The Statement of Work previously posted has been revised to incorporate the following changes. As a result of the changes, the revised Statement of Work is renamed as "Statement of Work Revision Number 1".

1. Page number 3, paragraph 6.0 entitled, "Computer Systems" has been added. Subsequent paragraphs have been renumbered beginning with paragraph 7.0 entitled, "Contractor Assistance"

2. Page number 41, Part Number 11 entitled, "Automatic Data Processing Equipment Maintenance and Support" paragraph 3.5 entitled, "Computer Security" has been added to define the scope of responsibility for Information Security.

3. Page number 47, Part Number 12 entitled, "Diagnostic Instrument Maintenance and Support" paragraph number 3.1.5 entitled, "Responsibility for Computer Systems" has been added to define network security requirements on the diagnostic network.

4. Page number 57, Table 2 entitled, "On-Site Diagnostic Instrument Listing" Item Number 18, "GPS Scintillation & TEC Receiver." has been added.

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

1. The work and services to be performed hereunder shall be subject to the requirements and standards contained in the Contract Data Requirements List (Exhibit A) and the following Statement of Work (SOW).

STATEMENT OF WORK (SOW) REVISION NUMBER 1

1.0 BACKGROUND: The High Frequency Active Auroral Research Program (HAARP) Research Station, Gakona is a Government-owned facility located at milepost 11.3 Tok Cutoff, Gakona, AK 99586. The mission of the program is to conduct ionospheric research of a Radio Science nature in support of both Department of Defense (DoD) and civilian communication, surveillance and navigation applications.

2.0 SITE CHARACTERISTICS: The HAARP Research Station lies within the Copper River Lowlands (also known as the Copper River Basin). The Copper River Lowlands consist of an inter-mountain basin flanked on all sides by mountainous uplands. The eastern portion of this basin, which contains the HAARP site, is a plain with elevations ranging from 1,000 to 3,000 feet above mean sea level (MSL). On the HAARP site, elevations range from 1,940 feet in the northwest portion to 1,830 feet near the site entrance. The HAARP Research Station is dominated by open conifer forest (approximately 53% of the area), followed by wet herbaceous (23%). The predominant vegetation is black and white spruce with some willow, alder and poplar. A substantial portion of the HAARP site is classified as wetland. All built-up areas (such as gravel roads and pads) have been sited to avoid and protect the wetland areas to the greatest extent possible.

A gravel road runs from the site entrance and provides access to the Ionospheric Research Instrument (IRI), to all scientific and diagnostic supporting instruments and to other ancillary equipment at the facility. The facility includes a large Operations Center building containing office spaces and a power generation bay near the site entrance. A large steel storage building is located adjacent to the operations center. A third building, called the Joint Electronic Test Facility (JET-F), contains additional office spaces and research areas and is located approximately 1.75 miles west of the site entrance at the end of the access road.

Several diagnostic pads are located along the access road. One or more scientific instruments are installed on each pad and there is at least one shelter installed on each pad. The shelters contain equipment associated with the scientific instruments along with data and communications infrastructure.

3.0 SCOPE: The contractor shall provide all necessary personnel, equipment and materials, except as otherwise specified in this contract, to maintain the HAARP Research Station and all of its scientific instruments and to provide personnel with the capability to operate the facility for research purposes. For certain services which can acceptably and more cost effectively be accomplished by an area on-call provider, the contractor shall determine whether to purchase or subcontract for such services in lieu of retaining the skilled on-site personnel. The following types of services will be required:

Electrical distribution system and generators: Operate, maintain, inspect and repair electrical systems including five 3600 horsepower (HP) diesel generators, area lighting, and other installed electrical systems as required. (Part 1)

Water, sewer and heat distribution systems: Inspect, monitor and provide preventive maintenance for water, sewer, and heating and air conditioning systems and arrange for repairs when needed. (Part 2)

Facilities maintenance and general support services: Maintain buildings, transmitter and scientific instrument shelters both on-site and off-site, and ancillary structures, including installed utilities. Perform general housekeeping, minor repairs and alterations. Provide loading/offloading services and support for Government operations. Provide receiving and shipping function. Provide support for on-site activities such as Open House, Summer School, organizational visits and other activities as directed. (Part 3)

Grounds, roads and perimeter fence maintenance services: Maintain the HAARP Gakona Facility including, but not limited to, access roads, pads, grounds, fences, and gates; including snow removal. (Part 4)

Transportation equipment: Operate transportation equipment for movement of personnel, special engineering activities and materials handling. (Part 5)

Environmental monitoring: Ensure compliance with agreements contained in the HAARP Environmental Impact Statement Record of Decision, and with Federal and State

regulations. Provide containment and abatement of regulated materials and prevention or reporting of oil spills. (Part 6)

Facilities inventory management: Provide general HAARP Research Station data. Maintain a listing of Government property, Government Furnished Equipment (GFE), university property and contractor owned equipment. Manage tool control and expendable supplies. (Part 7)

Facility safety: Ensure compliance with all applicable safety regulations and site safety plan. (Part 8)

Facility security and visitor control: Provide access control, out of hours security monitoring, badge issuance and interface with government security representatives. (Part 9)

Utility management and billing: Perform financial interface to local utility providers. Monitor utility usage and schedule deliveries to ensure continuous supply. Receive notification of utility outages and inform the Government representative. Request utility service calls at the request of the COR. (Part 10)

Automatic Data Processing Equipment (ADPE): Maintain facility automatic data processing equipment. Maintain computer hardware inventory and provide software updates and security patches. Maintain HAARP networks and firewall. (Part 11)

Diagnostic Instrument Maintenance: Maintain scientific and diagnostic instruments installed at the HAARP Research Station. Instruments shall be fully functional for all research operations at the facility. (Part 12)

Research operation support: Provide support during research operations at the HAARP Research Station. Provide personnel with the capability to operate the facility during research operations. Schedule work hours for day and/or night coverage of research operations. (Part 13)

4.0 ON-SITE MANAGER: The contractor shall provide a Facility Manager to be present on the work site during regular working hours (Monday through Friday, 8:00 AM – 4:30 PM). The contractor's Facility Manager shall schedule and plan the work to ensure full compliance with contract requirements. The contractor shall also establish quality assurance and quality control programs acceptable to the COR.

