron 99% (min)</td>
</tr>
<tr>
<td>Standard cooling system</td>
<td>122 °F (50 °C) ambiant radiator with coolant recovery system</td>
</tr>
</tbody>
</table>

Alternator specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Brushless, single bearing</td>
</tr>
<tr>
<td>Stator</td>
<td>2/3 pitch</td>
</tr>
<tr>
<td>Insulation system</td>
<td>Class H</td>
</tr>
<tr>
<td>Standard temperature rise</td>
<td>125-163 °C</td>
</tr>
<tr>
<td>Exciter type</td>
<td>Self excited</td>
</tr>
<tr>
<td>Phase rotation</td>
<td>A (U), B (V), C (W)</td>
</tr>
<tr>
<td>Alternator cooling</td>
<td>Direct drive centrifugal blower fan</td>
</tr>
<tr>
<td>AC waveform Total Harmonic Distortion (THDv)</td>
<td>No load to full linear load &lt; 5%. For any single harmonic &lt; 2.5%</td>
</tr>
<tr>
<td>Telephone Influence Factor (TIF)</td>
<td>&lt; 75 (for 60 Hz)</td>
</tr>
<tr>
<td>Telephone Harmonic Factor (THF)</td>
<td>&lt; 2% (for 50 Hz)</td>
</tr>
</tbody>
</table>

Available voltages

<table>
<thead>
<tr>
<th>50 Hz Line-Line/Line-Neutral</th>
<th>1-phase</th>
<th>3-phase</th>
<th>1-phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>415/240</td>
<td>208/120</td>
<td>220/127</td>
<td>240</td>
</tr>
<tr>
<td>400/230</td>
<td>200/115</td>
<td>440/255</td>
<td></td>
</tr>
<tr>
<td>380/220</td>
<td>190/110</td>
<td>416/240</td>
<td></td>
</tr>
<tr>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Consult factory for other voltages.

Generator set options

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Electronic engine governing</td>
</tr>
<tr>
<td></td>
<td>Coolant heater 120/240 V</td>
</tr>
<tr>
<td>Cooling</td>
<td>Antifreeze 50/50 (Ethylene glycol)</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Optional silent power canopy</td>
</tr>
<tr>
<td>Base frame</td>
<td>Dual skin fully contained fuel tank</td>
</tr>
<tr>
<td>500 litre fuel tank</td>
<td></td>
</tr>
<tr>
<td>Set mounted battery</td>
<td></td>
</tr>
<tr>
<td>Alternator</td>
<td>Alternator heater</td>
</tr>
<tr>
<td></td>
<td>Control panel</td>
</tr>
<tr>
<td></td>
<td>PowerCommand 1.1</td>
</tr>
<tr>
<td></td>
<td>2/4 pole main circuit breaker</td>
</tr>
<tr>
<td></td>
<td>Aux 101</td>
</tr>
<tr>
<td>Warranty</td>
<td>2 years for Prime application</td>
</tr>
<tr>
<td></td>
<td>5 years for Standby application</td>
</tr>
<tr>
<td></td>
<td>1500/3000 hours service kit</td>
</tr>
<tr>
<td></td>
<td>Optional language literature</td>
</tr>
<tr>
<td></td>
<td>Engine oil heater 120/240 V</td>
</tr>
<tr>
<td></td>
<td>External fuel fill (3 way valve)</td>
</tr>
</tbody>
</table>

Note: Some options may not be available on all models - consult factory for availability.
Control system

Generator set control PowerStart 600 – The PowerStart control is a microprocessor-based generator set monitoring and control system. The control provides a simple operator interface to the generator set, automatic and remote start/stop control and shutdown fault indication. The integration of all control functions into a single control provides enhanced reliability and performance compared to conventional generator set control systems. This control has been designed and tested to meet the harsh environment in which gensets are typically applied.

- The PowerStart generator set control is suitable for use on a wide range of generator sets in non-parallel applications. It is suitable for operation with reconnectable or non-reconnectable generators, can be configured for either 50 Hz or 60 Hz and voltage and power connection from 190-600 VAC line-to-line.
- This control includes an intuitive operator interface that allows for complete gense control as well as system metering, fault annunciation, maintenance alarm, over imbalance current, configuration and diagnostics. The interface includes seven generator set status LED lamps with both internationally accepted symbols and English text to comply with customer needs. The interface also includes an LED backlit LCD display with tactile-feel soft switches for easy operation and screen navigation. The manual/auto/stop switch function is integrated into the interface panel.
- All data on the control can be viewed by scrolling through screens with the navigation keys. The control displays the current active fault and a time-ordered history of the five previous faults.
- Power for this control is derived from the generator set starting batteries and functions over a voltage range from 8VDC to 16 VDC.

Major Features
- Integrated 128x64 Pixel monochrome graphic LCD Display
- 12 and 24V battery operation
- Genset monitoring-monitor status of all critical engine and alternator functions
- Digital genset metering (AC and DC)
- Genset battery monitoring system to warn against a weak battery connection
- Configurable for single phase or three phase or split phase AC metering
- Engine starting includes solid state output to operate external relay to start the engine, fuel shut off (FSO) and glow Plug
- Genset Protection: protects engine and alternator
- Real time clock for fault and event stamping
- Fuel level measurement using 4-20mA input sensor
- Exercise clock and time of delay start/stop initiate a test without load.
- Maintenance due alarm based on engine running time and real time clock
- Auto Main Failure (AMF) Provides load transfer operation in open transition mode
- AMF Test with or without load options
- Utility Voltage monitoring and protection
- Remote start capability in Auto mode
- Advanced service ability using Inpower™ a PC based Software service tool
- Modbus interface for interconnecting to customer PLC/BMS
- Configurable Inputs and Outputs
- Environmental protection: The control is designed for reliable operation in harsh environment
- Warranty and service backed by a comprehensive warranty and worldwide distributor service network
- Certification suitable for use on generator sets that are designed, manufactured, tested and certified relevant ISO, IEC and CE standards.

Base control functions

LCD capability

LED INDICATING LAMPS
- For Genset Running, Remote Start, AMF Test Active, Genset Shutdown, Warning, Load connected to Genset, Load connected to Utility, Manual Mode, Stop Mode and Auto Mode.

LCD display
- 128 x 64 Pixel Monochrome Graphics display

OPERATION INTERFACE
- Six tactile-feel soft switches for LCD navigation, genset operation and control setup. These switches are indicated by internationally accepted symbols and English text.

OPERATOR ADJUSTMENTS
- The LCD includes provisions for necessary set up and adjustment functions.
- Data Log includes engine run time and controller on time Fault History.
- Provides a record of the most recent fault.
- Condition with Engine run time stamp, RTC stamp and occurrences
- Up to 5 events are stored in the control non-volatile memory.
AMF FUNCTIONALITY

When Auto Mains Failure is enabled and controller is in Auto Mode and if utility goes off then control starts the Genset automatically and transfers load onto Genset. If Utility returns and is healthy then load again gets retransferred onto Utility. AMF provides load transfer operation in Open Transition transfer mode.

FUEL LEVEL FEATURE

The Control will show the warning fault when the fuel level in the tank goes below the predefined threshold. Control includes time delays to prevent nuisance warning signals.

Exercise Scheduler
It is used only when genset is in Auto mode. It is used to start a Scheduler schedule at No Load condition. A trim Exercise Scheduler Enable is available to enable or disable the feature.

Maintenance
Maintenance due alarm based on Engine Running Time or Real time clock

Control data
Access to the control software part number and software version are provided from the LCD or InPower™.

Alternator data
- Voltage (single or three phase line-to-line and line-to-neutral)
- Current (single or three phase)
- kVA, kVAR, kW, Power Factor (Three phase and total)
- Frequency
- Totalized positive and negative kWh, kVARH, kV AH

Utility AC data
- Voltage (three/single phase LL and LN) - Frequency

ENGINE DATA

- Starting battery voltage
- Engine running hours
- Engine temperature
- Engine oil pressure

Service adjustments
- The control includes provisions for adjustment and calibration of generator set control functions. Functions include:
  - Voltage selection
  - Frequency selection
  - Genset and Utility AC Motor Calibration

ENGINE CONTROL

- CT ratio, and Genset ratings setup
- Start/Stop time delay setup
- Real time clock setup with daylight saving
- AMF Setup with test mode and transfer/retransfer time delays
- Modbus baud rate, parity setup
- Exercise scheduler repeat interval, Day, time and duration setup
- Maintenance due setup
- LCD brightness and contrast control

Battery operation
- Control will operate on 12V/24V batteries

Auto start mode
Accepts a ground signal from remote devices to automatically start the generator set. The remote start signal will also wake up the control from sleep mode. The control can incorporate a time delay start and stop.

Emergency stop
The control annunciates when an emergency stop signal is received and the generator set immediately shuts down. The generator set is prevented from running or cranking with the switch engaged E-stop switch.

Sleep mode
The control includes a configurable low current draw state to minimize starting battery current draw when the genset is not operating.

Engine starting
The control supports automatic engine starting. Primary and backup start disconnects are achieved by battery charging alternator feedback or main alternator output frequency. The control also supports configurable glow plug control when applicable.

Cycle cranking
Configurable for the number of starting cycles (1 to 7) and duration of crank and rest periods. Control includes starter protection algorithms to prevent the operator from specifying a starting sequence that might be damaging.

Time delay start and stop (cooldown) Configurable for time delay of 0-300 seconds prior to starting after receiving a remote start signal and for
time delay of 0-600 seconds prior to shutdown after signal to stop in normal operation modes. Default for both time delay periods is 0 seconds.

Auto Mains Failure functions
AMF primarily means that the genset controller is controlling both the genset breaker and a utility breaker in a transfer pair arrangement. AMF is only for use in a single genset / single utility arrangement. AMF's primary job is to keep loads powered. AMF completely manages the system by automatically starting the genset and transferring load when it detects utility failure. AMF has numerous built-in configurable sensors to determine the availability of the utility and genset sources. Sensors include under voltage, overvoltage, over/under frequency and breaker failure. PS0600 control supports only open transition (Break before Make) AMF functionality.

AMF Test mode
AMF supports test mode with or without load options along with test mode duration.

Load Transfer Switch Type
AMF breaker outputs can be continuous (contact pair) or pulsed (GTEC) type based on load transfer switch selection.

Undervoltage sensor
- Three phase LL and LN undervoltage sensing for pickup 85-100% and dropout adjustable from 75-98% of nominal and dropout adjustable delay from 0.1-30 sec

Overvoltage sensor
- Three phase LL and LN overvoltage sensing for dropout adjustable from 105-135% of nominal and dropout adjustable delay from 0.5-120 sec

Over/under frequency sensor
- Underfrequency sensing for pickup 85-100% and dropout adjustable from 70-85% of nominal and dropout adjustable delay from 0.1-15 sec
- Overfrequency sensing for dropout adjustable from 105-115% of nominal and dropout adjustable delay from 0.1-15 sec

Timers
- Control provides transfer time delays including Time delay engine start (0-3600 sec), time delay normal to emergency (0-300 sec) and programmed transition delay (0-600 sec), impending failure.
- Cranking lockout - The control will not allow the starter to attempt to engage or to crank the engine when the engine is running.
- Control provides retransfer time delays including time delay emergency to normal (0-1800 sec) and programmed transition delay (0-600 sec), time delay engine cooldown (0-3600 sec)

Protective functions:
On operation of a protective function, the control will indicate a fault by illuminating the appropriate status LED, as well as display the fault code and fault description on the LCD. The nature of the fault and time of occurrence are logged in the control. The service manual and InPower Service Tool provide service keys and procedures based on the service codes provided. In Power is used to configure settings.

Configurable alarm input
The control accepts maximum three alarm inputs (contact closed to ground) to cause a shutdown or warning response from the control.

Emergency stop
- Annunciate whenever an emergency stop signal is received from external switch.

Engine protection
- Low lube oil pressure warning/shutdown - Level is pre-set to match the capabilities of the engine used. Control includes time delays to prevent nuisance shutdown signals.
- High coolant temperature warning/shutdown - Level is pre-set to match the capabilities of the engine used. Control includes time delays to prevent nuisance shutdown signals.
- Low coolant temperature warning - Indicates that engine temperature may not be high enough for 1 min. and start or proper load acceptance.
- Sensor failure indication - Logic is provided on the base control to detect analog sensor or interconnecting wiring failures.

General engine protection:
Low Fuel Level Warning - Indicates that engine fuel level reached the Low Fuel Level Warning Threshold (30% by default).
Charging Alternator Failure Warning - Indicates that engine charging alternator voltage reached the low/high charging alternator threshold when charging alternator enable trim is enabled.
- Low and high battery voltage warning - Indicates status of battery charging system (failure) by continuously monitoring battery voltage.
- Weak battery warning - The control will test the battery each time the generator set is signaled to start and indicate a warning if the battery indicates
- Fail to start shutdown - The control will indicate a fault if the generator set fails to start by the completion of the engine crack sequence.

**ALTERNATOR PROTECTION**

**Battleship Mode**

- When enabled and Battle short switch is active, the control will allow non-critical shutdown faults to be bypassed. If a bypass shutdown fault occurs, the fault code and description will still be annunciated, but the genset will not shutdown. This will be followed by a fail to shutdown fault. Emergency stop critical shutdown faults are not bypassed.
  
  Please refer to control service and operator manual for list of critical faults.

**High AC voltage shutdown (59)**

- Output voltage on any phase exceeds preset values. Values adjustable from 105-125% of nominal voltage, with time delay adjustable from 1-10 seconds. Default value is 110% for 5 seconds.

**Low AC voltage shutdown (27)**

- Voltage on any phase has dropped below a preset value. Adjustable over a range of 50-95% of voltage, time delay 2-20 seconds. Default value is 90% for 5 seconds.

**Under frequency shutdown (81 u)**

- Generator set output frequency cannot be maintained. Settings are adjustable from 2-10 Hz below nominal governor set point, for a 500-2000 half cycles delay. Default: 5 Hz, 1000 half cycles.

**Over frequency shutdown/warning (81 o)**

- Generator set is operating at a potentially damaging frequency level. Settings are adjustable from 2-10 Hz above nominal governor set point for 100-2000 half cycles delay. Default: 5 Hz, 1000 half cycles.

**Loss of sensing voltage shutdown**

- Shutdown of generator set will occur on loss of voltage sensing inputs to the control.

**Current Imbalance Warning Fault**

- Issues warning when current imbalance is observed per phase when genset is in running state.

**High Current warning/shutdown (51)**

- Implementation of the thermal damage curve with instantaneous trip level calculated based on current transformer ratio and application power rating.

**Auto Mains Failure Protections:**

- Breaker/ATS Switch fail to close warning - when the control signals a ATS switch to close, it will monitor the ATS switch feedback contacts and verifies that switch is closed. If the control does not sense ATS switch closure within an adjustable time period after the close signal, the fail to close warning will be initiated.

- Breaker/ATS Switch fail to open warning - when the control signals a ATS switch to open, it will monitor the ATS switch feedback contacts and verifies that switch is opened. If the control does not sense ATS switch opened within an adjustable time period after the open signal, the fail to open warning will be initiated.

---

**Environment**

The control is designed for proper operation without recalibration in ambient temperatures from -15 °C (5 °F) to +70 °C (158 °F), and for storage from -20 °C (-4 °F) to +80 °C (176 °F). Control will operate with humidity up to 95%, non-condensing. The control board is conformal coated to provide resistance to dust and moisture. The single membrane surface, which is impervious to effects of dust, moisture, oil and exhaust fumes. This panel uses a sealed membrane to provide long reliable service life in harsh environments. The control is specifically designed and tested for resistance to RFI/EMI and to resist effects of vibration to provide a long reliable life when mounted on a generator set. The control includes transient voltage surge suppression to provide compliance to referenced standards.

**FIELD CONTROL INTERFACE**

Input signals to the control include:
configured to AMF specific outputs (Utility/Genset CB Open/Close driver) when Auto mains failure is enabled.

Communications connections include:

Control provides one RS-485 port which can be used either for PCTool interface or Modbus master interface based on protocol selection from LCD or Inpower™.

- Modbus RS485 port: Allows the control to communicate with external devices such as PLCs using Modbus protocol.

- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running Inpower™ software.

Note — An RS-485 or USB to RS-232 converter is required for communication between control and PC.

Software

InPower (beyond 11.5.2.0 version) is a PC-based software service tool that is designed to directly communicate to Power Start generator sets and transfer switches, to facilitate service and monitoring of these products.

Certifications

PowerStart meets or exceeds the requirements of the following codes and standards:

- Remote start
- Emergency stop
- Configurable customer inputs:
  Control includes (1 Control includes 3 input signals which can be configured for diagnostic inputs. Out of which 1st input can also be configured as Batt/Az short input, 2nd and 3rd inputs gets configured to Utility CB status and Genset CB status when Auto mains failure is enabled.)

Output signals from the control include:

Control includes 6 configurable outputs which can be configured to Diagnostic Output, Glow Plug, Ready to load, L series governor. Configurable output 3, Configurable output 4, Configurable output 5 and Configurable output 6 get

- CE marking: The control is suitable for use on generator sets to be CE-marked. EN 50081-1,2 residential/light industrial emissions or industrial emissions.
- EN 50082-1,2 residential/light industrial or industrial susceptibility.
- ISO 7637-2, level 2; DC supply surge voltage test.
- PowerStart control and generator sets are designed and manufactured in ISO 9001 certified facilities.

Warranty

All components and subsystems are covered by an express limited one year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available.
Ratings definitions

**Emergency Standby Power (ESP):**
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

**Limited-Time Running Power (LTP):**
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

**Prime Power (PRP):**
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

**Base Load (Continuous) Power (COP):**
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

This outline drawing is to provide representative configuration details for Model series only.

See respective model data sheet for specific model outline drawing number.

---

**Do not use for installation design**

<table>
<thead>
<tr>
<th>Model</th>
<th>Length “A” mm</th>
<th>Width “B” mm</th>
<th>Height “C” mm</th>
<th>Dry wt. kg</th>
<th>Wet wt. kg</th>
<th>Length “A” mm</th>
<th>Width “B” mm</th>
<th>Height “C” mm</th>
<th>Dry wt. kg</th>
<th>Wet wt. kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>C12 D6</td>
<td>1467</td>
<td>930</td>
<td>1282</td>
<td>694.3</td>
<td>716.3</td>
<td>2082</td>
<td>887</td>
<td>1524</td>
<td>942.5</td>
<td>964.5</td>
</tr>
<tr>
<td>C12 D5</td>
<td>1667</td>
<td>930</td>
<td>1282</td>
<td>694.3</td>
<td>716.3</td>
<td>2082</td>
<td>887</td>
<td>1524</td>
<td>942.5</td>
<td>964.5</td>
</tr>
<tr>
<td>C16 D6</td>
<td>1667</td>
<td>930</td>
<td>1282</td>
<td>633.5</td>
<td>665.5</td>
<td>2082</td>
<td>887</td>
<td>1524</td>
<td>933.5</td>
<td>975.5</td>
</tr>
<tr>
<td>C20 D6</td>
<td>1667</td>
<td>930</td>
<td>1282</td>
<td>633.5</td>
<td>665.5</td>
<td>2082</td>
<td>887</td>
<td>1524</td>
<td>933.5</td>
<td>975.5</td>
</tr>
</tbody>
</table>

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

---

**Codes and standards**

This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.

The 50 Hz generator sets are available with CE certification.

---

46
Vehicle: Note this is the same quote as used to compare the rental car option to the purchase option

2018 Toyota Land Cruiser Prado
TX
TOYOTA LAND CRUISER PRADO (TX 4WD)
24,200 km | Automatic | No Accident
Baseline/Price: 2,100cc

Car Price (FOB) US$32,216
Estimated Total Price US$34,988

- The price is not fixed. Let's try to negotiate.
- Selected roundtrip shipment
- Nearest port: DXB (Dubai)
- Change destination

1. Check Details
2. Ask Seller
3. Ask Shipping
4. Ask Insurance
5. Contact your trading specialist

I want to negotiate the best price
I want to know the shipping schedule
I want to know about the condition of the car

Specific Information
VIN: TRJ15D-084146
Model Code: TRJ150W
Registration Year/Month: 2018/03
Used TOYOTA LAND CRUISER PRADO 2018 for sale | Stock 1 ... https://www.tradecarview.com/used_car/toyota/land-cruiser/prad...

- **Manufacturer Year / Month:** Confirm with the Seller
- **Km age:** 24,200 km
- **Transmission:** Automatic
- **Engine Capacity (Eng. compartment):** 2,700cc
- **Fuel:** Gasoline/Petrol
- **Body Style:** SUV
- **Body Style:** -
- **Steering:** Right
- **Exterior Color:** Black
- **Interior Color:** Black
- **Drive Type:** 4wheel drive
- **Door:** 5
- **Number of Seats:** 5
- **Dimension:** 4760mm x 1890mm x 1850mm = 16.68 m³
- **Condition:** Used
- **ID:** 5/21SO 191124135615
- **Remarks (Very High Mileage):** -
- **Comment:** Very clean interior
- **Expiry Date:** Dec 23 2019 (JST)

### Options

#### Safety
- Driver Airbag
- Anti-Lock Brakes
- Passenger Airbag
- Alarm

#### Comfort
- Power Steering
- A/C Front
- Remote Keyless Entry
- Navigation System
- A/C Rear
- Cruise Control
- Digital Meter
- Tilt Steering

#### Sound System
- CD Player
- AM/FM Radio
- AM/FM Stereo
- DVD
- CD Changer
- Aftermarket Speaker
- Hard Disc
- Satellite Radio

#### Windows
- Power Windows
- Rear Window Defroster
- Tinted Glass
- Rear Window Wiper

#### Other Features
- Power Door Locks
- Alloy Wheels
- Power Mirrors
- Sunroof
- Third Row Seats
- Power Slide Door

#### Other selling points:
- No Accident history
- Maintenance Records Available
- One Owner
  - New Tires
  - Non-Smoker
  - Fully Loaded
  - Performance Tires
  - Turbo
  - Upgraded Sound System
  - Custom Wheels
  - Reconditioned Car

#### Seat
- Leather Seats
- Power Seats
- Child Seat
- Bucket Seat
Hummingbird IRB payments are made every 6 months 1/2

Hummingbird IRB
c/o NEIRB, 197 1st Avenue, Suite 250
Needham, MA 02494 US
(855) 447-2123
ddennett@hummingbirdirb.com
http://hummingbirdirb.com

BILL TO
Melinda Rostal
EcoHealth Alliance (2)
460 West 34th Street - 17th floor
New York, NY 10001

INVOICE # 1088
DATE 12/16/2015
DUE DATE 12/31/2015
TERMS Net 15

Continuing Review (phase II-IV)

1
1,000.00
1,000.00

Thank you for your business.

PAYMENT
BALANCE DUE

1,000.00
$0.00
Hummingbird IRB payments are made every 6 months

Hummingbird IRB  
c/o NEIRB, 197 1st Avenue, Suite 250  
Needham, MA 02494 US  
(855) 447-2123  
ddennett@hummingbirdirb.com  
http://hummingbirdirb.com

BILL TO  
Emily Hagan  
EcoHealth Alliance  
460 West 34th Street - 17th floor  
New York, NY 10001

INVOICE # 1065  
DATE 06/17/2016  
DUE DATE 07/02/2016  
TERMS Net 15

Initial Review (Phase II-IV)  
New Investigator (Karesh) & Site - Hummingbird IRB #2014-25/Defense Threat Reduction Agency - 2nd installment

1,000.00 1,000.00

Thank you for your business.

PAYMENT 1,000.00

BALANCE DUE $0.00
Ethical Clearance in Tanzania

For application the following is required:

1/ Pay Slip (if it is an Ordinary study / 700 $ if it is a Clinical Trial.)
2/ Cover letter
3/ Application Form - CRERC FORM 2
4/ Full Protocol
5/ Questionnaires / Informed Consent forms (in English and Swahili)
6/ Investigators CVs - CRERC FORM 13

For NIMR application the following is required:  (see next page)

1/ Pay Slip (600 USD if it is an Ordinary study / 2,100 USD if it is a Clinical Trial)
2/ Cover letter
3/ NIMR Application Form
4/ KCMC EC - Approval Certificate. (Approval from international collaborating institution if applicable)
4/ Full Protocol
5/ Investigators CVs - CRERC FORM 13
6/ Letter from RMO
7/ Material Transfer Agreement (if samples will be transferred)
8/ Data Transfer Agreement (if data will be transferred)
9/ Informed Consent forms (in English and Swahili)
10/ Questionnaires (in English and Swahili)

Please make sure to use the following format while preparing the submission to KCMC and NIMR:

1. Abstract
2. Introduction
3. Literature review
4. Problem statement
5. Rationale of the study
6. Broad Objective and specific objectives should clearly be stipulated
7. Methodology which should include 1. Study design, study area, study population, inclusion and exclusion criteria, sample size and sample size techniques, data collection methods and tools, study variables
8. Ethical considerations and limitation of the study
9. Dissemination of the results
10. The budget (and Budget justification) should have 10% - 25% overhead costs
### National Health Ethics Review Committee (NatHREC)
#### Payment Rates as from October 2013

<table>
<thead>
<tr>
<th></th>
<th>TANZANIAN TSHS</th>
<th>INTERNATIONAL USS</th>
<th>TANZANIAN TSHS</th>
<th>INTERNATIONAL USS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance for (Clinical Trial)</td>
<td>100,000.00</td>
<td>100</td>
<td>100,000.00</td>
<td>100</td>
</tr>
<tr>
<td>Clearance for (Clinical Trial) (Ordinary)</td>
<td>300,000.00</td>
<td>250</td>
<td>150,000.00</td>
<td>750</td>
</tr>
<tr>
<td>Renewal of (Clinical Trial)</td>
<td>2,000,000.00</td>
<td>750</td>
<td>1,000,000.00</td>
<td>200</td>
</tr>
<tr>
<td>Renewal of (Clinical Trial) (Ordinary)</td>
<td>100,000.00</td>
<td>100</td>
<td>100,000.00</td>
<td>100</td>
</tr>
<tr>
<td>Expedited Review (Clinical Trial)</td>
<td>600,000.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Expedited Review (Clinical Trial) (Ordinary)</td>
<td>3,000,000.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amendment (Clinical Trial)</td>
<td>200,000.00</td>
<td>150</td>
<td>100,000.00</td>
<td>200</td>
</tr>
<tr>
<td>Amendment (Clinical Trial) (Ordinary)</td>
<td>500,000.00</td>
<td>250</td>
<td>250,000.00</td>
<td>250</td>
</tr>
</tbody>
</table>

- Always indicate the name of Principal Investigators and please attach the Deport Slip to your proposal on submission to the Secretariat National Ethics Review Committee.
The objective of the analysis that led to this presentation was to find a much more easier to understand presentation of the requirements to the prospective applicants.

**GENERAL REQUIREMENTS:** These apply to all applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreigners Affiliated to Local Research and Higher Learning Institutions</th>
<th>Others (Tanzanian, Non Tanzanians, affiliated in a foreign country, affiliated locally, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Detailed curriculum vitae</td>
<td>Required for all involved researchers</td>
<td>Required for all involved researchers</td>
</tr>
<tr>
<td>2 Full research proposal</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>3 Sponsor cover letter</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>4 Support letter from local collaborating institution / contact person</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>5 Recommendation letter for endorsement of the proposed research within the institution</td>
<td>Required</td>
<td>Not applicable</td>
</tr>
<tr>
<td>6 Front-page of passport</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>7 Proof of payment non-refundable application fees</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>8 Application form</td>
<td>Required</td>
<td>Required</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR SPECIFIC SCENARIOS

a) Research related to medical, public health, drugs, clinical trials, and wildlife issues require special clearance from relevant authorities i.e National Institute of Medical Research (NIMR) for the study that involves medical, public health and / or human subject (health); Tanzania Food and Drug Authority for Clinical Trials; and Tanzania Wildlife Research Institute (TAWIRI) for the study that involves wildlife and natural resources conservation.

b) In case of joining a new researcher to an on-going research which has already been granted a research permit, a Principal Investigator shall submit a request of research permit for a new member to COSTECH at least 2 months prior to his/her joining the research team with detailed curriculum vitae, clear justification and roles for an additional staff / researcher to the on-going project.

c) It is anticipated that the PI will remain responsible for the entire lifetime of the project, unless circumstances necessitate a change of PI. In such rare situation the head of hosting research institution shall write to notify COSTECH within 6 months since termination of outgoing PI. This will be done in writing explaining the reason for the changes and suitability of a newly identified PI. The letter requesting for amendment, accompanied by an up to date progress report shall be subjected to approval process before continuing with the research. It is the responsibility of the hosting institution to submit the request for change of PI within specified time.

POST CLEARANCE

a) After the research has been cleared, the PI will be notified by email. All FOREIGNERS who then wishes to undertake research activities in the country under the cleared research project will be required to
c) and three passport size photos.
b) All researchers granted research permit that involve collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA) / Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research project.

c) An Applicant who has been permitted to conduct research in Tanzania is obliged to submit soft and two (2) hard copies (printed) and soft copy of his/her research report / thesis with COSTECH on completion of research.

d) COSTECH will have an access to data and research premises of the permitted research projects.

e) A Principal Investigator (PI) permitted to conduct research in Tanzania is obliged to submit a quarterly/annually report.

f) Persons who have not submitted satisfactory final reports / thesis on previous research work in Tanzania may not be cleared for new projects. Attention will be drawn to the sponsoring institutions and referees on shared responsibility of making sure that researchers sponsored by them observe the foregoing regulations. A breach of the regulations could result in refusal of permits for other researchers sponsored by same institutions or referees.

g) Any patent or intellectual property and royalty emanating from any research approved by the National Research Registration Committee (NRRC) should be owned by the respective research institutions involved.
The United Republic of Tanzania

MINISTRY OF NATURAL RESOURCES AND TOURISM

Function: Wildlife Research [FWRs]

Government of Tanzania

General Description

Research: Wildlife Research. [Note: The text seems to be incomplete or unclear.]

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research: Wildlife Research</td>
<td>1</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Research: Wildlife Research</td>
<td>1</td>
<td>$200</td>
<td>$200</td>
</tr>
</tbody>
</table>

Total: $300

Amount in Words: Three Hundred and Thirty Dollars

First Page

Next Page

Note: The text on the page is not legible or clear due to the quality of the image.
Supplies for Y3 Workshops

Cart

Account: 884930003 EcoHealth Alliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eppendorf Tubes™ 5.0mL with Screw Cap by Eppendorf™ 0030122321</td>
<td>$93.00 / Each</td>
<td>3</td>
<td>$279.00</td>
</tr>
</tbody>
</table>

On Order (3) - Estimated delivery 12/23/2019

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pierce™ 96-Well Microplates by Thermo Scientific™ 15042</td>
<td>$138.40 / Pack of 25</td>
<td>2</td>
<td>$276.80</td>
</tr>
</tbody>
</table>

Ships from manufacturer - Usually Ships in 1 Business Days

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART™ Barrier Specialty Pipette Tips by Thermo Scientific™ 2770</td>
<td>$191.70 / Pack of 960</td>
<td>1</td>
<td>$191.70</td>
</tr>
</tbody>
</table>

In Stock (1) - Estimated delivery 11/29/2019

Order Summary

Subtotal $1,413.60
Shipping and Handling* $105.59
Shipping fuel surcharge $4.45
Shipping charge $101.14
Estimated Tax $0.00

*Extra charges may apply for products that require special services.

*Additional handling charges determined by direct ship manufacturers may apply.

Generate a Web Quo

View All Quotes | What's this? | missing translation for 'faq'
<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Qty</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART™ Barrier Specialty Pipette Tips Catalog number 21-236-85 by Thermo Scientific™ 2279 Tip Style: Ergonomic, Volume (Metric): 1000μL, Compatibility: Thermo Scientific™ Finn...</td>
<td>$227.00 / Pack of 800</td>
<td>1</td>
<td>$227.00</td>
</tr>
<tr>
<td>In Stock (1) - Estimated delivery 11/29/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART™ Non-Filtered Standard Hinged Rack Pipette Tips Catalog number 13-811-159 by Thermo Scientific™ 310105HR Volume (Metric): 1000μL Description: ART Non-Filtered Low Retention, Sterility...</td>
<td>$129.10 / Pack of 768</td>
<td>1</td>
<td>$129.10</td>
</tr>
<tr>
<td>On Order (1) - Estimated delivery 12/05/2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherbrand™ Sure One™ Low Retention Non-Filtered Pipette Tips, 200μL, Standard Length Catalog number 02-707-019 Packaging: Hinged Rack, Sterility: Sterile</td>
<td>$79.00 / Pack of 960</td>
<td>2</td>
<td>$158.00</td>
</tr>
<tr>
<td>On Order (2) - Estimated delivery 01/03/2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td>Qty</td>
<td>Subtotal</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td>Fisherbrand™ Sure One™ Low Retention Non-Filtered Pipette Tips. 10 µL Micro Length</td>
<td>$76.00</td>
<td>2</td>
<td>$152.00</td>
</tr>
<tr>
<td>Catalog number 02-707-011 Packaging: Hinged Rack, Sterility: Sterile</td>
<td>$342.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On Order (2) - Estimated delivery 01/03/2020

Add all items to a list
Open Access Publication Fees

Criteria for Publication

1. The study presents the results of original research.
2. Results reported have not been published elsewhere.
3. Experiments, statistics, and other analyses are performed to a high technical standard and are described in sufficient detail.
4. Conclusions are presented in an appropriate fashion and are supported by the data.
5. The article is presented in an intelligible fashion and is written in standard English.
6. The research meets all applicable standards for the ethics of experimentation and research integrity.
7. The article adheres to appropriate reporting guidelines and community standards for data availability.

PLOS ONE encourages researchers to share early versions of their manuscripts via preprint server, either before or after submission; posting to a preprint server will not preclude consideration of your manuscript.

Peer Review at PLOS ONE

PLOS ONE is a fully peer reviewed journal with a rigorous multi-stage editorial screening and assessment process.

First, we undertake an initial in-house quality check to identify potential issues such as competing interest, compliance with ethical standards for studies involving human and animal subjects, financial disclosures, data availability, and other scientific and policy requirements. Submissions may be returned to authors for changes or clarifications at this stage.

After passing quality control, each manuscript is placed with a member of the Editorial Board who conducts peer review and makes the decision to accept, invite revision, or reject the submitted manuscript. Read the detailed Editorial and Peer Review Process overview.

About

Publication fees

See publishing details for all PLOS journal titles, including ISSN and indexing and archiving information.

PLOS

PLOS is a nonprofit Open Access publisher, innovator and advocacy organization with a mission to advance progress in science and medicine by leading a transformation in research communication.

Contact

Visit the Contact page for details about whom to contact with different queries.

Give Feedback
## Software Fees

### Quotation

<table>
<thead>
<tr>
<th>Quote #</th>
<th>115815</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms</td>
<td>NET 30</td>
</tr>
</tbody>
</table>
| Contact   | Megan Walsh  
walsh@ecohealthalliance.org  
(212) 380-4462 |
| Quote Date| 8/19/2019 |
| Expires   | 8/26/2019 |

**Sales Rep:** Tom Haven  
tom.haven@ecotechnology.com  
p. (800) 342-4222

---

### EcoHealth Alliance

**Megan Walsh**  
460 W 34th St Fl 17  
New York, NY 10001  
UNITED STATES  
(212) 380-4462  
walsh@ecohealthalliance.org

### EcoHealth Alliance

**Accounts Payable**  
460 W 34th St Fl 17  
New York, NY 10001  
UNITED STATES  
(212) 380-4462  
walsh@ecohealthalliance.org

### Adobe subscription renewal

| 25 Adobe Acrobat Pro DC for Teams 12 month subscription renewal | $177.00 | 2019-09-18 | 2020-09-17 |
| 15 Adobe Creative Cloud for Teams 12 month subscription renewal | $370.00 | 2019-09-18 | 2020-09-17 |

Sub Total: $9,975.00  
Shipping and Handling: $0.00  
Tax Rate: (0.08675)  
Total: $9,975.00

---

Please note:

Return policies vary per manufacturer. (Apple and McAfee both have a no returns policy)

Custom configured items/built-to-order items are non-returnable.

Start dates and end dates for renewals may change based on the manufacturer's guidelines, policies, renewal order date, or date of activation.

Price is subject to change based on potential fluctuation of trade tariff regulation.
Dropbox Inc.
333 Brannan Street
San Francisco, CA 94107
United States
billing-support@dropbox.com

Invoice for EcoHealth Alliance

<table>
<thead>
<tr>
<th>TO</th>
<th>DATE</th>
<th>INVOICE ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megan Walsh</td>
<td>February 25, 2019 6:50 AM CMT</td>
<td>SLSWTLNSKNSJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PRICE</th>
<th>DISCOUNT</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropbox Business Advanced Plan (includes 3 licenses) + 60 Additional Licenses + Unlimited API Call Rate Limit + Unlimited Extended Version History (2/25/2019 to 2/25/2020)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropbox Business Advanced Plan (includes 3 licenses)</td>
<td>$500.00</td>
<td>30%</td>
<td>$420.00</td>
</tr>
<tr>
<td>60 Additional Licenses</td>
<td>$12,000.00</td>
<td>30%</td>
<td>$8,400.00</td>
</tr>
<tr>
<td>Unlimited API Call Rate Limit</td>
<td>$0.00</td>
<td>30%</td>
<td>$0.00</td>
</tr>
<tr>
<td>Unlimited Extended Version History</td>
<td>$0.00</td>
<td>30%</td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$8,820.00</strong></td>
</tr>
</tbody>
</table>

All amounts shown are in USD.
Clarivate Analytics

Philadelphia, PA 19130
1500 Spring Garden Street, Suite 400
Philadelphia, PA 19130

To: Megan Walsh, Department Head, EcoHealth Alliance

Re: Your EndNote X9 Upgrade License Quote

Sent by e-mail: 10/16/2018

Thank you for your interest in our products. Please accept this letter (via e-mail) as our quote for Endnote X9.

<table>
<thead>
<tr>
<th>License Type</th>
<th>Total Users</th>
<th>Total Price (excludes state tax, if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endnote X9 Upgrade License</td>
<td>40</td>
<td>US$3,998.00</td>
</tr>
<tr>
<td>(US$99.95 each)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Promotional Pricing Valid 11/16/2018

Purchasing Instructions:
If applicable, send your institution’s Tax-Exempt Certificate for your state’s tax to be excluded from your order.

Contact to receive EndNote.

Premium access to EndNote Web – Free
Training and support - $0.00 – Free
Shipping – Digital Download - $0.00 – Free

You may place your order on a purchase order (terms are Net 30), by check/money order drawn on a U.S. bank or Visa/MasterCard/American Express.

Regards,

Bill Durant
Account Manager
(215) 823-1797
William.Durant@clarivate.com
<table>
<thead>
<tr>
<th>Order #</th>
<th>Terms</th>
<th>88282</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact</td>
<td></td>
<td>Megan Walsh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>walshecohealthalliance.org</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(212) 380-4462</td>
</tr>
<tr>
<td>Invoice Date</td>
<td></td>
<td>4/11/2018</td>
</tr>
<tr>
<td>Due Date</td>
<td></td>
<td>5/11/2018</td>
</tr>
<tr>
<td>Sales Rep</td>
<td></td>
<td>Tom Haven</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:tom.haven@ecotechnology.com">tom.haven@ecotechnology.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>p. (800) 342-4222</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(10) Office 2016 Standard Edition licenses</th>
<th>Per Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microsoft Corporation</td>
</tr>
</tbody>
</table>

Sub Total: $940.00
Shipping and Handling: $0.00
Tax Rate: (0.00000) $0.00
Total: $940.00
Credits/Payments: $0.00
Total Due: $940.00

Shipping Location

| EcoHealth Alliance Megan Walsh 460 W 34th St Fl 17 New York, NY 10001 UNITED STATES (212) 380-4462 | 10 | $940.00 |

Shipping Detail

| 4/10/2018 | Microsoft Corporation 021-10552 |

Tracking Numbers

| 4/10/2018 | Other | VIRTUAL (Unrecognized Number)* |

Please note:

Return policies vary per manufacturer. (Apple and McAfee both have a no returns policy)

Custom configured items/built-to-order items are non-returnable.

Start dates and end dates for renewals may change based on the manufacturer’s guidelines, policies, renewal order date, or date of activation.
Fringe Benefits

**Fringe Benefits Allocation Policy**

Compensated absences, including vacations, sick, holidays and personal days are considered salaries and wages and, as such, are recorded as salaries and wages when used.

No separate claims are made for those costs under fringe benefits costs category. Compensated absences earned, but not used, are not carried over to the next fiscal year. There is a grace period of using the earned compensated absences by September 30.

All employees are covered for Social Security, NYC commuter taxes, payroll transit taxes, Worker’s compensation insurance and unemployment.

Employees working 35 hours or more per week are eligible:

- Health Insurance, including medical, dental and vision;
- Life Insurance;
- 403(B) pension plan (After nine (9) months of employment);
- Short and long term disability.

Employees working more than 20 hours but less than 35 hours per week are eligible for the following fringe benefits:

- Life Insurance;
- Short-Term/long-Term Disability;
- 403(B) pension plan (After nine (9) months of employment).

Fringe Benefits are tracked by employees and charged directly or indirectly in the same manner as employees’ salaries and wages.

Although, the costs principles policy for fringe benefits has not changed, effective fiscal year 2020 starting July 1, 2019, EcoHealth Alliance no longer negotiates a fringe benefits rate with the Department of Defense.

For funding proposals, fiscal year 2019 actual data will be used to budget fringe benefit costs. For billing, invoicing and reporting purposes to federal and non-federal donors the actual benefits will be allocated and requested.
ECOHEALTH ALLIANCE, INC.  
YEAR ENDED JUNE 30, 2019

Schedule of Fringe Benefits

<table>
<thead>
<tr>
<th>Categories</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Wages</td>
<td>$ 4,426,650</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td></td>
</tr>
<tr>
<td>Health Insurance</td>
<td>$ 782,523</td>
</tr>
<tr>
<td>Health Insurance payments in lieu of benefit</td>
<td>$ 11,898</td>
</tr>
<tr>
<td>Vision Care</td>
<td>$ 2,509</td>
</tr>
<tr>
<td>Washington DC Family Leave Ins</td>
<td>$ 218</td>
</tr>
<tr>
<td>Washington Unemployment Insurance</td>
<td>$ 133</td>
</tr>
<tr>
<td>Life Insurance ST/LT Disability/Dental</td>
<td>$121,563</td>
</tr>
<tr>
<td>NYS Unemployment Ins (NYSUI)</td>
<td>$ 9,483</td>
</tr>
<tr>
<td>NYS Disability Insurance</td>
<td>$ 2,276</td>
</tr>
<tr>
<td>Pension Expense</td>
<td>$305,704</td>
</tr>
<tr>
<td>Tuition Reimbursement expense</td>
<td>$ 12,834</td>
</tr>
<tr>
<td>NYS Commuter Tax</td>
<td>$ 14,145</td>
</tr>
<tr>
<td>Payroll Transit Tax - Federal</td>
<td>$12,734</td>
</tr>
<tr>
<td>Payroll Transit Tax New York</td>
<td>$ 5,457</td>
</tr>
<tr>
<td>FSA Fees</td>
<td>$ 32,723</td>
</tr>
<tr>
<td>Social Security Employer Expense</td>
<td>$ 295,392</td>
</tr>
<tr>
<td>Washington DC Unemployment Tax</td>
<td>$ 243</td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>$ 19,173</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 1,629,007</strong></td>
</tr>
</tbody>
</table>

**Fringe Benefits Rate**

% 36.80 B/A
NEGOTIATION AGREEMENT

INSTITUTION: ECOHEALTH ALLIANCE, INC.
460 WEST 34TH ST. 17TH FL.R
NEW YORK, NY 10001-2320

The Indirect Cost rate contained herein is for use on grants, contracts and/or other agreements issued or awarded to the EcoHealth Alliance, Inc. by all Federal Agencies of the United States of America, in accordance with the provisions and cost principles mandated by 2 CFR Part 200. The rate shall be used for forward pricing and billing purposes for the EcoHealth Alliance, Inc. Fiscal Year 2020. This rate agreement supersedes all previous rate agreements/determinations for Fiscal Year 2020.

Section I: RATES - TYPE: PROVISIONAL (PROV)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FROM</th>
<th>TO</th>
<th>RATE</th>
<th>BASE</th>
<th>APPLICABLE TO</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prov.</td>
<td>07/01/19</td>
<td>06/30/20</td>
<td>32.0%</td>
<td>(a)</td>
<td>All</td>
<td>All</td>
</tr>
</tbody>
</table>

(a) Total direct costs excluding capital expenditures (buildings, individual items of equipment: alterations and renovations), the portion of each subaward in excess of $25,000, participant support costs, and flow-through funds.

SECTION II - GENERAL TERMS AND CONDITIONS

A. LIMITATIONS: Use of the rate set forth under Section I is subject to availability of funds and to any other statutory or administrative limitations. The rate is applicable to a given grant or contract or other agreement only to the extent that funds are available. Acceptance of the rate agreed to herein is predicated upon the following conditions: (1) that no costs other than those incurred by the organization were included in this indirect cost pool as finally accepted and that such costs are legal obligations of the organization and allowable under governing cost principles; (2) that the same costs that have been treated as indirect costs are not claimed as direct costs; (3) that similar types of costs have been accorded consistent accounting treatment; and (4) that the information provided by the organization which was used as a basis for acceptance of the rate agreed to herein, and expressly relied upon by the Government in negotiating and accepting the said rate is not subsequently found to be materially incomplete or inaccurate.
B. **ACCOUNTING CHANGES:** The rate contained in Section I of this agreement is based on the accounting system in effect at the time the agreement was negotiated. Changes to the method(s) of accounting for costs, which affect the amount of reimbursement resulting from the use of the rate require the prior written approval of the authorized representative of the cognizant agency for indirect costs. Such changes include but are not limited to changes in the charging of a particular type of cost from indirect to direct. Failure to obtain such approval may result in subsequent cost disallowances.

C. **PROVISIONAL RATES:** The provisional rate contained in this agreement is subject to unilateral amendment by the Government or bilateral amendment by the contracting parties at any time.

D. **USE BY OTHER FEDERAL AGENCIES:** The rate set forth in Section I is negotiated in accordance with and under the authority set forth in 2 CFR Part 200. Accordingly, such rate shall be applied to the extent provided in such regulations to grants, contracts, and other agreements to which 2 CFR Part 200 applies, subject to any limitations in part A of this section. Copies of this document may be provided by either party to other federal agencies to provide such agencies with documentary notice of this agreement and its terms and conditions.

E. **SPECIAL REMARKS:** The Government’s agreement with the rate set forth in Section I is not an acceptance of the EcoHealth Alliance, Inc.’s accounting practices or methodologies. Any reliance by the Government on cost data or methodologies submitted by EcoHealth Alliance, Inc. is on a non-precedence-setting basis and does not imply Government acceptance.

Accepted:

**FOR ECOHEALTH ALLIANCE, INC.:**

[Signature]

**Chief Financial Officer**

**FOR THE U.S. GOVERNMENT:**

[Signature]

**Contracting Officer**

**Date:** 07-17-19

**Date:** 7/17/19

For information concerning this agreement contact:

Sharon Gales
Office of Naval Research
875 North Randolph Street
Arlington, VA 22203-1995

Phone: (703) 696-8559
E-mail: sharon.gales@navy.mil
# APHA 2019 Registration Fees

Meals are not included in registration fees

<table>
<thead>
<tr>
<th>Full Conference Registration</th>
<th>Early-Bird Aug. 8</th>
<th>Advance Sept. 12</th>
<th>Final After Sept. 12</th>
<th>Membership Dues</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member perks!</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Members save up to $100</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>more on registration!</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Member</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company/Consultant Individual</td>
<td>$546</td>
<td>$606</td>
<td>$665</td>
<td>$145</td>
</tr>
<tr>
<td>Agency Individual</td>
<td>$546</td>
<td>$606</td>
<td>$665</td>
<td>$70</td>
</tr>
<tr>
<td>Discounted Regular (salary &lt; $45,000)</td>
<td>$337</td>
<td>$372</td>
<td>$407</td>
<td>$110</td>
</tr>
<tr>
<td>Retired</td>
<td>$337</td>
<td>$372</td>
<td>$407</td>
<td>$100</td>
</tr>
<tr>
<td>Student*</td>
<td>$247</td>
<td>$282</td>
<td>$292</td>
<td>$85</td>
</tr>
<tr>
<td>Early-Career Professional**</td>
<td>$345</td>
<td>$390</td>
<td>$435</td>
<td>$135</td>
</tr>
<tr>
<td>Non-Member</td>
<td>$871</td>
<td>$931</td>
<td>$990</td>
<td></td>
</tr>
<tr>
<td>Non-Member Student</td>
<td>$382</td>
<td>$417</td>
<td>$427</td>
<td></td>
</tr>
<tr>
<td>Guest (Non-Public Health)***</td>
<td>$345</td>
<td>$380</td>
<td>$415</td>
<td></td>
</tr>
</tbody>
</table>
Example of cost of flight costs for domestic conference APHA.

<table>
<thead>
<tr>
<th>Flight Details</th>
<th>Departure Time</th>
<th>Duration</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York to San Diego</td>
<td>9:00 AM - 12:10 PM</td>
<td>6h 10m Nonstop</td>
<td>$639</td>
</tr>
<tr>
<td>New York to San Diego</td>
<td>8:30 AM - 12:01 PM</td>
<td>6h 31m Nonstop</td>
<td>$645</td>
</tr>
<tr>
<td>New York to San Diego</td>
<td>8:05 AM - 11:40 AM</td>
<td>6h 35m Nonstop</td>
<td>$645</td>
</tr>
</tbody>
</table>
ICEID 2020: 14. International Conference on Epidemiology and Infectious Diseases
July 20-21, 2020 in Paris, France
Program Code: 20FR07ICEID

Participation Type | Early Registration Fees | Registration Fees
--- | --- | ---
Non-Student Oral/Poster Presenter Registration | €0.00 | €500
Student Oral/Poster Presenter Registration | €350 | €400
Listener Registration | €250 | €300
Additional Paper Publication | €100 |

All conference materials and services will be delivered digitally to the participant with the online conference management system.

Conference registration includes the following digital materials and services:

- e-certificates [for Authors: Certificate of Attendance and Presentation; for Listeners: Certificate of Attendance; for Chairs: Certificate of Attendance and Appreciation; for Presenters: Certificate of Best Presentation (if conferred based appraisal)]
- e-program
- e-book
- e-name badge
- e-receipt
- e-presentation

Presentation Types:

- **Physical presentation** is an oral conferencing presentation that is made using digital technology including embedded digital elements (texts, tables, graphs, or videos) for PowerPoint sharing.
- **Digital presentation** is a digital conferencing presentation that is made using digital technology including embedded digital elements (texts, tables, graphs, or videos) for PowerPoint sharing.

**Early Bird Registration**

Early Bird registration is valid until 2020-06-19 23:59:59

**Online Credit Card Processing**

Online payment option available for **all** and **delegates**.
Conference participants can make online credit card payments for conference registration fees.
Best departing flights

- **6:25 PM - 7:25 AM**
  - Duration: 7h 0m
  - Nonstop
  - $540

- **5:29 PM - 6:35 AM**
  - Duration: 7h 6m
  - Nonstop
  - $540

- **10:30 PM - 11:20 AM**
  - Duration: 6h 50m
  - Nonstop
  - $1,460

- **5:50 PM - 7:20 AM**
  - Duration: 7h 30m
  - Nonstop
  - $1,480

- **11:55 PM - 1:05 PM**
  - Duration: 7h 10m
  - Nonstop
  - $1,480
Invoice for legal services associated with an O-1 Visa

Nachman Phulwani & Zimovcak
(NPZ) Law Group, P.C
487 Goffie Road
RIDGEWOOD, NJ 07450
(201) 670-0006x109
christoph_jenke@visaserve.com
http://www.visaserve.com

BILL TO
EcoHealth Alliance
460 West 34th Street
17th Floor
New York, NY 10001-2320

ATTORNEY
PARALEGAL

INVOICE #
DATE 12/29/2016
DUE DATE 01/28/2017
TERMS Net 30

O-1 Visa by EcoHealth Alliance for 4,500.00 4,500.00
Pad
FEDEX International Shipping Charge 12/15/2016 142.26 142.26

For your convenience you can pay online at:
https://secure.lawpay.com/pages/npzlawgroup/operating

PAYMENT 4,500.00
BALANCE DUE $142.26

For your convenience you can pay online at:
https://secure.lawpay.com/pages/npzlawgroup/operating
YOUR RESERVATION

Location: YOTEL New York
Nights: 8
From: Aug 01 2020
To: Aug 09 2020
Room: Solo

Rate summary

- YOTEL member
- Book now and save 30%
- Pay now

Guests

- 1 Guest
- Flexible
- Pay later

Price per night

- $129.44
- $133.44
- $190.62

Total:
- Total cabin cost: $1067.50
- Javits tax: $157.45
- NYC sales and occupancy tax: $157.45
- City and state tax: $157.45
- Facility fee: $280.00
- Total taxes and fees: $752.35
- Total (including taxes and fees): $1854.85

We can only hold your selected cabin(s) for twenty minutes in the online booking process, after that we will have to let them go.
<table>
<thead>
<tr>
<th>Region</th>
<th>Change Plastic Bag Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>$1.00</td>
</tr>
<tr>
<td>Region A</td>
<td>$2.00</td>
</tr>
<tr>
<td>Region B</td>
<td>$3.00</td>
</tr>
<tr>
<td>Region C</td>
<td>$4.00</td>
</tr>
<tr>
<td>Region D</td>
<td>$5.00</td>
</tr>
<tr>
<td>Region E</td>
<td>$6.00</td>
</tr>
<tr>
<td>Region F</td>
<td>$7.00</td>
</tr>
<tr>
<td>Region G</td>
<td>$8.00</td>
</tr>
<tr>
<td>Region H</td>
<td>$9.00</td>
</tr>
<tr>
<td>Region I</td>
<td>$10.00</td>
</tr>
<tr>
<td>Region J</td>
<td>$11.00</td>
</tr>
<tr>
<td>Region K</td>
<td>$12.00</td>
</tr>
<tr>
<td>Region L</td>
<td>$13.00</td>
</tr>
<tr>
<td>Region M</td>
<td>$14.00</td>
</tr>
<tr>
<td>Region N</td>
<td>$15.00</td>
</tr>
<tr>
<td>Region O</td>
<td>$16.00</td>
</tr>
<tr>
<td>Region P</td>
<td>$17.00</td>
</tr>
<tr>
<td>Region Q</td>
<td>$18.00</td>
</tr>
<tr>
<td>Region R</td>
<td>$19.00</td>
</tr>
<tr>
<td>Region S</td>
<td>$20.00</td>
</tr>
<tr>
<td>Region T</td>
<td>$21.00</td>
</tr>
<tr>
<td>Region U</td>
<td>$22.00</td>
</tr>
<tr>
<td>Region V</td>
<td>$23.00</td>
</tr>
<tr>
<td>Region W</td>
<td>$24.00</td>
</tr>
<tr>
<td>Region X</td>
<td>$25.00</td>
</tr>
<tr>
<td>Region Y</td>
<td>$26.00</td>
</tr>
<tr>
<td>Region Z</td>
<td>$27.00</td>
</tr>
</tbody>
</table>

Note: The above table reflects the applicable fees for each region. Please check the airline's official website for the most current information.
Attention: Melinda Rostal DVM, MPH
Company: EcoHealth Alliance
Telephone: 1.212.380.4489
Email: rostal@ecohealthalliance.org
Quotation date: 07 October 2019

Quotation in respect of: EcoHealth Alliance

Dear Melinda,

Thank you for the opportunity and for considering the Sheraton Pretoria as a destination for your event.

I'm excited to share with you our proposal.

Attached a detailed quotation to ensure we deliver on all your goals and ideas. I'm looking forward to be working with you and should you require any additional information, please contact me directly.

Please note that no venue or rooms have been blocked off on your behalf and this quote is only valid for 48 hours.

Have an excellent day and I'm looking forward to your response.

Best regards,

Paseka Matjila
Sales and Marketing Coordinator
+27 12 429 9999
Quotation

<table>
<thead>
<tr>
<th>DATE</th>
<th>DAYS</th>
<th>PAX</th>
<th>DESCRIPTION ACCOMODATION REQUIREMENTS</th>
<th>AMOUNT</th>
<th>DEBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21 Nov 19</td>
<td>5</td>
<td>1</td>
<td>Classic King Room / Single occupancy</td>
<td>R1 050.00</td>
<td>R5 259.00</td>
</tr>
<tr>
<td>18-22 Nov 19</td>
<td>4</td>
<td>3</td>
<td>Classic King Room / Single occupancy</td>
<td>R1 050.00</td>
<td>R12 659.00</td>
</tr>
<tr>
<td>19-20 Nov 19</td>
<td>1</td>
<td>2</td>
<td>Classic King Room / Single occupancy (Including Breakfast)</td>
<td>R1 350.00</td>
<td>R2 709.00</td>
</tr>
<tr>
<td>19-21 Nov 19</td>
<td>2</td>
<td>1</td>
<td>Classic King Room / Double occupancy (Including Breakfast)</td>
<td>R1 750.00</td>
<td>R3 509.00</td>
</tr>
<tr>
<td>19-22 Nov 19</td>
<td>3</td>
<td>2</td>
<td>Classic King Room / Single occupancy (Including Breakfast)</td>
<td>R1 350.00</td>
<td>R5 109.00</td>
</tr>
<tr>
<td>20-21 Nov 19</td>
<td>4</td>
<td>2</td>
<td>Classic King Room / Single occupancy (Including Breakfast)</td>
<td>R1 350.00</td>
<td>R5 409.00</td>
</tr>
<tr>
<td>20-21 Nov 19</td>
<td>1</td>
<td>1</td>
<td>Classic King Room / Single occupancy</td>
<td>R1 050.00</td>
<td>R1 059.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
<td>R36 650.00</td>
<td></td>
</tr>
</tbody>
</table>

EVENT REQUIREMENTS

<table>
<thead>
<tr>
<th>DATE</th>
<th>PAX</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
<th>DEBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-Nov-19</td>
<td>50</td>
<td>Full Day Conference Package (including Lunch) Jacaranda 1</td>
<td>R430.00</td>
<td>R34 409.00</td>
</tr>
<tr>
<td>19-Nov-19</td>
<td>6</td>
<td>Buffet Dinner (Magnolia Restaurant)</td>
<td>R330.00</td>
<td>R1 989.00</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>1 x Softdrink</td>
<td>R45.00</td>
<td>R279.00</td>
</tr>
<tr>
<td>19-Nov-19</td>
<td>1</td>
<td>Venue Hire for 12 PAX MOPANI</td>
<td>R3 500.00</td>
<td>R3 509.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Screen</td>
<td>R600.00</td>
<td>R609.00</td>
</tr>
<tr>
<td>29-Nov-19</td>
<td>2</td>
<td>Buffet Dinner (Magnolia Restaurant)</td>
<td>R330.00</td>
<td>R659.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1 x Softdrink</td>
<td>R45.00</td>
<td>R59.00</td>
</tr>
<tr>
<td>21-Nov-19</td>
<td>2</td>
<td>Buffet Dinner (Magnolia Restaurant)</td>
<td>R330.00</td>
<td>R659.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1 x Softdrink</td>
<td>R45.00</td>
<td>R59.00</td>
</tr>
<tr>
<td>22-Nov-19</td>
<td>2</td>
<td>Buffet Dinner (Magnolia Restaurant)</td>
<td>R330.00</td>
<td>R1 329.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1 x Softdrink</td>
<td>R45.00</td>
<td>R1 189.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOTAL</td>
<td>R43 650.00</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The Day Conference Package includes the following:
- Arrival Tea/Coffee/Juice/Pastries
- Mid-morning Tea/Coffee/Juice/Savoury Snacks
- Buffet Lunch in Magnolia - Chef's Choice (12:30 - 14:00)
- 1 x Refreshment included with Lunch
- Afternoon Tea/Coffee/Juice/Biscuits
- Water, nymph, pens, paper
- Parking
- Venue Hire included
- WiFi, Screen, Data Projector, Flipchart and Markers
- PA System & Microphone included
- Rates are inclusive of VAT

TOTAL: R82 250.00

TERMS & CONDITIONS

The Sheraton Pretoria Hotel reserves the right to change its rates without prior notification, to review rates and conditions offered in this quotation in instances where full disclosure on the conference/group booking is not given, example being - name of conference, type of conference, number of overall delegates attending the conference, specific dates, etc.

Venues are subject to availability. The allocation of a suitable venue for the event is to the discretion of the hotel.

Should you require me to reserve a venue on your behalf, kindly forward me written confirmation as soon as possible whereupon a contract and payment details will be sent to you. Please note that we work on a live system and availability changes on a daily basis.

Please note that no venue or rooms have been blocked off on your behalf and this quote is only valid for 48 hours.

CANCELLATION POLICY

Between 60 to 31 days prior to arrival, a change of 50% of the contracted value will be levied.
Between 30 to 15 days prior to arrival, a change of 75% of the contracted value will be levied.
Between 14 to 0 days prior to arrival, a charge of 100% of the contracted value will be levied.

(Full Cancellation Policy will be sent with the contract)

If you have any questions please call: Conferencing: - +27 12 429 0690
December 4th, 2019

To Whom it May Concern,

We estimate that the monthly proportion of the Altice Business bill that will be charged to the CCHF grant for communication and internet access is $333.33.

Sincerely,

Megan Walsh
Human Resources and Office Manager
walsh@ecohealthalliance.org
212-380-4477
# Monthly Summary

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Account Number</td>
<td>52804</td>
</tr>
<tr>
<td>Invoice Date</td>
<td>11/01/19</td>
</tr>
<tr>
<td>Invoice Number</td>
<td>100207378</td>
</tr>
<tr>
<td>Previous Balance</td>
<td>$3,934.66</td>
</tr>
<tr>
<td>Current Charges</td>
<td>$3,931.54</td>
</tr>
<tr>
<td>Total Amount Due</td>
<td>$3,931.54</td>
</tr>
</tbody>
</table>

**Total Amount Due December 1, 2019**

---

**ECOHEALTH ALLIANCE**

**Usage From:** 10/01/19 - 10/31/19

**Important Messages:**

**New!** Call Recording is now available for Business Hosted Voice services. Contact your Account Executive for details.

**New York Sales Tax Breakdown For Our Common Bundles**

- Internet/Voice Bundle
  - 66% of the total charge is attributable to Internet access service and 34% is attributable to voice service. For purposes of calculating the NY sales tax, 24.5% of the voice fee is attributable to interstate/international service.

- Toll Free Bundle or Audio Conference Bundle
  - For purposes of calculating the NY sales tax, 76% of the fee is attributable to interstate/international service.

- Enterprise Voice Bundle
  - For purposes of calculating the NY sales tax, 24.5% of the fee is attributable to interstate/international service.

---

To contact Altice Business, please call (866) 611-3434 or (516) 803-6000, or feel free to e-mail us at Care@AlticeUSA.com

**Enhanced Caller IDI**

Altice Businesses newest enhancement is now included in Altice Business Voice services at no additional cost. Not only do we help take the guesswork out of who's calling you, but now we can help detect robocalls too.

**Visit the Customer Portal**

View your invoice, service inventory, pay online, see Call Detail reports and more. Simply go to portal.alticebusiness.com. New access is available through the Request Access button. In person payments can no longer be accepted.
<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**TAXES AND SURCHARGES:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Recurring</th>
<th>Non-Recurring</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**TOTAL SERVICE CHARGES:**

<table>
<thead>
<tr>
<th>Description</th>
<th>From Date To Date</th>
<th>6/30/2019 Payment</th>
<th>Thank You</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>$3,943.66</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**PAYMENTS, CREDITS AND ADJUSTMENTS:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**USAGE FROM:** 10/01/19 - 10/31/19

**ACCOUNT NUMBER:** 52804

**PAGE 2 OF 2**
Server needs

Ibex Pro GPU

Base Price

- Ubuntu Server 18.04 LTS (64-bit)
  $5,899.00
- 20 Cores Gold 6230 (2.1 up to 3.9 GHz - 40 Threads - Max memory speed 2933 MHz)
  $2,229.00
- 32 GB Quad Channel DDR4 @ 2933 MHz (8x 4GB)
  $2,699.00
- 20 Cores Gold 6230 (2.1 up to 3.9 GHz - 40 Threads - Max memory speed 2933 MHz)
  $2,519.00
- 512 GB Quad Channel DDR4 @ 2933 MHz (8x 64GB)
  $2,029.00
- 32GB 16GB GeForce RTX 2080 Ti with 4652 CUDA Cores
  $1,329.00
- 2 TB NVMe Install on PCI SSD
  $1,329.00
- 16 TB HDD 7200 RPM (8x 2TB)
  $2,759.00
- 10 Gb Dual Port Ethernet Network Adapter (included)
- Limited 1 Year Labor and 3 Year Parts Warranty
- This product is custom built and non-cancellable, non-refundable.

Product total: $20,263.00
New York–New Jersey Information Office

Consumer Price Index Overview Table – New York-New Jersey

Consumer Price Index for All Urban Consumers, all items, in the U.S., Northeast, Middle Atlantic, and a metropolitan area, not seasonally adjusted
(1982-84=100 unless otherwise noted)

<table>
<thead>
<tr>
<th>Area (links provide news releases)</th>
<th>Back data</th>
<th>Annual average 2018</th>
<th>Sep 2019</th>
<th>Oct 2019</th>
<th>Annual average 2017 to 2018</th>
<th>12 months ended</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. City Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast region (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast City Size Class (population)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (greater than 2,500,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B/C (2,500,000 or less)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle Atlantic (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metropolitan area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York-Newark-Jersey City</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent change

Footnotes
(2) The Middle Atlantic division includes New Jersey, New York, and Pennsylvania.

Source: Consumer Price Index
The Consumer Price Index (CPI) measures changes in prices of all goods and services purchased for consumption by urban households.
authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Dear [Name],

I just wanted to confirm that you had received the documentation that I sent to you on December 5.

Kind regards,

Mindy

Melinda Rostal DVM, MPH
Principal Scientist, Vector-Borne Diseases

Rift Valley Fever Virus Project Manager

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4489 (direct)
1.212.380.4465 (fax)


EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On Dec 5, 2019, at 10:50 PM, Dr. Melinda Rostal <rostal@ecohealthalliance.org <mailto:rostal@ecohealthalliance.org> < Caution-mailto:rostal@ecohealthalliance.org >> wrote:

Dear [Name],

Please find attached the documentation requested for our FRBAAL4-6-2-0356 cost proposal. We have responded to the clarification questions and indicated both the document and page number where the full documentation/justification may be viewed. For each partner we have provided two files:

(a) a PDF document of our updated justification using tracked changes according the the current costs for all items based on the documentation
(b) a PDF of the documentation that was requested on the clarification sheet

We have also included an Excel spreadsheet that includes our calculations for all costs and all partners corresponding to our updated justifications and documentation. Necessarily and following the documentation now
provided, various costs have changed since our initial submission in April 2018 and our budget has been updated accordingly. Therefore, our overall budget request has also increased to $4,995,106.37 with annual amounts as follows.

Y1: $999,888.16  
Y2: $997,047.51  
Y3: $999,782.70  
OY1: $998,704.80  
OY2: $999,683.19.

Please email anytime or contact me directly at -1.651.308.5498 with any questions about our documentation, cost proposal, or other details.

Best,

Mindy

<FRBAA14-6-2-0356_Clarifications.xlsx>
<FRBAA14-6-2-0356_Detailed Budget.xlsx>
<01 - FRBAA14-6-2-0356 - EHA Budget Justification.pdf>
<01 - FRBAA14-6-2-0356 - EHA Documentation.pdf>
<02 - FRBAA14-6-2-0356 - KCRI_Budget Justification.pdf>
<02 - FRBAA14-6-2-0356 - KCRI_Documentation.pdf>
<03 - FRBAA14-6-2-0356 - OHCD PMO Documentation.pdf>
<03 - FRBAA14-6-2-0356 - OHCD PMO_Budget Justification.pdf>
<04 - FRBAA14-6-2-0356 - PHE Documentation.pdf>
<04 - FRBAA14-6-2-0356 - PHE_Budget Justification.pdf>
<05 - FRBAA14-6-2-0356 - TAWIRI Budget Justification.pdf>
<05 - FRBAA14-6-2-0356 - TAWIRI Documentation.pdf>
<06 - FRBAA14-6-2-0356 - TVLA Budget Justification.pdf>
<06 - FRBAA14-6-2-0356 - TVLA Documentation.pdf>
<07 - FRBAA14-6-2-0356 - UoG Budget Justification.pdf>
<07 - FRBAA14-6-2-0356 - UoG Documentation.pdf>
<08 - FRBAA14-6-2-0356 - WSU Budget Justification.pdf>
<08 - FRBAA14-6-2-0356 - WSU Documentation.pdf>

Melinda Rostal DVM, MPH  
Senior Research Scientist

PREDICT 2 Surveillance Coordinator for EcoHealth Alliance

Rift Valley Fever Virus Project Manager

EcoHealth Alliance  
460 West 34th Street, Suite 1701  
New York, NY 10001

1.212.380.4489 (direct)  
EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

On Oct 29, 2019, at 10:45 AM, [email]

Good Morning,

We have reviewed your cost proposal and are requesting responses to the attached clarification questions. Please provide responses as soon as possible so that we can move forward with grant award. Please let me know if you have any questions.

V/r

Contractor
Defense Threat Reduction Agency (DTRA)

Office Phone [email]

Caution:[email]

<FRBAA14-6-2-0356_Clarifications.xlsx>
<table>
<thead>
<tr>
<th>Item Description</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>100,000</td>
<td>110,000</td>
<td>120,000</td>
<td>130,000</td>
<td>140,000</td>
<td>600,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>40,000</td>
<td>45,000</td>
<td>50,000</td>
<td>55,000</td>
<td>60,000</td>
<td>260,000</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>60,000</td>
<td>65,000</td>
<td>70,000</td>
<td>75,000</td>
<td>80,000</td>
<td>340,000</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>30,000</td>
<td>35,000</td>
<td>40,000</td>
<td>45,000</td>
<td>50,000</td>
<td>190,000</td>
</tr>
<tr>
<td>Operating Income</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Interest Income</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Net Income</td>
<td>32,000</td>
<td>32,000</td>
<td>32,000</td>
<td>32,000</td>
<td>32,000</td>
<td>160,000</td>
</tr>
<tr>
<td>Dividends</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>27,000</td>
<td>27,000</td>
<td>27,000</td>
<td>27,000</td>
<td>27,000</td>
<td>135,000</td>
</tr>
<tr>
<td>Total</td>
<td>100,000</td>
<td>110,000</td>
<td>120,000</td>
<td>130,000</td>
<td>140,000</td>
<td>600,000</td>
</tr>
</tbody>
</table>
## International Travel Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Transfer Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging &amp; Incidental Expenses Per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flight Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Trip per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Travel Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging &amp; Incidental Expenses Per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flight Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Trip per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Domestic Travel Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Transfer Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging &amp; Incidental Expenses Per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flight Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Trip per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Travel Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging &amp; Incidental Expenses Per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flight Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Trip per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Participant Support Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Transfer Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging &amp; Incidental Expenses Per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flight Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Trip per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Travel Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging &amp; Incidental Expenses Per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flight Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Trip per Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## General Information

- **Research Topics**
  - 4,900.00 | 5,000.00 | 4,844.00 | 4,756.00 | 4,628.00 | 11,028.00
- **Amount of Research Personnel (Full-time Equivalent)**
  - 0.50 | 0.40 | 0.30 | 0.20 | 0.10 | 1.50

## Additional Notes

- **Total**
  - 5,476.00 | 5,476.00 | 5,476.00 | 5,476.00 | 5,476.00 | 27,380.00
<table>
<thead>
<tr>
<th>Item</th>
<th>Number in unit</th>
<th>Price per unit</th>
<th>Number needed</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Label Printer (Supplies, 1000 roll)</td>
<td>15</td>
<td>$133.45</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Label printer ribbon (for 10,000 labels)</td>
<td>15</td>
<td>$8.89</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermometer</td>
<td>15</td>
<td>$1,218.00</td>
<td>2</td>
<td>$2,216.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software ArcGIS</td>
<td>15</td>
<td>$3,600.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies for Graduate Students/Postdoc</td>
<td>15</td>
<td>$500.00</td>
<td>1</td>
<td>$1,000.00</td>
<td>$3,000.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Label printer (Ready 100 dpi)</td>
<td>15</td>
<td>$346.60</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerator</td>
<td>15</td>
<td>$720.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerator Thermometer</td>
<td>15</td>
<td>$103.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multimeter/specimen/reed lamp</td>
<td>15</td>
<td>$174.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ventilator/Scope</td>
<td>15</td>
<td>$347.30</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Chiller</td>
<td>15</td>
<td>$1,418.50</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH Meter</td>
<td>15</td>
<td>$257.52</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESA Watches</td>
<td>15</td>
<td>$3,111.48</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery for vehicles</td>
<td>15</td>
<td>$3,756.60</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup battery for fridges</td>
<td>15</td>
<td>$459.40</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural 3 B manual typewriter</td>
<td>1000</td>
<td>$167.73</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum tubes 2 ml</td>
<td>1000</td>
<td>$311.46</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum tubes 1 ml</td>
<td>1000</td>
<td>$311.46</td>
<td>3</td>
<td>$1,342.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum 1 ml - or smaller?</td>
<td>1000</td>
<td>$36.50</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reuse number (per)</td>
<td>15</td>
<td>$161.23</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zig 1m vascular safety needles</td>
<td>600</td>
<td>$33.90</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/16 butt lock springs</td>
<td>1000</td>
<td>$196.73</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zig 1m needle (for vacuums)</td>
<td>6000</td>
<td>$270.40</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zig 1m needle (for syringes)</td>
<td>1000</td>
<td>$218.35</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luer syringes and needles</td>
<td>1000</td>
<td>$213.23</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thumb forceps to collect toes</td>
<td>15</td>
<td>$9.00</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tapes to put tubes in</td>
<td>660</td>
<td>$43.40</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS pressure control (for rodent work (ft))</td>
<td>240</td>
<td>$470.00</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS pressure control (for rodent work (ml))</td>
<td>240</td>
<td>$470.00</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF vaporizer for rodent work</td>
<td>80</td>
<td>$314.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respirator (breath kit)</td>
<td>15</td>
<td>$436.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300 rpd respiration / expiration</td>
<td>100</td>
<td>$22.40</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White gloves extended cuff XL</td>
<td>500</td>
<td>$322.90</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White gloves extended cuff kit</td>
<td>500</td>
<td>$322.90</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White gloves extended cuff s</td>
<td>500</td>
<td>$322.90</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical gown bucket</td>
<td>200</td>
<td>$138.13</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2x300 rpd respiration / expiration</td>
<td>15</td>
<td>$228.98</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trolley (plus case)</td>
<td>15</td>
<td>$3,831.84</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 ml vials boxes</td>
<td>100</td>
<td>$1,975.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 ml syringes boxes</td>
<td>100</td>
<td>$1,944.60</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 ml syringes boxes</td>
<td>100</td>
<td>$2,629.50</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive for captive owners</td>
<td>15</td>
<td>$7.00</td>
<td>600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive for razor blades for participants</td>
<td>15</td>
<td>$1.70</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94 × 94 case (per)</td>
<td>360</td>
<td>$396.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anesthesia for small mammals</td>
<td>12,185.35</td>
<td>$2,185.43</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrocution</td>
<td>62.00</td>
<td>$82.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab supplies for workshop</td>
<td></td>
<td></td>
<td></td>
<td>$24,981.70</td>
<td>$25,733.80</td>
<td>$1,703.89</td>
<td>$22,208.94</td>
<td>$8,222.53</td>
</tr>
<tr>
<td>Laboratory tubes</td>
<td></td>
<td>V1</td>
<td>V2</td>
<td>V3</td>
<td>V4</td>
<td>V5</td>
<td>TOTAL</td>
<td></td>
</tr>
<tr>
<td>FLD tubes</td>
<td>$53.90</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$278.00</td>
<td></td>
</tr>
<tr>
<td>ELSA tubes</td>
<td>$118.90</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$276.00</td>
<td></td>
</tr>
<tr>
<td>Filter pipettes tip 200UL</td>
<td>$191.70</td>
<td>1</td>
<td></td>
<td></td>
<td>$191.70</td>
<td></td>
<td></td>
<td>$191.70</td>
</tr>
<tr>
<td>Filter pipettes tip 1000UL</td>
<td>$227.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$227.00</td>
<td></td>
</tr>
<tr>
<td>Pipette tips 1000UL</td>
<td>$32.90</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$32.90</td>
<td></td>
</tr>
<tr>
<td>Pipette tips 500UL</td>
<td>$36.80</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$36.80</td>
<td></td>
</tr>
<tr>
<td>Pipette tips 1000UL</td>
<td>$76.80</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$153.60</td>
<td></td>
</tr>
<tr>
<td>Shredding and handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$105.56</td>
<td></td>
</tr>
<tr>
<td>Lab supplies breakdown</td>
<td></td>
<td>$</td>
<td>$</td>
<td>$1,019</td>
<td></td>
<td></td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>OVERALL</td>
<td></td>
<td></td>
<td></td>
<td>$1,519</td>
<td></td>
<td></td>
<td>$1,519</td>
<td></td>
</tr>
<tr>
<td>Instrumentation for justification</td>
<td></td>
<td>Y1</td>
<td>Y2</td>
<td>Y3</td>
<td>Y4</td>
<td>Y5</td>
<td>TOTAL</td>
<td></td>
</tr>
<tr>
<td>Laboratory tubes</td>
<td>$20,026.70</td>
<td>$20,189.77</td>
<td>$20,173.80</td>
<td></td>
<td></td>
<td></td>
<td>$80,423.27</td>
<td></td>
</tr>
<tr>
<td>Prepping</td>
<td>$15,030.00</td>
<td>$15,483.99</td>
<td>$15,475.05</td>
<td>$15,041.57</td>
<td>$15,041.57</td>
<td>$15,041.57</td>
<td>$15,041.57</td>
<td></td>
</tr>
<tr>
<td>Compressors</td>
<td>$8,041.54</td>
<td>$8,088.32</td>
<td>$8,088.32</td>
<td>$8,088.32</td>
<td>$8,088.32</td>
<td>$8,088.32</td>
<td>$8,088.32</td>
<td></td>
</tr>
<tr>
<td>Lab-infrastructure/urge items</td>
<td>$22,72.90</td>
<td>$22,72.90</td>
<td>$22,72.90</td>
<td>$22,72.90</td>
<td>$22,72.90</td>
<td>$22,72.90</td>
<td>$22,72.90</td>
<td></td>
</tr>
<tr>
<td>Passages for Graduate students</td>
<td>$3,500.00</td>
<td>$3,500.00</td>
<td>$3,500.00</td>
<td>$3,500.00</td>
<td>$3,500.00</td>
<td>$3,500.00</td>
<td>$3,500.00</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$81,666.79</td>
<td>$81,913.89</td>
<td>$81,731.89</td>
<td>$81,913.89</td>
<td>$81,913.89</td>
<td>$81,913.89</td>
<td>$81,913.89</td>
<td></td>
</tr>
<tr>
<td>Visa and Permit</td>
<td>Y1</td>
<td>Y2</td>
<td>Y3</td>
<td>Y4</td>
<td>Y5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COSTech application fee</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COSTech clearance fee</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research fees (non-Tanzanian)</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAWIRI Protected Area Permit</td>
<td>2000</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping samples</td>
<td></td>
<td></td>
<td>300</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCMC ethics approval</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - submit protocol</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - application fee</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - Expedited Review</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - Renewal</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIMR - amendment</td>
<td>600</td>
<td>300</td>
<td></td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost per Person</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rostal EHA</td>
<td>4150</td>
<td>4150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Field Coordinator EHA</td>
<td>4150</td>
<td>4150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>JoG</td>
<td>0</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Technician UoG</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>SU</td>
<td>4150</td>
<td>4150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
</tr>
<tr>
<td>Veterinarian WSU</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Field Assistant WSU</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PhD Student WSU</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Masters' students EHA</td>
<td>0</td>
<td>50</td>
<td>100</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Post-doctoral fellow</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 1

<table>
<thead>
<tr>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 3

<table>
<thead>
<tr>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4

<table>
<thead>
<tr>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5

<table>
<thead>
<tr>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 6

<table>
<thead>
<tr>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>V1</td>
<td>V2</td>
<td>V3</td>
<td>V4</td>
<td>V5</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,600.00</strong></td>
<td><strong>2,578.30</strong></td>
<td><strong>2,453.20</strong></td>
<td><strong>2,254.80</strong></td>
<td><strong>2,017.60</strong></td>
<td><strong>12,972.92</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1.</strong> <strong>Monthly Rent</strong></td>
<td>$2,050.00</td>
<td>$2,035.90</td>
<td>$1,990.30</td>
<td>$1,900.20</td>
<td>$1,800.00</td>
<td><strong>9,675.40</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.</strong> <strong>Utility Expenses</strong></td>
<td><strong>500.00</strong></td>
<td><strong>400.00</strong></td>
<td><strong>400.00</strong></td>
<td><strong>400.00</strong></td>
<td><strong>400.00</strong></td>
<td><strong>2,000.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3.</strong> <strong>Insurance</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>250.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4.</strong> <strong>Maintenance and Repair</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>250.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5.</strong> <strong>Furniture and Fixtures</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>250.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.</strong> <strong>Other</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>50.00</strong></td>
<td><strong>250.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7.</strong> <strong>Total</strong></td>
<td>$2,600.00</td>
<td>$2,578.30</td>
<td>$2,453.20</td>
<td>$2,254.80</td>
<td>$2,017.60</td>
<td>$12,972.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Expenses**

<table>
<thead>
<tr>
<th>Item</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,600.00</strong></td>
<td><strong>2,578.30</strong></td>
<td><strong>2,453.20</strong></td>
<td><strong>2,254.80</strong></td>
<td><strong>2,017.60</strong></td>
<td><strong>12,972.92</strong></td>
</tr>
</tbody>
</table>

**Total Income**

<table>
<thead>
<tr>
<th>Item</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,600.00</strong></td>
<td><strong>2,578.30</strong></td>
<td><strong>2,453.20</strong></td>
<td><strong>2,254.80</strong></td>
<td><strong>2,017.60</strong></td>
<td><strong>12,972.92</strong></td>
</tr>
</tbody>
</table>

**Net Income**

<table>
<thead>
<tr>
<th>Item</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,600.00</strong></td>
<td><strong>2,578.30</strong></td>
<td><strong>2,453.20</strong></td>
<td><strong>2,254.80</strong></td>
<td><strong>2,017.60</strong></td>
<td><strong>12,972.92</strong></td>
</tr>
</tbody>
</table>

**Note:** All amounts are in USD.
<table>
<thead>
<tr>
<th>Description</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Q1</th>
<th>Q2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Medical Expenditure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Expenditure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Medical Expenditure</td>
<td>249.84</td>
<td>284.47</td>
<td>285.57</td>
<td>288.64</td>
<td>299.23</td>
<td>1,229.43</td>
</tr>
<tr>
<td>Physician Services</td>
<td>250.92</td>
<td>280.68</td>
<td>273.02</td>
<td>3,036.27</td>
<td>3,583.96</td>
<td>7,626.20</td>
</tr>
<tr>
<td>Other Medical Expenditure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>250.92</td>
<td>280.68</td>
<td>273.02</td>
<td>3,036.27</td>
<td>3,583.96</td>
<td>7,626.20</td>
</tr>
<tr>
<td>Total</td>
<td>250.92</td>
<td>280.68</td>
<td>273.02</td>
<td>3,036.27</td>
<td>3,583.96</td>
<td>7,626.20</td>
</tr>
</tbody>
</table>

- **Total Medical Expenditure**: $7,626.20
- **Total Non-Medical Expenditure**: $0.00

