ATTACHMENT J-10

# Sample Task Order (STO) #2 – ENVIRONMENTAL DATA NETWORK

**1.0 Introduction**

The Environmental Assessment Agency (EAA) recently signed Memorandum of Agreements (MOAs) with several South American countries for the purpose of collecting environmental and weather data from remote outposts to better support environmental trend analysis. The EAA requires a satellite-based communication network to backhaul data from remote sensor outposts that are installed by each country.

**2.0 Objective**

### The Offeror shall design, deploy, and sustain a satellite-based network to support data collection from sensors in remote locations within South America. The network must also provide a capability to share the remote sensor bandwidth with occasional personnel operational needs. The remote sites are typically unmanned, but there can be periods where an agency will send staff to sites several weeks to perform additional data collection or maintenance for the sensors. The agency personnel will travel to the sites with a laptop and require internet service connectivity throughput up to 768kbps outbound and up to 256kbps inbound.

**3.0 Summary of Requirements**

The Offeror shall propose a solution compliant with all sample task order requirements that delivers the required quality of service and availability and articulates rationale for the choice of architecture and components, including life cycle cost considerations.

Services and equipment to be provided include:

* Central satellite gateway site in South America – contractor defined location with connection to the Internet
* Satellite connectivity to the remote sensor site
* Remote sensor sites equipment
* System Design
* System Documentation
* Managed Network Services
* Engineering Planning
* Installation and Sustainment Planning
	+ Installation
	+ Integration & Testing
	+ Integrated Logistics Support
	+ Operations & Maintenance

**3.1 Management Requirements**

3.1.1 The Offeror shall provide a detailed project schedule (e.g., Microsoft Project or equivalent) in PDF format for the entire Task Order lifecycle.

3.1.2 The Offeror shall discuss:

3.1.2.1 The roles and responsibilities of the Offeror and Subcontractors that will contribute to the solution, how work will be partitioned among subcontractors (if applicable), and how subcontractors will be managed.

3.1.2.2 Identification and assessment of the Personnel Travel, Environmental, and Safety Hazards for each remote site.

3.1.2.3 Establishment of U.S. Government access to a web portal to present the health of the entire solution in a consolidated view.

3.1.2.4 Program management approach, procedures, and performance metrics and provide an explanation of how they will be used to ensure timely system development, installation and operation.

3.1.2.5 Process and procedures they will employ for coordination with external offices and agencies, EAA Operations Centers, and other communications planners, managers and operators.

3.1.2.6 Identification and assessment of risks and a mitigation strategy that minimizes cost, schedule, and performance risk.

3.1.2.7 Process and procedures they will employ to develop and furnish the deliverables in Section 7.2.

3.1.2.8 Identification of all equipment, on a per-country basis, that are on either the International Traffic in Arms Regulations (ITAR) or Department of Commerce export control lists and provides a plan to manage the equipment in compliance with all applicable regulations.

**3.2 Technical Requirements**

### 3.2.1 System Engineering

3.2.1.1 The Offeror shall develop and document a solution compliant with all sample task order requirements that delivers the required quality of service and availability and articulates rationale for the choice of

architecture and components, including life cycle cost considerations. The Offeror shall discuss how lessons learned from previous projects were incorporated. The Offeror shall provide a detailed architecture and explain operation of all required interfaces (network and power). The Offeror shall provide link budgets. The Offeror shall define and provide the shelter power and network interface connections that will withstand environmental rigors at each site.

3.2.1.2 The Offeror shall clearly explain their recommendation for bandwidth, stating assumptions, to ensure that only the necessary amount of bandwidth is leased. The Offeror shall implement configuration management, prepare engineering documents and reference manuals, and provide engineering and testing services for the Environmental Data Network.

3.2.1.3 The Offeror shall identify valid installation challenges and risks (excluding any items provided Government Furnished Equipment (GFE)), and provide realistic mitigation for each.