5.0 PERSONNEL: The contractor shall exercise direct control over its employees to ensure proper behavior and conformance to applicable Air Force/Navy policies. The contractor shall select personnel who are qualified to perform the required services, develop supervisory techniques to ensure effective and efficient operations, and keep personnel cognizant of all improvements, changes and methods of operation. The contractor shall obtain proper identification credentials and clearances, as are necessary, for his personnel and ensure that

vehicle operators have the required licenses. A large number of tasks identified in this SOW are of a part-time or occasional nature. The contractor shall select personnel and define duties to satisfy multiple tasks identified in this SOW, within a given position.

6.0 COMPUTER SYSTEMS: The contractor shall be responsible for acquiring and maintaining computer assets including any required network components and external internet connectivity that will be used to process or store contractor specific information including employee records, accounting information, business e-mail, on-line purchasing, and other company proprietary data. The contractor computer network shall be separate and distinct from the HAARP operations and diagnostics networks.

7.0 CONTRACTOR ASSISTANCE: The contractor shall instruct his employees to furnish assistance, as required, in the performance of Government inspections. The contractor shall also furnish information (cost estimates, cost proposal, etc.), as required, for the administration of this contract. (CDRL 001)

8.0 DOCUMENTS: Applicable DoD and Air Force or Navy manuals, instructions and directives will be provided by the Government through normal distribution channels. All other forms and/or publications required for the performance of work under this contract are the contractor's responsibility. The Government will provide an initial supply of reporting forms identified as required; re-supply of such forms shall be the contractor's responsibility. The contractor shall maintain files of all instructions and directives provided by the Government and other forms and/or publications required for the performance of work under this contract.

9.0 LICENSES AND PERMITS: The contractor shall obtain any necessary licenses and permits as detailed in Table 1, and is responsible for complying with all Federal, State and municipal laws, codes, and regulations in connection with the performance of the indicated work except where the Government specifically reserves certain notifications and actions unto itself as detailed in Table 1. The contractor shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others.

10.0 STANDARD OPERATING PROCEDURES: The contractor shall prepare and submit Standard Operating Procedures (SOP's) (CDRL 002) within thirty (30) days after contractor award and to effect changes thereto, as required. The SOP's shall specifically delineate the contractor's responsibility and actions. SOP's shall be submitted to the COR for approval. Approved SOP's shall be incorporated as part of the contract requirements. The contractor shall provide SOP's for the following areas of responsibility:

(a) Maintenance management system, including management of service calls, minor work, scheduled maintenance, recurring work and out of hours emergencies.

(b) Property control.

(c) Scheduling of work.

(d) Personnel administration.

(e) Safety procedures.

(f) Contractor quality control program.

(g) Personnel contingency plan.

11.0 SOP AND OTHER MANUAL UPDATES: The contractor shall update the SOP's, manuals and maintenance programs within fifteen (15) days of the Government provided change (CDRL 003). Updates shall be completed to reflect changes in laws, regulations, equipment, systems and technological or methodological advances or alternatives in the services to be provided under this contract. SOP or manual updates shall be provided to COR for approval. Once the change in SOP's is approved, the contractor shall comply with such change.

12.0 COMMUNICATION SYSTEM: The contractor shall provide a 24-hour a day wireless communication "beeper" system for the receipt of oral emergency work orders. The contractor shall acquire the necessary equipment and provide the Government with the necessary information so that the on-site manager can be contacted on the system. Written work orders shall be provided to the contractor after the oral work orders have been communicated. It shall be the contractor's responsibility to provide a list of on-duty personnel and ensure response to an emergency notification.

13.0 REWORK. Work or services determined by the COR or designated Quality Assurance Employee (QAE) to be unsatisfactory or incomplete shall be re-performed by the contractor outside of the normal working hours at no additional cost to the Government.

14.0 PREVENTIVE MAINTENANCE.
The contractor shall perform preventive maintenance (PM) on the equipment and systems. PM consists primarily of inspection, cleaning, lubrication, adjustment, calibration, and minor parts replacement (e.g. filters, belts, hoses, fluids, and hardware) as required to minimize malfunction, breakdown, and deterioration of equipment. PM shall be performed in accordance with manufacturer's recommendation. The Government will provide the manufacturer's recommended PM schedule and other literature to the contractor, as available.

14.1 The contractor shall submit a detailed PM schedule to the COR for approval within sixty (60) days after award of the contract (CDRL 004). The schedule shall include, for each specific piece of equipment, the location, work to be performed, and the date that the required PM inspections will be performed. The schedule shall be in the format such that the completion of each PM inspection may be indicated on the schedule. Once the schedule is approved by the COR, PM inspections shall be performed by the contractor without further authorization by the COR. If at any time a schedule change is required by the Government, the COR will notify the contractor at least five (5) working days prior to the change. The contractor will strictly adhere to the scheduled PM dates to facilitate Government verification of work. If the contractor finds it necessary to reschedule PM, a written request shall be made to the COR detailing the reasons for the proposed change at least five (5) working days prior to the originally scheduled PM date. No scheduled PM dates shall be changed without prior written approval of the COR.

14.2 To facilitate Government verification of inspections, the contractor shall date stamp or mark all replacement items such as filters, belts, etc. with date changed. Contractor furnished PM record cards shall be attached by the contractor, in a conspicuous location, to each item of equipment requiring PM during its initial inspection. The contractor's mechanic shall initial and date these cards upon completing each PM inspection, indicating that the scheduled PM has been completed.