**Total Costs**: $7,626.20
<table>
<thead>
<tr>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>OY1</th>
<th>OY2</th>
<th>Base</th>
<th>% MDA/PPA BPD</th>
<th>% MDA/PPA BPD</th>
<th>% MDA/PPA BPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
</tr>
<tr>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
</tr>
<tr>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
</tr>
<tr>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
</tr>
<tr>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
</tr>
<tr>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
</tr>
<tr>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
</tr>
<tr>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
</tr>
<tr>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
<td>$1.64,657</td>
</tr>
<tr>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
<td>$1.731,647</td>
</tr>
<tr>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
<td>$1.20,187</td>
</tr>
<tr>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
<td>$1.18,187</td>
</tr>
<tr>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
</tr>
<tr>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
<td>$1.08,187</td>
</tr>
<tr>
<td>OTRQA Questions</td>
<td>EzCooHealth Responses</td>
<td>Document and Page number</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Please provide documentation to support the proposed salaries [key personnel and other personnel]</td>
<td>Please see attached documentation of the salaries of current staff as well as that of the positions created by this grant.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Please justify the 5% increase, per year, for key personnel</td>
<td>All salaries for key personnel are increased annually by 5% due to the exceptionally high cost of living increases in New York City where we are headquartered. EzCooHealth bases this calculation on the Consumer Price Index plus an annual rent increase.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 For the 4x4-wheel drive, specifically:</td>
<td>We require a 4x4-wheel drive land cruiser made for driving off roads (cars in Tanzania are very poorly maintained) for passengers (drivers/technicians, field coordinator, vet, nurse, PhD student, TAWIRI wildlife team member, plus equipment), A 5-person land cruiser is available for rent from the Car rental company (very few vehicles are available from locals). The cost is $5,112.77 per month (see documentation attached). We will need a vehicle daily for field work, visiting the communities prior to the start and at the end of the work for 168 days. Thus, the cost for three years is 6 people = $31,358.61 for 2 vehicles = $62,717.22. Additionally, we will need a vehicle to move between communities, meet with collaborators, and prepare for workshops during Years 3 and 4. The cost is $3,358.61 for the cost of the rental vehicle. Finally, one is not permitted to drive the rental vehicle into the national parks, which would mean our team would not be able to access any of the three environmental distance levels. Thus, in addition to the cost of the vehicle, we will need to purchase two vehicles (other than the one we rent). The only way is access for our study areas is to drive. For each sampling trip in years 1 and 2 we will need to bring supplies for research, livestock, and human sampling as well as a dry shelve for the sampling. Additionally, the water sampling will take three days per site, whereas the human and livestock sampling will only take one day. Thus, the team can increase their efficiency by having the robust sampling team in a separate vehicle from the human sampling team. Additionally, when the Phd joins the team in the field, they will need additional seating, which will be provided by two vehicles. At the end of the project, the vehicles will be transferred for use on other conservation-related research projects that our collaborators at Conservation Africa or Deem are working on.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 2, 3, FRAA14-6-2-0356 - EHA Budget Justification Pg 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Please provide a breakdown of the proposed materials and equipment, to include quantities and unit prices. Please provide documentation (photos, screen shots, links, etc.) for cost of the proposed items.</td>
<td>A detailed breakdown is provided in the FRAA14-6-2-0356 Detailed Budget and documentation of all items is provided in the EHA Documentation file.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 2, FRAA14-6-2-0356 - EHA Detailed Budget, Taba: Prime Budget, Elia Travel budget, EHA Materials and supplies and Visa and Permits.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Please provide any agreements with or submissions to either DEWA or DEESA. Please also explain how the rates in these documents are utilized in the proposed calculations.</td>
<td>We have provided our calculated indirect rate in the documentation and applied this to all modified direct costs.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 6, 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Documentation to justify the permit needed to enter Tanzania</td>
<td>The cost of non-Tanzanians obtaining research permits to conduct research in Tanzania includes: A $20 research permit ($500 and up to $300). Then there is the additional permit fee, which is $500 per person ($1,800 for the research for in the and 10 and 12-month period per permitter area fee. The documentation is provided.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 6, 7, FRAA14-6-2-0356 - EHA Budget Justification Pg 6, 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 What does the misc. travel cost entail</td>
<td>The misc. travel costs are requested to cover ground transportation round trip from the airport or train station to the site location and to/from the hotel at the meeting location. These are estimated at $121 per per person.</td>
<td>FRAA14-6-2-0356 - EHA Budget Justification Pg 7, 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Please explain how you come up with the cost associated with the international and domestic conferences</td>
<td>The cost estimates are based on attending the APME Conference, which for 2019 was held in San Diego, CA. Therefore, the estimates are based on per-people $713 for lodging and $12 for meals and incidentals per day (a total of $420 and conference registration fees of $300). International travel is based on attending the International Conference on Veterinary Epidemiology and Animal Health in Porto, France. Therefore, the estimates are based on per-people $393 for lodging and $160 for meals and incidentals for a total of $550 and conference registration fees of $450 (Euro), or $550.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 9, 10, FRAA14-6-2-0356 - EHA Budget Justification Pg 2, 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Please provide documentation to justify the conference space, amenities and printing documents for stakeholders meeting in November 2019 in Port Moresby South Africa for a similar OTTA project.</td>
<td>We provided a quote from the Sheraton for facilities for our stakeholders meeting in November 2019 in Port Moresby South Africa for a similar OTTA project.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 78, 80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Please provide documentation to justify the rental of a conference facility for the COHERES Symposium in November 2019 in Port Moresby South Africa for a similar OTTA project.</td>
<td>We provided a quote from the Sheraton for facilities for our stakeholders meeting in November 2019 in Port Moresby South Africa for a similar OTTA project.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 78, 80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Please provide documentation for cost of recruitment of the Tanzanian post doctoral fellow in FY12</td>
<td>We provided a quote from the Sheraton for facilities for our stakeholders meeting in November 2019 in Port Moresby South Africa for a similar OTTA project.</td>
<td>FRAA14-6-2-0356 - EHA Documentation Pg 78, 80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FRAA14-6-2-0356 - EHA Documentation**
<table>
<thead>
<tr>
<th>DTRA Questions</th>
<th>KCRI Responses</th>
<th>Document and Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Please provide documentation to support the proposed salaries (key personnel and other personnel)</td>
<td>We have provided the requested documentation in the documentation and updated justification files.</td>
</tr>
<tr>
<td>2</td>
<td>Please break down GDCs and provided documentation to justify any cost</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>For all travel proposed whether domestic and international, please provide (screenshots or links) the departure and arrival locations, number of trips, purpose of each trip, length of each trip, number of travelers, etc.</td>
<td>Travel costs include a stipend of $35 per day (non-governmental rate) for 100 days in each of Y1 and Y2 for the original survey and 351 days in Y1 for the incidence study for the person(s) while they are working in the field.</td>
</tr>
<tr>
<td>4</td>
<td>For all travel proposed (domestic and international), please provide a breakdown of the travel costs (airfare, ground transportation, lodging, per diem, etc.).</td>
<td>Please see above explanation of travel costs</td>
</tr>
<tr>
<td>O&amp;M Questions</td>
<td>OSU Health Response</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>For all travel proposed: whether domestic or international, please provide travel itinerary, departure and arrival locations, number of trips, estimated total trip cost, length of stay, number of travelers, etc.</td>
<td>Dr. Andrew Smith, OSU, will attend project meetings held in Turin and other key meetings to discuss the project. The total cost per trip is estimated at $400 per trip, and the total expenses of $800 per trip are government-supported.</td>
<td>OSU-PRBA43-8-0-0993 - OSU Documentation Pg. 1</td>
</tr>
<tr>
<td>For all travel proposed (domestic and international), please provide a breakdown of travel costs (airfare, ground transportation, lodging, per diem, etc.)</td>
<td>Please see above explanation of travel costs. For documentation of the government costs, please see the OSU documentation.</td>
<td>OSU-PRBA43-8-0-0993 - OSU Documentation Pg. 1</td>
</tr>
<tr>
<td>DTRA Questions</td>
<td>Public Health Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1. Please provide documentation to support the</td>
<td>Please see the attached documentation of the salaries of current staff at PHIL.</td>
<td>04. FRBAAS14-6-2-0356 - PHIL Documentation pg 2</td>
</tr>
<tr>
<td>proposed salaries (key personnel and other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>personnel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Please break down ODCs and provide documentation</td>
<td>Please see the documentation file for the breakdown of ODCs (Items 2 and 3) and</td>
<td>04. FRBAAS14-6-2-0356 - PHIL Documentation pg 3</td>
</tr>
<tr>
<td>to justify any cost</td>
<td>accompanying documentation of international travel (Item 3). This documentation includes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>an explanation of international travel required, the cost per CNT virus neutralisation test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(under materials and supplies) and a quote for shipment of samples from Tuxania to the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UK (under package of samples), and an estimate for inflation in costs, as the activity is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>scheduled for four years from now (OVT).</td>
<td></td>
</tr>
<tr>
<td>3. Please provide a breakdown of the proposed</td>
<td>Please see the documentation file outlining the agreed upon total unit cost per test under</td>
<td>04. FRBAAS14-6-2-0356 - PHIL Documentation pg 3</td>
</tr>
<tr>
<td>materials and equipment, to include quantities and</td>
<td>materials and supplies in Item 2.</td>
<td></td>
</tr>
<tr>
<td>unit prices. Please provide documentation (quotes,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>screenshots, links, etc.) to support the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>proposed prices.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Please provide any agreements with or</td>
<td>Please see the documentation file, Item 4 (current rate agreement) and Item 5 (explanation</td>
<td>04. FRBAAS14-6-2-0356 - PHIL Documentation pg 6</td>
</tr>
<tr>
<td>submissions to either DOCDA or DOAA. Please also</td>
<td>of how the rate is used for the federally presented rate).</td>
<td></td>
</tr>
<tr>
<td>explain how the rates in these documents are used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in the proposal calculations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Please provide documentation to justify facility</td>
<td>Please see the documentation file, Item 6, which describes both the overall cost for</td>
<td>04. FRBAAS14-6-2-0356 - PHIL Documentation pg 10</td>
</tr>
<tr>
<td>cost.</td>
<td>utilizing the BSL 4 laboratory for 2 weeks, as well as provides Table 1, which includes</td>
<td>11.</td>
</tr>
<tr>
<td></td>
<td>the cost breakdown for the facility.</td>
<td></td>
</tr>
<tr>
<td>DTNA Questions</td>
<td>TAMRI Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Please provide documentation to support the proposal salaries (key personnel and other personnel)</td>
<td>Please see the attached documentation of the salaries of current staff at TAMRI.</td>
<td>TAMRI Documentation Pg.1</td>
</tr>
<tr>
<td>SNo</td>
<td>DTNA Questions</td>
<td>TILA Responses</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Please provide documentation to support the proposed salaries (base personnel and cyber personnel).</td>
<td>Please see the attached documentation of the salaries of current staff at DTNA.</td>
</tr>
<tr>
<td>2</td>
<td>For all travel (domestic and international), please provide a breakdown of the travel costs (airfare, ground transportation, lodging, per diem, etc).</td>
<td>We have provided a breakdown of all travel expenses in the updated budget justification.</td>
</tr>
<tr>
<td>3</td>
<td>Please provide documentation of equipment (computers, printers, phones, etc.).</td>
<td>We have provided documentation of the equipment in the updated budget justification.</td>
</tr>
<tr>
<td>DfMA Questions</td>
<td>Udf Responses</td>
<td>Document and Page number</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>1. Please provide documentation to support the proposed salaries (step performed and other personnel).</td>
<td>Please see the attached documentation of the salaries of current staff at Udc.</td>
<td>07 - PRMAA4-8-2-0504 - Udc: Documentation Pg 2</td>
</tr>
<tr>
<td>2. For all travel proposed whether domestic or international, please provide documentation for flight prices between Glasgow and Dar es Salaam, Glasgow and Kilimanjaro, and Kilimanjaro and Dar es Salaam are provided in the documentation attached. The breakdown of all costs associated with travel is provided in the updated justification.</td>
<td>The breakdown of all costs associated with travel is provided in the updated justification.</td>
<td>07 - PRMAA14-8-2-0306 - Udc: Document Pg 1, 07 - PRMAA14-8-2-0304 - Udc: Budget Justification Pg 2-3</td>
</tr>
<tr>
<td>3. For all travel proposed (domestic and international), please provide a breakdown of the travel costs (airfare, ground transportation, lodging, car show, etc.).</td>
<td>The breakdown of all costs associated with travel is provided in the updated justification.</td>
<td>07 - PRMAA14-8-2-0306 - Udc: Document Pg 1, 07 - PRMAA14-8-2-0304 - Udc: Budget Justification Pg 2-3</td>
</tr>
<tr>
<td>4. Please provide documentation to support UGG (screencasts links, quizzes, etc.).</td>
<td>Documentation is attached to confirm the costs of direct costs including shipping and lab expenses including travel costs. A full explanation of costs is outlined in the updated justification.</td>
<td>07 - PRMAA14-8-2-0306 - Udc: Document Pg 1, 07 - PRMAA14-8-2-0304 - Udc: Budget Justification Pg 2-3</td>
</tr>
<tr>
<td>5. Please break down participant costs.</td>
<td>We request $5,000 USD for travel reimbursement costs for participants at a cost of $500 USD (ground transportation and one 2 days) for 10 participants, as well added 3 trips to all. The costs for the total number are covered by travel costs involved.</td>
<td>07 - PRMAA14-8-2-0306 - Udc: Budget Justification Pg 2-3</td>
</tr>
<tr>
<td>DTRA Questions</td>
<td>WSU Responses</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Please provide documentation to support the proposed salaries (base personnel and other personnel)</td>
<td>Please see the attached documentation of the salaries of current staff at WSU. We have also documented a draft employment contract for the new hires to be hired at the standard rate for GMT/WSU. We have included a list for annual insurance for 7 employees to document the annual cost of benefits. We have also included a current salary statement from GMT (including salaries for 2 individuals) to document the cost of the social security fee (WORK), which is 12% of the gross salary.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 2-24</td>
<td></td>
</tr>
<tr>
<td>Please provide documentation to support OGeE (screenshots, links, quotes, etc.)</td>
<td>We have provided the documentation of all OGeE. This includes permits, insurance and medical waste management (individually described below) as well as all of the project’s costs for office supplies. Please note that not all supplies are listed as shown in Tanzania do not have websites that indicate the prices and so we were not able to provide screen shots; however, we did provide a list of common office supplies and as an example of a receipt for a recent purchase. An estimate for the translation was also provided.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 3-30; 08 - FRBAAI-4-2-0356 - WSU Budget Justification Pg 6-5</td>
<td></td>
</tr>
<tr>
<td>Please provide any current agreements with or submissions to either ODM or OCAA. Please also explain how the rates in these documents are utilized in the proposal calculations</td>
<td>WSU has a historically negotiated rate for overhead. The documentation attached includes a rate for work that takes place off-campus (as our project does).</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 9-44</td>
<td></td>
</tr>
<tr>
<td>Need documentation to justify the permit needed to enter Tanzania</td>
<td>Documentation provided for the following costs: all non-Tanzanians must pay a $500 application fee for a COO/CR permit (the fee is only $50 for Tanzanians), once the COO/CR application is approved, each non-Tanzanian researcher must pay a $1000 fee to conduct research in Tanzania. In figures 1 and 2 there is an additional fee for working in a critical conservation area (Serengeti) of $1000.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 15-18; 08 - FRBAAI-4-2-0356 - WSU Budget Justification Pg 15-18</td>
<td></td>
</tr>
<tr>
<td>Need documentation to justify the use of medical waste management (screenshots, links, quotes)</td>
<td>Documentation provided for the cost of medical waste incineration. This will be necessary to handle the biohazardous waste that is produced during the field sampling.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 25</td>
<td></td>
</tr>
<tr>
<td>Please provide documentation to support equipment insurance (screenshots, links, quotes, etc.)</td>
<td>The only equipment that is required is the pump and the water vehicle. As in the US there is a lower cost if the vehicle will be used for fewer kilometers in a year (5000 in the US, 3000 documented in picture 1); if the water vehicle has been used for fewer kilometers in a year (6000 in the US, 3000 documented in picture 1)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 22-22</td>
<td></td>
</tr>
<tr>
<td>For all travel (domestic and international), please provide (screenshots or links) the departure and arrival locations, number of trips, purpose of each trip, length of each trip, number of travelers, etc.</td>
<td>Screen shots for the cost of a flight was documented for all proposed travel between London and Arusha (RSR, Arusha and Dar es Salaam, Arusha and Serengeti (Serengeti) and London and a Tanzanian city. The number, purpose and length of each trip and the number of travelers is specified in the budget justification.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>08 - FRBAAI-4-2-0356 - WSU Documentation Pg 45-49; 08 - FRBAAI-4-2-0356 - Detailed Budget Tab WSU - 08 - FRBAAI-4-2-0356 - WSU Budget Justification Pg 3-3</td>
<td></td>
</tr>
<tr>
<td>For all travel (domestic and international), please provide a breakdown of the travel costs (airfare, ground transportation, lodging, per diem, etc.)</td>
<td>The breakdown of all costs associated with travel is provided in the justification.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>08 - FRBAAI-4-2-0356 - WSU Budget Justification Pg 7-7; 08 - FRBAAI-4-2-0356 - Detailed Budget Tab WSU</td>
<td></td>
</tr>
</tbody>
</table>
For the best experience, open this PDF portfolio in Acrobat X or Adobe Reader X, or later.

Get Adobe Reader Now!
AWARD/CONTRACT

2. CONTRACT PROJ. MENT. NO. HDTRA1-20100-18

3. EFFECTIVE DATE 30 Jun 2020

4. REQUISITION/PURCHASE REQUEST/PROJECT NO.

5. ISSUED BY CODE HDTRA1
DEFENSE THREAT REDUCTION AGENCY-VALAC
7500 JOHN H. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22045-6201

6. ADMINISTERED BY CODE NG005
OFFICE OF NAVAL RESEARCH-BOSTON
995 SUMMER STREET, ROOM 427
BOSTON MA 02115-2103

7. NAME AND ADDRESS OF CONTRACTOR
BICOHEALTH ALLIANCE INC.
MR. ALBERTO MIRABITA
495 WEST 4TH ST, 3223 FL.
NEW YORK NY 10012

8. DELIVERY [ ] FOB ORIGIN [ ] OTHER (See below)

9. DISCOUNT FOR PROMPT PAYMENT

10. SUBMIT INVOICES TO THE ADDRESS SHOWN
[ ] AS SHOWN [ ] AS SHOWN, AS INDICATED

CODE 3WR3 FACILITY CODE HDTRA1
11. SHIP TO/SHIP FOR CODE HDTRA1
DEFENSE THREAT REDUCTION AGENCY-VALAC
7500 JOHN H. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22045-6201

12. PAYMENT WILL BE MADE BY CODE HDTRA1
OFAS/COLUMBUS CENTER
OFAS/CONTRACT ENTITLEMENT OPERATIONS
P.O. BOX 12057
COLUMBUS OH 43212-0517

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
[ ] 10 U.S.C. 2304(c)(1) [ ] 41 U.S.C. 253(c)(1)

14. ACCOUNTING AND APPROPRIATION DATA
See Schedule

15A. ITEM NO. 15B. SUPPLIES SERVICES 15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT

SEE SCHEDULE

16. TOTAL AMOUNT OF CONTRACT $4,995,106.37

19A. NAME AND TITLE OF Signer (Type or print)

19B. NAME OF CONTRACTOR

19C. DATE SIGNED 30-Jun-2020

20A. NAME OF CONTRACTING OFFICER

20B. DATE SIGNED

20C. DATE SIGNED

AUTHORIZED FOR LOCAL REPRODUCTION
Prescribed by DAAA (461-CP-2) 55-2-482

STANDARD FORM (REV. 5/2011)

Prepared by DAC-55-50152/482

Attn: OPM (Pentagon) 601 D Street, S.W.
Washington, D.C. 20410-6010

Attn: Ministry of Defense
Washington, D.C. 20410-6010

Attn: ONR-Boston 995 Summer Street
Room 427
Boston, MA 02115-2103

Attn: OFAS-Columbus 995 Summer Street
Room 427
Columbus, OH 43212-0517
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td></td>
<td>1</td>
<td>Lot</td>
<td>$4,995,106.37</td>
<td>$4,995,106.37</td>
</tr>
</tbody>
</table>

Year 1: FRBAA14-6-2-0356

Crimean-Congo Hemorrhagic Fever: Reducing an Emerging Health Threat in Tanzania. In accordance with the following attachments: SOW at attachment 1 dated 3/18/2018 and DTRA Terms and Conditions for Grant Awards dated 8/1/2018 at attachment 2

FOB: Destination

U009

---

NET AMT $4,995,106.37

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Funding to support CLIN 001

FFP

---

NET AMT $0.00

ACRN AA

CIN: HDTRA10345980001

$4,848,483.14
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000102</td>
<td>Funding to support CLIN 001 FFP</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

| NET AMT | $0.00 |

ACRN AC
CIN: HDTRA10345980002

$146,623.23
Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

252.601-9002  GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-11-16-
   BRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate,
   Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CFDA #: 12.351

c. Authority: 10 U.S.C 2358 as amended
INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>Destination</td>
<td>N/A</td>
<td>Destination</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 01 JUL-2020 TO 30 JUN-2025</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/CT-1 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 644315 097 0134 000 N 20202022 D 3400 0901515BR_KD_BP_TB_20 2022_0134_3400_SCNCT DTRA 410
AMOUNT: $4,848,483.14

AC: 644315 097 0134 000 N 20182020 D 34HQ 0901515BR_KD_BP_OT_18 1820_0134_34HQ_SCNCT DTRA 410
AMOUNT: $146,623.23

<table>
<thead>
<tr>
<th>ACRN</th>
<th>CLIN/SLIN</th>
<th>CIN</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>090101</td>
<td>HDTRA10345980001</td>
<td>$4,848,483.14</td>
</tr>
<tr>
<td>AC</td>
<td>090102</td>
<td>HDTRA10345980002</td>
<td>$146,623.23</td>
</tr>
</tbody>
</table>

CLAUSES INCORPORATED BY FULL TEXT

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

d. **Grant Specialist:**
   - Name: [redacted]
   - Defense Threat Reduction Agency/BE-BCR
   - 8725 John J. Kingman Road, MS 6201
   - Fort Belvoir, VA 22060-6201
   - Telephone: [redacted]
   - Email address: [redacted]

e. **Grantee Business Office:**
   - Name: Alexia Churma
   - Title: Authorized Organizational Rep
   - Phone: (212) 380-4460
   - E-mail: churma@ecohealthalliance.org

f. **Grantee Principal Investigator (PI):**
   - Name: Melinda Rostal
   - Title: Senior Research Scientist
   - Phone: (212) 380-4460
   - E-mail: rostal@ecohealthalliance.org

252.601-9001 GRANTS OFFICER'S REPRESENTATIVE (GOR) (MAY 2009)

g. Grants Officer's Representative (GOR) for this Grant is:
   - Name: [redacted]
   - Defense Threat Reduction Agency/
   - 8725 John J. Kingman Road, MS 6201
b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
FUNDING PROFILE:
The amount of $4,995,106.37 is obligated for work to be performed during
the period beginning with grant, July 1, 2020, award and continuing through
June 30, 2025.

The Government’s liability is limited to the amount obligated

<table>
<thead>
<tr>
<th>Invoice Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>17</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>21</td>
</tr>
<tr>
<td>22</td>
</tr>
<tr>
<td>23</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>26</td>
</tr>
<tr>
<td>27</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>29</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>32</td>
</tr>
<tr>
<td>33</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
<td>36</td>
</tr>
<tr>
<td>37</td>
</tr>
<tr>
<td>38</td>
</tr>
<tr>
<td>39</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>41</td>
</tr>
<tr>
<td>42</td>
</tr>
<tr>
<td>43</td>
</tr>
<tr>
<td>44</td>
</tr>
<tr>
<td>45</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>46</td>
</tr>
<tr>
<td>47</td>
</tr>
<tr>
<td>48</td>
</tr>
<tr>
<td>49</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>51</td>
</tr>
<tr>
<td>52</td>
</tr>
<tr>
<td>53</td>
</tr>
<tr>
<td>54</td>
</tr>
<tr>
<td>55</td>
</tr>
<tr>
<td>56</td>
</tr>
<tr>
<td>57</td>
</tr>
<tr>
<td>58</td>
</tr>
<tr>
<td>59</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>61</td>
</tr>
</tbody>
</table>
Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 1</td>
<td>SOW</td>
<td>6</td>
<td>18-MAR-2018</td>
</tr>
<tr>
<td>Attachment 2</td>
<td>Terms and Conditions</td>
<td>14</td>
<td>01-AUG-2018</td>
</tr>
</tbody>
</table>
All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Good Afternoon,

We would prefer Monthly invoicing if that is alright.

Cheers

Joe

On Thu, Jun 11, 2020 at 12:26 PM Joe wrote:

Good Afternoon,

Just a quick question, is there a particular way you want the invoice set? Monthly, quarterly, etc?

-----Original Message-----
From: Joe Riccardi <riccardi@ecohealthalliance.org>
Cc: Aleksei Chmura <chmura@ecohealthalliance.org>
Subject: [Non-DoD Source] Re: Available for Quick Call?

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

Good Afternoon

I just wanted to follow up from our phone call the other week to check in on the status of the CCHF award and if you needed anything more from us?

Cheers

Joe
On Tue, May 26, 2020 at 11:48 AM Joe Riccardi <riccardi@ecohealthalliance.org>
<Caution-mailto:riccardi@ecohealthalliance.org> <Caution-Caution-mailto:riccardi@ecohealthalliance.org> <Caution-mailto:riccardi@ecohealthalliance.org> wrote:

Hi (8)

Melinda had reached over the weekend asking me to give you a quick call about our CCHF award.

Please let me know when is best for you? Or if easier my number is (8)

Cheers

Joe

--

Joseph Riccardi
Manager of Budget and Finance

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4494 (direct)

(8) (mobile)

1.212.380.4465 (fax)

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation.

--

Joseph Riccardi
Manager of Budget and Finance

EcoHealth Alliance
520 Eighth Avenue
Suite 1201
New York, NY 10018

1.212.380.4494 (direct)

(8) (mobile)

1.212.380.4465 (fax)
EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation.

Joseph Riccardi
Manager of Budget and Finance
EcoHealth Alliance
520 Eighth Avenue
Suite 1201
New York, NY 10018
1.212.380.4494 (direct)
1.212.380.4465 (fax)
EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation.
## Amendment of Solicitation/Modification of Contract

### 2. Amendment/MODIFICATION NO.
- PM004

### 3. EFFECTIVE DATE
- 01-Feb-2013

### 4. PROCUREMENT/PURCHASE REQ. NO.
- CTR64

### 6. ISSUED BY
- Defense Threat Reduction Agency

### 7. ADMINISTERED BY
- DTTRA1

### 9A. AMENDMENT OF SOLICITATION NO.
- 10A. MOD. OF CONTRACT/ORDER NO.

### 10B. DATED (SEE ITEM 11)
- 01-Feb-2012

### 8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip (Code))
- Global War Forecasting, Inc.
  - 801 Old South Commerce Court
  - Resolution St.
  - San Francisco, CA 94104

### 11. This item only applies to amendments of solicitation.
- [ ] The above-numbered solicitation is amended as set forth in Item 14. The hour, day, and date specified for receipt of offer or enter the extension, [ ] is extended, [ ] is not extended.

### 12. Accounting and Appropriation Data (if required)
- **See Schedule**

### 13. This item applies only to modifications of contract/Orders.
- **It modifies the contract/order NO. as described in Item 14.

### A. This change order is issued pursuant to:
- (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

### B. The above-numbered contract or order is modified to reflect the administrative changes (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.101(b).

### C. This supplemental agreement is entered into pursuant to authority of:
- [ ] D. OTHER (Specify type of modification and authority)
- FAR 52.217-9 Option to Extend the Term of the Contract

### E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return number copies to the issuing office.

### 14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCT section headings, including solicitation/contract subject matter where feasible)
- Modification Control Number: 03(4)
- CTR6296: The purpose of this modification is to:
  1. Section B: Exercise Option Year 1. CLINs 0005, 0006, 0007 and 0008.
  2. Section C: Revise SHIP TO ADDRESS only.
  3. Section G: The funded amount of the contract was increased by $389,439.84 from $1,148,573.96 to $1,538,073.80.
  4. Section G: Revise local clause 252.201-8002 CONTRACTING OFFICER REPRESENTATIVE (MAY 2007).

**SEE SF 30 BLOCK 14 CONTINUATION PAGE**

---

### 15A. NAME AND TITLE OF SIGNER (Type or print)
- [Signature of person authorized to sign]

### 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
- [Signature of Contracting Officer]

### 16B. UNITED STATES OF AMERICA
- [Signature of Contracting Officer]

### 16C. DATED SIGNED
- 20-Dec-2012

---

**EXCEPTION TO SF 30**

**APPROVED BY ORM 11-84**

**STANDARD FORM 30 (Rev. 10-83)**

Prescribed by GSA

FAR (48 CFR) 52.243
SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $839,499.84 from $1,148,573.96 to $1,988,073.80.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0005

The option status has changed from Option to Option Exercised.

CLIN 0006

The option status has changed from Option to Option Exercised.

CLIN 0007

The option status has changed from Option to Option Exercised.

CLIN 0008

The option status has changed from Option to Option Exercised.

SECTION F - DELIVERIES OR PERFORMANCE
The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/J3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0002 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/J3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0003 has been changed from:
<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>UIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>UIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0004 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>UIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>UIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGENCY/3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[redacted]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0005 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
31-JAN-2014 | 12 | DEFENSE THREAT REDUCTION AGENCY/OP-CTB | HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201
FORT BELVOIR VA 22060-6201
FOB: Destination

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
</table>
| 31-JAN-2014   | 12       | DEFENSE THREAT REDUCTION AGENCY/J3CTB | HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201
FORT BELVOIR VA 22060-6201
FOB: Destination

The following Delivery Schedule item for CLIN 0006 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
</table>
| 31-JAN-2014   | 12       | DEFENSE THREAT REDUCTION AGENCY/OP-CTB | HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201
FORT BELVOIR VA 22060-6201
FOB: Destination

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
</table>
| 31-JAN-2014   | 12       | DEFENSE THREAT REDUCTION AGENCY/J3CTB | HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201
FORT BELVOIR VA 22060-6201
FOB: Destination

The following Delivery Schedule item for CLIN 0007 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
</table>
31-JAN-2014 | 12 | DEFENSE-threat REDUCTION AGENCY/OP-CTB
8725 JOHN J. KINGMAN ROAD MSC 6201
FORT BELVOIR VA 22060-6201

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2014</td>
<td>12</td>
<td>DEFENSE-threat REDUCTION AGENCY/33CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0008 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2014</td>
<td>12</td>
<td>DEFENSE-threat REDUCTION AGENCY/OP-CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2014</td>
<td>12</td>
<td>DEFENSE-threat REDUCTION AGENCY/33CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0009 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2014</td>
<td>12</td>
<td>DEFENSE-threat REDUCTION AGENCY/OP-CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
</tbody>
</table>
31-JAN-2015  12  DEFENSE THREAT REDUCTION AGENCY/OP-CTB
8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0010 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0011 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
</tbody>
</table>
To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0012 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0014 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>12</td>
<td>DEFENSE THREAT REDUCTION AGENCY/OP-CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>
31-JAN-2013 1 DEFENSE THREAT REDUCTION AGENCY/OP-CTB HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201
FOB: Destination

To:

DELIVERY DATE QUANTITY SHIP TO ADDRESS UIC
31-JAN-2013 1 DEFENSE THREAT REDUCTION AGENCY/OP-CTB HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201
FOB: Destination

The following Delivery Schedule item for CLIN 0015 has been changed from:

DELIVERY DATE QUANTITY SHIP TO ADDRESS UIC
31-JAN-2013 5 DEFENSE THREAT REDUCTION AGENCY/OP-CTB HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201
FOB: Destination

To:

DELIVERY DATE QUANTITY SHIP TO ADDRESS UIC
31-JAN-2013 5 DEFENSE THREAT REDUCTION AGENCY/OP-CTB HDTRA1
8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201
FOB: Destination

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office
As a result of this modification, the total funded amount for this document was increased by $839,499.84 from $1,148,573.96 to $1,988,073.80.

CLIN 0005:

AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252 (CIN CTB62990005) was increased by $120,300.96 from $0.00 to $120,300.96
The contract ACRN AC has been added.
The CIN CTB62990005 has been added.

CLIN 0006:

AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252 (CIN CTB62990006) was increased by $379,656.00 from $0.00 to $379,656.00
The contract ACRN AC has been added.
The CIN CTB62990006 has been added.

CLIN 0007:

AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252 (CIN CTB62990007) was increased by $128,500.92 from $0.00 to $128,500.92
The contract ACRN AC has been added.
The CIN CTB62990007 has been added.

CLIN 0008:

AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252 (CIN CTB62990008) was increased by $211,041.96 from $0.00 to $211,041.96
The contract ACRN AC has been added.
The CIN CTB62990008 has been added.

The following have been modified:

252.201-9002 CONTRACTING OFFICER'S REPRESENTATIVE (MAY 2007)

a. The Contracting Officer's Representative (COR) for this contract is:

X [b][b]
Defense Threat Reduction Agency/13CTB
8725 John J. Kingman Rd, MS 6201
Fort Belvoir VA 22060-6201
Telephone number [b][b]
e-mail address

WAWF Acceptor DoDAAC: HDTRA1

---

Defense Threat Reduction Agency/_______
1680 Texas St SE
Kirtland AFB NM 87117-5669
Telephone number (505) ____-
e-mail address ________@aol.dtra.mil.
WAWF Acceptor DoDAAC: HDTRA2
b. The COR will act as the Contracting Officer's Representative for technical matters providing technical direction and discussion as necessary with respect to the specification/statement of work and monitoring the progress and quality of the Contractor's performance. The COR is NOT an Administrative Contracting Officer (ACO) and does not have the authority to take any action, either directly or indirectly that would change the pricing, quality, quantity, place of performance, delivery schedule, or any other terms and conditions of the contract, or to direct the accomplishment of effort, which goes beyond the scope of the specifications/statement of work in the contract.

c. When, in the opinion of the contractor, the COR requests effort outside the existing scope of the contract, the contractor shall promptly notify the Contracting Officer in writing. No action shall be taken by the contractor under such direction until the Contracting Officer has issued a modification to the contract or has otherwise resolved the issue.

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. 200055
3. EFFECTIVE DATE 01-Feb-2013
4. REQUISITION/_PURCHASE REQ. NO. CTB4
5. PROJECT NO. (if applicable)

6. ISSUED CODE UT7RA
7. ADMINISTERED BY (if applicable) CODE

See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

GLOBAL AIR FREIGHTING INC.
FBA (760)
SAN CARLOS CA 94070-0413

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MOD. OF CONTRACT/ORDER NO. HEDRA-11-22C-0024
10B. DATED (SEE ITEM 13) 01-Feb-2012

CODE 56SC

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
☐ This above numbered solicitation is unaltered as set forth in Item 14. The hour and date specified for receipt of offer is extended, ☐ not extended.

Other wise acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
(a) By completing Items 11A. and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By telegram or telex which includes a reference to the solicitation and amendment numbers. Failure by your firm to acknowledge receipt of this amendment prior to the hour and date specified may result in rejection of your offer. If you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram or letter includes a reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103B.

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

Mutual Agreement of the Parties

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Modification Control Number: [0124]

CTB401A. The purpose of this modification is for:
1) Section F: Extend the Delivery Date of CLN014 Lassa Fever Outbreak - Nigeria from 31 January, 2013 to 31 March, 2013.
2) Section F: Extend the Delivery Date of CLN015 Ebola Virus Outbreak from 31 January, 2013 to 31 March, 2013.
3) The Delivery Date extensions of CLN014 and CLN015 are at no additional cost to the Government.
4) All other terms and conditions remain unchanged and in full force and effect.

SEE SF 30 BLOCK 14 CANCELATION PAGE.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remain unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED

30-Jun-2013

(Signature of person authorized to sign) (Signature of Contracting Officer)
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0014 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>1</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-MAR-2013</td>
<td>1</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

The following Delivery Schedule item for CLIN 0015 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2013</td>
<td>5</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
</table>
31-MAR-2013

5

DEFENSE THREAT REDUCTION AGENCY/J3CTB

8725 JOHN J. KINGMAN ROAD MSC 6201
FORT BELVOIR VA 22060-6201

FGB: Destination

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO: 63iy6
3. EFFECTIVE DATE: 01-Apr-2013
4. REQUISITION/PURCHASE REQ. NO: CTBR-1
5. PROJECT NO (if applicable)
6. ISSUED BY: BDTRA
   CODE: BDTRA
7. ADMINISTERED BY: (if other than item 6) CODE: See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
   GLOBAL VIOL YACHTING INC:
   FDIA-101605
   SUPPLEMENT NO. 1
   SAN FRANCISCO, CA 94124-4723
   CODE: 5659-54
   FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

   [ ] The above-numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offer is extended. [ ] is not extended.

   Offer must acknowledge receipt of the amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
   [ ] By completing Items 8 and 10, and returning copies of the amendment(s).
   [ ] By acknowledging receipt of the amendment on each copy of the offer submitted.
   [ ] By separate letter or telegram which includes a reference to the solicitation and amendment numbers.

   FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

   See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
   IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

   A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

   B. THE ABOVE-NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.105(b).

   C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

   X [ ] OTHER (Specify type of modification and authority)

   Mutual Agreement of the Parties.

15. IMPORTANT: Contractor [ ] is not, [X] is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by ACF section headings, including solicitation/contract subject matter where feasible)
   Modification Control Number: (006)
   DAC: JSO/M72541. The purpose of this amendment is:

   1) Section A: The total cost of this contract has increased by $186,391,80 from $1,988,073,80 to $2,174,465,60.
   2) Section B: Add CLIN 06-3 to Ebola Virus Outbreak at Democratic Republic of Congo (DRC) - Six Month Extension.
   3) Section C: The delivery date for this order is September 30, 2013.
   4) Section D: The total funded amount has increased by $186,391,80 from $1,988,073,80 to $2,174,465,60.
   5) FOIA 05(4)

   All other terms and conditions remain unchanged and in full force and effect. SEE SF-70 BLOCK 14 CONTINUATION PAGE.

EXCEPTION TO SF-70
APPROVED BY GSAM 11-84
30-100-04
STANDARD FORM 30 (Rev. 10-03)
Prepared by FAA
FAR (48 CFR) 53.243

15A. NAME AND TITLE OF SIGNER (Type or print)
   [ ] NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
   [ ] CONTRACTING OFFICER
   [ ] EMAIL

15B. CONTRACTOR/OFFEROR
   15C. DATE SIGNED
   16A. UNITED STATES OF AMERICA
   16C. DATE SIGNED

(Signature of person authorized to sign)
   (Signature of Contracting Officer)

29-Mar-2013
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $186,391.80 from $1,988,073.80 to $2,174,465.60.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0016 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0016</td>
<td>Ebola Virus Outbreak at DRC Six Month Ex</td>
<td></td>
<td></td>
<td></td>
<td>$186,391.80</td>
</tr>
<tr>
<td></td>
<td>FIP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>J9CBM, Ebola Virus Outbreak at the Democratic Republic of Congo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NET AMT $186,391.80

ACRN AD
CIN: J9CBM75410016

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for CLIN 0016:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item has been added to CLIN 0016:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-SEP-2013</td>
<td></td>
<td>DEFENSE THREAT REDUCTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[FOIA (b)(4)]</td>
<td>AGENCY/13CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[b][6]</td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $186,391.80 from $1,988,073.80 to $2,174,465.60.

CLIN 0016:
Funding on CLIN 0016 is initiated as follows:

ACRN: AD

CIN: J9CBM75410016

Account Data: 044315 097 0400 000 N 20132014 D 2620 0602384BP-CB-CBM 1314-0400-2620-TM2BC
DTRA 255

Increase: $186,391.80

Total: $186,391.80

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO: 1M1201
3. EFFECTIVE DATE: 16-Mar-2013
4. REQUISITION/PURCHASE REQ. NO: CTR-61
5. PROJECT NO. (if applicable): 
6. ISSUED BY CODE: HDTRA1
7. ADMINISTERED BY (other than item 6) CODE: 

See Item 6

8. NAME AND ADDRESS OF CONTRACTOR: Global Viral Forecasting Inc.
   345 Market Street, San Francisco, CA 94104
   PHONE (415) 345-6789

9A. AMENDMENT OF SOLICITATION NO: 1M1201
9B. DATED (see item 11) 
10A. MOD. OF CONTRACT/ORDER NO: HDTRA1-12-C-0024
10B. DATED (see item 13) (01-Feb-2012)

CODE 56SP4
FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of offer is extended. ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: 
☐ By completing Items 8 and 10, and returning ____ copies of this amendment. ☐ By acknowledging receipt of this amendment on each copy of the offer submitted, or to a separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFER PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If you value of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided such letter or telegram includes a reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS, IT MODIFIES THE CONTRACT OR ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT OR ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.105B.

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

☐ OTHER (Specify type of modification and authority)

Mutual Agreement of the Parties.

14. DESCRIPTION OF AMENDMENT/MODIFICATION: (Organized by OCT, section headings, including solicitation/contract subject matter where relevant)
   Modification Control Number: (04)

SUBJECT: 3106. The purpose of this modification is to:
1) Section A: The total cost of this contract was decreased by $52,000,000 from $2,174,465,680 to $2,122,465,680.
2) [OCT (b)(4) paragraph]

3) Section B: Section 3: See SF 30 Block 14 Continuation page.
4) All other terms and conditions remain unchanged and in full force and effect.

SEE SF 30 BLOCK 14 CONTINUATION PAGE

EXCEPTION TO SF 30
APPROVED BY OBM 11-84
30-108-04

STANDARD FORM 30 (Rev. 10/03)

Prescribed by GSA
FAR (48 CFR) 53.243

15A. NAME AND TITLE OF SIGNER (Type or print)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

15B. CONTRACTOR/OFFEROR

16B. UNITED STATES OF AMERICA

15C. DATE SIGNED

16C. DATE SIGNED

(Signature of person authorized to sign)

16C. DATE SIGNED

(Signature of Contracting Officer)
SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was decreased by $50,000.00 from $2,174,465.60 to $2,124,465.60.

SECTION B - SUPPLIES OR SERVICES AND PRICES

FOIA (b)(4)

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been modified:
CONSULTING SERVICES FOR LASSA

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0014 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-MAR-2013</td>
<td>1</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>(b)(6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RRB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
</table>
SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was decreased by $50,000.00 from $2,174,465.60 to $2,124,465.60.

CLIN 0014:

AB: 044315 097 0134 000 N 20112013 D 34HQ 0901515BR-KD-BP1 1113-0134-34HQ-OGCON DTRA 252 (CLN CTB31060014) was decreased by $50,000.00 from $50,000.00 to $0.00

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

P00008

The above numbered solicitation is amended as follows in Table 1. The bid and time period of acceptance shall be as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Bid Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above is not applicable to amendments of solicitations.

The following is a list of amendments applied to modifications of contracts:

1. THIS CHANGE ORDER IS ISSUED PURSUANT TO [Specify authority]. THE CHANGE IS PART FROM ITEM 14, AS DESCRIBED IN ITEM 15.

2. THE ABOVE CHANGE ORDER IS AMENDED TO REFLECT THE ADMINISTRATIVE CHANGE, SUCH AS CHANGES IN PAYING OFFICE, APPROPRIATION DATE, ETC. AS DESCRIBED IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 42.1206

3. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF FAR 42.1206 AGREEMENT TO RESCIND CONTRACTS CHANGE OF NAME

| IMPORTANT: Contractor | X | is required to sign this document and return 1 copy to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by DOD section headings, including solicitation/contract subject matter where feasible): Contract Number [O(4)]

D.A.U.S.C.T.S.597

1. Pursuant to FAR 42.1206, pertaining to execution of a Change of Name Agreement entered into as of June 25, 2013, duly signed and executed, this modification incorporates the change of the contractor's name in Block 8 as follows: FROM General Viral Forecasting, Inc. TO, Metabola, Inc.

2. Section 1 of Exhibit C contains the Name Change Agreement and Attachments A, B, and C.

3. Attachment C, List of Affected Contracts, contains the contract administered by DTRA and contracts issued by various other agencies. Modifications to incorporate the name change for the contracts not administered by DTRA are the responsibility of the issuing agency. This modification is provided as a reference for such modifications.

4. All other terms and conditions remain unchanged and in full force and effect.

SEE SF 10 BLOCK 14 CONTRACTION PAGE

FOIA (b)(6)

Approve by GM 11-81

July 31, 2013

30-105-04

Prepared by USA
FAR 42.1206 53.243
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been deleted:
  CONSULTING SERVICES FOR LASSA

SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The following have been modified:

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Contract Requirements List (CDRLs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CDRL A001 Project Management Plan</td>
<td>1</td>
<td>27-JAN-2012</td>
</tr>
<tr>
<td></td>
<td>CDRL A002 Project Status Report</td>
<td>1</td>
<td>27-JAN-2012</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Data Item Description (DIDs):</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DI-MGMT-80368A</td>
<td>3</td>
<td>30-OCT-2006</td>
</tr>
<tr>
<td></td>
<td>DI-MGMT-8004A</td>
<td>4</td>
<td>30-OCT-2006</td>
</tr>
<tr>
<td>Exhibit C</td>
<td>Change of Name Agreement</td>
<td>2</td>
<td>28-JUN-2013</td>
</tr>
<tr>
<td></td>
<td>Attachment A: Documents Effecting the Name Change.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attachment B: Opinion of Contractor’s Legal Counsel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attachment C: List of Affected Contracts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. 1
3. EFFECTIVE DATE 01-Aug-2013
4. PROCUREMENT/PURCHASE REQ. NO. 5. PROJECT NO. (if applicable) OCM-64

6. ISSUED BY CODE DEFENSE PRICE REASONABLE ACT (DPCRA)
7. ADMINISTERED BY (if applicable) CODE [DETRA]

See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, City, State and Zip Code)

9A. AMENDMENT OF SOLICITATION NO.
9B. DATED (SEE ITEM 11)
10A. MOD. OF CONTRACT/ORDER NO.
10B. DATED (SEE ITEM 13)

X DATED 01-Feb-2012

CODE 565906 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is an unlawful as set forth in Item 14. The hours and dates specified for receipt of offers are extended, ☐ are not extended.

Other than the expiration date and the date and time specified in the solicitation, the solicitation and/or amendment is amended by one or more of the following methods:
(a) By completing Item 5, 6 and 7 of this amendment; (b) By changing the solicitation as written and the hours and dates specified for receipt of offers are extended, ☐ are not extended.

Other than the expiration date and the date and time specified in the solicitation, the solicitation and/or amendment is amended by one or more of the following methods:
(a) By completing Item 5, 6 and 7 of this amendment; (b) By changing the solicitation as written and the hours and dates specified for receipt of offers are extended, ☐ are not extended.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACT/ORDERS

IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.101(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

☐ D. OTHER (Specify type of modification and authority)

Mutual Agreement of the Parties

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return (Specify number) copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)

 Modification Control Number: [OB] (Modification)
 DATED [OB] (Date)

The purpose of this modification is:

1) Section A: The total cost of this contract has increased by $151,300.00 from $2,243,465.60 to $2,754,767.60.

FOIA (b)(4)

4) A detailed description of this modification is in SF 36 Block 14 Continuation Page.

5) All other terms and conditions remain unchanged and in full force and effect.

SEE SF 36 BLOCK 14 CONTINUATION PAGE

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED

(Signature of person authorized to sign)

(Official of contracting officer)

01-Aug-2013

EXCEPTION TO SF 36

APPROVED BY OIRM 11-84

STANDARD FORM 36 (Rev. 10-93)

Prepared by GSA

FAR (48 CFR) 53-243
SUMMARY OF CHANGES

The following have been added by full text:

DAI J3CTB8218. The purpose of this modification is to:
1) Section A: The total cost of this contract has increased by $151,309.00 from $2,124,465.60 to $2,275,774.60.

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $151,309.00 from $2,124,465.60 to $2,275,774.60.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0017 is added as follows:
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0017</td>
<td>FQA (b)(4)</td>
<td></td>
<td></td>
<td></td>
<td>$151,309.00</td>
</tr>
</tbody>
</table>

**NET AMT**: $151,309.00

ACRN AE
CIN: J3CTB82180017

**SECTION E - INSPECTION AND ACCEPTANCE**

The following Acceptance/Inspection Schedule was added for CLIN 0017:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
<td>Government</td>
<td>Destination</td>
<td>Government</td>
</tr>
</tbody>
</table>

**SECTION F - DELIVERIES OR PERFORMANCE**

The following Delivery Schedule item has been added to CLIN 0017:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2014</td>
<td>FQA (b)(4)</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION G - CONTRACT ADMINISTRATION DATA**

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $151,309.00 from $2,124,465.60 to $2,275,774.60.

CLIN 0017:
Funding on CLIN 0017 is initiated as follows:
ACRN: AE

CIN: J3CTB82180017

Acting Date: 021001-97-0400-000-N-20132014-D-265Y-10351438-2013-ZZ-0-01

Increase: $151,309.00

Total: $151,309.00

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2 AMENDMENT/MODIFICATION NO
P00010

5 EFFECTIVE DATE
27-Nov-2013

6 REQUISITION/PURCHASE REQ NO
D006

7 ADMINISTERED BY
See Item 6

8 NAME AND ADDRESS OF CONTRACTOR
FOIA (b)(6)

9A AMENDMENT OF SOLICITATION NO.

9B DATED (See Item 11)

10A MOD OF CONTRACT ORDER NO.
D006-1-12-C-0024

10B DATED (See Item 11)
01-Feb-2012

11A THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

11B IT IS APPLICABLE ONLY TO MODIFICATIONS OF CONTRACT ORDERS.

12 ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13A NAME AND TITLE OF SIGNER (Type or print)

FOIA (b)(6)

13B DATE SIGNED
November 27, 2013

13C SIGNATURE OF PERSON AUTHORIZED TO SIGN

16A NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

FOIA (b)(6)

16B DATE SIGNED
November 27, 2013

16C SIGNATURE OF CONTRACTING OFFICER

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84

50-105-04

STANDARD FORM 30 (Rev. 19-83)
Prepared by GSA
FAR (48 CFR) 53.243
SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $860,723.88 from $2,275,774.60 to $3,136,498.48.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0009
The option status has changed from Option to Option Exercised.

CLIN 0010
The option status has changed from Option to Option Exercised.

CLIN 0011
The option status has changed from Option to Option Exercised.

CLIN 0012
The option status has changed from Option to Option Exercised.

SUBCLIN 000501 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000501</td>
<td>Funding Info Only FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td></td>
</tr>
</tbody>
</table>

| NET AMT | $0.00

ACRN AG
CIN: J3CTB10433000501

$30,075.24

SUBCLIN 000601 is added as follows:
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000601</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUBCLIN 000701 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000701</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUBCLIN 000801 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000801</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUBCLIN 000901 is added as follows:

<table>
<thead>
<tr>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$94,914.00</td>
</tr>
<tr>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$32,125.23</td>
</tr>
<tr>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$52,760.49</td>
</tr>
<tr>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACRN AG  
CIN: J3CTB1043300601  

ACRN AG  
CIN: J3CTB1043300701  

ACRN AG  
CIN: J3CTB1043300801  

SUBCLIN 000901 is added as follows:
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
<th>DEBUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>000901</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$81,356</td>
<td></td>
</tr>
<tr>
<td>ACRN AG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIN: J3CTB1043300901</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUBCLIN 000902 is added as follows:**

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
<th>DEBUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>000902</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$40,678</td>
<td></td>
</tr>
<tr>
<td>ACRN AF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIN: J3CTB1043300902</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUBCLIN 001001 is added as follows:**

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
<th>DEBUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>001001</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$262,280.64</td>
<td></td>
</tr>
<tr>
<td>ACRN AG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIN: J3CTB1043301001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUBCLIN 001002 is added as follows:**
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001002</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACRN AF**
CIN: J3CTB10433001002

**NET AMT**
$0.00

**ACRN AG**
CIN: J3CTB10433001101

**SUBCLIN 001102** is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001101</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACRN AF**
CIN: J3CTB10433001102

**NET AMT**
$0.00

**ACRN AG**
CIN: J3CTB10433001101

**SUBCLIN 001102** is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001102</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUBCLIN 001201** is added as follows:
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001201</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NET AMT $0.00

ACRN AG
CIN: J3CTB10433001201

$142,639.28

SUBCLIN 001202 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001202</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NET AMT $0.00

ACRN AF
CIN: J3CTB10433001202

$71,319.64

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000501:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000601:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000701:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000801:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>
The following Acceptance/Inspection Schedule was added for SUBCLIN 000901:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000902:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 001001:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 001002:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 001101:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 001102:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 001201:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 001202:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $860,723.88 from $2,275,774.60 to $3,136,498.48.
AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252
(CIN CTB629600005) was decreased by $30,075.24 from $120,300.96 to $90,225.72

SUBCLIN 000501:
Funding on SUBCLIN 000501 is initiated as follows:

ACRN: AG

CIN: J3CTB10433000501


Increase: $30,075.24

Total: $30,075.24

CLIN 0006:

AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252
(CIN CTB629600006) was decreased by $94,914.00 from $379,656.00 to $284,742.00

SUBCLIN 000601:
Funding on SUBCLIN 000601 is initiated as follows:

ACRN: AG

CIN: J3CTB10433000601


Increase: $94,914.00

Total: $94,914.00

CLIN 0007:

AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252
(CIN CTB629600007) was decreased by $32,125.23 from $128,500.92 to $96,375.69

SUBCLIN 000701:
Funding on SUBCLIN 000701 is initiated as follows:

ACRN: AG

CIN: J3CTB10433000701


Increase: $32,125.23

Total: $32,125.23

CLIN 0008:
AC: 044315 097 0134 000 N 20122014 D 34HQ 0901515BR-KD-BP 1214-0134-34HQ-PRICT DTRA 252
(CIN CTB62990008) was decreased by $52,760.49 from $211,041.96 to $158,281.47

SUBCLIN 000801:
Funding on SUBCLIN 000801 is initiated as follows:

ACRN: AG  
CIN: J3CTB10433000801  
Acting Date: 021001-97-0400-000-N-20132014-D-265Y-10392311-2013-ZZ-0-01  
Increase: $52,760.49  
Total: $52,760.49

SUBCLIN 000901:
Funding on SUBCLIN 000901 is initiated as follows:

ACRN: AG  
CIN: J3CTB10433000901  
Acting Date: 021001-97-0400-000-N-20132014-D-265Y-10392311-2013-ZZ-0-01  
Increase: $81,356.00  
Total: $81,356.00

SUBCLIN 000902:
Funding on SUBCLIN 000902 is initiated as follows:

ACRN: AF  
CIN: J3CTB10433000902  
Acting Date: 044315 097 0134 000 N 20132015 D 34HQ 0901515BR-KD-BP 1315-0134-34HQ-PRICT DTRA 252  
Increase: $40,678.00  
Total: $40,678.00

SUBCLIN 001001:
Funding on SUBCLIN 001001 is initiated as follows:

ACRN: AG  
CIN: J3CTB10433001001  
Acting Date: 021001-97-0400-000-N-20132014-D-265Y-10392311-2013-ZZ-0-01  
Increase: $262,280.64  
Total: $262,280.64
SUBCLIN 001002:
Funding on SUBCLIN 001002 is initiated as follows:

ACRN: AF
CIN: J3CTB10433001002

Acctg Data: 044315 097 0134 000 N 20132015 D 34HQ 0901515BR-KD-BP 1315-0134-34HQ-PRICT DTRA 252
Increase: $131,140.32
Total: $131,140.32

SUBCLIN 001101:
Funding on SUBCLIN 001101 is initiated as follows:

ACRN: AG
CIN: J3CTB10433001101

Increase: $87,540.00
Total: $87,540.00

SUBCLIN 001102:
Funding on SUBCLIN 001102 is initiated as follows:

ACRN: AF
CIN: J3CTB10433001102

Acctg Data: 044315 097 0134 000 N 20132015 D 34HQ 0901515BR-KD-BP 1315-0134-34HQ-PRICT DTRA 252
Increase: $43,770.00
Total: $43,770.00

SUBCLIN 001201:
Funding on SUBCLIN 001201 is initiated as follows:

ACRN: AG
CIN: J3CTB10433001201

Increase: $142,639.28
Total: $142,639.28
SUBCLIN 001202:
Funding on SUBCLIN 001202 is initiated as follows:

ACRN: AF
CIN: JSCTB10433001202

Awarding Date: 04/31/15  097  0134  000  N  20132015  D  34HQ  0901515BR-KD-BP  1315-0134-34HQ-PRIC
DTRA 252

Increase: $71,319.64
Total: $71,319.64

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT MODIFICATION NO: p000111
3. EFFECTIVE DATE: 03-Jul-2014
4. REQUISITION/PURCHASE REQ NO: CT604
5. PROJECT NO/Application Code:

6. ISSUED BY CODE: HDTRA1
7. ADMINISTERED BY (Other than item 6): CODE: 

See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (City, State, County, & Zip Code)
   FACILITY CODE: 565P4

SA. AMENDMENT OF SOLICITATION NO.
9B. DATED (See Item 11)

X 10A. MODIFICATION CONTRACT/ORDER NO: HDTRA1-12-C-0024
X 10B. DATED (See Item 13)

X 01-Feb-2012

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
   The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended in the notice to all interested contractors of the amendment or as amended by one of the following methods described in Items 9 and 10, and
   manned by submitting copies of the amendment, or by acknowledgment receipt of the amendment on copy of the offer sold in accordance with the regulations and procedures which include a reference to the solicitation and amendment number. Failure of you or you to return the amendment or as amended to the place designated for receipt of offers prior to the hour and date specified above will result in rejection of your offer.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS
14. MODIFIES THE CONTRACT ORDER NO: "As described in Item 14"

A. THE CHANGE ORDER IS ISSUED PURSUANT TO (Specify authority). THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO: "As described in Item 14"

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES SUCH AS CHANGES IN PAYING OFFICE, APPROPRIATION DATE, ETC., SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 42.103(c)

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF

X 12. OTHER (Specify type of modification and authority)

Mutual Agreement of the Parties

X IMPORTANT Contractor is not required to sign this document and return copies to the issuing office

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organize by UCF section headings, including solicitation/contract subject matter where feasible)
   Modification Control Number: [204]

CA: JCSM12423  The purpose of this modification is to:

1. Section A: The total cost of this contract has increased by $325,693.98 from $3,136,498.48 to $3,462,192.46

FOIA (b)(6)

5. Section F: The Delivery Date for this effort is December 31, 2014.

6. Section G: The total funded amount has increased by $325,693.98 from $3,136,498.48 to $3,462,192.46

7. All other terms and conditions remain unchanged and in full force and effect

SEE SF 30 BLOCK 14 CONTINUATION PAGE

15A. NAME AND TITLE OF SIGNER (Type or print)
   FOIA (b)(5)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
   FOIA (b)(6)

15C. DATE SIGNED: July 3, 2014

16D. UNITED STATES OF AMERICA
   DATE SIGNED: 03-Jul-2014

(Handwritten signature of Contracting Officer)

STANDARD FORM 30 (Rev 10-83)
 Prescribed by USA
 FAR 48 CFR 52.243
SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by $325,693.98 from $3,136,498.48 to $3,462,192.46.

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0013

CLIN 0018 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0018</td>
<td>FOIA (b)(4)</td>
<td></td>
<td></td>
<td></td>
<td>$325,693.98</td>
</tr>
</tbody>
</table>

DAI #19CBM12493  Ebola Virus Outbreak Survivor Sampling in Sierra Leone.
FOB: Destination

NET AMT $325,693.98

SUBCLIN 001801 is added as follows:
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001802</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DAI # J9CBM12493</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$200,000.00</td>
</tr>
</tbody>
</table>

**ACRN AH**
CIN: J9CBM12492001801

**SUBC1 IN 001802 is added as follows:**

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001802</td>
<td>Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DAI # J9CBM12493</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$125,693.98</td>
</tr>
</tbody>
</table>

**ACRN AD**
CIN: J9CBM12493001802
STATEMENT OF WORK

Cooperative Biological Engagement Program
Statement of Work for
Continuation of the following research projects: (1) “Diversity of Filoviruses in the Tropical Rainforests of Central Africa; (2) “Remote Surveillance of Lassa Fever Virus in Sierra Leone”; (3) “Identification and characterization of a putative novel poxvirus in the DRC (Short title: POX NEAR NEIGHBORS)”; and (4) “Characterization of Viral Hemorrhagic Fevers of Unknown Origin (Short Name: High Consequence Pathogen Discovery in Central Africa).”

I. Introduction and background: The Defense Threat Reduction Agency (DTRA) Cooperative Biological Engagement Program (CBEP) previously funded Global Viral Forecasting (GVF) (now known as Metabiota, Inc.) indirectly through the U.S. Army Public Health Command to facilitate the following research projects: (1) “Diversity of Filoviruses in the Tropical Rainforests of Central Africa; (2) “Remote Surveillance of Lassa Fever Virus in Sierra Leone”; (3) “Identification and characterization of a putative novel poxvirus in the DRC (Short title: POX NEAR NEIGHBORS)”; and (4) “Characterization of Viral Hemorrhagic Fevers of Unknown Origin (Short Name: High Consequence Pathogen Discovery in Central Africa).” GVF (now known as Metabiota, Inc.) has already performed the work for these projects for the first year. This Statement of Work (SOW) outlines the CBEP requirements to continue and complete these projects under a direct contract.

II. Period of Performance: February 01, 2012 – January 31, 2014 for each of these 4 projects

III. Deliverables:

A. Project Status Reports (Quarterly and Final). On the first working day of the first month of each quarter the contractor shall provide Project Status Reports for each of the 4 projects to CBEP which include technical details including the accomplishment of requirements outlined in this Statement of Work (SOW) and progress against the Project Management Plan, with special emphasis on metrics.
and any novel research findings. Details on the human research and animal use work (including number used, species, and location of testing) shall be included. This report shall be in contractor format sent to CBEP by email.

Within 30 days of the end of the projects, the contractor shall provide a final Project Status Report for each of the 4 projects to CBEP which will use the same information as the quarterly reports and will include summary details for the projects.

B. Published information. Prior to publishing, the contractor must first submit the language to be published to the DTRA CBEP POC/COR so that it may be cleared through DTRA channels for public release. After being cleared for public release by DTRA, the contractor shall publish information on any novel findings and provide a courtesy copy to CBEP upon publication. DTRA/CBEP shall be acknowledged in the publications for funding these projects.

C. Project Management Plan. The contractor shall submit to CBEP this detailed plan for each of the 4 projects within 30 days of the start of the period of performance (PoP), to include organizational structure involved, assignment of functions and duties, procedures, major milestones, associated timelines/schedules, deliverables, required travel, and travel purpose. This report shall be in contractor format sent to CBEP by email.

IV. Scope:

A. Objectives. The contractor shall execute continuation of the following research projects:
1. “Diversity of Filoviruses in the Tropical Rainforests of Central Africa”;
2. “Remote Surveillance of Lassa Fever Virus in Sierra Leone”; 
3. “Identification and characterization of a putative novel poxvirus in the DRC (Short title: POX NEAR NEIGHBORS)”; and
4. “Characterization of Viral Hemorrhagic Fevers of Unknown Origin (Short Name: High Consequence Pathogen Discovery in Central Africa).”

B. General.

1. Biosafety and Biosecurity.
In order for CBEP to ensure that all collaborative research activities are conducted safely and securely, the contractor shall participate in biosafety and biosecurity (BS&S) initial and annual reviews of research projects. This will include a review of applicable CBEP documents (i.e. proposal, workplan), detailed facility and equipment information, verification of personnel training and project- and site-specific standard operating procedures (SOPs). The contractor shall adhere to CBEP biosafety and biosecurity programmatic guidance and shall address any BS&S-related concerns prior to initiation of work.

2. Human Subjects and Animal Use:
The contractor shall be responsible for obtaining and maintaining any required human subject and animal use exemptions or certifications, and the contractor shall keep CBEP informed of any new human subject and animal use exemptions or certifications. The contractor shall also keep CBEP informed of any new requirements for human subject and animal use exemptions or certifications. No work shall be performed which involves human subjects or animal use without appropriate human subject/animal use certifications in place.

C. Project 1: “Diversity of Filoviruses in the Tropical Rainforests of Central Africa”

1. Scope:

In mid-FY10, Global Viral Forecasting (GVF) (now known as Metabiota, Inc.) was funded for this project to examine the genetic diversity of filoviruses in Central Africa. In the year and a half since this Project was initiated, GVF (now known as Metabiota, Inc.) has: (1) identified a novel clade of Ebola virus Zaire (Luebo clade) from outbreaks that occurred in the DRC in 2008 and 2009; (2) in collaboration with USAMRIID, performed full genome analysis on 12 samples of Ebola virus Zaire that were obtained from outbreaks of Ebola virus in Central Africa over the past decade; and (3) identified the second only Marburg virus, culture-positive bat in the Republic of Gabon, thus furthering the argument that this species a reservoir host species for Marburg virus. The contractor will continue analysis of seed stocks of animal, primary human and cell culture, filovirus-positive samples from Central Africa, as well as continue to collect samples from relevant species in outbreak regions. The contractor shall execute continuation of this project.

The contractor will conduct analyses of sample sets of human and animal specimens collected in Central Africa beginning in 2001. Human samples were collected within the context of outbreak responses or routine infectious disease surveillance, and animal samples were collected both as part of routine surveillance for zoonotic infections and as part of viral hemorrhagic fever surveillance conducted by Metabiota, Inc. Associate Scientist Dr. Eric Leroy from 2001-2011, as well as studies conducted by other GVF (now known as Metabiota, Inc.) researchers in DRC. These collections consist primarily of fruit bat, non-human primate, and human samples, species known to be key in the transmission of filoviruses to humans.

The contractor will continue to collect samples from relevant species in outbreak regions that may happen in Option Year 1 and Option Year 2. However, collection of new samples is contingent upon bilateral contract modifications issued to authorize and fund this activity for each outbreak.

2. Project Requirements. The contractor shall execute this project using the below listed requirements to test the hypothesis that sequence analysis of an additional well characterized set of human and animal specimens collected by GVF
(now known as Metabiota, Inc.) from various regions within Central Africa will provide an improved understanding of the epidemiology and natural evolution of filoviruses in the tropical rainforests of Central Africa:

(a) Use direct full-length genome sequencing, random amplification PCR and virus chip technology to characterize the full-genome of filoviruses from known positive samples of human and animal origin.
(b) Based on the results of Requirement (a), determine the incidence and geographic distribution of EBOV and MBGV positive bats and non-human primates.
(c) Determine the relative filovirus-specific antibody prevalence in human populations known to consume bats and non-human primates as food sources.
(d) Use Bayesian regression and other methodologies to examine the genetic relationships among filoviruses identified in human and animal specimens, and use that information to further elucidate the evolution of these pathogens in Central Africa.

3. **Background:** Ebola (EBOV) and Marburg (MBGV) hemorrhagic fevers cause severe, often-fatal disease in humans and nonhuman primates (monkeys, gorillas, and chimpanzees), and have appeared sporadically since 1976. Disease is caused by infection with either EBOV, named after a river in the Democratic Republic of the Congo (formerly Zaire) in Africa, where it was first recognized, or MBVG, named after the city in Germany where it was first recognized in 1967 at primate research facility. Both viruses are members of a family of RNA viruses called the Filoviridae.

Ebola and Marburg viruses are known to be endemic in Central Africa. Numerous human and animal outbreaks of Ebola Zaire virus have occurred in the region over the past 15 years and Marburg virus was recently isolated from fruit bats collected in Gabon. GVF (now known as Metabiota, Inc.) partner institutions, the International Center for Medical Research (French acronym CIRMF) in Franceville, Gabon, as well as the National Institute of Biomedical Research (INRB) in Kinshasa, DRC, are the premier diagnostic laboratories in Central Africa and home to the world’s largest collections of primary human and animal samples taken during Ebola and Marburg outbreaks in Gabon, RoC, DRC and Angola. It is through these extensive collections that MBGV was first isolated from fruit bats. The collections also helped to delineate the inflammatory patterns observed in humans that survive Ebola virus Zaire infection.

The exact origin and natural reservoir of EBOV and MBGV viruses remain unknown. However, on the basis of available evidence and the nature of similar viruses, researchers believe that the virus is zoonotic (animal-borne), occurring in an animal endemic to Africa.
Filovirus HF typically appears in sporadic outbreaks, usually spread within a health-care setting (i.e. amplification). It is likely that sporadic, isolated cases occur as well, but go unrecognized. Infections with filoviruses are acute. There is no carrier state in humans. Because the natural reservoir of the virus is unknown, the manner in which the virus first appears in a human at the start of an outbreak has not been determined. However, researchers have hypothesized that the first patient becomes infected through contact with an infected animal. Individuals in rural central Africa acutely infected with various pathogens may not seek treatment or may receive inaccurate diagnoses (Germani et al. 1998; Cunin et al. 1999; Nsutebu et al. 2002; Nsutebu et al. 2003; Ndip et al. 2004; Kuniholm et al. 2006; Peyrefitte et al. 2006). Also, people who develop acute illness as the result of infection with zoonotic agents often have poor access to clinical facilities. When they do access health facilities, the lack of expertise or resources may sometimes lead to presumptive and/or incorrect clinical diagnoses. This may result in poor clinical outcomes, antibiotic resistance, and misguided health policies.

More extensive knowledge of the natural reservoir of filoviruses and how the viruses are spread must be acquired to prevent future outbreaks effectively. By determining the prevalence of filovirus antigen and antibody in collections derived from routine human surveillance, fevers of unknown origin, non-human primates, and bats, it can potentially be demonstrated that: 1) The human antibody prevalence to EBOV and MBGV in rural Central Africa; 2) the percentage of patients in rural Gabon presenting with fever of unknown that are infected with filoviruses; 3) the prevalence of filovirus antigens in bushmeat samples from bats and non-human primates 4) the geographic distribution of filoviruses in Central Africa by mapping human and animal data.

4. Contribution To DoD Research Mission:

Of the NIH NIAID Biodefense Priority Pathogens, seven are of relevance to rural central African populations highly exposed to wild animals and five (anthrax, monkeypox, Lassa, hantavirus and Ebola) have recently been associated with wild animals in central and western Africa. Studies of such pathogens, and the search for novel pathogens of human importance, play an important role in global security as response strategies depend to a large degree on information generated by biomedical research on such agents. Specifically, this project will close the gap in knowledge of a number of pathogens through the proposed research: 1) The human antibody prevalence to EBOV and MBGV in rural Central Africa; 2) the percentage of patients in rural Gabon infected with filoviruses; 3) the prevalence of filovirus antigens in bushmeat samples from bats and non-human primates 4) the geographic distribution of filoviruses in Central Africa. Such data aid in vaccine development, help determine risks to military populations, the US homeland and the global community.
D. Project 2: “Remote Surveillance of Lassa Fever Virus in Sierra Leone: Evaluation of microclimatic and terrain conditions in relation to disease incidence”

1. Scope:
In mid-FY10, Global Viral Forecasting (GVF) (now known as Metabiota, Inc.) was funded for this project to analyze the potential of developing a predictive model for Lassa fever infection in Sierra Leone. GVF (now known as Metabiota, Inc.) used a novel approach to medical diplomacy and engagement by seconding DTRA CBEP-funded employees to the local World Health Organization and Ministry of Health and Sanitation (MOHS) facilities in Sierra Leone in support of the predictive modeling and surveillance efforts for Lassa fever. This project has proven critical to the government of Sierra Leone and the WHO Mano River Union Lassa fever Network (MRU-LFN), and has resulted in the baseline data needed to develop a modeling system for Lassa fever. The contractor will continue collection of the multiple data points needed to develop a predictive model for Lassa fever infection, as well as incorporate human Lassa fever surveillance into model development. The contractor shall execute continuation of this project.

The contractor will use up to date surveillance data collected by the WHO Surveillance team paid by GVF (now known as Metabiota, Inc.) Sierra Leone and others at the Kenema LF Ward in Kenema, Sierra Leone, to identify villages where the greatest cases of both acute and convalescent LF have been reported or referenced.

Villages identified as reporting a higher than average incidence of LF will be examined and their terrain and habitat details recorded. Special attention will be paid to natural surrounding habitats (savanna, forest, etc), as well as local food storage conditions, lodging styles (mud-brick, tin, etc), and local interaction with rodents (are they prepared as a food source or not). Heavy-duty rain and temperature gauges will be used at each of the enrolled villages and a local resident will be identified as a dedicated record-keeper. In FY12, the contractor will continue to collect data from rainfall and temperature gauges 2 times daily and the average calculated. The contractor’s team of epidemiologists and mammalogists will return to each village twice per month to collect the data, as well as to trap rodents. Sherman live traps will be used to trap rodents in each village over a three-day period. Mastomys spp. rodents will be euthanized, exsanguinated, and their spleens removed and placed in Trizol solution. Mastomys specimens will be examined by real-time RT-PCR for the presence LASV antigen.

Human surveillance will be ongoing throughout the study period and will be directed by local contractor employees. Mr. James Bangura, WHO MRU-LFN Lassa Fever Surveillance Coordinator will direct surveillance operations from Kenema and will fully integrate all activities into the National Health and Surveillance Plan of Sierra Leone, as well as the WHO MRU-LFN planned activities. In addition to Sierra Leone, the MRU-LFN and the Kenema Government
Hospital Lassa fever Laboratory provides diagnosis of human Lassa fever for the Republic of Liberia. Under this proposal, the contractor will aim to continue this service, as it is not available in Liberia and provides a critical service to the Nation’s Ministry of Health.

Data from temperature, rainfall, and terrain variables will be analyzed to determine their applicability towards developing a predictive model for Lassa fever.

2. Project Requirements. The reservoir of Lassa virus (LASV) is the "multimammate rat" of the genus Mastomys. Using the framework of the World Health Organization Mano River Union Lassa Fever Network (MRU-LFN) and the Sierra Leone Ministry of Health and Sanitation, continue human and rodent Lassa fever surveillance in the known LF hyper-endemic zone of Eastern Sierra Leone. Using historical data, the relative risk of infection with Lassa virus has been correlated to both rainfall and similarities in local terrain and environment, both factors that directly impact the ecological success of the Mastomys spp. The limitations to these studies were that they included limited data collection points (with regards to rainfall and temperature), were carried out retrospectively, and did not include data points from much of the hyper-endemic region of Eastern Sierra Leone. The contractor shall execute this project through continued regular monitoring of rainfall and temperature, further characterization of terrain and landscape similarities associated with Lassa fever infection, as well as overlapping surveillance of Lassa virus-positive human and Mastomys spp. populations. The data obtained will be used to develop a predictive modeling tool for Lassa fever infection.

3. Background:

Unlike many VHF, LF is not a rare disease that emerges only in outbreak form; LF likely exists in focal pockets across West Africa, causing an estimated 300,000 to 500,000 infections and 5,000 deaths yearly. Thus, LF represents one of the only VHF’s amenable to prospective study and indeed was the focus of various research programs in the 1970s and 80s. However, civil unrest in the countries with the highest incidence, especially Sierra Leone and Liberia, forced closure of most of these programs by the early 1990s. Ironically, this political instability seemed to exacerbate transmission, with frequent cases of LF in refugees, UN peacekeepers, aid workers, missionaries, and travelers in West Africa. Lassa Fever is also the most frequently imported person-to-person communicable VHF.

In 2004, the World Health Organization in Geneva and Sierra Leone established the World Health Organization Mano River Union Lassa Fever Network (MRU-LFN). The MRU-LFN is an established consortium of government, academic and private research organizations that joined together to provide critical infrastructure, essential public health services, and otherwise unobtainable information regarding viral hemorrhagic fever syndromes and tropical infections in West Africa. It is also a model of international cooperative threat reduction and unique testing ground for
diagnostic reagents and vaccine candidates against endemic, highly pathogenic agents such as Lassa fever.

GVF (now known as Metabiota, Inc.) investigators and international partners have developed this site into a key center of Lassa virus surveillance and applied research, as well as, provided support for the vital, life-saving Lassa fever ward in Kenema, the epicenter of Lassa virus outbreaks globally. An important aspect of these programs is the establishment of collaborations with the Ministry of Health and WHO in host countries.

The reservoir of LASV is the "multimammate rat" of the genus *Mastomys*. *Mastomys* show no symptoms of LASV infection, but shed the virus in saliva, urine and feces. The wide distribution of *Mastomys* in Africa makes eradication of this rodent reservoir impractical and ecologically undesirable. *Mastomys* often live in human homes, and the virus is easily transmitted to humans. Transmission occurs via direct contact with rat urine, feces, and saliva, or by contact or ingestion of excretion-contaminated materials. Infection may also occur when *Mastomys* are caught and prepared as food. LASV is readily transmitted between humans, via exposure to blood or body fluids, which makes nosocomial infection a great concern. Infection usually occurs via mucous membranes or skin breaks. LASV can also be transmitted to sexual partners of convalescent men via semen up to 6 weeks post-infection.

*Mastomys* as a genus is common throughout grassland and tropical secondary forest areas of sub-Saharan Africa. Focal variation in the prevalence of *Mastomys* and/or LASV infection in the *Mastomys* population might explain some of the patchy distribution observed for Lassa across divergent sites in West Africa. However, the distribution of cases is often extremely heterogeneous, even within well-circumscribed areas of contiguous and apparently identical ecosystems. Considerable heterogeneity in the distribution of LASV-infected *Mastomys* can be noted between neighboring villages or even within a given village, suggesting that the heterogeneity cannot be completely explained simply by variations in intensity of surveillance across regions. Significant temporal variation of Lassa has been noted, with a peak incidence usually occurring during the dry season. The seasonal variation in incidence has often been attributed to the tendency of *Mastomys* to breed primarily at the end of the rainy season, potentially introducing a large number of LASV-excreting juveniles into the population in the dry season. However, breeding patterns of small mammals often vary significantly in different habitats, and no thorough studies on the population dynamics of *Mastomys* have been conducted in West Africa. *Mastomys* may indeed breed throughout the year in tropical rainforest climates such as those found in Sierra Leone and Guinea. Furthermore, the observed seasonal variation in Lassa incidence, which is typically derived from hospital-based data, has also been noted for non-Lassa febrile illnesses, raising the question whether the pattern truly has a biological basis or is
instead related to behavioral, economic, and/or climatic factors that influence the likelihood of a person presenting for care.

4. **Contribution To DoD Research Mission:** Key to this project is the recognition that it crosses and links multiple DoD agencies, Commands, research efforts, and overall US Government policy objectives. Significant US and European investments have been made and leveraged over the years to combat a Category A pathogen that occurs in regular cycles in Sierra Leone, a war torn nation in need of significant public health investment. The DoD and others have invested millions of dollars in the development of diagnostics, candidate therapeutics and vaccines for viral hemorrhagic fevers, without the necessary understanding of human clinical disease due to the sporadic nature of these diseases. Lassa fever, this project, and Sierra Leone represent a highly unique opportunity to conduct an interdisciplinary, comprehensive research protocol that may lead to critical insights into the predictability of rodent-borne diseases incidence. The prior and upcoming investments made by the USG and others in this program, make this new endeavor a wise strategic investment to demonstrate interagency and international collaboration, as well as the real possibility of improving local public health.

The increasing strategic importance of the continent of Africa has compelled DoD to stand up the US Africa Command (AFRICOM). Existing Combatant Commands (COCOMS) have engaged extensively in medical diplomacy, particularly in the areas of improved A/I/PI preparedness. These efforts aim to mitigate the impact of communicable disease and enhance the standing of COCOMS, thus facilitating implementation of other objectives. Medical diplomacy efforts such as the program described here will be especially useful for AFRICOM as it endeavors to establish beneficial partnerships.

US engagements supported by non-security related programs such as this are a cornerstone of CTR 2.0, and therefore its continuation will strengthen this fruitful public-private partnership which have been deemed essential to ensuring the sustainability and absorbability of biosecurity programs in the developing world. It is important to highlight the role that personal relationships and professional networks developed through these programs contribute directly to our national security. Collectively, activities such as these present the US in a very positive light locally, and offer AFRICOM a foundation to build upon that could both help address important global health challenges and provide access to critical local information and early warning of disease problems.

Lastly, UNMIL, the largest current deployment of United Nations peacekeepers is situated in Liberia, just across the border from Eastern Sierra Leone. The climate and terrain conditions found in Western Liberia and Eastern Sierra Leone are uniform, and UNMIL peacekeepers have experienced several zoonotic infections with Lassa virus in recent years. This study may directly benefit UN peacekeepers and local Sierra Leonean, Liberian and Guinean militaries by offering them means of determining the relative risk of infection with Lassa.
Capacity Building. The contractor will aim to ensure that the Kenema Government Hospital operates as an effective and exemplary Lassa fever treatment center by providing additional necessary equipment for the organization guaranteeing safe and sustainable patient care during the course of this program and onwards, including one (1) ambulance to ensure reliable and biosecure patient transport to the Lassa ward. These improvements will also prepare the hospital and its staff for the visiting outbreak response teams, and ensure that these individuals are able to participate fully the training process.

E. Project 3: Identification and characterization of a putative novel poxvirus in the DRC (Short title: POX NEAR NEIGHBORS)

1. Scope:

In mid-FY10, Global Viral Forecasting (GVF) (now known as Metabiota, Inc.) was funded for this project to identify near neighbors of monkeypox virus originating from the Democratic Republic of the Congo (DRC). To date they have found a number of unusual viruses in patient samples, including an arterivirus. Additionally, divergence has been identified in our monkeypox isolates; of particular interest is the significant number of single nucleotide polymorphisms (SNPs) in regions known to encode host immune response modulation and virulence factors. Full genome sequencing of orthopoxvirus*monkeypox virus* samples is ongoing, presenting the potential for discovery of highly divergent poxviruses. The contractor shall execute continuation of this project.

In FY 12, the contractor will acquire and analyze additional samples, including a set of approximately 20 previously collected orthopox positive, monkeypox negative human samples collected for laboratory testing. These samples were collected beginning in 2005 using an established human monkeypox surveillance of sick individuals presenting to rural health clinics in DRC and through informal non-clinical settings using village-based surveillance (as only 30% of people in DRC utilize the formal healthcare system). These specimens are putative unknown poxviruses that likely represent a novel agent existing in nature. The proper identification and characterization of these agents is of critical importance in helping to predict and prevent future natural introductions, as well as in mitigating the risk of purposeful release of an unknown agent that could evade existing defenses and devastate human populations.

The contractor will continue to collect samples from relevant species in outbreak regions that may happen in Option Year 1 and Option Year 2. However, collection of new samples is contingent upon bilateral contract modifications issued to authorize and fund this activity for each outbreak.
2. **Project Requirements.** Recently analyzed biological specimens obtained suggest that a novel human disease agent(s) with orthopoxvirus-like symptoms may be emerging in central Africa. These specimens, obtained from suspected cases of human monkeypox infection through the DRC Ministry of Health disease surveillance program, indicate that nearly one-fifth of suspected human pox cases may not result from the known causes of poxvirus disease. The contractor shall execute this project using the following requirement to test the hypothesis that an unknown pathogen, potentially a near neighbor or neighbors to smallpox, is the cause of these illnesses: identify previously unknown disease agents in patients with orthopox-like symptoms using viral advanced pathogen discovery and molecular detection methods.

3. **Background:**

The ‘near neighbor’ approach to assessing risk among unknown agents focuses on identifying unknown viruses that are taxonomically closely related to known agents. Because closely related viruses often share the capacity for virulence and transmissibility within a particular host species, near neighbors of known agents represent obvious candidates for nefarious use. The early identification of such near neighbors will provide the capacity to assess the ability of existing diagnostics, treatments and vaccines to provide protection against such unknown risks.