3.2.1.4 The Offeror shall discuss how their system incorporates reliability, availability, maintainability, security, network monitoring and interoperability.

3.2.1.5 The Offeror shall address system flexibility and optimization, accommodating potential future needs to support either new sites or higher per-site data transfer needs or spectral optimization to minimize bandwidth needs.

3.2.2 Satellite Communications Terminals

3.2.2.1 The Offeror shall procure, integrate, and deploy environmentally controlled shelters to each remote site that will house the satellite modem and any ancillary equipment that requires environmental protection. Each shelter shall be designed to withstand the environmental rigors specific to each site.

3.2.2.2 The Offeror shall ensure that all components are interoperable.

3.2.2.3 The Offeror shall define the Radio Frequency (RF) power requirements for all of the remote sites and explain how the solution proposed meets the Government’s Committed Information Rate (CIR) requirements. The remote Very Small Aperture Terminal (VSAT) locations and the summary of data transport requirements,

 to include bandwidth sharing for occasional personnel operational needs, are provided for each site in Table 1 below.

**Table 1. Summary of Data Transport Requirements**

| **Remote Site ID** | **Remote Site Locations** | **Committed Information Rate (CIR) Requirements** |
| --- | --- | --- |
| Site 1 | Puerto Williams, Chile | IP-based transport to backhaul data from sensors to the central collection point (2048kbps inbound, 768kbps outbound) |
| Site 2 | Ventiocho de Novembre, Argentina | IP-based transport to backhaul data from sensors to the central collection point (2048kbps inbound, 768kbps outbound) |
| Site 3 | Potsi, Bolivia | IP-based transport to backhaul data from sensors to the central collection point (2048kbps inbound, 768kbps outbound) |
| Site 4 | Manaus, Brazil | IP-based transport to backhaul data from sensors to the central collection point (2048kbps inbound, 768kbps outbound) |
| Site 5 | Ciudad Bolivar, Venezuela | IP-based transport to backhaul data from sensors to the central collection point (2048kbps inbound, 768kbps outbound) |
| Site 6 | La Rinconada, Peru | IP-based transport to backhaul data from sensors to the central collection point (2048kbps inbound, 768kbps outbound) |
| All Sites |  | The network must also provide a capability to share the remote sensor bandwidth with occasional personnel operational needs. Agency personnel will arrive to the sites with a laptop and require internet service connectivity throughput up to 768kbps outbound and up to 256kbps inbound |

 Inbound - Data transmitted by the VSAT to the Gateway

 Outbound - Data transmitted by the Gateway to the VSAT

3.2.3 Managed Network Services

3.2.3.1 The Offeror shall provide turnkey VSAT transmission capability that includes all necessary software, hardware, service and maintenance support to all locations. The Offeror shall be fully responsible for assuring operational availability of the system.

3.2.3.2 The managed network services shall include space segment, teleport, and terrestrial components as necessary to ensure a complete end-to-end communications solution between the sensor systems and the Internet. All equipment delivered as part of the complex satellite solution shall be new equipment.

3.2.3.3 The central gateway site shall be located at a contractor-provided location within South America with connection to the Internet. Provide all internet access through a U.S. based internet Point of

Presence. For example, users should reach Google.com and not Google.dz.

3.2.3.4 Space segment coverage shall include all sites in South America. The Offeror shall provide maps with clearly depicted and labeled contour lines, demonstrating coverage across the required locations. Contour lines should clearly demonstrate satellite gain to noise temperature ratio (G/T), effective isotropic radiated power (EIRP), and elevation angle values for proposed satellite(s) and covered region.

3.2.3.5 Space segment shall meet 99.999% availability. The satellite gateway shall meet a 99.95% availability per year.

3.2.3.6 The VSAT terminal availability shall meet or exceed 99.75% for each site, and the service level shall meet a bit error rate (BER) of 10-7.