14.3 The Government may, from time to time, and without prior notice to the contractor, replace, exchange, add, and/or delete items of equipment or components thereof. Equipment replaced or exchanged by the Government shall not justify a cost adjustment to the contract. Equipment added or deleted by the Government, which results in an increase or decrease in contract requirements, may result in an adjustment to the contract price.

15.0 WORK AUTHORIZATION AND SERVICE CALL CONTROL

The Government will receive all requests for services from facility users. The request will be reviewed and, if it is determined to be within the scope of the contract, the COR or designate will prepare and issue the appropriate authorization. The contractor shall establish a work reception and control system for all work authorized by the Government.

15.1 Establishing Work Authorization Priorities. If a work backlog develops, the Government will provide the contractor with priority assignments for each uncompleted Work Authorization. These priorities will be reviewed and updated at least bi-weekly. The contractor shall ensure that his resources are scheduled and assigned in a manner consistent with the priorities established by the Government. The contractor shall not change either the assigned priorities or the work schedule unless inadequate Government Furnished Equipment (GFE) prevents further progress. The COR should be kept informed of any delays that affects the work schedule. The contractor shall not defer routine recurring service to accomplish work ordered on Work Authorizations unless specifically authorized by the COR.

15.2 Completed Work Authorizations. The contractor shall certify and return original copies of completed work authorizations and service calls to the COR no latter than two (2) working days after the completion of the required work (CDRL 005). Final inspection will be made by the COR or his designated QAE to ensure that work/services required are complete and acceptable. The contractor shall maintain a file of completed work authorizations which shall be available to the COR or QAE for inspection purposes.

15.3 Work Authorization Clarification. In cases where the contractor desires clarification of the description of the work required by the Work Authorization, the contractor shall request such clarification within one (1) workday of receipt of the work authorization.

15.4 Status Reports. The contractor shall prepare and submit monthly status reports to the COR (CDRL 006). Reports shall include all hours used on service calls, minor work completed the previous month and for work not yet completed. Safety, security, and Environmental Monitoring issues shall be incorporated in separate sections of this report.

15.5 Out of Hours Emergency Work Request. The contractor shall provide out of hours work request response capability. The out of hours work request capability shall include providing the Government with no less than two (2) names and corresponding telephone numbers of individuals with authority to provide the personnel and services required by the Government. The contractor shall accept phone-in requests for out of hours work from the COR or designated representative only. Out of hours work requests shall be responded to as emergencies. Work authorization documentation will follow the phone-in request the first working day following the work request.

PART 1: ELECTRICAL DISTRIBUTION SYSTEM AND GENERATORS

1.0 SCOPE OF WORK. The contractor shall provide all necessary personnel (or subcontracts, if appropriate) for the operation, inspection, repair and maintenance of all electrical systems at the HAARP Research Station.

2.0 UTILITIES DESCRIPTION. A description of the electrical system covered herein is provided below.

2.1 Power Supply and Distribution System.

(a) Commercial Power. The HAARP Research Station is fed by a three-phase, 24.5 kV overhead line from the Copper Valley Cooperative Electric Company Glennallen, Alaska Substation. Commercial power enters the facility at the site entrance and passes along the main access road on overhead feeders to the vicinity of the high-powered transmitter and antenna array. This line also passes into a transformer and switch equipment located in the Operations Center building.

(b) On-Site Power. The HAARP power plant consists of five EMD diesel generators, each rated at 3600 HP and each capable of delivering 2.8 MW at full load. Power from these generators is normally used only during research operations at which time, all site power, including that needed for housekeeping functions, is supplied from the on-site power plant.

(c) Distribution System. Except during research operations, commercial electrical power is distributed throughout Operations Center Building as single phase, 115 Volts Alternating Current (VAC). Power to the Mission Control Room (MCR) passes through an Uninterruptible Power Supply (UPS) at 220 VAC and is distributed to equipment in the MCR at 115 VAC. Commercial power is distributed to transmitter shelters in the antenna array and is used for housekeeping function s including heating and lighting. Commercial power passes from the overhead lines to underground feed beginning at the antenna array pad and continuing to all other pads on the site. One phase of the three phase commercial power passes along the access road at 24.5 kV directly to the JET-F Facility. A different phase passes along the access road and then northward along the diagnostics road at 24.5 kV to all scientific research pads in the diagnostics area of the facility. Each of the diagnostic shelters located on remote pads is also equipped with a central UPS.

(d) Distribution System During Research Operations. The HAARP Research Station is isolated or "islanded" from commercial power and uses on-site power exclusively during research operations. Power distribution is identical to that described in paragraph 2.1.c except that the voltage supplied to the high power transmitter array is 12 kV instead of 24.5 kV

(e) Diagnostic Pad Transformers High voltage from the underground feeder is converted at each scientific or building pad to 220 VAC split phase service.

(f) JET-F Pad Transformer High voltage from the underground feeder is converted to 208 VAC.

2.2 System Capacity. System capacities are described below.

2.2.1 Capacity of Incoming Service. Power entering the HAARP Research Station is at a capacity of 1.5 megawatts. On-site power generation capacity is 14 MW.

2.2.2 Capacity of Distribution. The capacity for the overhead feeders along the main access road leading to the antenna array is as follows.

SYSTEM CAPACITY

Feeder No.	Connected Load (kVA)	Feeder Capacity (kVA)
1 (Commercial)		1,500
2 (On-site Generated	14,000	18,000
3 (JET-F Underground)	200	300
4 (Diagnostics Underground)		

2.3 Systems Reliability. The reliability of the station distribution system is considered excellent for the present and for at least the next five (5) years.