Evidence for a newly emergent infectious disease(s) has arisen out of recent efforts to better understand the epidemiology of human monkeypox infection in DRC. Human monkeypox is a zoonotic infection that occurs primarily in the rainforests of Central and West Africa. An orthopoxvirus, it is maintained among animals in rain forest regions of Africa where humans and their primate ancestors have probably suffered from its infection for millennia, whenever they contracted the virus through hunting, butchering, or eating infected reservoir animals (Fenner et al. 1988; Jezek & Fenner 1988). The presentation of monkeypox is similar to smallpox, also an orthopoxvirus, and causes a rash-illness accompanied by fever and malaise. The virus acquired its name in 1958, when it caused an outbreak of smallpox-like disease among imported nonhuman primates in Copenhagen (von Magnus 1959). Because of its similar clinical presentation to smallpox, it was not recognized as a distinct disease in humans until after the elimination of smallpox from the Democratic Republic of Congo, which revealed the continued occurrence of a smallpox-like illness among rural villagers. Since the eradication of smallpox in 1980, monkeypox is the only orthopoxvirus known to severely afflict humans.

From 2001-2004, local health workers obtained 171 biological specimens from 136 individuals with suspected monkeypox infection in the Democratic Republic of Congo as part of a joint project involving our collaborators Dr. Anne Rimoin at UCLA and the DRC Ministry of Health (Rimoin et al. 2007). Monkeypox infection was confirmed in 37.5% of cases, whereas varicella zoster virus, the herpesvirus
that is commonly mistaken for monkeypox infection, was determined to be the causative agent in 44.8% of patients. Taken together, monkeypox or varicella zoster virus was the likely cause of disease in greater than 80% of all patients presenting with symptoms indicative of monkeypox. This evidence suggests that, in nearly one-fifth of suspected cases of monkeypox, an unknown pathogen may be the cause of a disease with orthopox-like symptoms. These results suggest that a novel human disease agent with orthopox-like symptoms may be emerging in Central Africa.

4. Contribution To DoD Research Mission:
Of the NIH NIAID Biodefense Priority Pathogens, seven are of relevance to rural central African populations highly exposed to wild animals and five (anthrax, monkeypox, Lassa, hanta and Ebola) have recently been associated with wild animals in central and western Africa. Studies of such pathogens, and the search for novel pathogens of human importance, play an important role in global security as response strategies depend to a large degree on information generated by biomedical research. Specifically, this project will close the gap in knowledge of a number of pathogens through the proposed research by identifying the near neighbors of monkeypox virus, a close relative of smallpox virus and potentially deadly infectious agent.

F. Project 4: “Characterization of Viral Hemorrhagic Fevers of Unknown Origin (Short Name: High Consequence Pathogen Discovery in Central Africa)”

1. Scope:

In mid-FY10, Global Viral Forecasting (GVF) (now known as Metabiota, Inc.) was funded for this project to identify the etiological agents responsible for causing multiple cases of viral hemorrhagic fever syndrome of unknown origin (VHFUO). Out of a subset of these samples, the contractor identified a recombinant strain of Crimean Congo Hemorrhagic Fever virus (CCHFV), as well as a novel Rhabdovirus, suspected of causing viral hemorrhagic fever in the Democratic Republic of Congo (DRC) in 2009. GVF (now known as Metabiota, Inc.) has identified other previously collected sample sets of VHFUO in Gabon, DRC and the Republic of Congo (RoC) and has acquired novel samples through routine outbreak response activities beginning in 2003. The contractor will continue to analyze these high-value samples for the presence of novel pathogens, as well as continue to collect samples from relevant species in outbreak regions. The contractor shall execute continuation of this project.

GVF (now known as Metabiota, Inc.) has further identified approximately 100 other samples representing similar clinical manifestations that were analyzed by CIRMF, INRB or other local partners and remain undiagnosed. The contractor will acquire detailed histories (excluding unique patient identifiers) on these additional sets of
human sera samples from local host-country partners. These samples were collected at the request of the Ministries of Health of Gabon, the RoC and the DRC, and reside in GVF (now known as Metabiota, Inc.) partner repositories in Gabon and DRC.

The contractor will ship selected chemically inactivated aliquots of these samples to labs in the United States for viral discovery. Samples will be chosen based on the available clinical histories, the quality of each sample, and quantity of sample available. The contractor will use direct full-length genome sequencing, random amplification PCR and virus chip technology to elucidate the origins of these potentially high-impact viral hemorrhagic fevers of unknown origin. Simultaneously, the contractor will capitalize on scientific discoveries made in year 1 of this program by conducting an on-the-ground retrospective epidemiological investigation of the novel Rhabdovirus outbreak suspected to have occurred in DRC in 2009. The contractor will utilize local contracted staff, in collaboration with the DRC Ministry of Health staff, and representatives from the WHO Afro and Geneva HQs. The contractor will express recombinant Rhabdovirus proteins, amplified by PCR from cDNA used in the above-mentioned sequencing effort. Using these recombinant viral proteins as serological reagents, the contractor will conduct an IgG serological survey of the village in which this outbreak occurred and the immediately surrounding areas, as well as a pilot animal reservoir and vector study in an effort to determine the source of the outbreak.

The contractor will continue to collect samples from relevant species in outbreak regions that may happen in Option Year 1 and Option Year 2. However, collection of new samples is contingent upon bilateral contract modifications issued to authorize and fund this activity for each outbreak.

2. Project Requirements. In year 1 of this study, 9 samples of acute serum for cases of suspected viral hemorrhagic fever, representing four micro-outbreaks from Gabon, RoC and DRC (2 cases per outbreak) were analyzed by random amplification PCR and full-genome, high fidelity Illumina sequencing. In one sample, GVF (now known as Metabiota, Inc.) has identified a novel virus that is highly divergent from other known similar viruses and the suspected cause of viral hemorrhagic fever syndrome in this patient. This pathogen, if confirmed in culture and/or found in the environment where the outbreak occurred, may represent a novel addition to the Viral Select Agent list and extremely important pathogen of high consequence and a major scientific discovery. The contractor shall execute this project using the below listed requirements to test the hypothesis that numerous other novel pathogens of potential high impact exist in this sample set AND that serological evidence and possibly the animal reservoir or vector of the novel virus outbreak exists in the area under study:

(a) Identify previously unknown disease agents in patients with viral hemorrhagic fever syndrome of unknown origin.
(b) Conduct a retrospective epidemiological/serological investigation of the suspected novel virus.

c) Specifically, deploy epidemiologists, mammologists and vector biologists to conduct a small-scale serological survey of the area in which this suspected outbreak occurred, as well as entomological vector and/or mammalian hosts surveys.

3. Background:

Evidence for a newly emergent infectious disease(s) has arisen out of a series of small outbreaks of suspected viral hemorrhagic fever outbreaks that occurred from 2003 to 2011 in Gabon, RoC and DRC. Ebola or Marburg viruses were first suspected in each outbreak, however subsequent laboratory analysis found that each sample was negative for the presence of any known filoviruses or other suspected causes of viral hemorrhagic fever.

Year 1 results. In mid-FY10, GVF (now known as Metabiota, Inc.) was funded to analyze a subset of these samples. Out of 9 samples that were analyzed by random amplification and full genome sequence analysis under this project, two novel viruses have been identified thus far. The first, a novel recombinant strain of Crimean Congo Hemorrhagic Fever Virus (CCHFV) was identified from a patient that presented with suspected viral hemorrhagic fever in DRC in 2008. This finding was accepted for publication in PLoS Neglected Tropical Diseases journal.

The second and highly important finding, was a novel Rhabdovirus identified by full-genome amplification and sequence analysis in the serum of one patient presenting with suspected viral hemorrhagic fever syndrome in DRC in 2009. The patient was one of three that presented to a local health center in Boma, DRC in June of 2009, displaying symptoms of hemorrhagic fever syndrome. The two first patients died two days after onset of symptoms, experiencing vomiting, bloody diarrhea, fever, and mucosal bleeding. The third patient survived, but displayed the same symptoms and a blood sample was sent to the CIRMF for diagnosis. Subsequent testing for Lassa fever, Ebola, Marburg, CCHFV, and other known causes of VHF in humans were ruled out and the sample was sent for advanced pathogen discovery by GVF (now known as Metabiota, Inc.) member laboratories.

Further analysis of this sample have identified this virus as being novel to science, demonstrating only 30-40% sequence homology with other known Rhabdoviruses and that this was the only pathogen present in the patient sample.

Additional suspected VHF samples. GVS has further identified approximately 100 other samples representing similar clinical manifestations that were analyzed by CIRMF, INRB or other GVF (now known as Metabiota, Inc.) partner laboratories and remain undiagnosed. In the majority of suspected VHF cases, primary serum samples were sent to either INRB in Kinshasa, DRC or CIRMF in Franceville, Gabon for further testing, where the samples were tested for: Ebola, Marburg,
CCHF, arenaviruses, and other common causes of viral hemorrhagic fever, and were ruled out. Malaria, typhoid and other common endemic diseases were also ruled out. In certain cases, serum was co-cultured with Vero E6 cells and cytopathic effect was observed, indicating the presence of a viral pathogen.

For the purposes of this study, the contractor will use both human serum and cell culture supernatants from CIRMF and the INRB (serum only) and will utilize them to conduct advanced pathogen discovery.

4. Contribution To DoD Research Mission:

Of the NIH NIAID Biodefense Priority Pathogens, seven are of relevance to rural central African populations highly exposed to wild animals and five (anthrax, monkeypox, Lassa, hanta and Ebola) have recently been associated with wild animals in central and western Africa. Studies of such pathogens, and the search for novel pathogens of human importance, play an important role in global security as response strategies depend to a large degree on information generated by biomedical research. Specifically, this project will close the gap in knowledge of a number of pathogens through the proposed research by identifying a potentially high-consequence viral hemorrhagic fever of unknown origin from the Congo Basin.

Importantly, this study has already generated tremendous value to both local and DoD stakeholders and may possibly result in the characterization of a novel select agent pathogen, capable of causing viral hemorrhagic fever syndrome in humans.

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance-Inspection Schedule was added for CLIN 0018:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
<td>N/A</td>
<td>Destination</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance-Inspection Schedule was added for SUBCLIN 001801:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

The following Acceptance-Inspection Schedule was added for SUBCLIN 001802:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION F - DELIVERIES OR PERFORMANCE
The following Delivery Schedule item has been added to CLIN 0018:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-DEC-2014</td>
<td>6</td>
<td>DEFENSE THREAT REDUCTION AGENCY/BDCTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>(0)(6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $325,693.98 from $3,136,498.48 to $3,462,192.46.

SUBCLIN 001801:
Funding on SUBCLIN 001801 is initiated as follows:

ACRN: AH

CIN: J9CBM12493001801

Account Data: 044315 097 0400 000 N 20132014 D 2620 06053384BP-CB-CBM 1314-0400-2630-TM3BP DTRA 255
Increase: $200,000.00
Total: $200,000.00

SUBCLIN 001802:
Funding on SUBCLIN 001802 is initiated as follows:

ACRN: AD

CIN: J9CBM12493001802

Account Data: 044315 097 0400 000 N 20132014 D 2620 06053384BP-CB-CBM 1314-0400-2629-1M2BC DTRA 255
Increase: $125,693.98
Total: $125,693.98

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

AMENDMENT/MODIFICATION NO. P00012

EFFECTIVE DATE 23-Dec-2014

REQUISITION/PURCHASE REQ. NO. 01564

PRODUCT DESCRIPTION

ADMINISTERED BY (Other than agency) See Item 6

NAME AND ADDRESS OF CONTRACTOR (Inc., Street, City, State and Zip Code)

DACOM 01564

FACILITY CODE 565A

This amendment is issued pursuant to the authority of

THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES such as changes in pay

This supplemental agreement is entered into pursuant to authority of

Mutual Agreement of the Parties

IMPORTANT: Contractor is not required to sign this document and return copies to the issuing office.

DESCRIPTION OF AMENDMENT/MODIFICATION

The purpose of this modification is to:

1. Extend the Delivery Date of CLN 0018 Ebola Virus Outbreak Survivor Sampling in Sierra Leone as follows:
   FROM: December 31, 2014
   TO: January 31, 2015

2. This extension is to allow the contractor to ship samples from Sierra Leone to USAID.

3. All other terms and conditions remain unchanged and in full force and effect.

SEE SF 30 BLOCK 14 CONTINUATION PAGE

EXCEPTION TO SF 30

APPROVED BY OICM 11-14

39-115-644

STANDARD FORM 30 (Rev 10-83)

Prescribed by USA

FAR 71.504 (c) 21-2
### SUMMARY OF CHANGES

#### SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0018 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-DEC-2014</td>
<td>6</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>6</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)


<table>
<thead>
<tr>
<th>TYPE OF MODIFICATION</th>
<th>EFFECTIVE DATE</th>
<th>MODIFICATION ORDER NO.</th>
<th>MODIFICATION NUMBER</th>
<th>MODIFICATION DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amendment of Solicitation/Modification of Contract</td>
<td>25-Jan-2015</td>
<td>HCTRA1</td>
<td>00013</td>
<td>P00013</td>
</tr>
<tr>
<td>Amendment of Solicitation/Modification of Contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NAME AND ADDRESS OF CONTRACTOR**

- For: (b)(6)
- 5656 6th Street
- San Francisco, CA 94114

**FACILITY CODE**

- 5656

**ACCOUNTING AND APPROPRIATION DATA (if required)**

- See Schedule

**OTHER**

- (b)(6)

**SIGNATURES**

- Signature of person authorized to sign:
  - Date: January 29, 2015

**APPROVED BY**

- OIRM 11-81

**STANDARD FORM 30 (Rev. 10-83)**

- Prescribed by: GSA
- FAR 48 CFR 13 243
## SUMMARY OF CHANGES

### SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0018 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-JAN-2015</td>
<td>6</td>
<td>DEFENSE THREAT REDUCTION AGENCY DCTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[O][O]</td>
<td>[O][O]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[O][O]</td>
<td>[O][O]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-FEB-2015</td>
<td>6</td>
<td>DEFENSE THREAT REDUCTION AGENCY DCTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[O][O]</td>
<td>[O][O]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td>FORT BELVOIR VA 22060-6201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[O][O]</td>
<td>[O][O]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
Dear [redacted]

We confirm receipt of your email and attachment.

---Original Message---

From: [redacted]
Sent: Friday, March 31, 2017 8:51 AM
To: [redacted]
Cc: [redacted]

Subject: Distribution HDTTRA1-15-1-0053 P00022/HDTTRA1523203/Metabiota

Good morning,

Please respond to this e-mail to let me know you received it and the attachment(s).

Please see the attached modification to provide incremental funding in the amount of $930,866.00. The purpose of this modification can be found in block 14 of the attached modification. If you received this email in error, please reply immediately so we can correct the distribution.
V/R,

Defense Threat Reduction Agency (DTRA)

J4COC Contract Specialist
### Federal Financial Report

#### Page 1 of 1

<table>
<thead>
<tr>
<th>1. Federal Agency and Organizational Element to Which Report is Submitted</th>
<th>2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense Threat Reduction Agency - HDTRA1</td>
<td>HDTRA1-14-1-0052</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Recipient Organization (Name and complete address including Zip code)</th>
<th>4. DUNS Number</th>
<th>5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment)</th>
<th>6. Reporting Period End Date (Month, Day, Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metabiota, Inc. 1 Sutler Street, Suite 600 San Francisco, CA 94104</td>
<td>8281311156</td>
<td>G01A (b)(4)</td>
<td>From: 08/05/2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Basis of Accounting</th>
<th>8. Project/Grant Period (Month, Day, Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>To: 08/31/2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Reporting Period End Date (Month, Day, Year)</th>
<th>10. Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/31/2015</td>
<td>Cumulative</td>
</tr>
</tbody>
</table>

#### Federal Cash (To report multiple grants separately, also use FFR Attachment):

<table>
<thead>
<tr>
<th>a. Cash Receipts</th>
<th>b. Cash Disbursements</th>
</tr>
</thead>
<tbody>
<tr>
<td>$11,193.91</td>
<td>$423,316.87</td>
</tr>
</tbody>
</table>

#### Federal Expenditures and Unobligated Balance:

<table>
<thead>
<tr>
<th>d. Total Federal Funds Authorized</th>
<th>e. Federal Share of Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>$470,729.00</td>
<td>$423,316.87</td>
</tr>
</tbody>
</table>

#### Unobligated Balance of Federal Funds (line d minus g):

| h. Unobligated Balance of Federal Funds | $447,412.13 |

#### Recipient Share:

<table>
<thead>
<tr>
<th>i. Total Recipient Share Required</th>
<th>j. Recipient Share of Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>k. Remaining recipient share to be provided</th>
<th>0</th>
</tr>
</thead>
</table>

#### Program Income:

<table>
<thead>
<tr>
<th>l. Total Federal Share of Program Income Earned</th>
<th>m. Program Income Expended in accordance with the Deduction Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Indirect Expense:

<table>
<thead>
<tr>
<th>n. Program Income Expended in accordance with the Addition Alternative</th>
<th>o. Unexpended Program Income (line l minus line m or line n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Notes:

- Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.

#### Certification:

By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and that the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

### Paperwork Burden Statement

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.8 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20503.
REPORT OF GOVERNMENT-FURNISHED PROPERTY

Federal Agency: Defense Threat Reduction Agency  
Agreement Number: HDTRA1-14-1-0052  
Reporting for period: 8/5/2014 - 6/4/2018

Recipient Name and Address  
Metabiota, Inc.  
425 California Street, Suite 1200  
San Francisco, CA 94104

EIN#: [Redacted]

Name and Title of Authorized Certifying Official: [Redacted]

Signature of Authorized Certifying Officer: [Redacted]

<table>
<thead>
<tr>
<th>Property classification accounts</th>
<th>Description of Items</th>
<th>Quantity</th>
<th>Balance, Beginning of year ($)</th>
<th>Additions</th>
<th>Deletions</th>
<th>Balance, end of Year (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/5/2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6/4/2018</td>
</tr>
<tr>
<td></td>
<td>Acquisition costs ($)</td>
<td>Government Furnished</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Property, Plant and Equipment $5,000 and over  
N/A  
0  
0  
0

Total Government Furnished Property

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
</table>
**FEDERAL FINANCIAL REPORT**

Follow form instructions

1. Federal Agency and Organizational Element to Which Report is Submitted
   Defense Threat Reduction Agency HDTRA1

2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)
   HDTRA1-14-1-0052

3. Recipient Organization (Name and complete address including Zip code)
   Metabola, Inc. 1 Sutter Street, Suite 600 San Francisco, CA 94104

4a. DUNS Number 828 131 156
4b. EIN 91-0000024

5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment)
   Cage Code 56S5P4

6. Report Type
   - Quarterly
   - Semi-Annual
   - Annual
   - Final

7. Basis of Accounting
   - Cash
   - Accrual

8. Project/Grant Period (Month, Day, Year)
   From: 09/05/2014
   To: 09/30/2017

9. Reporting Period End Date (Month, Day, Year)
   09/30/2017

10. Transactions
    - Cumulative

(Use lines a-c for single or combined multiple grant reporting)

**Federal Cash (To report multiple grants separately, also use FFR Attachment):**

a. Cash Receipts
   $2,179,381.98

b. Cash Disbursements
   $2,352,441.58

c. Cash on Hand (line a minus b)
   $-173,059.60

(Use lines d-o for single grant reporting)

**Federal Expenditures and Unobligated Balance:**

d. Total Federal funds authorized
   $2,520,847.00

e. Federal share of expenditures
   $2,392,441.58

f. Federal share of unliquidated obligations
   $9,000

g. Total Federal share (sum of lines e and f)
   $2,392,441.58

h. Unobligated balance of Federal funds (line d minus g)
   $128,405.42

**Recipient Share:**

i. Total recipient share required
   0

j. Recipient share of expenditures
   0

k. Remaining recipient share to be provided (line i minus j)
   0

**Program Income:**

l. Total Federal share of program income earned
   0

m. Program income expended in accordance with the deduction alternative
   0

n. Program income expended in accordance with the addition alternative
   0

o. Unexpended program income (line l minus line m or line n)
   0

11. Indirect Expense

   a. Type
   b. Rate
   c. Period
   d. Base
   e. Amount Charged
   f. Federal Share
   
   FOIA (b)(4)

   g. Totals
   FOIA (b)(4)

12. Remarks: Attach any explanations deemed necessary or information required by the Federal sponsoring agency in compliance with governing legislation.

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

   a. Typed or Printed Name and Title of Authorized Certifying Official
   FOIA (b)(6)

   c. Telephone (Area code, number, and extension)
   FOIA (b)(6)

   b. Signature of Authorized Certifying Official
   FOIA (b)(5)

   e. Date Report Submitted (Month, Day, Year)
   10/30/2017

14. Agency use only:

   Standard Form 425 - Revised 10/11/2011
  OMB Approval Number: 0348-0061
  Expiration Date: 2/28/2015

**Paperwork Burden Statement**

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20560.
AWARD/CONTRACT

1. THIS CONTRACT IS A RATED ORDER UNDER DFARS 47.CHR 709

2. CONTRACT (Proc. and Acct. No.)
HETRA1-14-1-0052

3. EFFECTIVE DATE
05 Aug 2014

4. REQUIREMENT/PURCHASE REQUEST/PROJECT NO.

5. ISSUED BY
CODE
DEFENSE THREAT REDUCTION AGENCY (DTRA)
8855 JOHN J. KINSMAN RD.
FORT BELVOIR VA 22060-0001

6. ADMINISTERED BY
CODE

7. NAME AND ADDRESS OF CONTRACTOR
CIA (BGO)
CIA BLDG 8
SOUTHERN STREETS
SAN FRANCISCO CA 94103-4923

8. DELIVERY
FOB ORIGIN [X] OTHER

9. DISCOUNT FOR PROMPT PAYMENT

10. SUBMIT INVOICES TO THE ADDRESS SHOWN IN

11. SHIP TO MARK FOR
DEFENSE THREAT REDUCTION AGENCY (DTRA)
CIA (BGO)
CIA BLDG 8
SOUTHERN STREETS
SAN FRANCISCO CA 94103-4923

12. PAYMENT WILL BE MADE BY
DFAS COLUMBUS CENTER
DFAS CONSENT ENTITLEMENT OPERATIONS
P.O. BOX 162341
COLUMBUS OH 43216-2341

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
[ ] 10 U.S.C. 2304 (c) [ ] 41 U.S.C. 252 (c) [ ]

14. ACCOUNTING AND APPROPRIATION DATA

15A. ITEM NO.
15B. SUPPLIES: SERVICES
15C. QUANTITY
15D. UNIT
15E. UNIT PRICE
15F. AMOUNT

---

SEE SCHEDULE

---

15G. TOTAL AMOUNT OF CONTRACT
$2,520,337.00

---

16. TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>(X)</th>
<th>SEC.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>A</td>
<td>SOLICITATION CONTRACT FORM</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>SUPPLIES OR SERVICES AND PRICES: COSTS</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>DESCRIPTION SPONSOR'S WORK STATEMENT</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>PACKAGING AND MARKING</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>INSPECTION AND ACCEPTANCE</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>DELIVERIES OR PERFORMANCE</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>CONTRACT ADMINISTRATION DATA</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>SPECIAL CONTRACT REQUIREMENTS</td>
</tr>
</tbody>
</table>

PART I: THE SCHEDULE

PART II: CONTRACT CLAUSES

PART III: LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

PART IV: REPRESENTATIONS AND INSTRUCTIONS

REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS

INFORMATION CONCERNING FIRM, OFFERORS, AGREEMENTS, ETC.

PART V: EVALUATION FACTORS FOR AWARD

CONTRACTING OFFICER WILL COMPLETE ITEM 17 FOR 18 AS APPLICABLE

---

17. [ ] CONTRACTOR'S INTEGRATED AGREEMENT (CIA) - Contractor is required to sign this document and return it to the Contracting Officer. This document is to be used for all contracts and orders issued by CIA. It contains a statement of performance obligations and shall be incorporated by reference herein.

---

18A. NAME AND TITLE OF SIGNER
(Type of paper)

18B. NAME OF CONTRACTOR

19A. DATE SIGNED
05 Aug 2014

19B. UNITED STATES OF AMERICA

20A. NAME OF CONTRACTING OFFICER

20B. DATE SIGNED
05 Aug 2014
Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>Zoonotic Viral Sharing in South Tanzania</td>
<td></td>
<td></td>
<td></td>
<td>$2,520,837.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Period: Grantee shall perform all work IAW the SOW in Section C of this document.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET AMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$2,520,837.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td>Year One Funding</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FY 14 Funds for Year One</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PURCHASE REQUEST NUMBER: HDTRA1412303</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET AMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

ACRN AA
CIN: HDTRA14123030001

$345,748.00
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000102</td>
<td>Year One Funding</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FY 13 Funds for Year One</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PURCHASE REQUEST NUMBER: HDTRA1412303</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NET AMT</th>
<th>$0.00</th>
</tr>
</thead>
</table>

ACRN AB
CIN: HDTRA14123030002

$524,981.00
Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

252.601-9002   GRANT REFERENCE INFORMATION (MAY 2009)

a. This grant is awarded as a result of Broad Agency Announcement (BAA) HDTRA1-09-14-FRCWMD-BAA, Research and Development Enterprise, Basic and Applied Sciences Directorate, Basic Research for Combating Weapons of Mass Destruction (C-WMD).

b. CFDA #: 12.351

c. Authority: 10 U.S.C. 2358 as amended

STATEMENT OF WORK

Evaluating Zoonotic Viral Sharing Among Bats, Primates, and People in a High Risk Transmission Interface in Southern Tanzania - Phase II Technical Proposal

I. ABSTRACT.

Viruses traced to bats and primates have caused some of the most significant human pandemics. As human populations rapidly expand into undeveloped areas, humans are living in closer contact with diverse wildlife, increasing the risk of disease transmission. In resource-limited areas, bushmeat hunting and consumption of forest plants shared with animals provide vital nutrients but may also put pathogens on the plate. Although extensive research has been directed at understanding transmission of viral diseases like Ebola, the ecology of these pathogens is not well understood. In the biodiverse Udzungwa Mountains, one of Tanzania’s last areas of undeveloped mountain forest, bats and non-human primates live in close proximity to each other and human communities, creating a high-risk interface for zoonotic disease transmission and spillover of potentially pandemic pathogens. In this region, Ifakara Health Institute maintains human specimen banks that may be accessed to evaluate historical and ongoing pathogen sharing. Through our established viral detection project in the region, our collaborative TZ-US team is active on the ground to intensify wildlife and human surveillance to evaluate 1) transmission of potentially shared pathogens, like filoviruses; 2) the impact of bat and primate community composition on viral diversity; and 3) human exposure to zoonotic viruses in high-risk populations living at the forest interface. By investigating cross-species viral sharing at this high-risk interface using best known practices, our team will also strengthen Tanzanian surveillance and diagnostic capacity for dangerous pathogens and identify the critical control points to prevent local and pandemic outbreaks.

II. SCOPE.

A. OBJECTIVE.

We will analyze the risk of infection with filoviruses and other viruses, especially NIAID Biodefense Category
A and other potential CDC Select Agents, in Tanzania. We will evaluate the risk of zoonotic viral disease transmission among bats, non-human primates (NHP), and people sharing a forest interface with high human-wildlife contact in Southern Tanzania in order to identify critical control points for disease transmission and strengthen local surveillance capacity to prevent regional or pandemic outbreaks of disease.

**Hypotheses:** 1) **Bats in Tanzania are a reservoir for emerging viral diseases, which have the potential to spread to humans through direct contact or intermediately via NHPs sharing habitats and resources with both bats and people.** 2) **Diversity of potentially zoonotic viruses in wildlife is associated with the number of bat and NHP species living in a given habitat.** Protected areas bordered by human communities in the Udzungwa Mountains provide the ideal environment in which to investigate the potential for emerging viral disease transmission from bats and NHPs to humans. Viral investigation will target biodefense priority, Select Agent pathogens with recognized potential to initiate pandemics or to be weaponized as well as emerging viral disease threats from families including filoviruses, henipaviruses, coronaviruses, bunyaviruses, flaviviruses, and rhabdoviruses, among others.
Specific Project Objectives:
1) Engage local partners to characterize forest field sites. Partners will assess: bat-NHP interaction; bat and NHP species present; ecological variation; and degree of human contact. Identify specimens in human sample archives (frozen whole blood or serum) collected from acutely ill individuals living at high-risk interfaces for contact with bats and primates. (Yr 1)
2) Collect specimens (blood, saliva, urine, and/or feces) from bat and NHP populations living in characterized Udzungwa sites during wet and dry seasons (Yrs 1-3).
3) Collaborate with local health clinics and collect specimens (blood, oral swabs, and feces) from high-risk human groups bordering forest areas during wet and dry seasons (Yrs 1-3).
4) Test wildlife specimens, archived undiagnosed human febrile illness samples, and prospective human surveillance specimens for shedding of potentially zoonotic viral pathogens by molecular assays. Sample handling, RNA extraction, viral family level PCR analyses, and sample storage will occur in a locked BSL-3 laboratory as appropriate (Yr 1-3).
5) Characterize viral RNA amplified from animal and human samples and perform phylogenetic analyses. Assess viral diversity among bats, NHP, and humans to evaluate pathogen sharing in the Udzungwa ecosystem. (Yrs 2-3).
6) Conduct spatial analyses and epidemiologic modeling to identify risk factors for human exposure to bat and NHP viral pathogens, to assess options for mitigating viral spillover, and to target behavior change interventions. (Yrs 2-3).
7) Collaboratively train junior scientists (postdocs and graduate students) and local stakeholders to build capacity in: pathogen surveillance, wildlife and human sampling, molecular diagnostics, biosecurity, and One Health approaches and concepts in Tanzania (Yrs 1-3).

B. BACKGROUND.
We live in an ever-changing environment of pathogen distribution, prevalence, and transmission. Within the past 6 months alone, two deadly viruses (H7N9 influenza and Middle East respiratory syndrome Coronavirus (MERS-CoV)) have emerged as novel highly pathogenic infections. The majority of known human pathogens have an animal reservoir [1], emphasizing direct connections between human, wildlife, and domestic animal health. Recent East and Central African hemorrhagic fever outbreaks caused by the related filoviruses, Ebola and Marburg, have redirected global attention to the high potential for zoonotic spread from wildlife to human populations [2-4]. Bats are considered the most likely reservoir of pathogens like Ebola and Marburg viruses [5], but the transmission pathways to humans are not clearly understood. While humans may contact infected bats directly or indirectly (through exposure to saliva, urine, or feces), contact with other wildlife such as NHPs that share habitat and resources with bats may also provide a source of exposure as an intermediate vector. The flow of people into forests and wildlife out (of forests) provides diverse opportunities for filovirus and other zoonotic viral pathogen transfer, but the risks associated with different activities and habitats are not well understood. Bat-NHP interactions, as well as bat and NHP community assemblages, may shape viral diversity in a given environment and alter zoonotic disease transmission potential. Understanding the influence of bats, NHP, and people on viral transmission will help to direct surveillance and control strategies to limit the pandemic potential of filoviruses, as well as other existing and yet unknown emerging viral pathogens. Our proposed research targets diverse viral families that have zoonotic transmission potential at human-wildlife interfaces.
Bat and non-human primate zoonotic disease risks

Recent zoonotic disease research suggests that bats are critical reservoirs for filoviruses, as well as other diverse existing and emerging zoonotic pathogens, including henipaviruses, coronaviruses, paramyxoviruses, and flaviviruses [6-9]. Central and East African human outbreaks of Ebola and Marburg hemorrhagic fever, for example, have been linked to consumption of or environmental exposure to bats [2,3]. An urban straw-colored fruit bat (*Eidolon helvum*) seropositive for Ebola virus survived for at least 13 months post-capture, demonstrating that bat hosts of viruses that cause severe disease in humans and other mammals could potentially transmit these pathogens over long periods of time [10]. Interestingly, much higher prevalences of exposure to Ebola virus were detected in non-urban bat species in West Africa. Based on the distribution of Ebola virus seroprevalences in diverse bat species, Hayman et al. [11] suggest that human contact with bats in rural and forest settings may pose a greater zoonotic transmission risk than contact with urban fruit bat colonies.

Non-human primates also serve as a source of diverse viral zoonotic disease exposure for humans [12-14]. The zoonotic origin of HIV offers a dramatic example of NHP to human transmission [15], but human outbreaks of hemorrhagic fever have also been traced to contact with live or dead African NHPs [13]. For example, while NHPs are reservoirs for some zoonotic viruses, they may also act as a link between bats and people sharing forest landscapes. Gorillas and chimpanzees have experienced epidemics of Ebola [16], which suggests that NHPs are not a filovirus reservoir, but that they contact reservoir species (now known to include bats) in forest habitat. It has been proposed that NHPs can acquire filoviruses through hunting other NHPs or by direct or indirect contact with reservoir hosts [16]. In this case, Ebola virus exposure in terrestrial and predominantly arboreal NHP species suggests that contact may occur in multiple forest strata. Habitat and food resource sharing among bats, NHPs, and people therefore represent critical interfaces for zoonotic virus transmission, but interactions among these communities in tropical forests are not well understood. Bat sleeping and feeding roosts offer potential focal points of contact where bats and NHPs might share resources. Discarded fruits and seeds at feeding roosts [17] may present an opportunity for primates and people to directly contact viruses in bat saliva and/or feces. However, viral contamination of discarded food items at bat feeding roosts has not been thoroughly investigated.

Zoonotic virus transmission to people

Human outbreaks of Ebola and other agents have frequently started with infection of a single or few individuals expected to have been exposed to infected bats or NHP in forest habitats [3,13]. While exposure frequently occurs through hunting and butchering of animal carcasses, other extractive forest uses may also expose people to disease agents. Ebola infection in a forest-based charcoal worker and Marburg infection in mine workers and tourists visiting caves with bat colonies provide additional examples of modes of transmission [2,18]. In filovirus outbreaks, after the initially infected individuals contacted other members of their villages or sought care in clinics and hospital settings with limited sanitary practices, the number of cases and their geographic range often expanded rapidly through person-to-person transmission. Although periodic large outbreaks attract international media and research attention, undiagnosed filovirus and other zoonotic viral transfer may happen much more frequently. Even within outbreaks, viral diversity in different patients has suggested multiple independent zoonotic transmission events [18,19]. Understanding the risk of these initial zoonotic disease transmission events at the forest–human interface is essential to protect against the large-scale
outbreaks that threaten national and international public health. While frequent dead-end zoonotic transmission events likely occurred in isolated areas in the past, rapid human population growth and landscape conversion near protected areas may enhance outbreak potential.

Non-specific clinical symptoms including fever, headache, and muscle pain occur in the initial stages of many zoonotic viral illnesses [20]. Due to scarce clinical resources in many areas of Africa, patients with zoonotic virus-based fevers may be misdiagnosed with more common febrile illnesses, such as malaria. Misdiagnosis of filovirus infections, for example, as dysentery or yellow fever delayed critical medical intervention in past outbreak situations [21,22]. In two clinics adjacent to Udzungwa Mountains National Park, over 60% of patients presenting with febrile illness were incorrectly diagnosed with malaria when microscopy was used as the only diagnostic test [23]. While underlying causes of disease were not identified in misdiagnosed patients, it suggests that non-malarial causes of febrile illness are very common in this area. In the Eastern Arc Mountains of northern Tanzania, malaria was also commonly misdiagnosed in patients with severe febrile illness, especially those living at higher altitudes [24].

Study area

Part of the Eastern Afromontane biodiversity hotspot [25], the protected areas of the Udzungwa Mountains are islands of predominantly intact forest surrounded by human development. In Udzungwa Mountains National Park (UMNP) and a mosaic of nearby forest reserves, diverse assemblages of NHPs and bats share the largest remaining forest blocks in the Eastern Arc mountain chain [26], Figure 1. In the heterogeneous Udzungwa landscape, which is a mixture of lowland to montane closed canopy forest, woodlands, grasslands, and developed areas, protected forest blocks range in size from <1 km$^2$ to 526 km$^2$ [27]. The eastern sides of lower elevation forest blocks receive 2000-3000mm of rainfall per year, while higher elevation drier forests receive approximately 500mm per year. There are typically two periods of concentrated rainfall: December-January and March-May [28].

![Figure 1. Habitat map of Park and neighboring forest reserves (modified from [27]).](image)

The Udzungwas host 13 NHP species, including baboons, monkeys, and galagos [28]. Initial surveys of UMNP and forest reserves identified diverse megachiropteran (fruit bats) and microchiropteran bats [29,30], including species that have been shown to shed zoonotic viruses in other areas of East Africa [2]. Although the reserves are protected, widespread human use currently threatens NHPs and may expose people to pathogens. In addition to individuals gathering medicinal plants and traveling forest paths [31], bushmeat hunters kill NHP ranging from baboons to rarer, endemic monkeys and galagos [32,33]. Bushmeat is consumed locally in hunters’ homes or villages, but a thriving
clandestine trade may also export some wildlife tissues to larger Tanzanian cities. This network offers an efficient potential pathway for wildlife products and pathogens to reach high-traffic areas with dense human populations. People living on park and reserve borders also visit sacred cave sites in the forests, increasing their potential exposure to NHPs and roosting bats. Farmers living near protected areas, UMNP staff members housed in the park, researchers, and tourists are also in contact with the diverse NHP populations. Ecological research is increasing in the Udzungwa Mountains, focusing on population dynamics, habitat use, response to environmental change, and animal behavior [27,34-37]. Building upon existing local and academic ecological knowledge, an investigation of emerging viruses in bats, primates, and people will provide critical insight on transmission of select agent and novel pathogens with pandemic potential.

C. PROGRAMMATICS.

Management team (MT) approach: Continuing their nearly 5 year partnership as implementing partners, Metabiota and the University of California, Davis (UCD) will co-manage this project with local partners in Tanzania. Metabiota will provide administrative and financial oversight while UCD will provide the scientific management and implementation of this research in Tanzania. Metabiota Principal Investigator, Dr. Falgunee Parekh, will work hand-in-hand with UC Davis Principal Investigator, Dr. Jonna Mazet to ensure project deliverables are met according to contract timelines or as nearly as possible.

Since 2006, investigators from UCD and Sokoine University of Agriculture (SUA) in Tanzania have been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania through our HALI (Health for Animals and Livelihood Improvement) project. In 2009, HALI became the Tanzanian institutional home of the USAID Emerging Pandemic Threats’ PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans. Ifakara Health Institute (IHI) has an extensive history of human infectious disease research in Tanzania and has collaborated with SUA on diverse health projects for over 20 years. Metabiota, a partner on the PREDICT project, has extensive experience investigating emerging viruses with zoonotic potential in West and Central Africa. Project study design, wildlife and human sampling, specimen diagnostics, as well as spatial analyses and epidemiologic modeling will be jointly coordinated through UCD, SUA, and IHI. Archived human samples from areas of human-wildlife contact will be identified by UCD and IHI. All human samples, both archived and prospective will be tested at IHI BSL-3 laboratory facilities. Our US-Tanzania MT will have monthly conference calls to coordinate research design, activities, and progress. The proposed One Health collaboration will facilitate cutting edge research on existing and emerging viral pathogens at critical wildlife-human interfaces in Tanzania, and build local, regional, and national capacity to detect and mitigate zoonotic transmission of select agents.

Falgunee Parekh, PhD, MPH, Metabiota – liaison to DTRA for coordination of project administration and reporting; will provide input on public health-related project objectives.

Jonna Mazet, DVM, MPVM, PhD, One Health Institute, School of Veterinary Medicine, UCD – program director responsible for project oversight. Mazet will facilitate collaborative relationships, study design, and interpretation of findings.

Elizabeth VanWormer, DVM, PhD, One Health Institute, UCD – project manager responsible for coordination of teams and project objectives across US institutions and in Tanzania. VanWormer will facilitate project implementation and epidemiologic analyses.
**Rudovick Kazwala**, BVM, PhD, Faculty of Veterinary Medicine, SUA, Morogoro, Tanzania – Professor responsible for SUA-related laboratory and field activities as part of the HALI Project in Tanzania. Kazwala will facilitate capacity building of Tanzanian laboratories and scientists.

**Joseph Paschal Mugasa**, MS, PhD, Laboratory director at IHI Bagamoyo Research site – responsible for input and oversight of laboratory activities related to biosafety and security. Mugasa will also facilitate capacity building of Tanzanian laboratories and scientists.

**Progress evaluation:** The MT will monitor project activities to achieve the following benchmarks: 1) obtain US and Tanzanian protocol approval, characterize field sites, and identify junior scientists in Year 1; 2) perform field sampling and laboratory diagnostic activities in Years 1-3 and initiate data analysis in year 2; and 3) prepare recommendations to reduce zoonotic viral transmission potential to local and global communities and prepare at least 2 scientific publications in Year 3.

**D. RELEVANCE.**

The proposed work will improve fundamental understanding of filoviruses and other emerging virus epidemiology and add tangible data on these agents to the DTRA knowledge base. It will provide a platform for engaging and networking with professionals working in emerging infectious diseases (EIDs) in both the human and animal sectors and will increase the capacity for rapid and accurate local detection and mitigation of threats to humans and animals with positive economic, health, and other security implications.

Ebola and Marburg viruses, as well as certain other viruses known to circulate in bats are NIAID Category A Biodefense Priority Pathogens and US DHHS Select Agents. While these viruses are considered research priorities, little is understood about their natural history and transmission cycle, as well as their replication in their reservoir host species, which are believed to be African bat species. Bats, as well as their natural interaction with NHPs, humans, and other intermediary species are also poorly understood. Thus, it is paramount to better understand the circulating viruses in bat populations in Tanzania and elsewhere, as well as to understand the interaction that humans and other species have with bats in that region. Through the proposed research, we will engage emerging scientific leaders in Tanzania and will closely collaborate on the proposed research, the results of which may directly increase global public health security by allowing us to better understand the distribution, prevalence, and high risk behaviors associated with filoviruses and other emerging viruses of pandemic potential. The proposed research targets Thrust Area 6 and advances C-WMD science by building local and global understanding of pathogens that pose the greatest threat as biological weapons. Weapons and terrorism in Tanzania are a concern due to past and recent political events in the East African sub-region.

Investigating zoonotic viruses in bats, NHPs, and people in Udzungwa Mountain forests strengthens local capacity to conduct surveillance for pathogens that severely threaten public health and global security. Understanding the natural ecology of emerging zoonotic viruses will facilitate control strategies to reduce human exposure and disease spread, a globally valuable outcome. In addition to enhancing in-country pathogen detection capability, the proposed research will build understanding of risk factors for transmission among bats, NHPs, and humans. Targeting surveillance and control strategies to high-risk human-wildlife interfaces for disease emergence protects people in the US homeland and abroad by limiting the risk posed by pathogen spillover. Understanding viral transmission events at human-wildlife interfaces will help public health officials and researchers to distinguish between a naturally occurring spillover
event such as MERS-CoV verses an intentional release. Increasing knowledge of naturally-occurring viruses that could be inappropriately handled or developed into weapons of mass destruction will also help to safeguard Tanzanian and global public health.

The proposed work will also extend the reach of the Cooperative Biologic Engagement Program (CBEP) and will advance partnerships that University of California, Davis and Metabiota have with institutions in Tanzania that are hubs for research excellence in East Africa. The institutional partnerships will have particular benefits given the active USAID and NIH-funded research programs that UCD can leverage in the region and will enhance the potential for collaborative One Health research that is a proven model within this internationally experienced and respected research team. These features have the potential to radically improve sustainability and absorbability of these investments for long-term impact.

III. CREDENTIALS.

Our consortium is comprised of a group of highly qualified experts from across academia, industry, and government backgrounds, all of whom have successfully implemented large-scale USG and internationally funded programs abroad. First funded by CBEP in mid-2010, Metabiota has demonstrated high-quality research collaborations in some of the world’s most austere settings. This work has resulted in 6 CBEP-funded high-impact publications, including the description of a novel virus associated with viral hemorrhagic fever syndrome in the Democratic Republic of the Congo (DRC). Metabiota supported the response to 6 outbreaks (suspected viral hemorrhagic fever, polio, and yellow fever) and has facilitated shipment of samples back to US DoD laboratories for the further development and testing of diagnostics and countermeasures. Metabiota, as a member of the WHO GOARN, was considered an invaluable resource during these events, setting the stage for future engagements globally, and, in this regard, is a long-time collaborator with US military labs overseas. Our successes in working with CBEP have been sustained by involving multiple international and regional networks, such as the African Field Epidemiology Network (AFENET), the WHO Especially Dangerous Pathogens Laboratory Network (WHO-EDPLN), and existing research and public health laboratory networks. We also have experience facilitating the establishment of regional networks as demonstrated through our assistance in the creation of the Central African Military Health Alliance (CAMHA), which Metabiota continues to serve as integrating contractor. Metabiota actively engages local, regional, and international partners in project implementation.

The UCD team is comprised of a highly qualified and integrated set of infectious disease faculty and researchers who specialize in the epidemiology and surveillance of zoonotic diseases that may be transmitted between animals and humans. Based within the One Health Institute at UCD, the multidisciplinary team has extensive experience in core CBEP topics, including infectious disease research, grant writing, mentoring, and training. For example, the UCD team manages an implementing consortium for and scientifically leads the USAID’s Emerging Pandemic Threats Program PREDICT project, a $75 million multi-institutional, trans-disciplinary project in 20 developing countries that aims to enable global surveillance for zoonotic diseases emerging from wildlife using geospatial modeling, genomics, molecular virology, epidemiology, and targeted field studies at hot zoonotic disease transmission interfaces. In just over three years since it’s implementation, PREDICT has discovered over 200 novel viruses, trained over 1500 collaborators from developing nations, and published over 28 manuscripts in the peer-reviewed literature.
Sokoine University of Agriculture (SUA) is the premier veterinary school for Tanzania, and Ifakara Health Institute is a leader in public health research in the country. Since 2006, SUA has been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania as a partnership with UCD through our HALI project. In 2009, HALI became the Tanzanian institutional home of the PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans. Ifakara Health Institute (IHI) has an extensive history of human infectious disease research in Tanzania and has collaborated with SUA on diverse health projects.

**Personnel**

**Falgunee K. Parekh, PhD, MPH,** will serve as PI for this effort as the Lead Metabiota Staff Scientist. Dr. Parekh serves as the scientific technical lead on epidemiologic studies of various infectious diseases, including Lassa Fever and Ebola, to characterize the morbidity, mortality and risk factors associated with disease and clinical outcomes.

**Jonna A.K. Mazet, DVM, MPVM, PhD** will serve as PI and lead for UCD. Professor Mazet currently leads a global network to build capacity within more than 20 countries to develop surveillance and complete the necessary research to halt pandemics. As a professor in the School of Veterinary Medicine, Mazet provides service to government agencies faced with emerging infectious disease challenges, including USAID and U.S. Department of Agriculture.

**Woutrina Miller, DVM, MPVM, PhD** will serve as a SME for infectious zoonotic diseases. Dr. Miller is a veterinarian and Associate Professor in the School of Veterinary Medicine at UCD. She is an infectious disease molecular biologist with extensive experience working on zoonotic diseases that can be transmitted from animals to humans and currently has active research in Tanzania that involves both the animal and human health sectors.

**Elizabeth VanWormer, DVM, PhD,** One Health Institute, UCD will serve as a project scientist and implementation manager. Dr. VanWormer is an epidemiologist currently living in Tanzania and facilitating the HALI Project that would house the proposed research. She has in-depth experience conducting wildlife and zoonotic disease research and managing multi-disciplinary international teams in Tanzania, implementing federal grants/contracts, and integrating technical activities with stakeholders from government ministries to communities.

**Rudovick Kazwala, BVM, PhD** will serve as a Co-PI and lead for the Tanzania team. He is a Professor of Public Health and Epidemiology at SUA as well as Chairman of the Tanzania Veterinary Medical Association. Professor Kazwala is on the IHR Roster of Experts for veterinary issues involving zoonoses and currently leads viral disease research for the PREDICT project in Tanzania. As a founding PI of the HALI Project with UCD, Professor Kazwala is well established with all the partner organizations involved in this DTRA research proposal.

**Honorati Masanja, MS, PhD** will serve as the Ifakara Health Institute lead in his role as Chief of Research Operations at IHI. Dr. Masanja is an epidemiologist skilled in data management and biostatistics who leads numerous collaborative studies in Tanzania and is funded by international organizations such as the WHO and CDC.

**Joseph Paschal Mugasa, MS, PhD** will serve as a SME for viral zoonoses and lead for the IHI laboratory team. Dr. Mugasa is currently the laboratory director at the IHI Bagamoyo research site and the head of biomedical research at IHI. Dr. Mugasa has extensive experience working with international teams on molecular investigations of human and animal pathogens.

**Tanzania Wildlife Research Institute (TAWIRI) specialist,** either Robert Fyumagwa, DVM, PhD or his designee. The TAWIRI representative (TBN in conjunction with Dr. Fyumagwa and
TAWIRI Director of Research, Dr. Julius Keyyu) will serve as SME for wildlife disease surveillance and lead for the TAWIRI Team. Dr. Fyumagwa is currently the Center Director for TAWIRI’s Serengeti Wildlife Research Centre and is a collaborator with our collaborative TZ-US led PREDICT project in Tanzania. Dr. Fyumagwa has extensive experience working with international teams on wildlife and zoonotic disease research, including NHPs.

IV. WORK TO BE PERFORMED.

A. GENERAL

We will investigate the epidemiology of filoviruses and other zoonotic viruses in bat, NHP, and human populations sharing a mosaic of protected forests and bordering lands in southern Tanzania. By examining viruses circulating in wildlife and human hosts in this biodiverse environment, we will increase the understanding of pathogen emergence risk and zoonotic disease transmission while building local capacity to diagnose, conduct surveillance for, and control pathogens of pandemic and biosecurity concerns. To characterize potentially zoonotic viruses in bat and primate hosts, samples will be collected from these animals from identified sites with differing bat and primate community composition and likelihood of human contact (based on distance to nearest villages and reported human forest use). Primates and bats captured at field sites will be sampled twice yearly to reflect seasonal differences (wet vs. dry season) in viral shedding. Saliva samples from discarded seeds and fruits at bat feeding roosts [17] will also be collected, as these sites offer an environmental focus of potential virus exposure for primates and other animals. Remote-triggered digital field cameras will be used to monitor other taxa visiting bat feeding roosts to assess the potential for inter-taxa viral transmission. All samples will be transported securely under project supervision in locked containers from field sites to the labs at SUA and IHI for secured storage and testing.

To investigate human exposure to filoviruses and other zoonotic viruses, we will collaborate with health clinics near Udzungwa forests to sample individuals presenting with non-malarial febrile illness. By collecting blood, oropharyngeal swabs, and fecal samples along with survey data on forest use and wildlife contact, we will be able to examine risk factors for wildlife origin virus exposure. Humans will be sampled seasonally in parallel with wildlife to capture differences in wet and dry periods. In addition to the prospectively collected human samples, we will evaluate archived human samples from sick individuals living near forests or likely to have had high contact with wildlife. Testing wildlife and human specimens with the efficient viral family PCR screening approach developed by PREDICT to detect emerging viral threats, we will capture critical information about viruses circulating in sympatric bat, NHP, and human populations while developing essential local laboratory capacity to detect priority pathogens. Sequencing and phylogenetic mapping will be used to determine the genetic similarity of viruses. Statistical models will be used to evaluate demographic, seasonal, and ecological risk factors for viral family or individual virus exposure. Spatial analyses will be performed to identify hotspots of pathogen transmission for targeting control of spillover from wildlife to human populations.

B. SUMMARY.

Year #1
Task 1: Management team meetings (monthly)
Task 2: Administrative startup and maintenance (Quarters 1-3)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training, trainee identification, and mentorship (Quarters 1-4)
Task 5: Field site assessment and preparation (Quarters 1-2)
Task 6: Human sample archive assessment (Quarters 1-4)
Task 7: Active human surveillance (Quarters 3-4)
Task 8: Active wildlife surveillance (Quarters 2-4)
Task 9: Environmental characterization and sampling (Quarters 2-4)
Task 10: Establishment of sample repository/metadata records, accession numbers (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 3-4)

**Year #2**
Task 1: Management team meetings (monthly)
Task 2: Administrative maintenance (Quarters 1-4)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training and trainee mentorship (Quarters 1-4)
Tasks 5 & 6: Not applicable for Year 2
Task 7: Active human surveillance (Quarters 1-4)
Task 8: Active wildlife surveillance (Quarters 1-4)
Task 9: Environmental characterization (Quarters 1-4)
Task 10: Sample repository maintenance (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 1-4)
Task 12: Molecular characterization of viruses (Quarters 3-4)
Task 13: Data analysis/modeling (Quarters 1-4)

**Year #3**
Task 1: Management team meetings (monthly)
Task 2: Administrative maintenance (Quarters 1-4)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training and student mentorship (Quarters 1-2)
Tasks 5 & 6: Not applicable for Year 3
Task 7: Active human surveillance (Quarters 1-2)
Task 8: Active wildlife surveillance (Quarters 1-2)
Task 9: Environmental characterization (Quarters 1-2)
Task 10: Sample repository maintenance (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 1-3)
Task 12: Molecular characterization of viruses (Quarters 1-4)
Task 13: Data analysis/modeling (Quarters 1-4)
Task 14: Data interpretation, development of stakeholder communications, local distribution of findings, and manuscript preparation (Quarters 1-4)

C. **DETAILED TASKS.**

i. **Task 1: Monthly Management Team (MT) Meetings (Years 1-3)**
The project MT will meet once per month using Skype or a similar internet-based international communication tool. Project logistics and progress will be assessed, and action items for the coming month will be identified. A record of meetings will be maintained for reference. *Personnel involved:* Parekh, Mazet, VanWormer, Kazwala, Mugasa. *Metrics of Success:* At least 12 MT meetings logged per project year. *Deliverables:* Meeting minutes will be archived and progress on identified action items highlighted in the annual report.
ii. Task 2: Administrative startup and maintenance (Years 1-3)

Subtask 2-a: Obtain appropriate US and Tanzania research approval (Years 1-3)

The MT will obtain ethical clearance for human surveys, human prospective specimen collection, and human specimen archive use through the University of California, Davis IRB and the Tanzania National Institute of Medical Research (NIMR). Research permission for wildlife sampling in Udzungwa Mountain forests will be obtained from the UCD Animal Care and Use Committee and the Tanzania Wildlife Research Institute (TAWIRI). TAWIRI approval includes permission to conduct research on lands within and surrounding national parks and forest reserves. Following TAWIRI and NIMR approval, general research and residence permits will be obtained from the Tanzania Committee on Science and Technology (COSTECH) and Tanzanian Ministry of Home Affairs (Immigration). The MT has extensive experience with UCD and Tanzania permitting system requirements and timelines, which will allow permits to be acquired smoothly. Permits will be renewed annually.

Subtask 2-b: Develop study protocols, survey instruments, and data collection forms (Year 1)

Working with the MT, junior scientists will generate study field and lab protocols and surveys for human risk factors, as well as specimen management forms, diagnostic results logs, and forms for collecting information on animal demographics and environmental characteristics of field sites. General and Tanzania-specific protocols on wildlife handling and capture, safe specimen collection, specimen storage and transport, personal safety and biosecurity, and cold chain maintenance have already been established through the PREDICT viral surveillance program and will be adapted for use here.

Subtask 2-c: Procure supplies for field surveillance and laboratory diagnostics (Years 1-3)

Working with the MT, staff will order field and laboratory supplies and equipment necessary for human and animal sampling and testing. As part of the PREDICT program, relationships with scientific supply vendors (VWR, Fisher, African Biosystems, etc.) have already been established for efficiently purchasing and acquiring supplies. To maintain a steady supply, materials will be assessed and reordered as needed on a quarterly basis.

Subtask 2-d: Strengthen local stakeholder collaborations - Regional and District Veterinary Officers, Wildlife Officers, Forest Officers, Executive Officers; Udzungwa Mountains Park Staff and Researchers; Village Government Leaders and Health Clinic Officers – (Years 1-3)

Through HALI project wildlife sampling activities and previous zoonotic disease investigations, strong relationships have already been established with relevant veterinary, wildlife, and forest officers, as well as district executive directors. In a PREDICT-funded Udzungwa pilot surveillance program, we built relationships with Udzungwa Mountains National Park Staff, Kilombero Nature reserve directors, district-level forest officials, and village government leaders. The MT members and junior scientists will work to strengthen the existing relationships and to create collaborations with village health clinic officers by providing quarterly updates on research progress, as well as annual trainings on wildlife and human sampling for relevant partners.

Subtask 2-e: Complete quarterly financial reports; manage logistics of staff and lab/field office operation (Years 1-3)

The project logistics manager will complete quarterly financial reports in collaboration with the Tanzanian research institutions (SUA and IHI). Junior scientists and MT members will jointly manage staff logistics and office operation.
Subtask 2-f: Complete quarterly reports on project activities for funders and project partners in Tanzania and the United States (Years 1-3)

The MT and junior scientists will provide quarterly email updates to project partners to share preliminary research results and progress on project timelines. In accordance with Tanzanian policy, all viral diagnostic results will initially be shared with the Tanzania Ministry of Health, Ministry of Livestock and Fisheries Development, and Ministry of Wildlife and Tourism, with whom we have existing relationships. Following approval for release by Tanzanian ministries, results will be provided to other project partners. This reporting system is desirable for in-country and foreign partners.

**Personnel involved:** Parekh, Mazet, Miller, VanWormer, Kazwala, Mugasa. **Metrics of Success:** Research permits approved each year, protocols and data collection forms developed, supply inventories updated quarterly, financial and project activity reports generated quarterly. **Deliverables:** Documentation of research permit and ethical clearance approval, stakeholder collaboration section in annual report, list of approved protocols and data collection forms included as appendix in annual report, quarterly reports included as appendix in annual report.

### iii. Task 3: Data management

#### Subtask 3-a: Database creation
Following development of field and lab data forms, the junior scientists and MT will create separate secure electronic databases to store wildlife, environmental, and human data.

#### Subtask 3-b: Data entry and cleaning

Within 2 weeks of field data collection, junior scientists will enter and check wildlife, environmental, and human data in the project databases. A MT member will review entered data for accuracy. Human data forms with information identifying individual study subjects will be stored in a locked cabinet at the project office and destroyed 12 months after study completion.

**Personnel involved:** Parekh, Mazet, VanWormer, Kazwala, Mugasa. **Metrics of Success:** Databases developed in Year 1, project data entered and assessed within 2 weeks of field collection. **Deliverables:** Database section included in annual report.

### iv. Task 4: Staff and stakeholder training and junior scientist mentorship

#### Subtask 4-a: Identify and hire junior scientists (postdoc, PhD, and master students; Year 1)

In order to build sustainable capacity and long-term research networks, one US-based postdoctoral scholar and one post-DVM PhD student and at least one Tanzanian masters student (SUA) and one postdoctoral fellow (IHI) will be recruited for the research project.

#### Subtask 4-b: Conduct annual and quarterly trainings (Years 1-3)

PREDICT staff members with extensive field experience in wildlife capture and sampling, viral specimen collection, cold chain management, and personal and laboratory biosafety will train the junior scientists, field staff, and local stakeholders including veterinary and human health partners and district wildlife officers on these topics. Veterinarians and ecologists from UMNP, Tanzania National Parks Association (TANAPA), and TAWIRI will be invited to participate in animal-based trainings to build national wildlife surveillance capacity and biosecurity awareness. MT members from IHI will train health clinic staff and junior scientists on human data and specimen collection and storage. Laboratory experts from UCD, SUA, and IHI will provide training on PCR-based viral family diagnostics, cloning, sequencing, and phylogenetic analyses.

**Personnel involved:** Parekh, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN). **Metrics of Success:** Quarterly training events conducted each year, at least
two postdoctoral scientists and graduate students mentored each year. *Deliverables:* Training documents compiled for annual report, trainee progress reports and trainer evaluations included as an appendix to annual report.

**v. Task 5: Field site assessment and preparation**

**Subtask 5-a: Human health clinic assessment**

We will identify health clinics that treat patients, including those with febrile illnesses, from areas near or adjacent to the wildlife sampling sites. MT members will assess clinic willingness to participate in a research study on zoonotic viral diseases involving collecting human blood, oropharyngeal swab samples, and fecal specimens. After identifying four clinics from different geographic locations representative of the study area, we will recruit one health officer or nurse as a research partner from each clinic to participate in human sample collection. We have experience in these recruitments through our ongoing NIH-supported research in the region.

**Subtask 5-b: Wildlife sampling site assessment**

Prior to the first season of animal specimen collection, the forest reserve network will be assessed to identify 4 field sites for seasonal bat and NHP sampling for the duration of the project. Two sites will be identified in forests with low NHP diversity (2-3 species present). The remaining sites will be in forests with higher NHP diversity (4-6 species present). All sites will be chosen in forests used by neighboring human communities for bushmeat hunting, sacred site visitation, and/or resource extraction, such as medicinal plant gathering. Field site vegetation and forest cover will be characterized visually and using available remote sensing/GIS data.

*Personnel involved:* Parekh, Mazet, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN).

*Metrics of Success:* Number of patients enrolled annually; number of staff trained; laboratory capacity; elevation, latitude/longitude, and proximity to forest characterized for each human health clinic. Vegetation and forest cover, climate, elevation, latitude/longitude, known wildlife species composition, human use, and proximity to human communities will be characterized for each wildlife sampling site. *Deliverables:* Clinic and field site characterization in annual report.

**vi. Task 6: Human sample archive assessment**

Archived frozen human whole blood samples stored at IHI research facilities due to previously completed in-depth investigations of zoonotic and human diseases in Tanzania will be selected for study inclusion based upon where subjects lived and any known risk factors for wildlife contact (bushmeat hunting, medicinal plant gathering, other forest resource extraction, or agricultural conflict with primates). If risk factor information for previously collected human samples is too sparse or sample quality is questionable, human sampling emphasis will be placed more heavily on prospective specimen collection.


**vii. Task 7: Active human surveillance**

**Subtask 7-a: Patient recruitment**

Adult and child patients presenting to participating health clinics with a fever will be offered a rapid diagnostic test for malaria. Patients testing negative by rapid test will be asked to join the
study and formally consented following standardized, approved Tanzanian consent procedures. Participating patients will be interviewed about their contact with forests and wildlife before specimen collection. **Sample size:** 30 patients will be recruited each season at each health clinic.

**Subtask 7-b: Forest risk factor survey**

Consenting patients with a non-malarial febrile illness will be interviewed by a trained nurse at the health clinic regarding their use of forest products or habitats and contact with wildlife species, especially bats and NHP, in or near forests. Data will be disaggregated from individually identifying information prior to data analysis to protect patient confidentiality. However, patient recruitment and contact information will be maintained in locked facilities to contact individuals regarding the results of diagnostic testing.

**Subtask 7-c: Sample collection**

Whole blood, oropharyngeal swabs (2), and approximately 400mg of feces will be collected from patients by a trained nurse. Oropharyngeal swabs and feces will be divided and stored in lysis buffer and VTM. All samples will be stored in liquid nitrogen at the health clinic (in provided dewars). Clinics will also be provided standard government issue malaria rapid diagnostic tests to rule out malaria as a cause of febrile illness, and human sampling supplies to collect oral swabs and feces. Following each season (wet and dry) of sampling, specimens will be transferred to IHI BSL-3 laboratory for storage in -80°C freezers and diagnostic testing.

**Personnel involved:** Parekh, Mazet, Miller, VanWormer, Masanja, Mugasa. **Metrics of Success:** Risk factor surveys and samples collected for at least 240 human patients annually. **Deliverables:** Active human surveillance section in annual report, at least 1 publication prepared.

viii. **Task 8: Active wildlife surveillance**

To detect potential differences in seasonal viral shedding, bats and NHP will be sampled twice yearly, during December-March (wet season) and June-September (dry season), which also correspond to different phases in bat reproduction cycles that might affect viral shedding.

**Subtask 8-a: Bat capture and sampling**

**Capture:** Megachiropterans (fruit bats) and microchiropterans (small, predominantly insectivorous bats) at targeted sites will be captured in synthetic mist nets placed near caves, tree roosts, or forest flyways. Following surveillance to determine habitual bat foraging departure and return times, nets will be set after bats leave roosts in the evening. Nets will be monitored continuously when bats begin to return in the early morning. Captured bats will be removed from nets by trained field staff within 30 minutes of capture to minimize stress, and placed in a closed cotton bag until processing. **Sample size:** 30 bats per site per season

**Sampling:** Under manual restraint, blood will be collected from the brachial (fruit bats) or radial (small bats) vein. For bats weighing <60g, blood may be diluted with phosphate buffered saline to increase sample volume as previously described [38]. Oropharyngeal swabs (2) and rectal swabs (2) will be stored in lysis buffer and viral transport media (one of each type of swab in each medium). Demographic data (species, age class, sex, and pregnancy/lactation status), digital photos, and morphometric measurements will be collected during processing. Bats will additionally be marked with individually identified lipped rings on wings (microchiropterans) or thumb rings (megachiropterans) prior to release at the site of capture. Bat markings will be used to identify recaptured bats in subsequent seasons as well as capture of previously sampled bats at novel sites. Satellite telemetry collars will be placed on 1-2 adult fruit bats per sampled site (4-8 collars in total) to remotely follow movement and migration patterns over the study period. Sera will be stored in empty cryovials and blood clots in lysis buffer following centrifugation of
whole blood samples. Specimens will be stored in a locked liquid nitrogen dry shipper in the field to preserve viral RNA prior to transport to the SUA lab and longer-term storage at -80°C. During animal handling, staff will wear appropriate PPE to prevent zoonotic viral transmission including N95 respirators, goggles, gloves, and tyvek suits (Figure 2).

Bat identification: Visual appearance and morphometric measurements will be used to determine the genus and species of easily differentiated megachiropterans such as straw-colored fruit bats (*Eidolon helvum*). Project MT members with experience trapping and identifying mega and microchiropterans in Tanzania will train junior scientists and staff. However, due to the difficulty of differentiating some species of fruit bats and many microchiropterans, wing tissue punch biopsy samples for genetic testing will be aseptically collected from each sampled bat. Biopsies will be stored in 95% ethanol at room temperature. Host DNA will be extracted, amplified, and sequenced to confirm the precise genus and species of any bat testing positive for target viruses.

![Figure 2. Tanzania field team members prepare to safely collect samples from a captured fruit bat (held in the cotton bag) in an urban setting [Dar es Salaam, Tanzania, April, 2013]. Established PREDICT protocols for biosafety, animal capture and sampling, cold chain specimen storage and transport, and viral disinfection will be adapted to the proposed wildlife sampling activities in the Udzungwa Mountain forests.](image)

Subtask 8-b: Non-human primate (NHP) sampling

**Non-invasive sampling:** Known NHP troops at designated field sites will be tracked to collect fresh fecal specimens. Iringa red colobus monkeys (*Procolobus gordonorum*) will be sampled at each site and Sykes’ monkeys (*Cercopithecus mitis*) will be sampled when present at a site. These species will be targeted to create comparable data among the sites, as these monkeys are found in almost all forests in the study area. Red colobus are predominantly arboreal, while Sykes’ monkeys use all strata of the forest [28]. Additionally, people living near the forest reserves hunt both species [32,34]. Local guides familiar with the animals’ habitat use and behavior will be employed to assist in locating and collecting samples from target troops. Following observation of defecation by identified individuals of known primate species, field team members will collect approximately 200mg of feces for storage in lysis buffer and 200mg for storage in VTM. When observable, sex and age class of the primate will be recorded. Discarded foods from primates actively foraging will be swabbed with sterile, polyester swabs to collect a non-invasive saliva sample. Swabbing primate bite marks in discarded food items has been shown to be an effective route of obtaining saliva samples [39]. One swab will be stored in lysis buffer, and the other in VTM. Following sample collection, all specimens will be immediately placed in a portable liquid nitrogen dry shipper in the field to preserve viral RNA. If necessary, dental ropes for saliva collection may also be used, as they have been shown to be effective in our field sites in Asia. **Sample size:** 30 red colobus per site per season, 30 Sykes monkeys per site per season when present

**NHP identification:** The seven diurnal primate species found in Udzungwa Mountains National Park and/or neighboring forest reserves are easily distinguished based on their size, body shape, coloration, and predominant forest use (arboreal vs. terrestrial) [28]. Field team members will be trained to accurately identify each of the resident diurnal primate species.
**Personnel involved:** Parekh, Mazet, VanWormer, Kazwala, TAWIRI Collaborator (TBN).

**Metrics of Success:** Samples collected from at least 240 bats and at least 240 NHPs annually, satellite transmitters on at least 1 bat from each study site. **Deliverables:** Wildlife surveillance section in annual report, at least 1 publication.

ix. **Task 9: Environmental characterization and sampling**

**Subtask 9-a: Indirect sampling at bat feeding roosts**

Working with local guides, bat feeding roosts will be identified in or near at least two of the wildlife sampling sites. Discarded seeds and fruits will be assessed at dawn and swabbed with sterile, synthetic swabs to collect bat saliva. Thirty specimens will be collected seasonally per site and stored in lysis buffer in a locked field dry shipper. Specimens will then be stored at -80C prior to diagnostic testing.

**Subtask 9-b: Camera trapping at bat feeding roosts**

Two remote-triggered, waterproof, infrared field cameras will be set and left in the field for one to two weeks seasonally at each bat feeding roost to assess the potential for other wildlife taxa to contact food items discarded by bats. Images of visiting wildlife will be used to target additional wildlife sampling at field sites.

**Personnel involved:** Parekh, Mazet, VanWormer, Kazwala, TAWIRI Collaborator (TBN).

**Metrics of Success:** At least 120 swab samples will be collected annually from discarded foods, at least 8 weeks of total annual camera trapping. **Deliverables:** Environmental sampling section in annual report, select camera trap images in annual report index.

x. **Task 10: Establishment of sample repository/metadata information data sheets and accession numbers**

A human and wildlife sample repository will be created at the IHI BSL-3 laboratory in Bagamoyo. Standardized metadata will be recorded for each sample, and accession numbers assigned for future access. Samples will be stored in secure freezers and/or liquid nitrogen Dewar’s in secure facilities with limited access to project personnel and other authorized personnel. Sample repository and security will be established according to the BMBL approved safety guidelines as well as international security guidelines.

**Personnel involved:** Parekh, Mazet, VanWormer, Kazwala, Masanja, Mugasa. **Metrics of Success:** Sample repository and data sheets established in Year 1 and assessed quarterly for accurate entry of all new specimens. **Deliverables:** Sample repository section in annual report.

xi. **Task 11: Viral diagnostics**

Following lab storage in locked -80C freezers, RNA extraction and viral family level diagnostic testing will be performed on deactivated specimens to identify potentially zoonotic viruses. Priority viral families: filoviruses, flaviviruses, and coronaviruses will be assessed in all specimens tested. Viral family level testing emphasis will then shift to henipaviruses, bunyaviruses, and rhabdoviruses as resources permit. RNA extraction will be performed with Qiagen RNA extraction kits using our established PREDICT protocols for blood, oropharyngeal swabs, and feces in a class II biosafety cabinet or BSL-3 facility. Beta actin PCR analyses of cDNA products will be used to confirm successful RNA extraction. Viral family level primers will be used in established conventional PCR reactions to amplify viral RNA and synthetic positive controls will be employed. Suspect positive samples will be confirmed through cloning and sequencing.
Subtask 11-a: Human specimen viral testing
Trained personnel at the IHI BSL-3 laboratory in Bagamoyo, Tanzania, will conduct RNA extraction, cDNA production, Beta actin PCR, and viral family level PCR diagnostics for archived and prospectively collected human samples as above.

Subtask 11-b: Wildlife specimen viral family testing
RNA extraction from deactivated wildlife samples and cDNA production will be conducted at the Sokoine University of Agriculture (SUA) Emerging Infectious Disease Molecular Diagnostic Laboratory in Morogoro, Tanzania, as above. As capacity is built at the SUA diagnostic laboratory for viral family level PCR protocols, testing will be completed for all possible viral families on-site. In addition, an aliquot of the cDNA products will be reserved for shipment to IHI for viral family screening if timelines for testing cannot be met at SUA. An additional aliquot will be reserved in case shipment to the University of California, Davis (UCD) One Health Institute molecular diagnostic laboratory is necessary for assessment of capacity building; quality control screening as SUA and IHI gain experience with the viral family level protocols; and to augment capacity if both SUA and IHI become overloaded by sample submission numbers. Comparative screening at UCD will be used to help refine laboratory protocols at SUA and IHI to ensure high-level in-country viral diagnostic capacity. Lab technicians at SUA have experience extracting viral RNA from diverse wildlife specimens. Duplicate wildlife specimens will be stored in VTM in a secured BSL-3 laboratory at IHI for transfer to more biosecure facilities if further diagnostic work is indicated.

Personnel involved: Parekh, Mazet, Miller, VanWormer, Kazwala, Mugasa, TAWIRI Collaborator (TBN).

Metrics of Success: At least 500 specimens screened yearly (screening capacity and activity is expected to increase substantially following year 1 trainings).

Deliverables: Viral diagnostics section in annual report.

xii. Task 12: Molecular characterization of viruses
For any suspect positive sample (wildlife or human), confirmatory cloning of PCR products will initially be performed at the in-country laboratories with the UCD One Health Institute molecular diagnostic lab providing back-up support for sequencing and for additional testing in case DTRA-specific timelines for research completion are not being met or if our team is not able to efficiently obtain results that will be used to refine field sampling approaches. Cloning procedures will also be introduced to IHI to increase in-country diagnostic capacity, should equipment and maintenance be available. SUA and IHI currently lack the physical infrastructure for viral sequencing. Initial samples will be sequenced at UCD and through the locally sustainable option of sending samples to Korea for economically efficient ($7) outsourced sequencing (ILRI also an option if economically feasible), as is practiced in much of the world. Following viral sample sequencing, Bayesian and maximum likelihood phylogenetic analyses will be used to determine the genetic similarity of viruses from bats, primates, and humans.

Personnel involved: Parekh, Mazet, Miller, VanWormer, Kazwala, Mugasa.

Metrics of Success: All suspect positive specimens will be characterized within 3 months of initial diagnostic testing results. Deliverables: Molecular characterization section in annual report, at least 1 publication.

xiii. Task 13: Data analysis/modeling
All statistical modeling and spatial analyses will be jointly conducted by Tanzania and US-based researchers. Tanzanian masters students, the IHI post-doctoral scientist, and additional research
partners from SUA, IHI, and TAWIRI will be trained in open source analysis software, as access to these programs is more sustainable than access to proprietary statistical software in developing countries. Collaborative model building by US and Tanzanian researchers will enhance local relevance and the capacity for epidemiologic data analysis in Tanzania. Jointly developed models and software code will serve as a resource for future wildlife and human surveillance data analysis by SUA, IHI, and TAWIRI. Data sharing between partner institutions will also ensure that the most current and accurate risk factor, geospatial, and animal and human population data are integrated into the analyses.

Subtask 13-a: Statistical risk factor modeling

Prevalence of exposure for each viral family will be estimated in bats, NHP, and people at characterized field sites, and mixed effects logistic regression models will be used to evaluate demographic, seasonal, and ecological risk factors for exposure in humans and wildlife. Mixed effects models will use site of capture (wildlife) or health clinic as the cluster variable for animal and human models, respectively, to account for unmeasured correlation among individuals. Environmental risk factors will be characterized during field site assessments and using GIS data in QGIS. All statistical analyses will be performed in R or other open source statistical software.

Subtask 13-b: Spatial analyses

Spatial analyses for clusters of viral exposure will be performed to identify hotspots of pathogen transmission as targets for controlling spillover from wildlife to human populations. GPS locations collected during fieldwork will be used for bats and NHP. Human locations will be geocoded based on village of primary residence. Geographical clustering of viral exposure (each identified viral family and all viral families combined) will be evaluated among bats, NHPs, and humans using a Bernoulli model elliptical scanning window in SatScan v. 9.0 [40,41]. Tanzanian masters students will be trained in open source analysis software, as access to these programs is more sustainable than access to proprietary statistical software in developing countries.

Personnel involved: Parekh, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN).

Metrics of Success: Statistical risk factor models and spatial models developed to characterize risk factors for and potential geographic hotspots of zoonotic viral transmission. Deliverables: Data analysis and modeling section in annual report and likely publication depending on results.

xv. Task 14: Data interpretation, development of stakeholder communications, and local distribution of findings

Data analyzed above will be used to develop reports for DTRA and the Tanzanian government. In addition, informational materials will be developed in consultation with these agencies and participating stakeholders to provide community education on disease transmission risks and to influence behavior change. These materials may include household-targeted materials, posters, and animated educational videos distributable to mobile devices. At least two peer-reviewed manuscripts are expected in total from the proposed research project.

Personnel involved: Parekh, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa.

Metrics of Success: Final report of data analysis and results delivered to all international and local stakeholders, locally appropriate outreach materials developed and distributed for community outreach. Deliverables: Data analysis and results section in annual report, at least 2 publications in total following data interpretation. Outreach materials included as appendix in annual report.
V. PERFORMANCE SCHEDULE.

<table>
<thead>
<tr>
<th>Task: Description</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Year 2 Oct2015-Sep2016</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Year 3 Oct2016-Sep2017</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Monthly MT meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Administrative startup and maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Data management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Training &amp; mentorship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Field site assessment &amp; prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Human sample archive assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Active human surveillance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Active wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Environmental characterization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10: Sample repository management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11: Viral diagnostics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12: Molecular viral characterization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13: Data analysis/modeling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14: Data interpretation, distribution of findings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VI. REFERENCES

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>
## DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 05-AUG-2014 TO 04-AUG-2017</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB  S725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(b)(6)</td>
<td></td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>000102</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Section G - Contract Administration Data

CLauses Incorporated by Full Text

252.232-7007 LIMITATION OF GOVERNMENT'S OBLIGATION (APR 2014)

(a) Contract line item 0001 is incrementally funded. For this item, the sum of $870,729.00 of the total price is presently available for payment and allotted to this contract. An allotment schedule is set forth in paragraph (j) of this clause.

(b) For item(s) identified in paragraph (a) of this clause, the Contractor agrees to perform up to the point at which the total amount payable by the Government, including reimbursement in the event of termination of those item(s) for the Government’s convenience, approximates the total amount currently allotted to the contract. The Contractor is not authorized to continue work on those item(s) beyond that point. The Government will not be obligated in any event to reimburse the Contractor in excess of the amount allotted to the contract for those item(s) regardless of anything to the contrary in the clause entitled "TERMINATION FOR THE CONVENIENCE OF THE GOVERNMENT." As used in this clause, the total amount payable by the Government in the event of termination of applicable contract line item(s) for convenience includes costs, profit and estimated termination settlement costs for those item(s).

(c) Notwithstanding the dates specified in the allotment schedule in paragraph (j) of this clause, the Contractor will notify the Contracting Officer in writing at least ninety days prior to the date when, in the Contractor's best judgment, the work will reach the point at which the total amount payable by the Government, including any cost for termination for convenience, will approximate 85 percent of the total amount then allotted to the contract for performance of the applicable item(s). The notification will state (1) the estimated date when that point will be reached and (2) an estimate of additional funding, if any, needed to continue performance of applicable line items up to the next scheduled date for allotment of funds identified in paragraph (j) of this clause, or to a mutually agreed upon substitute date. The notification will also advise the Contracting Officer of the estimated amount of additional funds that will be required for the timely performance of the item(s) funded pursuant to this clause, for subsequent period as may be specified in the allotment schedule in paragraph (j) of this clause, or otherwise agreed to by the parties. If after such notification additional funds are not allotted by the date identified in the Contractor's notification, or by an agreed substitute date, the Contracting Officer will terminate any item(s) for which additional funds have not been allotted, pursuant to the clause of this contract entitled "TERMINATION FOR THE CONVENIENCE OF THE GOVERNMENT".

(d) When additional funds are allotted for continued performance of the contract line item(s) identified in paragraph (a) of this clause, the parties will agree as to the period of contract performance which will be covered by the funds. The provisions of paragraph (b) through (d) of this clause will apply in like manner to the additional allotted funds and agreed substitute date, and the contract will be modified accordingly.

(e) If, solely by reason of failure of the Government to allot additional funds, by the dates indicated below, in amounts sufficient for timely performance of the contract line item(s) identified in paragraph (a) of this clause, the Contractor incurs additional costs or is delayed in the performance of the work under this contract and if additional funds are allotted, an equitable adjustment will be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the item(s), or in the time of delivery, or both. Failure to agree to any such equitable adjustment hereunder will be a dispute concerning a question of fact within the meaning of the clause entitled "disputes."

(f) The Government may at any time prior to termination allot additional funds for the performance of the contract line item(s) identified in paragraph (a) of this clause.

(g) The termination provisions of this clause do not limit the rights of the Government under the clause entitled "DEFAULT." The provisions of this clause are limited to work and allotment of funds for the contract line item(s)
set forth in paragraph (a) of this clause. This clause no longer applies once the contract is fully funded except with regard to the rights or obligations of the parties concerning equitable adjustments negotiated under paragraphs (d) or (e) of this clause.

(h) Nothing in this clause affects the right of the Government to this contract pursuant to the clause of this contract entitled "TERMINATION FOR CONVENIENCE OF THE GOVERNMENT."

(i) Nothing in this clause shall be construed as authorization of voluntary services whose acceptance is otherwise prohibited under 31 U.S.C. 1342.

(j) The parties contemplate that the Government will allot funds to this contract in accordance with the following schedule:

**On execution of contract $870,729.00**

*August 5, 2015 $857,523.00*

*August 5, 2016 $792,585.00*

(End of clause)

---

**ACCOUNTING AND APPROPRIATION DATA**

AA: 044315 097 0134 009 N 20142016 D 341IQ 0901515BR-KD-BP 1416-0134-341IQ-TANCT DTRA 410
AMOUNT: $345,748.00
CIN HDTRA14113030001: $345,748.00

AB: 044315 097 0134 009 N 20122015 D 341IQ 0901515BR-KD-BP 1315-0134-341IQ-TANCT DTRA 410
AMOUNT: $524,981.00
CIN HDTRA141123030002: $524,981.00

**CLAUSES INCORPORATED BY FULL TEXT**

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

d. Grant Specialist:
Name: [Redacted]
Defense Threat Reduction Agency/BE-BCR
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201
Telephone: [Redacted]
email address: [Redacted]

e. Grantee Business Office:
Name: [Redacted]
title: [Redacted]
252.601-9001 GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)

g. Grants Officer’s Representative (GOR) for this Grant is:

Defense Threat Reduction Agency/B3CTBS
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or any cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.
5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

| FUNDING PROFILE: |
|-----------------
| The amount of $870,729.00 is obligated for work to be performed during the period beginning with grant award and continuing through Year 1. Additional incremental funding planned, but not obligated, is: |
| Year 2 | $857,523.00 |
| Year 3 | $792,588.00 |
| The Government's liability is limited to the amount obligated |
Section I - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 1</td>
<td>Terms &amp; Conditions</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. R00003

3. EFFECTIVE DATE 04 Aug 2017

4. PROCUREMENT/RECIPIENT NO. HDTRA1-12-2013

5. PROJECT NO. (Applicable) -

6. ISSUED BY CODE - HDTRA1

DEFENSE THREAT REDUCTION AGENT
9725 JOHN L KINGHAM ROAD, MC 2931
FORT BELVOIR VA 22040-2001

7. ADMINISTERED BY (Defer to item 34) OFFICE OF NAVAL RESEARCH BOSTON 48 SHERIDAN STREET, ROOM 527 BOSTON MA 02116-2109

CODE - N6279

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

9. AMENDMENT OF SOLICITATION NO.

10. DATED (See Item 11)

CODE - 56S34

FACILITY CODE -

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ This above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offers is extended, ☐ is not extended.

☐ Offerors acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods: (a) By completing Items 8 and 13 and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of offer submitted; or (c) By separate letter to the issuing office which includes a reference to the solicitation and amendment numbers. FAILURE TO ACKNOWLEDGE YOUR RECEIPT MAY RESULT IN REJECTION OF YOUR OFFER. By virtue of this amendment, you are advised that changes are made to the amendment and changes may be made by a subsequent letter, provided such letter or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS IN ITEM 14.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

 Modification Control Number: HDTRA1-1723062A

The purpose of this modification is to execute a one time no-cost extension by changing the period of performance from August 3, 2016-August 4, 2017 to August 3, 2016-June 4, 2017. This modification will also update the Grants Officer Representative clause 252.201-9001.

All other terms and conditions remain unchanged.