3.2.3.7 The Offeror shall develop and provide configuration documentation, and transmission plans.

3.2.3.8 The Offeror will be required to meet Federal and DoD Information Assurance requirements for a Moderate Impact Information System. The Offeror shall provide a completed Information Assurance (IA) checklist (Attachment J-2).

3.2.4 Testing

The Offeror shall develop a test plan and schedule for the system and provide it to the Government for review/approval no later than 30 days after award. The Government reserves the right to attend all tests. The Offeror shall provide completed test reports to the Government within ten (10) days of test completion. The Offeror shall not ship any equipment prior to final Government acceptance of test results. This is a post-award deliverable. See Section L.22.2 regarding submission of post-award contract deliverables.

3.2.5 Lifecycle Management

3.2.5.1 The Offeror shall present an approach for lifecycle management (on-going maintenance and operational support services, customer care and help desk support to include electromagnetic interference (EMI)/radio frequency interference (RFI) resolution support, and training). This shall include all hardware/software elements and ancillary items necessary for maintaining an operational availability.

 The Offeror shall discuss the approach to minimize mean time between failure and mean time to repair.

3.2.5.2 The Offeror shall use available commercial materials to the maximum extent possible.

3.2.5.3 The Offeror shall use commercial airlines for personnel and equipment transport to the nearest airport.

3.2.5.4 The Offeror shall provide Original Manufacturer Equipment Documentation for each terminal suite.

3.2.5.5 The Offeror shall identify long-lead item procurement risks, and provide mitigation. The Offeror shall address warranty service, spare parts, and field support.

3.2.5.6 The Offeror shall discuss maintenance support for all sites to include the replacement of defective components, upgrades to include commercial off-the-shelf (COTS) technology insertion, and any software updates, as required.

3.2.6 Personnel Travel, Environmental, and Safety Hazards

The Offeror shall identify and assess personnel Travel, Environmental, and Safety Hazards for each remote site.

3.2.7 EMI/RFI Identification and Resolution

The Offeror shall have a means of satellite communications electromagnetic interference (EMI) and radio frequency interference (RFI) identification, characterization, and geo-location. The Offeror will be required to analyze and report all EMI/RFI to the Government and may be asked to participate in exercises involving EMI/RFI. The Offeror shall explain how EMI/RFI identification and resolution will be communicated to the Government.

3.2.8 Network Monitoring

3.2.8.1 The Offeror shall establish, and provide the U.S. Government access to a web portal to present the health of the entire solution in a consolidated view using data from multiple sources. The U.S. Government prefers the capability to receive fault/incident/outage reports (e.g., interference, anomalies) in an automated way, vice a trouble ticket from an operations center.

3.2.8.2 The Offeror shall staff a 24/7/365 Network Operations Center (NOC) as a focal point for network access, technical support, and troubleshooting. NOC staff shall be English-speaking and U.S. citizens.

3.2.8.3 The Offeror shall provide status reporting on equipment status, network status, and network utilization. The Offeror shall create and manage trouble tickets. The Offeror shall produce monthly and annual resource utilization reports. These are post-award contract deliverables. See Section L.22.2 regarding submission of post-award contract deliverables.

3.2.9 Frequency Clearances and Approvals

3.2.9.1 The Offeror shall describe the frequency clearance requirements for each of the South American locations and explain how the requirements will be met to allow transmission in Host Nations. The Offeror shall support Host Nation Agreement (HNA) efforts in obtaining international approvals for radio spectrum operations under this contract in foreign nations. The Offeror shall ensure that international services provided under this contract may be provided as scheduled with the full approval of each affected host nation. Typical services may include, but are not limited to: HNA, landing rights, operating agreements, site licenses, and frequency clearances.

3.2.9.2 Frequency Clearances for all terminals shall be required prior to the start of managed network services.

3.2.9.3 Frequency Clearances shall be requested for the maximum time period allowed by the host nation, up to the life of the contract.

3.2.9.4 The Offeror shall provide the Government with copies of regulatory licenses and approvals obtained to operate and use the spectrum for countries within the required service region.