2.4 Exterior Lighting. The exterior lighting system consists of approximately six (6) 500 Watt Halogen units mounted on the Operations Center Building, four (4) 100 Watt high pressure sodium vapor units mounted on the Operations Center Building and four (4) 200 Watt incandescent units mounted on the JET-F facility buildings. Door lighting on each of the seven (7) diagnostic shelters consists of standard 100-Watt fixtures.

3.0 EMPLOYEE QUALIFICATIONS. The contractor's employees assigned to perform the tasks under this attachment shall have familiarity and training in basic electrical repair and wiring. Work of a specialized nature, which would normally require inspection to ensure conformance with applicable codes is not expected to require a permanent position at the facility. Such work shall be performed either through a local electrical subcontractor or through qualified personnel within the contractor's parent organization.

4.0 SPECIFIC FUNCTIONAL REQUIREMENTS.

4.1 Inspection of Installed Electrical Equipment. The Contractor shall conduct periodic inspections of all installed electrical equipment including but not limited to feeders, switches, transformers, monitoring gauges, and uninterruptible power systems including those located in diagnostic shelters.

4.2 Lighting System Maintenance. The contractor shall ensure that lighting systems inside and surrounding all site buildings are operational and conform to safety requirements. The contractor shall replace burned out bulbs in all interior and exterior lighting systems.

4.3 Diesel Generator Maintenance. The contractor shall provide personnel (or through subcontract) for maintenance of all power plant equipment including the five diesel generators

and their related parts and subsystems in accordance with a schedule to be provided by the government.

4.4 Normal Electrical Maintenance Electrical maintenance shall include, but is not limited to, the installation, maintenance (including preventative maintenance), repair or removal of low voltage electrical circuits and equipment, fixtures, signal or data lines, batteries, and panel boards.

4.5 Emergencies. The contractor shall not cause power outages to any portion of the electrical distribution system without the prior approval of the COR, except in those cases where immediate action is necessary to prevent death or personal injury or major equipment damage at the time of an accident. The contractor shall notify the COR of all unplanned or unexpected power outages. The contractor shall report power outages of an emergency nature to the COR immediately. The contractor shall, in all such cases, determine the nature and extent of the power outage and take immediate action to limit damage. If the power outage is caused by equipment at the HAARP Research Station, the contractor shall take immediate action to repair or replace the defective equipment. In all cases, the contractor shall provide a report of power outages exceeding one hour to the COR. The report shall be supplied to the COR within 24 hours, indicating the nature, extent and cause of the outage (CDRL 007).

4.6 Planned Power Outages. The contractor shall arrange power outages with the COR as indicated in Attachment 10, Section 3.1. The contractor shall provide services necessary to assist in power outages and power restorations required by the power provider and shall notify the COR as soon as practical following notification by the provider. In performing this function, the contractor shall power down specific systems that have been previously identified by the Government in advance of the expected power outage to prevent damage to the equipment.

4.7 Power Monitoring Power at the HAARP Research Station shall be monitored at all times. During out-of-hour periods, a method shall be provided by the contractor to detect loss of electrical power to the facility within one hour of occurrence. In the event of a power outage, the contractor shall respond as specified in Paragraph 4.5 of this Part.

5.0 Minor Electrical Repairs Minor repairs requiring less than two (2) hours and within the qualification level of contractor personnel shall be corrected when identified. Contractor shall notify the COR and obtain approval to procure outside services for electrical repair work requiring specialized qualifications.

5.1 REPORTING EQUIPMENT DEFICIENCIES. Equipment in a down status and any deficiencies noted by the contractor during operational checks, preventive maintenance inspections, service work, or at any other time shall be reported in writing to the COR. Deficiencies discovered which could potentially affect the safe operation of the Research Station shall be reported to the COR immediately by phone and shall be submitted in writing within 24 hours of discovery.

PART 2: WATER, SEWAGE AND HEAT DISTRIBUTION SYSTEMS MAINTENANCE AND REPAIR

1.0 SCOPE OF WORK. The contractor shall provide all necessary personnel for the inspection, monitoring, and providing preventive maintenance of the potable water, gray water, sewage, and heating and air conditioning systems and arrange for repairs when needed.

2.0 DESCRIPTION OF FACILITIES. The facilities and systems that the contractor shall maintain and repair are described below.

2.1 HAARP Research Station Systems. The HAARP Research Station includes two buildings with potable water and sewage systems, the main Operations Center Building near the site entrance and the JET-F facility located at the west end of the east-west access road.

2.2 Potable Water Storage Tank. The first tank has a storage capacity of 6,000 gallons and is located in the generator bay of the Operations Center building. A second 550-gallon tank is located in the JET-F Facility. These are the only sources of potable water on the Gakona, AK HAARP site. A commercial supplier delivers potable water to the HAARP Research Station. The delivered water is softened and filtered with an on-site system prior to distribution within the Operations Center building. Water to be used for drinking is further treated using an ultraviolet (UV) process.

2.3 Water Distribution. A water distribution system is within the Operations Center building. Potable water is distributed to the Break Room, Restrooms, Utility Room, and to the Generator Bay area.

A second water distribution system is located within the JET-F Facility and distributes water to the Break Room, Restrooms, and Utility Room in that facility.

2.4 Gray Water Distribution and Collection. Gray water is collected through pipes from each of the potable water areas within the Operations Center Building and is electric pump lifted and stored within a 6,000-gallon tank also located within the Operations Center Building. A second gray water collection system and tank with a capacity of 1,100 gallons are located within the JET-F Facility. There are no septic tanks located on the HAARP site. Sewage is also collected in the gray water tanks. A commercial company removes the gray water from each of the tanks at the HAARP site.

2.5 Heating and Air Conditioning Systems. Oil-fired boilers are located in the Utility Room and the Generator Bay areas of the Operations Center Building. The JET-F Facility also employs an oil-fired boiler. These heating systems are forced hot air. The personnel area within the Operations Center heating distribution system has provisions to add outside air for ventilation. The 1500 square foot Mission Control Room has an air conditioning and moisture control unit. The six diagnostic instrument and the aircraft alert radar shelters employ electrical resistive heaters and ventilation fans. The Diagnostic Radar Shelter employs air conditioning.