15a. NAME AND TITLE OF SIGNER (Type or print)

15b. CONTRACTOR/OFFEROR

15c. DATE SIGNED

16a. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16b. UNITED STATES OF AMERICA

16c. DATE SIGNED

EXCEPTION TO SF 30

APPROVED BY ORM 11-84

STANDARD FORM 30 (Rev. 10-83)

PRESIGNED BY OSA

PAR (48 CFR) 33.243

30-103-04
SECTION A - SOLICITATION/CONTRACT FORM
The 'Payment will be made by' organization has changed from
DFAS COLUMBUS CENTER
DFAS-CO/WEST ENTITLEMENT OPERATIONS
P.O. BOX 182381
COLUMBUS OH 43218-2381
to
DFAS COLUMBUS CENTER
DFAS-CO/WEST ENTITLEMENT OPERATIONS
P.O. BOX 182317
COLUMBUS OH 43218-2317

SECTION F - DELIVERIES OR PERFORMANCE
The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 05-AUG-2014 TO 04-AUG-2017</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/3CTB 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 05-AUG-2014 TO 04-JUN-2018</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/3CTB 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been modified:
a. Grants Officer’s Representative (GOR) for this Grant is:

Name: [Redacted]
Defense Threat Reduction Agency/BCB
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER’S REPRESENTATIVE

1. The Grants Officer’s Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement’s reporting requirements. Perceived deviations from the agreement’s terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient’s inability or unwillingness to conform to the agreement’s requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement’s terms and conditions or result in an increase in the estimated cost of the agreement’s performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement’s scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient’s facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR’s duties, the GOR shall constantly stress protection of the Government’s interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00005
3. EFFECTIVE DATE 01-Dec-2017
4. REQUEST/PURCHASE RQ NO. HDRTA142280
5. PROJECT NO. (if applicable)

6. ISSUED CODE HDTRA1
7. ADMINISTERED BY CODE S6507A

DEFENSE THREAT REDUCTION AGENCY
7720 JOHN HANNAH ROAD, MSC 001
FORT BELVOIR, VA 22043-0001

8. NAME AND ADDRESS OF CONTRACTOR
METAIRIA INC.
455 CALIFORNIA ST, STE 200
SAN FRANCISCO, CA 94114-2104

9A. AMENDMENT OF SOLICITATION NO.

10A. MOD. OF CONTRACT ORDER NO. HDTRA14-12082
10B. DATED (SEE ITEM 11) 05-Aug-2014

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ This above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer(s) ___ is extended, ___ is not extended.

Offerors acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
(a) by returning original copy of this amendment; (b) by acknowledgment receipt of this amendment on each copy of the offer submitted;
and (c) by separate letter or telegraph which includes reference to the solicitation and amendment number. FAILURE TO ACKNOWLEDGE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. By virtue of this amendment you desire to change an offer already submitted, such change may be made by telegraphic letter, provided such telegraph or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT (ORDER) IF MODIFIED THE CONTRACT (ORDER) NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)

Modification Control Number: HDTRA1723022C

The purpose of this administrative modification is to correct Block 14 on modification P00002 by clarifying that Year 3 funding was provided on subCLIN 000104. ACPNAD, in support of CLIN 0001 in the amount of $792,595.00. This modification also updates the Grant Points-Of-Contact.

All terms and conditions remain unchanged.

Except as provided herein, all terms and conditions of the document referred to in Item 9A or 9B, if issued or changed, remain unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED

(Signature of person authorized to sign)

(Signature of Contracting Officer)

28-Nov-2017
SECTION A - SOLICITATION/CONTRACT FORM
The issuing organization has changed from
DEFENSE THREAT REDUCTION AGENCY/J4CO
8725 JOHN J. KINGMAN RD.
FT. BELVOIR VA 22060-6201
to
DEFENSE THREAT REDUCTION AGENCY/AL-AC
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been modified:

252.601-9000  GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: (b)(6)
   Defense Threat Reduction Agency/44CO
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Phone: (b)(6)
   E-mail: (b)(6)

b. Grantee Business Office:
   Name: FOIA (b)(6)
   Title: 
   Phone: 
   E-mail: 

c. Grantee Principal Investigator (PI):
   Name: FOIA (b)(6)
   Title: 
   Phone: 
   E-mail: 

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)
FUNDING PROFILE:
The total obligated amount under this Grant is $2,520,837.00 for work performed during the period beginning with Grant award and continuing through June 04, 2018. Additional incremental funding planned, but not obligated, is:

$0.00

The Government’s liability is limited to the amount obligated

(Lind of Summary of Changes)
# Amendment of Solicitation/Modification of Contract

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>3. EFFECTIVE DATE</th>
<th>4. REQUISITION/PURCHASE RDO. NO.</th>
<th>5. PROJECT NO.(if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00005</td>
<td>11-Apr-2018</td>
<td>HDTRA112020</td>
<td>S6507A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. ISSUED BY</th>
<th>7. ADMINISTERED BY (if other than Item 4)</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTRA1</td>
<td>DMA STOCKTON</td>
<td>S6507A</td>
</tr>
<tr>
<td>DEFENSE THREAT REDUCTION AGENCY-ACO</td>
<td>SMP WEST MARCH LANE, STE 300 STOCKTON CA 95215</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. NAME AND ADDRESS OF CONTRACTOR</th>
<th>9A. AMENDMENT OF SOLICITATION NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>METRODATA, INC.</td>
<td></td>
</tr>
<tr>
<td>3730 16TH ST. S</td>
<td></td>
</tr>
<tr>
<td>SAN FRANCISCO CA 94110-2104</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>FACILITY CODE</th>
<th>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>56554</td>
<td></td>
<td>- The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- is extended. - is not extended.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitations as amended by one of the following methods:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) By completing Items 8 and 15, and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE TO ACKNOWLEDGE REMOVAL OF THE ABOVE AMENDMENT MAY RESULT IN REJECTION OF YOUR OFFER.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The above numbered contract order is modified to reflect the administrative changes as set forth in Item 14.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. ACCOUNTING AND APPROPRIATION DATA (if required):

<table>
<thead>
<tr>
<th>13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS</th>
<th>IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.</td>
<td></td>
</tr>
</tbody>
</table>

| B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(B). |

| C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: DTRA Terms and Conditions |

| D. OTHER (Specify type of modification and authority) |

**E. IMPORTANT:** Contractor must be sure that the person listed above is required to sign this document and return copies to the issuing office.

<table>
<thead>
<tr>
<th>14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible):</th>
<th>15A. NAME AND TITLE OF SIGNER (Type or print)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modification Control Number</td>
<td>[0][0][6]</td>
</tr>
</tbody>
</table>

The purpose of this administrative modification is to revise the Statement of Work. No additional costs will be incurred as a result of the SOW revision.

All terms and conditions remain unchanged.

*Except as provided below, all terms and conditions of the document referenced in Item 9A or 10A, as it has been changed, remain unchanged and to full force and effect.*

<table>
<thead>
<tr>
<th>15A. NAME AND TITLE OF SIGNER</th>
<th>16A. NAME AND TITLE OF CONTRACTING OFFICER</th>
<th>16B. CONTRACTS OFFICER/GRANTS OFFICER</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0][6]</td>
<td>[0][6]</td>
<td>[0][6]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15B. CONTRACTOR/Offeror</th>
<th>15C. DATE SIGNED</th>
<th>16B. U.S. STATE/AGENCY</th>
<th>16C. DATE SIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0][6]</td>
<td>[0][6]</td>
<td>[0][6]</td>
<td>11-Apr-2018</td>
</tr>
</tbody>
</table>

**EXCEPTION TO SF 30**

**APPROVED BY OIRM 11-84**

STANDARD FORM 30 (Rev. 10-83) Prescribed by GSA

FAR (48 CFR) 33.243
I. ABSTRACT.
Viruses traced to bats and primates have caused some of the most significant human pandemics. As human populations rapidly expand into undeveloped areas, humans are living in closer contact with diverse wildlife, increasing the risk of disease transmission. In resource-limited areas, bushmeat hunting and consumption of forest plants shared with animals provide vital nutrients but may also put pathogens on the plate. Although extensive research has been directed at understanding transmission of viral diseases like Ebola, the ecology of these pathogens is not well understood. In the biodiverse Udzungwa Mountains, one of Tanzania’s last areas of undeveloped mountain forest, bats and non-human primates live in close proximity to each other and human communities, creating a high-risk interface for zoonotic disease transmission and spillover of potentially pandemic pathogens. In this region, Ifakara Health Institute maintains human specimen banks that may be accessed to evaluate historical and ongoing pathogen sharing. Through our established viral detection project in the region, our collaborative TZ-US team is active on the ground and prepared to intensify wildlife and human surveillance to evaluate 1) transmission of potentially shared pathogens, like filoviruses; 2) the impact of bat and primate community composition on viral diversity; and 3) human exposure to zoonotic viruses in high-risk populations living at the forest interface. By investigating cross-species viral sharing at this high-risk interface using best known practices, our team will also strengthen Tanzanian surveillance and diagnostic capacity for dangerous pathogens and identify the critical control points to prevent local and pandemic outbreaks.

II. SCOPE.
A. OBJECTIVE.
We will analyze the risk of infection with filoviruses and other viruses, especially NIAID Biodefense Category A and other potential CDC Select Agents, in Tanzania. We will evaluate the risk of zoonotic viral disease transmission among bats, non-human primates (NHP), and people sharing a forest interface with high human-wildlife contact in Southern Tanzania in order to identify critical control points for disease transmission and strengthen local surveillance capacity to prevent regional or pandemic outbreaks of disease.

**Hypotheses:** 1) Bats in Tanzania are a reservoir for emerging viral diseases, which have the potential to spread to humans through direct contact or intermediately via NHPs sharing habitats and resources with both bats and people. 2) Diversity of potentially zoonotic viruses in wildlife is associated with the number of bat and NHP species living in a given habitat. Protected areas bordered by human communities in the Udzungwa Mountains provide the ideal environment in which to investigate the potential for emerging viral disease transmission from bats and NHPs to humans. Viral investigation will target biodefense priority, Select Agent pathogens with recognized potential to initiate pandemics or to be weaponized as well as emerging viral disease threats from families including filoviruses, henipaviruses, coronaviruses, bunyaviruses, flaviviruses, and rhabdoviruses, among others.

**Specific Project Objectives:**
1) Engage local partners to characterize forest field sites. Partners will assess: bat-NHP interaction; bat and NHP species present; ecological variation; and degree of human contact. Identify specimens in human sample archives (frozen whole blood or serum) collected from acutely ill individuals living at high-risk interfaces for contact with bats and primates. (Yr 1)

2) Collect specimens (blood, saliva, urine, and/or feces) from bat and NHP populations living in characterized Udzungwa sites during wet and dry seasons (Yrs 1-3).

3) Collaborate with local health clinics and collect specimens (blood, oral swabs, and feces) from high-risk human groups bordering forest areas during wet and dry seasons (Yrs 1-3).

4) Test wildlife specimens, archived undiagnosed human febrile illness samples, and prospective human surveillance specimens for shedding of potentially zoonotic viral pathogens by molecular assays. Sample handling, RNA extraction, viral family level PCR analyses, and sample storage will occur in a locked BSL-3 laboratory as appropriate (Yr 1-3).

5) Characterize viral RNA amplified from animal and human samples and perform phylogenetic analyses. Assess viral diversity among bats, NHP, and humans to evaluate pathogen sharing in the Udzungwa ecosystem. (Yrs 2-3).

6) Conduct spatial analyses and epidemiologic modeling to identify risk factors for human exposure to bat and NHP viral pathogens, to assess options for mitigating viral spillover, and to target behavior change interventions. (Yrs 2-3).

7) Collaboratively train junior scientists (postdocs and graduate students) and local stakeholders to build capacity in: pathogen surveillance, wildlife and human sampling, molecular diagnostics, biosecurity, and One Health approaches and concepts in Tanzania (Yrs 1-3).

B. BACKGROUND.
We live in an ever-changing environment of pathogen distribution, prevalence, and transmission. Within the past 6 months alone, two deadly viruses (H7N9 influenza and Middle East respiratory syndrome Coronavirus (MERS-CoV)) have emerged as novel highly pathogenic infections. The majority of known human pathogens have an animal reservoir [1], emphasizing direct connections between human, wildlife, and domestic animal health. Recent East and Central African hemorrhagic fever outbreaks caused by the related filoviruses, Ebola and Marburg, have redirected global attention to the high potential for zoonotic spread from wildlife to human populations [2-4]. Bats are considered the most likely reservoir of pathogens like Ebola and Marburg viruses [5], but the transmission pathways to humans are not clearly understood. While humans may contact infected bats directly or indirectly (through exposure to saliva, urine, or feces), contact with other wildlife such as NHPs that share habitat and resources with bats may also provide a source of exposure as an intermediate vector. The flow of people into forests and wildlife out of forests provides diverse opportunities for filovirus and other zoonotic viral pathogen transfer, but the risks associated with different activities and habitats are not well understood. Bat-NHP interactions, as well as bat and NHP community assemblages, may shape viral diversity in a given environment and alter zoonotic disease transmission potential. Understanding the influence of bats, NHP, and people on viral transmission will help to direct surveillance and control strategies to limit the pandemic potential of filoviruses, as well as other existing and yet unknown emerging viral pathogens. Our proposed research targets diverse viral families that have zoonotic transmission potential at human-wildlife interfaces.

Bat and non-human primate zoonotic disease risks
Recent zoonotic disease research suggests that bats are critical reservoirs for filoviruses, as well as other diverse existing and emerging zoonotic pathogens, including henipaviruses, coronaviruses, paramyxoviruses, and flaviviruses [6-9]. Central and East African human outbreaks of Ebola and Marburg hemorrhagic fever, for example, have been linked to consumption of or environmental exposure to bats [2,3]. An urban straw-colored fruit bat (Eidolon helvum) seropositive for Ebola virus survived for at least 13 months post-capture, demonstrating that bat hosts of viruses that cause severe disease in humans and other mammals could potentially transmit these pathogens over long periods of time [10]. Interestingly, much higher prevalences of exposure to Ebola virus were detected in non-urban bat species in West Africa. Based on the distribution of Ebola virus seroprevalences in diverse bat species, Hayman et al. [11] suggest that human contact with bats in rural and forest settings may pose a greater zoonotic transmission risk than contact with urban fruit bat colonies.

Non-human primates also serve as a source of diverse viral zoonotic disease exposure for humans [12-14]. The zoonotic origin of HIV offers a dramatic example of NHP to human transmission [15], but human outbreaks of hemorrhagic fever have also been traced to contact with live or dead African NHPs [13]. For example, while NHPs are reservoirs for some zoonotic viruses, they may also act as a link between bats and people sharing forest landscapes. Gorillas and chimpanzees have experienced epidemics of Ebola [16], which suggests that NHPs are not a filovirus reservoir, but that they contact reservoir species (now known to include bats) in forest habitat. It has been proposed that NHPs can acquire filoviruses through hunting other NHPs or by direct or indirect contact with reservoir hosts [16]. In this case, Ebola virus exposure in terrestrial and predominantly arboreal NHP species suggests that contact may occur in multiple forest strata. Habitat and food resource sharing among bats, NHPs, and people therefore represent critical interfaces for zoonotic virus transmission, but interactions among these communities in tropical forests are not well understood. Bat sleeping and feeding roosts offer potential focal points of contact where bats and NHPs might share resources. Discarded fruits and seeds at feeding roosts [17] may present an opportunity for primates and people to directly contact viruses in bat saliva and/or feces. However, viral contamination of discarded food items at bat feeding roosts has not been thoroughly investigated.

Zoonotic virus transmission to people

Human outbreaks of Ebola and other agents have frequently started with infection of a single or few individuals expected to have been exposed to infected bats or NHP in forest habitats [3,13]. While exposure frequently occurs through hunting and butchering of animal carcasses, other extractive forest uses may also expose people to disease agents. Ebola infection in a forest-based charcoal worker and Marburg infection in mine workers and tourists visiting caves with bat colonies provide additional examples of modes of transmission [2,18]. In filovirus outbreaks, after the initially infected individuals contacted other members of their villages or sought care in clinics and hospital settings with limited sanitary practices, the number of cases and their geographic range often expanded rapidly through person-to-person transmission. Although periodic large outbreaks attract international media and research attention, undiagnosed filovirus and other zoonotic viral transfer may happen much more frequently. Even within outbreaks, viral diversity in different patients has suggested multiple independent zoonotic transmission events [18,19]. Understanding the risk of these initial zoonotic disease transmission events at the forest–human interface is essential to protect against the large-scale outbreaks that threaten national and international public health. While frequent dead-end
zoonotic transmission events likely occurred in isolated areas in the past, rapid human population growth and landscape conversion near protected areas may enhance outbreak potential. Non-specific clinical symptoms including fever, headache, and muscle pain occur in the initial stages of many zoonotic viral illnesses [20]. Due to scarce clinical resources in many areas of Africa, patients with zoonotic virus-based fevers may be misdiagnosed with more common febrile illnesses, such as malaria. Misdiagnosis of filovirus infections, for example, as dysentery or yellow fever delayed critical medical intervention in past outbreak situations [21,22]. In two clinics adjacent to Udzungwa Mountains National Park, over 60% of patients presenting with febrile illness were incorrectly diagnosed with malaria when microscopy was used as the only diagnostic test [23]. While underlying causes of disease were not identified in misdiagnosed patients, it suggests that non-malarial causes of febrile illness are very common in this area. In the Eastern Arc Mountains of northern Tanzania, malaria was also commonly misdiagnosed in patients with severe febrile illness, especially those living at higher altitudes [24].

**Study area**
Part of the Eastern Afrotropical biodiversity hotspot [25], the protected areas of the Udzungwa Mountains are islands of predominantly intact forest surrounded by human development. In Udzungwa Mountains National Park (UMNP) and a mosaic of nearby forest reserves, diverse assemblages of NHPs and bats share the largest remaining forest blocks in the Eastern Arc mountain chain [26], Figure 1. In the heterogeneous Udzungwa landscape, which is a mixture of lowland to montane closed canopy forest, woodlands, grasslands, and developed areas, protected forest blocks range in size from <1 km² to 526 km² [27]. The eastern sides of lower elevation forest blocks receive 2000-3000 mm of rainfall per year, while higher elevation drier forests receive approximately 500 mm per year. There are typically two periods of concentrated rainfall: December January and March-May [28].

Monkeys, and galagos [28]. Initial megalichiropteran (fruit bats) and been shown to shed zoonotic viruses e currently threatens NHPs and may serious medicinal plants and traveling baboons to rarer endemic monkeys ers’ homes or villages, but a thriving larger Tanzanian cities. This network
offers an efficient potential pathway for wildlife products and pathogens to reach high-traffic areas with dense human populations. People living on park and reserve borders also visit sacred cave sites in the forests, increasing their potential exposure to NHPs and roosting bats. Farmers living near protected areas, UMNP staff members housed in the park, researchers, and tourists are also in contact with the diverse NHP populations. Ecological research is increasing in the Udzungwa Mountains, focusing on population dynamics, habitat use, response to environmental change, and animal behavior [27,34-37]. Building upon existing local and academic ecological knowledge, an investigation of emerging viruses in bats, primates, and people will provide critical insight on transmission of select agent and novel pathogens with pandemic potential.

C. PROGRAMMATICs.

Management team (MT) approach: Continuing their nearly 5 year partnership as implementing partners, Metabiota and the University of California, Davis (UCD) will co-manage this project with local partners in Tanzania. Metabiota will provide administrative and financial oversight while UCD will provide the scientific management and implementation of this research in Tanzania. Principal Investigator, Dr. Joseph Fair, will work hand-in-hand with Co-Principal Investigator, Dr. Jonna Mazet to ensure project deliverables are met according to contract timelines or as nearly as possible.

Since 2006, investigators from UCD and Sokoine University of Agriculture (SUA) in Tanzania have been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania through our HALI (Health for Animals and Livelihood Improvement) project. In 2009, HALI became the Tanzanian institutional home of the USAID Emerging Pandemic Threats' PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans. Ifakara Health Institute (IHI) has an extensive history of human infectious disease research in Tanzania and has collaborated with SUA on diverse health projects for over 20 years. Metabiota, a partner on the PREDICT project, has extensive experience investigating emerging viruses with zoonotic potential in West and Central Africa. Project study design, wildlife and human sampling, specimen diagnostics, as well as spatial analyses and epidemiologic modeling will be jointly coordinated through UCD, SUA, and IHI. Archived human samples from areas of human-wildlife contact will be identified by UCD and IHI. All human samples, both archived and prospective will be tested at IHI BSL-3 laboratory facilities. Our US-Tanzania MT will have monthly conference calls to coordinate research design, activities, and progress. The proposed One Health collaboration will facilitate cutting edge research on existing and emerging viral pathogens at critical wildlife-human interfaces in Tanzania, and build local, regional, and national capacity to detect and mitigate zoonotic transmission of select agents.

Joseph Fair, PhD, MPH, Metabiota liaison to DTRA for coordination of project administration and reporting; will provide input on public health-related project objectives.

Jonna Mazet, DVM, MPVM, PhD, One Health Institute, School of Veterinary Medicine, UCD program director responsible for project oversight. Mazet will facilitate collaborative relationships, study design, and interpretation of findings.

Elizabeth VanWormer, DVM, PhD, One Health Institute, UCD - project manager responsible for coordination of teams and project objectives across US institutions and in Tanzania. VanWormer will facilitate project implementation and epidemiologic analyses.
Rudovick Kazwala, BVM, PhD, Faculty of Veterinary Medicine, SUA, Morogoro, Tanzania – Professor responsible for SUA-related laboratory and field activities as part of the HALI Project in Tanzania. Kazwala will facilitate capacity building of Tanzanian laboratories and scientists.

Joseph Paschal Mugasa, MS, PhD, Laboratory director at IHI Bagamoyo Research site – responsible for input and oversight of laboratory activities related to biosafety and security. Mugasa will also facilitate capacity building of Tanzanian laboratories and scientists.

Progress evaluation: The MT will monitor project activities to achieve the following benchmarks: 1) obtain US and Tanzanian protocol approval, characterize field sites, and identify junior scientists in Year 1; 2) perform field sampling and laboratory diagnostic activities in Years 1-3 and initiate data analysis in year 2; and 3) prepare recommendations to reduce zoonotic viral transmission potential to local and global communities and prepare at least 2 scientific publications in Year 3.

D. RELEVANCE.
The proposed work will improve fundamental understanding of filoviruses and other emerging virus epidemiology and add tangible data on these agents to the DTRA knowledge base. It will provide a platform for engaging and networking with professionals working in emerging infectious diseases (EIDs) in both the human and animal sectors and will increase the capacity for rapid and accurate local detection and mitigation of threats to humans and animals with positive economic, health, and other security implications.

Ebola and Marburg viruses, as well as certain other viruses known to circulate in bats are NIAID Category A Biodefense Priority Pathogens and US DHHS Select Agents. While these viruses are considered research priorities, little is understood about their natural history and transmission cycle, as well as their replication in their reservoir host species, which are believed to be African bat species. Bats, as well as their natural interaction with NHPs, humans, and other intermediary species are also poorly understood. Thus, it is paramount to better understand the circulating viruses in bat populations in Tanzania and elsewhere, as well as to understand the interaction that humans and other species have with bats in that region. Through the proposed research, we will engage emerging scientific leaders in Tanzania and will closely collaborate on the proposed research. The results of which may directly increase global public health security by allowing us to better understand the distribution, prevalence, and high risk behaviors associated with filoviruses and other emerging viruses of pandemic potential. The proposed research targets Thrust Area 6 and advances C-WMD science by building local and global understanding of pathogens that pose the greatest threat as biological weapons. Weapons and terrorism in Tanzania are a concern due to past and recent political events in the East African sub-region.

Investigating zoonotic viruses in bats, NHPs, and people in Udzungwa Mountain forests strengthens local capacity to conduct surveillance for pathogens that severely threaten public health and global security. Understanding the natural ecology of emerging zoonotic viruses will facilitate control strategies to reduce human exposure and disease spread, a globally valuable outcome. In addition to enhancing in-country pathogen detection capability, the proposed research will build understanding of risk factors for transmission among bats, NHPs, and humans. Targeting surveillance and control strategies to high-risk human-wildlife interfaces for disease emergence protects people in the US homeland and abroad by limiting the risk posed by pathogen spillover. Understanding viral transmission events at human-wildlife interfaces will help public health officials and researchers to distinguish between a naturally occurring spillover
event such as MERS-CoV verses an intentional release. Increasing knowledge of naturally-occurring viruses could be inappropriately handled or developed into weapons of mass destruction will also help to safeguard Tanzanian and global public health.

The proposed work will also extend the reach of the Cooperative Biologic Engagement Program (CBEP) and will advance partnerships that University of California, Davis and Metabiota have with institutions in Tanzania that are hubs for research excellence in East Africa. The institutional partnerships will have particular benefits given the active USAID and NIH- funded research programs that UCD can leverage in the region and will enhance the potential for collaborative One Health research that is a proven model within this internationally experienced and respected research team. These features have the potential to radically improve sustainability and absorbability of these investments for long-term impact.

III. CREDENTIALS.
Our consortium is comprised of a group of highly qualified experts from across academia, industry, and government backgrounds, all of whom have successfully implemented large-scale USG and internationally funded programs abroad. First funded by CBEP in mid-2010, Metabiota has demonstrated high-quality research collaborations in some of the world’s most austere settings. This work has resulted in 6 CBEP-funded high-impact publications, including the description of a novel virus associated with viral hemorrhagic fever syndrome in the Democratic Republic of the Congo (DRC). Metabiota supported the response to 6 outbreaks (suspected viral hemorrhagic fever, polio, and yellow fever) and has facilitated shipment of samples back to US DoD laboratories for the further development and testing of diagnostics and countermeasures. Metabiota, as a member of the WHO GOARN, was considered an invaluable resource during these events, setting the stage for future engagements globally, and, in this regard, is a long-time collaborator with US military labs overseas. Our successes in working with CBEP have been sustained by involving multiple international and regional networks, such as the African Field Epidemiology Network (AFENET), the WHO Especially Dangerous Pathogens Laboratory Network (WHO-EDPLN), and existing research and public health laboratory networks. We also have experience facilitating the establishment of regional networks as demonstrated through our assistance in the creation of the Central African Military Health Alliance (CAMHA), which Metabiota continues to serve as integrating contractor. Metabiota actively engages local, regional, and international partners in project implementation.

The UCD team is comprised of a highly qualified and integrated set of infectious disease faculty and researchers who specialize in the epidemiology and surveillance of zoonotic diseases that may be transmitted between animals and humans. Based within the One Health Institute at UCD, the multidisciplinary team has extensive experience in core CBEP topics, including infectious disease research, grant writing, mentoring, and training. For example, the UCD team manages an implementing consortium for and scientifically leads the USAID’s Emerging Pandemic Threats Program PREDICT project, a $75 million multi-institutional, trans-disciplinary project in 20 developing countries that aims to enable global surveillance for zoonotic diseases emerging from wildlife using geospatial modeling, genomics, molecular virology, epidemiology, and targeted field studies at hot zoonotic disease transmission interfaces. In just over three years since it’s implications, PREDICT has discovered over 200 novel viruses, trained over 1500 collaborators from developing nations, and published over 28 manuscripts in the peer-reviewed literature.
Sokoine University of Agriculture (SUA) is the premier veterinary school for Tanzania, and Ifakara Health Institute is a leader in public health research in the country. Since 2006, SUA has been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania as a partnership with UCD through our HALI project. In 2009, HALI became the Tanzanian institutional home of the PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans. Ifakara Health Institute (IHI) has an extensive history of human infectious disease research in Tanzania and has collaborated with SUA on diverse health projects.

Key personnel

Joseph Fair, PhD, MPH, will serve as PI for this effort as the Metabiota Vice President of Research and Development, and is a Technical Advisor to the WHO. As VP of R&D, Dr. Fair oversees the implementation of disease surveillance and specialized research globally and has over 10 years experience living and working in Africa and with DoD.

Jonna A.K. Mazet, DVM, MPVM, PhD will serve as Co-PI and lead for the UCD. Professor Mazet currently leads a global network to build capacity within more than 20 countries to develop surveillance and complete the necessary research to halt pandemics. As a professor in the School of Veterinary Medicine, Mazet provides service to government agencies faced with emerging infectious disease challenges, including USAID and U.S. Department of Agriculture.

Wousrina Miller, DVM, MPVM, PhD will serve as a SME for infectious zoonotic diseases. Dr. Miller is a veterinarian and Adjunct Associate Professor in the School of Veterinary Medicine at UCD. She is an infectious disease molecular biologist with extensive experience working on zoonotic diseases that can be transmitted from animals to humans and currently has active research in Tanzania that involves both the animal and human health sectors.

Elizabeth VanWormer, DVM, PhD, One Health Institute, UCD will serve as a project scientist and implementation manager. Dr. VanWormer is an epidemiologist currently living in Tanzania and facilitating the HALI Project that would house the proposed research. She has in-depth experience conducting wildlife and zoonotic disease research and managing multi-disciplinary international teams in Tanzania, implementing federal grants/contracts, and integrating technical activities with stakeholders from government ministries to communities.

Rudovick Kazwala, BVM, PhD will serve as a Co-PI and lead for the Tanzania team. He is a Professor of Public Health and Epidemiology at SUA as well as Chairman of the Tanzania Veterinary Medical Association. Professor Kazwala is on the IHR Roster of Experts for veterinary issues involving zoonoses and currently leads viral disease research for the PREDICT project in Tanzania. As a founding PI of the HALI Project with UCD, Professor Kazwala is well established with all the partner organizations involved in this DTRA research proposal.

Honorati Masanja, MS, PhD will serve as the Ifakara Health Institute lead in his role as Chief of Research Operations at IHI. Dr. Masanja is an epidemiologist skilled in data management and biostatistics who leads numerous collaborative studies in Tanzania and is funded by international organizations such as the WHO and CDC.

Joseph Paschal Mugasa, MS, PhD will serve as a SME for viral zoonoses and lead for the IHI laboratory team. Dr. Mugasa is currently the laboratory director at the IHI Bagamoyo research site and the head of biomedical research at IHI. Dr. Mugasa has extensive experience working with international teams on molecular investigations of human and animal pathogens.

Tanzania Wildlife Research Institute (TAWIRI) specialist, either Robert Fyumagwa, DVM, PhD or his designee. The TAWIRI representative (TBN in conjunction with Dr. Fyumagwa and
IV. WORK TO BE PERFORMED.

A. GENERAL

We will investigate the epidemiology of filoviruses and other zoonotic viruses in bat, NHP, and human populations sharing a mosaic of protected forests and bordering lands in southern Tanzania. By examining viruses circulating in wildlife and human hosts in this biodiverse environment, we will increase the understanding of pathogen emergence risk and zoonotic disease transmission while building local capacity to diagnose, conduct surveillance for, and control pathogens of pandemic and biosecurity concerns. To characterize potentially zoonotic viruses in bat and primate hosts, samples will be collected from these animals from identified sites with differing bat and primate community composition and likelihood of human contact (based on distance to nearest villages and reported human forest use). Primates and bats captured at field sites will be sampled twice yearly to reflect seasonal differences (wet vs. dry season) in viral shedding. Saliva samples from discarded seeds and fruits at bat feeding roosts [17] will also be collected, as these sites offer an environmental focus of potential virus exposure for primates and other animals. Remote-triggered digital field cameras will be used to monitor other taxa visiting bat feeding roosts to assess the potential for inter-taxa viral transmission. All samples will be transported securely under project supervision in locked containers from field sites to the labs at SUA and IHI for secured storage and testing.

To investigate human exposure to filoviruses and other zoonotic viruses, we will collaborate with health clinics near Udzungwa forests to sample individuals presenting with non-malarial febrile illness. By collecting blood, oropharyngeal swabs, and fecal samples along with survey data on forest use and wildlife contact, we will be able to examine risk factors for wildlife origin virus exposure. Humans will be sampled seasonally in parallel with wildlife to capture differences in wet and dry periods. In addition to the prospectively collected human samples, we will evaluate archived human samples from sick individuals living near forests or likely to have had high contact with wildlife. Testing wildlife and human specimens with the efficient viral family PCR screening approach developed by PREDICT to detect emerging viral threats, we will capture critical information about viruses circulating in sympatric bat, NHP, and human populations while developing essential local laboratory capacity to detect priority pathogens. Sequencing and phylogenetic mapping will be used to determine the genetic similarity of viruses. Statistical models will be used to evaluate demographic, seasonal, and ecological risk factors for viral family or individual virus exposure. Spatial analyses will be performed to identify hotspots of pathogen transmission for targeting control of spillover from wildlife to human populations.

B. SUMMARY.

Year #1

Task 1: Management team meetings (monthly)
Task 2: Administrative startup and maintenance (Quarters 1-3)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training, trainee identification, and mentorship (Quarters 1-4)
Task 5: Field site assessment and preparation (Quarters 1-2)
Task 6: Human sample archive assessment (Quarters 1-4) Task
7: Active human surveillance (Quarters 3-4)
Task 8: Active wildlife surveillance (Quarters 2-4)
Task 9: Environmental characterization and sampling (Quarters 2-4)
Task 10: Establishment of sample repository/metadata records, accession numbers (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 3-4)

Year #2
Task 1: Management team meetings (monthly) Task
2: Administrative maintenance (Quarters 1-4)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training and trainee mentorship (Quarters 1-4)
Tasks 5 & 6: Not applicable for Year 2
Task 7: Active human surveillance (Quarters 1-4) Task
8: Active wildlife surveillance (Quarters 1-4) Task 9:
Environmental characterization (Quarters 1-4)
Task 10: Sample repository maintenance (Quarters 1-4) Task
11: Viral diagnostics (Quarters 1-4)
Task 12: Molecular characterization of viruses (Quarters 3-4)
Task 13: Data analysis/modeling (Quarters 1-4)

Year #3
Task 1: Management team meetings (monthly) Task
2: Administrative maintenance (Quarters 1-4)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training and student mentorship (Quarters 1-2)
Tasks 5 & 6: Not applicable for Year 3
Task 7: Active human surveillance (Quarters 1-2) Task
8: Active wildlife surveillance (Quarters 1-2) Task 9:
Environmental characterization (Quarters 1-2)
Task 10: Sample repository maintenance (Quarters 1-4) Task
11: Viral diagnostics (Quarters 1-3)
Task 12: Molecular characterization of viruses (Quarters 1-4)
Task 13: Data analysis/modeling (Quarters 1-4)
Task 14: Data interpretation, development of stakeholder communications, local distribution of findings and manuscript preparation (Quarters 1-4)

C. DETAILED TASKS.

i. Task 1: Monthly Management Team (MT) Meetings (Years 1-3)
The project MT will meet once per month using Skype or a similar internet-based international communication tool. Project logistics and progress will be assessed, and action items for the coming month will be identified. Written record of meetings will be maintained for reference.
Personnel involved: Fair, Mazet, Vandermor, Kazwala, Mugasa. Metrics of Success: At least 12 MT meetings logged per project year. Deliverables: MT meeting minutes will be archived and progress on identified action items highlighted in the annual report.
ii. Task 2: Administrative startup and maintenance (Years 1-3)

Subtask 2-a: Obtain appropriate US and Tanzania research approval (Years 1-3)
The MT will obtain ethical clearance for human surveys, human prospective specimen collection, and human specimen archive use through the University of California, Davis IRB and the Tanzania National Institute of Medical Research (NIMR). Research permission for wildlife sampling in Udzungwa Mountain forests will be obtained from the UCD Animal Care and Use Committee and the Tanzania Wildlife Research Institute (TAWIRI). TAWIRI approval includes permission to conduct research on lands within and surrounding national parks and forest reserves. Following TAWIRI and NIMR approval, general research and residence permits will be obtained from the Tanzania Committee on Science and Technology (COSTECH) and Tanzanian Ministry of Home Affairs (Immigration). The MT has extensive experience with UCD and Tanzania permitting system requirements and timelines, which will allow permits to be acquired smoothly. Permits will be renewed annually.

Subtask 2-b: Develop study protocols, survey instruments, and data collection forms (Year 1)
Working with the MT, junior scientists will generate study field and lab protocols and surveys for human risk factors, as well as specimen management forms, diagnostic results logs, and forms for collecting information on animal demographics and environmental characteristics of field sites. General and Tanzania-specific protocols on wildlife handling and capture, safe specimen collection, specimen storage and transport, personal safety and biosecurity, and cold chain maintenance have already been established through the PREDICT viral surveillance program and will be adapted for use here.

Subtask 2-c: Procure supplies for field surveillance and laboratory diagnostics (Years 1-3)
Working with the MT, staff will order field and laboratory supplies and equipment necessary for human and animal sampling and testing. As part of the PREDICT program, relationships with scientific supply vendors (VWR, Fisher, African Biosystems, etc.) have already been established for efficiently purchasing and acquiring supplies. To maintain a steady supply, materials will be assessed and reordered as needed on a quarterly basis.

Subtask 2-d: Strengthen local stakeholder collaborations - Regional and District Veterinary Officers, Wildlife Officers, Forest Officers, Executive Officers; Udzungwa Mountains Park Staff and Researchers; Village Government Leaders and Health Clinic Officers – (Years 1-3)
Through HALI project wildlife sampling activities and previous zoonotic disease investigations, strong relationships have already been established with relevant veterinary, wildlife, and forest officers, as well as district executive directors. In a PREDICT-funded Udzungwa Mountains Park Pilot surveillance program, we are in the process of currently building relationships with Udzungwa Mountains Park Staff and village government leaders. The MT members and junior scientists will work to strengthen the existing relationships and to create collaborations with village health clinic officers by providing quarterly updates on research progress, as well as annual trainings on wildlife and human sampling for relevant partners.

Subtask 2-e: Complete quarterly financial reports; manage logistics of staff and lab/field office operation (Years 1-3)
The project logistics manager will complete quarterly financial reports in collaboration with the Tanzanian research institutions (SUA and IHI). Junior scientists and MT members will jointly manage staff logistics and office operation.

Subtask 2-f: Complete quarterly reports on project activities for funders and project partners in Tanzania and the United States (Years 1-3)
The MT and junior scientists will provide quarterly email updates to project partners to share preliminary research results and progress on project timelines. In accordance with Tanzanian policy, all viral diagnostic results will initially be shared with the Tanzania Ministry of Health, Ministry of Livestock and Fisheries Development, and Ministry of Wildlife and Tourism, with whom we have existing relationships. Following approval for release by Tanzanian ministries, results will be provided to other project partners. This reporting system is desirable for incountry and foreign partners.

**Personnel involved:** Fair, Mazet, Miller, VanWormer, Kazwala, Mugasa. **Metrics of Success:** Research permits approved each year, protocols and data collection forms developed, supply inventories updated quarterly, financial and project activity reports generated quarterly. **Deliverables:** Documentation of research permit and ethical clearance approval, stakeholder collaboration section in annual report, list of approved protocols and data collection forms included as appendix in annual report, quarterly reports included as appendix in annual report.

### iii. Task 3: Data management

**Subtask 3-a: Database creation**

Following development of field and lab data forms, the junior scientists and MT will create separate secure electronic databases to store wildlife, environmental, and human data.

**Subtask 3-b: Data entry and cleaning**

Within 2 weeks of field data collection, junior scientists will enter and check wildlife, environmental, and human data in the project databases. A MT member will review entered data for accuracy. Human data forms with information identifying individual study subjects will be stored in a locked cabinet at the project office and destroyed 12 months after study completion.

**Personnel involved:** Fair, Mazet, VanWormer, Kazwala, Mugasa. **Metrics of Success:** Databases developed in Year 1, project data entered and assessed within 2 weeks of field collection. **Deliverables:** Database section included in annual report.

### iv. Task 4: Staff and stakeholder training and junior scientist mentorship

**Subtask 4-a: Identify and hire junior scientists (postdoc, PhD, and master students; Year 1)**

In order to build sustainable capacity and long-term research networks, one US-based postdoctoral scholar and one post-DVM PhD student and at least one Tanzanian master student (SUA) and one postdoctoral fellow (IHI) will be recruited for the research project.

**Subtask 4-b: Conduct annual and quarterly trainings (Years 1-3)**

PREDICT staff members with extensive field experience in wildlife capture and sampling, viral specimen collection, cold chain management, and personal and laboratory biosafety will train the junior scientists, field staff, and local stakeholders including veterinary and human health partners and district wildlife officers on these topics. Veterinarians and ecologists from UMN, Tanzania National Parks Association (TANAPA), and TAWIRI will be invited to participate in animal-based trainings to build national wildlife surveillance capacity and biosecurity awareness. MT members from IHI will train health clinic staff and junior scientists on human data and specimen collection and storage. Laboratory experts from UCD, SUA, and IHI will provide training on PCR-based viral family diagnostics, cloning, sequencing, and phylogenetic analyses.

**Personnel involved:** Fair, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN). **Metrics of Success:** Quarterly training events conducted each year, at least two postdoctoral scientists and graduate students mentored each year. **Deliverables:** Training
documents compiled for annual report, trainee progress reports and trainer evaluations included as an appendix to annual report.

v. Task 5: Field site assessment and preparation
Subtask 5-a: Human health clinic assessment
We will identify health clinics that treat patients, including those with febrile illnesses, from areas near or adjacent to the wildlife sampling sites. MT members will assess clinic willingness to participate in a research study on zoonotic viral diseases involving collecting human blood, oropharyngeal swab samples, and fecal specimens. After identifying four clinics from different geographic locations representative of the study area, we will recruit one health officer or nurse as a research partner from each clinic to participate in human sample collection. We have experience in these recruitments through our ongoing NIH-supported research in the region.

Subtask 5-b: Wildlife sampling site assessment
Prior to the first season of animal specimen collection, the forest reserve network will be assessed to identify 4 field sites for seasonal bat and NHP sampling for the duration of the project. Two sites will be identified in forests with low NHP diversity (2-3 species present). The remaining sites will be in forests with higher NHP diversity (4-6 species present). Bat diversity will be assessed at the time of capture using audio data recorders. All sites will be chosen in forests used by neighboring human communities for bushmeat hunting, sacred site visitation, and/or resource extraction, such as medicinal plant gathering. Field site vegetation and forest cover will be characterized visually and using available remote sensing/GIS data.

Personnel involved: Fair, Mazet, VanWormer, Kazwala, Masanja, Mugasa. TAWIRI Collaborator (TBN). Metrics of Success: Number of patients enrolled annually; number of staff trained; laboratory capacity; elevation, latitude/longitude, and proximity to forest characterized for each human health clinic. Vegetation and forest cover, climate, elevation, latitude/longitude, known wildlife species composition, human use, and proximity to human communities will be characterized for each wildlife sampling site. Deliverables: Clinic and field site characterization in annual report.

vi. Task 6: Human sample archive assessment
Archived frozen human whole blood samples stored at IHI research facilities due to previously completed in-depth investigations of zoonotic and human diseases in Tanzania will be selected for study inclusion based upon where subjects lived and any known risk factors for wildlife contact (bushmeat hunting, medicinal plant gathering, other forest resource extraction, or agricultural conflict with primates). If risk factor information for previously collected human samples is too sparse or sample quality is questionable, human sampling emphasis will be placed more heavily on prospective specimen collection.


vii. Task 7: Active human surveillance
Subtask 7-a: Patient recruitment
Adult and child patients presenting to participating health clinics with a fever will be offered a rapid diagnostic test for malaria. Patients testing negative by rapid test will be asked to join the study and formally consented following standardized, approved Tanzanian consent procedures.
Participating patients will be interviewed about their contact with forests and wildlife before specimen collection. Sample size: 50 patients will be recruited each season at each health clinic.

Subtask 7-b: Forest risk factor survey
Consenting patients with a non-malarial febrile illness will be interviewed by a trained nurse at the health clinic regarding their use of forest products or habitats and contact with wildlife species, especially bats and NHP, in or near forests. Data will be disaggregated from individually identifying information prior to data analysis to protect patient confidentiality. However, patient recruitment and contact information will be maintained in locked facilities to contact individuals regarding the results of diagnostic testing.

Subtask 7-c: Sample collection
Whole blood, oropharyngeal swabs (2), and approximately 400mg of feces will be collected from patients by a trained nurse. Oropharyngeal swabs and feces will be divided and stored in lysis buffer and VTM. All samples will be stored in liquid nitrogen at the health clinic (in provided dewars). Clinics will also be provided standard government issue malaria rapid diagnostic tests to rule out malaria as a cause of febrile illness, and human sampling supplies to collect oral swabs and feces. Following each season (wet and dry) of sampling, specimens will be transferred to IHI BSL-3 laboratory for storage in -80°C freezers and diagnostic testing.

Personnel involved: Fair, Mazet, Miller, VanWormer, Masanja, Mugasa. Metrics of Success: Risk factor surveys and samples collected for 400 human patients annually. Deliverables: Active human surveillance section in annual report, at least 1 publication prepared.

viii. Task 8: Active wildlife surveillance
To detect potential differences in seasonal viral shedding, bats and NHP will be sampled twice yearly, during December-March (wet season) and June-September (dry season), which also correspond to different phases in bat reproduction cycles that might affect viral shedding.

Subtask 8-a: Bat capture and sampling
Capture: Megachiroptera (fruit bats) and microchiroptera (small, predominantly insectivorous bats) at targeted sites will be captured in synthetic mist nets placed near caves, tree roosts, or forest flyways. Following surveillance to determine habitual bat foraging departure and return times, nets will be set after bats leave roosts in the evening. Nets will be monitored continuously when bats begin to return in the early morning. Captured bats will be removed from nets by trained field staff within 30 minutes of capture to minimize stress, and placed in a closed cotton bag until processing. Sample size: 60 bats per site per season

Sampling: Under manual restraint, blood will be collected from the brachial (fruit bats) or radial (small bats) vein. For bats weighing <60g, blood may be diluted with phosphate buffered saline to increase sample volume as previously described [38]. Oropharyngeal swabs (2) and rectal swabs (2) will be stored in lysis buffer and viral transport media (one of each type of swab in each medium). Demographic data (species, age class, sex, and pregnancy/lactation status), digital photos, and morphometric measurements will be collected during processing. Bats will additionally be marked with individually identified hipped rings on wings (microchiroptera) or thumb rings (megachiroptera) prior to release at the site of capture. Bat markings will be used to identify recaptured bats in subsequent seasons as well as capture of previously sampled bats at novel sites. Satellite telemetry collars will be placed on 1-2 adult fruit bats per sampled site (4-8 collars in total) to remotely follow movement and migration patterns over the study period. Sera will be stored in empty cryovials and blood clots in lysis buffer following centrifugation of whole blood samples. Specimens will be stored in a locked liquid nitrogen dry shipper in the
field to preserve viral RNA prior to transport to the SUA lab and longer-term storage at -80°C. During animal handling, staff will wear appropriate PPE to prevent zoonotic viral transmission including N95 respirators, goggles, gloves, and tyvek suits (Figure 2).

**Bat identification:** Visual appearance and morphometric measurements will be used to determine the genus and species of easily differentiated megachiropterans such as straw-colored fruit bats (*Eidolon helvum*). Project MT members with experience trapping and identifying mega and microchiropterans in Tanzania will train junior scientists and staff. However, due to the difficulty of differentiating some species of fruit bats and many microchiropterans, wing tissue punch biopsy samples for genetic testing will be aseptically collected from each sampled bat. Biopsies will be stored in 95% ethanol at room temperature. Host DNA will be extracted, amplified, and sequenced to confirm the precise genus and species of any bat testing positive for target viruses.

**NHP sampling:**

NHP troops at designated field sites will be tracked to collect fresh fecal samples from red colobus monkeys (*Procolobus gordonorum*) and Sykes’ monkeys (*Cercopithecus albogularis*) sampled at each site. This will help to create comparable data among the sites, as these monkeys are sympatric in the study area. Red colobus are predominantly arboreal, while Sykes’ monkeys use all strata of the forest [28]. Additionally, people living near the forest reserves hunt both species [32,34]. Local guides familiar with the animals’ habitat use and behavior will be employed to assist in locating and collecting samples from target troops. Following observation of defecation by identified individuals of known primate species, field team members will collect approximately 200mg of feces for storage in lysis buffer and 200mg for storage in VTM. When observable, sex and age class of the primate will be recorded. Discarded foods from primates actively foraging will be swabbed with sterile, polyester swabs to collect a non-invasive saliva sample. Swabbing primate bite marks in discarded food items has been shown to be an effective route of obtaining saliva samples [39]. One swab will be stored in lysis buffer, and the other in VTM. Following sample collection, all specimens will be immediately placed in a portable liquid nitrogen dry shipper in the field to preserve viral RNA. If necessary, dental ropes for saliva collection may also be used, as they have been shown to be effective in our field sites in Asia. **Sample size:** 30 animals per species per site per season

**NHP identification:** The seven diurnal primate species found in Udzungwa Mountains National Park and/or neighboring forest reserves are easily distinguished based on their size, body shape, coloration, and predominant forest use (arboreal vs. terrestrial) [28]. Field team members will be trained to accurately identify each of the resident diurnal primate species.

**Personnel involved:** Fair, Mazet, VanWormer, Kazwala, TAWIRI Collaborator (TBN). **Metrics of Success:** Samples collected from at least 480 bats and 240 NHPs annually, satellite
transmitters on at least 1 bat from each study site. Deliverables: Wildlife surveillance section in annual report, at least 1 publication.

ix. Task 9: Environmental characterization and sampling
Subtask 9-a: Indirect sampling at bat feeding roosts
Working with local guides, bat feeding roosts will be identified in or near wildlife sampling sites. Discarded seeds and fruits will be assessed at dawn and swabbed with sterile, synthetic swabs to collect bat saliva. Thirty specimens will be collected seasonally per site and stored in lysis buffer in a locked field dry shipper. Specimens will then be stored at -80°C prior to diagnostic testing.
Subtask 9-b: Camera trapping at bat feeding roosts
Two remote-triggered, waterproof, infrared field cameras will be set and left in the field for one to two weeks seasonally at each bat feeding roost to assess the potential for other wildlife taxa to contact food items discarded by bats. Images of visiting wildlife will be used to target additional wildlife sampling at field sites.
Personnel involved: Fair, Mazet, VanWormer, Kazwala, TAWIRI Collaborator (TBN). Metrics of Success: At least 240 swab samples will be collected annually from discarded foods, at least 8 weeks of total annual camera trapping. Deliverables: Environmental sampling section in annual report, select camera trap images in annual report index.

x. Task 10: Establishment of sample repository/metadata information data sheets and accession numbers
A human and wildlife sample repository will be created at the IHI BSL-3 laboratory in Bagamoyo. Standardized metadata will be recorded for each sample, and accession numbers assigned for future access. Samples will be stored in secure freezers and/or liquid nitrogen Dewar’s in secure facilities with limited access to project personnel and other authorized personnel. Sample repository and security will be established according to the BMBL approved safety guidelines as well as international security guidelines.
Personnel involved: Fair, Mazet, VanWormer, Kazwala, Masanja, Mugasa. Metrics of Success: Sample repository and data sheets established in Year 1 and assessed quarterly for accurate entry of all new specimens. Deliverables: Sample repository section in annual report.

xi. Task 11: Viral diagnostics
Following lab storage in locked -80°C freezers, RNA extraction and viral family level diagnostic testing will be performed on deactivated specimens to identify potentially zoonotic viruses from the following viral families: filoviruses, henipaviruses, coronaviruses, bunyaviruses, flaviviruses, and rhabdoviruses. RNA extraction will be performed with Qiagen RNA extraction kits using our established PREDICT protocols for blood, oropharyngeal swabs, and feces in a class II biosafety cabinet or BSL-3 facility. Beta actin PCR analyses of cDNA products will be used to confirm successful RNA extraction. Viral family level primers will be used in established conventional PCR reactions to amplify viral RNA and synthetic positive controls will be employed. Suspect positive samples will be confirmed through cloning and sequencing.
Subtask 11-a: Human specimen viral testing
Trained personnel at the IHI BSL-3 laboratory in Bagamoyo, Tanzania, will conduct RNA extraction, cDNA production, Beta actin PCR, and viral family level PCR diagnostics for archived and prospectively collected human samples as above. During the original proposal, serologic testing of humans was not proposed as a defined specific aim.

However, during discussions regarding the challenges of human RVF serology with Dr. Stuart Nichol, Chief of the Viral Special Pathogens Branch (VSPB), Centers for Disease Control and Prevention in Atlanta, GA, an offer was made to help to validate the ID-Vet ELISA against the VPSB gold-standard human IgG ELISA, and to expand our surveillance for VISHA to include other serologic testing. Dr. Nichol offered to test approximately 750 specimens from the VISHA project.

Given the likelihood of relatively high seroprevalence to RVF in the study area, it is presumed that enough high and low-titer antibody specimens will exist in our study population to determine the limit of detection (LOD) and other assay parameters of the ID-Vet kit versus the VSPB gold-standard assay, and for VISHA, to assess a variety of different exposures to viral hemorrhagic fevers (VHFs) through this enhanced additional serologic testing and screening that would be allowable under the VISHA IRB consent approvals. The VISHA informed consent documents state that the samples collected and information will be kept for 15 years and can be used to perform analysis related to evaluation of other zoonoses that can cause febrile illness with the appropriate ethical approval as required.

Both the proposed RVF and other VHF serologic testing would be provided in-kind by CDC, with the VISHA project paying for shipping and the cost of the required ID-VET kits for the validation assessment. These funds will be drawn from existing project line-items dedicated to shipments for lab result confirmation and testing reagents. The diagnostic testing by CDC will serve multiple purposes including the timely assistance in completion of our proposed DTRA project-related activities, provide a viable alternative for human RVF serological testing (if the ID-Vet assay performs as expected against the gold-standard assay), and insights into other potential VHF exposure risks in the study area.

Dr. Nichol also indicated that VSPB would, in the future, be willing to transfer the CDC RVF IgG and IgM assays to our Tanzanian counterpart organizations as part of an overall capacity gain for our teams in-country.

Subtask 11-b: Wildlife specimen viral family testing
RNA extraction from deactivated wildlife samples and cDNA production will be conducted at the Sokoine University of Agriculture (SUA) Emerging Infectious Disease Molecular Diagnostic Laboratory in Morogoro, Tanzania, as above. As capacity is built at the SUA diagnostic laboratory for viral family level PCR protocols, testing will be completed for all possible viral families on-site. In addition, an aliquot of the cDNA products will be reserved for shipment to IHI for viral family screening if timelines for testing cannot be met at SUA. An additional aliquot will be reserved in case shipment to the University of California, Davis (UCD) One Health Institute molecular diagnostic laboratory is necessary for assessment of capacity building; quality control screening as SUA and IHI gain experience with the viral family level protocols; and to augment capacity if both SUA and IHI become overloaded by sample submission numbers. Comparative screening at UCD will be used to help refine laboratory protocols at SUA and IHI to ensure high-level in-country viral diagnostic capacity. Lab technicians at SUA have experience extracting viral RNA from diverse
wildlife specimens. Duplicate wildlife specimens will be stored in VTM in a secured BSL-3 laboratory at IHI for transfer to more biosecure facilities if further diagnostic work is indicated. 

**Personnel involved:** Fair, Mazet, Miller, VanWormer, Kazwala, Mugasa, TAWIRI Collaborator (TBN). **Metrics of Success:** At least 500 specimens screened yearly (screening capacity and activity is expected to increase substantially following year 1 trainings). **Deliverables:** Viral diagnostics section in annual report.

xii. **Task 12: Molecular characterization of viruses**

For any suspect positive sample (wildlife or human), confirmatory cloning of PCR products will initially be performed at the in-country laboratories with the UCD One Health Institute molecular diagnostic lab providing back-up support for sequencing and for additional testing in case DTRA-specific timelines for research completion are not being met or if our team is not able to efficiently obtain results that will be used to refine field sampling approaches. Cloning procedures will also be introduced to IHI to increase in-country diagnostic capacity. Should equipment and maintenance be available. SUA and IHI currently lack the physical infrastructure for viral sequencing. Initial samples will be sequenced at UCD and through the locally sustainable option of sending samples to Korea for economically efficient ($7) outsourced sequencing (ILRI also an option if economically feasible), as is practiced in much of the world. Following viral sample sequencing, Bayesian and maximum likelihood phylogenetic analyses will be used to determine the genetic similarity of viruses from bats, primates, and humans. 

**Personnel involved:** Fair, Mazet, Miller, VanWormer, Kazwala, Mugasa. **Metrics of Success:** All suspect positive specimens will be characterized within 3 months of initial diagnostic testing results. **Deliverables:** Molecular characterization section in annual report, at least 1 publication.
xiii. **Task 13: Data analysis/modeling**

All statistical modeling and spatial analyses will be jointly conducted by Tanzania and US-based researchers. Tanzanian masters students, the IHI post-doctoral scientist, and additional research partners from SUA, IHI, and TAWIRI will be trained in open source analysis software, as access to these programs is more sustainable than access to proprietary statistical software in developing countries. Collaborative model building by US and Tanzanian researchers will enhance local relevance and the capacity for epidemiologic data analysis in Tanzania. Jointly developed models and software code will serve as a resource for future wildlife and human surveillance data analysis by SUA, IHI, and TAWIRI. Data sharing between partner institutions will also ensure that the most current and accurate risk factor, geospatial, and animal and human population data are integrated into the analyses.

**Subtask 13-a: Statistical risk factor modeling**

Prevalence of exposure for each viral family will be estimated in bats, NHP, and people at characterized field sites, and mixed effects logistic regression models will be used to evaluate demographic, seasonal, and ecological risk factors for exposure in humans and wildlife. Mixed effects models will use site of capture (wildlife) or health clinic as the cluster variable for animal and human models, respectively, to account for unmeasured correlation among individuals. Environmental risk factors will be characterized during field site assessments and using GIS data in QGIS. All statistical analyses will be performed in R statistical software.

**Subtask 13-b: Spatial analyses**

Spatial analyses for clusters of viral exposure will be performed to identify hotspots of pathogen transmission as targets for controlling spillover from wildlife to human populations. GPS locations collected during fieldwork will be used for bats and NHP. Human locations will be geocoded based on village of primary residence. Geographical clustering of viral exposure (each identified viral family and all viral families combined) will be evaluated among bats, NHPs, and humans using a Bernoulli model elliptical scanning window in SatScan v. 9.0 [40,41]. Tanzanian masters students will be trained in open source analysis software, as access to these programs is more sustainable than access to proprietary statistical software in developing countries.

**Personnel involved:** Fair, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN). **Metrics of Success:** Statistical risk factor models and spatial models developed to characterize risk factors for and potential geographic hotspots of zoonotic viral transmission. **Deliverables:** Data analysis and modeling section in annual report and likely publication depending on results.

xiv. **Task 14: Data interpretation, development of stakeholder communications, and local distribution of findings**

Data analyzed above will be used to develop reports for DTRA and the Tanzanian government. In addition, informational materials will be developed in consultation with these agencies and participating stakeholders to provide community education on disease transmission risks and to influence behavior change. These materials may include household-targeted materials, posters, and animated educational videos distributable to mobile devices. At least two peer-reviewed manuscripts are expected in total from the proposed research project.
Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa. Metrics of Success: Final report of data analysis and results delivered to all international and local stakeholders, locally appropriate outreach materials developed and distributed for community outreach. Deliverables: Data analysis and results section in annual report, at least 2 publications in total following data interpretation. Outreach materials included as appendix in annual report.

V. PERFORMANCE SCHEDULE.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Monthly MT meetings</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>2: Administrative startup and maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Data management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Training &amp; mentorship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Field site assessment &amp; prep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Human sample archive assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Active human surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Active wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Environmental characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10: Sample repository management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11: Viral diagnostics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12: Molecular viral characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13: Data analysis/modeling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14: Data interpretation, distribution of findings</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VI. REFERENCES


SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 2</td>
<td>Terms &amp; Conditions</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

To:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Exhibit A Statement of Work</td>
<td>22</td>
<td>10-APR-2018</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Terms &amp; Conditions</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
# Amendment of Solicitation/Modification of Contract

**2. AMENDMENT/ MODIFICATION NO.**
- P00007

**3. EFFECTIVE DATE**
- 25 May 2018

**4. REQUESTED PURCHASE REV NO.**
- HDTRA1412B03

**5. PRODUCT NO.** (Unapplicable)

**6. ISSUED BY CODE**
- HDTRA1

**7. ADMINISTERED BY**
- DOD/OSTC
  - 6177 WEST MICHIGAN LANE, STE 870
  - STOKETON, CA 95215

**8. NAME AND ADDRESS OF CONTRACTOR**
- METABODY, INC.
  - 425 CALIFORNIA AVE, STE 210
  - SAN FRANCISCO, CA 94114-2114

**9. AMENDMENT OF SOLICITATION NO.**
- 565514

**10. MOD. OF CONTRACT/ORDER NO.**
- HDTRA1-14-1-0052

**11. DATED (SEE ITEM 11)**
- 05 Aug 2014

**12. ACCOUNTING AND APPROPRIATION DATA**
- (If required)

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS**
- IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

**A. THIS CHANGE ORDER IS ISSUED PURSUANT TO:** (Specify authority)
- THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

**B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).**

**C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF**
- DOD Terms and Conditions

**D. OTHER** (Specify type of modification and authority)

**E. IMPORTANT:** Contractor **X** is not. **☐** is required to sign this document and return copies to the issuing office.

**14. DESCRIPTION OF AMENDMENT/MODIFICATION** (Organized by UCF section headings, including solicitation/contract subject matter where possible)
- Modification Control Number: 0904

The purpose of this modification is to revise the Statement of Work dated 2 May 2018. No additional costs will be incurred as a result of the SOC revision.

All terms and conditions remain unchanged.

**15A. NAME AND TITLE OF SIGNER**
- (Type or print)

**16A. NAME AND TITLE OF CONTRACTING OFFICER**
- (Type or print)

**15B. CONTRACTOR/Offeror**
- (Signature of person authorized to sign)

**16B. UNITED STATES OF AMERICA**
- (Signature of Contracting Officer)

**16C. DATE SIGNED**
- 25-May-2018
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been modified:

SOW

Evaluating Zoonotic Viral Sharing Among Bats, Primates, and People in a High Risk Transmission Interface in Southern Tanzania - *Phase II Technical Proposal*

*Revised May 2, 2018*

I. ABSTRACT.
Viruses traced to bats and primates have caused some of the most significant human pandemics. As human populations rapidly expand into undeveloped areas, humans are living in closer contact with diverse wildlife, increasing the risk of disease transmission. In resource-limited areas, bushmeat hunting and consumption of forest plants shared with animals provide vital nutrients but may also put pathogens on the plate. Although extensive research has been directed at understanding transmission of viral diseases like Ebola, the ecology of these pathogens is not well understood. In the biodiverse Udzungwa Mountains, one of Tanzania’s last areas of undeveloped mountain forest, bats and non-human primates live in close proximity to each other and human communities, creating a high-risk interface for zoonotic disease transmission and spillover of potentially pandemic pathogens. In this region, Ifakara Health Institute maintains human specimen banks that may be accessed to evaluate historical and ongoing pathogen sharing. Through our established viral detection project in the region, our collaborative TZ-US team is active on the ground and prepared to intensify wildlife and human surveillance to evaluate 1) transmission of potentially shared pathogens, like filoviruses; 2) the impact of bat and primate community composition on viral diversity; and 3) human exposure to zoonotic viruses in high-risk populations living at the forest interface. By investigating cross-species viral sharing at this high-risk interface using best known practices, our team will also strengthen Tanzanian surveillance and diagnostic capacity for dangerous pathogens and identify the critical control points to prevent local and pandemic outbreaks.

II. SCOPE.
A. OBJECTIVE.
We will analyze the risk of infection with filoviruses and other viruses, especially NIAID Biodefense Category A and other potential CDC Select Agents, in Tanzania. We will evaluate the risk of zoonotic viral disease transmission among bats, non-human primates (NHP), and people sharing a forest interface with high human-wildlife contact in Southern Tanzania in order to identify critical control points for disease transmission and strengthen local surveillance capacity to prevent regional or pandemic outbreaks of disease.

Metabiota

2
Hypotheses: 1) Bats in Tanzania are a reservoir for emerging viral diseases, which have the potential to spread to humans through direct contact or indirectly via NHPs sharing habitats and resources with both bats and people. 2) Diversity of potentially zoonotic viruses in wildlife is associated with the number of bat and NHP species living in a given habitat. Protected areas bordered by human communities in the Udzungwa Mountains provide the ideal environment in which to investigate the potential for emerging viral disease transmission from bats and NHPs to humans. Viral investigation will target biodefense priority, Select Agent pathogens with recognized potential to initiate pandemics or to be weaponized as well as emerging viral disease threats from families including filoviruses, henipaviruses, coronaviruses, bunyaviruses, flaviviruses, and rhabdoviruses, among others.

Specific Project Objectives:

1) Engage local partners to characterize forest field sites. Partners will assess: bat-NHP interaction; bat and NHP species present; ecological variation; and degree of human contact. Identify specimens in human sample archives (frozen whole blood or serum) collected from acutely ill individuals living at high-risk interfaces for contact with bats and primates. (Yr 1)

2) Collect specimens (blood, saliva, urine, and/or feces) from bat and NHP populations living in characterized Udzungwa sites during wet and dry seasons (Yrs 1-3).

3) Collaborate with local health clinics and collect specimens (blood, oral swabs, and feces) from high-risk human groups bordering forest areas during wet and dry seasons (Yrs 1-3).

4) Test wildlife specimens, archived undiagnosed human febrile illness samples, and prospective human surveillance specimens for shedding of potentially zoonotic viral pathogens by molecular assays. Sample handling, RNA extraction, viral family level PCR analyses, and sample storage will occur in a locked BSL-3 laboratory as appropriate (Yr 1-3).

5) Characterize viral RNA amplified from animal and human samples and perform phylogenetic analyses. Assess viral diversity among bats, NHP, and humans to evaluate pathogen sharing in the Udzungwa ecosystem. (Yrs 2-3).

6) Conduct spatial analyses and epidemiologic modeling to identify risk factors for human exposure to bat and NHP viral pathogens, to assess options for mitigating viral spillover, and to target behavior change interventions. (Yrs 2-3).

7) Collaboratively train junior scientists (postdocs and graduate students) and local stakeholders to build capacity in: pathogen surveillance, wildlife and human sampling, molecular diagnostics, biosecurity, and One Health approaches and concepts in Tanzania (Yrs 1-3).

B. BACKGROUND.
We live in an ever-changing environment of pathogen distribution, prevalence, and transmission. Within the past 6 months alone, two deadly viruses (H7N9 influenza and Metabiota
Middle East respiratory syndrome Coronavirus (MERS-CoV)) have emerged as novel highly pathogenic infections. The majority of known human pathogens have an animal reservoir [1], emphasizing direct connections between human, wildlife, and domestic animal health. Recent East and Central African hemorrhagic fever outbreaks caused by the related filoviruses, Ebola and Marburg, have redirected global attention to the high potential for zoonotic spread from wildlife to human populations [2-4]. Bats are considered the most likely reservoir of pathogens like Ebola and Marburg viruses [5], but the transmission pathways to humans are not clearly understood. While humans may contact infected bats directly or indirectly (through exposure to saliva, urine, or feces), contact with other wildlife such as NHPs that share habitat and resources with bats may also provide a source of exposure as an intermediate vector. The flow of people into forests and wildlife out of forests provides diverse opportunities for filovirus and other zoonotic viral pathogen transfer, but the risks associated with different activities and habitats are not well understood. Bat-NHP interactions, as well as bat and NHP community assemblages, may shape viral diversity in a given environment and alter zoonotic disease transmission potential. Understanding the influence of bats, NHP, and people on viral transmission will help to direct surveillance and control strategies to limit the pandemic potential of filoviruses, as well as other existing and yet unknown emerging viral pathogens. Our proposed research targets diverse viral families that have zoonotic transmission potential at human-wildlife interfaces.

**Bat and non-human primate zoonotic disease risks**

Recent zoonotic disease research suggests that bats are critical reservoirs for filoviruses, as well as other diverse existing and emerging zoonotic pathogens, including henipaviruses, coronaviruses, paramyxoviruses, and flaviviruses [6-9]. Central and East African human outbreaks of Ebola and Marburg hemorrhagic fever, for example, have been linked to consumption of or environmental exposure to bats [2,3]. An urban straw-colored fruit bat (*Eidolon helvum*) seropositive for Ebola virus survived for at least 13 months post-capture, demonstrating that host hosts of viruses that cause severe disease in humans and other mammals could potentially transmit these pathogens over long periods of time [10]. Interestingly, much higher prevalences of exposure to Ebola virus were detected in non-urban bat species in West Africa. Based on the distribution of Ebola virus seroprevalences in diverse bat species, Hayman et al. [11] suggest that human contact with bats in rural and forest settings may pose a greater zoonotic transmission risk than contact with urban fruit bat colonies.

Non-human primates also serve as a source of diverse viral zoonotic disease exposure for humans [12-14]. The zoonotic origin of HIV offers a dramatic example of NHP to human transmission [15], but human outbreaks of hemorrhagic fever have also been traced to contact with live or dead African NHPs [13]. For example, while NHPs are reservoirs for some zoonotic viruses, they may also act as a link between bats and people sharing forest landscapes. Gorillas and chimpanzees have experienced epidemics of Ebola [16], which suggests that NHPs are not a filovirus reservoir, but that they contact reservoir species (now known to include bats) in forest habitat. It has been proposed that NHPs can acquire filoviruses through hunting other NHPs or by direct or indirect contact with reservoir hosts.
In this case, Ebola virus exposure in terrestrial and predominantly arboreal NHP species suggests that contact may occur in multiple forest strata. Habitat and food resource sharing among bats, NHPs, and people therefore represent critical interfaces for zoonotic virus transmission, but interactions among these communities in tropical forests are not well understood. Bat sleeping and feeding roosts offer potential focal points of contact where bats and NHPs might share resources. Discarded fruits and seeds at feeding roosts [17] may present an opportunity for primates and people to directly contact viruses in bat saliva and/or feces. However, viral contamination of discarded food items at bat feeding roosts has not been thoroughly investigated.

**Zoonotic virus transmission to people**

Human outbreaks of Ebola and other agents have frequently started with infection of a single or few individuals expected to have been exposed to infected bats or NHP in forest habitats [3,13]. While exposure frequently occurs through hunting and butchering of animal carcasses, other extractive forest uses may also expose people to disease agents. Ebola infection in a forest-based charcoal worker and Marburg infection in mine workers and tourists visiting caves with bat colonies provide additional examples of modes of transmission [2,18]. In filovirus outbreaks, after the initially infected individuals contacted other members of their villages or sought care in clinics and hospital settings with limited sanitary practices, the number of cases and their geographic range often expanded rapidly through person-to-person transmission. Although periodic large outbreaks attract international media and research attention, undiagnosed filovirus and other zoonotic viral transfer may happen much more frequently. Even within outbreaks, viral diversity in different patients has suggested multiple independent zoonotic transmission events [18,19]. Understanding the risk of these initial zoonotic disease transmission events at the forest human interface is essential to protect against the large-scale outbreaks that threaten national and international public health. While frequent dead-end
zoonotic transmission events likely occurred in isolated areas in the past, rapid human population growth and landscape conversion near protected areas may enhance outbreak potential. Non-specific clinical symptoms including fever, headache, and muscle pain occur in the initial stages of many zoonotic viral illnesses [20]. Due to scarce clinical resources in many areas of Africa, patients with zoonotic virus-based fevers may be misdiagnosed with more common febrile illnesses, such as malaria. Misdiagnosis of filovirus infections, for example, as dysentery or yellow fever delayed critical medical intervention in past outbreak situations [21,22]. In two clinics adjacent to Udzungwa Mountains National Park, over 60% of patients presenting with febrile illness were incorrectly diagnosed with malaria when microscopy was used as the only diagnostic test [23]. While underlying causes of disease were not identified in misdiagnosed patients, it suggests that non-malarial causes of febrile illness are very common in this area. In the Eastern Arc Mountains of northern Tanzania, malaria was also commonly misdiagnosed in patients with severe febrile illness, especially those living at higher altitudes [24].

**Study area**

Part of the Eastern Afromontane biodiversity hotspot [25], the protected areas of the Udzungwa Mountains are islands of predominantly intact forest surrounded by human development. In Udzungwa Mountains National Park (UMNP) and a mosaic of nearby forest reserves, diverse assemblages of NHPs and bats share the largest remaining forest blocks in the Eastern Arc mountain chain [26], Figure 1. In the heterogeneous Udzungwa landscape, which is a mixture of lowland to montane closed canopy forest, woodlands, grasslands, and developed areas, protected forest blocks range in size from <1 km² to 526 km² [27]. The eastern sides of lower elevation forest blocks receive 2000-3000mm of rainfall per year, while higher elevation drier forests receive approximately 500mm per year. There are typically two periods of concentrated rainfall: December January and March-May [28].

![Map of Udzungwa Mountains and surrounding areas](image)

neighboring forest reserves (modified from [29,30,31]).

The region is home to a diverse range of primates, including more than 30 species of monkeys and galagos [28]. Initial surveys (fruit bats) and microchiropteran bats have shown the presence of viruses in other areas of East Africa currently threaten NHPs and may expose neighboring plants and traveling forest paths endemic monkeys and galagos [32,33]. A thriving clandestine trade may also work
offers an efficient potential pathway for wildlife products and pathogens to reach high-traffic areas with dense human populations. People living on park and reserve borders also visit sacred cave sites in the forests, increasing their potential exposure to NHPs and roosting bats. Farmers living near protected areas, UMNP staff members housed in the park, researchers, and tourists are also in contact with the diverse NHP populations. Ecological research is increasing in the Udzungwa Mountains, focusing on population dynamics, habitat use, response to environmental change, and animal behavior [27,34-37]. Building upon existing local and academic ecological knowledge, an investigation of emerging viruses in bats, primates, and people will provide critical insight on transmission of select agent and novel pathogens with pandemic potential.

C. PROGRAMMATICS.

Management team (MT) approach: Continuing their nearly 5 year partnership as implementing partners, Metabiota and the University of California, Davis (UCD) will co-manage this project with local partners in Tanzania. Metabiota will provide administrative and financial oversight while UCD will provide the scientific management and implementation of this research in Tanzania. Principal Investigator, will work hand-in-hand with Co-Principal Investigator, Dr. Jonna Mazet to ensure project deliverables are met according to contract timelines or as nearly as possible.

Since 2006, investigators from UCD and Sokoine University of Agriculture (SUA) in Tanzania have been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania through our HALI (Health for Animals and Livelihood Improvement) project. In 2009, HALI became the Tanzanian institutional home of the USAID Emerging Pandemic Threats’ PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans. Ifakara Health Institute (IHI) has an extensive history of human infectious disease research in Tanzania and has collaborated with SUA on diverse health projects for over 20 years. Metabiota, a partner on the PREDICT project, has extensive experience investigating emerging viruses with zoonotic potential in West and Central Africa. Project study design, wildlife and human sampling, specimen diagnostics, as well as spatial analyses and epidemiologic modeling will be jointly coordinated through UCD, SUA, and IHI. Archived human samples from areas of human-wildlife contact will be identified by UCD and IHI. All human samples, both archived and prospective will be tested at IHI BSL-3 laboratory facilities. Our US-Tanzania MT will have monthly conference calls to coordinate research design, activities, and progress. The proposed One Health collaboration will facilitate cutting edge research on existing and emerging viral pathogens at critical wildlife-human interfaces in Tanzania, and build local, regional, and national capacity to detect and mitigate zoonotic transmission of select agents.

PhD, MPH, Metabiota liaison to DTRA for coordination of project administration and reporting; will provide input on public health-related project objectives.

Jonna Mazet, DVM, MPVM, PhD, One Health Institute, School of Veterinary Medicine, UCD program director responsible for project oversight. Mazet will facilitate collaborative relationships, study design, and interpretation of findings.

Metabiota
Elizabeth VanWormer, DVM, PhD, One Health Institute, UCD  project manager responsible for coordination of teams and project objectives across US institutions and in Tanzania. VanWormer will facilitate project implementation and epidemiologic analyses.
Rudovick Kazwala, BVM, PhD, Faculty of Veterinary Medicine, SUA, Morogoro, Tanzania. Professor responsible for SUA-related laboratory and field activities as part of the HALI Project in Tanzania. Kazwala will facilitate capacity building of Tanzanian laboratories and scientists.

Joseph Paschal Mugasa, MS, PhD, Laboratory director at IHI Bagamoyo Research site responsible for input and oversight of laboratory activities related to biosafety and security. Mugasa will also facilitate capacity building of Tanzanian laboratories and scientists.

**Progress evaluation:** The MT will monitor project activities to achieve the following benchmarks: 1) obtain US and Tanzanian protocol approval, characterize field sites, and identify junior scientists in Year 1; 2) perform field sampling and laboratory diagnostic activities in Years 1-3 and initiate data analysis in year 2; and 3) prepare recommendations to reduce zoonotic viral transmission potential to local and global communities and prepare at least 2 scientific publications in Year 3.

**D. RELEVANCE.**

The proposed work will improve fundamental understanding of filoviruses and other emerging virus epidemiology and add tangible data on these agents to the DTRA knowledge base. It will provide a platform for engaging and networking with professionals working in emerging infectious diseases (EIDs) in both the human and animal sectors and will increase the capacity for rapid and accurate local detection and mitigation of threats to humans and animals with positive economic, health, and other security implications.

Ebola and Marburg viruses, as well as certain other viruses known to circulate in bats are NIAID Category A Biodefense Priority Pathogens and US DHHS Select Agents. While these viruses are considered research priorities, little is understood about their natural history and transmission cycle, as well as their replication in their reservoir host species, which are believed to be African bat species. Bats, as well as their natural interaction with NHPs, humans, and other intermediary species are also poorly understood. Thus, it is paramount to better understand the circulating viruses in bat populations in Tanzania and elsewhere, as well as to understand the interaction that humans and other species have with bats in that region. Through the proposed research, we will engage emerging scientific leaders in Tanzania and will closely collaborate on the proposed research, the results of which may directly increase global public health security by allowing us to better understand the distribution, prevalence, and high risk behaviors associated with filoviruses and other emerging viruses of pandemic potential. The proposed research targets Thrust Area 6 and advances C-WMD science by building local and global understanding of pathogens that pose the greatest threat as biological weapons. Weapons and terrorism in Tanzania are a concern due to past and recent political events in the East African sub-region.

Investigating zoonotic viruses in bats, NHPs, and people in Ulzungwa Mountain forests strengthens local capacity to conduct surveillance for pathogens that severely threaten public health and global security. Understanding the natural ecology of emerging zoonotic viruses will facilitate control strategies to reduce human exposure and disease spread, a globally valuable outcome. In addition to enhancing in-country pathogen detection capability, the proposed research will build understanding of risk factors for transmission among bats, NHPs, and humans. Targeting surveillance and control strategies to high-risk human-wildlife interfaces for disease emergence protects people in the US homeland and abroad by limiting the risk posed by pathogen spillover. Understanding viral transmission
events at human-wildlife interfaces will help public health officials and researchers to distinguish between a naturally occurring spillover
event such as MERS-CoV verses an intentional release. Increasing knowledge of naturally-occurring viruses could be inappropriately handled or developed into weapons of mass destruction will also help to safeguard Tanzanian and global public health. The proposed work will also extend the reach of the Cooperative Biologic Engagement Program (CBEP) and will advance partnerships that University of California, Davis and Metabiota have with institutions in Tanzania that are hubs for research excellence in East Africa. The institutional partnerships will have particular benefits given the active USAID and NIH-funded research programs that UCD can leverage in the region and will enhance the potential for collaborative One Health research that is a proven model within this internationally experienced and respected research team. These features have the potential to radically improve sustainability and absorbability of these investments for long-term impact.

III. CREDENTIALS.
Our consortium is comprised of a group of highly qualified experts from across academia, industry, and government backgrounds, all of whom have successfully implemented large-scale USG and internationally funded programs abroad. First funded by CBEP in mid-2010, Metabiota has demonstrated high-quality research collaborations in some of the world’s most austere settings. This work has resulted in 6 CBEP-funded high-impact publications, including the description of a novel virus associated with viral hemorrhagic fever syndrome in the Democratic Republic of the Congo (DRC). Metabiota supported the response to 6 outbreaks (suspected viral hemorrhagic fever, polio, and yellow fever) and has facilitated shipment of samples back to US DoD laboratories for the further development and testing of diagnostics and countermeasures. Metabiota, as a member of the WHO GOARN, was considered an invaluable resource during these events, setting the stage for future engagements globally, and, in this regard, is a long-time collaborator with US military labs overseas.

Our successes in working with CBEP have been sustained by involving multiple international and regional networks, such as the African Field Epidemiology Network (AFENET), the WHO Especially Dangerous Pathogens Laboratory Network (WHO-EDPLN), and existing research and public health laboratory networks. We also have experience facilitating the establishment of regional networks as demonstrated through our assistance in the creation of the Central African Military Health Alliance (CAMHA), which Metabiota continues to serve as integrating contractor. Metabiota actively engages local, regional, and international partners in project implementation.

The UCD team is comprised of a highly qualified and integrated set of infectious disease faculty and researchers who specialize in the epidemiology and surveillance of zoonotic diseases that may be transmitted between animals and humans. Based within the One Health Institute at UCD, the multidisciplinary team has extensive experience in core CBEP topics, including infectious disease research, grant writing, mentoring, and training. For example, the UCD team manages an implementing consortium for and scientifically leads the USAID's Emerging Pandemic Threats Program PREDICT project, a $75 million multi-institutional, trans-disciplinary project in 20 developing countries that aims to enable global surveillance for zoonotic diseases emerging from wildlife using geospatial modeling, genomics, molecular virology, epidemiology, and targeted field studies at hot zoonotic disease transmission interfaces. In just over three years since it's implications, PREDICT has discovered over 200 novel viruses, trained over 1500 collaborators from developing nations, and published over 28 manuscripts in the peer-reviewed literature.

Metabiota
Sokoine University of Agriculture (SUA) is the premier veterinary school for Tanzania, and Ifakara Health Institute is a leader in public health research in the country. Since 2006, SUA has been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania as a partnership with UCD through our HALI project. In 2009, HALI became the Tanzanian institutional home of the PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans. Ifakara Health Institute (IHI) has an extensive history of human infectious disease research in Tanzania and has collaborated with SUA on diverse health projects.

**Key personnel**

PhD, MPH, will serve as PI for this effort as the Metabiota Vice President of Research and Development, and is a Technical Advisor to the WHO. As VP of R&D, oversees the implementation of disease surveillance and specialized research globally and has over 10 years experience living and working in Africa and with DoD.

**Jonna A.K. Mazet, DVM, MPVM, PhD** will serve as Co-PI and lead for the UCD. Professor Mazet currently leads a global network to build capacity within more than 20 countries to develop surveillance and complete the necessary research to halt pandemics. As a professor in the School of Veterinary Medicine, Mazet provides service to government agencies faced with emerging infectious disease challenges, including USAID and U.S. Department of Agriculture.

**Wountrina Miller, DVM, MPVM, PhD** will serve as a SME for infectious zoonotic diseases. Dr. Miller is a veterinarian and Adjunct Associate Professor in the School of Veterinary Medicine at UCD. She is an infectious disease molecular biologist with extensive experience working on zoonotic diseases that can be transmitted from animals to humans and currently has active research in Tanzania that involves both the animal and human health sectors.

**Elizabeth VanWormer, DVM, PhD.** One Health Institute, UCD will serve as a project scientist and implementation manager. Dr. VanWormer is an epidemiologist currently living in Tanzania and facilitating the HALI Project that would house the proposed research. She has in-depth experience conducting wildlife and zoonotic disease research and managing multi-disciplinary international teams in Tanzania, implementing federal grants/contracts, and integrating technical activities with stakeholders from government ministries to communities.

**Rudovick Kazwala, BVM, PhD** will serve as a Co-PI and lead for the Tanzania team. He is a Professor of Public Health and Epidemiology at SUA as well as Chairman of the Tanzania Veterinary Medical Association. Professor Kazwala is on the IHR Roster of Experts for veterinary issues involving zoonoses and currently leads viral disease research for the PREDICT project in Tanzania. As a founding PI of the HALI Project with UCD, Professor Kazwala is well established with all the partner organizations involved in this DTRA research proposal.