3.2.10 Additional Requirements

3.2.10.1 The Offeror shall provide all required software and firmware for all contractor furnished equipment. See Section L.22.2 regarding submission of post-award contract deliverables.

3.2.10.2 The Offeror shall be responsible for system administration, maintaining back-ups/restoral capability, firewall management, and system security to include maintaining IA compliance.

3.2.10.3 The Offeror will provide an unpriced Bill of Materials (BOM) in Microsoft Excel that will include services, equipment, and labor (See Attachment J-11).

**4.0 Performance**

**4.1 Locations**

Work is to be performed at contractor facilities and at remote sites in South America. Equipment shall be shipped to the sites in South America. Technical support may be required at all sites.

**4.2 Period of Performance**

The period of performance for this Task Order will be five (5) years. In addition to the CLINs priced by the Offeror during the 5-year period of performance (Years 1 through 5), the Offeror shall propose pricing for the two CS3 option periods: one (1) three-year option period (Years 6 through 8) followed by one (1) two-year option period (Years 9 and 10), and the FAR 52.217-8 six-month extension option.

In the first six (6) months after contract award, the Offeror shall design, acquire, integrate, test, and deliver the requested capability.

**5.0 Government Support**

**5.1 Government Furnished Equipment/Facilities:**

* Equipment transportation from the Contiguous United States (CONUS) to the remote sites, and any necessary equipment for offloading equipment from the truck to the ground at each remote site.
* A flat, gravel-covered area at each remote site where the Offeror will install the self-contained environmental shelter and antenna.
* 220V Power for each remote site to meet Contractor-defined needs. The Offeror shall provide specifications for the connector on the shelter which will withstand the local area environmental conditions.
* Sensor systems provided by local country Governments.
* Fiber cabling and conduit between the facility where sensor equipment is located and the environmental shelter. The Offeror shall provide specifications for the connector on the shelter which will withstand the local area environmental conditions.

**6.0 Security**

The Offeror shall articulate processes and procedures to address the security requirements for personnel assigned to the task order. All Offeror personnel assigned to

this task shall be US citizens and possess United States Moderate Background Investigation (MBI) public trust clearances.

The Offeror shall ensure that all controlled unclassified information is safeguarded in accordance with the guidance provided in DoDM 5200.1, Volume 4, Information Security Program: Controlled Unclassified Information (CUI).

**7.0 Deliverables**

**7.1 Pre-Award Deliverables (Submitted with Offeror’s Proposal)**

The following deliverables will be used to document the comprehensiveness of the Offeror’s complex satellite solution for the Environmental Data Network.

* IA Checklist (Attachment J-2)
* Link Budget
* Original Manufacturer Equipment Documentation for Each Terminal Suite
* Network Architecture and Configuration Documentation, and Transmission Plans
* Maps with clearly depicted and labeled contour lines, demonstrating coverage across the required locations. Contour lines should clearly demonstrate satellite gain to noise temperature ratio (G/T), effective isotropic radiated power (EIRP), and elevation angle values for proposed satellite(s) and covered region
* Bill of Materials
* Schedule

**7.2 Post-Award Deliverables**

* Test Plan
* HNA Frequency Clearances, Regulatory Licenses and Approvals
* Status Reports
* All required software and firmware for Offeror furnished equipment to include Windows Operating System for the laptops.

**8.0 Pricing**

**8.1 Instructions**

The Offeror shall provide firm fixed prices for the items listed in the contract line item number (CLIN) list in Section J, Attachment J-11 according to the Section B pricing tables, including labor categories and number of hours for each category as necessary. Each proposed labor category shall include position title and definition.

**8.2 Priced Line Items**

* Satellite Communications Terminals
* SATCOM Equipment Services and Support
* Space Segment
* Teleport Service
* Terrestrial Service
* Environmental Shelters
* Frequency Clearances and Approvals
* Network Management and Operations Support
* Shipping

(END OF SECTION J, ATTACHMENT J-10)