3.0 Personnel Qualifications. The contractor shall provide the maintenance services with qualified personnel consistent with best commercial practice.

4.0 Specific Functional Requirements.

4.1 Preventive Maintenance. Preventive Maintenance shall be performed in accordance with a schedule to be developed by the contractor and approved by the COR (CDRL 008).

4.2 Repair Service. The contractor shall notify the COR of the need for repair, removal, or installation of any portion of the utilities covered under this enclosure found to be defective and malfunctioning. Upon authorization from the COR, the contractor shall perform or arrange for the necessary repairs, removal or replacement. The contractor shall receive and inspect the billing invoice and make payment in a timely manner.

4.3 Emergencies. The contractor shall not cause outages to any portion of the water, sewage, or heat distribution system without the prior approval of the COR, except in those cases where immediate action is necessary to prevent death or personal injury or major equipment damage at the time of an accident. In the event of an unplanned or unexpected outage, the contractor will notify immediately the COR and points of contact for all scheduled site activities. The contractor shall, in all such cases, determine the nature and extent of the outage and take immediate action to limit damage and restore the utility. The contractor shall immediately report deficiencies requiring correction in cases where the utility cannot be restored within 3 hours. In all cases, the contractor shall provide a report to the COR, within 24 hours, indicating the nature, extent and cause of the problem and the actions taken to restore the utility to normal (CDRL 009).

4.3.1 Out of Hours Emergencies. Emergency repairs shall be accomplished whenever required and shall be carried to completion without interruption, regardless of normally scheduled working hours, weekends or holidays. Examples of emergency work include the following conditions as discovered:

(a) Loss of water pressure.
(b) Sewage backup.
(c) Potable water distribution system leak.
(d) Hot water distribution system leak.
(e) Loss of heat in any conditioned space.

4.4 Planned Utility Outages. The contractor shall arrange water, sewer and heat and air conditioning outages with the COR in advance of a planned outage in accordance with Attachment 10.

4.5 Utility Outages Required by Others. The contractor shall provide services necessary to accomplish utility outages and restorations required by other site activities (i.e. Government personnel or other contractors connecting to existing utilities). The contractor will be notified as soon as possible but normally within five (5) working days in advance of the required outage and the appropriate details of the outage.

4.6 Potable Water Supply Testing. The contractor shall arrange to have the potable water tested not less than once per month, to ensure the continued safety of the drinking water supply. The contractor shall cooperate with the testing laboratory to gather and deliver or ship the water samples for testing. In the event the tests indicate the water is unsafe to drink, the contractor will immediately inform all site and visiting personnel, post signs, notify the COR; and with the water supplier, develop and implement a COR approved plan to return the potable water supply to a safe condition (CDRL 010). The contractor shall provide a temporary source of drinking water until the unsafe condition is corrected.

INDEFINITE QUANTITY WORK

5.0 Minor Work. The contractor shall provide services to accomplish maintenance, minor repairs and alterations, and construction work. It is estimated that approximately 100 labor hours per year will be required for this service.

5.1 Out of Hours Work. The contractor shall provide out of hour services for emergencies and scheduled or unscheduled outages.

PART 3: FACILITIES MAINTENANCE AND GENERAL SUPPORT SERVICES

1.0 SCOPE OF WORK. The contractor shall maintain buildings and structures including installed utilities, perform general housekeeping, minor repairs, and alterations, provide loading / offloading services and support for Government operations, provide receiving and shipping functions, and provide support for on-site activities such as Open House, Summer School, organizational visits, and other activities as directed.

2.0 PERSONNEL QUALIFICATIONS. The contractor shall provide qualified personnel consistent with best commercial practice. The types of labor that shall be required are as follows:

General Maintenance
Electrical, Heating/Air Conditioning
Rigging/General Labor

2.1 General Requirements. The performance of work under this attachment shall include, but is not limited to, the following types of work.

2.1.1 General Maintenance.

(a) Carpentry work shall include, but is not limited to, the maintenance or repair of such items as framing, structural members, scaffolds, platforms, windows, doors, signs, shelves, cabinets, furniture, plaques, panels, roster boards, ceiling systems, paneling, wall coverings, interior and exterior trim, floor tile, sheet flooring, or carpet. Work shall also include broken glass replacement and glazing; installation, repair and/or replacement of T-bar drop ceilings, hardware, and insulating materials such as fiberglass. Carpentry work may also include maintenance or repair of diagnostic instrument appurtenances and shelter openings/coverings.

(b) Painting and corrosion control shall include, but is not limited to, interior, exterior, and structural surface preparation and coatings. Interior coating may include surfaces in the interior of a building, such as offices, equipment rooms, storage rooms, and other areas, including ceilings, walls, partitions, doors and trim, windows and floors. Exterior coating shall include surfaces on the exterior of buildings or structures, including the roof, walls, windows, doors and trim. Structural coating shall include the coating of surfaces such as structural members, signs, pipes, utility appurtenances, and poles. Coating may be done by brush, roller and/or by mechanical means and may or may not require surface preparation by brushing, chipping, mechanical, or chemical treatment. Painting shall also include preparing surfaces and painting machinery and motor vehicles.

(c) Masonry work shall include, but is not limited to, the maintenance or repair of exterior and interior surfaces and structures built of a variety of ceramic, clay, cement, block, stone, and tile. Masonry work shall also include the mixing, application, and finishing of plaster surfaces in the maintenance of interior walls, ceilings, and exterior walls.

(d) Plumbing shall include, but is not limited to, the maintenance, installation or removal of portions of utility systems. Utility systems shall be limited to those physically contained within the site. Plumbing shall also include the repair, installation, or removal of water closets, lavatories, urinals, showers, valves, pipe covering and insulation. Asbestos removal is excluded from this contract.