**Honorati Masanja, MS, PhD** will serve as the Ifakara Health Institute lead in his role as Chief of Research Operations at IHI. Dr. Masanja is an epidemiologist skilled in data management and biostatistics who leads numerous collaborative studies in Tanzania and is funded by international organizations such as the WHO and CDC.
Joseph Paschal Mugasa, MS, PhD will serve as a SME for viral zoonoses and lead for the IHI laboratory team. Dr. Mugasa is currently the laboratory director at the IHI Bagamoyo research site and the head of biomedical research at IHI. Dr. Mugasa has extensive experience working with international teams on molecular investigations of human and animal pathogens.

Tanzania Wildlife Research Institute (TAWIRI) specialist, either Robert Fyumagwa, DVM, PhD or his designee. The TAWIRI representative (TBN in conjunction with Dr. Fyumagwa and TAWIRI Director of Research, Dr. Julius Keyyu) will serve as SME for wildlife disease surveillance and lead for the TAWIRI Team. Dr. Fyumagwa is currently the Center Director for TAWIRI’s Serengeti Wildlife Research Centre and is a collaborator with our collaborative TZ- US led PREDICT project in Tanzania. Dr. Fyumagwa has extensive experience working with international teams on wildlife and zoonotic disease research, including NHPs.

IV. WORK TO BE PERFORMED.

A. GENERAL

We will investigate the epidemiology of filoviruses and other zoonotic viruses in bat, NHP, and human populations sharing a mosaic of protected forests and bordering lands in southern Tanzania. By examining viruses circulating in wildlife and human hosts in this biodiverse environment, we will increase the understanding of pathogen emergence risk and zoonotic disease transmission while building local capacity to diagnose, conduct surveillance for, and control pathogens of pandemic and biosecurity concerns. To characterize potentially zoonotic viruses in bat and primate hosts, samples will be collected from these animals from identified sites with differing bat and primate community composition and likelihood of human contact (based on distance to nearest villages and reported human forest use). Primates and bats captured at field sites will be sampled twice yearly to reflect seasonal differences (wet vs. dry season) in viral shedding. Saliva samples from discarded seeds and fruits at bat feeding roosts [17] will also be collected, as these sites offer an environmental focus of potential virus exposure for primates and other animals. Remote-triggered digital field cameras will be used to monitor other taxa visiting bat feeding roosts to assess the potential for inter-taxa viral transmission. All samples will be transported securely under project supervision in locked containers from field sites to the labs at SUA and IHI for secured storage and testing.

To investigate human exposure to filoviruses and other zoonotic viruses, we will collaborate with health clinics near Udzungwa forests to sample individuals presenting with non-malarial febrile illness. By collecting blood, oropharyngeal swabs, and fecal samples along with survey data on forest use and wildlife contact, we will be able to examine risk factors for wildlife origin virus exposure. Humans will be sampled seasonally in parallel with wildlife to capture differences in wet and dry periods. In addition to the prospectively collected human samples, we will evaluate archived human samples from sick individuals living near forests or likely to have had high contact with wildlife. Testing wildlife and human specimens with the efficient viral family PCR screening approach developed by PREDICT to detect emerging viral threats, we will capture critical information about viruses circulating in sympatric bat, NHP, and human populations while developing essential local laboratory capacity to detect priority pathogens. Sequencing and phylogenetic mapping will be used to determine the genetic similarity of viruses. Statistical models will be used to
evaluate demographic, seasonal, and ecological risk factors for viral family or individual virus exposure. Spatial analyses will be performed to identify hotspots of pathogen transmission for targeting control of spillover from wildlife to human populations.

B. Summary

Year #1
Task 1: Management team meetings (monthly)
Task 2: Administrative startup and maintenance (Quarters 1-3)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training, trainee identification, and mentorship (Quarters 1-4)
Task 5: Field site assessment and preparation (Quarters 1-2)
Task 6: Human sample archive assessment (Quarters 1-4)
Task 7: Active human surveillance (Quarters 3-4)
Task 8: Active wildlife surveillance (Quarters 2-4)
Task 9: Environmental characterization and sampling (Quarters 2-4)
Task 10: Establishment of sample repository/metadata records, accession numbers (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 3-4)

Year #2
Task 1: Management team meetings (monthly)
Task 2: Administrative maintenance (Quarters 1-4)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training and trainee mentorship (Quarters 1-4)
Tasks 5 & 6: Not applicable for Year 2
Task 7: Active human surveillance (Quarters 1-4)
Task 8: Active wildlife surveillance (Quarters 1-4)
Task 9: Environmental characterization (Quarters 1-4)
Task 10: Sample repository maintenance (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 1-4)
Task 12: Molecular characterization of viruses (Quarters 3-4)
Task 13: Data analysis/modeling (Quarters 1-4)

Year #3
Task 1: Management team meetings (monthly)
Task 2: Administrative maintenance (Quarters 1-4)
Task 3: Data management (Quarters 1-4)
Task 4: Staff training and student mentorship (Quarters 1-2)
Tasks 5 & 6: Not applicable for Year 3
Task 7: Active human surveillance (Quarters 1-2)
Task 8: Active wildlife surveillance (Quarters 1-2)
Task 9: Environmental characterization (Quarters 1-2)
Task 10: Sample repository maintenance (Quarters 1-4)
Task 11: Viral diagnostics (Quarters 1-3)
Task 12: Molecular characterization of viruses (Quarters 1-4)
Task 13: Data analysis/modeling (Quarters 1-4)
Task 14: Data interpretation, development of stakeholder communications, local distribution of findings, and manuscript preparation (Quarters 1-4)

C. DETAILED TASKS.

i. Task 1: Monthly Management Team (MT) Meetings (Years 1-3)
The project MT will meet once per month using Skype or a similar internet-based international communication tool. Project logistics and progress will be assessed, and action items for the coming month will be identified. A written record of meetings will be maintained for reference. Personnel involved: Fair, Mazet, VanWormer, Kazwala, Mugasa. Metrics of Success: At least 12 MT meetings logged per project year. Deliverables: MT meeting minutes will be archived and progress on identified action items highlighted in the annual report.

ii. Task 2: Administrative startup and maintenance (Years 1-3)
Subtask 2-a: Obtain appropriate US and Tanzania research approval (Years 1-3)
The MT will obtain ethical clearance for human surveys, human prospective specimen collection, and human specimen archive use through the University of California, Davis IRB and the Tanzania National Institute of Medical Research (NIMR). Research permission for wildlife sampling in Udzungwa Mountain forests will be obtained from the UCD Animal Care and Use Committee and the Tanzania Wildlife Research Institute (TAWIRI). TAWIRI approval includes permission to conduct research on lands within and surrounding national parks and forest reserves. Following TAWIRI and NIMR approval, general research and residence permits will be obtained from the Tanzania Committee on Science and Technology (COSTECH) and Tanzanian Ministry of Home Affairs (Immigration). The MT has extensive experience with UCD and Tanzania permitting system requirements and timelines, which will allow permits to be acquired smoothly. Permits will be renewed annually.
Subtask 2-b: Develop study protocols, survey instruments, and data collection forms (Year 1) Working with the MT, junior scientists will generate study field and lab protocols and surveys for human risk factors, as well as specimen management forms, diagnostic results logs, and forms for collecting information on animal demographics and environmental characteristics of field sites. General and Tanzania-specific protocols on wildlife handling and capture, safe specimen collection, specimen storage and transport, personal safety and biosecurity, and cold chain maintenance have already been established through the PREDICT viral surveillance program and will be adapted for use here.

Subtask 2-c: Procure supplies for field surveillance and laboratory diagnostics (Years 1-3) Working with the MT, staff will order field and laboratory supplies and equipment necessary for human and animal sampling and testing. As part of the PREDICT program, relationships with scientific supply vendors (VWR, Fisher, African Biosystems, etc.) have already been established for efficiently purchasing and acquiring supplies. To maintain a steady supply, materials will be assessed and reordered as needed on a quarterly basis.

Subtask 2-d: Strengthen local stakeholder collaborations - Regional and District Veterinary Officers, Wildlife Officers, Forest Officers, Executive Officers; Udzungwa Mountains Park Staff and Researchers; Village Government Leaders and Health Clinic Officers – (Years 1-3) Through HALI project wildlife sampling activities and previous zoonotic disease investigations, strong relationships have already been established with relevant veterinary, wildlife, and forest officers, as well as district executive directors. In a PREDICT-funded Udzungwa pilot surveillance program, we are in the process of currently building relationships with Udzungwa Mountains Park Staff and village government leaders. The MT members and junior scientists will work to strengthen the existing relationships and to create collaborations with village health clinic officers by providing quarterly updates on research progress, as well as annual trainings on wildlife and human sampling for relevant partners.

Subtask 2-e: Complete quarterly financial reports; manage logistics of staff and lab/field office operation (Years 1-3) The project logistics manager will complete quarterly financial reports in collaboration with the Tanzanian research institutions (SUA and IIH). Junior scientists and MT members will jointly manage staff logistics and office operation.

Subtask 2-f: Complete quarterly reports on project activities for funders and project partners in Tanzania and the United States (Years 1-3)

The MT and junior scientists will provide quarterly email updates to project partners to share preliminary research results and progress on project timelines. In accordance with Tanzanian policy, all viral diagnostic results will initially be shared with the Tanzania Ministry of Health, Ministry of Livestock and Fisheries Development, and Ministry of Wildlife and Tourism, with whom we have existing relationships. Following approval for release by Tanzanian ministries, results will be provided to other project partners. This reporting system is desirable for in-country and foreign partners.

Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Mugasa. Metrics of Success: Research permits approved each year, protocols and data collection forms developed, supply inventories updated quarterly, financial and project activity reports generated quarterly. Deliverables: Documentation of research permit and ethical clearance approval, stakeholder collaboration section in annual report, list of approved protocols and data collection forms
included as appendix in annual report, quarterly reports included as appendix in annual report.

iii. Task 3: Data management
Subtask 3-a: Database creation
Following development of field and lab data forms, the junior scientists and MT will create separate secure electronic databases to store wildlife, environmental, and human data.
Subtask 3-b: Data entry and cleaning
Within 2 weeks of field data collection, junior scientists will enter and check wildlife, environmental, and human data in the project databases. A MT member will review entered data for accuracy. Human data forms with information identifying individual study subjects will be stored in a locked cabinet at the project office and destroyed 12 months after study completion.
Personnel involved: Fair, Mazet, VanWormer, Kazwala, Mugasa. Metrics of Success: Databases developed in Year 1, project data entered and assessed within 2 weeks of field collection. Deliverables: Database section included in annual report.

iv. Task 4: Staff and stakeholder training and junior scientist mentorship
Subtask 4-a: Identify and hire junior scientists (postdoc, PhD, and master students; Year 1)
In order to build sustainable capacity and long-term research networks, one US-based postdoctoral scholar and one post-DVM PhD student and at least one Tanzanian master student (SUAB) and one postdoctoral fellow (IHI) will be recruited for the research project.
Subtask 4-b: Conduct annual and quarterly trainings (Years 1-3)
PREDICT staff members with extensive field experience in wildlife capture and sampling, viral specimen collection, cold chain management, and personal and laboratory biosafety will train the junior scientists, field staff, and local stakeholders including veterinary and human health partners and district wildlife officers on these topics. Veterinarians and ecologists from UMNP, Tanzania National Parks Association (TANAPA), and TAWIRI will be invited to participate in animal-based trainings to build national wildlife surveillance capacity and biosecurity awareness. MT members from IHI will train health clinic staff and junior scientists on human data and specimen collection and storage. Laboratory experts from UCD, SUA, and IHI will provide training on PCR-based viral family diagnostics, cloning, sequencing, and phylogenetic analyses. Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN). Metrics of Success: Quarterly training events conducted each year, at least two postdoctoral scientists and graduate students mentored each year. Deliverables: Training documents compiled for annual report, trainee progress reports and trainer evaluations included as an appendix to annual report.

v. Task 5: Field site assessment and preparation
Subtask 5-a: Human health clinic assessment
We will identify health clinics that treat patients, including those with febrile illnesses, from areas near or adjacent to the wildlife sampling sites. MT members will assess clinic willingness to participate in a research study on zoonotic viral diseases involving collecting human blood, oropharyngeal swab samples, and fecal specimens. After identifying four
clinics from different geographic locations representative of the study area, we will recruit
one health officer or nurse as a research partner from each clinic to participate in human
sample collection. We have experience in these recruitments through our ongoing NIH-
supported research in the region.
Subtask 5-b: Wildlife sampling site assessment
Prior to the first season of animal specimen collection, the forest reserve network will be
assessed to identify 4 field sites for seasonal bat and NHP sampling for the duration of
the project. Two sites will be identified in forests with low NHP diversity (2-3 species present).
The remaining sites will be in forests with higher NHP diversity (4-6 species present). Bat
diversity will be assessed at the time of capture using audio data recorders. All sites will be
chosen in forests used by neighboring human communities for bushmeat hunting, sacred site
visitation, and/or resource extraction, such as medicinal plant gathering. Field site vegetation
and forest cover will be characterized visually and using available remote sensing/GIS data.
Personnel involved: Fair, Mazet, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI
Collaborator (TBN). Metrics of Success: Number of patients enrolled annually; number of
staff trained; laboratory capacity; elevation, latitude/longitude, and proximity to forest
characterized for each human health clinic. Vegetation and forest cover, climate, elevation,
latitude/longitude, known wildlife species composition, human use, and proximity to human
communities will be characterized for each wildlife sampling site. Deliverables: Clinic and
field site characterization in annual report.

vi. Task 6: Human sample archive assessment
Archived frozen human whole blood samples stored at IHI research facilities due to
previously completed in-depth investigations of zoonotic and human diseases in Tanzania
will be selected for study inclusion based upon where subjects lived and any known risk
factors for wildlife contact (bushmeat hunting, medicinal plant gathering, other forest
resource extraction, or agricultural conflict with primates). If risk factor information for
previously collected human samples is too sparse or sample quality is questionable, human
sampling emphasis will be placed more heavily on prospective specimen collection.
Personnel involved: Fair, Mazet, VanWormer, Kazwala, Masanja, Mugasa. Metrics of
Success: List of potential archive samples generated, risk factor information assessed for
human sample archives. Deliverables: Human sample archive assessment and use section in
annual report.

vii. Task 7: Active human surveillance
Subtask 7-a: Patient recruitment
Adult and child patients presenting to participating health clinics with a fever will be offered
a rapid diagnostic test for malaria. Patients testing negative by rapid test will be asked to join
the study and formally consented following standardized, approved Tanzanian consent
procedures.

Participating patients will be interviewed about their contact with forests and wildlife
before specimen collection. Sample size: 50 patients will be recruited each season at each
health clinic. Subtask 7-b: Forest risk factor survey
Consenting patients with a non-malarial febrile illness will be interviewed by a trained nurse
at the health clinic regarding their use of forest products or habitats and contact with wildlife
species, especially bats and NHP, in or near forests. Data will be disaggregated from individually identifying information prior to data analysis to protect patient confidentiality. However, patient recruitment and contact information will be maintained in locked facilities to contact individuals regarding the results of diagnostic testing.

Subtask 7-c: Sample collection

Whole blood, oropharyngeal swabs (2), and approximately 400mg of feces will be collected from patients by a trained nurse. Oropharyngeal swabs and feces will be divided and stored in lysis buffer and VTM. All samples will be stored in liquid nitrogen at the health clinic (in provided dewars). Clinics will also be provided standard government issue malaria rapid diagnostic tests to rule out malaria as a cause of febrile illness, and human sampling supplies to collect oral swabs and feces. Following each season (wet and dry) of sampling, specimens will be transferred to IHI BSL-3 laboratory for storage in -80C freezers and diagnostic testing.

Personnel involved: Fair, Mazet, Miller, VanWormer, Masanja, Mugasa. Metrics of Success: Risk factor surveys and samples collected for 400 human patients annually. Deliverables: Active human surveillance section in annual report, at least 1 publication prepared.

viii. Task 8: Active wildlife surveillance

To detect potential differences in seasonal viral shedding, bats and NHP will be sampled twice yearly, during December-March (wet season) and June-September (dry season), which also correspond to different phases in bat reproduction cycles that might affect viral shedding.

Subtask 8-a: Bat capture and sampling

Capture: Megachiropterans (fruit bats) and microchiropterans (small, predominantly insectivorous bats) at targeted sites will be captured in synthetic mist nets placed near caves, tree roosts, or forest flyways. Following surveillance to determine habitual bat foraging departure and return times, nets will be set after bats leave roosts in the evening. Nets will be monitored continuously when bats begin to return in the early morning. Captured bats will be removed from nets by trained field staff within 30 minutes of capture to minimize stress, and placed in a closed cotton bag until processing. Sample size: 60 bats per site per season.

Sampling: Under manual restraint, blood will be collected from the brachial (fruit bats) or radial (small bats) vein. For bats weighing <60g, blood may be diluted with phosphate buffered saline to increase sample volume as previously described [38]. Oropharyngeal swabs (2) and rectal swabs (2) will be stored in lysis buffer and viral transport media (one of each type of swab in each medium). Demographic data (species, age class, sex, and pregnancy/lactation status), digital photos, and morphometric measurements will be collected during processing. Bats will additionally be marked with individually identified lipped rings on wings (microchiropterans) or thumb rings (megachiropterans) prior to release at the site of capture. Bat markings will be used to identify recaptured bats in subsequent seasons as well as capture of previously sampled bats at novel sites. Satellite telemetry collars will be placed on 1-2 adult fruit bats per sampled site (4-8 collars in total) to remotely follow movement and migration patterns over the study period. Sera will be stored in empty cryovials and blood clots in lysis buffer following centrifugation of whole blood samples. Specimens will be stored in a locked liquid nitrogen dry shipper in the field to preserve viral RNA prior to transport to the SUA lab and longer-term storage at -80C. During animal
handling, staff will wear appropriate PPE to prevent zoonotic viral transmission including N95 respirators, goggles, gloves, and tyvek suits (Figure 2).

*Bat identification:* Visual appearance and morphometric measurements will be used to determine the genus and species of easily differentiated megachiropterans such as straw-colored fruit bats (*Eidolon helum*). Project MT members with experience trapping and identifying mega and microchiropterans in Tanzania will train junior scientists and staff. However, due to the difficulty of differentiating some species of fruit bats and many microchiropterans, wing tissue punch biopsy samples for genetic testing will be aseptically collected from each sampled bat. Biopsies will be stored in 95% ethanol at room temperature. Host DNA will be extracted, amplified, and sequenced to confirm the precise genus and species of any bat testing positive for target viruses.

Figure 2. Tanzania field team members prepare to safely collect samples from a captured fruit bat (held in the cotton bag) in an urban setting [Dar es Salaam, Tanzania, April, 2013]. Established PREDICT protocols for biosafety, animal capture and sampling, cold chain specimen storage and transport, and viral disinfection will be adapted to the proposed wildlife sampling activities in the Udzungwa Mountain forests.

Subtask 8-b: Non-human primate (NHP) sampling

*Non-invasive sampling:* Known NHP troops at designated field sites will be tracked to collect fresh fecal specimens. Iringa red colobus monkeys (*Procolobus gordonorum*) and Sykes’ monkeys (*Cercopithecus mitis*) will be sampled at each site. These species will be targeted to create comparable data among the sites, as these monkeys are found in almost all forests in the study area. Red colobus are predominantly arboreal, while Sykes’ monkeys use all strata of the forest [28]. Additionally, people living near the forest reserves hunt both species [32,34]. Local guides familiar with the animals’ habitat use and behavior will be employed to assist in locating and collecting samples from target troops. Following observation of defecation by identified individuals of known primate species, field team members will collect approximately 200mg of feces for storage in lysis buffer and 200mg for storage in VTM. When observable, sex and age class of the primate will be recorded. Discarded foods from primates actively foraging will be swabbed with sterile, polyester swabs to collect a non-invasive saliva sample. Swabbing primate bite marks in
discarded food items has been shown to be an effective route of obtaining saliva samples [39]. One swab will be stored in lysis buffer, and the other in VTM. Following sample collection, all specimens will be immediately placed in a portable liquid nitrogen dry shipper in the field to preserve viral RNA. If necessary, dental ropes for saliva collection may also be used, as they have been shown to be effective in our field sites in Asia. Sample size: 30 animals per species per site per season

NHP identification: The seven diurnal primate species found in Udzungwa Mountains National Park and/or neighboring forest reserves are easily distinguished based on their size, body shape, coloration, and predominant forest use (arboreal vs. terrestrial) [28]. Field team members will be trained to accurately identify each of the resident diurnal primate species.

Personnel involved: Fair, Mazet, VanWormer, Kazwala, TAWIRI Collaborator (TBN).

Metrics of Success: Samples collected from at least 480 bats and 240 NHPs annually, satellite transmitters on at least 1 bat from each study site. Deliverables: Wildlife surveillance section in annual report, at least 1 publication.

ix. Task 9: Environmental characterization and sampling

Subtask 9-a: Indirect sampling at bat feeding roosts

Working with local guides, bat feeding roosts will be identified in or near wildlife sampling sites. Discarded seeds and fruits will be assessed at dawn and swabbed with sterile, synthetic swabs to collect bat saliva. Thirty specimens will be collected seasonally per site and stored in lysis buffer in a locked field dry shipper. Specimens will then be stored at -80°C prior to diagnostic testing.

Subtask 9-b: Camera trapping at bat feeding roosts

Two remote-triggered, waterproof, infrared field cameras will be set and left in the field for one to two weeks seasonally at each bat feeding roost to assess the potential for other wildlife taxa to contact food items discarded by bats. Images of visiting wildlife will be used to target additional wildlife sampling at field sites.

Personnel involved: Fair, Mazet, VanWormer, Kazwala, TAWIRI Collaborator (TBN).

Metrics of Success: At least 240 swab samples will be collected annually from discarded foods, at least 8 weeks of total annual camera trapping. Deliverables: Environmental sampling section in annual report, select camera trap images in annual report index.

x. Task 10: Establishment of sample repository/metadata information data sheets and accession numbers

A human and wildlife sample repository will be created at the JHI BSL-3 laboratory in Bagamoyo. Standardized metadata will be recorded for each sample, and accession numbers assigned for future access. Samples will be stored in secure freezers and/or liquid nitrogen Dewar’s in secure facilities with limited access to project personnel and other authorized personnel. Sample repository and security will be established according to the BMBL approved safety guidelines as well as international security guidelines.

Personnel involved: Fair, Mazet, VanWormer, Kazwala, Masanja, Mugasa. Metrics of Success: Sample repository and data sheets established in Year 1 and assessed quarterly for accurate entry of all new specimens. Deliverables: Sample repository section in annual report.

xi. Task 11: Viral diagnostics
During the inception of the project it was realized that the logistics and practical difficulties of physically capturing a large number of wildlife and enrolling large numbers of human patients was the key challenge for the VISHA team. Due to this, after animal capture or patient presented at clinic a strategy was put in place to obtain the best set of biological specimens possible while the animal was “in-hand” or the patient remained at the clinic. Since the start of the VISHA project, work in a related virus discovery project (PREDICT) led by UC Davis and funded by USAID has revealed that the most likely target-rich specimens from wildlife for novel virus discovery are the oral-pharyngeal and rectal swabs (PMID: 28630747). These specimen types appear to greatly exceed whole blood, serum, or others for detection of viruses. This data is not overly surprising, given that it is likely that the wildlife sampled during the VISHA project would be potential reservoir hosts who actively shed virus particles into the environment likely without high viremias or other pathologic consequences.

Following lab storage in locked -80C freezers, RNA extraction and viral family level diagnostic testing will be performed on deactivated specimens to identify potentially zoonotic viruses from the following viral families: filoviruses, henipaviruses, coronavirus, bunyaviruses, flaviviruses, and rhabdoviruses. RNA extraction will be performed with Qiagen RNA extraction kits using our established PREDICT protocols for blood, oropharyngeal swabs, and feces in a class II biosafety cabinet or BSL-3 facility. Beta actin PCR analyses of cDNA products will be used to confirm successful RNA extraction. Viral family level primers will be used in established conventional PCR reactions to amplify viral RNA and synthetic positive controls will be employed. Suspect positive samples will be confirmed through cloning and sequencing.

Subtask 11-a: Human specimen viral testing
Each human study participant presented at a health clinic acutely ill, and as such were more likely to be within the expected viremic period, thus priority was given for testing of whole blood by consensus family level RT-PCR techniques. The remaining clinical specimens (e.g. oropharyngeal swabs and feces) will stored safely and securely so that if a novel viral pathogen was detected, additional diagnostic specimens would be available for confirmatory testing and to determine the diversity and distribution of pathogen genomic material in alternative specimen types/matrix.

Trained personnel at the IHI BSL-3 laboratory in Bagamoyo, Tanzania, will conduct RNA extraction, cDNA production, Beta actin PCR, and viral family level PCR diagnostics for archived and prospectively collected human samples as above. During the original proposal, serologic testing of humans was not proposed as a defined specific aim.

However, during discussions regarding the challenges of human RVF serology with Dr. Stuart Nichol, Chief of the Viral Special Pathogens Branch (VSPB), Centers for Disease Control and Prevention in Atlanta, GA, an offer was made to help to validate the ID-Vet ELISA against the VPSB gold-standard human IgG ELISA, and to expand our surveillance for VISHA to include other serologic testing. Dr. Nichol offered to test approximately 750 specimens from the VISHA project.
Given the likelihood of relatively high seroprevalence to RVF in the study area, it is presumed that enough high and low-tier antibody specimens will exist in our study population to determine the limit of detection (LOD) and other assay parameters of the ID-Vet kit versus the VSPB gold-standard assay, and for VISHA, to assess a variety of different exposures to viral hemorrhagic fevers (VHF) through this enhanced additional serologic testing and screening that would be allowable under the VISHA IRB consent approvals. The VISHA informed consent documents state that the samples collected and information will be kept for 15 years and can be used to perform analysis related to evaluation of other zoonoses that can cause febrile illness with the appropriate ethical approval as required.

Both the proposed RVF and other VHF serologic testing would be provided in-kind by CDC, with the VISHA project paying for shipping and the cost of the required ID-VET kits for the validation assessment. These funds will be drawn from existing project line-items dedicated to shipments for lab result confirmation and testing reagents. The diagnostic testing by CDC will serve multiple purposes including the timely assistance in completion of our proposed DTRA project-related activities, provide a viable alternative for human RVF serological testing (if the ID-Vet assay performs as expected against the gold-standard assay), and insights into other potential VHF exposure risks in the study area.

Dr. Nichol also indicated that VSPB would, in the future, be willing to transfer the CDC RVF IgG and IgM assays to our Tanzanian counterpart organizations as part of an overall capacity gain for our teams in-country.

Subtask 11-b: Wildlife specimen viral family testing
Based on the findings mentioned above in the PREDICT project, it was determined that initial priority would be given to oral/rectal swabs from animals for consensus virus family RT-PCR diagnostic testing over blood. However, blood samples will be collected and stored safely and securely so that if a novel viral pathogen was detected, additional diagnostic specimens would be available for confirmatory testing and to determine the diversity and distribution of pathogen genomic material in alternative specimen types/matrices.

RNA extraction from deactivated wildlife samples and cDNA production will be conducted at the Sokoine University of Agriculture (SUA) Emerging Infectious Disease Molecular Diagnostic Laboratory in Morogoro, Tanzania, as above. As capacity is built at the SUA diagnostic laboratory for viral family level PCR protocols, testing will be completed for all possible viral families on-site. In addition, an aliquot of the cDNA products will be reserved for shipment to IHI for viral family screening if timelines for testing cannot be met at SUA. An additional aliquot will be reserved in case shipment to the University of California, Davis (UCD) One Health Institute molecular diagnostic laboratory is necessary for assessment of capacity building; quality control screening as SUA and IHI gain experience with the viral family level protocols; and to augment capacity if both SUA and IHI become overloaded by sample submission numbers. Comparative screening at UCD will be used to help refine laboratory protocols at SUA and IHI to ensure high-level in-country viral diagnostic
capacity. Lab technicians at SUA have experience extracting viral RNA from diverse wildlife specimens. Duplicate wildlife specimens will be stored in VTM in a secured BSL-3 laboratory at IHI for transfer to more biosecure facilities if further diagnostic work is indicated.

Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Mugasa, TAWIRI Collaborator (TBN). Metrics of Success: At least 500 specimens screened yearly (screening capacity and activity is expected to increase substantially following year 1 trainings). Deliverables: Viral diagnostics section in annual report.

xii. Task 12: Molecular characterization of viruses
For any suspect positive sample (wildlife or human), confirmatory cloning of PCR products will initially be performed at the in-country laboratories with the UCD One Health Institute molecular diagnostic lab providing back-up support for sequencing and for additional testing in case DTRA-specific timelines for research completion are not being met or if our team is not able to efficiently obtain results that will be used to refine field sampling approaches. Cloning procedures will also be introduced to IHI to increase in-country diagnostic capacity, should equipment and maintenance be available. SUA and IHI currently lack the physical infrastructure for viral sequencing. Initial samples will be sequenced at UCD and through the locally sustainable option of sending samples to Korea for economically efficient (S7) outsourced sequencing (ILRI also an option if economically feasible), as is practiced in much of the world. Following viral sample sequencing, Bayesian and maximum likelihood phylogenetic analyses will be used to determine the genetic similarity of viruses from bats, primates, and humans.

Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Mugasa. Metrics of Success: All suspect positive specimens will be characterized within 3 months of initial diagnostic testing results. Deliverables: Molecular characterization section in annual report, at least 1 publication.

xiii. Task 13: Data analysis/modeling
All statistical modeling and spatial analyses will be jointly conducted by Tanzania and US-based researchers. Tanzanian masters students, the IHI post-doctoral scientist, and additional research partners from SUA, IHI, and TAWIRI will be trained in open source analysis software, as access to these programs is more sustainable than access to proprietary statistical software in developing countries. Collaborative model building by US and Tanzanian researchers will enhance local relevance and the capacity for epidemiologic data analysis in Tanzania. Jointly developed models and software code will serve as a resource for future wildlife and human surveillance data analysis by SUA, IHI, and TAWIRI. Data sharing between partner institutions will also ensure that the most current and accurate risk factor, geospatial, and animal and human population data are integrated into the analyses.

Subtask 13-a: Statistical risk factor modeling
Prevalence of exposure for each viral family will be estimated in bats, NHP, and people at characterized field sites, and mixed effects logistic regression models will be used to evaluate demographic, seasonal, and ecological risk factors for exposure in humans and wildlife. Mixed effects models will use site of capture (wildlife) or health clinic as the cluster variable for animal and human models, respectively, to account for unmeasured correlation among individuals. Environmental risk factors will be characterized during field site assessments.
and using GIS data in QGIS. All statistical analyses will be performed in R statistical software.

Subtask 13-b: Spatial analyses
Spatial analyses for clusters of viral exposure will be performed to identify hotspots of pathogen transmission as targets for controlling spillover from wildlife to human populations. GPS locations collected during fieldwork will be used for bats and NHP. Human locations will be geocoded based on village of primary residence. Geographical clustering of viral exposure (each identified viral family and all viral families combined) will be evaluated among bats, NHPs, and humans using a Bernoulli model elliptical scanning window in SatScan v. 9.0 [40,41]. Tanzanian masters students will be trained in open source analysis software, as access to these programs is more sustainable than proprietary statistical software in developing countries.

Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa, TAWIRI Collaborator (TBN). Metrics of Success: Statistical risk factor models and spatial models developed to characterize risk factors for and potential geographic hotspots of zoonotic viral transmission. Deliverables: Data analysis and modeling section in annual report and likely publication depending on results.

xiv. Task 14: Data interpretation, development of stakeholder communications, and local distribution of findings
Data analyzed above will be used to develop reports for DTRA and the Tanzanian government. In addition, informational materials will be developed in consultation with these agencies and participating stakeholders to provide community education on disease transmission risks and to influence behavior change. These materials may include household-targeted materials, posters, and animated educational videos distributable to mobile devices. At least two peer-reviewed manuscripts are expected in total from the proposed research project.

Personnel involved: Fair, Mazet, Miller, VanWormer, Kazwala, Masanja, Mugasa. Metrics of Success: Final report of data analysis and results delivered to all international and local stakeholders, locally appropriate outreach materials developed and distributed for community outreach. Deliverables: Data analysis and results section in annual report, at least 2 publications in total following data interpretation. Outreach materials included as appendix in annual report.

V. PERFORMANCE SCHEDULE.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Monthly MT meetings</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3 Q4</td>
</tr>
<tr>
<td>2: Administrative startup and maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Data management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Training &amp; mentorship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Field site assessment &amp; prep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Human sample archive assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Active human surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Active wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Environmental characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10: Sample repository management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11: Viral diagnostics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12: Molecular viral characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13: Data analysis/ modeling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14: Data interpretation, distribution of findings</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VI. REFERENCES


The Table of Contents has changed from:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Exhibit A Statement of Work</td>
<td>22</td>
<td>10-APR-2018</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Terms &amp; Conditions</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

To:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit B</td>
<td>Terms &amp; Conditions</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Attachment 1</td>
<td>Revised SOW dated 2 May 18</td>
<td></td>
<td>02-MAY-2018</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00001
3. EFFECTIVE DATE 14-Apr-2016
4. REQUISITION/PURCHASE REQ. NO. HDTA1-141-0003
5. PROJECT NO. (if applicable) 0

6. ISSUED BY DEFENSE THREAT REDUCTION AGENCY JACQ 8725 JOHNS ORANGE RD FT. BELVOIR VA 22030 8203

7. ADMINISTERED BY (if other than Item 6) HDTA1

See Item 6

X. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

METABIOITAL INC.

6707 11TH AVE
SAN FRANCISCO CA 94122-4020

CODE 56SP4 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer are extended. ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or amended by one of the following methods:
(a) By completing Items 8 and 15. and returning copies of the amendment. (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment number. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. By virtue of this amendment, you desire to change an offer already submitted, such change may be made by telegram or letter, provided that each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the expiration hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS IT MODIFIES THE CONTRACT ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 41.03(B).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY:

X. OTHER (Specify type of modification and authority)

IAW 853C Number 10

E. IMPORTANT: Contractor ☐ is not, ☑ is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by ICF section headings, including solicitation contract number and subject matter where applicable)

Modification Control Number: [b][6]

The purpose of this modification is to provide incremental funding in the amount of $857,523.00 and update the Funding Profile Clause 252.232-500.

All other terms and conditions remain unchanged.

PREHDTA1-1520360303

EXCEPT AS PROVIDED HEREIN, ALL TERMS AND CONDITIONS OF THE DOCUMENT REFERENCED IN ITEM 9A OR 10A, AS HEREFORE CHANGED, REMAIN UNCHANGED AND IN FULL FORCE AND EFFECT.

15A. NAME AND TITLE OF SIGNER (Type or print)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

15B. CONTRACTOR/OFFEROR

16B. CONTRACTING OFFICER OR AGENCY

(Signature of person authorized to sign)

(Signature of contracting officer)

16C. DATE SIGNED 14-Apr-2016

EXCEPTION TO DFARS

APPROVED BY ORM 11-84

30-JUL-04

STANDARD FORM 30 (Rev. 10-83)

Prepared by CSA

FAR (48 CFR) 52.243
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000103 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000103</td>
<td>Year Two Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

FOIA (b)(4)
FY14 Ebola Funds
FOB: Destination

NET AMT $0.00

ACRN AC
CIN: HDTRA1412303000103

$857,523.00

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000103:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $857,523.00 from $870,729.00 to $1,728,252.00.

SUBCLIN 000103:
Funding on SUBCLIN 000103 is initiated as follows:

ACRN: AC
CIN: HDTRA1412303000103

Accounting Data: 044315 097 0134 000 N 20142016 D 34HQ 0901515BR-KD-BP 1416-0134-34HQ-EBOCT DTRA 410
Increase: $857,523.00

Total: $857,523.00

The following have been modified:

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: [Redacted]
   Defense Threat Reduction Agency/BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email address: [Redacted]

b. Grantee Business Office:
   Name: [Redacted]
   Title: [Redacted]
   Phone: [Redacted]
   Email:

c. Grantee Principal Investigator (PI):
   Name: [Redacted]
   Title: [Redacted]
   Phone: [Redacted]
   Email:

252.601-9001 GRANTS OFFICER'S REPRESENTATIVE (GOR) (MAY 2009)

d. Grants Officer's Representative (GOR) for this Grant is:
   Name: [Redacted]
   Defense Threat Reduction Agency/BCTBS
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: [Redacted]
   Email address:

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S REPRESENTATIVE

1. The Grants Officer's Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement's reporting requirements. Perceived deviations from the agreement's terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient's inability or unwillingness to conform to the agreement's requirements shall be brought to the immediate attention of the Grants Officer.
2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

252,632-9000 GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:
The total obligated amount under this Grant is $1,728,252.00 for work performed during the period beginning with Grant award and continuing through Year 2. Additional incremental funding planned, but not obligated, is:

Year 3: $792,585.00
The Government's liability is limited to the amount obligated

The following have been deleted:
252.232-7007  Limitation Of Government's Obligation  APR 2014

(End of Summary of Changes)
**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

<table>
<thead>
<tr>
<th>AMENDMENT/MODIFICATION NO.</th>
<th>6. ISSUED BY CODE</th>
<th>7. ADMINISTERED BY CODE</th>
<th>8. NAME AND ADDRESS OF CONTRACTOR</th>
<th>9A. AMENDMENT OF SOLICITATION NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00002</td>
<td>HDTRA1</td>
<td>N62979</td>
<td>MEFTRACO, INC.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>56564</td>
<td></td>
</tr>
</tbody>
</table>

| FACILITY CODE: 66024       | 10A. MOD. OF CONTRACT ORDER NO. | 10B. DATED (SEE ITEM 13) | CODE 05-Aug-2014                   |
|                           | HDTRA1-14-1-0052            |                         |                                   |

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

- The above numbered solicitation is amended at the time specified in Item 14. The hour and date specified for receipt of offers is extended. 
- Offerors acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods: 
  1. By completing Items 8 and 15 and returning copies of this amendment;  
  2. By acknowledging receipt of this amendment on the copy of offer received at the place designated for the receipt of offers prior to the hour and date specified in Item 14, and return to the issuing office.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. AS DESCRIBED IN ITEM 14.

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:  
   DTRA Terms and Conditions

D. OTHER (Specify type of modification and authority)

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCP section headings, including solicitation/contract subject matter where possible)

Modification Control Number: 06(6)

RQN: 23202

The purpose of this modification is to update the grant administration office and provide Year 3 funding in the amount of $792,595.00 to subCLIN 000105, ACRN A4, in support of CLIN 0001.

All other terms and conditions remain unchanged.

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED 30-Mar-2017

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED 30-Mar-2017

(Signature of person authorized to sign)

(Signature of Contracting Officer)
SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM
The standard size code 1,000 has been added.
The NAICS code 541711 has been added.

SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000101
The FOB Destination has been deleted.

SUBCLIN 000102
The FOB Destination has been deleted.

SUBCLIN 000103
The FOB Destination has been deleted.

SUBCLIN 000104 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000104</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>Year 3 funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOIA (b)(6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Funding in the amount of $792,585.00.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| NET AMT | $0.00 |

ACRN AD
CIN: J3CTB23203000104

SECTION E - INSPECTION AND ACCEPTANCE

The Acceptance/inspection Schedule for SUBCLIN 000101 has been changed from:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
</table>
The Acceptance/Inspection Schedule for SUBCLIN 000102 has been changed from:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The Acceptance/Inspection Schedule for SUBCLIN 000103 has been changed from:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The following Acceptance/Inspection Schedule was added for SUBCLIN 000104:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $792,585.00 from $1,728,252.00 to $2,520,837.00.

SUBCLIN 000104:
Funding on SUBCLIN 000104 is initiated as follows:

ACRN: AD

CIN: J5CTB23203000104

Accepting Data: 044315 097 0134 000 N 20172019 D 34HQ 0901515BR_KD_BP2_OT 1719_0134_34HQ_SCNCT DTRA 410

Increase: $792,585.00

Total: $792,585.00

The following have been added by reference:

252.204-0002
The following have been modified:

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

<table>
<thead>
<tr>
<th>FUNDING PROFILE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total obligated amount under this Grant is $2,520,837.00 for work performed during the period beginning with Grant award and continuing through Year 3. Additional incremental funding planned, but not obligated, is:</td>
</tr>
<tr>
<td>$0.00</td>
</tr>
<tr>
<td>The Government's liability is limited to the amount obligated</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
# Amendment of Solicitation/Modification of Contract

<table>
<thead>
<tr>
<th>2. Amendment/Modification No.</th>
<th>3. Effective Date</th>
<th>4. Requisition/Purchase Rf. No.</th>
<th>5. Project No. (Applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0004</td>
<td>25 Aug 2017</td>
<td>HDTFA141238</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DTRA</td>
<td>56507A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Name and Address of Contractor</th>
<th>9A. Amendment of Solicitation No.</th>
<th>9B. Dated (See Item 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>META-NET, INC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PO Box 1070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAN FRANCISCO CA 94104-2104</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10A. MGD, of Contract Order No.</th>
<th>10B. Dated (See Item 13)</th>
<th>11. This Item Only Applies to Amendments of Solicitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDTFA14-1-0052</td>
<td>05 Aug 2014</td>
<td>-(Not Applicable)-</td>
</tr>
</tbody>
</table>

### Accounting and Appropriation Data (If Required)

#### 12. Accounting and Appropriation Data (If Required)

#### 13. This Item Applies Only to Modifications of Contract Orders It Modifies the Contract Order No. As Described in Item 14. A. This Change Order Is Issued Pursuant To: (Specify authority) The Changes Set Forth in Item 14 Are Made in the Contract Order No. In Item 10A.

#### 14. Description of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

<table>
<thead>
<tr>
<th>Modification Control Number:</th>
<th>17230228</th>
</tr>
</thead>
</table>

The purpose of this administrative modification is to correct the grant administrative office by changing it to DTRA Stockton. This modification will also correct Box 14 on Modification P0003 by clarifying that the no-cost extension will be changed from August 5, 2016-August 4, 2017 to August 5, 2016-June 4, 2018 and to update the funding profile clause.

All other terms and conditions remain unchanged.

**Exception to SF 30**

**Approved by ORM 11-84**

<table>
<thead>
<tr>
<th>15A. Name and Title of Signer (Type or Print)</th>
<th>16A. Name and Title of Contracting Officer (Type or Print)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15B. Contractor/Offeree</th>
<th>15C. Date Signed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16B. United States of America</th>
<th>16C. Date Signed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23-Aug-2017</td>
</tr>
</tbody>
</table>
SECTION A - SOLICITATION/CONTRACT FORM
The 'administered by' organization has changed from
DEFENSE THREAT REDUCTION AGENCY/D4CO
8725 JOHN J. KINGMAN RD.
FT. BELVOIR VA 22060-6201
to
DCMA STOCKTON
3247 WEST MARCII LANE, STE 300
STOCKTON CA 95219

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been modified:

252.632-8000   GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:
The total obligated amount under this Grant is $2,520,837.00 for work
performed during the period beginning with Grant award and continuing
through June 04, 2018. Additional incremental funding planned, but not
obligated, is:

$0.00
The Government’s liability is limited to the amount obligated

(End of Summary of Changes)
Defense Threat Reduction Agency/J3CTB

HDTRA1-14-1-0052

PERIOD COVERED BY THIS REQUEST
FROM 04/01/2018 TO 06/04/2018

COMPUTATION OF AMOUNT OF REIMBURSEMENTS/ADVANCES REQUESTED

<table>
<thead>
<tr>
<th>PROGRAMS/FUNCTIONS/ACTIVITIES</th>
<th>(a) Zoonotic Viral Sharing in S.T. (TZ5)</th>
<th>(b)</th>
<th>(c)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Total program outlays up to date</td>
<td>$730,809.73</td>
<td>$</td>
<td>$</td>
<td>$730,809.73</td>
</tr>
<tr>
<td>b. Less: Cumulative program income</td>
<td>0.00</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>c. Not program outlays (Line a minus line b)</td>
<td>730,809.73</td>
<td>0.00</td>
<td>0.00</td>
<td>730,809.73</td>
</tr>
<tr>
<td>d. Estimated net cash outlays for advance period</td>
<td>0.00</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>e. Total (Sum of lines c &amp; d)</td>
<td>730,809.73</td>
<td>0.00</td>
<td>0.00</td>
<td>730,809.73</td>
</tr>
<tr>
<td>f. Non-Federal share of amount on line e</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>g. Federal share of amount on line e</td>
<td>730,809.73</td>
<td></td>
<td></td>
<td>730,809.73</td>
</tr>
<tr>
<td>h. Federal payments previously requested</td>
<td>694,005.59</td>
<td></td>
<td></td>
<td>694,005.59</td>
</tr>
<tr>
<td>i. Federal share now requested (Line g minus line h)</td>
<td>36,804.14</td>
<td>0.00</td>
<td>0.00</td>
<td>36,804.14</td>
</tr>
<tr>
<td>j. Advances required by month, when requested by Federal grantor agency for use in tracking prescribed advances</td>
<td>1st month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2nd month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3rd month</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALTERNATE COMPUTATION FOR ADVANCES ONLY

a. Estimated Federal cash outlays that will be made during period covered by the advance $ |

b. Less: Estimated balance of Federal cash on hand as of beginning of advance period $ |
c. Amount requested (Line a minus line b) $ 0.00 |

AUTHORIZED FOR LOCAL REPRODUCTION (Continued on Reverse)
### INSTRUCTIONS

Please type or print legibly. Items 1, 3, 5, 9, 10, 11c, 11e, 11f, 11g, 11i, 12, and 13 are self-explanatory; specific instructions for other items are as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Indicate whether request is prepared on cash or accrued expenditure basis. All requests for advances shall be prepared on a cash basis.</td>
</tr>
<tr>
<td>4</td>
<td>Enter the Federal grant number, or other identifying number assigned by the Federal sponsoring agency. If the advance or reimbursement is for more than one grant or other agreement, insert N/A; then, show the aggregate amounts. On a separate sheet, list each grant or agreement number and the Federal share of outlays made against the grant or agreement.</td>
</tr>
<tr>
<td>6</td>
<td>Enter the employer identification number assigned by the U.S. Internal Revenue Service, or the FICE (institution) code if requested by the Federal agency.</td>
</tr>
<tr>
<td>7</td>
<td>This space is reserved for an account number or other identifying number that may be assigned by the recipient.</td>
</tr>
<tr>
<td>8</td>
<td>Enter the month, day, and year for the beginning and ending of the period covered in this request. If the request is for an advance or for both an advance and reimbursement, show the period that the advance will cover. If the request is for reimbursement, show the period for which the reimbursement is requested.</td>
</tr>
</tbody>
</table>

Note: The Federal sponsoring agencies have the option of requiring recipients to complete items 11 or 12, but not both. Item 12 should be used when only a minimum amount of information is needed to make an advance and outlay information contained in item 11 can be obtained in a timely manner from other reports.

11 The purpose of the vertical columns (a), (b), and (c), is to provide space for separate cost breakdowns when a project has been planned and budgeted by program, function, or activity.

11a Enter in "as of date," the month, day, and year of the ending of the accounting period to which this amount applies. Enter program outlays to date (net of refunds, rebates, and discounts), in the appropriate columns. For requests prepared on a cash basis, outlays are the sum of actual cash disbursements for goods and services, the amount of indirect expenses charged, the value of in-kind contributions applied, and the amount of cash advances and payments made to subcontractors and subrecipients. For requests prepared on an accrual expenditure basis, outlays are the sum of the actual cash disbursements, the amount of indirect expenses incurred, and the net increase (or decrease) in the amounts owed by the recipient for goods and other property received and for services performed by employees, contractors, subgrantees and other payees.

11b Enter the cumulative cash income received to date. If requests are prepared on a cash basis, for requests prepared on an accrual expenditure basis, enter the cumulative income earned to date. Under either basis, enter only the amount applicable to program income that was required to be used for the project or program by the terms of the grant or other agreement.

11d Only when making requests for advance payments, enter the total estimated amount of cash outlays that will be made during the period covered by the advance.

13 Complete the certification before submitting this request.
FEDERAL FINANCIAL REPORT

(For Form Instructions)

1. Federal Agency and Organizational Element to Which Report is Submitted
   Defense Threat Reduction Agency/J3CTB

2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)
   HDTRA1-14-1-0052

3. Recipient Organization (Name and complete address including Zip code)
   Metabiota, Inc., 425 California Street, San Francisco, CA 94104

4a. DUNS Number
   828 131 156

4b. EIN
   (To report multiple grants, use FFR Attachment)

5. Recipient Account Number or Identifying Number
   (To report multiple grants, use FFR Attachment)

6. Report Type
   Quarterly
   Semi-Annual
   Annual
   Final

7. Basis of Accounting
   Cash
   Accrual

B. Project/Grant Period (Month, Day, Year)
   From: 8/4/2014
   To: 6/4/2018
   12/31/2017

9. Reporting Period End Date (Month, Day, Year)
   12/31/2017

10. Transactions
    (Use lines a-c for single or multiple grant reporting)

Federal Cash (To report multiple grants, also use FFR Attachment):

a. Cash Receipts
   $2,392,441.58

b. Cash Disbursements
   $2,407,854.31

c. Cash on Hand (line a minus b)
   $-15,412.73

Federal Expenditures and Unobligated Balance:

d. Total Federal funds authorized
   $2,520,837.00

e. Federal share of expenditures
   $2,407,854.31

f. Federal share of unliquidated obligations
   $0.00

g. Total Federal share (sum of lines e and f)
   $2,407,854.31

h. Unobligated balance of Federal funds (line d minus g)
   $112,982.69

Recipient Share:

i. Total recipient share required
   0

j. Recipient share of expenditures
   0

k. Remaining recipient share to be provided (line i minus j)
   0

Program Income:

l. Total Federal program income earned
   0

m. Program income expended in accordance with the deduction alternative
   0

n. Program income expended in accordance with the addition alternative
   0

o. Unexpended program income (line l minus line m or line n)
   0

11. Indirect Expense

   a. Type
      (To report multiple grants, also use FFR Attachment)
   FOIA (b)(4)

   b. Rate

   c. Period From

   d. Period To

   e. Base/Amount Charged

   f. Federal Share

   g. Totals: FOIA (b)(4)

12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation:

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and that the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

   a. Typed or Printed Name and Title of Authorized Certifying Official
      FOIA (b)(6)

   b. Signature of Authorized Certifying Official
      FOIA (b)(6)

   c. Telephone (Area code, number, and extension)
      FOIA (b)(5)

   d. Email Address
      FOIA (b)(6)

   e. Date
      1/29/2018

14. Agency use only:

   Standard Form 425 - Revised 6/28/2010
   OMB Approval Number: 0348-0061
   Expiration Date: 10/31/2011

Paperwork Burden Statement
According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20503.
FEDERAL FINANCIAL REPORT

1. Federal Agency and Organizational Element to Which Report is Submitted
   Defense Threat Reduction Agency/J3CTB

2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)
   HDTRA1-14-1-0052

3. Recipient Organization (Name and complete address including Zip code)
   Metabola, Inc., 425 California Street, Suite 1200, San Francisco, CA 94104

4a. DUNS Number
    628 131 156
    4b. EIN
        FOIA (b)(6)

5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment)

6. Report Type
   [ ] Quarterly
   [ ] Semi-Annual
   [ ] Annual
   [x] Final

7. Basis of Accounting
   [ ] Cash
   [ ] Accrual

8. Project/Grant Period (Month, Day, Year)
   From: 8/4/2014
   To: 6/4/2018
   6/4/2018

9. Reporting Period End Date (Month, Day, Year)
   To: 6/4/2018

10. Transactions
    (Use lines a-c for single or multiple grant reporting)

    Federal Cash (To report multiple grants, also use FFR Attachment):
    a. Cash Receipts
       $2,407,854.31
    b. Cash Disbursements
       $2,459,351.73
    c. Cash on Hand (line a minus b)
       $51,207.42

    (Use lines d-o for single grant reporting)

    Federal Expenditures and Unobligated Balance:
    d. Total Federal funds authorized
       $2,520,937.00
    e. Federal share of expenditures
       $2,459,351.73
    f. Federal share of unliquidated obligations
       $6,00
    g. Total Federal share (sum of lines e and f)
       $2,459,351.73
    h. Unobligated balance of Federal funds (line d minus g)
       $61,585.27

    Recipient Share:
    i. Total recipient share required
       0
    j. Recipient share of expenditures
       0
    k. Remaining recipient share to be provided (line i minus j)
       0

    Program Income:
    l. Total Federal program income earned
       0
    m. Program income expended in accordance with the deduction alternative
       0
    n. Program income expended in accordance with the addition alternative
       0
    o. Unexpended program income (line l minus line m or line n)
       0

11. Indirect Expense
    a. Type
       FOIA (b)(4)
    b. Rate
       0
    c. Period From
       0
    d. Period To
       0
    e. Base
       0
    f. Amount Charged
       0
    g. Federal Share
       0

    g. Totals
       FOIA (b)(4)

12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation:

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

   a. Typed or Printed Name and Title of Authorized Certifying Official
      FOIA (b)(6)
   b. Signature of Authorized Certifying Official
      FOIA (b)(6)
   c. Telephone (Area code, number, and extension)
      FOIA (b)(6)
   d. Email Address
      FOIA (b)(6)

14. Agency use only:

    Standard Form 425 - Revised 6/28/2010
    OMB Approval Number: 0348-0061
    Expiration Date: 10/31/2011

Paperwork Burden Statement
According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20503.
# Defense Threat Reduction Agency (DTRA) General Terms and Conditions for Grant Awards to For-Profit Organizations

Wide Area Workflow Version

## Table of Contents

1. Acceptance of Grant
2. Recipient Responsibilities
3. Order of Precedence
4. Administration and Cost Principles
5. Standards for Financial Management Systems
6. Modification of the Grant
7. Prior Approvals
8. Unobligated Balances
9. Payments
10. Funding Increments and/or Options
11. Cost Sharing or Matching
12. Allowable Costs
13. Program Income
14. Interest Earned
15. Debt Collection
16. Audits
17. Subawards
18. Procurement Standards
19. Title to Real Property and Equipment
20. Intangible Property
21. Patent Rights
22. Technical Reporting Requirements
23. Financial Reporting Requirements
24. After-the-Award Requirements
25. Delegation of Administration Duties
26. Claims, Disputes and Appeals
27. Termination and Enforcement
28. Security
29. Representations and Assurances
30. Research Involving Recombinant DNA Molecules
31. Retention and Access to Records
32. Certification
33. Data Collection
34. Site Visits
35. Publications and Acknowledgement of Sponsorship
36. Fee and Profit
37. Combating Trafficking in Persons
38. Central Contractor Registration and Universal Identifier Requirements
39. Reporting Subawards and Executive Compensation
1. **Acceptance of Grant.** The recipient is not required to countersign the Grant document; however, the recipient agrees to the conditions specified in the Research Grant and the Articles contained herein unless notice of disagreement is furnished to the Grants Officer within fifteen (15) calendar days after the date of the Grants Officer's signature. In case of disagreement, the recipient shall not assess the Grant any costs of the research unless and until such disagreement(s) is resolved.

2. **Recipient Responsibilities.**
   
a. The recipient will bear primary responsibility for the conduct of the research and will exercise judgment towards attaining the stated research objectives within the limits of the Grant's Terms and Conditions.

b. The Principal Investigator(s) (PI) specified in the Grant award will be continuously responsible for the conduct of the research project and will be closely involved with the research effort. The PI, operating within the policies of the recipient, is in the best position to determine the means by which the research may be conducted most effectively.

c. The recipient is the responsible authority, without recourse to DTRA regarding the settlement and satisfaction of all contractual and administrative issues arising out of procurements entered into in support of an award or other agreement.

d. Recipients are responsible for monitoring each project, program, subaward, function or activity supporting the award. Recipients shall monitor subawards to ensure subrecipients have met the audit requirements specified in Department of Defense (DoD) Grant and Assistance Regulations (DoDGRs) §34.16, if applicable.

3. **Order of Precedence.** This Grant is subject to the laws and regulations of the United States. Any inconsistency or conflict in the terms and conditions specified in this Grant shall be resolved according to the following order of precedence:
   
a. The Federal statute authorizing this award, or any other Federal statutes directly affecting performance of this Grant.

b. DoD 3210.6-R, DoDGRs and Part 34, “Administrative Requirements for Grants and Agreements with For-Profit Organizations,” as appropriate and Appendix A thereto.

c. Other terms and conditions contained within the Grant and any attachments.

d. These General Terms and Conditions.

4. **Administration and Cost Principles.** The following documents and attachments, effective the earlier of (i) the start date of this Grant or (ii) the date on which the recipient incurs costs to be assessed against the Grant, are incorporated by reference as part of this Grant:
   
a. DoD 3210.6-R, DoDGRs and Part 34, “Administrative Requirements for Grants and Agreements with For-Profit Organizations,” as appropriate and
Appendix A thereto. DoDGARs is derived from 32 CFR Parts 21-37 and Part 1125. (DoDGARs may be accessed online at http://www.dtic.mil/wsh/directives/corres/html/321006r.htm.)

b. Subpart 31.2 of the Federal Acquisition Regulation (FAR) (48 CFR Subpart 31). (FAR may be accessed online at http://farsite.hill.af.mil/vffara.htm.)

c. Subpart 231.2 of the DoD FAR Supplement (DFARS) (48 CFR Subpart 231). (DFARS may be accessed online at http://farsite.hill.af.mil/VFDFARA.htm.)

5. Standards for Financial Management Systems. In accordance with DoDGARs Part 34, For-Profit organizations will use their existing financial management system established for doing business in the commercial marketplace, to the extent that the systems comply with Generally Accepted Accounting Principles and the minimum standards contained in DoDGARs §34.11, §34.16, and §34.17.

6. Modification of the Grant. The only method by which this Grant may be modified is by a formal, written modification signed by the Grants Officer. No other communications, whether oral or in writing, are valid.

7. Prior Approvals.

a. In accordance with DoDGARs §34.15 for For-Profit organizations, prior approval of the following deviations from budget and program plans is required:

(1) Change in the scope or the objective of the project or program (even if there is no associated budget revision requiring prior written approval). (Approval via modification of the Grant.)

(2) A change in a key person specified in the application or award document. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(3) The absence for more than three months, or a 25 percent reduction in time devoted to the project, by the approved project director or principal investigator. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(4) Request for a no-cost extension, must be submitted in writing to the Grants Officer and must be received at least thirty (30) calendar days prior to the end of the current performance period. (Approval via modification of the Grant.)

(5) Any request for additional funding. (Approval via modification of the Grant.)

(6) The inclusion of any additional costs that require prior approval in accordance with applicable cost principles for Federal funds and recipients’ cost share or match, in §34.17 and §34.13, respectively. (Approval via written notification
from the Grants Officer or modification of the Grant, depending on the circumstances."

(7) Any subaward, transfer or contracting out of substantive program performance under an award, unless described in the application and funded in the approved awards. This provision does not apply to the purchase of supplies, material, or general support services, except that procurement of equipment or other capital items of property always is subject to the Grants Officer’s prior approval under §34.21(a), if it is to be purchased with Federal funds, or §34.13(a)(7), if it is to be used as cost sharing or matching. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(8) The transfer of funds among direct cost categories, functions and activities for awards in which the Federal share of the project exceeds $100,000 and the cumulative amount of such transfers exceeds or is expected to exceed 10 percent of the total budget as last approved by the DoD Component. No DoD Component shall permit a transfer that would cause any Federal appropriation or part thereof to be used for purposes other than those consistent with the original intent of the appropriation. (Approval via written notification from the Grants Officer.)

(9) The inclusion of pre-award costs. All such costs are incurred at the recipient’s risk (i.e., DTRA is under no obligation to reimburse such costs if for any reason the recipient does not receive an award, or if the award is less than anticipated and inadequate to cover such costs). (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(10) The purchase of real property or equipment not previously approved as part of the grant award. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

b. In accordance with DoDGARs §34.21(a), recipients may purchase real property or equipment in whole or in part with Federal funds under an award only with the prior approval of the Grants Officer. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

c. Prior approval is not required to transfer amounts budgeted for indirect costs to absorb increases in direct costs, or vice versa. Note: If directed in the DoD Appropriations Act for the funding obligated under this grant, the indirect costs of awards funded with Basic Research funding must be a certain percentage or less of the total award value. Revised budgets may be required.

d. Within 30 calendar days from the date of receipt of the recipient’s request for budget revisions, the Grants Officer shall review the request and notify the recipient whether the budget revisions have been approved. If the revision is still under consideration at the end of 30 calendar days, the Grants Officer shall inform the recipient in writing of the date when the recipient may expect the decision.
8. **Unobligated Balances.** In the absence of any specific notice to the contrary, the recipient is authorized to carry forward unobligated balances to subsequent funding periods of this Grant agreement.

9. **Payments.** 2 CFR 215.22 governs the Federal awarding agency's and recipient's responsibilities concerning payments, with the following clarifications:

   a. See **Financial Reporting Requirements** under Article 23 of this document. If these financial reporting requirements are not met, payment cannot be disbursed.

   b. Payments will be made in advance, subject to the conditions described in 2 CFR 215.22(b).

      "Recipients are to be paid in advance, provided they maintain or demonstrate the willingness to maintain:
      (1) Written procedures that minimize the time elapsing between the transfer of funds and disbursement by the recipient, and
      (2) Financial management systems that meet the standards for fund control and accountability as established in §215.21. Cash advances to a recipient organization shall be limited to the minimum amounts needed and be timed to be in accordance with the actual, immediate cash requirements of the recipient organization in carrying out the purpose of the approved program or project. The timing and amount of cash advances shall be as close as is administratively feasible to the actual disbursements by the recipient organization for direct program or project costs and the proportionate share of any allowable indirect costs."

   c. All payments shall be made by electronic funds transfers (EFT) to the bank account registered in the Central Contractor Registration (CCR). The Grantee agrees to maintain its registration in CCR including information necessary to facilitate payment via EFT. Should a change in registry or other incident necessitate the payment to an account other than that maintained in CCR, it is the Grantee’s responsibility to notify the Grants Officer and obtain a modification to this Grant reflecting the change. The Government shall not be held responsible for any misdirection or loss of payment which occurs as the result of a Grantee’s failure to maintain correct/current EFT information within its CCR registration. Refer to Article 38 for further information on CCR.

   d. Recipients shall submit requests for payment using Wide Area Workflow (WAWF) at https://wawf.chmil. Any request for advance payments must be approved by the Administrative Grants Office shown in Block 6 of the award. The request shall be submitted to the Administrative Office identified in Block 6 of the Research Grant by entering the following routing codes:

      I. Pay Office DoDAAC: See Block 12 (Code) on the first page of the Grant.
      II. Invoice Type: Grant and Cooperative Agreement Voucher.
      III. Issue By DoDAAC: See Block 5 (Code) on the first page of the Grant.
      IV. Admin DoDAAC: See Block 6 (Code) on the first page of the Grant.
V. Grant Approver. Same as Admin DoDAAC (Leave Ext. blank).

e. Payments will be made by the Defense Finance and Accounting Service (DFAS) office specified in the Research Grant (Block 12).

10. Funding Increments and/or Options. The recipient is advised that the Grantor's obligation to provide funding for increments and/or options included in the Grant is contingent upon satisfactory performance in the judgment of the DTRA Scientific Officer/Technical Monitor and the availability of funds. Other factors will be considered before options will be exercised (for example: expenditure rate and current programmatic objectives). Accordingly, no legal liability on the part of the Grantor exists unless or until funds are made available to the Grantor and notice of such availability is confirmed in writing to the recipient. Refer to the Funding Profile in Section G of the Grant for additional incremental funding planned, but not currently obligated for the Grant.

a. Funding Increments – In no event is the Government obligated to reimburse the recipient for expenditures in excess of the total funds allotted by the Government to this agreement. Recipients should note that low expenditure rates reported on payment requests may be cause for deferral of future increments. The Government anticipates unilateral modifications for funding increments.

b. Options – If the agreement contains Option(s), the Government reserves the right to exercise the Option(s) unilaterally.

11. Cost Sharing or Matching. Unless specified otherwise in other terms and conditions of the Grant, cost sharing or matching, if any, is included in accordance with DoDGARs §34.13.

12. Allowable Costs. Allowability of costs is in accordance with DoDGARs §34.17.

13. Program Income.

a. All program income earned during the project period (except proceeds from the sale of real and personal property and license fees and royalties received as a result of copyrights, patents, patent applications, trademarks, or inventions produced under the Grant) shall be deducted from the total project's allowable costs in determining the net allowable costs on which the Federal share of costs will be based (see DoDGARs §34.14). Proceeds from the sale of property that is acquired, rather than fabricated, under an award are not program income and shall be handled in accordance with the requirements of the Property Standards (see DoDGARs §34.20 through 34.25).

b. For awards that support research, DoDGARs §34.14(d)(1) shall apply automatically unless the terms and conditions specify another alternative or the recipient is subject to special award conditions, as indicated in DoDGARs §34.4.

14. Interest Earned. Interest earned will be subject to guidelines as specified in DoDGARs §34.12(b)(2)(iv). Interest earned shall be remitted annually to the Administrative Office annotated in Block 6 of the Grant Document, in the form of a check made payable to the U.S. Treasury.
15. **Debt Collection.** The establishment of debts owed by recipients of grants and transferring them to payment offices for collection shall be dealt with in accordance with DoDGARs §34.63.

16. **Audits.** Recipients are to periodically have independent, financial and compliance audits subject to DoDGARs §34.16.

17. **Subawards.** Recipients shall flow down requirements to subawards in accordance with DoDGARs §34.1(b)(2) and DoDGARs Appendix A to Part 34. Refer to Article 39 for reporting requirements for subawards.

18. **Procurement Standards.** Recipients shall comply with the standards set forth in DoDGARs §34.30 and 34.31 and applicable Federal statutes and Executive Orders when expending Federal funds for supplies, equipment, real property, and expendable property. Upon request, recipients shall make available for DTRA’s pre-award review, procurement documents such as requests for proposals or invitations for bids, independent cost estimates, etc. in accordance with DoDGARs §34.31(b).

19. **Title to Real Property and Equipment.** Unless specified otherwise in other terms and conditions of the Grant, title to real property or equipment purchased in whole or in part with Federal funds shall vest in the recipient upon acquisition subject to the conditions that the recipient:

   a. Use the real property or equipment for the authorized purposes of the project until funding for the project ceases, or until the property is no longer needed for the purposes of the project;

   b. Not encumber the property without approval of the Grants Officer;

   c. Use and dispose of the property in accordance with DoDGARs §34.21(d) and (e); and

   d. Manage, use and dispose of property in accordance with DoDGARs §34.21 through §34.24.

20. **Intangible Property.** Rights in technical data and computer software under this Grant shall be in accordance with DoDGARs §34.25(b). DTRA does not waive any rights set forth in DoDGARs §34.25(b)(2).

   a. Patents. Grants and cooperative agreements with:

      (1) Small business concerns shall comply with 35 U.S.C. Chapter 18, as implemented by 37 CFR Part 401, which applies to inventions made under grants and cooperative agreements with small business concerns for research and development. 37 CFR 401.14 provides a standard clause that is required in such grants and cooperative agreements in most cases, 37 CFR 401.3 specifies when the clause shall be included, and 37 CFR 401.5 specifies how the clause may be modified and tailored.
(2) For-profit organizations other than small business concerns shall comply with 35 U.S.C. 210(c) and Executive Order 12591 (3 CFR, 1987 Comp., p. 220) (which codifies a Presidential Memorandum on Government Patent Policy, dated February 18, 1983).

(a) The Executive order states that, as a matter of policy, grants and cooperative agreements should grant to all for-profit organizations, regardless of size, title to patents made in whole or in part with Federal funds, in exchange for royalty-free use by or on behalf of the Government (i.e., it extends the applicability of 35 U.S.C. Chapter 18, to the extent permitted by law, to for-profit organizations other than small business concerns).

(b) 35 U.S.C. 210(c) states that 35 U.S.C. Chapter 18 is not intended to limit agencies’ authority to agree to the disposition of rights in inventions in accordance with the Presidential memorandum codified by the Executive order. It also states that such grants and cooperative agreements shall provide for Government license rights required by 35 U.S.C. 202(c)(4) and march-in rights required by 35 U.S.C. 203.

b. Copyright, data and software rights. Requirements concerning data and software rights are as follows:

(1) The recipient may copyright any work that is subject to copyright and was developed under an award. DoD Components reserve a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use the work for Federal purposes, and to authorize others to do so.

(2) Unless waived by the DoD Component making the award, the Federal Government has the right to:

(a) Obtain, reproduce, publish or otherwise use for Federal Government purposes the data first produced under an award.

(b) Authorize others to receive, reproduce, publish, or otherwise use such data for Federal purposes.


For-Profit organizations other than small business concerns shall comply with 35 U.S.C. 210(c) and Executive Order 12591 (3 CFR, 1987 Comp., p. 220), which codifies a Presidential Memorandum on Government Patent Policy, dated February 18, 1983 (see DoDARs §34.25(a)). All awardees shall comply with the following, in accordance with 37 CFR §401.14. Note: "Contractor" equals "Grantee", "Subcontractor" equals "Subawardee", and "Subcontract" equals "Subaward".

a. Definitions
(1) *Invention* means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321 *et seq.*).

(2) *Subject invention* means any invention of the *contractor* conceived or first actually reduced to practice in the performance of work under this *contract*, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of *contract* performance.

(3) *Practical Application* means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or government regulations, available to the public on reasonable terms.

(4) *Made* when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(5) *Small Business Firm* means a small business concern as defined at section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standards for small business concerns involved in government procurement and subcontracting at 13 CFR 121.3 8 and 13 CFR 121.3 12, respectively, will be used.

(6) *Nonprofit Organization* means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt from taxation under section 501(a) of the Internal Revenue Code (25 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

b. Allocation of Principal Rights

The *Contractor* may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the *Contractor* retains title, the Federal government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

c. Invention Disclosure, Election of Title and Filing of Patent Application by *Contractor*

(1) The *contractor* will disclose each subject invention to the *Federal Agency* within two months after the inventor discloses it in writing to *contractor*
personnel responsible for patent matters. The disclosure to the agency shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the agency, the Contractor will promptly notify the agency of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the contractor.

(2) The Contractor will elect in writing whether or not to retain title to any such invention by notifying the Federal agency within two years of disclosure to the Federal agency. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the agency to a date that is no more than 60 days prior to the end of the statutory period.

(3) The contractor will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The contractor will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

(4) Requests for extension of the time for disclosure, election, and filing under subparagraphs (1), (2), and (3) may, at the discretion of the agency, be granted.

d. Conditions When the Government May Obtain Title

The contractor will convey to the Federal agency, upon written request, title to any subject invention—

(1) If the contractor fails to disclose or elect title to the subject invention within the times specified in (c), above, or elects not to retain title; provided that the agency may only request title within 60 days after learning of the failure of the contractor to disclose or elect within the specified times.

(2) In those countries in which the contractor fails to file patent applications within the times specified in (c) above; provided, however, that if the contractor has filed a patent application in a country after the times specified in (c) above,
but prior to its receipt of the written request of the Federal agency, the contractor shall continue to retain title in that country.

(3) In any country in which the contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.

e. Minimum Rights to Contractor and Protection of the Contractor Right to File

(1) The contractor will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the contractor fails to disclose the invention within the times specified in (c), above. The contractor's license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the contractor is a party and includes the right to grant sublicenses of the same scope to the extent the contractor was legally obligated to do so at the time the contract was awarded. The license is transferable only with the approval of the Federal agency except when transferred to the successor of that party of the contractor's business to which the invention pertains.

(2) The contractor's domestic license may be revoked or modified by the funding Federal agency to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR part 404 and agency licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the funding Federal agency to the extent the contractor, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, the funding Federal agency will furnish the contractor a written notice of its intention to revoke or modify the license, and the contractor will be allowed thirty days (or such other time as may be authorized by the funding Federal agency for good cause shown by the contractor) after the notice to show cause why the license should not be revoked or modified. The contractor has the right to appeal, in accordance with applicable regulations in 37 CFR part 404 and agency regulations (if any) concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of the license.

f. Contractor Action to Protect the Government's Interest

(1) The contractor agrees to execute or to have executed and promptly deliver to the Federal agency all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the
contractor elects to retain title, and (ii) convey title to the Federal agency when requested under paragraph (d) above and to enable the government to obtain patent protection throughout the world in that subject invention.

(2) The contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the contractor each subject invention made under contract in order that the contractor can comply with the disclosure provisions of paragraph (c), above, and to execute all papers necessary to file patent applications on subject inventions and to establish the government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by (c)(1), above. The contractor shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

(3) The contractor will notify the Federal agency of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.

(4) The contractor agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement, "This invention was made with government support under (identify the contract) awarded by (identify the Federal agency). The government has certain rights in the invention."

g. Subcontracts

(1) The contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed by a small business firm or domestic nonprofit organization. The subcontractor will retain all rights provided for the contractor in this clause, and the contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor’s subject inventions.

(2) The contractor will include in all other subcontracts, regardless of tier, for experimental developmental or research work the patent rights clause required by (cite section of agency implementing regulations or FAR).

(3) In the case of subcontracts, at any tier, when the prime award with the Federal agency was a contract (but not a grant or cooperative agreement), the agency, subcontractor, and the contractor agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and the Federal agency with respect to the matters covered by the clause; provided,
however, that nothing in this paragraph is intended to confer any jurisdiction
under the Contract Disputes Act in connection with proceedings under paragraph
(j) of this clause.

h. Reporting on Utilization of Subject Inventions

The Contractor agrees to submit on request periodic reports no more frequently than
annually on the utilization of a subject invention or on efforts at obtaining such utilization
that are being made by the contractor or its licensees or assignees. Such reports shall
include information regarding the status of development, date of first commercial sale or
use, gross royalties received by the contractor, and such other data and information as the
agency may reasonably specify. The contractor also agrees to provide additional reports
as may be requested by the agency in connection with any march-in proceeding
undertaken by the agency in accordance with paragraph (j) of this clause. As required by
35 U.S.C. 202(c)(5), the agency agrees it will not disclose such information to persons
outside the government without permission of the contractor.

i. Preference for United States Industry

Notwithstanding any other provision of this clause, the contractor agrees that neither it
nor any assignee will grant to any person the exclusive right to use or sell any subject
inventions in the United States unless such person agrees that any products embodying
the subject invention or produced through the use of the subject invention will be
manufactured substantially in the United States. However, in individual cases, the
requirement for such an agreement may be waived by the Federal agency upon a
showing by the contractor or its assignee that reasonable but unsuccessful efforts have
been made to grant licenses on similar terms to potential licensees that would be likely to
manufacture substantially in the United States or that under the circumstances domestic
manufacture is not commercially feasible.

j. March-in Rights

The contractor agrees that with respect to any subject invention in which it has acquired
title, the Federal agency has the right in accordance with the procedures in 37 CFR 401.6
and any supplemental regulations of the agency to require the contractor, an assignee or
exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or
exclusive license in any field of use to a responsible applicant or applicants, upon terms
that are reasonable under the circumstances, and if the contractor, assignee, or exclusive
licensee refuses such a request the Federal agency has the right to grant such a license
itself if the Federal agency determines that:

(1) Such action is necessary because the contractor or assignee has not taken, or
is not expected to take within a reasonable time, effective steps to achieve
practical application of the subject invention in such field of use.

(2) Such action is necessary to alleviate health or safety needs which are not
reasonably satisfied by the contractor, assignee or their licensees;
(3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee or licensees; or

(4) Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

k. Special Provisions for Contracts with Nonprofit Organizations

If the contractor is a nonprofit organization, it agrees that:

(1) Rights to a subject invention in the United States may not be assigned without the approval of the Federal agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the contractor;

(2) The contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the agency deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;

(3) The balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and

(4) It will make efforts that are reasonable under the circumstances to attract licensees of subject invention that are small business firms and that it will give a preference to a small business firm when licensing a subject invention if the contractor determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided, that the contractor is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the contractor. However, the contractor agrees that the Secretary may review the contractor's licensing program and decisions regarding small business applicants, and the contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary when the Secretary's review discloses that the contractor could take reasonable steps to implement more effectively the requirements of this paragraph (k)(4).

1. Communication
All DTRA-related disclosures, confirmatory licenses to the government, patent applications, and other communications should be submitted in accordance with Article 21.m. Questions should be submitted to basicresearch@dtra.mil.

m. Invention Reporting

37 CFR Part 401 invention reporting requirements are summarized in below table. Unless otherwise indicated in the “Submission to DTRA” column below, the grantee is required to upload the following types of invention information using iEdison. iEdison (https://s-edison.info.nih.gov/iEdison/), is a single web interface for government grantees to report details of inventions and patents. If the grantee organization is not already an iEdison registrant, then registration with iEdison is required prior to submission of the below invention reports. The grant shall not be closed out until all invention reporting requirements are met.
<table>
<thead>
<tr>
<th>Action</th>
<th>When</th>
<th>Discussion</th>
<th>37 CFR Reference</th>
<th>Submission to DTRA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invention Report:</strong> The grantee must submit a report of any &quot;subject&quot; invention. The report must identify inventor(s), federal agency(ies), grant number(s), and date of any public disclosure. Date of submission establishes time frames for all future actions. Must be complete in technical detail. The report should be directed to the lead agency.</td>
<td>Within 2 months of inventor's initial report to the grantee/contractor organization.</td>
<td>There is no single format for disclosing the invention to the government. The communication should include: the title of the invention, date of any public disclosure, names of all inventors, source(s) of federal funding (i.e. grant number), a written description of the invention in technical detail. The invention disclosure should be signed by the inventor(s); at the very least, signed by a grantee institutional official.</td>
<td>401.14(a)(2) 401.14(c)(1)</td>
<td>Submit electronically by uploading either a PDF, TIFF, or text file through iEdison.</td>
</tr>
<tr>
<td><strong>Rights to Inventions on Subcontracts:</strong> Subcontractors retain rights to their subject inventions.</td>
<td>Same reporting responsibilities, obligations and time frames as prime grantees organization.</td>
<td>Prime grantees organization cannot require ownership of subcontractor's subject invention(s).</td>
<td>401.14(g)(1) 401.14(g)(2)</td>
<td></td>
</tr>
<tr>
<td><strong>Election of Title to Invention:</strong> Grantee organization must notify the federal agency sponsor that it will retain ownership of invention and take steps to commercialize the invention.</td>
<td>Within 2 years of reporting the invention to the lead federal agency sponsor. (If disclosed publicly, this period is decreased.)</td>
<td></td>
<td>401.14(b) 401.14(e)(2) 401.14(c)(1)</td>
<td>Invention disclosure, confirmatory license, and proof of govt support clause shall be submitted electronically through iEdison. Submit electronically through iEdison.</td>
</tr>
<tr>
<td><strong>Confirmatory license:</strong> The grantee organization must provide a nonexclusive, nontransferable, irrevocable, paid-up license for the government to practice or have the invention practiced on its behalf throughout the world.</td>
<td>Commensurate with report of any initial patent filing, unless the invention is being licensed as an unpatented biological material or research tool.</td>
<td></td>
<td>401.14(f)(1)</td>
<td>Submit electronically by uploading either a PDF or TIFF file through iEdison.</td>
</tr>
<tr>
<td><strong>Nonelection of Title to Invention:</strong> Grantee organization must notify the federal sponsor that it will not retain ownership of an invention.</td>
<td>Within 2 years of reporting to federal agency sponsor.</td>
<td>Effectively a waiver to the government. After further review the federal agency sponsor may elect title on behalf of the government. Title does not actually vest with the</td>
<td>401.14(e)(2) 401.14(d)</td>
<td>Submit electronically through iEdison.</td>
</tr>
</tbody>
</table>
### EXHIBIT B

<table>
<thead>
<tr>
<th><strong>Assignment of Invention Rights to the Inventor:</strong> The inventor may request assignment of invention rights. Agencies support requests of this type to variously. In all cases, documentation is required when a grantee organization waives rights to the invention and the inventor(s) wishes to retain the invention rights.</th>
<th><strong>Within 1 year after election of title, unless there is an extension.</strong> Time frame may vary if invention becomes public. The term initial patent application means a nonprovisional U.S. national application for patent as defined in 37 CFR 1.9(a)(3). The notification must include the patent application number and filing date assigned by the USPTO. A copy of the full application is not required.</th>
<th><strong>Patent must include government support</strong> 401.14(f)(2)</th>
<th><strong>All issued patent file through iEdison:</strong> All filing data shall be submitted via iEdison. Evidence of inclusion of government support clause shall be submitted electronically as either a PDF or TIFF file through iEdison.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Patent Application:</strong> The grantee must inform the government of the initial patent application that related to any subject invention. The patent application must include a government support clause.</td>
<td>First, the grantee organization must elect not to retain rights in the invention. Second, the inventor must request the assignment of rights, agree to all terms associated with invention reporting as detailed in 37 CFR 401, and must pursue commercialization of the invention through patent filing or licensing as a research tool. Specific procedures for any agency should be determined prior to initiating the request.</td>
<td><strong>401.14(k)(1) non-profits</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Assignment to Third Party:</strong> Documentation necessary when a grantee/contractor wishes to assign invention rights to third party. If the grantee/contractor is a non-profit, the government must approve the assignment. For profit or small business grantee/contractors do not need to seek approval. If the rights are assigned, new rights holder assumes the same reporting responsibilities as the grantee/contractor organization.</td>
<td>If assignment approved, third party must pursue commercialization of the invention through patent filing or licensing of the invention as a research tool. Specific procedures to request third party assignment may vary between agencies. Consult DTRA prior to initiating request.</td>
<td><strong>401.14(k) for non-profits. Note the distinction between small businesses and non-profit organizations.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Issued Patent:</strong> Grantee must provide federal government until government elects to retain title.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request for Extension of Time:</td>
<td>An extension of up to two years may be requested for election of title, or one year for filing a patent application.</td>
<td>Extension of 2 years for title election and one year for patent application are preapproved for funded inventions. Additional extensions need written approval from the federal agency sponsor.</td>
<td>401.14(c)(4)</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Discontinuance of Patent Application, Payment of Maintenance Fees, or Defense in a Reexamination or Opposition proceeding on a Patent:</td>
<td>Grantee must notify federal agency sponsor of changes in patent status. At any time in the process, but prior to established deadlines.</td>
<td>Relevant information and documents (e.g., patent application or patent) must be provided such that a determination to protect government interests can be made. The federal agency sponsor has the option to pursue the patent application or the patent if not being properly pursued or maintained. Any change in status must be reported at least 30 days prior to pending PTO office actions.</td>
<td>401.14(c)(3)</td>
</tr>
<tr>
<td>Annual Utilization Report:</td>
<td>DTRA requires utilization reporting for all subject inventions that have had title elected or are licensed without a patent. Report includes stage of development, date of first commercial sale or use, number and type of licenses, gross income, licensing to small business, status of U.S. manufacturing and identification of any FDA-approved product names.</td>
<td>DTRA requires invention utilization reports on a 12 month reporting cycle beginning in the month of grantee choosing and continuing throughout duration of patent. Information requirements defined in iEdison. Note: this reporting requirement, if applicable, extends beyond the grant period.</td>
<td>401.14(h)</td>
</tr>
<tr>
<td>Annual Summary Report of Inventions:</td>
<td>Summarize all previously reported subject inventions under this grant.</td>
<td>Invention reports shall be filed annually due no later than 1 July of each year. Grants effective after 31 January will not require a report until 1 July of the following year. The recipient shall use DD Form 882, Report</td>
<td>401.5(f)(3)</td>
</tr>
</tbody>
</table>

---

Page 18 of 39
**Final Invention Statement and Certification:**

Report all subject inventions derived or reduced to practice during the performance of the grant.

Due with the Final Technical Report within 90 days after the project ends.

Invention reports shall be filed at the end of the Grant's PoP. If no inventions occurred during the lifetime of the award, a negative report must be submitted.

As directed by DTRA, either email Form DD882 to basieresearch@dtra.mil (file size must be less than 10MB), or upload to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal. File should be named by the Grant number and ‘Invention Report’ (e.g. HDTRA1-12-1-9999 Invention Report).

The Grant shall not be closed out until all invention reporting requirements are met.