2.1.2 Electrical. Electrical work shall include, but is not limited to, the installation, maintenance, repair or removal of low voltage electrical circuits and equipment, fixtures, signal or data lines, batteries, and panel boards. Electrical work under the scope of this contract includes all power service lines from the termination of the commercial electrical system, the site distribution system for commercial electric power to all site building or structures served, and all interior electrical systems therein. Other electrical requirements can be found in other enclosures.

2.1.3 Rigging/General Labor.
Rigging services shall include, but are not limited to, assisting other trades and government personnel; loading/unloading trucks; lifting or moving equipment; erecting barriers or scaffolding; and lashing or securing equipment.

3.0 ROUTINE RECURRING SERVICE. The contractor shall provide the routine recurring services described below.

3.1 Re-lamping Services. The contractor shall supply and replace burned out or otherwise failed electric incandescent and fluorescent light bulbs on an as-needed basis. Inspections and re-lamping shall be performed biweekly. Two of the shelters located on research Pad 3 use special amber LED light bulbs. Replacements for these bulbs are located in the respective shelters.

3.2 Waste Removal. The contractor shall provide scheduled services to remove solid waste, trash/debris, and scrap metal from the facility. Occasionally, an unscheduled service will be required to remove and dispose of items too large for the scheduled service. The contractor shall arrange for the removal from the site and for the approved disposal of any expended or outdated hazardous materials as detailed the Hazardous Materials List.; examples of such hazardous materials include lubricants, fuels, solvents, cleansers, paints, paint thinners, etc.

3.3 Intrasite Moves. The contractor shall move or otherwise relocate Government-owned or leased equipment/materials. Services shall be scheduled and accomplished by the contractor as required and authorized by the COR. This includes relocating trailers, generators, furniture, research equipment and appliances. It is estimated that approximately 50 hours per year will be distributed between rigger and general labor assistance.

3.3.1 Installation of GFE. The contractor shall provide services to install Government-furnished equipment. This shall include providing necessary mounting, utility connections, and start-up services; and disconnecting and removing old, unnecessary, or replaced equipment.

3.4 Compressed Air Systems and Storage Tanks. The contractor shall provide maintenance and repairs to compressed air systems in Operations Center and JET-F buildings. In addition to operational checks, storage tanks shall be bled weekly to remove moisture from the system.

3.5 Shipping and Receiving. The contractor shall arrange shipment for equipment or materials which have been properly packaged and for which a funding mechanism has been provided. Upon shipment, the contractor shall notify the owner and receiver of the goods and provide shipping documentation and receipts to the appropriate persons or organizations. Shipping and receiving may include delivery and pickup from a location remote from the HAARP Research Station site.

3.6 On-Site Activities. The contractor shall provide support for on-site activities such as Open Houses, Summer Schools, and organizational visits. This support shall be requested or approved by the COR. Support may include but not be limited to one two-day Open House, one seven-day Summer School, and four organizational visits per year. Specific support functions may include but are not be limited to special cleanup and security to reduce visitor exposure to potentially hazardous situations; providing carpentry, electrical, and rigger services to support non-standard experimental setups associated with Summer School projects.

3.7 General Housekeeping. The contractor shall perform general housekeeping that shall include, but is not limited to, cleaning all finished areas within the Operations Center, JET-F Facility, Diagnostic Instrument Shelters, both on-site and off-site, Aircraft Alert Shelters, and any spaces or shelter interiors used for storage of vehicles, equipment, tools, and spare parts. The contractor shall provide all cleaning equipment, supplies, and personnel to accomplish the following specific housekeeping tasks:

(a) All floor surfaces shall be cleaned as needed to remove granular materials, dust, and spills. In those spaces where routine, daily work is performed, the floor surfaces will be cleaned at least twice per week. Floors in all other finished areas will be cleaned in response to usage before, during, and following research campaigns or as part of normal or emergency maintenance actions

(b) All walls in all the aforementioned areas shall be kept free of dust accumulations. Wall surfaces shall be cleaned at least bi-annually to remove dust and dirt.

(c) All door and window glass shall be cleaned as needed to remove fingerprints, dust, and dirt accumulations. Inspections and cleaning shall be accomplished on a monthly cycle.

(d) All ventilation grills shall be cleaned every two months to remove dust and dirt accumulations.

(e) All break room areas shall be cleaned daily and in response to usage. This shall include washing and storing dishes, at least monthly cleaning of cooking appliances, refrigerators and freezers with removal of spoiled food on an as required basis, washing of countertops and dining surfaces, washing and cleaning of coffee makers, and daily emptying and removal of trash and garbage from containers. Clothes washers and dryers shall be cleaned to remove lint and ensure these appliances are ready for the next use.

(f) All restrooms shall be inspected and cleaned daily. This shall include cleaning and disinfecting floors, urinals, toilet bowls, and washbasins, ensuring all paper product holders are filled and functional, and removal of trash accumulations.

(g) All furniture shall be cleaned in response to usage and staining. Furniture in areas not routinely used will be inspected and cleaned as needed prior to each scheduled usage.

(h) All electronic Automated Data Processing Equipment (ADPE) installed in the Op Center Building shall be cleaned in accordance with manufacturers' instructions and guidance. Electronic data processing equipment located in the transmitter module shelters, the diagnostic shelters or associated with the control of the HF array in the mission control room is excluded from this cleaning task.

(i) All work areas shall be kept free of trash to reduce the potential for fires and accidents. Trash shall be collected from all work areas of the site with the exception of the transmitter module shelters. Trash collections shall be accomplished at least every-other-day from routine- and scheduled-use areas and daily from break rooms.

(j) Contractor shall ensure that the supply of tableware and cooking utensils Is maintained and replaced as needed.

3.8 Transmitter Module Shelters. The contractor, during freezing weather conditions, shall through daily inspections, or through remote monitoring of offsite diagnostics, ensure the heating systems are working properly in each of the transmitter module shelters. In the event of heating system failure, the contractor shall provide temporary emergency heating in a timely manner and shall immediately notify the COR.

4.0 MAINTENANCE AND REPAIR SERVICES. The contractor shall provide maintenance and repair services as set forth below.

4.1 Correction of Safety Inspection Deficiencies. The contractor shall provide services required to correct deficiencies found during fire and safety inspections by government personnel or contractor's safety inspections. The scope of the contractor's safety inspections is described in the Safety Standard Operating Procedures.

4.2 Maintenance Services on Electric Motors. The contractor shall perform inspection, lubrication, cleaning, and adjustment of electric motors.

4.3 Correction of Roof Leaks. The contractor shall perform inspection and carpentry/roofing work to repair or replace defective or leaking roofing system components.

4.4 Corrective Maintenance on Facilities Structural, Plumbing, and Electrical Systems and Components. The contractor shall provide services of appropriate trades to provide repairs, adjustments, or replacement to correct deficiencies. Specific requirements are detailed in other Enclosures.

4.5 Equipment Corrosion Control. Equipment corrosion control shall include the removal of rust, corrosion, and other foreign materials for the metal surfaces of mobile and other support equipment, and the application of primers and coatings to the affected areas.

4.6 Painting. Exterior and interior painting of facilities shall be accomplished as required for preventive maintenance and repair/alteration projects.

INDEFINITE QUANTITY WORK

5.0 Minor Work. The contractor shall provide services to accomplish maintenance, repair, alterations and construction work. It is estimated that approximately 500 labor hours per year will be required for Driver/Rigging services and 40 labor hours for welding services.

5.1 Welding Services. Welding services shall include, but not limited to, the support to other trades; repair or fabrication of piping; construction of railings; and structural repairs to equipment or facilities. Welding operators shall be certified or licensed to perform welding operations related to normal fabrication, cutting, and structural welds that are associated with best commercial practice maintenance work. Welders shall be capable of performing arc, gas and heliarc welding. In addition, they shall be capable of performing oxygen and acetylene cutting.

5.2 Out of Hours Work. The contractor shall provide out of hour services for emergencies and during scheduled or unscheduled outages.

PART 4: GROUND, ROADS AND PERIMETER FENCE MAINTENANCE SERVICES

1.0 SCOPE OF WORK. The contractor shall provide personnel to maintain roads, grounds, pads, fences, gates, signs, etc. and perform snow and ice clearing, snow plowing and, as required, snow removal.

1.1 Facility grounds maintenance. The contractor shall maintain the accessibility, safety and appearance of the HAARP Research Station. In the event of snow or ice removal, the contractor shall ensure that the work is completed within 5 hours of the beginning of the next workday following the accumulation.

a. Snow and Ice Clearing. Snow and Ice shall be cleared away from entrances and exits to all buildings and shelters on the HAARP Research Station. This shall include access to the transmitter module shelters within the high frequency array. Icy surfaces shall be treated with sand or salt to help ensure safe entrance and exit areas.

b. Snow Plowing. Snow shall be plowed from the site entrance, access roads, parking, associated pad areas, and the access ways within the high frequency arrays. Plowing is required whenever a fresh snowfall totals four inches or more. Access shall be maintained to diagnostic instruments and aircraft alert Radars located on major pads. Care shall be taken to prevent damage to buried or surface-run instrument, power, and fiber optic data lines. The Government will provide a list and a map of access roads and pad areas to be plowed.

c. Snow Removal. In the event of a large snow accumulation, plowed snow shall be physically removed to ensure continued safe personnel access to site buildings, structures, and diagnostic instrument areas. Snow removed shall be deposited in a site area(s) that doesn't impede safe access to any site building, structure or diagnostic instrument area. Snow removal from the high frequency transmitter antenna area is excluded from this requirement.

d. Vegetation and Trash Control and Removal. Vegetation control is to ensure ease of personnel access and fire prevention. The contractor shall control vegetation including grass, weeds, and brush around all buildings, shelters, electric transformers, and diagnostic instrument areas. Removal is required only for woody vegetation that will not disintegrate quickly in place. Bi-weekly trash and litter inspections, pickup and removal for disposal shall be performed during the months free of snow cover. The inspections, pickup, and removal shall be accomplished around all buildings, structures, diagnostics instruments, at the site entrance area, and along and within view of all site access roads, and pads. The contractor shall notify the COR for direction before removing any questionable items.

e. Road and Pad Maintenance. The contractor shall maintain all site access gravel roads and associated pads. The contractor shall maintain all gravel roadways clear of encroaching vegetation and debris to provide a safe, clear passage at all times. Gravel roads shall be inspected periodically, particularly after heavy storms, and cleared, graded,

spot-filled with gravel and compacted as necessary to eliminate debris, deep ruts, potholes, and poor drainage. The contractor shall also repair seasonal frost damage and washouts that may be caused by summer rains or seasonal melt water. The contractor shall ensure that an adequate amount of gravel is maintained on-site for these purposes. The location of the stockpile shall be approved by the COR.

f. Fence and Gate Maintenance. Fences and retaining walls shall be maintained free of heavy rust and repaired as necessary to provide complete, serviceable structures free of defects preventing their intended safety and security purposes. Most fences are galvanized, chain-link type with gates. Repairs may consist of replacement of unserviceable fence fabric or barbed wire, replacing/straightening posts, repairing small fabric holes, repairing or replacing hardware items including gate parts and fence signs and wire brushing and painting sections where heavy rust develops. Fences and associated gates are located at the site entrance, around the high frequency array, around the operations center building and around all diagnostic instrument pads. The existing fences shall be repaired to bring them to an acceptable state and then maintained to ensure a ground separation from the bottom of the fence of no more than nine inches with smoothly operating gates for all fence enclosures. The entrance gate shall be maintained to ensure continuous access and exit in all weather conditions. The entrance gate system incorporates an electronic key-card system for entrance and exit, voice announcing system, and video camera for situational awareness and identification.