---

<table>
<thead>
<tr>
<th>401.5(f)(1)</th>
</tr>
</thead>
</table>
22. **Technical Reporting Requirements.** Except under rare cases, performance reports are required annually.

a. **ANNUAL REPORTS:** Annual Reports are due no later than 1 July of each year. Grants effective after 31 January will not require a progress report until 1 July of the following year.

At the direction of DTRA (instructions to be provided to the awardee not later than 1 May of each year), Annual Reports must be submitted electronically as follows:

- Email the Annual Report to basicresearch@dtra.mil (file size must be less than 10MB). The file name should be the Grant number and ‘Annual Report’, e.g. HDT RA1-12-1-9999 Annual Report.

OR

- Upload the Annual Report to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal, (file size must be less than 10 MB). The file name should be the Grant number and ‘Annual Report’, e.g. HDT RA1-12-1-9999 Annual Report.

- Provide a copy of the report to the Administrative Office identified in the Research Grant.

The Annual Report is not a cumulative report. The first Annual Report shall only include actions that occurred from the Period of Performance start date up to submission of the first Annual Report. Each subsequent report shall only include actions that occurred during the 12-month period following the previous year’s Annual Report.

The Annual Report shall contain the following items:

1. **Cover Sheet:** As a minimum, the cover sheet should include the following information: PI’s name, Institution’s name and address, and Grant number.

2. **Objectives:** List the objectives of the research effort or the statement of work. This may be omitted if there has been no change. State new or revised objectives if they have changed and the reason why.

3. **Status of effort:** A brief statement of progress towards achieving the research objectives. (Limit to 200 words).

4. **Accomplishments/New Findings:** Describe research highlights, their significance to the field, their relationship to the original goals, their relevance to the DTRA mission, and their potential application(s) to DTRA and civilian technology challenges.
(5) Personnel Supported: List professional personnel (Faculty, Post-Docs, Graduate Students, etc.) supported by and/or associated with the research effort.

(6) Publications: List peer-reviewed publications and theses submitted and/or accepted during the 12-month period starting the previous 1 October (or since start date for new grants). Include full reference information, such as authors, journal, volume, page numbers, etc. or for conference proceedings, name, date and location of the conference, and proceedings publication information.

(7) Interactions/Transitions:

(a) Participation/presentations at meetings, conferences, seminars, etc.

(b) Consultative and advisory functions to other laboratories and agencies and other DoD laboratories. Provide factual information about the subject matter, institutions, locations, dates, and name(s) of principal individuals involved.

(c) Transitions. Describe cases where knowledge resulting from your effort is used, or will be used, in a technology application. Transitions can be to entities in DoD, other federal agencies, or industry. Briefly list the enabling research, the laboratory or company, and an individual in that organization who made use of your research.

(8) New discoveries, inventions, or patent disclosures.

(9) Honors/Awards: List honors, degrees, and awards received during the Grant period. List lifetime achievement honors such as Nobel prize, honorary doctorates, and society fellowships prior to this effort.

(10) Courses taught: List class name, curriculum level and dates of any counter WMD classes taught by the PI or Co-PI.

(11) To assist in compiling all of this information, a summary table (in MSExcel format) has been created that can be downloaded from the DTRA Basic and Fundamental Research Community Portal (https://www.dtrasubmission.net/portal/Forms.aspx). The table should be embedded into the Annual Report with any necessary narrative. The fields contained in the table include, but are not limited to: number of PIs, number of students supported, total number of peer reviewed publications, Hirsch Index, etc.

(12) At the direction of DTRA (instructions to be provided to the awardee not later than 1 May of each year), the Quad Chart should be submitted electronically as follows:

- Email an updated Quad Chart to basicresearch@dtra.mil (file size must be less than 10MB),
OR

- Upload an updated Quad Chart as a separate file to the DTRA Basic and Fundamental Research Community Portal (www.dtrasubmission.net/portal). The file name should be the Grant number and ‘Quad Chart’, e.g. HDTRA1-12-1-9999 Quad Chart.

A quad chart template is available in the Document & Template Library on the DTRA Basic and Fundamental Research Community Portal (www.dtrasubmission.net/portal).

b. **ANNUAL TECHNICAL REVIEW**: At least one representative (preferably the PI) for each award is expected to attend and present at the annual technical program review meeting, unless otherwise exempted by DTRA in writing. For planning purposes the review will be for five days and will be held in Northern Virginia, typically during the summer months. DTRA encourages collaborators and graduate students to attend the Annual Technical Review.

c. **FINAL TECHNICAL REPORTS**: A comprehensive final technical report is required: the draft document is required forty-five (45) days prior to the end of the Period of Performance and the final document is required ninety (90) days after the expiration or termination of the award. The report should be structured substantially as follows:

1. The purpose of the final report is to document and to transition the results of the effort into the DTRA and DoD applied research community. The final report will always be sent to the Defense Technical Information Center (DTIC) and unclassified reports may be made available to the public through the National Technical Information Service (NTIS).

2. **Content**: The final report is more than an extension of previous annual reports. The final report shall be a comprehensive technical summary of the significant work accomplished. The final report, where it is not readily accessible in published form should, where applicable:

   a. Clearly describe and illustrate the experimental equipment, setup, and procedures;

   b. Characterize and tabulate collected/computed data in an appendix;

   c. Sufficiently describe computational codes so they can be reproduced. Include a listing of the code in an appendix if possible and appropriate; and

   d. When the research effort culminates in the production of one or more student theses or dissertations, in these cases, the most significant advancements and conclusions (equations, figures, relationships, etc.) should be included in an executive summary. The theses or dissertations
should be attached as appendices only if they are not readily available. If they are, clearly reference them and how they can be obtained. Also include in the executive summary, cumulative lists of people involved in, and publications stemming from, the research effort. Do not include copies of already submitted or published articles in the final report.

(3) Standard Form (SF) 298: SF-298, Report Documentation Page, must be used. Item 13 of the SF-298 should contain a 100 to 200 word abstract summarizing technical progress during the reporting period. The SF-298 may be found on the Internet at:
http://contacts.gsa.gov/webforms.nsf/0/B82C70F2B4C7843185256A2C005F72F0/$file/SF298_e.pdf

(4) Format: Cover and title page. The report style should be third person singular using past tense. Jargon, special symbols or notations, subscripts, mathematical symbols or foreign alphabet letters are not permitted. All of the report pages should be prepared for acquisition and distribution by DTIC. All of the report pages should be of good quality for copying purposes. No pages should be missing.

The format and standard required by your institution for the preparation of theses and dissertations shall be used for the final report. In the absence of any institutional standards, you may wish to refer to the American National Standards Institute (ANSI) document Z39.18-1987, “Scientific and Technical Reports: Organization, Preparation, and Production,” for guidance. The report may be obtained from:

American National Standards Institute Incorporated
1430 Broadway
New York NY 10018

(5) Report Classification: It is anticipated that all final technical reports will be unclassified and that distribution will not be limited. However, for final technical reports that require a limited distribution as deemed necessary by DTRA, a Distribution List will be provided with the comments on the draft final technical report. The Distribution List will be formatted to match the rest of the report, placed at the end of the report, and added to the Table of Contents. The number of pages in the Distribution List should be added to the total page count and included in the total number of pages cited in Block 15 of the SF-298.

(6) Report Submission: The draft of the final technical report will be due no later than forty-five (45) days prior to the end of the period of performance.

At the direction of DTRA (instructions to be provided to the awardee in advance of the end of the PoP), the draft of the final technical report (including a draft SF-298) must be submitted electronically as follows:
• Email the draft of the final technical report to basicresearch@dtra.mil (file size must be less than 10MB). The file name should be the Grant number and ‘Draft Final Report’, e.g. HDT1A1-12-1-9999 Draft Final Report.

OR

• Upload the draft of the final technical report to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net:portal, (file size must be less than 10 MB). The file name should be the Grant number and ‘Draft Final Report’, e.g. HDT1A1-12-1-9999 Draft Final Report.

• Provide a copy of the report to the Administrative Office identified in the Research Grant.

• Within thirty (30) days this draft will be reviewed by DTRA and comments will be provided to the Grantee. The Grantee shall incorporate the requested changes. Final Technical Reports are due ninety (90) days after the expiration or termination of the award. The final submission should be made in accordance with the draft final report submission instructions. Provide a copy of the report to the Administrative Office identified in the Research Grant.


a. Federal Financial Report, SF-425. This report is due quarterly, no later than 30 days after the end of the reporting period. Reporting periods are as follows: 1 January – 31 March, 1 April – 30 June, 1 July – 30 September, and 1 October – 31 December, respectfully. Final reports shall be submitted no later than 30 days after the project or grant period end date.

The SF-425 form and instructions can be found on the Internet at:
http://www.whitehouse.gov/omb/grants_forms/

b. All financial reports shall be submitted to the Administration Office identified in Block 6 of the Research Grant. In addition, at the direction of DTRA (instructions to be provided to the awardee not later than 1 May of each year), the Financial Report must be submitted electronically as follows:

• Email the Financial Report to basicresearch@dtra.mil (file size must be less than 10MB). The file name should be the Grant number and ‘Financial Report’, e.g. HDT1A1-12-1-9999 Financial Report.

OR
• Upload the Financial Report to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal, (file size must be less than 10 MB). The file name should be the Grant number and ‘Financial Report’, e.g. HDTRA1-12-1-9999 Financial Report.

24. **After-the-Award Requirements.** Closeout, subsequent adjustments, continuing responsibilities, and collection of amounts due are subject to requirements found in DoDGARs §34.61 through 34.63.

25. **Delegation of Administration Duties.** Certain grant administration duties have been delegated to the Administration Office identified in Block 6 of the Research Grant. These duties are as follows:
   
   a. Provisionally approve all Grant and Cooperative Agreement Vouchers.
   
   b. Perform all property administration services except the approval of recipient’s requests to purchase equipment with grant funds. Such approvals must be granted by the DTRA Grants Officer.
   
   c. Perform all plant clearance functions.
   
   d. Approve requests for Registration for Scientific and Technical Information Services (DD Form 1540).
   
   e. Obtain all financial report(s) (see Article 23 of this document).
   
   f. Execute administrative closeout procedures, which include the following:
      
      (1) Obtain the final Report of Inventions and Subcontracts (DD Form 882).
      
      (2) Obtain final payment request, if any.
      
      (3) Obtain final property report and dispose of purchased property and government furnished equipment (GFE) in accordance with the DoDGARs Part 22, Subpart G.
      
      (4) Perform a review of final incurred costs and assist the Grants Officer in resolving exceptions, if any, resulting from questioned costs.
      
      (5) Assure that all refunds due the Government are received by the Grantor.

   **NOTE:** This term and condition is **not applicable** to instrumentation and equipment grant awards.

26. **Claims, Disputes and Appeals.** Claims, disputes, and appeals shall be processed in accordance with the procedures provided in DoDGARs §22.815.
27. **Termination and Enforcement.** Recipients shall be subject to the termination and enforcement conditions found in DoDGARs §34.51 and §34.52.

28. **Security.** As a general rule, PI’s will not need access to classified security information in the conduct of research supported under this Grant. Should it appear that access to such information is desirable, the recipient shall advise the Grantor and request clearance for the investigator. Should information be developed during the course of work under this Grant that, in the judgment of the PI or the recipient, should be classified, the Grants Officer shall be notified immediately.

29. **Representations and Assurances.** By accepting funds under this Grant, the recipient assures that it will comply with applicable provisions of the following national policies:

   a. **Nondiscrimination:** By signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provisions of the following national policies prohibiting discrimination:

      (1) On the basis of race, color, or national origin, in Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d, et seq.), as implemented by DoD regulations at 32 CFR Part 195.

      (2) On the basis of sex or blindness, in Title IX of the Education Amendments of 1972 (20 U.S.C. 1681, et seq.), as implemented by DoD regulations at 32 CFR Part 196.


   b. **Live Organisms:** By signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provisions of the following national policies concerning live organisms:

      (1) For human subjects:


         (b) The recipient shall adhere to DTRA local clause 252.223-9002. The full text of this clause is as follows:

         252.223-9002 PROTECTION OF HUMAN SUBJECTS (AUG 2010)
All research under this grant involving human subjects must be conducted in accordance with 32 CFR 219, 10 U.S.C. 980, and DoDD 3216.02, as well as other applicable federal and state regulations. Grantees must be cognizant of and abide by the additional restrictions and limitations imposed on the DoD regarding research involving human subjects, specifically as regards vulnerable populations (32 CFR 219 modifications to subparts B-D of 45 CFR 46), recruitment of military research subjects (32 CFR 219), and surrogate consent (10 U.S.C. 980). DTRA Directive 3216.01 establishes the DTRA Human Subjects Protection Program, sets forth the policies, defines the applicable terms, and delineates the procedures necessary to ensure DTRA compliance with federal and DoD regulations and legislation governing human subject research. The regulations mandate that all DoD activities, components, and agencies protect the rights and welfare of human subjects of study in DoD-supported research, development, test and evaluation, and related activities hereafter referred to as “research”. The requirement to comply with the regulations applies to new starts and to continuing research.

The DTRA directive requires that research using human subjects may not begin or continue until the Defense Threat Reduction Agency’s Research Oversight Board (ROB) has reviewed and approved the proposed protocol. Grantees and subcontractors are required to submit a valid federal assurance for their organization (institution, laboratory, facility) that has been issued by either DoD or the Department of Health and Human Services, and documentation of review of proposed protocols by the local Institutional Review Board (IRB) to include consent forms for any planned research using human subjects to the DTRA ROB for its review through the Grants Officer’s representative (if assigned) or the Grants Officer. The ROB review is separate from, and in addition to, local IRB review.

Written approval to begin research or subcontract for the use of human subjects under the proposed protocol will be provided in writing from the DTRA ROB, through the Grants Officer. A copy of this approval shall be maintained by both the Grantee and the government. Any proposed modifications or amendments to the approved protocol or consent forms must be submitted to the local IRB and the DTRA ROB for review and approval. Examples of modifications/amendments to the protocol include but are not limited to:

1) a change of the PI
2) changes in duration or intensity of exposure to some stimulus or agent
3) changes in the information requested of volunteers, or changes to the use of specimens or data collected
4) changes in perceived or measured risks or benefits to volunteers that require changes to the study

Research pursuant to such modifications or amendments shall not be initiated without IRB and ROB approval except when necessary to eliminate apparent and immediate hazards to the subject(s).

Research projects lasting more than one year require IRB review at least annually, or more frequently as required by the responsible IRB. ROB review and approval is required annually. The Grantee or subcontractor must provide documentation of continued IRB review of protocols for ROB review and approval in accordance with these Terms and Conditions. Research must not continue without renewed ROB approval unless necessary to eliminate apparent and immediate hazards to the subject(s).

Non-compliance with any provision of this clause may result in withholding of payments under the grant pursuant to the grant’s payments clause(s) and/or grant termination pursuant to the grant’s termination clause(s). The government shall not be responsible for any costs incurred for research involving human subjects prior to protocol approval by the ROB.

(2) For animals:

(a) The recipient shall adhere to:


(3) DTRA local clause 252.235-9001. The full text of this clause is as follows:

252.235-9001 PROHIBITION OF USE OF LABORATORY ANIMALS (JULY 2010) (DTRA)
The grant recipient shall obtain approval from the US Army Medical Research and Material Command (MRMC), Animal Care and Use Review Office (ACURO) prior to conducting research on live nonhuman vertebrates. Studies involving non-human primates, dogs, cats, or marine mammals will require a site visit by an ACURO laboratory animal veterinarian as a condition of approval. DoD may also conduct site visits involving research on other animals when deemed appropriate. The animal research facility is responsible for notifying the DoD sponsor if the Association for the Assessment and Accreditation of Laboratory Animal Care accreditation is lost or the facility is under USDA inspection. DoD also has the right to a site inspection under these circumstances.

The grant recipient (including subcontractors) is expressly forbidden to use laboratory animals in any manner whatsoever without the express written approval of MRMC ACURO.

The grant recipient shall complete the ACURO Animal Use Appendix for Research Involving Animals found at the following web site: https://mrmc-www.army.mil/index.cfm?pageid=Research_Protections_acuro_AnimalAppendix. Submit the completed ACURO appendix, contact information, the DTRA grant number and a copy of the grant for processing to the email address listed at the ACURO website. Once ACURO approves the effort, the grant recipient will receive written approval to begin animal use from the US Army MRMC ACURO by separate email. The grant recipient shall promptly provide a copy of the approval to the Grants Officer and Grants Officer representative. After approval, changes or protocol amendments must be submitted to and approved by ACURO before implementation.

The grant recipient, or subcontractors as appropriate, shall submit the most recent U.S. Department of Agriculture Animal Care Inspection Report annually in accordance with the CDRL.

Non-compliance with any provision of this clause may result in the termination of the grant.

c. Debarment and Suspension: The recipient agrees to comply with the requirements regarding debarment and suspension in Subpart C of the OMB guidance in 2 CFR Part 180, as implemented by the DoD in 2 CFR Part 1125. The recipient also agrees to
communicate the requirement to comply with Subpart C to persons at the next lower tier with whom the recipient enters into transactions that are "covered transactions" under Subpart B of 2 CFR Part 180 and the DoD implementation in 2 CFR Part 1125.

d. Environmental Standards: By signing this agreement or accepting funds under this agreement, the recipient assures that it will:


(2) Identify to the awarding agency any impact this award may have on the quality of the human environment, and provide help the agency may need to comply with the National Environmental Policy Act (NEPA, at 42 U.S.C. 4321, et. seq.) and to prepare Environmental Impact Statements or other required environmental documentation. In such cases, the recipient agrees to take no action that will have an adverse environmental impact (e.g., physical disturbance of a site such as breaking of ground) until the agency provides written notification of compliance with the environmental impact analysis process.

e. Drug-Free Workplace: The recipient agrees to comply with the requirements regarding drug-free workplace requirements in Subpart B (or Subpart C, if the recipient is an individual) of 32 CFR Part 26, which implements Sections 5151-5160 of the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D; 41 U.S.C. 701, et seq.).

f. Officials Not to Benefit: No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement, or to any benefit arising from it, in accordance with 41 U.S.C. 22.

g. Preference for U.S. Flag Carriers: Travel supported by U.S. Government funds under this agreement shall use U.S.-flag air carriers (air carriers holding certificates under 49 U.S.C. 41102) for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) and the interpretative guidelines issued by the Comptroller General of the United States in the March 31, 1981, amendment to Comptroller General Decision B138942.

h. Cargo Preference: The recipient agrees that it will comply with the Cargo Preference Act of 1954 (46 U.S.C. 1241), as implemented by Department of Transportation regulations at 46 CFR 381.7, which require that at least 50 percent of equipment, materials or commodities procured or otherwise obtained with U.S. Government funds under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned U.S.-flag commercial vessels, if available.

30. Research Involving Recombinant DNA Molecules. Any recipient performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant
DNA molecules agrees by acceptance of this award to comply with the National Institutes of Health “Guidelines for Research Involving Recombinant DNA Molecules,” amended 29 September 2009 (74 FR48275), or such later revision of those guidelines as may be published in the Federal Register.

31. **Retention and Access to Records.** Retention and access to records pertinent to this award are subject to the requirements of DoDGRs §34.42.

32. **Certification.** By accepting funds under this agreement, the recipient is providing the Certification at Appendix A to 32 CFR Part 28 regarding lobbying.

33. **Data Collection.** Data collection activities, if any, performed under this Grant are the responsibility of the recipient. Awarding agency support of the project does not constitute approval of the survey design, questionnaire content, or data collection procedures. The recipient shall not represent to respondents that such data are being collected for or in association with the awarding agency without the specific written approval of the cognizant awarding agency official. However, this requirement is not intended to preclude mention of the awarding agency support of the project in response to an inquiry or acknowledgment of such support in any publication of this data.

34. **Site Visits.** The Government, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and to provide such technical assistance as may be required. The recipient shall provide, and shall require its subrecipients and subcontractors to provide all reasonable facilities and assistance for the safety and convenience of the government representatives in the performance of site visits. All site visits and evaluations shall be performed in a manner that does not unduly interfere with or delay the work.

35. **Publications and Acknowledgement of Sponsorship.**

   a. Publication of results of the research project in an appropriate professional journal is encouraged as an important method of recording and reporting scientific information. A courtesy copy of each accepted publication shall be uploaded directly into the web-based reporting system previously described herein.

   b. The recipient agrees that in the release of information relating to the grant, such release shall include the following statement, “The project or effort depicted was or is sponsored by the Department of the Defense, Defense Threat Reduction Agency. The content of the information does not necessarily reflect the position or the policy of the federal government, and no official endorsement should be inferred.” For purposes of this provision, information includes news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association proceedings, symposia, etc.

   c. When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing projects or programs funded in whole or in part with federal money, all recipients receiving federal funds, shall clearly state: (i) the percentage of
total costs of the program or project which will be financed with federal money, and (ii)
the dollar amount of federal funds for the project or program.

36. **Fee and Profit.** This agreement does not provide for the payment of fee or profit to the
recipient.

37. **Combating Trafficking in Persons.** The recipient agrees to comply with the trafficking in
persons requirement in Section 106(g) of the Trafficking Victims Protection Act of 2000
(TVPA), as amended (22 U.S.C. 7104(g)).

   a. Provisions applicable to a recipient that is a private entity.

      (1) You as the recipient, your employees, subrecipients under this award, and
subrecipients’ employees may not

         (a) Engage in severe forms of trafficking in persons during the period of
time that the award is in effect;

         (b) Procure a commercial sex act during the period of time that the award
         is in effect; or

         (c) Use forced labor in the performance of the award or subawards under
         the award.

      (2) We as the Federal awarding agency may unilaterally terminate this award,
without penalty, if you or a subrecipient that is a private entity—

         (a) Is determined to have violated a prohibition in paragraph a.(1) of this
         award term; or

         (b) Has an employee who is determined by the agency official authorized
to terminate the award to have violated a prohibition in paragraph a.(1) of
this award term through conduct that is either—

            (1) Associated with performance under this award; or

            (2) Imputed to you or the subrecipient using the standards and due
            process for imputing the conduct of an individual to an
            organization that are provided in 2 CFR Part 180, "OMB
            Guidelines to Agencies on Governmentwide Debarment and
            Suspension (Nonprocurement)," as implemented by our agency at
            2 CFR Part 376.

   b. Provision applicable to a recipient other than a private entity. We as the Federal
awarding agency may unilaterally terminate this award, without penalty, if a subrecipient
that is a private entity—
(1) Is determined to have violated an applicable prohibition in paragraph a.(1) of this award term; or

(2) Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph a.(1) of this award term through conduct that is either

(a) Associated with performance under this award; or

(b) Imputed to the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 2 CFR Part 376.

c. Provisions applicable to any recipient.

(1) You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph a.(1) of this award term.

(2) Our right to terminate unilaterally that is described in paragraph a.(2) or b. of this Article:

(a) Implements Section 106(g) of the TVPA, as amended (22 U.S.C. 7104(g)), and

(b) Is in addition to all other remedies for noncompliance that are available to us under this award.

(3) You must include the requirements of paragraph a.(1) of this award term in any subaward you make to a private entity.

d. Definitions. For purposes of this award term:

(1) "Employee" means either:

(a) An individual employed by you or a subrecipient who is engaged in the performance of the project or program under this award; or

(b) Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.

(2) "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for
labor or services, through the use of force, fraud, or coercion for the purpose of
subjection to involuntary servitude, peonage, debt bondage, or slavery.

(3) "Private entity":

(a) Means any entity other than a State, local government, Indian tribe, or
foreign public entity, as those terms are defined in 2 CFR 175.25.

(b) Includes:

(1) A non-profit organization, including any non-profit institution
of higher education, hospital, or tribal organization other than one
included in the definition of Indian tribe at 2 CFR 175.25(b).

(2) A for-profit organization.

(4) "Severe forms of trafficking in persons," "commercial sex act," and "coercion"
have the meanings given at Section 103 of the TVPA, as amended (22 U.S.C.
7102).

38. **Central Contractor Registration and Universal Identifier Requirements.**

a. Requirement for Central Contractor Registration (CCR)

Unless you are exempted from this requirement under 2 CFR 25.110, you as the recipient
must maintain the currency of your information in the CCR until you submit the final
financial report required under this award or receive the final payment, whichever is later.
This requires that you review and update the information at least annually after the initial
registration, and more frequently if required by changes in your information or another
award term.

b. Requirement for Data Universal Numbering System (DUNS) Numbers

If you are authorized to make subawards under this award, you:

(1) Must notify potential subrecipients that no entity (see definition in paragraph c
of this award term) may receive a subaward from you unless the entity has
provided its DUNS number to you.

(2) May not make a subaward to an entity unless the entity has provided its
DUNS number to you.

c. Definitions

For purposes of this award term:
(1) Central Contractor Registration (CCR) means the Federal repository into which an entity must provide information required for the conduct of business as a recipient. Additional information about registration procedures may be found at the CCR Internet site (currently at http://www.ccr.gov).

(2) Data Universal Numbering System (DUNS) number means the nine-digit number established and assigned by Dun and Bradstreet, Inc. (D&B) to uniquely identify business entities. A DUNS number may be obtained from D&B by telephone (currently 866-705-5711) or the Internet (currently at http://fedgov.dnb.com/webform).

(3) Entity, as it is used in this award term, means all of the following, as defined at 2 CFR Part 25, Subpart C:

(a) A Governmental organization, which is a State, local government, or Indian Tribe;

(b) A foreign public entity;

(c) A domestic or foreign nonprofit organization;

(d) A domestic or foreign for-profit organization; and

(e) A Federal agency, but only as a subrecipient under an award or subaward to a non-Federal entity.

(4) Subaward:

(a) This term means a legal instrument to provide support for the performance of any portion of the substantive project or program for which you received this award and that you as the recipient award to an eligible subrecipient.

(b) The term does not include your procurement of property and services needed to carry out the project or program (for further explanation, see Sec. __210 of the attachment to OMB Circular A 133, “Audits of States, Local Governments, and Non-Profit Organizations”).

(c) A subaward may be provided through any legal agreement, including an agreement that you consider a contract.

(5) Subrecipient means an entity that:

(a) Receives a subaward from you under this award; and

(b) Is accountable to you for the use of the Federal funds provided by the subaward.

a. Reporting of first-tier subawards.

(1) Applicability. Unless you are exempt as provided in paragraph d. of this award term, you must report each action that obligates $25,000 or more in Federal funds that does not include Recovery funds (as defined in Section 1512(a)(2) of the American Recovery and Reinvestment Act of 2009, Pub. L. 111–5) for a subaward to an entity (see definitions in paragraph e. of this award term).

(2) Where and when to report.

(a) You must report each obligating action described in paragraph a.(1) of this award term to http://www.fsrs.gov.

(b) For subaward information, report no later than the end of the month following the month in which the obligation was made. (For example, if the obligation was made on November 7, 2010, the obligation must be reported by no later than December 31, 2010.)

(3) What to report. You must report the information about each obligating action that the submission instructions posted at http://www.fsrs.gov specify.

b. Reporting Total Compensation of Recipient Executives.

(1) Applicability and what to report. You must report total compensation for each of your five most highly compensated executives for the preceding completed fiscal year, if

(a) the total Federal funding authorized to date under this award is $25,000 or more;

(b) in the preceding fiscal year, you received—

(1) 80 percent or more of your annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(2) $25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(c) The public does not have access to information about the compensation of the executives through periodic reports filed under Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d))
or Section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at http://www.sec.gov/answers/execomp.htm.)

(2) Where and when to report. You must report executive total compensation described in paragraph b.(1) of this award term:

(a) As part of your registration profile at http://www.ccrgov.

(b) By the end of the month following the month in which this award is made, and annually thereafter.

c. Reporting of Total Compensation of Subrecipient Executives.

(1) Applicability and what to report. Unless you are exempt as provided in paragraph d. of this award term, for each first-tier subrecipient under this award, you shall report the names and total compensation of each of the subrecipient's five most highly compensated executives for the subrecipient's preceding completed fiscal year, if

(a) in the subrecipient's preceding fiscal year, the subrecipient received

(1) 80 percent or more of its annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(2) $25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts), and Federal financial assistance subject to the Transparency Act (and subawards); and

(b) The public does not have access to information about the compensation of the executives through periodic reports filed under Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or Section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at http://www.sec.gov/answers/execomp.htm.)

(2) Where and when to report. You must report subrecipient executive total compensation described in paragraph c.(1) of this award term:

(a) To the recipient.

(b) By the end of the month following the month during which you make the subaward. For example, if a subaward is obligated on any date during
the month of October of a given year (i.e., between October 1 and 31),
you must report any required compensation information of the
subrecipient by November 30 of that year.

d. Exemptions.

If, in the previous tax year, you had gross income, from all sources, under $300,000, you
are exempt from the requirements to report:

(1) Subawards,

and

(2) The total compensation of the five most highly compensated executives of any
subrecipient.

e. Definitions. For purposes of this award term:

(1) Entity means all of the following, as defined in 2 CFR Part 25:

(a) A Governmental organization, which is a State, local government, or
Indian tribe;

(b) A foreign public entity;

(c) A domestic or foreign nonprofit organization;

(d) A domestic or foreign for-profit organization;

(e) A Federal agency, but only as a subrecipient under an award or
subaward to a non-Federal entity.

(2) Executive means officers, managing partners, or any other employees in
management positions.

(3) Subaward:

(a) This term means a legal instrument to provide support for the
performance of any portion of the substantive project or program for
which you received this award and that you as the recipient award to an
eligible subrecipient.

(b) The term does not include your procurement of property and services
needed to carry out the project or program (for further explanation, see
Sec. ___.210 of the attachment to OMB Circular A-133, “Audits of States,
Local Governments, and Non-Profit Organizations”).

(c) A subaward may be provided through any legal agreement, including an agreement that you or a subrecipient considers a contract.

(4) Subrecipient means an entity that:

(a) Receives a subaward from you (the recipient) under this award; and

(b) Is accountable to you for the use of the Federal funds provided by the subaward.

(5) Total compensation means the cash and noncash dollar value earned by the executive during the recipient's or subrecipient's preceding fiscal year and includes the following (for more information see 17 CFR 229.402(c)(2)):

(a) Salary and bonus.

(b) Awards of stock, stock options, and stock appreciation rights. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Statement of Financial Accounting Standards No. 123 (Revised 2004) (FAS 123R), Shared Based Payments.

(c) Earnings for services under non-equity incentive plans. This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.

(d) Change in pension value. This is the change in present value of defined benefit and actuarial pension plans.

(e) Above-market earnings on deferred compensation which is not tax-qualified.

(f) Other compensation, if the aggregate value of all such other compensation (e.g. severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds $10,000.
Dear [Redacted]

We confirm receipt of your email and attachment.

Metabiota, Inc.

metabiota.com

CONFIDENTIALITY NOTICE: The information contained in this electronic mail (email) transmission (including attachments), is intended by Metabiota for the use of the named individual or entity to which it is addressed and may contain information that is privileged or otherwise confidential. It is not intended for transmission to, or receipt by, any individual or entity other than the named addressee except as otherwise expressly permitted in this email transmission. If you have received this email in error, please delete it without copying or forwarding it, and notify the sender of the error by email reply.

-----Original Message-----

Good morning,

Please respond to this e-mail to let me know you received it and the attachment(s).

Please see the attached modification to provide incremental funding in the amount of $930,866.00. The purpose of this modification can be found in block 14 of the attached modification. If you received this email in error, please reply immediately so we can correct the distribution.
V/R,

[(b)(6)]

Defense Threat Reduction Agency (DTRA)

J4COC Contract Specialist

[(b)(6)]
1. Federal Agency and Organizational Element to Which Report is Submitted
   Defense Threat Reduction Agency HDTRA1

2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)
   HDTRA1-14-1-0058

3. Recipient Organization (Name and complete address including ZIP code)
   Metabola, Inc. 1 Sutter Street, Suite 600 San Francisco, CA 94104

4a. DUNS Number
   828 131 156

4b. EIN
   FOIA (b)(6)

5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment)
   Cage Code 58SP4

6. Report Type
   Quarterly
   Semi-Annual
   Annual
   Final

7. Basis of Accounting
   Cash
   Accrual

8. Project/Grant Period (Month, Day, Year)
   From: 08/07/2014
   To: 3/7/2015
   12/31/2014

9. Reporting Period End Date (Month, Day, Year)
   12/31/2014

10. Transactions
    Cumulative

   Federal Cash (To report multiple grants separately, also use FFR Attachment):
   a. Cash Receipts
      $4,339.11
   b. Cash Disbursements
      $11,513.88
   c. Cash on Hand (line a minus b)
      +3,174.77

   Federal Expenditures and Unobligated Balance:
   d. Total Federal funds authorized
      $932,060.00
   e. Federal share of expenditures
      $11,513.88
   f. Federal share of unliquidated obligations
      $0.80
   g. Total Federal cash (sum of lines d and e)
      $11,513.88
   h. Unobligated balance of Federal funds (line g minus line d)
      $920,546.12

   Recipient Share:
   i. Total recipient share required
      0
   j. Recipient share of expenditures
      0
   k. Remaining recipient share to be provided (line i minus j)
      0

11. Indirect Expense
    a. Type
       FOIA (b)(4)
    b. Rate
    c. Period
    d. Period to
    e. Base
    f. Amount Charged
    g. Federal Share

12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

   a. Typed or Printed Name and Title of Authorized Certifying Official
      FOIA (b)(6)
   b. Signature of Authorized Certifying Official
      FOIA (b)(6)
   c. Telephone (Area code, number, and extension)
      FOIA (b)(6)
   d. Email Address
      FOIA (b)(6)
   e. Date Report Submitted (Month, Day, Year)
      January 31, 2015

14. Agency use only:

   Standard Form 425 - Revised 10/11/2011
   OMB Approval Number: 0349-0051
   Expiration Date: 2/28/2015

Paperwork Burden Statement
According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0349-0051. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0349-0051), Washington, DC 20503.
**Project Title:** A One Health Response to Rift Valley Fever and Brucellosis Surveillance in Tanzania

**Document Date:** Revised April 10, 2018

**Objectives:** Rift Valley fever virus (RVFV) is a mosquito-borne pathogen of livestock and humans that causes widespread and devastating outbreaks of severe disease throughout Africa [2]. Outbreaks can involve tens to hundreds of thousands of human cases and millions of livestock cases. The severity of the disease varies by species, but in sheep and cattle “abortion storms” as well as high neonatal (~70%) and adult mortality (20–30%) are features. Human cases are generally self-limiting, but severe complications are associated with case fatalities of 10–20% [13]. While lying at the heart of the RVFV belt in eastern Africa, little is known in the United Republic of Tanzania (URT) about the role of the environment on endemic virus activity during the inter-epidemic period, vector composition, wildlife maintenance hosts, and virus diversity. Livestock are a key ecological link as high viremias in animals lead to spillover of RVFV into mosquitoes likely to feed on humans, and close contact with infected animal tissues or aborted fetal materials are significant risk factors for human infections [12] [7].

*Brucella* bacteria are also important zoonotic pathogens globally, known to cause disease in humans and animals, and are relevant for biological warfare as a category B biological agent [33]. Clinical signs of brucellosis in humans include intermittent fever, malaise, anorexia, and joint pain that may persist for weeks or months. Because of the fairly unspecific symptoms that can be confused with other common diseases, such as malaria, brucellosis in humans is under-diagnosed among febrile patients in URT [22]. In animals, clinical symptoms include infertility and abortions, and during acute infection, large amounts of bacteria are shed in the uterine fluids, aborted fetuses, and milk. Chronically infected animals can develop hygromas, localized abscesses, and continue to shed the bacteria in the milk, providing human transmission routes.

The team hypothesizes that in URT, climatic conditions, such as high rainfall, and animal contact conditions, such as intense livestock density, are associated with increased endemic RVFV and *Brucella* exposure in sympatric livestock, wildlife, and humans. To test this hypothesis, two study areas with varied rainfall conditions and animal density parameters have been selected for surveillance and characterization of RVFV and *Brucella* disease dynamics in animals, humans, and arthropod vectors. Contributing to the Thrust Area 6 goals, the proposed research will improve international collaborations to detect, characterize, and report disease outbreaks and will advance the capacity in URT to implement global health security initiatives.

**Scope:** This project will investigate the epidemiology of RVFV and *Brucella* in two study regions of URT while enhancing the network of professionals prepared to address ongoing select agent emerging needs. The project is designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization and modeling efforts. Genomic analyses will enhance capabilities in characterizing diversity, identifying wildlife reservoir maintenance hosts, and developing models that predict areas of pathogen maintenance, transmission, and diversity in this endemic region. The end goal is increased detection and response capacity to further human and animal health.
## Performance Schedule

<table>
<thead>
<tr>
<th>Project Timeline</th>
<th>Year 1 (Oct ’13-Sept ’14)</th>
<th>Year 2 (Oct ’14-Sept ’15)</th>
<th>Year 3 (Oct ’15-Sept 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task # Description</strong></td>
<td><strong>Q1</strong></td>
<td><strong>Q2</strong></td>
<td><strong>Q3</strong></td>
</tr>
<tr>
<td>1: Monthly MT meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Administrative startup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain research permits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop field protocols</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HH questionnaires, SOP’s for sample transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>storage, preservation, hire field staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop lab protocols</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek collaboration with game scouts, clinics, livestock officers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Training of field staff, lab staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Field site characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Public health surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish collaborations with officials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Sentinel livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey administration and livestock testing for prevalence study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentinel herd surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Syndromic livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of livestock officers in PPE, sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive and test samples</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game scout training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Vector surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify sampling sites</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vector sampling and blood meal analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research Objectives:

1) Consult and coordinate with local partner institutions in Tanzania for characterization of field sites with historical RVFV and Brucella activity that represent diverse climactic and animal density variables.

2) Conduct surveillance of sentinel livestock herds (longitudinally) and conspecific wildlife (opportunistically) for pathogen transmission activity by real-time molecular diagnostic assays and/or seroconversion indicating periods of increased pathogen transmission, for comparison with disease patterns in local human populations.

3) Characterize RVFV and Brucella isolates from mosquito, animal, and human cases using phylogenetic analyses of genomic diversity.

4) Identify potential cryptic wildlife reservoir maintenance hosts by detection of seroconversion or molecular fingerprinting of blood meals from mosquito vectors.

Develop models that predict areas of increased pathogen maintenance, transmission, and genomic diversity in URT to target locales of increased risk that may be critical for public health intervention strategies and targeted surveillance.

Background: Rift Valley fever and brucellosis are well suited for transdisciplinary One Health approaches to study the genomic diversity and epidemiology at interfaces involving the mosquito vector (for RVFV), domesticated livestock, wildlife, and humans. Mosquitoes are primarily responsible for maintaining RVFV in nature, and the virus has been isolated from over 30 species of mosquitoes from 10 genera (primarily Aedes, Culex, Anopheles) [8]. In eastern and southern Africa, RVFV ecology can be divided into two distinct but overlapping cycles of continuous low-level endemic activity and periodic epizootics/epidemics. The linkage of RVFV epizootics/epidemic to heavy rainfall and high numbers of mosquitoes has been observed [9], and it is now recognized that the development of epizootic/epidemic transmission is dependent on large-scale weather events that lead to increases in ground-water saturation and eventual flooding over parts of eastern and southern Africa [10].

Regular outbreaks of RVF have occurred in 10-20 year cycles in East Africa. These large classic RVF outbreaks have typically occurred following the initiation of epizootics in Kenya/Somalia.
as heavy rains shifted towards the south and east. During the most recent 2006-2007 outbreak, human case fatality among confirmed cases reached 47% and seroprevalence studies indicated that RVFV transmission occurred in 52% (n=21) of the country regions, with the majority of these regions reporting both livestock and humans infections [16]. Surveillance of RVFV activity in inter-epidemic periods has been limited, with studies indicating human seroprevalences from 4% in the northeast region up to 29% in the southern region [17]. Wildlife can also be infected with brucellosis, with spillover and spill-back between wildlife and livestock a concern at wildlife-livestock interface areas as are present in our study sites.

Due to the devastating nature of RVFV outbreaks, much effort has been devoted to understanding the factors allowing for epizootic/epidemic transmission of RVFV. However, less is known regarding factors that influence long-term maintenance of the virus in enzootic areas that experience constant low-level RVFV or during inter-epizootic time periods. Enzootic areas are typically wetter semi-tropical locations that allow for continuous virus transmission under favorable microclimate conditions. For example, within a small 20km region of the Central African Republic, complete genome sequence data obtained from virus specimens collected over a period of 5 years (1969 to 1974) indicated a near 10 times higher level of virus diversity than that observed during the typically monophyletic large-scale outbreaks that occur in semi-arid east African regions [24]. The higher viral diversity observed elsewhere may be supported by low-level transmission of RVFV between mosquito vectors and potential cryptic wildlife maintenance hosts, and our team is uniquely positioned to address such questions in URT.

Two study regions, the southern border of the Greater Ruaha Ecosystem in URT and the Kilombero River Valley, are typical, intense wildlife, livestock and human interface areas, where there is high concern for disease transmission among populations. Both areas were considered critical hotspots in the 2007 Rift Valley Fever outbreak, and brucellosis is known to be endemic in the region. The Ruaha ecosystem is one of Africa’s largest protected areas and has an extraordinary diversity of plants and animals. There are two rainy seasons; from November – February and from March – April, with annual mean precipitation of 500-800 mm. The area adjacent to the southern border of the ecosystem is predominantly populated by pastoralists, agro-pastoralists and subsistence agriculturalists in the villages, and the livestock population is substantial. The main water source in this area is the Great Ruaha River that since 1993 has experienced a severe reduction in flow due to agricultural water diversion upstream [30]. The seasonal water scarcity in the dry season has increasingly forced wildlife, livestock and humans closer together, increasing the potential for pathogen exposure and evolution.

Tasks/Scientific Goals: Project activities involve coordinating with other organizations actively involved in RVFV and Brucella research projects, including the key research partners Sokoine University of Agriculture (SUA), Ifakara Health Institute (IHI), the National Institute for Medical Research (NIMR)) and Tanzania Wildlife Research Institute (TAWIRI). The tasks below are designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization paired with modeling efforts. We expect that genomic analyses will position us to characterize diversity, identify wildlife reservoir maintenance hosts, and develop models that predict high risk areas of pathogen maintenance, transmission, and diversity in this endemic region.
Year 1

1. The team shall conduct management team meetings at times and places specified in the grant schedule (monthly).

2. Project administration (Begin in 1\textsuperscript{st} quarter)
   2.1. The team shall develop and update research protocols and data collection forms.
   2.2. The team shall obtain and maintain protocol and research permit approval.
   2.3. The team shall organize field logistics, hire and maintain additional field staff.
   2.4. The team shall seek and support collaboration with health clinics, livestock officers, hunting companies and game scouts.
   2.5. The team shall begin database development based on data collection forms, and perform database maintenance as needed for quality control purposes.
   2.6. The team shall identify, enroll, support, and mentor Tanzanian postdoctoral scientist/masters students.

3. Training (Begin 2\textsuperscript{nd} quarter)
   3.1. The team shall identify field and laboratory training needs.
   3.2. The team shall conduct field, clinic and laboratory staff training including blinded controls as part of quality assurance plan.
   3.3. The team shall develop networked and secured database tailored for project needs.

4. Field site characterization (1\textsuperscript{st} and 2\textsuperscript{nd} quarter)
   4.1. The team shall conduct systematic site characterization of current climactic conditions, animal and human populations, and risk factor data for the Ruaha and Kilombero site study regions.
   4.2. The team shall analyze distribution of key risk factors.

5. Public health surveillance (Begin 2\textsuperscript{nd} quarter): The team shall establish collaborations with public health officials and local URT health centers to facilitate comparative studies of Rift Valley Fever (RVF) and Brucella in humans with the proposed animal and vectors studies.
   5.1. The team shall conduct a review of health clinic records to determine the prevalence of febrile disease, non-malarial febrile disease, RVF diagnosis, and brucellosis diagnosis.
   5.2. The team shall work closely with health centers in the study region to improve diagnosis of RVF and brucellosis by providing education and laboratory testing support, with improved data feeding into the epidemiology data analysis and modeling.
   5.3. RVF diagnostic kit evaluation in humans: During this project's conception stage in 2011, a validated human testing kit to detect anti-Rift Valley fever virus (RVFV) IgG antibodies in an ELISA format was available from Biological Diagnostics Supply Limited (BDSL). Unfortunately, the National Institute for Communicable Diseases (NICD) Special Pathogens Unit in Sandringham, South Africa ceased production of the inactivated RVFV NP-antigen required for kit production. This led to an initial shortage, and then complete lack of kit inventory by the time that the team was ready to commence human serologic testing. Our teams have been making good progress in testing livestock animals with the commercially available competitive ELISA (ID-Vet multispecies ELISA catalogue #RIFTC-4P or 10P; https://www.id-vet.com/produit/id-screen-rift-valley-fever-competition-multi-species/). This kit is designed to detect anti-RVFV IgG/IgM without the requirement for a species specific secondary antibody. Thus, in principle this kit could be utilized for human use. However, it is not validated for human diagnostic purposes and is labelled for animal use only. The CDC Viral Special Pathogens Branch (VSPB) has offered to help to validate the ID-Vet ELISA against the VPSB gold-standard human IgG ELISA. VSPB will test approximately 750
specimens from the R&B project. The R&B project will fund shipping and reagent costs from existing project line-items dedicated to shipments for lab result confirmation and testing reagents. The diagnostic testing by CDC will serve multiple purposes including the timely assistance in completion of our proposed DTRA project-related activities and providing a viable alternative for human RVF serological testing (if the ID-Vet assay performs as expected against the gold-standard assay).

6. Sentinel livestock surveillance (Begin 3rd quarter)
   6.1. The team shall conduct an initial cross-sectional study of 100 households per study region to determine RVFV and *Brucella* livestock exposure status.
   6.2. The team shall administer risk factor surveys to the study households.
   6.3. The team shall enroll 10 sentinel herds per study region for biannual longitudinal surveillance or as needed to meet study objectives.
   6.4. The team shall conduct longitudinal surveillance testing.

7. Syndromic livestock surveillance (Begin 3rd quarter)
   7.1. The team shall conduct village outreach to raise awareness of abortion and the reporting chain to document cases as part of the proposed research.
   7.2. The team shall begin monitoring abortion incidence.
   7.3. The team shall follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region.

8. Wildlife surveillance (Begin 2nd quarter)
8.1. The team shall coordinate with TAWIRI and Tanzania National Parks (TANAPA) for opportunistic wildlife surveillance.

8.2. The team shall collect wildlife samples for RVFV and Brucella screening from live animals involved with wildlife immobilization studies.

8.3. The team shall collect wildlife samples for pathogen screening from depected and hunted wildlife in the study region.

9. Vector surveillance (Begin 3rd quarter)
   9.1. The team shall conduct transects for systematic vector collection near households in the two study regions.
   9.2. The team shall characterize collected vectors and preserve for RVFV screening.
   9.3. The team shall perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs.

10. Genomic characterization (Begin 4th quarter)
    10.1. The team shall perform genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates.
    10.2. The team shall perform genetic characterization of Brucella isolates from animals and humans in the study region to identify shared species.

11. Data analysis and report preparation (Begin 4th quarter)
    11.1. The team shall perform preliminary database validation.
    11.2. The team shall conduct preliminary data analyses on study site characteristics, infection outcomes in vectors, animals, and people from the study region, and scoping studies to inform the predictive model development.
    11.3. The team shall prepare progress reports for internal and external purposes.

**Year 2**

1. Management team meetings (monthly, ongoing from Year 1)
2. Project administration (ongoing from Year 1)
3. Training (ongoing from Year 1)
4. Field site characterization (ongoing from Year 1)
5. Public health surveillance (ongoing from Year 1)
6. Sentinel livestock surveillance (ongoing from Year 1)
   6.1. The team shall complete the cross-sectional study of 100 households per study region to determine RVFV and Brucella livestock exposure status.
7. Syndromic livestock surveillance (ongoing from Year 1)
8. Wildlife surveillance (ongoing from Year 1)
9. Vector surveillance (ongoing from Year 1)
10. Genomic characterization (ongoing from Year 1)
11. Data analysis and report preparation (ongoing from Year 1)
    11.1. The team shall perform preliminary modeling analyses.
    11.2. The team shall prepare progress reports.

**Year 3**

1. Management team meetings (monthly, ongoing from Year 1)
2. Project administration (ongoing from Year 1)
   2.1. The team shall renew protocol and research permit approvals,
3. Training (ongoing from Year 1)
   3.1. The team shall conduct training sessions on data analysis, scientific writing, and outreach approaches for project staff and students.
4. Field site characterization (complete)
5. Public health surveillance (ongoing from Year 1)
6. Sentinel livestock surveillance (complete 2\textsuperscript{nd} quarter)
7. Syndromic livestock surveillance (complete 2\textsuperscript{nd} quarter)
8. Wildlife surveillance (complete 2\textsuperscript{nd} quarter)
9. Vector surveillance (complete 2\textsuperscript{nd} quarter)
10. Genomic characterization (complete 3\textsuperscript{rd} quarter)
11. Data analysis and report preparation (ongoing from Year 1)
   11.1. The team shall perform predictive model development and validation.
   11.2. The team shall prepare final reports.
# TABLE OF CONTENTS

1. Acceptance of Grant  
2. Recipient Responsibilities  
3. Order of Precedence  
4. Administration and Cost Principles  
5. Standards for Financial Management Systems  
6. Modification of the Grant  
7. Prior Approvals  
8. Unobligated Balances  
9. Payments  
10. Funding Increments and/or Options  
11. Cost Sharing or Matching  
12. Allowable Costs  
13. Program Income  
14. Interest Earned  
15. Debt Collection  
16. Audits  
17. Subawards  
18. Procurement Standards  
19. Title to Real Property and Equipment  
20. Intangible Property  
21. Patent Rights  
22. Technical Reporting Requirements  
23. Financial Reporting Requirements  
24. After-the-Award Requirements  
25. Delegation of Administration Duties  
26. Claims, Disputes and Appeals  
27. Termination and Enforcement  
28. Security  
29. Representations and Assurances  
30. Research Involving Recombinant DNA Molecules  
31. Retention and Access to Records  
32. Certification  
33. Data Collection  
34. Site Visits  
35. Publications and Acknowledgement of Sponsorship  
36. Fee and Profit  
37. Combating Trafficking in Persons  
38. Central Contractor Registration and Universal Identifier Requirements  
39. Reporting Subawards and Executive Compensation
1. **Acceptance of Grant.** The recipient is not required to countersign the Grant document; however, the recipient agrees to the conditions specified in the Research Grant and the Articles contained herein unless notice of disagreement is furnished to the Grants Officer within fifteen (15) calendar days after the date of the Grants Officer's signature. In case of disagreement, the recipient shall not assess the Grant any costs of the research unless and until such disagreement(s) is resolved.

2. **Recipient Responsibilities.**
   
a. The recipient will bear primary responsibility for the conduct of the research and will exercise judgment towards attaining the stated research objectives within the limits of the Grant's Terms and Conditions.

b. The Principal Investigator(s) (PI) specified in the Grant award will be continuously responsible for the conduct of the research project and will be closely involved with the research effort. The PI, operating within the policies of the recipient, is in the best position to determine the means by which the research may be conducted most effectively.

c. The recipient is the responsible authority, without recourse to DTRA regarding the settlement and satisfaction of all contractual and administrative issues arising out of procurements entered into in support of an award or other agreement.

d. Recipients are responsible for monitoring each project, program, subaward, function or activity supporting the award. Recipients shall monitor subawards to ensure subrecipients have met the audit requirements specified in Department of Defense (DoD) Grant and Assistance Regulations (DoDGRs) §34.16, if applicable.

3. **Order of Precedence.** This Grant is subject to the laws and regulations of the United States. Any inconsistency or conflict in the terms and conditions specified in this Grant shall be resolved according to the following order of precedence:

   a. The Federal statute authorizing this award, or any other Federal statutes directly affecting performance of this Grant.

   b. DoD 3210.6-R, DoDGRs and Part 34, "Administrative Requirements for Grants and Agreements with For-Profit Organizations," as appropriate and Appendix A thereto.

   c. Other terms and conditions contained within the Grant and any attachments.

   d. These General Terms and Conditions.

4. **Administration and Cost Principles.** The following documents and attachments, effective the earlier of (i) the start date of this Grant or (ii) the date on which the recipient incurs costs to be assessed against the Grant, are incorporated by reference as part of this Grant:

   a. DoD 3210.6-R, DoDGRs and Part 34, "Administrative Requirements for Grants and Agreements with For-Profit Organizations," as appropriate and
Appendix A thereto. DoDGARs is derived from 32 CFR Parts 21-37 and Part 1125. (DoDGARs may be accessed online at http://www.dtic.mil/wsh/directives/corres/html/321006r.htm.)

b. Subpart 31.2 of the Federal Acquisition Regulation (FAR) (48 CFR Subpart 31). (FAR may be accessed online at http://farsite.hill.af.mil/ffara.htm.)

c. Subpart 231.2 of the DoD FAR Supplement (DFARS) (48 CFR Subpart 231). (DFARS may be accessed online at http://farsite.hill.af.mil/VDFAARA.HTM.)

5. Standards for Financial Management Systems. In accordance with DoDGARs Part 34, For-Profit organizations will use their existing financial management system established for doing business in the commercial marketplace, to the extent that the systems comply with Generally Accepted Accounting Principles and the minimum standards contained in DoDGARs §34.11, §34.16, and §34.17.

6. Modification of the Grant. The only method by which this Grant may be modified is by a formal, written modification signed by the Grants Officer. No other communications, whether oral or in writing, are valid.

7. Prior Approvals.

a. In accordance with DoDGARs §34.15 for For-Profit organizations, prior approval of the following deviations from budget and program plans is required:

(1) Change in the scope or the objective of the project or program (even if there is no associated budget revision requiring prior written approval). (Approval via modification of the Grant.)

(2) A change in a key person specified in the application or award document. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(3) The absence for more than three months, or a 25 percent reduction in time devoted to the project, by the approved project director or principal investigator. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(4) Request for a no-cost extension, must be submitted in writing to the Grants Officer and must be received at least thirty (30) calendar days prior to the end of the current performance period. (Approval via modification of the Grant.)

(5) Any request for additional funding. (Approval via modification of the Grant.)

(6) The inclusion of any additional costs that require prior approval in accordance with applicable cost principles for Federal funds and recipients’ cost share or match, in §34.17 and §34.13, respectively. (Approval via written notification...
from the Grants Officer or modification of the Grant, depending on the circumstances.)

(7) Any subaward, transfer or contracting out of substantive program performance under an award, unless described in the application and funded in the approved awards. This provision does not apply to the purchase of supplies, material, or general support services, except that procurement of equipment or other capital items of property always is subject to the Grants Officer’s prior approval under §34.21(a), if it is to be purchased with Federal funds, or §34.13(a)(7), if it is to be used as cost sharing or matching. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(8) The transfer of funds among direct cost categories, functions and activities for awards in which the Federal share of the project exceeds $100,000 and the cumulative amount of such transfers exceeds or is expected to exceed 10 percent of the total budget as last approved by the DoD Component. No DoD Component shall permit a transfer that would cause any Federal appropriation or part thereof to be used for purposes other than those consistent with the original intent of the appropriation. (Approval via written notification from the Grants Officer.)

(9) The inclusion of pre-award costs. All such costs are incurred at the recipient’s risk (i.e., DTRA is under no obligation to reimburse such costs if for any reason the recipient does not receive an award, or if the award is less than anticipated and inadequate to cover such costs). (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

(10) The purchase of real property or equipment not previously approved as part of the grant award. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

b. In accordance with DoD GARs §34.21(a), recipients may purchase real property or equipment in whole or in part with Federal funds under an award only with the prior approval of the Grants Officer. (Approval via written notification from the Grants Officer or modification of the Grant, depending on the circumstances.)

c. Prior approval is not required to transfer amounts budgeted for indirect costs to absorb increases in direct costs, or vice versa. Note: If directed in the DoD Appropriations Act for the funding obligated under this grant, the indirect costs of awards funded with Basic Research funding must be a certain percentage or less of the total award value. Revised budgets may be required.

d. Within 30 calendar days from the date of receipt of the recipient’s request for budget revisions, the Grants Officer shall review the request and notify the recipient whether the budget revisions have been approved. If the revision is still under consideration at the end of 30 calendar days, the Grants Officer shall inform the recipient in writing of the date when the recipient may expect the decision.
8. **Unobligated Balances.** In the absence of any specific notice to the contrary, the recipient is authorized to carry forward unobligated balances to subsequent funding periods of this Grant agreement.

9. **Payments.** 2 CFR 215.22 governs the Federal awarding agency’s and recipient’s responsibilities concerning payments, with the following clarifications:

a. See **Financial Reporting Requirements** under Article 23 of this document. If these financial reporting requirements are not met, payment cannot be disbursed.

b. Payments will be made in advance, subject to the conditions described in 2 CFR 215.22(b),

   "Recipients are to be paid in advance, provided they maintain or demonstrate the willingness to maintain:
   (1) Written procedures that minimize the time elapsing between the transfer of funds and disbursement by the recipient, and
   (2) Financial management systems that meet the standards for fund control and accountability as established in §215.21. Cash advances to a recipient organization shall be limited to the minimum amounts needed and be timed to be in accordance with the actual, immediate cash requirements of the recipient organization in carrying out the purpose of the approved program or project. The timing and amount of cash advances shall be as close as is administratively feasible to the actual disbursements by the recipient organization for direct program or project costs and the proportionate share of any allowable indirect costs."

c. All payments shall be made by electronic funds transfers (EFT) to the bank account registered in the Central Contractor Registration (CCR). The Grantee agrees to maintain its registration in CCR including information necessary to facilitate payment via EFT. Should a change in registry or other incident necessitate the payment to an account other than that maintained in CCR, it is the Grantee’s responsibility to notify the Grants Officer and obtain a modification to this Grant reflecting the change. The Government shall not be held responsible for any misdirection or loss of payment which occurs as the result of a Grantee’s failure to maintain correct/current EFT information within its CCR registration. Refer to Article 38 for further information on CCR.

d. Recipients shall submit requests for payment using Wide Area Workflow (WAWF) at https://wawf.ch.mil/. Any request for advance payments must be approved by the Administrative Grants Office shown in Block 6 of the award. The request shall be submitted to the Administrative Office identified in Block 6 of the Research Grant by entering the following routing codes:

I. Pay Office DoDAAC: See Block 12 (Code) on the first page of the Grant.
II. Invoice Type: Grant and Cooperative Agreement Voucher.
III. Issue By DoDAAC: See Block 5 (Code) on the first page of the Grant.
IV. Admin DoDAAC: See Block 6 (Code) on the first page of the Grant.
V. Grant Approver: Same as Admin DoDAAC (Leave Ext. blank).

   e. Payments will be made by the Defense Finance and Accounting Service (DFAS) office specified in the Research Grant (Block 12).

10. **Funding Increments and/or Options.** The recipient is advised that the Grantor's obligation to provide funding for increments and/or options included in the Grant is contingent upon satisfactory performance in the judgment of the DTRA Scientific Officer/Technical Monitor and the availability of funds. Other factors will be considered before options will be exercised (for example: expenditure rate and current programmatic objectives). Accordingly, no legal liability on the part of the Grantor exists unless or until funds are made available to the Grantor and notice of such availability is confirmed in writing to the recipient. Refer to the Funding Profile in Section G of the Grant for additional incremental funding planned, but not currently obligated for the Grant.

   a. Funding Increments – In no event is the Government obligated to reimburse the recipient for expenditures in excess of the total funds allotted by the Government to this agreement. Recipients should note that low expenditure rates reported on payment requests may be cause for deferral of future increments. The Government anticipates unilateral modifications for funding increments.

   b. Options – If the agreement contains Option(s), the Government reserves the right to exercise the Option(s) unilaterally.

11. **Cost Sharing or Matching.** Unless specified otherwise in other terms and conditions of the Grant, cost sharing or matching, if any, is included in accordance with DoDGARs §34.13.

12. **Allowable Costs.** Allowability of costs is in accordance with DoDGARs §34.17.

13. **Program Income.**

   a. All program income earned during the project period (except proceeds from the sale of real and personal property and license fees and royalties received as a result of copyrights, patents, patent applications, trademarks, or inventions produced under the Grant) shall be deducted from the total project's allowable costs in determining the net allowable costs on which the Federal share of costs will be based (see DoDGARs §34.14). Proceeds from the sale of property that is acquired, rather than fabricated, under an award are not program income and shall be handled in accordance with the requirements of the Property Standards (see DoDGARs §34.20 through 34.25).

   b. For awards that support research, DoDGARs §34.14(d)(1) shall apply automatically unless the terms and conditions specify another alternative or the recipient is subject to special award conditions, as indicated in DoDGARs §34.4.

14. **Interest Earned.** Interest earned will be subject to guidelines as specified in DoDGARs §34.12(b)(2)(iv). Interest earned shall be remitted annually to the Administrative Office annotated in Block 6 of the Grant Document, in the form of a check made payable to the U.S. Treasury.
15. **Debt Collection.** The establishment of debts owed by recipients of grants and transferring them to payment offices for collection shall be dealt with in accordance with DoDGARs §34.63.

16. **Audits.** Recipients are to periodically have independent, financial and compliance audits subject to DoDGARs §34.16.

17. **Subawards.** Recipients shall follow down requirements to subawards in accordance with DoDGARs §34.1(b)(2) and DoDGARs Appendix A to Part 34. Refer to Article 39 for reporting requirements for subawards.

18. **Procurement Standards.** Recipients shall comply with the standards set forth in DoDGARs §34.30 and 34.31 and applicable Federal statutes and Executive Orders when expending Federal funds for supplies, equipment, real property, and expendable property. Upon request, recipients shall make available for DTRA’s pre-award review, procurement documents such as requests for proposals or invitations for bids, independent cost estimates, etc. in accordance with DoDGARs §34.31(b).

19. **Title to Real Property and Equipment.** Unless specified otherwise in other terms and conditions of the Grant, title to real property or equipment purchased in whole or in part with Federal funds shall vest in the recipient upon acquisition subject to the conditions that the recipient:

   a. Use the real property or equipment for the authorized purposes of the project until funding for the project ceases, or until the property is no longer needed for the purposes of the project;

   b. Not encumber the property without approval of the Grants Officer;

   c. Use and dispose of the property in accordance with DoDGARs §34.21(d) and (e); and

   d. Manage, use and dispose of property in accordance with DoDGARs §34.21 through §34.24.

20. **Intangible Property.** Rights in technical data and computer software under this Grant shall be in accordance with DoDGARs §34.25(b). DTRA does not waive any rights set forth in DoDGARs §34.25(b)(2).

   a. Patents. Grants and cooperative agreements with:

      (1) Small business concerns shall comply with 35 U.S.C. Chapter 18, as implemented by 37 CFR Part 401, which applies to inventions made under grants and cooperative agreements with small business concerns for research and development. 37 CFR 401.14 provides a standard clause that is required in such grants and cooperative agreements in most cases, 37 CFR 401.3 specifies when the clause shall be included, and 37 CFR 401.5 specifies how the clause may be modified and tailored.
(2) For-profit organizations other than small business concerns shall comply with 35 U.S.C. 210(c) and Executive Order 12591 (3 CFR, 1987 Comp., p. 220) (which codifies a Presidential Memorandum on Government Patent Policy, dated February 18, 1983).

(a) The Executive order states that, as a matter of policy, grants and cooperative agreements should grant to all for-profit organizations, regardless of size, title to patents made in whole or in part with Federal funds, in exchange for royalty-free use by or on behalf of the Government (i.e., it extends the applicability of 35 U.S.C. Chapter 18, to the extent permitted by law, to for-profit organizations other than small business concerns).

(b) 35 U.S.C. 210(c) states that 35 U.S.C. Chapter 18 is not intended to limit agencies' authority to agree to the disposition of rights in inventions in accordance with the Presidential memorandum codified by the Executive order. It also states that such grants and cooperative agreements shall provide for Government license rights required by 35 U.S.C. 202(c)(4) and march-in rights required by 35 U.S.C. 203.

b. Copyright, data and software rights. Requirements concerning data and software rights are as follows:

(1) The recipient may copyright any work that is subject to copyright and was developed under an award. DoD Components reserve a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use the work for Federal purposes, and to authorize others to do so.

(2) Unless waived by the DoD Component making the award, the Federal Government has the right to:

(a) Obtain, reproduce, publish or otherwise use for Federal Government purposes the data first produced under an award.

(b) Authorize others to receive, reproduce, publish, or otherwise use such data for Federal purposes.


For-Profit organizations other than small business concerns shall comply with 35 U.S.C. 210(c) and Executive Order 12591 (3 CFR, 1987 Comp., p. 220), which codifies a Presidential Memorandum on Government Patent Policy, dated February 18, 1983 (see DoDARs §34.25(a)). All awardees shall comply with the following, in accordance with 37 CFR §401.14. Note: “Contractor” equals “Grantee”, “Subcontractor” equals “Subawardee”, and “Subcontract” equals “Subaward”.

a. Definitions
(1) *Invention* means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321 *et seq.*).

(2) *Subject invention* means any invention of the *contractor* conceived or first actually reduced to practice in the performance of work under this *contract*, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of *contract* performance.

(3) *Practical Application* means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or government regulations, available to the public on reasonable terms.

(4) *Made* when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(5) *Small Business Firm* means a small business concern as defined at section 2 of Pub. L. 85–536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standards for small business concerns involved in government procurement and subcontracting at 13 CFR 121.3 8 and 13 CFR 121.3 12, respectively, will be used.

(6) *Nonprofit Organization* means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt from taxation under section 501(a) of the Internal Revenue Code (25 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

b. Allocation of Principal Rights

The *Contractor* may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the *Contractor* retains title, the Federal government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

c. Invention Disclosure, Election of Title and Filing of Patent Application by *Contractor*

(1) The *contractor* will disclose each subject invention to the *Federal Agency* within two months after the inventor discloses it in writing to *contractor*
personnel responsible for patent matters. The disclosure to the agency shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the agency, the Contractor will promptly notify the agency of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the contractor.

(2) The Contractor will elect in writing whether or not to retain title to any such invention by notifying the Federal agency within two years of disclosure to the Federal agency. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the agency to a date that is no more than 60 days prior to the end of the statutory period.

(3) The contractor will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The contractor will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

(4) Requests for extension of the time for disclosure, election, and filing under subparagraphs (1), (2), and (3) may, at the discretion of the agency, be granted.

d. Conditions When the Government May Obtain Title

The contractor will convey to the Federal agency, upon written request, title to any subject invention—

(1) If the contractor fails to disclose or elect title to the subject invention within the times specified in (c), above, or elects not to retain title; provided that the agency may only request title within 60 days after learning of the failure of the contractor to disclose or elect within the specified times.

(2) In those countries in which the contractor fails to file patent applications within the times specified in (c) above; provided, however, that if the contractor has filed a patent application in a country after the times specified in (c) above,
but prior to its receipt of the written request of the Federal agency, the contractor shall continue to retain title in that country.

(3) In any country in which the contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.

e. Minimum Rights to Contractor and Protection of the Contractor Right to File

(1) The contractor will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the contractor fails to disclose the invention within the times specified in (c), above. The contractor’s license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the contractor is a party and includes the right to grant sublicenses of the same scope to the extent the contractor was legally obligated to do so at the time the contract was awarded. The license is transferable only with the approval of the Federal agency except when transferred to the successor of that party of the contractor’s business to which the invention pertains.

(2) The contractor’s domestic license may be revoked or modified by the funding Federal agency to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR part 404 and agency licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the funding Federal agency to the extent the contractor, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, the funding Federal agency will furnish the contractor a written notice of its intention to revoke or modify the license, and the contractor will be allowed thirty days (or such other time as may be authorized by the funding Federal agency for good cause shown by the contractor) after the notice to show cause why the license should not be revoked or modified. The contractor has the right to appeal, in accordance with applicable regulations in 37 CFR part 404 and agency regulations (if any) concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of the license.

f. Contractor Action to Protect the Government’s Interest

(1) The contractor agrees to execute or to have executed and promptly deliver to the Federal agency all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the
contractor elects to retain title, and (ii) convey title to the Federal agency when requested under paragraph (d) above and to enable the government to obtain patent protection throughout the world in that subject invention.

(2) The contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the contractor each subject invention made under contract in order that the contractor can comply with the disclosure provisions of paragraph (c), above, and to execute all papers necessary to file patent applications on subject inventions and to establish the government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by (c)(1), above. The contractor shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

(3) The contractor will notify the Federal agency of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.

(4) The contractor agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement, “This invention was made with government support under (identify the contract) awarded by (identify the Federal agency). The government has certain rights in the invention.”

g. Subcontracts

(1) The contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed by a small business firm or domestic nonprofit organization. The subcontractor will retain all rights provided for the contractor in this clause, and the contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.

(2) The contractor will include in all other subcontracts, regardless of tier, for experimental developmental or research work the patent rights clause required by (cite section of agency implementing regulations or FAR).

(3) In the case of subcontracts, at any tier, when the prime award with the Federal agency was a contract (but not a grant or cooperative agreement), the agency, subcontractor, and the contractor agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and the Federal agency with respect to the matters covered by the clause; provided,
however, that nothing in this paragraph is intended to confer any jurisdiction under the Contract Disputes Act in connection with proceedings under paragraph (j) of this clause.

h. Reporting on Utilization of Subject Inventions

The Contractor agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the contractor or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the contractor, and such other data and information as the agency may reasonably specify. The contractor also agrees to provide additional reports as may be requested by the agency in connection with any march-in proceeding undertaken by the agency in accordance with paragraph (j) of this clause. As required by 35 U.S.C. 202(c)(5), the agency agrees it will not disclose such information to persons outside the government without permission of the contractor.

i. Preference for United States Industry

Notwithstanding any other provision of this clause, the contractor agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal agency upon a showing by the contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

j. March-in Rights

The contractor agrees that with respect to any subject invention in which it has acquired title, the Federal agency has the right in accordance with the procedures in 37 CFR 401.6 and any supplemental regulations of the agency to require the contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee, or exclusive licensee refuses such a request the Federal agency has the right to grant such a license itself if the Federal agency determines that:

(1) Such action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use.

(2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee or their licensees;
(3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee or licensees; or

(4) Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

(k) Special Provisions for Contracts with Nonprofit Organizations

If the contractor is a nonprofit organization, it agrees that:

(1) Rights to a subject invention in the United States may not be assigned without the approval of the Federal agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the contractor;

(2) The contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the agency deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;

(3) The balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and

(4) It will make efforts that are reasonable under the circumstances to attract licensees of subject invention that are small business firms and that it will give a preference to a small business firm when licensing a subject invention if the contractor determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided, that the contractor is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the contractor. However, the contractor agrees that the Secretary may review the contractor’s licensing program and decisions regarding small business applicants, and the contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary when the Secretary’s review discloses that the contractor could take reasonable steps to implement more effectively the requirements of this paragraph (k)(4).

1. Communication
All DTRA-related disclosures, confirmatory licenses to the government, patent applications, and other communications should be submitted in accordance with Article 21m. Questions should be submitted to basicresearch@dtra.mil.

m. Invention Reporting

37 CFR Part 401 invention reporting requirements are summarized in below table. Unless otherwise indicated in the “Submission to DTRA” column below, the grantee is required to upload the following types of invention information using iEdison. iEdison (https://s-edison.info.nih.gov/iEdison/), is a single web interface for government grantees to report details of inventions and patents. If the grantee organization is not already an iEdison registrant, then registration with iEdison is required prior to submission of the below invention reports. The grant shall not be closed out until all invention reporting requirements are met.
<table>
<thead>
<tr>
<th>Action</th>
<th>When</th>
<th>Discussion</th>
<th>37 CFR Reference</th>
<th>Submission to DTRA</th>
</tr>
</thead>
</table>
| **Invention Report:** The grantee must submit a report of any "subject" invention. The report must identify inventor(s), federal agency(ies), grant number(s), and date of any public disclosure. Date of submission establishes time frames for all future actions. Must be complete in technical detail. The report should be directed to the lead agency. | Within 2 months of inventor’s initial report to the grantee/contractor organization. | There is no single format for disclosing the invention to the government. The communication should include: the title of the invention, date of any public disclosure, names of all inventors, source(s) of federal funding (i.e., grant number), a written description of the invention in technical detail. The invention disclosure should be signed by the inventor(s); at the very least signed by a grantee institutional official. | 401.14(a)(2)  
401.14(c)(1) | Submit electronically by uploading either a PDF, TIFF, or text file through iEdison. |
| **Rights to Inventions on Subcontracts:** Subcontractors retain rights to their subject inventions. | Same reporting responsibilities, obligations and time frames as prime grantee organization. | Prime grantee organization cannot require ownership of subcontractor’s subject invention(s). | 401.14(g)(1)  
401.14(g)(2) | Invention disclosure, confirmatory license, and proof of Gov’t support clause shall be submitted electronically through iEdison. |
| **Election of Title to Invention:** Grantee organization must notify the federal agency sponsor that it will retain ownership of invention and take steps to commercialize the invention. | Within 2 years of reporting the invention to the lead federal agency sponsor.  
(If disclosed publicly, this period is decreased.) | Commensurate with report of any initial patent filing, unless the invention is being licensed as an unpatented biological material or research tool. | 401.14(b)  
401.14(c)(2)  
401.14(d)(1) | Submit electronically by uploading either a PDF or TIFF file through iEdison. |
| **Confirmatory License:** The grantee organization must provide a nonexclusive, nontransferable, irrevocable, paid-up license for the government to practice or have the invention practiced on its behalf throughout the world. | | | 401.14(f)(1) | |
| **Nonelection of Title to Invention:** Grantee organization must notify the federal sponsor that it will not retain ownership of an invention. | Within 2 years of reporting to federal agency sponsor. | Effectively a waiver to the government. After further review the federal agency sponsor may elect title on behalf of the government. Title does not actually vest with the | 401.14(e)(2)  
401.14(d) | Submit electronically through iEdison. |
**Assignments of Invention Rights to the Inventor:** The inventor may request assignment of invention rights. Agencies support requests of this type to variously. In all cases, documentation is required when a grantee organization waives rights to the invention and the inventor(s) wishes to retain the invention rights.

- **At the time the grantee organization elects not to pursue title and the inventor requests rights in the invention.**

  - First, the grantee organization must elect not to retain rights in the invention. Second, the inventor must request the assignment of rights, agree to all terms associated with invention reporting as detailed in 37 CFR 401, and must pursue commercialization of the invention through patent filing or licensing as a research tool. Specific procedures for any agency should be determined prior to initiating the request.

**Initial Patent Application:** The grantee must inform the government of the initial patent application that related to any subject invention. The patent application must include a government support clause.

- **Within 1 year after election of title, unless there is an extension.**

  - Time frame may vary if invention becomes public. The term initial patent application means a nonprovisional U.S. national application for patent as defined in 37 CFR 1.9(a)(3). The notification must include the patent application number and filing date assigned by the USPTO. A copy of the full application is not required.

**Assignment to Third Party:** Documentation necessary when a grantee/contractor wishes to assign invention rights to third party. If the grantee/contractor is a non-profit, the government must approve the assignment. For profit or small business, grantee/contractors do not need to seek approval. If the rights are assigned, new rights holder assumes the same reporting responsibilities as the grantee/contractor organization.

- **If assignment approved, third party must pursue commercialization of the invention through patent filing or licensing of the invention as a research tool. Specific procedures to request third party assignment may vary between agencies. Consult DTRA prior to initiating request.**

  - 401.14(k) for non-profits. Note the distinction between small businesses and non-profit organizations.

**Issued Patent:** Grantee must provide federal government until government elects to retain title.

- **At the time of issue.**

  - Patent must include government support

This status shall be indicated using iEdison. Submission of all other issues (such as outstanding required documents) should be resolved prior to proceeding further. Submission of the required documents will be done electronically by uploading either a PDF, TIFF, or text file through iEdison.

All filing data shall be submitted via iEdison. Evidence of inclusion of government support clause shall be submitted electronically as either a PDF or TIFF file through iEdison.

- **401.15(t)(2) All issued patent**
| **Request for Extension of Time:** An extension of up to two years may be requested for election of title, or one year for filing a patent application. | Prior to any statutory bar. | Extension of 2 years for title election and one year for patent application are preapproved for funded inventions. Additional extensions need written approval from the federal agency sponsor. | 401.14(f)(4) | Information shall be provided using iEdison. Evidence of inclusion of government support clause will be provided electronically as a PDF or TIFF file through iEdison. |
| **Discontinuance of Patent Application, Payment of Maintenance Fees, or Defense in a Reexamination or Opposition proceeding on a Patent:** Grantee must notify federal agency sponsor of changes in patent status. | | Relevant information and documents (e.g., patent application or patent) must be provided such that a determination to protect government interests can be made. The federal agency sponsor has the option to pursue the patent application or the patent if not being properly pursued or maintained. Any change in status must be reported at least 30 days prior to pending PTO office actions. | 401.14(f)(3) 401.6 | Indication shall be made via iEdison. |
| **Annual Utilization Report:** DTRA requires utilization reporting for all subject inventions that have had title elected or are licensed without a patent. Report includes stage of development, date of first commercial sale or use, number and type of licenses, gross income, licensing to small business, status of U.S. manufacturing and identification of any FDA-approved product names. | Annually | DTRA requires invention utilization reports on a 12 month reporting cycle beginning in the month of grantee choosing and continuing throughout duration of patent. Information requirements defined in iEdison. Note: this reporting requirement, if applicable, extends beyond the grant period. | 401.14(h) | Submit electronically using iEdison. |
| **Annual Summary Report of Inventions:** Summarize all previously reported subject inventions under this grant. | Annually | Invention reports shall be filed annually due no later than 1 July of each year. Grants effective after 31 January will not require a report until 1 July of the following year. | 401.5(f)(3) | No iEdison submission allowed. Submit DD Form 882, Report of Inventions and Subcontracts to:
of Inventions and Subcontracts, to file invention reports. If no inventions occurred during the annual reporting period a negative report must be submitted.

As directed by DTRA, either email Form DD882 to basiersearch@dtra.mil (file size must be less than 10MB), or upload to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal. File should be named by the Grant number and ‘Invention Report’ (e.g. HDTRA1-12-1-9999 Invention Report).

The Grant shall not be closed out until all invention reporting requirements are met.

Final Invention Statement and Certification: Report all subject inventions derived or reduced to practice during the performance of the grant. Due with the Final Technical Report within 90 days after the project ends.

Invention reports shall be filed at the end of the Grant’s PoP. If no inventions occurred during the lifetime of the award, a negative report must be submitted.

As directed by DTRA, either email Form DD882 to basiersearch@dtra.mil (file size must be less than 10MB), or upload to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal. File should be named by the Grant number and ‘Invention Report’ (e.g. HDTRA1-12-1-9999 Invention Report).

The Grant shall not be closed out until all invention reporting requirements are met.

-DTRA Grants Officer
8725 John J.
Kingman Rd.
MSC 6201 (#2730B)
Ft. Belvoir VA
22060-6201
-Administrative Office identified in the Grant
-As directed by DTRA, email or portal.
22. **Technical Reporting Requirements.** Except under rare cases, performance reports are required annually.

a. **ANNUAL REPORTS:** Annual Reports are due no later than 1 July of each year. Grants effective after 31 January will not require a progress report until 1 July of the following year.

At the direction of DTRA (instructions to be provided to the awardee not later than 1 May of each year), Annual Reports must be submitted electronically as follows:

- Email the Annual Report to basicresearch@dtra.mil (file size must be less than 10MB). The file name should be the Grant number and ‘Annual Report’, e.g. HDTRA1-12-1-9999 Annual Report.

OR

- Upload the Annual Report to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal, (file size must be less than 10 MB). The file name should be the Grant number and ‘Annual Report’, e.g. HDTRA1-12-1-9999 Annual Report.

- Provide a copy of the report to the Administrative Office identified in the Research Grant.

The Annual Report is not a cumulative report. The first Annual Report shall only include actions that occurred from the Period of Performance start date up to submission of the first Annual Report. Each subsequent report shall only include actions that occurred during the 12-month period following the previous year’s Annual Report.

The Annual Report shall contain the following items:

1. **Cover Sheet:** As a minimum, the cover sheet should include the following information: PI’s name, Institution’s name and address, and Grant number.

2. **Objectives:** List the objectives of the research effort or the statement of work. This may be omitted if there has been no change. State new or revised objectives if they have changed and the reason why.

3. **Status of effort:** A brief statement of progress towards achieving the research objectives. (Limit to 200 words).

4. **Accomplishments/New Findings:** Describe research highlights, their significance to the field, their relationship to the original goals, their relevance to the DTRA mission, and their potential application(s) to DTRA and civilian technology challenges.
(5) Personnel Supported: List professional personnel (Faculty, Post-Docs, Graduate Students, etc.) supported by and/or associated with the research effort.

(6) Publications: List peer-reviewed publications and theses submitted and/or accepted during the 12-month period starting the previous 1 October (or since start date for new grants). Include full reference information, such as authors, journal, volume, page numbers, etc. or for conference proceedings, name, date and location of the conference, and proceedings publication information.

(7) Interactions/Transitions:

(a) Participation/presentations at meetings, conferences, seminars, etc.

(b) Consultative and advisory functions to other laboratories and agencies and other DoD laboratories. Provide factual information about the subject matter, institutions, locations, dates, and name(s) of principal individuals involved.

(c) Transitions. Describe cases where knowledge resulting from your effort is used, or will be used, in a technology application. Transitions can be to entities in DoD, other federal agencies, or industry. Briefly list the enabling research, the laboratory or company, and an individual in that organization who made use of your research.

(8) New discoveries, inventions, or patent disclosures.

(9) Honors/Awards: List honors, degrees, and awards received during the Grant period. List lifetime achievement honors such as Nobel prize, honorary doctorates, and society fellowships prior to this effort.

(10) Courses taught: List class name, curriculum level and dates of any counter WMD classes taught by the PI or Co-PI.

(11) To assist in compiling all of this information, a summary table (in MSExcel format) has been created that can be downloaded from the DTRA Basic and Fundamental Research Community Portal (https://www.dtrasubmission.net/portal/Forms.aspx). The table should be embedded into the Annual Report with any necessary narrative. The fields contained in the table include, but are not limited to: number of PIs, number of students supported, total number of peer reviewed publications, Hirsch Index, etc.

(12) At the direction of DTRA (instructions to be provided to the awardee not later than 1 May of each year), the Quad Chart should be submitted electronically as follows:

- Email an updated Quad Chart to basicresearch@dtra.mil (file size must be less than 10MB),
OR

- Upload an updated Quad Chart as a separate file to the DTRA Basic and Fundamental Research Community Portal (www.dtrasubmission.net/portal). The file name should be the Grant number and 'Quad Chart', e.g. HDTRA1-12-1-9999 Quad Chart.

A quad chart template is available in the Document & Template Library on the DTRA Basic and Fundamental Research Community Portal (www.dtrasubmission.net/portal).

b. **ANNUAL TECHNICAL REVIEW**: At least one representative (preferably the PI) for each award is expected to attend and present at the annual technical program review meeting, unless otherwise exempted by DTRA in writing. For planning purposes the review will be for five days and will be held in Northern Virginia, typically during the summer months. DTRA encourages collaborators and graduate students to attend the Annual Technical Review.

c. **FINAL TECHNICAL REPORTS**: A comprehensive final technical report is required: the draft document is required forty-five (45) days prior to the end of the Period of Performance and the final document is required ninety (90) days after the expiration or termination of the award. The report should be structured substantially as follows:

1. The purpose of the final report is to document and to transition the results of the effort into the DTRA and DoD applied research community. The final report will always be sent to the Defense Technical Information Center (DTIC) and unclassified reports may be made available to the public through the National Technical Information Service (NTIS).

2. Content: The final report is more than an extension of previous annual reports. The final report shall be a comprehensive technical summary of the significant work accomplished. The final report, where it is not readily accessible in published form should, where applicable:

   (a) Clearly describe and illustrate the experimental equipment, setup, and procedures;

   (b) Characterize and tabulate collected/computed data in an appendix;

   (c) Sufficiently describe computational codes so they can be reproduced. Include a listing of the code in an appendix if possible and appropriate; and

   (d) When the research effort culminates in the production of one or more student theses or dissertations, in these cases, the most significant advancements and conclusions (equations, figures, relationships, etc.) should be included in an executive summary. The theses or dissertations
should be attached as appendices only if they are not readily available. If they are, clearly reference them and how they can be obtained. Also include in the executive summary, cumulative lists of people involved in, and publications stemming from, the research effort. Do not include copies of already submitted or published articles in the final report.

(3) Standard Form (SF) 298: SF-298, Report Documentation Page, must be used. Item 13 of the SF-298 should contain a 100 to 200 word abstract summarizing technical progress during the reporting period. The SF-298 may be found on the Internet at:
http://contacts.gsa.gov/webforms.nsf/0/B82C70F2B4C7843185256A2C005F72F0/$file/SF298_e.pdf

(4) Format: Cover and title page. The report style should be third person singular using past tense. Jargon, special symbols or notations, subscripts, mathematical symbols or foreign alphabet letters are not permitted. All of the report pages should be prepared for acquisition and distribution by DTIC. All of the report pages should be of good quality for copying purposes. No pages should be missing.

The format and standard required by your institution for the preparation of theses and dissertations shall be used for the final report. In the absence of any institutional standards, you may wish to refer to the American National Standards Institute (ANSI) document Z39.18-1987, “Scientific and Technical Reports: Organization, Preparation, and Production,” for guidance. The report may be obtained from:

American National Standards Institute Incorporated
1430 Broadway
New York NY 10018

(5) Report Classification: It is anticipated that all final technical reports will be unclassified and that distribution will not be limited. However, for final technical reports that require a limited distribution as deemed necessary by DTRA, a Distribution List will be provided with the comments on the draft final technical report. The Distribution List should be formatted to match the rest of the report, placed at the end of the report, and added to the Table of Contents. The number of pages in the Distribution List should be added to the total page count and included in the total number of pages cited in Block 15 of the SF-298.

(6) Report Submission: The draft of the final technical report will be due not later than forty-five (45) days prior to the end of the period of performance.

At the direction of DTRA (instructions to be provided to the awardee in advance of the end of the PoP), the draft of the final technical report (including a draft SF-298) must be submitted electronically as follows:
• Email the draft of the final technical report to basicresearch@dtra.mil (file size must be less than 10MB). The file name should be the Grant number and ‘Draft Final Report’, e.g. HDTRA1-12-1-9999 Draft Final Report.

OR

• Upload the draft of the final technical report to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal, (file size must be less than 10 MB). The file name should be the Grant number and ‘Draft Final Report’, e.g. HDTRA1-12-1-9999 Draft Final Report.

• Provide a copy of the report to the Administrative Office identified in the Research Grant.

• Within thirty (30) days this draft will be reviewed by DTRA and comments will be provided to the Grantee. The Grantee shall incorporate the requested changes. Final Technical Reports are due ninety (90) days after the expiration or termination of the award. The final submission should be made in accordance with the draft final report submission instructions. Provide a copy of the report to the Administrative Office identified in the Research Grant.


a. Federal Financial Report, SF-425. This report is due quarterly, no later than 30 days after the end of the reporting period. Reporting periods are as follows: 1 January – 31 March, 1 April – 30 June, 1 July – 30 September, and 1 October – 31 December, respectfully. Final reports shall be submitted no later than 30 days after the project or grant period end date.

The SF-425 form and instructions can be found on the Internet at: http://www.whitehouse.gov/omb/grants_forms/

b. All financial reports shall be submitted to the Administration Office identified in Block 6 of the Research Grant. In addition, at the direction of DTRA (instructions to be provided to the awardee not later than 1 May of each year), the Financial Report must be submitted electronically as follows:

• Email the Financial Report to basicresearch@dtra.mil (file size must be less than 10MB). The file name should be the Grant number and ‘Financial Report’, e.g. HDTRA1-12-1-9999 Financial Report.

OR
• Upload the Financial Report to the DTRA Basic and Fundamental Research Community Portal, www.dtrasubmission.net/portal, (file size must be less than 10 MB). The file name should be the Grant number and 'Financial Report', e.g. HDTRA1-12-1-9999 Financial Report.

24. **After-the-Award Requirements.** Closeout, subsequent adjustments, continuing responsibilities, and collection of amounts due are subject to requirements found in DoDGARs §34.61 through 34.63.

25. **Delegation of Administration Duties.** Certain grant administration duties have been delegated to the Administration Office identified in Block 6 of the Research Grant. These duties are as follows:

   a. Provisionally approve all Grant and Cooperative Agreement Vouchers.

   b. Perform all property administration services except the approval of recipient's requests to purchase equipment with grant funds. Such approvals must be granted by the DTRA Grants Officer.

   c. Perform all plant clearance functions.

   d. Approve requests for Registration for Scientific and Technical Information Services (DD Form 1540).

   e. Obtain all financial report(s) (see Article 23 of this document).

   f. Execute administrative closeout procedures, which include the following:

      (1) Obtain the final Report of Inventions and Subcontracts (DD Form 882).

      (2) Obtain final payment request, if any.

      (3) Obtain final property report and dispose of purchased property and government furnished equipment (GFE) in accordance with the DoDGARs Part 22, Subpart G.

      (4) Perform a review of final incurred costs and assist the Grants Officer in resolving exceptions, if any, resulting from questioned costs.

      (5) Assure that all refunds due the Government are received by the Grantor.

   NOTE: This term and condition is not applicable to instrumentation and equipment grant awards.

26. **Claims, Disputes and Appeals.** Claims, disputes, and appeals shall be processed in accordance with the procedures provided in DoDGARs §22.815.
27. **Termination and Enforcement.** Recipients shall be subject to the termination and enforcement conditions found in DoDGARs §34.51 and §34.52.

28. **Security.** As a general rule, PI’s will not need access to classified security information in the conduct of research supported under this Grant. Should it appear that access to such information is desirable, the recipient shall advise the Grantor and request clearance for the investigator. Should information be developed during the course of work under this Grant that, in the judgment of the PI or the recipient, should be classified, the Grants Officer shall be notified immediately.

29. **Representations and Assurances.** By accepting funds under this Grant, the recipient assures that it will comply with applicable provisions of the following national policies:

   a. **Nondiscrimination:** By signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provisions of the following national policies prohibiting discrimination:

      (1) On the basis of race, color, or national origin, in Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d, et seq.), as implemented by DoD regulations at 32 CFR Part 195.

      (2) On the basis of sex or blindness, in Title IX of the Education Amendments of 1972 (20 U.S.C. 1681, et seq.), as implemented by DoD regulations at 32 CFR Part 196.


   b. **Live Organisms:** By signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provisions of the following national policies concerning live organisms:

      (1) For human subjects:


         (b) The recipient shall adhere to DTRA local clause 252.223-9002. The full text of this clause is as follows:

         
         252.223-9002 PROTECTION OF HUMAN SUBJECTS (AUG 2010)
All research under this grant involving human subjects must be conducted in accordance with 32 CFR 219, 10 U.S.C. 980, and DoDD 3216.02, as well as other applicable federal and state regulations. Grantees must be cognizant of and abide by the additional restrictions and limitations imposed on the DoD regarding research involving human subjects, specifically as regards vulnerable populations (32 CFR 219 modifications to subparts B-D of 45 CFR 46), recruitment of military research subjects (32 CFR 219), and surrogate consent (10 U.S.C. 980). DTRA Directive 3216.01 establishes the DTRA Human Subjects Protection Program, sets forth the policies, defines the applicable terms, and delineates the procedures necessary to ensure DTRA compliance with federal and DoD regulations and legislation governing human subject research. The regulations mandate that all DoD activities, components, and agencies protect the rights and welfare of human subjects of study in DoD-supported research, development, test and evaluation, and related activities hereafter referred to as “research”. The requirement to comply with the regulations applies to new starts and to continuing research.

The DTRA directive requires that research using human subjects may not begin or continue until the Defense Threat Reduction Agency’s Research Oversight Board (ROB) has reviewed and approved the proposed protocol. Grantees and subcontractors are required to submit a valid federal assurance for their organization (institution, laboratory, facility) that has been issued by either DoD or the Department of Health and Human Services, and documentation of review of proposed protocols by the local Institutional Review Board (IRB) to include consent forms for any planned research using human subjects to the DTRA ROB for its review through the Grants Officer’s representative (if assigned) or the Grants Officer. The ROB review is separate from, and in addition to, local IRB review.

Written approval to begin research or subcontract for the use of human subjects under the proposed protocol will be provided in writing from the DTRA ROB, through the Grants Officer. A copy of this approval shall be maintained by both the Grantee and the government. Any proposed modifications or amendments to the approved protocol or consent forms must be submitted to the local IRB and the DTRA ROB for review and approval. Examples of modifications/amendments to the protocol include but are not limited to:

1) a change of the PI
2) changes in duration or intensity of exposure to some stimulus or agent
3) changes in the information requested of volunteers, or changes to the use of specimens or data collected
4) changes in perceived or measured risks or benefits to volunteers that require changes to the study

Research pursuant to such modifications or amendments shall not be initiated without IRB and ROB approval except when necessary to eliminate apparent and immediate hazards to the subject(s).

Research projects lasting more than one year require IRB review at least annually, or more frequently as required by the responsible IRB. ROB review and approval is required annually. The Grantee or subcontractor must provide documentation of continued IRB review of protocols for ROB review and approval in accordance with these Terms and Conditions. Research must not continue without renewed ROB approval unless necessary to eliminate apparent and immediate hazards to the subject(s).

Non-compliance with any provision of this clause may result in withholding of payments under the grant pursuant to the grant’s payments clause(s) and/or grant termination pursuant to the grant’s termination clause(s). The government shall not be responsible for any costs incurred for research involving human subjects prior to protocol approval by the ROB.

(2) For animals:

(a) The recipient shall adhere to:


(3) DTRA local clause 252.235-9001. The full text of this clause is as follows:

252.235-9001 PROHIBITION OF USE OF LABORATORY ANIMALS (JULY 2010) (DTRA)
The grant recipient shall obtain approval from the US Army Medical Research and Material Command (MRMC), Animal Care and Use Review Office (ACURO) prior to conducting research on live nonhuman vertebrates. Studies involving non-human primates, dogs, cats, or marine mammals will require a site visit by an ACURO laboratory animal veterinarian as a condition of approval. DoD may also conduct site visits involving research on other animals when deemed appropriate. The animal research facility is responsible for notifying the DoD sponsor if Association for the Assessment and Accreditation of Laboratory Animal Care accreditation is lost or the facility is under USDA inspection. DoD also has the right to a site inspection under these circumstances.

The grant recipient (including subcontractors) is expressly forbidden to use laboratory animals in any manner whatsoever without the express written approval of MRMC ACURO.

The grant recipient shall complete the ACURO Animal Use Appendix for Research Involving Animals found at the following web site: https://mrmc-www.army.mil/index.cfin?pagoid=Research_Protections_acuro_AnimalAppendix. Submit the completed ACURO appendix, contact information, the DTRA grant number and a copy of the grant for processing to the email address listed at the ACURO website. Once ACURO approves the effort, the grant recipient will receive written approval to begin animal use from the US Army MRMC ACURO by separate email. The grant recipient shall promptly provide a copy of the approval to the Grants Officer and Grants Officer representative. After approval, changes or protocol amendments must be submitted to and approved by ACURO before implementation.

The grant recipient, or subcontractors as appropriate, shall submit the most recent U.S. Department of Agriculture Animal Care Inspection Report annually in accordance with the CDRL.

Non-compliance with any provision of this clause may result in the termination of the grant.

c. Debarment and Suspension: The recipient agrees to comply with the requirements regarding debarment and suspension in Subpart C of the OMB guidance in 2 CFR Part 180, as implemented by the DoD in 2 CFR Part 1125. The recipient also agrees to
communicate the requirement to comply with Subpart C to persons at the next lower tier with whom the recipient enters into transactions that are "covered transactions" under Subpart B of 2 CFR Part 180 and the DoD implementation in 2 CFR Part 1125.

d. **Environmental Standards:** By signing this agreement or accepting funds under this agreement, the recipient assures that it will:


(2) Identify to the awarding agency any impact this award may have on the quality of the human environment, and provide help the agency may need to comply with the National Environmental Policy Act (NEPA, at 42 U.S.C. 4321, et. seq.) and to prepare Environmental Impact Statements or other required environmental documentation. In such cases, the recipient agrees to take no action that will have an adverse environmental impact (e.g., physical disturbance of a site such as breaking of ground) until the agency provides written notification of compliance with the environmental impact analysis process.

e. **Drug-Free Workplace:** The recipient agrees to comply with the requirements regarding drug-free workplace requirements in Subpart B (or Subpart C, if the recipient is an individual) of 32 CFR Part 26, which implements Sections 5151-5160 of the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D; 41 U.S.C. 701, et seq.).

f. **Officials Not to Benefit:** No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement, or to any benefit arising from it, in accordance with 41 U.S.C. 22.

g. **Preference for U.S. Flag Carriers:** Travel supported by U.S. Government funds under this agreement shall use U.S.-flag air carriers (air carriers holding certificates under 49 U.S.C. 41102) for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) and the interpretative guidelines issued by the Comptroller General of the United States in the March 31, 1981, amendment to Comptroller General Decision B138942.

h. **Cargo Preference:** The recipient agrees that it will comply with the Cargo Preference Act of 1954 (46 U.S.C. 1241), as implemented by Department of Transportation regulations at 46 CFR 381.7, which require that at least 50 percent of equipment, materials or commodities procured or otherwise obtained with U.S. Government funds under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned U.S.-flag commercial vessels, if available.

**30. Research Involving Recombinant DNA Molecules.** Any recipient performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant
DNA molecules agrees by acceptance of this award to comply with the National Institutes of Health “Guidelines for Research Involving Recombinant DNA Molecules,” amended 29 September 2009 (74 FR48275), or such later revision of those guidelines as may be published in the Federal Register.

31. **Retention and Access to Records.** Retention and access to records pertinent to this award are subject to the requirements of DoDGARs §34.42.

32. **Certification.** By accepting funds under this agreement, the recipient is providing the Certification at Appendix A to 32 CFR Part 28 regarding lobbying.

33. **Data Collection.** Data collection activities, if any, performed under this Grant are the responsibility of the recipient. Awarding agency support of the project does not constitute approval of the survey design, questionnaire content, or data collection procedures. The recipient shall not represent to respondents that such data are being collected for or in association with the awarding agency without the specific written approval of the cognizant awarding agency official. However, this requirement is not intended to preclude mention of the awarding agency support of the project in response to an inquiry or acknowledgment of such support in any publication of this data.

34. **Site Visits.** The Government, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and to provide such technical assistance as may be required. The recipient shall provide, and shall require its subrecipients and subcontractors to provide all reasonable facilities and assistance for the safety and convenience of the government representatives in the performance of site visits. All site visits and evaluations shall be performed in a manner that does not unduly interfere with or delay the work.

35. **Publications and Acknowledgement of Sponsorship.**

   a. Publication of results of the research project in an appropriate professional journal is encouraged as an important method of recording and reporting scientific information. A courtesy copy of each accepted publication shall be uploaded directly into the web-based reporting system previously described herein.

   b. The recipient agrees that in the release of information relating to the grant, such release shall include the following statement, “The project or effort depicted was or is sponsored by the Department of the Defense, Defense Threat Reduction Agency. The content of the information does not necessarily reflect the position or the policy of the federal government, and no official endorsement should be inferred.” For purposes of this provision, information includes news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association proceedings, symposia, etc.

   c. When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing projects or programs funded in whole or in part with federal money, all recipients receiving federal funds, shall clearly state: (i) the percentage of
total costs of the program or project which will be financed with federal money, and (ii) the dollar amount of federal funds for the project or program.

36. **Fee and Profit.** This agreement does not provide for the payment of fee or profit to the recipient.

37. **Combating Trafficking in Persons.** The recipient agrees to comply with the trafficking in persons requirement in Section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)).

   a. Provisions applicable to a recipient that is a private entity.

      (1) You as the recipient, your employees, subrecipients under this award, and subrecipients' employees may not

         (a) Engage in severe forms of trafficking in persons during the period of time that the award is in effect;

         (b) Procure a commercial sex act during the period of time that the award is in effect; or

         (c) Use forced labor in the performance of the award or subawards under the award.

      (2) We as the Federal awarding agency may unilaterally terminate this award, without penalty, if you or a subrecipient that is a private entity—

         (a) Is determined to have violated a prohibition in paragraph a.(1) of this award term; or

         (b) Has an employee who is determined by the agency official authorized to terminate the award to have violated a prohibition in paragraph a.(1) of this award term through conduct that is either—

            (1) Associated with performance under this award; or

            (2) Imputed to you or the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 2 CFR Part 376.

   b. Provision applicable to a recipient other than a private entity. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if a subrecipient that is a private entity—
(1) Is determined to have violated an applicable prohibition in paragraph a.(1) of this award term; or

(2) Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph a.(1) of this award term through conduct that is either

(a) Associated with performance under this award; or

(b) Imputed to the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR Part 180, "OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 2 CFR Part 376.

c. Provisions applicable to any recipient.

(1) You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph a.(1) of this award term.

(2) Our right to terminate unilaterally that is described in paragraph a.(2) or b. of this Article:

(a) Implements Section 106(g) of the TVPA, as amended (22 U.S.C. 7104(g)), and

(b) Is in addition to all other remedies for noncompliance that are available to us under this award.

(3) You must include the requirements of paragraph a.(1) of this award term in any subaward you make to a private entity.

d. Definitions. For purposes of this award term:

(1) "Employee" means either:

(a) An individual employed by you or a subrecipient who is engaged in the performance of the project or program under this award; or

(b) Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.

(2) "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for
labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.

(3) "Private entity":

(a) Means any entity other than a State, local government, Indian tribe, or foreign public entity, as those terms are defined in 2 CFR 175.25.

(b) Includes:

(1) A non-profit organization, including any non-profit institution of higher education, hospital, or tribal organization other than one included in the definition of Indian tribe at 2 CFR 175.25(b).

(2) A for-profit organization.

(4) "Severe forms of trafficking in persons," "commercial sex act," and "coercion" have the meanings given at Section 103 of the TVPA, as amended (22 U.S.C. 7102).

38. **Central Contractor Registration and Universal Identifier Requirements.**

a. Requirement for Central Contractor Registration (CCR)

Unless you are exempted from this requirement under 2 CFR 25.110, you as the recipient must maintain the currency of your information in the CCR until you submit the final financial report required under this award or receive the final payment, whichever is later. This requires that you review and update the information at least annually after the initial registration, and more frequently if required by changes in your information or another award term.

b. Requirement for Data Universal Numbering System (DUNS) Numbers

If you are authorized to make subawards under this award, you:

(1) Must notify potential subrecipients that no entity (see definition in paragraph c of this award term) may receive a subaward from you unless the entity has provided its DUNS number to you.

(2) May not make a subaward to an entity unless the entity has provided its DUNS number to you.

c. Definitions

For purposes of this award term:
(1) Central Contractor Registration (CCR) means the Federal repository into which an entity must provide information required for the conduct of business as a recipient. Additional information about registration procedures may be found at the CCR Internet site (currently at http://www.ccr.gov).

(2) Data Universal Numbering System (DUNS) number means the nine-digit number established and assigned by Dun and Bradstreet, Inc. (D&B) to uniquely identify business entities. A DUNS number may be obtained from D&B by telephone (currently 866 705 5711) or the Internet (currently at http://fedgov.dnb.com/webform).

(3) Entity, as it is used in this award term, means all of the following, as defined at 2 CFR Part 25, Subpart C:

(a) A Governmental organization, which is a State, local government, or Indian Tribe;

(b) A foreign public entity;

(c) A domestic or foreign nonprofit organization;

(d) A domestic or foreign for-profit organization; and

(e) A Federal agency, but only as a subrecipient under an award or subaward to a non-Federal entity.

(4) Subaward:

(a) This term means a legal instrument to provide support for the performance of any portion of the substantive project or program for which you received this award and that you as the recipient award to an eligible subrecipient.

(b) The term does not include your procurement of property and services needed to carry out the project or program (for further explanation, see Sec. __.210 of the attachment to OMB Circular A 133, “Audits of States, Local Governments, and Non-Profit Organizations”).

(c) A subaward may be provided through any legal agreement, including an agreement that you consider a contract.

(5) Subrecipient means an entity that:

(a) Receives a subaward from you under this award; and

(b) Is accountable to you for the use of the Federal funds provided by the subaward.
39. **Reporting Subawards and Executive Compensation.**

a. Reporting of first-tier subawards.

(1) Applicability. Unless you are exempt as provided in paragraph d. of this award term, you must report each action that obligates $25,000 or more in Federal funds that does not include Recovery funds (as defined in Section 1512(a)(2) of the American Recovery and Reinvestment Act of 2009, Pub. L. 111–5) for a subaward to an entity (see definitions in paragraph e. of this award term).

(2) Where and when to report.

(a) You must report each obligating action described in paragraph a.(1) of this award term to http://www.fsrs.gov.

(b) For subaward information, report no later than the end of the month following the month in which the obligation was made. (For example, if the obligation was made on November 7, 2010, the obligation must be reported by no later than December 31, 2010.)

(3) What to report. You must report the information about each obligating action that the submission instructions posted at http://www.fsrs.gov specify.

b. Reporting Total Compensation of Recipient Executives.

(1) Applicability and what to report. You must report total compensation for each of your five most highly compensated executives for the preceding completed fiscal year, if

(a) the total Federal funding authorized to date under this award is $25,000 or more;

(b) in the preceding fiscal year, you received—

(1) 80 percent or more of your annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(2) $25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(c) The public does not have access to information about the compensation of the executives through periodic reports filed under Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d))
or Section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at http://www.sec.gov/answers/execomp.htm.)

(2) Where and when to report. You must report executive total compensation described in paragraph b.(1) of this award term:

(a) As part of your registration profile at http://www.ccr.gov.

(b) By the end of the month following the month in which this award is made, and annually thereafter.

c. Reporting of Total Compensation of Subrecipient Executives.

(1) Applicability and what to report. Unless you are exempt as provided in paragraph d. of this award term, for each first-tier subrecipient under this award, you shall report the names and total compensation of each of the subrecipient's five most highly compensated executives for the subrecipient's preceding completed fiscal year, if

(a) in the subrecipient's preceding fiscal year, the subrecipient received

(1) 80 percent or more of its annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(2) $25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts), and Federal financial assistance subject to the Transparency Act (and subawards); and

(b) The public does not have access to information about the compensation of the executives through periodic reports filed under Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or Section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at http://www.sec.gov/answers/execomp.htm.)

(2) Where and when to report. You must report subrecipient executive total compensation described in paragraph c.(1) of this award term:

(a) To the recipient.

(b) By the end of the month following the month during which you make the subaward. For example, if a subaward is obligated on any date during
the month of October of a given year (i.e., between October 1 and 31),
you must report any required compensation information of the
subrecipient by November 30 of that year.

d. Exemptions.

If, in the previous tax year, you had gross income, from all sources, under $300,000, you
are exempt from the requirements to report:

(1) Subawards,

and

(2) The total compensation of the five most highly compensated executives of any
subrecipient.

e. Definitions. For purposes of this award term:

(1) Entity means all of the following, as defined in 2 CFR Part 25:

(a) A Governmental organization, which is a State, local government, or
Indian tribe;

(b) A foreign public entity;

(c) A domestic or foreign nonprofit organization;

(d) A domestic or foreign for-profit organization;

(e) A Federal agency, but only as a subrecipient under an award or
subaward to a non-Federal entity.

(2) Executive means officers, managing partners, or any other employees in
management positions.

(3) Subaward:

(a) This term means a legal instrument to provide support for the
performance of any portion of the substantive project or program for
which you received this award and that you as the recipient award to an
eligible subrecipient.

(b) The term does not include your procurement of property and services
needed to carry out the project or program (for further explanation, see
Sec. __.210 of the attachment to OMB Circular A 133, "Audits of States,
Local Governments, and Non-Profit Organizations").
(c) A subaward may be provided through any legal agreement, including an agreement that you or a subrecipient considers a contract.

(4) Subrecipient means an entity that:

(a) Receives a subaward from you (the recipient) under this award; and

(b) Is accountable to you for the use of the Federal funds provided by the subaward.

(5) Total compensation means the cash and noncash dollar value earned by the executive during the recipient's or subrecipient's preceding fiscal year and includes the following (for more information see 17 CFR 229.402(c)(2)):

(a) Salary and bonus.

(b) Awards of stock, stock options, and stock appreciation rights. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Statement of Financial Accounting Standards No. 123 (Revised 2004) (FAS 123R), Shared Based Payments.

(c) Earnings for services under non-equity incentive plans. This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.

(d) Change in pension value. This is the change in present value of defined benefit and actuarial pension plans.

(e) Above-market earnings on deferred compensation which is not tax-qualified.

(f) Other compensation, if the aggregate value of all such other compensation (e.g. severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds $10,000.
1. Federal Agency and Organizational Element to Which Report is Submitted
Defense Threat Reduction Agency HDTRA1

2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)
HDTRA1-14-1-0053

3. Recipient Organization (Name and complete address including Zip code)
Metabola, Inc. 1 Sutter Street, Suite 600 San Francisco, CA 94104

4a. DUNS Number
826 131 156

4b. EIN
F0IA (b)(6)

5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment)
Cage Code 56SP4

6. Report Type
☑ Quarterly  ☐ Semi-Annual  ☐ Annual  ☐ Final

7. Basis of Accounting
☑ Cash  ☐ Accrual

8. Project/Grant Period (Month, Day, Year)
From: 08/07/2014  To: 6/6/2018  9/30/2017

9. Reporting Period End Date (Month, Day, Year)
Cumulative

Federal Cash (To report multiple grants separately, also use FFR Attachment):

a. Cash Receipts
$2,421,391.37

b. Cash Disbursements
$2,654,510.33

c. Cash on Hand (line a minus b)
$233,118.38

Federal Expenditures and Unobligated Balance:

d. Total Federal funds authorized
$2,788,483.00

e. Federal share of expenditures
$2,654,510.33

f. Federal share of unobligated obligations
$9,00

g. Total Federal share (sum of lines e and f)
$2,654,510.33

h. Unobligated balance of Federal funds (line d minus g)
$133,972.67

Recipient Share:

i. Total recipient share required
0

j. Recipient share of expenditures
0

k. Remaining recipient share to be provided (line i minus j)
0

Program Income:

l. Total Federal share of program income earned
0

m. Program income expended in accordance with the deduction alternative
0

n. Program income expended in accordance with the addition alternative
0

d. Unexpended program income (line l minus line m or line n)
0

Indirect Expense

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>g. Totals</th>
</tr>
</thead>
</table>

12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation:

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

a. Typed or Printed Name and Title of Authorized Certifying Official

b. Signature of Authorized Certifying Official

C. Telephone (Area code, number, and extension)

14. Agency use only:

Standard Form 425 - Revised 10/11/2011
OMB Approval Number: 0348-0061
Expiration Date: 2/28/2015

Paperwork Burden Statement
According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20593.
AWARD/CONTRACT

2. CONTRACT NUMBER: HDTRA1-14-1-0063

5. ISSUED BY: DEFENSE THREAT REDUCTION AGENCY (DTRA)
   8725 JOHN J. KINGMAN ROAD, MSC 6201
   FORT BELVOIR VA 22060-6201

6. ADMINISTERED BY: See Item 5

7. NAME AND ADDRESS OF CONTRACTOR: MEDICATING INC.
   500 WILLET ST. #309
   SAN FRANCISCO CA 94104-4923

8. DELIVERY: [ ] FOR ORIGIN [ ] OTHER
   [ ] Allow 180 days for prompt payment

10. SUBMIT INVOICES:  [ ] payee's latest electronic funds transfer to the address
    shown in: [ ]

11. SHIP TO: MARK FOR: HDTRA1
    DEFENSE THREAT REDUCTION AGENCY (DTRA)
    8725 JOHN J. KINGMAN ROAD, MSC 6201
    FORT BELVOIR VA 22060-6201

12. PAYMENT WILL BE MADE BY: [ ] DTRA COLUMBUS CENTER
   [ ] DTRA COLUMBUS ENTITLEMENT OPERATIONS
   P.O. BOX 18381
   COLUMBUS OH 43218-2381

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN
    COMPETITION: [ ] 10 U.S.C. 2304(e)(2) [ ] 41 U.S.C. 253(c)(2)

15a. ITEM NO. 15b. SUPPLIES/ SERVICES
   15c. QUANTITY 15d. UNIT 15e. UNIT PRICE 15f. AMOUNT

SEE SCHEDULE

15g. TOTAL AMOUNT OF CONTRACT $2,788,483.00

16. TABLE OF CONTENTS

   NO SEC. DESCRIPTION PAGE(S) EX. SEC. DESCRIPTION PAGE(S)
   x 1 solicitation/contract form 1
   x 2 supplies or services and prices/ costs 2
   x 3 description/specs/ work statement
   d 3 - 28 packaging and marking
   x 29 inspection and acceptance
   x 30 deliveries or performance
   x 31 - 34 contract administration data
   x special contract requirements

   part i - the schedule
   part ii - contract clauses
   part iii - list of documents, exhibits and other attachments
   part iv - representations and instructions
   part v - evaluation factors for award

   contracting officer will complete item 19b as applicable

   19a. name and title of signer (print or type)
   19b. name of contracting officer

   20a. name of contractor
   20b. date of award

   by (signature of person authorized to sign)

   authorized for local reproduction

   this award is not final until signed

   standard form 12 award rev 4 2008

   prepared by usas
   fac 40 cfr parts 211a
Section B - Supplies or Services and Prices

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>One Health Approach to Rift Valley Fever</td>
<td></td>
<td></td>
<td></td>
<td>$2,788,483.00</td>
</tr>
</tbody>
</table>

FOIA (b)(4)
One Health Approach to Rift Valley Fever Brucella in Tanzania. Contractor shall perform all work IAW the SOW in Section C of this document. FOB: Destination

| NET AMT | $2,788,483.00 |

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000101</td>
<td>Incremental Funding - Budget Year 1</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

FOIA (b)(4)
Incremental FY 14 Funds for Budget Year 1. FOB: Destination

| NET AMT | $0.00 |

ACRN AA
CIN: 000101/3CTB12301
S932,060.00
Section C - Descriptions and Specifications

SOW

**Zoonotic Select Agents in Tanzania - A One Health Approach to Rift Valley Fever and Brucellosis Surveillance - Phase II Technical Proposal**

I. ABSTRACT

An internationally recognized transdisciplinary team, including Metabiota, Inc., University of California, Davis (UCD), Sokoine University of Agriculture (SUA), Ilakara Health Institute (IHI), and the National Institute for Medical Research (NIMR) in Tanzania, propose a One Health research approach to address linkages between humans, animals, and their shared environments for investigation into the epidemiology of Rift Valley fever virus (RVFV) and *Brucella*. We will: 1) Coordinate with local partner institutions in Tanzania for characterization of sites with historical RVFV and *Brucella* activity representing diverse climatic and animal density variables; 2) Conduct surveillance of sentinel livestock herds and conspecific wildlife for pathogen transmission by real-time molecular diagnostic assays or seroconversion, indicating periods of increased transmission, for comparison with patterns in human populations; 3) Characterize RVFV and *Brucella* isolates from mosquito, animal, and human cases using phylogenetic analyses of genomic diversity; 4) Identify cryptic wildlife reservoir maintenance hosts by detection of seroconversion or using molecular characterization of blood meals from mosquitoes; 5) Develop models that predict areas of increased pathogen maintenance, transmission, and genomic diversity to target locales critical for intervention strategies and targeted surveillance. We will synthesize study findings from animal and human research to test the hypothesis that RVFV and *Brucella* infection and evolution in animals and humans is more commonly associated with areas of increased rainfall and increased livestock density. Study findings will build the Defense Threat Reduction Agency (DTRA) knowledge base and a network of professionals in Tanzania prepared to address emerging research and disease response needs.

II. SCOPE

A. OBJECTIVE

**Hypothesis:** In Tanzania, climatic conditions, such as high annual rainfall, and animal contact conditions, such as intense livestock density, are associated with increased RVFV and *Brucella* infection and evolution in livestock, wildlife, and humans living in the same areas. To test this hypothesis, two study regions, with varied rainfall conditions and animal density parameters, have been identified for ongoing surveillance and characterization of RVFV and *Brucella* exposure and isolates from animals, humans, and arthropod vectors during the three-year study.

**Specific objectives:**
1) Coordinate with local partner institutions in Tanzania for characterization of field sites with historic RVFV and *Brucella* activity that vary in climatic and animal density conditions.
2) Conduct surveillance of sentinel livestock herds (longitudinally) and conspecific
wildlife (opportunistically) for pathogen transmission activity by real-time molecular
diagnostic assays or seroconversion, indicating periods of increased pathogen transmission,
for comparison with disease patterns in local human populations.
3) Characterize RVFV and Brucella isolates from mosquito, animal, and human cases
using phylogenetic analyses of genomic diversity.
4) Identify potential cryptic wildlife reservoir maintenance hosts by detection of
seroconversion or molecular fingerprinting of blood meals from mosquito vectors.
5) Develop models that predict areas of increased pathogen maintenance, transmission,
and genomic diversity in Tanzania to target locales of increased risk that may be critical for
public health intervention strategies and targeted surveillance.

B. BACKGROUND
Emergence and re-emergence of infectious diseases transmitted between wildlife,
livestock, and human populations are receiving increasing attention worldwide.
Brucellosis, caused by Brucella spp., and Rift Valley fever (RVF), caused by RVFV are
two re-emerging zoonotic diseases of high concern at interface areas throughout Africa [1].
The RVFV (family Bunyaviridae, genus Phlebovirus) is a mosquito-borne human and
Veterinary pathogen associated with large outbreaks of severe disease throughout Africa and
the Arabian Peninsula [2]. The virus has caused numerous economically devastating
epizootics, often characterized by sweeping “abortion storms,” neonatal animal mortality
approaching 100%, and significant mortality (~10 30%) among adult ruminant livestock,
especially sheep and cattle [3]. Brucellosis is a primary differential diagnoses to RVFV in
the early stages of a RVFV outbreak because clinical symptoms of brucellosis, including
aborted and perinatal mortality, initially are indistinguishable from those of RVFV.

Brucellosis contributes significantly to the human disease burden in developing
countries and causes substantial financial losses due to reduced production in livestock [4].
Cattle are most commonly infected with Brucella abortus, small ruminants with Brucella
melitensis, and swine with Brucella suis, although cross species infections can occur [5].
During acute brucellosis infection, large amounts of bacteria are shed in the uterine fluids,
aborted fetuses, and milk; whereas, chronically infected animals can develop hygromas,
localized abscesses, and continue to shed the bacteria in the milk. Brucellosis has largely
been controlled in developed countries through extensive surveillance, vaccination, and
‘stamping out’ policies [6] except for areas with wildlife reservoirs. However, brucellosis is a
significant problem in developing countries such as Tanzania and has recognized potential for
use as a bioterrorism agent.

RVF and brucellosis are well-suited for transdisciplinary One Health approaches to
study the genomic diversity and evolution at interfaces involving the mosquito vector (for
RVFV), domesticated livestock, African wildlife, and humans [7]. Mosquitoes are primarily
responsible for maintaining RVFV in nature, and the virus has been isolated from over
30 species of mosquitoes from 10 genera (primarily Aedes, Culex, Anopheles, and others)
[8]. In eastern and southern Africa, RVFV ecology can be divided into two distinct but
overlapping cycles of continuous low-level endemic activity and periodic
epizootics/epidemics. The linkage of RVFV epizootics/epidemic to heavy rainfall and high
numbers of mosquitoes has been observed [9], and it is now recognized that the
development of epizootic/epidemic transmission is dependent on large-scale weather events that lead to increases in ground-water saturation and eventual flooding over parts of eastern and southern Africa [10].

Livestock are highly susceptible to RVFV infection and provide two key ecological links between the primary vector, the *Aedes* sp. floodwater mosquito, and the human population. First, livestock infected by the bite of transovarially infected *Aedes* sp. mosquitoes rapidly develop high viremias and clinical disease, and can in turn infect secondary bridging vectors, such as the *Culex* or *Anopheline* sp. mosquitoes [11] that are more likely to feed on humans. In addition to mosquito-borne transmission, humans can become infected through direct contact with infected livestock tissues or fetuses. In the large 2006-2007 East African outbreak, contact was the single most significant risk factor for infection [12]. RVF in humans is typically a self-limiting febrile illness that, in 1-2% of affected individuals, can progress to more severe disease that includes fulminant hepatitis, encephalitis, retinitis, blindness, or a hemorrhagic syndrome. Fatality ratios in hospitalized patients are 10-20% [13]. Despite the high virulence of RVFV, no human vaccines are commercially available.

Similar to RVFV, brucellosis in humans and animals is transmitted through contact with infected tissues or fetal fluids, although consumption of infected raw milk is also considered a major transmission pathway. Shedding in milk can occur from both acutely and chronically infected animals and has been detected from *Brucella* seropositive goats, ewes, and cows [14]. Human brucellosis is most commonly caused by *B. melitensis*, although all *Brucella* spp. are potentially zoonotic. Clinical signs of brucellosis in humans include intermittent fever, malaise, anorexia, and joint pain, which may persist for weeks or months, and, if not treated, can progress to severe, debilitating disease [15]. Veterinarians, farm workers, and other health personnel are at high risk of infection from direct contact with infected animals, and outbreaks of brucellosis and RVF in Africa have often been initially detected because of illnesses among these workers. A goal of the current study is to leverage infrastructure and expertise in place to make headway on critical research involving RVFV and *Brucella* at cost savings over single-pathogen studies.

*Rift Valley fever and brucellosis in Tanzania*

Regular outbreaks of RVF have occurred in 10-20 year cycles (1947, 1957, 1977, 1997, and 2007) in East Africa. These large classic RVF outbreaks have typically occurred following the initiation of epizootics in Kenya/Somalia as heavy rains shifted towards the south and east. During the most recent 2007 outbreak, hundreds of humans and thousands of suspected fatal livestock cases of RVF were detected in the central and southern areas of the country, including the Ruaha and Kilombero River Valley study site regions [16]. During this outbreak, human case fatality among confirmed cases reached 47% and seroprevalence studies indicated that RVFV transmission occurred in 52% (n=21) regions of the country, with the majority reporting both livestock and humans infections [16]. Surveillance of RVFV activity to date in inter-epidemic periods has been limited, with studies indicating human seroprevalence ranging from 4%-29% [17].

Livestock brucellosis is widespread in Tanzania, but currently, only commercial dairy farms regularly conduct bi-annual testing, at the initiative and cost of the livestock owner, in order to obtain brucellosis-free certification. The test expense is prohibitive for
most rural livestock holders in Tanzania, and consequently, the disease is neither prevented nor controlled in most of the country. Studies have documented antibodies to *Brucella* spp. in 6% of cattle and small ruminants in northern Tanzania [18], in 1-2% of smallholder dairy cattle tested in the Kibaha and Morogoro districts [19], in 16% of village livestock in the Morogoro region [20], as well as in 1% of cattle in the Iringa and 2-4% of cattle in the coastal region [21]. Risk factors for exposure to *Brucella* spp. include age of the animal, watering cattle in surface water as opposed to with piped water, stocking density, herd size, location in peri-urban as opposed to rural area, and farmers lack of knowledge of brucellosis.

Exposure to *Brucella* has been documented in humans in Tanzania [22], but because of the unspecific symptoms that can be confused with other common diseases such as malaria, brucellosis in humans is under-diagnosed among febrile patients and frequently left untreated [22]. Lack of knowledge about zoonotic diseases among health practitioners also contributes to inaccurate or delayed diagnosis of brucellosis. For example, a study in northern Tanzania by our team colleagues evaluated the knowledge of rural and urban health professionals in diagnosing zoonotic diseases and found that a total of 13% (2/15) of rural practitioners and 44% (7/16) of urban practitioners did not know how to diagnose the disease [23]. Patients with brucellosis often do not recognize the symptoms themselves due to the similarity to other febrile diseases.

**Genomic diversity in endemic areas and potential roles for wildlife in disease epidemiology**

Due to the devastating nature of RVFV outbreaks, much effort has been devoted to understanding the factors allowing for epizootic/epidemic transmission of RVFV. However, much less is known regarding factors that influence long-term maintenance of the virus in enzootic areas that experience constant low-level RVFV or during inter-epizootic time periods. Enzootic areas are typically wetter semi-tropical locations that allow for continuous virus transmission under favorable microclimate conditions. For example, within a small 20km region of the Central African Republic, complete genome sequence data obtained from virus specimens collected over a 5 year period indicated ten times higher virus diversity than was observed during the typically monophyletic large-scale outbreaks that occurred in vast semi-arid east African regions [24]. This higher diversity may be supported by low-level transmission of RVFV between mosquito vectors and cryptic wildlife maintenance hosts, and our team is uniquely positioned to address such questions in Tanzania to the benefit of the region and to DTRA.

The true role of wildlife as maintenance hosts for RVFV is unclear. Intriguingly, in western Africa, small rodents were found to be seropositive and capable of supporting low-level RVFV replication in experimental studies [25]. Among larger animals, RVFV-specific IgG has been detected in a number of wild ungulates, megafauna, and carnivores [26]. Experimental studies of Cape buffalo indicated that they developed low-level transient viremias that were potentially sufficient for mosquito infection and further viral dissemination [27]. These limited data suggest a role for wildlife as important maintenance hosts that may allow for greater virus transmission and evolution in enzootic areas. Further support for a potential cryptic maintenance host can be found in classical epizootic zones (e.g. north-east Kenya) where sequence data indicates that the most recent common ancestor of the viruses present during the recent 2007 and previous 1998 Kenyan outbreaks occurred years prior to the detection of the first cases of RVFV infection [3,24]. These data support a
hypothesis that, despite the ability of RVFV to remain dormant in *Aedes spp.* mosquito eggs during the inter-epizootic period, there is likely a constant level of transmission among the vectors and mammalian hosts, and with ongoing viral evolution. African wildlife can also be infected with brucellosis, with spill-over and spill-back between wildlife and livestock a concern at wildlife-livestock interface areas as are present in our study sites and in many other areas of Africa. For example, exposure to *Brucella* spp. was detected in 11% (n=406) of African buffalo tested in Kruger National Park, South Africa [28], and in Tanzania exposure to *Brucella* was detected in 53% (n=19) of African buffalo from Tarangire National Park, 5% (n=19) of buffalo from Ngorogoro Crater, 13% (n=15) buffalo from Manyara National Park, 20% (n=30) of buffalo from Lake Katavi National Park, and 4% (n=51) of buffalo from Ruaha National Park [29]. *Brucella* species are diverse and have varied pathogenic potential that will be investigated using molecular approaches in the proposed study.

**Study areas**

The southern border of the Greater Ruaha Ecosystem in Tanzania and the Kilombero River Valley are two typical intense wildlife, livestock, and human interface areas, where there is high concern for disease transmission among populations. Both areas were considered critical hotspots in the 2007 Rift Valley Fever outbreak, and brucellosis is known to be endemic in the region. The Ruaha ecosystem is one of Africa’s largest protected areas and has extraordinary diversity. There are two rainy seasons; from November – February and from March – April, with annual mean precipitation of 500-800 mm. The area adjacent to the southern border of the ecosystem is predominately populated by pastoralists, agro-pastoralists, and subsistence agriculturalists, and the livestock population is substantial. The main water source in this area is the Great Ruaha River that, since 1993, has experienced a severe reduction in flow due to agricultural water diversion upstream [30]. The seasonal water scarcity in the dry season has forced wildlife, livestock, and humans closer together, leading to increased interactions.

To address the issues of water scarcity and associated changes in disease transmission, the Health for Animals and Livelihood Improvement (HALI) project was initiated in 2006. HALI, which literally means ‘state of health’ in Swahili, began as a collaborative research and capacity building program involving Sokoine University of Agriculture (SUA), the University of California, Davis (UCD), and regional stakeholders [30]. The project has grown to include additional national and international partners for research, training, and outreach related to zoonotic diseases. Brucellosis was identified as a high priority disease during initial stakeholder meetings, and the HALI project diagnosed exposure to *Brucella* spp. in 7% of 1334 cattle tested in the Iringa region, with 42% of the 93 herds testing seropositive. Spatial risk factors for *Brucella* spp. infection in the region included mixing of livestock and households located closer to protected area. The prevalence of *Brucella* spp. in regional wildlife is largely unknown, and in 2011 the HALI project collaborated to conduct disease testing of African buffalo from Ruaha National Park, with 16% (3/19) buffalo testing seropositive.

The second proposed study area, the Kilombero River Valley, is a current study site for
RVFV research, with substantial infrastructure and preliminary data in place to support the proposed research. It is located in south-central Tanzania and is bordered by the Selous Game Reserve, Udzungwa Mountains National Park, Kilombero Nature Reserve, Udzungwa Scarp, and contains the Kilombero Game Controlled Area in the South. The Kilombero River runs through the valley, creating a large flood plain. The annual mean rainfall is higher than Ruaha, at 1200-1400 mm. Local human populations are mainly agriculturalists. Due to its proximity to large protected areas and several wildlife corridors, the valley is an intense wildlife-livestock interface. Encroachment of cattle into wildlife areas is common, which can lead to conflict and pathogen exchange. In both the Ruaha and Kilombero study regions, our DTRA team is already established and can readily ramp up surveillance and research activities for the proposed tasks.

**Critical knowledge gaps**

To date, little information has been reported regarding the inter-epizootic prevalence and incidence of RVFV in southern and central Tanzania or the role of wildlife as maintenance hosts. Although multiple studies have been completed linking climate and rainfall data with increasing risk of RVFV outbreaks, none have rigorously examined the role of climate on enzootic RVFV transmission, diversity, and evolution. Genomic data to date suggest that enzootic areas support greater RVFV diversity than epizootic areas but have not determined whether such diversity may serve as a potential incubator for the evolution of novel genotypes with potentially altered pathogenic potential [24].

Limited information is available regarding the complex interactions between mosquito vectors and potential cryptic maintenance hosts that allow for RVFV to persist in enzootic environments. To address this gap, long-term longitudinal studies of vector abundance, virus detection, blood meal analysis of virus positive mosquito pools, and sampling of potential mammalian wildlife hosts in enzootic areas are needed. Furthermore, there is a critical lack of understanding of the role played by the environment on maintaining high levels of RVFV genomic diversity in a given microclimate zone. The comprehensive sampling of vectors and animals followed by complete genome sequencing of virus-positive specimens from vectors, animals, and humans in both enzootic and epizootic regions in Tanzania will allow for the development of models for RVFV maintenance, genomic diversity, and viral evolution in both ecologic zones. This will lay the foundation for improved models of outbreak risk and assist in the development of computational tools to better characterize the potential for RVFV to spread.

**Brucellosis** is a non-vector borne zoonotic disease of concern locally and internationally, with many of the same host species as RVFV but with differing disease dynamics and epidemiologic patterns that can inform on intervention strategies. To date, brucellosis has mainly been studied in cattle in Tanzania, with limited information available on small ruminants. *Brucella melitensis* has been less studied than *Brucella abortus*, though it is of critical importance as the most common cause of human brucellosis. Furthermore, there is limited information on the epidemiology of brucellosis in wildlife, though wildlife may act as a reservoir. Within the HALI study area, the risk for having seropositive cattle was found to vary with location, and climatic, herd management, and environmental risk factors need to
be further investigated. There is also a need for improved education on zoonotic diseases for livestock owners and health practitioners to improve *Brucella* diagnosis, topics previously addressed in parts of Tanzania by members of our DTRA research team with rapid update and success.

C. PROGRAMMATIC

Contributing to the Thrust Area 6 goals, the proposed research will improve international collaborations in infectious disease epidemiology and will advance the capacity in Tanzania to implement global health security initiatives. This highly qualified transdisciplinary team brings together local and international subject matter experts (SMEs) to investigate the epidemiology of select agents. The organizations represented include Metabiota (formerly Global Viral Forecasting) and UCD from the United States, as well as SUA, Ifakara Health Institute (IHI), the National Institute for Medical Research (NIMR), and the Tanzania Wildlife Research Institute (TAWIRI) from the United Republic of Tanzania (URT). These are premier organizations committed to the highest quality of science, collaboration, and capacity building, many of which have worked together on research and training projects since 2006.

*Management team*

Metabiota, will be the DTRA liaison for coordination of project administration and reporting and will provide programmatic leadership and input on all research objectives. Woutrina Smith, One Health Institute, School of Veterinary Medicine, UCD will be the program director responsible for project oversight. Smith will facilitate collaborative relationships, study design, and interpretation of findings. She is a SME for *Brucella* research. Jim MacLachlan, UCD, will be the professor responsible for mentoring junior faculty, postdocs, and students in the US and Tanzania. MacLachlan is world renown in vectorborne disease research and is a SME for RVF research components. Rudovick Kazwala, SUA, Morogoro, Tanzania will be the professor responsible for oversight of SUA-related field and laboratory activities as part of the HALI Project in Tanzania. Kazwala will facilitate capacity building for laboratories and trainees. Honorati Masanja, IHI, Tanzania will be responsible for input and oversight of IHI-related field and laboratory activities. Masanja will facilitate capacity building for URT laboratories and trainees, specifically on biosecurity and lab practices. Sayoki Mfinanga, NIMR, Tanzania will also play a key role in facilitating and guiding the URT research from a public health perspective. He has a history of strong collaboration with this research team in joint physician-veterinarian studies that involve diverse faculty, postdoctoral researchers, and students.

Management team (MT) activities include: 1) Coordinating team logistics, program management, and implementation; 2) Maintaining existing CBEP documents and providing subject matter input; 3) Providing administrative support and required reporting; and 4) Ensuring that all public releases are cleared by the DTRA Public Affairs Office (PAO). Additionally, the MT will monitor project activities to achieve the following benchmarks: 1) obtain US and Tanzanian protocol approval, characterize field sites, and initiate project trainees in Year 1; 2) perform field sampling and laboratory diagnostic activities in Years 1-3 and conduct data analyses in Years 2-3; and 3) develop predictive disease models and
prepare four scientific publications in Year 3.

D. RELEVANCE
The proposed work will improve fundamental understanding of RVF and brucellosis epidemiology and will add substantial data to the DTRA knowledge base. It will provide a platform for engaging and networking of professionals working in emerging infectious diseases (EIDs) and will increase the capacity for rapid and accurate local detection and mitigation of threats to humans and livestock with positive economic, health, and other security implications.

Both RVF and brucellosis are re-emerging zoonotic diseases of high concern in interface areas in Africa [1, 4]. RVFV is considered a high-consequence overlap Select Agent by the US Departments of HHS and the USDA because epizootics and epidemics can have devastating impacts with tens of thousands of human cases and upwards of millions of livestock affected. These large affected populations rapidly overwhelm the capacities of the public health and veterinary medical communities to provide rapid diagnostic testing and adequate medical care for affected humans and animals. Analogously, *Brucella* spp. has been considered relevant for biological warfare and categorized as a category B biological agent for public health preparedness [32] because of the ease by which the bacterium can be produced, high infectivity for animals and man, serious impact on livestock production, and lack of an effective vaccine for humans [4].

The activities proposed here will contribute important insights into the epidemiology of these select agents in Tanzania. The work will provide critical and previously unavailable data on the inter-epizootic prevalence of RVF and brucellosis in southern and central Tanzania as well as the role of wildlife as maintenance hosts. In addition, it will be the first to rigorously examine the role of climate on enzootic transmission, diversity, and evolution. The work will assess the significance of earlier reports that enzootic areas support greater RVFV diversity than epizootic areas specifically, it will examine whether such increased diversity supports the evolution of novel genotypes [24]. The comprehensive sampling of vectors, livestock, and wild animals, followed by complete genome sequencing of virus-positive specimens in both enzootic and epizootic regions will allow for an assessment of baseline conditions as well as development of models for maintenance, genomic diversity, and evolution.

The proposed work will also extend the reach of the Cooperative Biologic Engagement Program (CBEP) and will advance partnerships that UCD and Metabiota have with institutions in Tanzania that are hubs for research excellence in East Africa. The institutional partnerships will have particular benefits given the active USAID and NIH-funded research programs that UCD can leverage in the region and will enhance the potential for collaborative One Health research that is a proven model within this internationally experienced and respected research team. These features have the potential to radically improve sustainability and absorbability of these investments for long-term impact.

In summary, the proposed efforts will: improve understanding of RVF and brucellosis
epidemiology; enhance partner country ability to rapidly assess threats; improve capacity to accurately distinguish between natural, purposeful, and accidental release; and assist in the development of effective and sustainable rapid response strategies.

III. CREDENTIALS

Our consortium is comprised of a group of highly qualified experts from across academia, industry, and government backgrounds, all of whom have successfully implemented large-scale USG and internationally funded programs abroad. First funded by CBEP in mid-2010, Metabiota has demonstrated high-quality research collaborations in some of the world’s most austere settings. This work has resulted in 5 CBEP-funded high-impact publications and a 6th describing a novel virus associated with viral hemorrhagic fever syndrome in the Democratic Republic of the Congo (DRC). Metabiota supported the response to 6 outbreaks (suspected viral hemorrhagic fever, polio, and yellow fever) and has facilitated shipment of samples back to US DoD laboratories for the further development and testing of diagnostics and countermeasures.

Metabiota was considered an invaluable resource during these events, setting the stage for future engagements globally and, in this regard, is a long-time collaborator with US military labs overseas. Our successes in working with CBEP have been sustained by involving multiple international and regional networks such as the African Field Epidemiology Network (AFENET), the WHO Especially Dangerous Pathogens Laboratory Network (WHO-EDPLN), and existing research and public health laboratory networks. We also have experience facilitating the establishment of regional networks as demonstrated through our assistance in the creation of the Central African Military Health Alliance (CAMHA), which Metabiota continues to serve as integrating contractor. Metabiota actively engages local, regional, and international partners in project implementation.

The UCD team is comprised of a highly qualified and integrated set of infectious disease faculty and researchers who specialize in the epidemiology and surveillance of zoonotic diseases that may be transmitted between animals and humans. Based within the One Health Institute at UCD, the multidisciplinary team has extensive experience in core CBEP topics, including infectious disease research, grant writing, mentoring, and training. For example, the UCD team manages an implementing consortium for and scientifically leads the USAID’s Emerging Pandemic Threats Program PREDICT project, a $75 million multi-institutional, trans-disciplinary project in 20 developing countries that aims to enable global surveillance for zoonotic diseases emerging from wildlife using geospatial modeling, genomics, molecular virology, epidemiology, and targeted field studies at hot zoonotic disease transmission interfaces. SUA is the premier veterinary school for URT and has strong links with IHI and the National Institute for Medical Research, both lead institutions in public health research in the country. Since 2006, SUA has been responding to the critical need for research on the impact of zoonotic disease on the health and livelihoods of people in southern Tanzania as a partnership with UCD and NIMR through our HALI project. In 2009, HALI became the Tanzanian institutional home of the USAID Emerging Pandemic Threats’ PREDICT project, a surveillance and capacity building program to detect emerging pathogens in wildlife that threaten humans.
IHI has an extensive history of human infectious disease research in URT and has collaborated with SUA on diverse health projects. The Tanzanian consortium is rounded out with representation from the Tanzanian authority on wildlife research (TAWIRI), whose support and stamp of approval is critical for project success.

**Personnel**

**PhD, MPH,** will serve as PI for this effort as the Lead Metabiota Staff Scientist. **Dr.** has over 10 years of experience in the development and implementation of epidemiologic and clinical research studies in international settings. She currently serves as the scientific technical lead on epidemiologic studies of various infectious diseases, including Lassa Fever and Ebola, to characterize the morbidity, mortality and risk factors associated with disease and clinical outcome. She has also provided epidemiologic support in outbreak response efforts related to Ebola. In addition to her scientific expertise, Dr.

**Dr.** has over 5 years of experience in program management of international studies.

**Woutrina A. Smith, DVM, MPVM, PhD** will serve as a Co-PI and lead for the UCD team, as well as an SME in brucellosis. She is an Associate Professor in the School of Veterinary Medicine and as an infectious disease epidemiologist with extensive experience working with the animal and human health sectors, she is well positioned to provide leadership. Dr. Smith currently has an active research program in URT working with SUA and NIMR on tuberculosis and other zoonotic disease agents.

**Rudovick Kazwala, BVM, PhD** will serve as a Co-PI and lead for the Tanzania team. He is a Professor of Public Health and Epidemiology at SUA and is the Chairman of the Tanzania Veterinary Medical Association. Professor Kazwala is on the IHR Roster of Experts for veterinary issues involving zoonoses and has served as a resource to URT during RVFV outbreaks. As a founding PI of the HALI Project with UCD, Professor Kazwala is well established with all the partner organizations involved in this DTRA research proposal.

**Jonna A.K. Mazet, DVM, MPVM, PhD** will serve as a lead for the UCD HALI Project. At UCD, Professor Mazet leads a network of global NGOs and governmental agencies to build capacity within the more than 20 PREDICT countries to develop surveillance systems and complete the necessary research to halt the next pandemic. In addition, as a professor in the School of Veterinary Medicine, Dr. Mazet provides service to government agencies faced with emerging infectious disease challenges, including USAID and U.S. Department of Agriculture.

**N. Jim MacLachlan, BVSc, MS, PhD** will serve as a UCD SME for Rift Valley fever research components. Professor MacLachlan has 37 years of experience in academic veterinary medicine and is extensively involved in the regulation of international trade and movement of livestock, and the impacts of infectious diseases thereon as part of his active research program.

**Brian Bird, DVM, MPH, PhD** will serve as an SME for Rift Valley fever based on his ongoing RVFV research program in Africa. Dr. Bird worked with the Centers for Disease Control and has over 14 years of experience working in high containment BSL3 or BSL4 laboratories. He leads cutting edge research and has published extensively on numerous viral hemorrhagic fever agents. **Honorati Masanja, MS, PhD** will serve as the IHI lead in his
role as Chief of Research Operations at IHI. Dr. Masanja is an epidemiologist skilled in data management and biostatistics who leads numerous collaborative studies in Tanzania and is funded by international organizations such as the WHO and CDC.

J. Paschal Mugasa, MS, PhD will serve as an SME for Rift Valley fever research components. Dr. Mugasa is a chief laboratory officer at IHI and a respected expert who has performed critical preliminary research on which the current research proposal builds. Sayoki Mfinanga, MD, PhD is the Muhimbili Centre Director for NIMR and has current research in the study region that positions him well to facilitate and guide approvals and study implementation logistics.

David Wolking, MS will fill a critical project management role to help coordinate short term project activities in the context of the long term research objectives and milestones. Mr. Wolking has excelled in this role in his current UCD position for Tanzania and Nepal research projects involving surveillance for emerging zoonotic diseases.

IV. WORK TO BE PERFORMED GENERAL

This project will investigate the epidemiology of RVF and Brucella in two study regions of URT while simultaneously enhancing the network of professionals prepared to address select agent emerging needs. The tasks below are designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization and modeling efforts. We expect that genomic analyses will position us to characterize diversity, identify wildlife reservoirs, and develop models that predict areas of pathogen maintenance, transmission, and evolution in this endemic region. The end research goal is increased detection and response capacity to sustainably further human and animal health.

A. SUMMARY

Several of the tasks below will occur collaboratively and at multiple institutions, but in general our research strategy is for in-country human surveillance and research activities to occur at either IHI or NIMR in URT. Animal surveillance and research activities will occur primarily at SUA and IHI in URT. For the entire project, each objective will be accomplished in-country to the point that is technologically achievable. As a back-up partner, UCD will provide laboratory support where needed for training and advanced molecular techniques. Metabiota will provide administrative and logistical support to UCD and URT partners, as well as serve as scientific integrator for all project stakeholders.

Year 1
Task 1: Management team meetings (monthly).
Task 2: Project administration (Begin in 1st quarter): a) Develop research protocols and data collection forms, b) Obtain protocol and research permit approval, c) Organize field logistics, hire additional field staff, d) Seek collaboration with health clinics, livestock officers, hunting companies and game scouts, e) Begin database development based on data
collection forms, f) Identify and enroll Tanzanian postdoctoral scientist/masters students.

Task 3: Training (Begin 2nd quarter): a) Identify field and laboratory training needs, b) Conduct field, clinic and laboratory staff training including blinded controls as part of quality assurance plan, c) Develop networked and secured database tailored for project needs.

Task 4: Field site characterization (1st and 2nd quarter): a) Conduct systematic site characterization of current climactic conditions, animal and human populations, and risk factor data for the Ruaha and Kilombero study regions, b) Analyze distribution of key risk factors.

Task 5: Public health surveillance (Begin 2nd quarter): Establish collaborations with public health officials to facilitate comparative studies of RVFV and Brucella in humans with the proposed animal and vectors studies.

Task 6: Sentinel livestock surveillance (Begin 3rd quarter): a) Conduct an initial cross-sectional study by screening samples from 100 households per study region to determine RVFV and Brucella livestock infection status, b) Administer risk factor surveys to new study households, c) Enroll 10 sentinel herds per study region for quarterly longitudinal surveillance, d) Conduct longitudinal surveillance testing.

Task 7: Syndromic livestock surveillance (Begin 3rd quarter): a) Conduct outreach to livestock officers to raise awareness of abortion and the reporting chain to document cases as part of the proposed research, b) Begin monitoring abortion incidence in collaboration with livestock officers, c) Follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region.

Task 8: Wildlife surveillance (Begin 2nd quarter): a) Coordinate with TAWIRI and TANAPA for opportunistic wildlife surveillance planning, b) Collect wildlife samples for RVFV and Brucella screening from live animals involved with wildlife immobilization studies, c) Collect wildlife samples for pathogen screening from depredatead and hunted wildlife in the study region.

Task 9: Vector surveillance (Begin 3rd quarter): a) Conduct transects for systematic vector collection near households in the two study regions, b) Characterize collected vectors and preserve for RVFV screening.

Task 10: Genomic characterization (Begin 4th quarter): a) Perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs, b) Conduct genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates, b) Genetically characterize Brucella isolates from animals and humans in the study region to identify shared species.

Task 11: Data analysis and report preparation (Begin 4th quarter): a) Perform preliminary database validation, b) Conduct preliminary data analyses on study site characteristics, infection outcomes in vectors, animals, and people from the study region, and scoping
studies to inform the predictive model development. c) Prepare progress reports for internal and external purposes.

Year 2
Task 1: Management team meetings (monthly).
Task 2: Project administration (ongoing): a) Update research protocols and data collection forms, b) Renew protocol and research permit approval, c) Organize field logistics, maintain field staff. d) Support collaboration with health clinics, livestock officers, hunting companies and game scouts, e) Finalize database development based on data collection forms and initial scope studies, f) Support and mentor Tanzanian postdoctoral scientist/masters students.
Task 3: Training (ongoing): a) Identify new field and laboratory training needs, b) Conduct field, clinic and laboratory staff training including blinded controls as part of quality assurance plan, c) Validate networked and secured database tailored for project needs.
Task 4: Field site characterization (ongoing): a) Conduct systematic site characterization of current climatic conditions, animal and human populations, and risk factor data for the Ruaha and Kilombero study regions, b) Analyze distribution of key risk factors.
Task 5: Public health surveillance (ongoing): Collaborate with public health officials to facilitate comparative studies of RVFV and Brucella among humans, animals, and vectors in the region.
Task 6: Sentinel livestock surveillance (ongoing): a) Complete the cross-sectional study of 100 households per study region to determine RVFV and Brucella livestock infection status, b) Conduct longitudinal surveillance.
Task 7: Syndromic livestock surveillance (ongoing): a) Continue outreach to livestock officers to raise awareness of abortion and the reporting chain to document cases as part of the proposed research, b) Collaborate with livestock officers to monitor reported abortion incidence, c) Follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region.
Task 8: Wildlife surveillance (ongoing): a) Coordinate with TAWIRI and TANAPA for opportunistic wildlife surveillance planning, b) Collect wildlife samples for RVFV and Brucella screening from live animals involved with wildlife immobilization studies. c) Collect wildlife samples for pathogen screening from depredated and hunted wildlife in the study region.
Task 9: Vector surveillance (ongoing): a) Conduct transects for systematic vector collection near households in study regions, b) Characterize collected vectors and preserve for RVFV screening. Task 10: Genomic characterization (ongoing): a) Perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs, b) Conduct genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates, b) Genetically characterize Brucella isolates from animals and humans in the study region to identify shared species.
Task 11: Data analysis and report preparation (ongoing): a) Perform preliminary modeling analyses, b) Conduct data analyses on study site characteristics, infection outcomes in vectors, animals, and people from the study region, c) Prepare progress reports.
Year 3

Task 1: Management team meetings (monthly).

Task 2: Project administration (ongoing): a) Update research protocols and data collection forms, b) Renew protocol and research permit approval, c) Organize field logistics, maintain field staff, d) Support collaboration with health clinics, livestock officers, hunting companies and game scouts, e) Perform database maintenance as needed for quality control purposes, f) Support and mentor Tanzanian postdoctoral scientist/master students.

Task 3: Training (ongoing): a) Identify new field and laboratory training needs, b) Conduct training sessions on data analysis, scientific writing, and outreach approaches for project staff and students.

Task 4: Field site characterization (complete).

Task 5: Public health surveillance (ongoing): Collaborate with public health officials to facilitate comparative studies of RVFV and Brucella among humans, animals, and vectors in the region.

Task 6: Sentinel livestock surveillance (complete 2nd quarter): a) Longitudinal surveillance.

Task 7: Syndromic livestock surveillance (complete 2nd quarter): a) Collaborate with livestock officers to monitor abortion incidences, b) Follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region.

Task 8: Wildlife surveillance (complete 2nd quarter): a) Coordinate with TAWIRI and TANAPA for opportunistic wildlife surveillance planning, b) Collect wildlife samples for RVFV and Brucella screening from live animals involved with wildlife immobilization studies, c) Collect wildlife samples for pathogen screening from depredated and hunted wildlife in the study region.

Task 9: Vector surveillance (Complete 2nd quarter): a) Conduct transects for systematic vector collection near households in the two study regions, b) Characterize collected vectors and preserve for RVFV screening.

Task 10: Genomic characterization (Complete 3rd quarter): a) Perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs, b) Conduct genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates, b) Genetically characterize Brucella isolates from animals and humans in the study region to identify shared species.

Task 11: Data analysis and report preparation (complete 4th quarter): a) Predictive model development and validation, b) Conduct data analyses on study site characteristics, infection outcomes in vectors, animals, and people from the study region, c) Prepare final reports.

B. DETAILED TASKS

Task 1: Management team (MT) meetings (monthly, Years 1-3): The lead project team partners from Metabiota, UCID, SUA, IHI, and NIMR will meet at least monthly, initially by conference call, to discuss and coordinate research program decisions and progress.

**Metrics of Success:** At least 12 MT meetings logged per project year.

**Deliverables:** MT meeting minutes will be archived and highlighted in the annual report.

**Task 2: Project Administration (Years 1-3):**

a) **Develop research protocols, questionnaires and data collection forms:** Detailed sample collection protocols, household questionnaires, and data collection forms will be developed collaboratively in English and Kiswahili. Standard operating procedures for sample preservation, storage and transport, including cold chain management, have already been developed for other URT infectious disease studies and will be adapted as needed. Diagnostic tests, such as serology and ELISA for *Brucella*, as well as PCR for a variety of pathogens, are routinely performed in our laboratories. For RVFV diagnostics, established and previously published protocols and assays will be utilized at IHI and NIMR. Detection of RVFV in acute phase sera, aborted fetal materials, and mosquito pools will be screened by qRT-PCR, whereas sentinel herds and wildlife will be screened by standard anti-RVFV IgG ELISA techniques [34-36].

b) **Obtain research protocols and permit approvals:** Through the appropriate authorities in the US and URT, obtain research permit approval for the proposed research objectives. Key organizations are represented on our research team and will facilitate URT applications.

c) **Organize field logistics, hire, and maintain project staff:** Existing research teams will be supplemented as needed to implement the proposed project objectives. Field site coordinators will work closely with their institutional leads and the management team to integrate activities with laboratory staff and to ensure an efficient work flow throughout the project.

d) **Foster collaboration with health clinics, veterinary officers, hunting companies, game scouts:** SUA, UCD, and NIMR have a field office in Iringa near the Ruaha study site, and from this base we work with rural health clinics and village health workers, as well as livestock officers and wildlife authorities. Similarly, IHI has long established collaborations with households and clinics in the Kilombero River valley. Additional collaborations will be sought as needed at both study sites to foster stakeholder involvement where appropriate for the research objectives.

e) **Database development and maintenance:** A secured database will be developed and maintained in collaboration with URT and US data management professionals.

f) **Support and mentor postdoctoral scientists and Tanzanian masters students:** Two highly trained postdoctoral researchers from the US and two URT masters students, one from SUA and one from IHI, will work closely together to complete their research within the study scope. The project faculty members will participate in a mentoring plan to encourage professional development and research proficiency.

**Personnel:** Fair, Smith, Mazet, MacLachlan, Kazwala, Masanja, Mugasa, Mfinanga, Wolking.

**Metrics of Success:** Permits and protocol approvals in place by Year 1; database developed in Year 1; at least two postdoctoral scientists and URT students mentored each year.

**Deliverables:** Permit and approval documentation; database section included in annual report; trainee progress reports and mentor evaluations included as an appendix to annual report.
Task 3: Field, clinic, and laboratory staff training (Years 1-3). The UCD/SUA HALI project, NMR, and IHI already have field staff with extensive experience in zoonotic disease research and data collection. New field staff and clinic personnel will be trained as needed in data collection procedures, sampling, and cold chain requirements. The diagnostic capacity of local clinics will be assessed and supplementary training planned as needed. In Years 2-3, training will shift to also include data analysis, model development, and scientific writing for publications.

Personnel involved: Fair, Smith, Kazwala, Masanja, Mugasa, Mfinanga, Wolking.

Metrics of Success: At least two training workshops conducted each year.

Deliverables: Training documents compiled for annual report; trainee progress reports and trainer evaluations included as an appendix to annual report.

Task 4: Field site characterization (Years 1-2):

a) Conduct systematic site characterization of current climatic conditions, animal and human populations, and risk factor data for the Ruaha and Kilombero study regions: UCD and SUA have been working in the Ruaha region since 2006, and collaborations with local village leaders, health clinics, game scouts, and livestock officers are already established. Similarly, IHI has been working extensively with local government, households, and health clinics in the Kilombero River Valley. The central study database will be input with past and newly collected datasets for study site characterization over time and space. Preliminary relevant spatial layers are already available through core partner and collaborating institutions.

b) Analyze distribution of key risk factors: Descriptive and analytic statistics will be generated to characterize the epidemiologic, spatial, and temporal risk factors and outcomes across the two study regions. Maps showing geographic, ecological, climatic and demographic information for the study areas will be generated using ArcGIS software in order to characterize within and between study site variations in time and space. These data will be used to guide and inform predictive model development throughout the research period.

Personnel involved: Fair, Smith, Bird, Kazwala, Masanja, Mugasa, Mfinanga, Wolking.

Metrics of Success: At least four risk factor and outcome variables characterized per study site.

Deliverables: Field site characterization section in database and annual report.

Task 5: Public health surveillance (Year 1-3). Collaborate with public health officials to facilitate comparative studies of RVFV and Brucella among humans, animals, and vectors in the region. Relationships with local health clinics are already established and the prevalence of RVFV and Brucella diagnosis in febrile patients will be documented from clinic records where possible. The prevalence of RVFV and Brucella in the human populations of the Ruaha and Kilombero area will be estimated through serologic screening of febrile patients in close collaboration with local doctors and nurses at the health clinics. We will collaborate with medical health professionals from NMR and IHI to educate clinic staff about symptoms of brucellosis and RVF, and to provide training in testing protocols, and diagnostics. Samples will be screened for antibodies for RVFV and Brucella at IHI and NMR as appropriate by study location. Longitudinal contact with the clinics will be carried
out by URT project staff. Personnel involved: Fair, Smith, Kazwala, Masanja, Mugasa, Mfinanga. Walking. Metrics of Success: At least two collaborative planning meetings conducted each year. Deliverables: Public health surveillance and collaborations section included in annual report. Data will be shared with WHO and URT stakeholders, pending approval of DRT, thus contributing to public health surveillance in URT.

Task 6: Sentinel livestock surveillance (Years 1-3):

a) Conduct an initial cross-sectional study of 100 households per study region to determine RVFV and Brucella livestock infection status: A total of 100 households with livestock will be selected within each of the two study areas while ensuring that different climatic, geographic, and demographic variables are represented. The number of animals sampled per herd is dependent on herd size (epitools.auvet.com.au) and will be determined to balance herd level sensitivity and specificity. In order to screen for RVFV and Brucella, blood samples will be collected from cattle and small ruminants by jugular venipuncture and milk samples will be collected aseptically from lactating animals. The livestock testing will be carried out by Tanzanian project staff after initial joint team trainings. For RVFV diagnostics, livestock will be screened by standard anti-RVFV IgG ELISA techniques using recombinant nucleocapsid protein antigen as described in [34-36]. Detection of RVFV in acute phase sera, will be conducted by real-time PCR. The qRT-PCR design is broadly reactive and allows for the detection of all known virus genotypes. The RVF work will be conducted primarily at IHI and NIMR. Serum samples from cattle and small ruminants will be tested for Brucella antibodies using the Rose Bengal Test, and positive samples confirmed with a cELISA. Milk samples will be screened for Brucella with qRT-PCR at SUA. The cross sectional survey will provide baseline comparative prevalence data between study areas and be used to identify the best target areas for the enrollment of sentinel surveillance herds that will be followed over time.

b) Sentinel herd surveillance: A total of 10 sentinel herds, with at least 5 cattle and 5 small ruminants each, will be identified from the households enrolled in the prevalence study per region. Suitable herds will be identified through the cross-sectional study in order to enroll households in locations with varying risk factors such as livestock density, proximity to wildlife, and rainfall. Testing methods as described above for livestock screening will be done biannually.

Personnel involved: Fair, Smith, Kazwala, Mugasa, Wolking.

Metrics of Success: Survey results from at least 100 households in each study area and enrollment of ten sentinel herds per region; seroprevalences of RVF and Brucella determined in both study areas through the cross-sectional study; and changes in seroprevalence established through the sentinel surveillance.

Deliverables: Livestock surveillance section included in annual report; 1 publication prepared.

Task 7: Syndromic livestock surveillance (Year 1-3):

a) Monitor reported abortion incidence: Due to limited veterinary infrastructure in URT, the cause of most abortion cases is not determined. We will work with URT livestock officers to raise awareness about the importance of monitoring abortions, and provide a mechanism for the livestock officers to get samples tested. Outreach to livestock extension
officers conducted by URT project staff will educate about the zoonotic potential of diseases that cause livestock abortions. Since the clinical symptoms of brucellosis and early outbreaks of RVF similar, syndromic surveillance is the best mechanism to facilitate early detection for RVF, reduce human risk of contracting brucellosis, and identify strains of Brucella and RVF causing abortion events.

b) Follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region: Livestock officers will receive training in proper sample collection, hygiene and use of personal protective equipment from the URT project staff. Tissues from aborted fetuses or afterbirth will be collected in collaboration with local livestock officers or by the URT project staff, and submitted to the diagnostic laboratory for pathogen identification. Samples stored in viral transport media (for RVFV diagnostics), formalin, or frozen at -20°C in the project field freezer before transport to the laboratory. At the time of sample collection, the livestock owner will be asked questions regarding the individual animal history, herd health and vaccination history, and general livestock management. Samples will be screened for RVFV and Brucella using real-time PCR. Feedback will be provided to the local livestock officer and animal owner, in addition to data inclusion in the project database.

Importance of using both cross-sectional and sentinel serologic surveillance and syndromic surveillance: The cross-sectional and sentinel serologic and syndromic surveillance activities complement each other but serve different purposes. The cross-sectional study will provide information about the seroprevalence of RVFV and Brucella in the region and enable us to identify target areas for sentinel serologic surveillance. The sentinel surveillance will inform on risk factors associated with changing seroprevalence. For RVFV risk factors for seroconversion, such as increased vector activity, rainfall and other climatic events, as well as livestock herd related risk factors as described above, will be evaluated. For Brucella, the risk for seroconversion will be evaluated for factors such as herd location, livestock density, herd management, animal movement, and contact to wildlife over time. Syndromic surveillance not only increases the capacity of livestock officers to accurately diagnose the causes of abortions, and provides education to livestock owners about the zoonotic risks, but also creates the infrastructure for an early warning system for RVF, as well as potentially sourcing isolates of RVF and Brucella for comparison with wildlife and human strains. Early detection of the disease is essential for rapid implementation of preventive strategies such as livestock vaccinations.

Personnel involved: Fair, Smith, Kazwala, Mugasa, Wolking.

Metrics of Success: At least two livestock extension officers involved each year.

Deliverables: Syndromic surveillance section included in annual report; 1 publication prepared.

Task 8: Wildlife surveillance (Years 1-3):

a) Coordinate with TAWIRI and TANAPA for opportunistic wildlife surveillance planning: these are the two prominent wildlife authorities in Tanzania, and relationships are in place to foster dialogue about the park’s interests paired with the needs of the research project.

b) Collect wildlife samples for RVFV and Brucella screening from live animals involved
with wildlife immobilization studies: There are sporadic opportunities to participate in immobilization activities during which animal samples can be collected for research purposes. Buffalo testing was a recent example where the HALI team provided leadership and experience to the immobilization exercises, and was concurrently able to collect samples for research.

c) Collect wildlife samples for pathogen screening from depredated and hunted wildlife in the study region: In collaboration with local game scouts and wildlife authorities, wildlife samples will be collected from the following sources: opportunistically collected specimens from legally hunted animals, natural mortalities, wild animals opportunistically found dead, and depredation animals deceased due to human-wildlife conflict. The GPS location from where the sample is collected will be recorded and collaboration with legal hunting organizations and game scouts are established in the study regions. Game scouts trained in tissue sampling will collect tissues from liver, spleen, reproductive tract, lymph nodes, and other organs. All samples will be screened for presence of RVFV and Brucella by real time qRT-PCR or qPCR, respectively. If the sampled animals are found dead, blood samples for serological testing will be screened. Personnel involved: Smith, Kazwala, Mugasa, Wolking.

Metrics of Success: At least two hundred wildlife samples screened each year.

Deliverables: Wildlife surveillance section included in annual report; 1 publication prepared.

Task 9: Vector surveillance (Year 1-3, Objective 2):
a) Conduct transects for systematic vector collection near households in the two study regions: After identification of sentinel livestock herds in the two study regions, transects will be established for mosquito collection using CO2-baited CDC light traps in contrasting environmental zones as discussed above. It is anticipated that mosquito collections will be conducted at least twice per dry and wet season, with 10-15 trapping nights expected per site.

b) Characterize collected vectors and preserve for pathogen screening: After collection, mosquitoes will be pooled (~20-25 mosquitoes per pool) by species, sex, and blood meal status. Female mosquitoes with evidence of a blood meal will be individually processed. Mosquito pools will be homogenized, clarified by low speed centrifugation, and aliquoted either directly to virucidal lysis buffer for RNA/DNA extraction or long-term frozen storage. RVFV diagnosis will be accomplished by qRT-PCR as described for livestock specimens. Blood meal positive mosquitoes will be processed similarly with the addition of PCR testing and DNA sequencing of the Cytochrome b gene to develop a “DNA-fingerprint” of the source of the blood meal at rough the genus level as described in [37].

Personnel involved: Smith, MacLachlan, Kazwala, Masanja, Mugasa, Wolking.

Metrics of Success: At least 1000 mosquito vector samples screened each year.

Deliverables: Vector surveillance section included in annual report; 1 publication prepared.

Task 10: Genomic characterization (Years 1-3):
a) Perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs: Perform phylogenetic analyses of genomic diversity. Initial screening of mosquito pools and acute phase patient/animal derived clinical materials (blood, tissues) will be accomplished by qRT-PCR.
b) Conduct genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates: RVFV positive specimens will be subjected to complete genome amplification using standard RT-PCR techniques utilizing primers binding the extreme 3' and 5' termini of each viral genome segment (S, M, L) following techniques described in [3,24]. Following full length cDNA amplification, complete genome sequencing will be performed in the region if feasible, and analyzed using Bayesian and maximum likelihood techniques to generate phylogenies and multiple sequence alignments.

c) Genetically characterize Brucella isolates from animals and humans in the study region to identify shared isolates: Clinical and archived samples will be molecularly screened using qPCR for confirmation of Brucella species and subtypes using established methods in our laboratories including PCR targeting 16S rRNA genes, Outer Membrane Proteins, and spacer elements for molecular characterization, followed by sequence analysis. Culture will only be used if sufficient sample or isolate is not available for direct molecular screening. Bacterial amplification will be conducted in established protocols in URT team laboratories.

Personnel involved: [0][6] Smith, MacLachlan, Kazwala, Masanja, Mugasa, Mfinanga, Woking.

Metrics of Success: At least two hundred samples molecularly characterized each year.

Deliverables: Molecular epidemiology section included in annual report; 1 publication prepared.

Task 11: Data analysis, modeling, and progress reports (Year 2-3):

a) Predictive model development and data analysis on study site characteristics, infection outcomes in vectors, animals, and people: Data analysis will initially involve examining variable distributions and calculating the proportion of individuals in each host species that have been exposed to RVFV and Brucella. Modeling efforts will integrate data across tasks, detailed below.

- Analysis for Task 5, public health surveillance: The goal of this task is to determine the prevalence of RVF and brucellosis in febrile patients in the study regions. This will be done based on analysis of health records and on prospective screening of febrile individuals in collaboration with local health clinics. Data analysis will involve descriptive statistics and cluster analysis to characterize patterns of disease in space and time using SaTScan software.

- Analysis for Task 6, livestock surveillance: Cross-sectional serologic and risk factor study: Herd level and individual animal level seroprevalence of Brucella and RVFV exposure will be determined and associations between risk factors and exposure will be examined using multivariate logistic regression models with a random effect adjusting for herd dependence. Herd level exposure and risk factors include 1) for RVF: age, sex, parity, breed, stocking density, location of herd, season, climatic factors, contact and proximity to wildlife; and 2) for Brucella: age, sex, parity, breed, stocking density, grazing management, mixing with other herds, water sources, location of household, season, climatic factors, and contact with wildlife. Individual animal risk factors for shedding Brucella in the milk will also be assessed using descriptive statistics and regression models. Additional analysis will be performed to evaluate infection clustering in space and time using GIS and SaTScan.
software.

**Sentinel surveillance:** The goal of the sentinel surveillance is to assess risk factors associated with seroconversion for RVFV and *Brucella* given potential endemic transmission dynamics within the study area. Changes in the proportion of livestock, wildlife and mosquito vectors (for RVF) exposed to RVFV and/or *Brucella* will be determined over time for different locations and reported using descriptive statistics. For RVF, spatial and temporal associations with geographic, climatic, demographic, and herd specific risk factors as described under task 6 will be mapped. The influence of different risk factors will be determined using regression analyses. Similarly, for *Brucella*, risk factors associated with spatial and temporal variations in seroprevalence will be evaluated using herd specific risk factors and regression modeling as described above.

- **Analysis for Task 7, syndromic surveillance:** The goal of the syndromic surveillance is to determine the frequency of abortion due to RVFV and *Brucella* in the study area, and to obtain strains of each pathogen for molecular characterization and comparison with strains from insect vectors, wildlife, and humans. The frequency of abortion due to RVFV and *Brucella* during the study period will be reported using descriptive statistics. Individual animal and herd level risk factors for abortions will be evaluated using data on individual animal history and herd history and analyzed using logistic regression. Strains of RVFV and *Brucella* isolated from aborted material will be compared to strains isolated from wildlife, and insect vectors (RVF only). Location of abortion events caused by each pathogen will be mapped and compared to serologic data to see if the locations of abortion events correspond to areas of high or low seroprevalence.

- **Analysis for Task 8, wildlife surveillance:** The goal of the wildlife surveillance is to determine the frequency of exposure (for live animals) and infection and strain types (for post-mortem sampled animals) with RVFV and *Brucella*. In wildlife, potential reservoir/spill-over hosts for RVFV and will be determined based on the frequency of exposure to or presence of the pathogens as well as for RVFV from blood meal analysis from mosquitoes and reported using descriptive statistics. The spatial distribution of exposure to, or presence of both diseases, will be examined using GIS and statistical software to identify areas of disease overlap between livestock, wildlife and human populations. Associations of infection with risk factors such as location, climatic variables, species, age, sex, and proximity to livestock will be assessed using regression analysis. Strains of RVFV and *Brucella* isolated from wildlife will be compared to livestock and human strains. The focus on endemic disease dynamics in this project builds on our preliminary studies in the region and complements other studies that focus on modeling disease dynamics surrounding epidemics.

- **Analysis, genomic characterization:** The goal of the genomic characterization is to determine the type and diversity of strains of RVFV and *Brucella* in the study areas. Complete genome sequence data will be processed by multiple sequence alignment algorithms and analyzed by Bayesian and maximum likelihood techniques to generate phylogenies and estimates of the overall molecular evolutionary rate and time to most
recent common ancestor. If sufficient RVFV or Brucella spp. specimen genomic data are obtained, further population genetics studies such as Bayesian skyline analyses, creation of minimum spanning networks, and Mantell analyses will determine whether genetic diversity is correlated with space or time factors.

Model development: For RVFV, the human, livestock, wildlife, vector, and climate data will be integrated to develop spatially explicit models that predict areas and time periods of increased pathogen maintenance, transmission, and genomic diversity. For Brucella, human, livestock and wildlife data will be integrated to identify areas of higher risk for transmission, and for determining the most important risk factors for disease transmission. For both diseases, the URT partner institutions and stakeholders will utilize information from the models in order to target locales of increased risk, and implement preventive measures that may be critical for public and targeted surveillance.

Personnel responsible for data analysis, and capacity building: Tanzanian project staff and students will be trained by the more senior faculty and staff on scientific analysis and writing so that all team members can lead on publications in their specific research areas within the project, working in close collaboration.

c) Prepare final reports. Metabiota will coordinate reporting mechanisms across the partner organizations to ensure proper chain of command in decision making. Preliminary and annual progress reports will be generated throughout the project, with the final report assembled for review 1 month before the end of the project, so as to seek input and revise as appropriate. Personnel: Smith, Mazet, MacLachlan, Bird, Kazwala, Masanja, Mugasa, Mfimanga Wolking.

Metrics of Success: Mixed epidemiologic and transmission models produced for RVFV and Brucella to characterize endemic dynamics and evolution of pathogens in the region. Reports submitted, complete and on time.

Deliverables: Data analysis and modeling section included in annual report; 2 publications.

C. PERFORMANCE SCHEDULE

<table>
<thead>
<tr>
<th>Project/Timeline</th>
<th>Year 1 (July '14-June '15)</th>
<th>Year 2 (July '15-June '16)</th>
<th>Year 3 (July'16-June'17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task #: Description</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
</tr>
<tr>
<td>1: Monthly MT meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Administrative startup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain research permits, Develop field protocols, HHI questionnaires, SOP's for sample transport, storage, preservation, hire field staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Description</td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Develop lab protocols</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek collaboration with game scouts, clinics, livestock officers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Database development</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Training of field staff, lab staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Field site characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Public health surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish collaborations with officials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Sentinel livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-sectional livestock prevalence study testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentinel herd surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Syndromic livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of livestock officers in PPE, sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive and test samples</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game scout training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Vector surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify sampling sites</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vector sampling and blood meal analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10: Genomic characterization of RVFV and Brucella isolates from livestock, wildlife, and vectors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11: Data analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preliminary analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final analysis and model development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual report due</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final report due</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manuscript preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IV. REFERENCES


Rift Valley fever and brucellosis in Tanzania/Dr. Falgune Parekh Thrust Area 6


Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

<table>
<thead>
<tr>
<th>CLIN</th>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>
# DELIVERY INFORMATION

<table>
<thead>
<tr>
<th>CLIN</th>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>UIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>POP 07-AUG-2014 TO 06-AUG-2017</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/J3CTB 8725 JOHN J. KINGMAN ROAD MSC 6201 FORT BELVOIR VA 22060-6201</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>000101</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
ACCOUNTING AND APPROPRIATION DATA

AA: 044315 097 0134 000 N 20142016 D 34HQ 0901515BR-KD-BP 3416-0134-34HQ-TANCT DTRA 410
AMOUNT: $932,060.00
CIN: 000101 FCTB12501: $932,060.00

CLAUSES INCORPORATED BY FULL TEXT

252.232-7007 LIMITATION OF GOVERNMENT'S OBLIGATION (APR 2014)

(a) Contract line item(s) is/are incrementally funded. For this/these item(s), the sum of $932,060.00 of
the total price is presently available for payment and allotted to this contract. An allotment schedule is set forth in
paragraph (j) of this clause.

(b) For items(s) identified in paragraph (a) of this clause, the Contractor agrees to perform up to the point at which
the total amount payable by the Government, including reimbursement in the event of termination of those item(s)
for the Government's convenience, approximates the total amount currently allotted to the contract. The Contractor
is not authorized to continue work on those item(s) beyond that point. The Government will not be obligated in any
event to reimburse the Contractor in excess of the amount allotted to the contract for those item(s) regardless of
anything to the contrary in the clause entitled "TERMINATION FOR THE CONVENIENCE OF THE
GOVERNMENT." As used in this clause, the total amount payable by the Government in the event of termination
of applicable contract line item(s) for convenience includes costs, profit and estimated termination settlement costs
for those item(s).

(c) Notwithstanding the dates specified in the allotment schedule in paragraph (j) of this clause, the Contractor will
notify the Contracting Officer in writing at least ninety days prior to the date when, in the Contractor's best
judgment, the work will reach the point at which the total amount payable by the Government, including any cost for
termination for convenience, will approximate 85 percent of the total amount then allotted to the contract for
performance of the applicable item(s). The notification will state (1) the estimated date when that point will be
reached and (2) an estimate of additional funding, if any, needed to continue performance of applicable line items up
to the next scheduled date for allotment of funds identified in paragraph (j) of this clause, or to a mutually agreed
upon substitute date. The notification will also advise the Contracting Officer of the estimated amount of additional
funds that will be required for the timely performance of the item(s) funded pursuant to this clause, for subsequent
periods as may be specified in the allotment schedule in paragraph (j) of this clause, or otherwise agreed to by the
parties. If after such notification additional funds are not allotted by the date identified in the Contractor's
notification, or by an agreed substitute date, the Contracting Officer will terminate any item(s) for which additional
funds have not been allotted, pursuant to the clause of this contract entitled "TERMINATION FOR THE
CONVENIENCE OF THE GOVERNMENT".

(d) When additional funds are allotted for continued performance of the contract line item(s) identified in paragraph
(a) of this clause, the parties will agree as to the period of contract performance which will be covered by the funds.
The provisions of paragraph (b) through (d) of this clause will apply in like manner to the additional allotted funds
and agreed substitute date, and the contract will be modified accordingly.

(e) If, solely by reason of failure of the Government to allot additional funds, by the dates indicated below, in
amounts sufficient for timely performance of the contract line item(s) identified in paragraph (a) of this clause, the
Contractor incurs additional costs or is delayed in the performance of the work under this contract and if additional funds are allotted, an equitable adjustment will be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the item(s), or in the time of delivery, or both. Failure to agree to any such equitable adjustment hereunder will be a dispute concerning a question of fact within the meaning of the clause entitled "disputes."

(f) The Government may at any time prior to termination allot additional funds for the performance of the contract line item(s) identified in paragraph (a) of this clause.

(g) The termination provisions of this clause do not limit the rights of the Government under the clause entitled "DEFAULT." The provisions of this clause are limited to work and allotment of funds for the contract line item(s) set forth in paragraph (a) of this clause. This clause no longer applies once the contract is fully funded except with regard to the rights or obligations of the parties concerning equitable adjustments negotiated under paragraphs (d) or (e) of this clause.

(h) Nothing in this clause affects the right of the Government to this contract pursuant to the clause of this contract entitled "TERMINATION FOR CONVENIENCE OF THE GOVERNMENT."

(i) Nothing in this clause shall be construed as authorization of voluntary services whose acceptance is otherwise prohibited under 31 U.S.C. 1342.

(j) The parties contemplate that the Government will allot funds to this contract in accordance with the following schedule:

On execution of contract $--

August 07, 2015 $925,557.00

August 07, 2016 $930,866.00

(End of clause)

252.601-9000 GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name:
   Defense Threat Reduction Agency/BD-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone:
   Email:

b. Grantee Business Office:
   Name:
   Title:
   Phone:
   E-mail:

c. Grantee Principal Investigator (PI):
   Name:
   Title:
252.601-9001  GRANTS OFFICER'S REPRESENTATIVE (GOR) (MAY 2009)

d.  Grants Officer's Representative (GOR) for this Grant is:

  Name: [REDACTED]
  Defense Threat Reduction Agency/ JACTBS
  8725 John J. Kingman Road, MS 6201
  Fort Belvoir, VA  22060-6201
  Telephone: [REDACTED]
  Email address: [REDACTED]

b.  SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S
    REPRESENTATIVE

1.  The Grants Officer's Representative (GOR) is responsible for monitoring the technical and
    programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement)
    including compliance with the agreement's reporting requirements. Perceived deviations from the
    agreement's terms and conditions shall be brought to the attention of appropriate recipient personnel and if
    not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the
    recipient's inability or unwillingness to conform to the agreement's requirements shall be brought to the
    immediate attention of the Grants Officer.

2.  The GOR has no authority to modify the stated terms of the agreement or specifications in any manner,
    or to approve any action that would result in additional charges to the Government. The DTRA Grants
    Officer must make all such changes in writing.

3.  The GOR is authorized to correspond directly with the recipient on matters within the scope and
    limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a
    copy will be furnished the Grants Officer for placement in the official agreement file.

4.  The GOR will provide technical advice to the recipient to the extent such advice will not alter any of
    the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's
    performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas
    related to the original scope of the agreement that may be of special interest to DTRA. The GOR should
    also be alert for indications that any part of the research is becoming unfuturist. If, as a result of such
    discussions, questions arise as to the possible need for a modification, the matter shall be brought to the
    immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action
    that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written
    approval of the Grants Officer.

5.  Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a
    brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6.  The GOR will maintain such work files as he or she deems necessary to properly document
    performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery
    of all required reports, such work files will be forwarded to the Grants Officer for placement in the official
    agreement file.
7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)

252.601-9002 GRANT REFERENCE INFORMATION (MAY 2009)

c. This grant is awarded as a result of Broad Agency Announcement (BAA) [RFBA09-6:2-0170]. Research and Development Enterprise, Basic and Applied Sciences Directorate, Basic Research for Combating Weapons of Mass Destruction (C-WMD).

def. CFDA #: 12.351

g. Authority: Pub. 11376 Cooperative Threat Reduction
### Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit B</td>
<td>Terms and Conditions</td>
<td>39</td>
<td>01-MAY-2012</td>
</tr>
</tbody>
</table>
## Amendment of Solicitation/Modification of Contract

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amendment/Modification No.</td>
<td>P00003</td>
</tr>
<tr>
<td>Effective Date</td>
<td>04 Aug 2017</td>
</tr>
<tr>
<td>Solicitation/Purchase No.</td>
<td></td>
</tr>
<tr>
<td>Project No. (Applicable)</td>
<td></td>
</tr>
<tr>
<td>Issued By</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>HDTAA1</td>
</tr>
<tr>
<td>Administered By (Office)</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>N62679</td>
</tr>
<tr>
<td>Name and Address of Contractor (No., Street, County, State and Zip)</td>
<td>METAIBIA INC.</td>
</tr>
<tr>
<td>Address</td>
<td>455 CALIFORNIA STREET SUITE 300 SAN FRANCISCO CA 94104-2104</td>
</tr>
<tr>
<td>Facility Code</td>
<td>56524</td>
</tr>
<tr>
<td>Amendment/Modification No.</td>
<td></td>
</tr>
<tr>
<td>Effective Date</td>
<td>07 Aug 2014</td>
</tr>
<tr>
<td>Solicitation/Purchase No.</td>
<td></td>
</tr>
<tr>
<td>Project No. (Applicable)</td>
<td></td>
</tr>
<tr>
<td>Issued By</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>Administered By (Office)</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>Name and Address of Contractor (No., Street, County, State and Zip)</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Facility Code</td>
<td></td>
</tr>
<tr>
<td>Accounting and Appropriation Data (if required)</td>
<td></td>
</tr>
<tr>
<td>This Item Only Applies to Amendments of Solicitations</td>
<td></td>
</tr>
<tr>
<td>The above numbered solicitation is amended as set forth in Item 14.</td>
<td></td>
</tr>
<tr>
<td>The hour and date specified for receipts of offer</td>
<td></td>
</tr>
<tr>
<td>as extended,</td>
<td></td>
</tr>
<tr>
<td>Failure to acknowledge receipt of this amendment prior to the hour</td>
<td></td>
</tr>
<tr>
<td>and date specified in the solicitation as amended by one of the</td>
<td></td>
</tr>
<tr>
<td>following methods:</td>
<td></td>
</tr>
<tr>
<td>(i) by completing Items 8 and 15 and returning a copy of the</td>
<td></td>
</tr>
<tr>
<td>amendment; (ii) by acknowledging receipt of this amendment on each</td>
<td></td>
</tr>
<tr>
<td>copy of the offer submitted; or (c) by signature of telegram which</td>
<td></td>
</tr>
<tr>
<td>indicates acknowledgment of the solicitation and amendment numbers;</td>
<td></td>
</tr>
<tr>
<td>Failure of your acknowledgment to be received at the place</td>
<td></td>
</tr>
<tr>
<td>designated for the receipt of offers prior to the hour and date</td>
<td></td>
</tr>
<tr>
<td>specified may result in rejection of your offer.</td>
<td></td>
</tr>
<tr>
<td>By virtue of this amendment you are required to change the offer</td>
<td></td>
</tr>
<tr>
<td>already submitted, such change may be made by telegraph or letter,</td>
<td></td>
</tr>
<tr>
<td>provided such telegram or letter makes reference to the solicitation</td>
<td></td>
</tr>
<tr>
<td>and this amendment, and is received prior to the hour and date</td>
<td></td>
</tr>
<tr>
<td>specified.</td>
<td></td>
</tr>
<tr>
<td>This Item Applies Only to Modifications of Contract Orders</td>
<td></td>
</tr>
<tr>
<td>It modifies the contract/Order No. as described in Item 14.</td>
<td></td>
</tr>
<tr>
<td>This change order is issued pursuant to:</td>
<td></td>
</tr>
<tr>
<td>(Specify authority)</td>
<td></td>
</tr>
<tr>
<td>The changes set forth in Item 14 are made in the contract/Order No.</td>
<td></td>
</tr>
<tr>
<td>The above numbered contract/Order is modified to reflect the</td>
<td></td>
</tr>
<tr>
<td>administrative changes (such as changes in paying</td>
<td></td>
</tr>
<tr>
<td>office, appropriation date, etc.) set forth in Item 14, pursuant to</td>
<td></td>
</tr>
<tr>
<td>the authority of FAR 43.103(b).</td>
<td></td>
</tr>
<tr>
<td>This supplemental agreement is entered into pursuant to authority of</td>
<td></td>
</tr>
<tr>
<td>Other (Specify type of modification and authority)</td>
<td></td>
</tr>
<tr>
<td>Contractor is not.</td>
<td></td>
</tr>
<tr>
<td>is required to sign this document and return copies to the issuing</td>
<td></td>
</tr>
<tr>
<td>office.</td>
<td></td>
</tr>
<tr>
<td>Description of Amendment/Modification (Organized by UCF section</td>
<td></td>
</tr>
<tr>
<td>headings, including solicitation/contract subject matter)</td>
<td></td>
</tr>
<tr>
<td>Modification Contract Number</td>
<td>93(4)</td>
</tr>
<tr>
<td>RQN: JOCB23203A</td>
<td></td>
</tr>
<tr>
<td>The purpose of this administrative modification is to exercise a</td>
<td></td>
</tr>
<tr>
<td>No-Cost Extension to the subject grant by extending the period of</td>
<td></td>
</tr>
<tr>
<td>performance from August 7, 2016-August 8, 2017 to August 7, 2017,</td>
<td></td>
</tr>
<tr>
<td>June 6, 2018. This modification will also update the Grants Officers</td>
<td></td>
</tr>
<tr>
<td>Representative clause 252.901-9001. All other terms and conditions</td>
<td></td>
</tr>
<tr>
<td>remain unchanged.</td>
<td></td>
</tr>
<tr>
<td>As provided herein. All terms and conditions of the document</td>
<td></td>
</tr>
<tr>
<td>referenced in Item 14 or 19A are therefore changed, remains unchanged</td>
<td></td>
</tr>
<tr>
<td>and in full force and effect</td>
<td></td>
</tr>
<tr>
<td>Name and Title of Signer</td>
<td></td>
</tr>
<tr>
<td>Type or print</td>
<td></td>
</tr>
<tr>
<td>Contract/Order No.</td>
<td></td>
</tr>
<tr>
<td>United States of America</td>
<td></td>
</tr>
<tr>
<td>Date Signed</td>
<td>04-Aug-2017</td>
</tr>
<tr>
<td>Signature of Person Authorized to Sign</td>
<td></td>
</tr>
<tr>
<td>Signature of Contracting Officer</td>
<td></td>
</tr>
</tbody>
</table>

**Exception to SF 30**

**Approved by ORM 11-84**

STANDARD FORM 30 (Rev. 10-83)

Prepared by GSA

FAR (48 CFR) 33.243
SECTION A - SOLICITATION/CONTRACT FORM

The 'Payment will be made by' organization has changed from
DFAS COLUMBUS CENTER
DFAS-CO/WEST ENTITLEMENT OPERATIONS
P.O. BOX 182381
COLUMBUS OH 43218-2381

To:
DFAS COLUMBUS CENTER
DFAS-CO/WEST ENTITLEMENT OPERATIONS
P.O. BOX 182317
COLUMBUS OH 43218-2317

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 07-AUG-2014 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>06-AUG-2017</td>
<td></td>
<td>AGENCY/J3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 07-AUG-2014 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>06-JUN-2018</td>
<td></td>
<td>AGENCY/J3CTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been modified:
a. Grants Officer's Representative (GOR) for this Grant is:
   Name:
   Defense Threat Reduction Agency/ J3CTBS
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone:
   Email address:

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S REPRESENTATIVE

1. The Grants Officer's Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement's reporting requirements. Perceived deviations from the agreement's terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient's inability or unwillingness to conform to the agreement's requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P00004

3. EFFECTIVE DATE 25 Aug 2017

4. PROCUREMENT/PURCHASE ARO. NO. 

5. PROJECT NO. (Applicable) 

6. ISSUED BY DOD HA19
DEFENSE THREAT REDUCTION AGENCY
7500 JOHN J. KENNEDY BRIDGE, MSC 2021
FORT BELVOIR VA 20160-2021

7. ADMINISTERED BY DMSTOCK
DEA STOCKTON
3277 WEST MARSH LANE, SITE 300
STOCKTON CA 95215

CODE 6657A

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
METERA INC.

9. AMENDMENT OF SOLICITATION NO.

9A. DATED (SEE ITEM 11) 07 Aug 2014

9B. DATED (SEE ITEM 11) 10A. MOD. OF CONTRACT/ORDER NO. HDTRA1-14-1-0055

9C. DATED (SEE ITEM 13) 10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ This above numbered amendment is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended, ☐ is not extended.

☒ Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
☐ (a) By completing Form 8 and returning to the issuing office.
☐ (b) By acknowledging receipt of this amendment on each copy of offer submitted.
☐ (c) By separate letter or telegram which includes reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. By virtue of this amendment, you desire to change an offer already submitted, such change may be made by telegraphic order, provided such telegram or letter makes reference to the solicitation and this amendment and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

13A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

BOOLE. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

13C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

13D. OTHER (Specify type of modification and authority)

☒ IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

MODIFICATION CONTROL NUMBER: E[5]
RQN: HDTRA17232038

The purpose of this administrative modification is to correct the grant administrative office by changing it to DOD Stockton and to update the Grant Funding Profile Clause.

All other terms and conditions remain unchanged.

15A. NAME AND TITLE OF SIGNER (Type or print)

15B. CONTRACTOR/OFFEROR (Type or print)

15C. DATE SIGNED 23-Aug-2017

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED 23-Aug-2017
SECTION A - SOLICITATION/CONTRACT FORM
The 'administered by' organization has changed from
DEFENSE THREAT REDUCTION AGENCY (DTRA)
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201

to
DCMA STOCKTON
3247 WEST MARCII LANE, STE 300
STOCKTON CA 95219

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been modified:

252.632-8000 GRANT FUNDING PROFILE (MAR 2012)

FUNDING PROFILE:
The total amount obligated under this Grant is $2,788,483.00 for work performed during the period beginning with Grant award and continuing through June 6, 2018. Additional incremental funding planned, but not obligated, is:

$0.00

The Government's liability is limited to the amount obligated.

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO.  

3. EFFECTIVE DATE 11-Apr-2018

4.inquiring Agency/Office  

5. PROJECT NO. (Applicable)

6. ISSUED BY CODE  
DENeCThRTE REDUCTION AGENCY/ACO

7. ADMINISTERED BY CODE  

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, City, State and Zip Code)  

9. AMENDMENT OF SOLICITATION NO.  

10A. MOD. OF CONTRACT ORDER NO.  

10B. DATED (SEE ITEM 11)  

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS  

12. ACCOUNTING AND APPROPRIATION DATA (if required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDER  

14. DESCRIPTION OF AMENDMENT/ MODIFICATION  

15A. NAME AND TITLE OF SIGNER (Type or print)  

15B. CONTRACTOR/OFFEROR  

15C. DATE SIGNED  

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)  

16B. UNITED STATES OF AMERICA  

16C. DATE SIGNED  

EXCEPTION TO SF 30
APPROVED BY ORM 11-84

STANDARD FORM 30 (Rev. 10-83)
Prepared by OIRM 11-84
FAR (48 CFR) 33.243
SECTION A - SOLICITATION/CONTRACT FORM

The organization has changed from
DEFENSE THREAT REDUCTION AGENCY/J4C
8725 JOHN J. KINGMAN ROAD, MSC 6201
FORT BELVOIR VA 22060-6201

to
DEFENSE THREAT REDUCTION AGENCY/AL-ACO
8725 JOHN J. KINGMAN RD
FT BELVOIR VA 22060-6201

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been modified:
SOW

**Project Title:** A One Health Response to Rift Valley Fever and Brucellosis Surveillance in Tanzania

**Document Date:** Revised April 10, 2018

**Objectives:** Rift Valley fever virus (RVFV) is a mosquito-borne pathogen of livestock and humans that causes widespread and devastating outbreaks of severe disease throughout Africa [2]. Outbreaks can involve tens to hundreds of thousands of human cases and millions of livestock cases. The severity of the disease varies by species, but in sheep and cattle "abortion storms" as well as high neonatal (~70%) and adult mortality (20-30%) are features. Human cases are generally self-limiting, but severe complications are associated with case fatalities of 10-20% [13]. While lying at the heart of the RVFV belt in eastern Africa, little is known in the United Republic of Tanzania (URT) about the role of the environment on endemic virus activity during the inter-epidemic period, vector composition, wildlife maintenance hosts, and virus diversity. Livestock are a key ecological link as high viremias in animals lead to spillover of RVFV into mosquitoes likely to feed on humans, and close contact with infected animal tissues or aborted fetal materials are significant risk factors for human infections [12] [7].

*Brucella* bacteria are also important zoonotic pathogens globally, known to cause disease in humans and animals, and are relevant for biological warfare as a category B biological agent [33]. Clinical signs of brucellosis in humans include intermittent fever, malaise, anorexia, and joint pain that may persist for weeks or months. Because of the fairly unspecific symptoms that can be confused with other common diseases, such as malaria, brucellosis in humans is under diagnosed among febrile patients in URT [22]. In animals, clinical symptoms include infertility and abortions, and during acute infection, large amounts of bacteria are shed in the uterine fluids, aborted fetuses, and milk. Chronically infected animals can develop hygromas,
localized abscesses, and continue to shed the bacteria in the milk, providing human transmission routes.

The team hypothesizes that in URT, climatic conditions, such as high rainfall, and animal contact conditions, such as intense livestock density, are associated with increased endemic RVFV and Brucella exposure in sympatric livestock, wildlife, and humans. To test this hypothesis, two study areas with varied rainfall conditions and animal density parameters have been selected for surveillance and characterization of RVFV and Brucella disease dynamics in animals, humans, and arthropod vectors. Contributing to the Thrust Area 6 goals, the proposed research will improve international collaborations to detect, characterize, and report disease outbreaks and will advance the capacity in URT to implement global health security initiatives.

**Scope:** This project will investigate the epidemiology of RVFV and Brucella in two study regions of URT while enhancing the network of professionals prepared to address ongoing select agent emerging needs. The project is designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization and modeling efforts. Genomic analyses will enhance capabilities in characterizing diversity, identifying wildlife reservoir maintenance hosts, and developing models that predict areas of pathogen maintenance, transmission, and diversity in this endemic region.

The end goal is increased detection and response capacity to further human and animal health.
# Performance Schedule

<table>
<thead>
<tr>
<th>Project Timeline</th>
<th>Year 1 (Oct '13-Sept '14)</th>
<th>Year 2 (Oct '14-Sept '15)</th>
<th>Year 3 (Oct '15-Sept '16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task #: Description</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>1: Monthly MT meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Administrative startup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain research permits, develop field protocols, HH questionnaires, SOP’s for sample transport, storage, preservation, hire field staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop lab protocols</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek collaboration with game scouts, clinics, livestock officers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Training of field staff, lab staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Field site characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Public health surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish collaborations with officials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Sentinel livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey administration and livestock testing for prevalence study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentinel herd surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Syndromic livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of livestock officers in PPE, sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive and test samples</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game scout training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Vector surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify sampling sites</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vector sampling and blood meal analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research Objectives:

1) Consult and coordinate with local partner institutions in Tanzania for characterization of field sites with historical RVFV and Brucella activity that represent diverse climatic and animal density variables.

2) Conduct surveillance of sentinel livestock herds (longitudinally) and conspecific wildlife (opportunistically) for pathogen transmission activity by real-time molecular diagnostic assays and/or seroconversion indicating periods of increased pathogen transmission, for comparison with disease patterns in local human populations.

3) Characterize RVFV and Brucella isolates from mosquito, animal, and human cases using phylogenetic analyses of genomic diversity.

4) Identify potential cryptic wildlife reservoir maintenance hosts by detection of seroconversion or molecular fingerprinting of blood meals from mosquito vectors.

Develop models that predict areas of increased pathogen maintenance, transmission, and genomic diversity in URT to target locales of increased risk that may be critical for public health intervention strategies and targeted surveillance.

**Background:** Rift Valley fever and brucellosis are well suited for transdisciplinary One Health approaches to study the genomic diversity and epidemiology at interfaces involving the mosquito vector (for RVFV), domesticated livestock, wildlife, and humans. Mosquitoes are primarily responsible for maintaining RVFV in nature, and the virus has been isolated from over 30 species of mosquitoes from 10 genera (primarily Aedes, Culex, Anopheles) [8]. In eastern and southern Africa, RVFV ecology can be divided into two distinct but overlapping cycles of continuous low-level endemic activity and periodic epizootics/epidemics. The linkage of RVFV epizootics/epidemic to heavy rainfall and high numbers of mosquitoes has been observed [9], and it is now recognized that the development of epizootic/epidemic transmission is dependent on large-scale weather events that lead to increases in ground-water saturation and eventual flooding over parts of eastern and southern Africa [10].

Regular outbreaks of RVF have occurred in 10-20 year cycles in East Africa. These large classic RVF outbreaks have typically occurred following the initiation of epizootics in Kenya/Somalia.
as heavy rains shifted towards the south and east. During the most recent 2006-2007 outbreak, human case fatality among confirmed cases reached 47% and seroprevalence studies indicated that RVFV transmission occurred in 52% (n=21) of the country regions, with the majority of these regions reporting both livestock and humans infections [16]. Surveillance of RVFV activity in inter-epidemic periods has been limited, with studies indicating human seroprevalences from 4% in the northeast region up to 29% in the southern region [17]. Wildlife can also be infected with brucellosis, with spillover and spill-back between wildlife and livestock a concern at wildlife-livestock interface areas as are present in our study sites.

Due to the devastating nature of RVFV outbreaks, much effort has been devoted to understanding the factors allowing for epizootic/epidemic transmission of RVFV. However, less is known regarding factors that influence long-term maintenance of the virus in enzootic areas that experience constant low-level RVFV or during inter-epizootic time periods. Enzootic areas are typically wetter semi-tropical locations that allow for continuous virus transmission under favorable microclimate conditions. For example, within a small 20km region of the Central African Republic, complete genome sequence data obtained from virus specimens collected over a period of 5 years (1969 to 1974) indicated a near 10 times higher level of virus diversity than that observed during the typically monophyletic large-scale outbreaks that occur in semi-arid east African regions [24]. The higher viral diversity observed elsewhere may be supported by low-level transmission of RVFV between mosquito vectors and potential cryptic wildlife maintenance hosts, and our team is uniquely positioned to address such questions in URT.

Two study regions, the southern border of the Greater Ruaha Ecosystem in URT and the Kilombero River Valley, are typical, intense wildlife, livestock and human interface areas, where there is high concern for disease transmission among populations. Both areas were considered critical hotspots in the 2007 Rift Valley Fever outbreak, and brucellosis is known to be endemic in the region. The Ruaha ecosystem is one of Africa’s largest protected areas and has an extraordinary diversity of plants and animals. There are two rainy seasons; from November-February and from March-April, with annual mean precipitation of 500-800 mm. The area adjacent to the southern border of the ecosystem is predominantly populated by pastoralists, agro-pastoralists and subsistence agriculturalists in the villages, and the livestock population is substantial. The main water source in this area is the Great Ruaha River that since 1993 has experienced a severe reduction in flow due to agricultural water diversion upstream [30]. The seasonal water scarcity in the dry season has increasingly forced wildlife, livestock and humans closer together, increasing the potential for pathogen exposure and evolution.

Tasks/Scientific Goals: Project activities involve coordinating with other organizations actively involved in RVFV and Brucella research projects, including the key research partners Sokoine University of Agriculture (SUA), Ifakara Health Institute (IHI), the National Institute for Medical Research (NIMR) and Tanzania Wildlife Research Institute (TAWIRI). The tasks below are designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization paired with modeling efforts. We expect that genomic analyses will position us to characterize diversity, identify wildlife reservoir maintenance hosts, and develop models that predict high risk areas of pathogen maintenance, transmission, and diversity in this endemic region.
Year 1

1. The team shall conduct management team meetings at times and places specified in the grant schedule (monthly).

2. Project administration (Begin in 1st quarter)
   2.1. The team shall develop and update research protocols and data collection forms.
   2.2. The team shall obtain and maintain protocol and research permit approval.
   2.3. The team shall organize field logistics, hire and maintain additional field staff.
   2.4. The team shall seek and support collaboration with health clinics, livestock officers, hunting companies and game scouts.
   2.5. The team shall begin database development based on data collection forms, and perform database maintenance as needed for quality control purposes.
   2.6. The team shall identify, enroll, support, and mentor Tanzanian postdoctoral scientist/masters students.

3. Training (Begin 2nd quarter)
   3.1. The team shall identify field and laboratory training needs.
   3.2. The team shall conduct field, clinic and laboratory staff training including blinded controls as part of quality assurance plan.
   3.3. The team shall develop networked and secured database tailored for project needs.

4. Field site characterization (1st and 2nd quarter)
   4.1. The team shall conduct systematic site characterization of current climatic conditions, animal and human populations, and risk factor data for the Ruaha and Kilombero site study regions.
   4.2. The team shall analyze distribution of key risk factors.

5. Public health surveillance (Begin 2nd quarter): The team shall establish collaborations with public health officials and local URT health centers to facilitate comparative studies of Rift Valley Fever (RVF) and Brucella in humans with the proposed animal and vectors studies.
   5.1. The team shall conduct a review of health clinic records to determine the prevalence of febrile disease, non-malarial febrile disease, RVF diagnosis, and brucellosis diagnosis.
   5.2. The team shall work closely with health centers in the study region to improve diagnosis of RVF and brucellosis by providing education and laboratory testing support, with improved data feeding into the epidemiology data analysis and modeling.
   5.3. RVF diagnostic kit evaluation in humans: During this project's conception stage in 2011, a validated human testing kit to detect anti-Rift Valley fever virus (RVFV) IgG antibodies in an ELISA format was available from Biological Diagnostics Supply Limited (BDSL). Unfortunately, the National Institute for Communicable Diseases (NICD) Special Pathogens Unit in Sandringham, South Africa ceased production of the inactivated RVFV NP-antigen required for kit production. This led to an initial shortage, and then complete lack of kit inventory by the time that the team was ready to commence human serologic testing. Our teams have been making good progress in testing livestock animals with the commercially available competitive ELISA (ID-Vet multispecies ELISA catalogue #RIFTC-4P or IO: https://www.id-vet.com/produit/id-screen-rift-valley-fever-competition-multi-species/). This kit is designed to detect anti-RVFV IgG/IgM without the requirement for a species specific secondary antibody. Thus, in principle this kit could be utilized for human use. However, it is not validated for human diagnostic purposes and is labelled for animal use only. The CDC Viral Special Pathogens Branch (VSPB) has offered to help to validate the ID-Vet ELISA
against the VPSB gold-standard human IgG ELISA. VSPB will test approximately 750 specimens from the R&B project. The R&B project will fund shipping and reagent costs from existing project line-items dedicated to shipments for lab result confirmation and testing reagents. The diagnostic testing by CDC will serve multiple purposes including the timely assistance in completion of our proposed DTRA project-related activities and providing a viable alternative for human RVF serological testing (if the ID-Vet assay performs as expected against the gold-standard assay).

6. Sentinel livestock surveillance (Begin 3rd quarter)
   6.1. The team shall conduct an initial cross-sectional study of 100 households per study region to determine RVFV and Brucella livestock exposure status.
   6.2. The team shall administer risk factor surveys to the study households.
   6.3. The team shall enroll 10 sentinel herds per study region for biannual longitudinal surveillance or as needed to meet study objectives.
   6.4. The team shall conduct longitudinal surveillance testing.

7. Syndromic livestock surveillance (Begin 3rd quarter)
   7.1. The team shall conduct village outreach to raise awareness of abortion and the reporting chain to document cases as part of the proposed research.
   7.2. The team shall begin monitoring abortion incidence.
   7.3. The team shall follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region.

8. Wildlife surveillance (Begin 2nd quarter)
8.1. The team shall coordinate with TAWIRI and Tanzania National Parks (TANAPA) for opportunistic wildlife surveillance.
8.2. The team shall collect wildlife samples for RVFV and Brucella screening from live animals involved with wildlife immobilization studies.
8.3. The team shall collect wildlife samples for pathogen screening from depredated and hunted wildlife in the study region.

9. Vector surveillance (Begin 3rd quarter)
   9.1. The team shall conduct transects for systematic vector collection near households in the two study regions.
   9.2. The team shall characterize collected vectors and preserve for RVFV screening.
   9.3. The team shall perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs.

10. Genomic characterization (Begin 4th quarter)
    10.1. The team shall perform genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates.
    10.2. The team shall perform genetic characterization of Brucella isolates from animals and humans in the study region to identify shared species.

11. Data analysis and report preparation (Begin 4th quarter)
    11.1. The team shall perform preliminary database validation.
    11.2. The team shall conduct preliminary data analyses on study site characteristics, infection outcomes in vectors, animals, and people from the study region, and scoping studies to inform the predictive model development.
    11.3. The team shall prepare progress reports for internal and external purposes.

**Year 2**

1. Management team meetings (monthly, ongoing from Year 1)
2. Project administration (ongoing from Year 1)
3. Training (ongoing from Year 1)
4. Field site characterization (ongoing from Year 1)
5. Public health surveillance (ongoing from Year 1)
6. Sentinel livestock surveillance (ongoing from Year 1)
   6.1. The team shall complete the cross-sectional study of 100 households per study region to determine RVFV and Brucella livestock exposure status.
7. Syndromic livestock surveillance (ongoing from Year 1)
8. Wildlife surveillance (ongoing from Year 1)
9. Vector surveillance (ongoing from Year 1)
10. Genomic characterization (ongoing from Year 1)
11. Data analysis and report preparation (ongoing from Year 1)
   11.1. The team shall perform preliminary modeling analyses.
   11.2. The team shall prepare progress reports.

**Year 3**

1. Management team meetings (monthly, ongoing from Year 1)
2. Project administration (ongoing from Year 1)
   2.1. The team shall renew protocol and research permit approvals,
3. Training (ongoing from Year 1)
   3.1. The team shall conduct training sessions on data analysis, scientific writing, and outreach approaches for project staff and students.

4. Field site characterization (complete)

5. Public health surveillance (ongoing from Year 1)

6. Sentinel livestock surveillance (complete 2\textsuperscript{nd} quarter)

7. Syndromic livestock surveillance (complete 2\textsuperscript{nd} quarter)

8. Wildlife surveillance (complete 2\textsuperscript{nd} quarter)

9. Vector surveillance (complete 2\textsuperscript{nd} quarter)

10. Genomic characterization (complete 3\textsuperscript{rd} quarter)

11. Data analysis and report preparation (ongoing from Year 1)
   11.1. The team shall perform predictive model development and validation.
   11.2. The team shall prepare final reports.

SECTION 1 - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit B</td>
<td>Terms and Conditions</td>
<td>39</td>
<td>01-MAY-2012</td>
</tr>
</tbody>
</table>

10:

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Exhibit A Statement of Work</td>
<td>8</td>
<td>10-APR-2018</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Terms and Conditions</td>
<td>39</td>
<td>01-MAY-2012</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

<table>
<thead>
<tr>
<th>2. AMENDMENT/MODIFICATION NO.</th>
<th>3. EFFECTIVE DATE</th>
<th>4. SOURCE/PURCHASE AID NO.</th>
<th>5. PROJECT NO. (applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00006</td>
<td>25 May 2018</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. ISSUED BY:  
DEFENSE THREAT REDUCTION AGENCY (DTRA)  
9567 JOHN JONKMAAN RD  
FT BELVOIR VA 23060-0831

7. ADMINISTERED BY:  
DTRA STOCKTON  
5977 WEST MARSH LN, STE 300  
STOCKTON CA 95209

CODE: DTRA1

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, City, State and Zip Code)  
NETDATA, INC.  
425 CALIFORNIA ST STE 320  
SAN FRANCISCO CA 94104-2104

CODE: 56507A

9. AMENDMENT OF SOLICITATION NO.  
9A. DATED (see Item 11)  
9B. MOD. OF CONTRACT ORDER NO.  
9C. DATED (see Item 13)  
9D. MOD. OF CONTRACT ORDER NO.  
9D. DATED (see Item 13)

CODE: 56507A

10A. DATED (see Item 11)  
10B. DATED (see Item 13)

CODE: 07 Aug 2014

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS  
☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offers is extended, ☐ is not extended.

☐ Offerors acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:  
(a) By completing Items 8 and 15 and returning ______ copies of the amendment;  
(b) By acknowledging receipt of this amendment on each copy of the offer submitted;  
(c) By separate letter or telegram which includes reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.  
☐ By virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or telegram provided each telegraph or letter makes reference to the solicitation and this amendment and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS  
IT MODIFIES THE CONTRACT ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14. PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:  
DTRA Terms and Conditions

D. OTHER (Specify type of modification and authority)

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Modification Control Number: DTRA

The purpose of this modification is to:

☐ 1. Extend the period of performance to September 4, 2018 at no additional cost to the Government.
☐ 2. Revise the Statement of Work dated 2 May 2018. No additional cost will be incurred as a result of the SOW revision.

All terms and conditions remain unchanged.

15A. NAME AND TITLE OF SIGNER (Type or print)  
15B. CONTRACTOR/OFFEROR  
15C. DATE SIGNED  
16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)  
16B. UNITED STATES OF AMERICA  
16C. DATE SIGNED

SIGNATURE OF PERSON AUTHORIZED TO SIGN  
(Signature of Contracting Officer)

STANDARD FORM 30 (Rev. 10-83)  
APPROVED BY GSA  
FAR (48 CFR) 33.243
The following have been modified:
SOW

**Project Title:** A One Health Response to Rift Valley Fever and Brucellosis Surveillance in Tanzania

**Document Date:** Revised May 2, 2018

**Objectives:** Rift Valley fever virus (RVFV) is a mosquito-borne pathogen of livestock and humans that causes widespread and devastating outbreaks of severe disease throughout Africa [2]. Outbreaks can involve tens to hundreds of thousands of human cases and millions of livestock cases. The severity of the disease varies by species, but in sheep and cattle “abortion storms” as well as high neonatal (~70%) and adult mortality (20–30%) are features. Human cases are generally self-limiting, but severe complications are associated with case fatalities of 10–20% [13]. While lying at the heart of the RVFV belt in eastern Africa, little is known in the United Republic of Tanzania (URT) about the role of the environment on endemic virus activity during the inter-epidemic period, vector composition, wildlife maintenance hosts, and virus diversity. Livestock are a key ecological link as high viremias in animals lead to spillover of RVFV into mosquitoes likely to feed on humans, and close contact with infected animal tissues or aborted fetal materials are significant risk factors for human infections [12] [7].

*Brucella* bacteria are also important zoonotic pathogens globally, known to cause disease in humans and animals, and are relevant for biological warfare as a category B biological agent [33]. Clinical signs of brucellosis in humans include intermittent fever, malaise, anorexia, and joint pain that may persist for weeks or months. Because of the fairly unspecific symptoms that can be confused with other common diseases, such as malaria, brucellosis in humans is under-diagnosed among febrile patients in URT [22]. In animals, clinical symptoms include infertility and abortions, and during acute infection, large amounts of bacteria are shed in the uterine fluids, aborted fetuses, and milk. Chronically infected animals can develop hygromas, localized abscesses, and continue to shed the bacteria in the milk, providing human transmission routes.

The team hypothesizes that in URT, climatic conditions, such as high rainfall, and animal contact conditions, such as intense livestock density, are associated with increased endemic RVFV and *Brucella* exposure in sympatric livestock, wildlife, and humans. To test this hypothesis, two study areas with varied rainfall conditions and animal density parameters have been selected for surveillance and characterization of RVFV and *Brucella* disease dynamics in animals, humans, and arthropod vectors. Contributing to the Thrust Area 6 goals, the proposed research will improve international collaborations to detect, characterize, and report disease outbreaks and will advance the capacity in URT to
implement global health security initiatives.

**Scope:** This project will investigate the epidemiology of RVFV and *Brucella* in two study regions of URT while enhancing the network of professionals prepared to address ongoing select agent emerging needs. The project is designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization and modeling efforts. Genomic analyses will enhance capabilities in characterizing diversity, identifying wildlife reservoir maintenance hosts, and developing models that predict areas of pathogen maintenance, transmission, and diversity in this endemic region.

The end goal is increased detection and response capacity to further human and animal health.
# Performance Schedule

<table>
<thead>
<tr>
<th>Project Timeline</th>
<th>Year 1 (Oct '13-Sept '14)</th>
<th>Year 2 (Oct '14-Sept '15)</th>
<th>Year 3 (Oct '15-Sept 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task #: Description</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>1: Monthly MT meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Administrative startup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain research permits, Develop field protocols, HH questionnaires, SOP’s for sample transport, storage, preservation, hire field staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop lab protocols</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek collaboration with game scouts, clinics, livestock officers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Databased development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Training of field staff, lab staff and students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Field site characterization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Public health surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish collaborations with officials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Sentinel livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey administration and livestock testing for prevalence study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentinel herd surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: Syndromic livestock surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of livestock officers in PPE, sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive and test samples</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: Wildlife surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game scout training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife sampling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Vector surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify sampling sites</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vector sampling and blood meal analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research Objectives:

1) Consult and coordinate with local partner institutions in Tanzania for characterization of field sites with historical RVFV and Brucella activity that represent diverse climatic and animal density variables.

2) Conduct surveillance of sentinel livestock herds (longitudinally) and conspecific wildlife (opportunistically) for pathogen transmission activity by real-time molecular diagnostic assays and/or seroconversion indicating periods of increased pathogen transmission, for comparison with disease patterns in local human populations.

3) Characterize RVFV and Brucella isolates from mosquito, animal, and human cases using phylogenetic analyses of genomic diversity.

4) Identify potential cryptic wildlife reservoir maintenance hosts by detection of seroconversion or molecular fingerprinting of blood meals from mosquito vectors.

Develop models that predict areas of increased pathogen maintenance, transmission, and genomic diversity in URT to target locales of increased risk that may be critical for public health intervention strategies and targeted surveillance.

Background: Rift Valley fever and brucellosis are well suited for transdisciplinary One Health approaches to study the genomic diversity and epidemiology at interfaces involving the mosquito vector (for RVFV), domesticated livestock, wildlife, and humans. Mosquitoes are primarily responsible for maintaining RVFV in nature, and the virus has been isolated from over 30 species of mosquitoes from 10 genera (primarily Aedes, Culex, Anopheles) [8]. In eastern and southern Africa, RVFV ecology can be divided into two distinct but overlapping cycles of continuous low-level endemic activity and periodic epizootics/epidemics. The linkage of RVFV epizootics/epidemic to heavy rainfall and high numbers of mosquitoes has been observed [9], and it is now recognized that the development of epizootic/epidemic transmission is dependent on large-scale weather events that lead to increases in ground-water saturation and eventual flooding over parts of eastern and southern Africa [10].

Regular outbreaks of RVF have occurred in 10-20 year cycles in East Africa. These large classic RVF outbreaks have typically occurred following the initiation of epizootics in Kenya/Somalia
as heavy rains shifted towards the south and east. During the most recent 2006-2007 outbreak, human case fatality among confirmed cases reached 47% and seroprevalence studies indicated that RVFV transmission occurred in 52% (n=21) of the country regions, with the majority of these regions reporting both livestock and humans infections [16]. Surveillance of RVFV activity in inter-epidemic periods has been limited, with studies indicating human seroprevalences from 4% in the northeast region up to 29% in the southern region [17]. Wildlife can also be infected with brucellosis, with spillover and spill-back between wildlife and livestock a concern at wildlife-livestock interface areas as are present in our study sites.

Due to the devastating nature of RVFV outbreaks, much effort has been devoted to understanding the factors allowing for epizootic/epidemic transmission of RVFV. However, less is known regarding factors that influence long-term maintenance of the virus in enzooic areas that experience constant low-level RVFV or during inter-epizootic time periods. Enzooic areas are typically wetter semi-tropical locations that allow for continuous virus transmission under favorable microclimate conditions. For example, within a small 20km region of the Central African Republic, complete genome sequence data obtained from virus specimens collected over a period of 5 years (1969 to 1974) indicated a near 10 times higher level of virus diversity than that observed during the typically monophyletic large-scale outbreaks that occur in semi-arid east African regions [24]. The higher viral diversity observed elsewhere may be supported by low-level transmission of RVFV between mosquito vectors and potential cryptic wildlife maintenance hosts, and our team is uniquely positioned to address such questions in URT.

Two study regions, the southern border of the Greater Ruaha Ecosystem in URT and the Kilombero River Valley, are typical, intense wildlife, livestock and human interface areas, where there is high concern for disease transmission among populations. Both areas were considered critical hotspots in the 2007 Rift Valley Fever outbreak, and brucellosis is known to be endemic in the region. The Ruaha ecosystem is one of Africa's largest protected areas and has an extraordinary diversity of plants and animals. There are two rainy seasons; from November - February and from March - April, with annual mean precipitation of 500-800 mm. The area adjacent to the southern border of the ecosystem is predominantly populated by pastoralists, agro-pastoralists and subsistence agriculturalists in the villages, and the livestock population is substantial. The main water source in this area is the Great Ruaha River that since 1993 has experienced a severe reduction in flow due to agricultural water diversion upstream [30]. The seasonal water scarcity in the dry season has increasingly forced wildlife, livestock and humans closer together, increasing the potential for pathogen exposure and evolution.

**Tasks/Scientific Goals:** Project activities involve coordinating with other organizations actively involved in RVFV and Brucella research projects, including the key research partners Sokoine University of Agriculture (SUA), Ifakara Health Institute (IHI), the National Institute for Medical Research (NIMR)) and Tanzania Wildlife Research Institute (TAWIRI). The tasks below are designed to characterize the epidemiology of RVF and brucellosis in livestock, wildlife, and humans in the region, including cross-sectional and longitudinal testing components, syndromic surveillance, and molecular epidemiologic characterization paired with modeling efforts. We expect that genomic analyses will position us to characterize diversity, identify wildlife reservoir maintenance hosts, and develop models that predict high risk areas of pathogen maintenance, transmission, and diversity in this endemic region.
Year 1

1. The team shall conduct management team meetings at times and places specified in the grant schedule (monthly).

2. Project administration (Begin in 1st quarter)
   2.1. The team shall develop and update research protocols and data collection forms.
   2.2. The team shall obtain and maintain protocol and research permit approval.
   2.3. The team shall organize field logistics, hire and maintain additional field staff.
   2.4. The team shall seek and support collaboration with health clinics, livestock officers, hunting companies and game scouts.
   2.5. The team shall begin database development based on data collection forms, and perform database maintenance as needed for quality control purposes.
   2.6. The team shall identify, enroll, support, and mentor Tanzanian postdoctoral scientist/masters students.

3. Training (Begin 2nd quarter)
   3.1. The team shall identify field and laboratory training needs.
   3.2. The team shall conduct field, clinic and laboratory staff training including blinded controls as part of quality assurance plan.
   3.3. The team shall develop networked and secured database tailored for project needs.

4. Field site characterization (1st and 2nd quarter)
   4.1. The team shall conduct systematic site characterization of current climactic conditions, animal and human populations, and risk factor data for the Ruaha and Kilombero site study regions.
   4.2. The team shall analyze distribution of key risk factors.

5. Public health surveillance (Begin 2nd quarter): The team shall establish collaborations with public health officials and local URT health centers to facilitate comparative studies of Rift Valley Fever (RVF) and Brucella in humans with the proposed animal and vectors studies.
   5.1. The team shall conduct a review of health clinic records to determine the prevalence of febrile disease, non-malarial febrile disease, RVF diagnosis, and brucellosis diagnosis.
   5.2. The team shall work closely with health centers in the study region to improve diagnosis of RVF and brucellosis by providing education and laboratory testing support, with improved data feeding into the epidemiology data analysis and modeling.
   5.3. The RVFV viremic period in animals and humans is of short duration, and has been documented in both experimentally and in natural outbreak settings to be closely linked to the onset of IgM/IgG antibodies in non-lethal cases by approximately day 10-12 post infection (see Bird et al., PMID: 18786992, 17804663, 18199647). In order to best allocate valuable personnel time and laboratory reagent resources, the initial focus of human diagnostic testing will be on whole blood specimens. All enrolled study participants presented as “acute febrile illness” patients with active signs of illness (fever >38.5C, and other clinical signs). For these acutely ill patients, whole blood from all individuals will be tested by the qRT-PCR RVFV assay to potentially detect patients still within the viremic time-period. This strategic down-selection process allows the scientific team to balance finite budgetary and human resources with our scientific objective of detecting acutely viremic animals or humans to obtain valuable RVFV genomic material for subsequent phylogenetic analyses. Other collected specimens from human subjects (e.g., feces and nasopharyngeal swabs) not initially tested will be stored safely and securely so that if RVFV genomic material is detected, additional diagnostic specimens from each individual will be available for confirmatory testing and to determine the diversity and distribution of the virus in alternative specimen types/matrices (e.g., nasopharyngeal swabs).
5.4. RVF diagnostic kit evaluation in humans: During this project's conception stage in 2011, a validated human testing kit to detect anti-Rift Valley fever virus (RVFV) IgG antibodies in an ELISA format was available from Biological Diagnostics Supply Limited (BDSL). Unfortunately, the National Institute for Communicable Diseases (NICD) Special Pathogens Unit in Sandringham, South Africa ceased production of the inactivated RVFV NP-antigen required for kit production. This led to an initial shortage, and then complete lack of kit inventory by the time the team was ready to commence human serologic testing. Our teams have been making good progress in testing livestock animals with the commercially available competitive ELISA (ID-Vet multispecies ELISA catalogue #RIFT-4P or 10P: https://www.id-vet.com/produit/id-screen-rift-valley-fever-competition-multi-species/). This kit is designed to detect anti-RVFV IgG/IgM without the requirement for a species specific secondary antibody. Thus, in principle this kit could be utilized for human use. However, it is not validated for human diagnostic purposes and is labelled for animal use only. The CDC Viral Special Pathogens Branch (VSPB) has offered to help to validate the ID-Vet ELISA against the VPSB gold-standard human IgG ELISA. VSPB will test approximately 750 specimens from the R&B project. The R&B project will fund shipping and reagent costs from existing project line-items dedicated to shipments for lab result confirmation and testing reagents. The diagnostic testing by CDC will serve multiple purposes including the timely assistance in completion of our proposed DTRA project-related activities and providing a viable alternative for human RVF serological testing (if the ID-Vet assay performs as expected against the gold-standard assay).

6. Sentinel livestock surveillance (Begin 3rd quarter)
   6.1. The team shall conduct an initial cross-sectional study of 100 households per study region to determine RVFV and Brucella livestock exposure status.
   6.2. The team shall administer risk factor surveys to the study households.
   6.3. The team shall enroll 10 sentinel herds per study region for biannual longitudinal surveillance or as needed to meet study objectives.
   6.4. The team shall conduct longitudinal surveillance testing. The RVFV viremic period in animals and humans is of short duration, and has been documented in both experimentally and in natural outbreak settings to be closely linked to the onset of IgM/IgG antibodies in non-lethal cases by approximately day 10-12 post infection (see Bird et al., PMID: 18786992, 17804663, 18199647). In order to best allocate valuable personnel time and laboratory reagent resources, livestock serum will be initially screened individually by IgG and IgM serology. If all animals in a herd were either IgG negative or positive with no actively ill animals present no qRT-PCR testing of whole blood was completed, as these animals would be extremely unlikely to have a detectable viremia and would be negative by qRT-PCR testing. Alternatively, if any animal in a herd was determined to be IgM sero-positive (sign of recent infection), or to be actively ill (e.g., fever >39.5°C, or recent abortion history) whole blood from all animals in that herd were then tested by qRT-PCR to attempt to detect animals that might be actively viremic in that herd. Collected specimens not initially tested (e.g., feces, nasopharyngeal swabs) will be stored safely and securely so that if RVFV genomic material is detected, additional diagnostic specimens from each individual will be available for confirmatory testing and to determine the diversity and distribution of the virus in alternative specimen types/matrices (i.e., milk from lactating RVFV viremic animals).

7. Syndromic livestock surveillance (Begin 3rd quarter)
   7.1. The team shall conduct village outreach to raise awareness of abortion and the reporting chain to document cases as part of the proposed research.
   7.2. The team shall begin monitoring abortion incidence.
7.3. The team shall follow up abortion reports with field visits to confirm and characterize causes of abortion in the study region.

8. Wildlife surveillance (Begin 2nd quarter)

8.1. The team shall coordinate with TAWIRI and Tanzania National Parks (TANAPA) for opportunistic wildlife surveillance.

8.2. The team shall collect wildlife samples for RVFV and *Brucella* screening from live animals involved with wildlife immobilization studies.

8.3. The team shall collect wildlife samples for pathogen screening from depredated and hunted wildlife in the study region.

9. Vector surveillance (Begin 3rd quarter)

9.1. The team shall conduct transects for systematic vector collection near households in the two study regions.

9.2. The team shall characterize collected vectors and preserve for RVFV screening.

9.3. The team shall perform blood meal analyses from vectors to identify vector hosts and possible wildlife reservoirs.

10. Genomic characterization (Begin 4th quarter)

10.1. The team shall perform genetic characterization studies of RVFV from vector and animal isolates collected in the study region for comparison with human isolates.

10.2. The team shall perform genetic characterization of *Brucella* isolates from animals and humans in the study region to identify shared species.

11. Data analysis and report preparation (Begin 4th quarter)

11.1. The team shall perform preliminary database validation.

11.2. The team shall conduct preliminary data analyses on study site characteristics, infection outcomes in vectors, animals, and people from the study region, and scoping studies to inform the predictive model development.

11.3. The team shall prepare progress reports for internal and external purposes.

**Year 2**

1. Management team meetings (monthly, ongoing from Year 1)
2. Project administration (ongoing from Year 1)
3. Training (ongoing from Year 1)
4. Field site characterization (ongoing from Year 1)
5. Public health surveillance (ongoing from Year 1)
6. Sentinel livestock surveillance (ongoing from Year 1)
   6.1. The team shall complete the cross-sectional study of 100 households per study region to determine RVFV and *Brucella* livestock exposure status.
7. Syndromic livestock surveillance (ongoing from Year 1)
8. Wildlife surveillance (ongoing from Year 1)
9. Vector surveillance (ongoing from Year 1)
10. Genomic characterization (ongoing from Year 1)
11. Data analysis and report preparation (ongoing from Year 1)
   11.1. The team shall perform preliminary modeling analyses.
   11.2. The team shall prepare progress reports.

**Year 3**

1. Management team meetings (monthly, ongoing from Year 1)
2. Project administration (ongoing from Year 1)
   2.1. The team shall renew protocol and research permit approvals.
3. Training (ongoing from Year 1)
   3.1. The team shall conduct training sessions on data analysis, scientific
        writing, and outreach approaches for project staff and students.
4. Field site characterization (complete)
5. Public health surveillance (ongoing from Year 1)
6. Sentinel livestock surveillance (complete 2nd quarter)
7. Syndromic livestock surveillance (complete 2nd quarter)
8. Wildlife surveillance (complete 2nd quarter)
9. Vector surveillance (complete 2nd quarter)
10. Genomic characterization (complete 3rd quarter)
11. Data analysis and report preparation (ongoing from Year 1)
    11.1. The team shall perform predictive model development and validation.
    11.2. The team shall prepare final reports.

SECTION F - DELIVERIES OR PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 07-AUG-2014 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/13CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>06-JUN-2018</td>
<td></td>
<td>DR. MARY LANCASTER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>703-767-6625</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>DELIVERY DATE</th>
<th>QUANTITY</th>
<th>SHIP TO ADDRESS</th>
<th>DODAAC / CAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP 07-AUG-2014 TO</td>
<td>N/A</td>
<td>DEFENSE THREAT REDUCTION AGENCY/13CTB</td>
<td>HDTRA1</td>
</tr>
<tr>
<td>04-SEP-2018</td>
<td></td>
<td>DR. MARY LANCASTER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8725 JOHN J. KINGMAN ROAD MSC 6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORT BELVOIR VA 22060-6201</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>703-767-6625</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOB: Destination</td>
<td></td>
</tr>
</tbody>
</table>

SECTION I - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents has changed from:
Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Exhibit A Statement of Work</td>
<td>8</td>
<td>10-APR-2018</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Terms and Conditions</td>
<td>39</td>
<td>01-MAY-2012</td>
</tr>
</tbody>
</table>

Exhibit/Attachment Table of Contents

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>DESCRIPTION</th>
<th>PAGES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit A</td>
<td>Revised SOW dated May 2018</td>
<td>8</td>
<td>02-MAY-2018</td>
</tr>
<tr>
<td>Exhibit B</td>
<td>Terms and Conditions</td>
<td>39</td>
<td>01-MAY-2012</td>
</tr>
</tbody>
</table>

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. 3. EFFECTIVE DATE 4. REQUISITION/PURCHASE REQ. NO. 5. PROJECT NO. (if applicable)
P00001 13-Apr-2016

 image 0x0

6. ISSUED BY 7. ADMINISTERED BY (if applicable)
CODE HDTRA1 8. ISSUED BY 9. ADMINISTERED BY (if applicable)
DEFENSE THREAT REDUCTION AGENCY (DTRA) 9A. AMENDMENT OF SOLICITATION NO.
Ft. Belvoir VA 22060-5291

9B. DATED (SEE ITEM 11)

9A. AMENDMENT OF SOLICITATION NO. 10A. MOD. OF CONTRACT/ORDER NO.
9B. DATED (SEE ITEM 13)

CODE 56SP4 10B. DATED (SEE ITEM 13)

FACILITY CODE 10A. MOD. OF CONTRACT/ORDER NO.

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offer ☐ is extended. ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:

☐ By completing Items 14 and 15, and returning ☐ copies of the amendment; ☐ by acknowledging receipt of the amendment on each copy of the offer submitted; or ☐ by separate letter or telegram which includes a reference to the solicitation and amendment number. ✗ FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RETAIRED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by value of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter provided such telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.108(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

☐ D. OTHER (Specify type of modification and authority)

IAW TSC Number 10

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return ☐ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by OIC section headings, including solicitation/contract subject matter where feasible).

Modification Control Number: D(4)

The purpose of this modification is to provide incremental funding in the amount of $925,557.00 and update the Funding Profile clause 252-232-9006. All other terms and conditions remain unchanged.

FRHDTRA14/230193

Exception to SF 39

APPROVED BY ORIM 11-84

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

16B. CONTRACTOR/Officer

16C. DATE SIGNED

16D. UNITED STATES OF AMERICA

16E. DATE SIGNED

(Signature of person authorized to sign)

(Signature of Contracting Officer)

EXCEPTION TO SF 39

30-105-04

STANDARD FORM 39 (Rev. 10-83)

Prepared by ODA

252-232-9006

252-232-9006

FAR (48 CFR) 53.243
SECTION SF 36 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000102 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000102</td>
<td>Year 2 Funding Info Only</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>FY14 Ebola Funds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FOB: Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NET AMT $0.00

ACRN AB
CIN: HDTRA1412301000102

$925,557.00

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 000102:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $925,557.00 from $932,060.00 to $1,857,617.00.

SUBCLIN 000102:
Funding on SUBCLIN 000102 is initiated as follows:

ACRN: AB
CIN: HDTRA1412301000102

ACctng Data: 044315 097 0134 000 N 20142016 D 34HQ 0901515BR-KD-BP 1416-0134-34HQ-EOC0T DTRA 410
Increase: $925,557.00
Total: $925,557.00

The following have been added by full text:

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)

<table>
<thead>
<tr>
<th>FUNDING PROFILE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total amount obligated under this Grant is $1,857,617.00 for work performed during the period beginning with Grant award and continuing through year 2. Additional incremental funding planned, but not obligated, is:</td>
</tr>
<tr>
<td>Year 3  $930,866</td>
</tr>
<tr>
<td>The Government’s liability is limited to the amount obligated</td>
</tr>
</tbody>
</table>

The following have been modified:

252.601-9000  GRANT POINTS OF CONTACT (MAY 2009)

a. Grant Specialist:
   Name: Caroline (Carrie) Allen.
   Defense Threat Reduction Agency: BE-BCR
   8725 John J. Kingman Road, MS 6201
   Fort Belvoir, VA 22060-6201
   Telephone: (703) 767-7873
   Email address: caroline.e.allen6.eiv@mail.mil.

b. Grantee Business Office:
   Name: [FOIA (b)(6)]
   Title:
   Phone:
   E-mail: [FOIA (b)(6)]

c. Grantee Principal Investigator (PI):
   Name: [FOIA (b)(6)]
   Title:
   Phone:
   E-mail: [FOIA (b)(6)]

252.601-9001  GRANTS OFFICER’S REPRESENTATIVE (GOR) (MAY 2009)
d. Grants Officer's Representative (GOR) for this Grant is:

Name: [redacted]
Defense Threat Reduction Agency/ J3CTBS
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201
Telephone: [redacted]
email address [redacted]

b. SCOPE AND LIMITATIONS OF AUTHORITY FOR DTRA GRANTS OFFICER'S REPRESENTATIVE

1. The Grants Officer's Representative (GOR) is responsible for monitoring the technical and programmatic performance of the grant or cooperative agreement (hereinafter referred to as agreement) including compliance with the agreement's reporting requirements. Perceived deviations from the agreement's terms and conditions shall be brought to the attention of appropriate recipient personnel and if not corrected, to the attention of the Grants Officer. Deviations or other occurrences indicative of the recipient's inability or unwillingness to conform to the agreement's requirements shall be brought to the immediate attention of the Grants Officer.

2. The GOR has no authority to modify the stated terms of the agreement or specifications in any manner, or to approve any action that would result in additional charges to the Government. The DTRA Grants Officer must make all such changes in writing.

3. The GOR is authorized to correspond directly with the recipient on matters within the scope and limitations of his or her authority. All such correspondence shall be signed personally by the GOR and a copy will be furnished the Grants Officer for placement in the official agreement file.

4. The GOR will provide technical advice to the recipient to the extent such advice will not alter any of the agreement's terms and conditions or result in an increase in the estimated cost of the agreement's performance as specified in the agreement. The GOR is encouraged to discuss with the recipient new ideas related to the original scope of the agreement that may be of special interest to DTRA. The GOR should also be alert for indications that any part of the research is becoming unfruitful. If, as a result of such discussions, questions arise as to the possible need for a modification, the matter shall be brought to the immediate attention of the Grants Officer. The GOR shall not direct the recipient to undertake any action that the recipient believes to be contrary to the agreement's scope, terms or conditions without the written approval of the Grants Officer.

5. Any visits to the recipient's facilities on matters pertaining to the agreement will be documented in a brief memorandum. A copy will be provided the Grants Officer for placement in the official agreement file.

6. The GOR will maintain such work files as he or she deems necessary to properly document performance of the duties and responsibilities as a GOR. Upon completion of the agreement and delivery of all required reports, such work files will be forwarded to the Grants Officer for placement in the official agreement file.

7. In performance of the GOR's duties, the GOR shall constantly stress protection of the Government's interests. Similarly, the GOR shall avoid any act which may tend to compromise the position of DTRA, any individual member of DTRA or which will impact confidence in the integrity of DTRA with the business community.

(End of Clause)
The following have been deleted:

252.232-7007   Limitation Of Government's Obligation   APR 2014

(End of Summary of Changes)
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. P0002
3. EFFECTIVE DATE 29-MAR-2017
4. REQUISITION/PURCHASE REQ. NO.
5. PROJECT NO. (if applicable)

6. ISSUED BY
DEFENSE THREAT REDUCTION AGENCY
BOSS JOHN J. KINGMAN ROAD, MC 2001
PORT BERTHA VA 22093-6501

7. ADMINISTERED BY (If applicable) OFFICE OF NAVAL RESEARCH + BOSTON
488 SUMMER STREET, ROOM 667
BOSTON MA 02115-2609

8. NAME AND ADDRESS OF CONTRACTOR NETAPP INC
FOIA (9138)
6500 LAUREL STREET SUITE 200
SANTA CLARA CA 95052-0001

9A. AMENDMENT OF SOLICITATION NO.
9B. DATED (SEE ITEM 10B)

X 10A. MOD. OF CONTRACT/ORDER NO. HDR1A1-14-00053
X 10B. DATED (SEE ITEM 12) 07-AUG-2014

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS
☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer is extended, ☐ is not extended.
☐ Other must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation as amended by one of the following methods:
☐ By completing items 12 and 13 and returning __ copies of the amendment. ☐ By acknowledging receipt of this amendment on each copy of the offer submitted.
☐ By separate letter or telegraphic which includes a reference to the solicitation and amendment number. FAILURE TO ACKNOWLEDGE MAY RESULT IN REJECTION OF YOUR OFFER. By virtue of this amendment you declare you have had notice of the extension of the offer, and that the offer is valid up to the time specified therein, and that the offer is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THIS ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in terms and conditions) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF 31-1001B.

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF DTRA Terms and Conditions.

D. OTHER (Specify type of modification and authority)

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UC section headings, including solicitation/contract subject matter where feasible)
Modification Control Number: 10432303

The purpose of this modification is to update the grant administration office and to provide year 3 funding in the amount of $630,866.00 to subCLIN 00013, ACRNAVAC in support of CLIN 0001

All other terms and conditions remain unchanged.

EXCEPTION TO SF 36
APPROVED BY CIRM 11-84
30-105-04
STANDARD FORM 30 (Rev. 10-83)
Prepared by GSA
FAR (48 CFR) 52.223

15A. NAME AND TITLE OF SIGNER (Type or print)
15B. CONTRACTOR/OFFEROR
15C. DATE SIGNED 30-MAR-2017

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
16B. UNITED STATES OF AMERICA
16C. DATE SIGNED 30-MAR-2017

(Signature of person authorized to sign)
(Signature of Contracting Officer)
SECTION A - SOLICITATION/CONTRACT FORM
The standard size code 1,000 has been added.
The NAICS code 541711 has been added.

SECTION B - SUPPLIES OR SERVICES AND PRICES

SUBCLIN 000101
The FOB Destination has been deleted.

SUBCLIN 000102
The FOB Destination has been deleted.

SUBCLIN 000103 is added as follows:

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>000103</td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td></td>
</tr>
</tbody>
</table>

Year 3 Funding

FY 17 CTR funding in the amount of $930,866.00.

NET AMT $0.00 $930,866.00

SECTION E - INSPECTION AND ACCEPTANCE

The Acceptance/Inspection Schedule for SUBCLIN 000101 has been changed from:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Government</td>
</tr>
</tbody>
</table>

To:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The Acceptance/Inspection Schedule for SUBCLIN 000102 has been changed from:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following Acceptance/Inspection Schedule was added for SUBCLIN 000103:

<table>
<thead>
<tr>
<th>INSPECT AT</th>
<th>INSPECT BY</th>
<th>ACCEPT AT</th>
<th>ACCEPT BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by $930,866.00 from $1,857,617.00 to $2,788,483.00.

SUBCLIN 000103:
Funding on SUBCLIN 000103 is initiated as follows:

ACRN: AC

CIN: J3CTB23203000103

Acctng Data: 044315 097 0134 000 N 20172019 D 34HQ 0901515BR_KD_BP2_OT 1719_0134_34HQ_SCNCT DTRA 410

Increase: $930,866.00

Total: $930,866.00

The following have been added by reference:

252.204-0002

The following have been modified:

252.632-9000  GRANT FUNDING PROFILE (MAR 2012)
FUNDING PROFILE:
The total amount obligated under this Grant is $2,788,483.00 for work performed during the period beginning with Grant award and continuing through year 2. Additional incremental funding planned, but not obligated, is:

$0.00
The Government’s liability is limited to the amount obligated

(End of Summary of Changes)
REQUEST FOR ADVANCE OR REIMBURSEMENT

3. FEDERAL SPONSORING AGENCY AND ORGANIZATION ELEMENT TO WHICH THIS REPORT IS SUBMITTED
Defense Threat Reduction Agency/ J3CTBS

4. FEDERAL GRANT OR OTHER IDENTIFYING NUMBER ASSIGNED BY FEDERAL AGENCY
HDTRA1-14-1-0053

5. PARTIAL PAYMENT REQUEST NUMBER FOR THIS REQUEST

6. EMPLOYER IDENTIFICATION NUMBER
FOIA (b)(6)

7. RECIPIENT ACCOUNT NUMBER OR IDENTIFYING NUMBER

8. PERIOD COVERED BY THIS REQUEST
FROM month day year 04/01/2018 TO month day year 06/30/2018

9. RECIPIENT ORGANIZATION
Name: Metabiota, Inc
Number and Street: 425 California Street, Ste 1200
City, State and ZIP Code: San Francisco, CA 94104

10. PAYEE (Whose check is to be sent is different from item 9)
Name: 
Number and Street: 
City, State and ZIP Code: 

11. COMPUTATION OF AMOUNT OF REIMBURSEMENTS/ADVANCES REQUESTED

<table>
<thead>
<tr>
<th>PROGRAMS/FUNCTIONS/ACTIVITIES</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Total program outlays to date</td>
<td>$884,105.83</td>
<td>$</td>
<td>$</td>
<td>$884,105.83</td>
</tr>
<tr>
<td>b. Less: Cumulative program income</td>
<td>0.00</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>c. Net program outlays (Line a minus line b)</td>
<td>884,105.83</td>
<td>0.00</td>
<td>0.00</td>
<td>884,105.83</td>
</tr>
<tr>
<td>d. Estimated net cash outlays for advance period</td>
<td>0.00</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>e. Total (Sum of lines c &amp; d)</td>
<td>884,105.83</td>
<td>0.00</td>
<td>0.00</td>
<td>884,105.83</td>
</tr>
<tr>
<td>f. Non-Federal share of amount on line e</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>g. Federal share of amount on line e</td>
<td>884,105.83</td>
<td></td>
<td></td>
<td>884,105.83</td>
</tr>
<tr>
<td>h. Federal payments previously requested</td>
<td>826,985.42</td>
<td></td>
<td></td>
<td>826,985.42</td>
</tr>
<tr>
<td>i. Federal share now requested (Line g minus line h)</td>
<td>57,120.41</td>
<td>0.00</td>
<td>0.00</td>
<td>57,120.41</td>
</tr>
<tr>
<td>j. Advances required by month, when requested by Federal grantor agency for use in tracking prescheduled advances</td>
<td>1st month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. ALTERNATE COMPUTATION FOR ADVANCES ONLY

| a. Estimated Federal cash outlays that will be made during period covered by the advance | $ |
| b. Less: Estimated balance of Federal cash on hand as of beginning of advance period | $ | 0.00 |
| c. Amount requested (Line a minus line b) | $ | 0.00 |

AUTHORIZED FOR LOCAL REPRODUCTION

(Continued on Reverse)

STANDARD FORM 270 (Rev. 2-92)
Prescribed by Office of Management and Budget
Clr. No. A-102 and A-110
CERTIFICATION

I certify that to the best of my knowledge and belief the data on the reverse are correct and that all outlays were made in accordance with the grant conditions or other agreement and that payment is due and has not been previously requested.

This space for agency use

INSTRUCTIONS

Please type or print legibly. Items 1, 3, 5, 9, 10, 11c, 11e, 11f, 11g, 11i, 12 and 13 are self-explanatory; specific instructions for other items are as follows:

2. Indicate whether request is prepared on a cash or accrued expenditure basis. All requests for advances shall be prepared on a cash basis.

4. Enter the Federal grant number, other identifying number assigned by the Federal sponsoring agency. If the advance or reimbursement is for more than one grant or other agreement, insert N/A, then show the aggregate amounts. On a separate sheet, list each grant or agreement number and the Federal share of outlays made against the grant or agreement.

6. Enter the Employer Identification number assigned by the U.S. Internal Revenue Service, or the FICE (institution) code if requested by the Federal agency.

7. This space is reserved for an account number or other identifying number that may be assigned by the recipient.

8. Enter the month, day, and year for the beginning and ending of the period covered in this request. If the request is for an advance or for both an advance and reimbursement, show the period that the advance will cover. If the request is for reimbursement, show the period for which the reimbursement is requested.

Note: The Federal sponsoring agencies have the option of requiring recipients to complete items 11 or 12, but not both. Item 12 should be used only when a minimum amount of information is needed to make an advance and outlay information contained in item 11 can be obtained in a timely manner from other reports.

11. The purpose of the vertical columns (a), (b), and (c), is to provide space for separate cost breakdowns when a project has been planned and budgeted by program, function, or activity.

11a. Enter "as of date," the month, day, and year of the ending of the accounting period to which this amount applies. Enter program outlays to date (net of refunds, rebates, and discounts), in the appropriate columns. For requests preparation on a cash basis, outlays are the sum of actual cash disbursements for goods and services, the amount of indirect expenses charged, the value of in-kind contributions, and the amount of cash advances and payments made to subcontractors and subrecipients. For requests prepared on an accrual expenditure basis, outlays are the sum of the actual cash disbursements, the amount of indirect expenses incurred, and the net increase (or decrease) in the amounts owed by the recipient for goods and other property received and for services performed by employees, contracts, subgrantees, and other payees.

11b. Enter the cumulative cash income received to date. If requests are prepared on a cash basis, enter the cumulative income earned to date. Under either basis, enter only the amount applicable to program income that was required to be used for the project or program by the terms of the grant or other agreements.

11d. Only when making requests for advance payments, enter the total estimated amount of cash outlays that will be made during the period covered by the advance.

13. Complete the certification before submitting this request.

STANDARD FORM 270 BACK (Rev. 2-92)
1. Federal Agency and Organizational Element to Which Report is Submitted
Defense Threat Reduction Agency/J3CTBS

2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment)
HDTRA1-14-1-0053

3. Recipient Organization (Name and complete address including Zip code)
Metabota, Inc., 425 California Street, San Francisco, CA 94104

4a. DUNS Number
628 131 156

4b. EIN
5a. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment)

5b. Recipient Subaccount Number (If applicable)

6. Report Type
☐ Quarterly
☐ Semi-Annual
☐ Annual
☐ Final

7. Basis of Accounting
☐ Cash
☐ Accrual

8. Project/Grant Period (Month, Day, Year)
From: 8/7/2014
To: 9/4/2018
6/30/2018

9. Reporting Period End Date (Month, Day, Year)

10. Transactions
(Use lines a-c for single or multiple grant reporting)

Federal Cash (To report multiple grants, also use FFR Attachment):

a. Cash Receipts
$2,670,193.14

b. Cash Disbursements
$2,741,722.83

c. Cash on Hand (line a minus b)
-$7,529.69

(Use lines d-o for single grant reporting)

Federal Expenditures and Unobligated Balance:

d. Total Federal funds authorized
$2,788,483.00

e. Federal share of expenditures
$2,741,722.83

f. Total Federal share of unliquidated obligations
$6,00

g. Total Federal share (sum of lines e and f)
$2,741,722.83

h. Unobligated balance of Federal funds (line d minus g)
$46,760.17

Recipient Share:

i. Total recipient share required
0

j. Recipient share of expenditures
0

k. Remaining recipient share to be provided (line i minus j)
0

Program Income:

l. Total Federally program income earned
0

m. Program income expended in accordance with the deduction alternative
0

n. Program income expended in accordance with the addition alternative
0

1. Unexpended program income (line l minus line m or line n)
0

11. Indirect Expense

a. Type
FOIA (b)(4)

b. Rate


c. Period From


d. Period To


e. Base


f. Amount Charged


11g. Totals:


FOIA (b)(4)

12. Remarks: Attach any explanations deemed necessary or information required by your agency or governing regulation:

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

a. Typed or Printed Name and Title of Authorized Certifying Official

b. Signature of Authorized Certifying Official

7/13/2018

14. Agency use only:

Standard Form 425 - Revised 6/28/2010
OMB Approval Number: 0348-0061
Expiration Date: 10/31/2011

Paperwork Burden Statement
According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20503.
Thank you for the information. I will engage Deb tomorrow on this.

-----Original Message-----
From:                     
Sent: Wednesday, May 23, 2018 9:36 PM  
To:                      
Subject: Fwd: [Non-DoD Source] HDTRA1-14-1-0053 (Metabiota, Inc.) -- NCE Request  

Fsysa, Metabiota sent this NCE request straight to [b][6] Let me know if you need additional information.

Cheers,

Cooperative Biological Engagement Program  
Defense Threat Reduction Agency  
Fl. Belvoir, VA

Begin forwarded message:

From: FOA [b](8)
Date: May 23, 2018 at 3:14:14 PM PDT
To: FOIA [b](8)

Subject: [Non-DoD Source] HDTRA1-14-1-0053 (Metabiota, Inc.) -- NCE Request

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.
Good afternoon

Attached is a No Cost Extension request from Metabiota.

Please let us know if you need anything further.

Best Regards,

Metabiota, Inc.

CONFIDENTIALITY NOTICE: The information contained in this electronic mail (email) transmission (including attachments), is intended by Metabiota for the use of the named individual or entity to which it is addressed and may contain information that is privileged or otherwise confidential. It is not intended for transmission to, or receipt by, any individual or entity other than the named addressee except as otherwise expressly permitted in this email transmission. If you have received this email in error, please delete it without copying or forwarding it, and notify the sender of the error by email reply.
Hi [REDACTED] (b)(6)

I will do what I can to push an NCE through. Given today is 23 May and the POP ends in early June, the NCE may not be executed prior to the end of the POP.

Please provide ASAP more information regarding what has gone wrong and when, as well as details on the current solution and why it is not adequate. Please include a description of the scope of work remains to be completed (e.g. how many specimens, etc.) and how much additional time is being requested.

The formal written request for NCE should be submitted in the next day or two and should include the detailed information described above. I do not know how the contracting officer will respond to this late request for an extension.

Cheers,

[b](6)

Cooperative Biological Engagement Program
Defense Threat Reduction Agency
Pt. Belvoir, VA
Phone: [REDACTED]
Mobile: [REDACTED]

On May 23, 2018, at 6:36 AM [REDACTED] (b)(6) wrote:

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

[b](6)

We just wanted to give you a heads up that we expect to file a request for No Cost Extension for the HDTTRA1-14-1-0053. We were notified last night that UC Davis would like to request a No Cost Extension for the Rift Valley Fever and Brucellosis project. This is based on the unexpected development of equipment breakdown for laboratory testing at Ft. Bragg that has delayed progress, though we have come up with an interim solution by partnering with our Sokolove University of Agriculture labs to keep making slow progress. Please let us know if you have any questions or concerns. Thanks.
CONFIDENTIALITY NOTICE: The information contained in this electronic mail (email) transmission (including attachments) is intended by Metabiota for the use of the named individual or entity to which it is addressed and may contain information that is privileged or otherwise confidential. It is not intended for transmission to, or receipt by, any individual or entity other than the named addressee except as otherwise expressly permitted in this email transmission. If you have received this email in error, please delete it without copying or forwarding it, and notify the sender of the error by email reply.
Hi,

I wanted to let you know that the ELISA plate reader purchase that we discussed earlier has been approved. I will put this note into the project record.

Cheers,

[Redacted]

Cooperative Biological Engagement Program
Defense Threat Reduction Agency
Ft. Belvoir, VA

**NOTICE: Nothing in this email is intended to constitute contractual direction or impact currently negotiated cost, price, or schedule contained within the contract. If the contractor believes there is an impact, the contractor must disregard that portion of the communication and contact the contracting officer for direction.**

----Original Message-----

From: [Redacted]
Sent: Tuesday, April 11, 2017 4:09 PM
To: [Redacted]
Cc: [Redacted]

Subject: RE: Equipment request for HDTRA1-14-I-0053

The contracting officer has approved Metabiota’s request.

DTTRA Contract Specialist

----Original Message-----

From: [Redacted]
Sent: Monday, April 10, 2017 1:32 PM
To: [Redacted]
Cc: [Redacted]

Subject: Equipment request for HDTRA1-14-I-0053

Hi,

I got a request from Metabiota for an equipment purchase associated with contract HDTRA1-14-I-0053 (One Health Approach to Rift Valley fever and Brucella in Tanzania). Could you please get approval for this purchase?

The project team is requesting the purchase of an ELISA plate reader as the existing equipment has become non-functional due to a software incompatibility issue. The purchase will be made with funds from within the project and
will not result in an overall increase in the project budget. I support the purchase request they have made.

What additional information do you need to execute this action?

Thanks,

Cooperative Biological Engagement Program  
Defense Threat Reduction Agency  
Ft. Belvoir, VA

**NOTICE: Nothing in this email is intended to constitute contractual direction or impact currently negotiated cost, price, or schedule contained within the contract. If the contractor believes there is an impact, the contractor must disregard that portion of the communication and contact the contracting officer for direction.**

-----Original Message-----
From: FOIA (b)(6)
Sent: Monday, April 10, 2017 12:54 PM
To: FOIA (b)(6)
Cc: FOIA (b)(6)
Subject: [Non-DoD Source] Fwd: DTRA R&B project - equipment request

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

HI (b)(6)

Attached please find the request for equipment that we discussed last week. Please let us know if you require any additional information.

Apologies for not CC'ing (b)(6) but I am out of the office for the next few days and didn't have her email address in my phone.

Thanks,
Falgunee

Begin forwarded message:

From: David J Wolking <djwolking@ucdavis.edu >
Date: April 10, 2017 at 11:49:43 AM EDT
To: FOIA (b)(6)
Cc: FOIA (b)(6)
Subject: Re: DTRA R&B project - equipment request
Thanks for reaching out to DTRA and apologies for the delay getting this back to you. Does the language in this version work?