g. Sign Maintenance. The contractor shall maintain all site signage. This includes monthly inspections to ensure signs are securely in place and readable. Loose signs shall be secured and missing and unreadable signs replaced.

h. Maintenance of Drainage Ditches and Other Storm Drainage Features. Storm drainage ditches and swales, inlets and outlets shall be maintained by the contractor in a condition, which will allow for drainage of storm and melt water run-off. The contractor shall provide maintenance services to ensure free flowing water at drainage ditches and swales, road and parking lot shoulder areas, inlets and outlets, and piping. This shall include:

1) Removal of flow obstructions as necessary to provide free flowing water.

2) Removal and/or control of vegetation and debris, which would prevent free flow of water.

3) Other actions, as needed, to correct minor drainage deficiencies including but not necessarily limited to minor filling, cutting, grading, placing stones, and establishment of vegetative cover to prevent erosion.

1.2 Gate and Fence Integrity. The Contractor shall ensure that all gates be kept closed when not in active use to prevent animal damage to enclosed equipment. Gaps in fences due to damage or replacement activities shall be closed using temporary means until repairs can be completed.

2.0 INDEFINITE QUANTITY WORK At times there may be a need to correct unacceptable standing water or to repair major erosion damage to ensure continued access to all established site areas. In the event such a situation occurs, the contractor shall inform the COR of the situation and recommend a solution including a cost estimate. Upon the approval from the COR, the contractor will remedy or repair the offending situation.

operate vehicles within that class range. Operators of construction or load handling equipment shall be qualified operators with experience in operating equipment similar to equipment listed in TAB A. A copy of each operator's license shall be retained at the contractor's office for inspection by the COR or designated representative. No employees of the O&M contractor who do not hold a current operator's license for the appropriate class of vehicle, shall operate a vehicle listed in TAB A.

3.3 List of Approved Government Operators. The COR will provide the contractor with a list of government and other personnel approved to operate the contractor's leased vehicles and powered equipment and government owned vehicles and powered equipment listed in TAB A. In the event a site visitor needs to use any of the vehicles or powered equipment in TAB A, and they are not identified on the COR approved operator list, the site manager shall request guidance from the COR prior to providing access to the vehicles or powered equipment.

4.0 OPERATION AND MAINTENANCE FUNCTION REQUIREMENTS.

4.1 Fuel Storage and Dispensing. The contractor shall provide services to store and dispense small quantities of gasoline and diesel engine fuel to Government-owned or leased equipment. Storage quantities should be sufficient to fuel maintenance equipment such as chain saws and snowmobiles and for emergency fueling of larger vehicles. The contractor shall provide operational maintenance services at the time of refueling that shall include checking fluid levels (cooling, oil, brake, battery, hydraulic transmission, etc.); adding fluids if necessary; checking tire inflation. These fuels and lubricants shall be stored in approved locations and containers.

4.1.1 Location of Facilities. Fuels shall be dispensed from facilities located in an approved location. Fuel required to be delivered to such items as emergency generators or research projects shall be transported in GFE safety containers or by means of subcontracted commercial fuel vehicles.

4.1.2 Fuel Security Requirements. At no time shall Government-owned fuel be issued to non-approved vehicles or equipment. The contractor shall advise the COR of all suspected or attempted violations. No personnel except those authorized by the COR, or designated representative, shall dispense fuel. No fueling shall be conducted during operation of the HF transmitter or any other high powered transmitter installed on the site.

4.1.3 Fuel Delivery and Levels Log. The contractor shall maintain a log of all fuel (including heating oil) deliveries made to the station. This log shall be maintained at the contractor's on-site office. The contractor shall record the date and time of delivery, the type of fuel delivered, gallons delivered and the delivering company. The contractor shall accept delivery receipts from the supplier, verify the quantities shown as actually delivered, and maintain all receipts for inspection by the COR or designated representative. The contractor shall take fuel readings of all fuel oil tanks on the last working day of each month and enter the readings in the log. The log shall be maintained at the contractor's on-site office for inspection by the COR or designated representative (CDRL 011). Additional requirements are contained in Attachment 10.

4.1.4 Environmental Monitoring. The contractor shall perform periodic inspection of fuel storage areas to ensure compliance with environmental regulations. The contractor shall monitor all fuel deliveries to ensure that all applicable environmental regulations are followed and shall note any exceptions or spillage of fuel. Upon occurrence of any exception, the contractor shall notify the COR immediately.

4.2 Vehicle and Equipment Operations. The contractor shall operate vehicles and equipment listed in TAB A as required in the performance of work under this contract, and in accordance with State, Federal, and government regulations.

4.2.1 Contractor-Owned or Leased Equipment. At any time the contractor operates contractor-owned or leased equipment at the HAARP Research Station, both the equipment and operators shall meet the requirements of the Department of Transportation Federal Motor Carrier Safety Regulations, and comply with the licensing requirements of the State of Alaska motor vehicle laws. Contractor-owned or leased equipment operated on the premises of the HAARP Research Station shall be marked as follows: Affixed to each door/side panel, shall be the full name of the contractor's company and his contract number in block-style characters at least three inches in height, and of a color which provides a high visual contrast to the equipment color.

4.2.2 Motor Vehicle Fuel Economy. The contractor shall operate transportation equipment in the most fuel-efficient manner possible. Vehicle usage shall be limited to the performance of work under the scope of this contract.

4.2.3 Accident Reporting for Contractor-Operated Vehicles and Equipment. The contractor's operator(s), if involved in any accident while operating any vehicle at the HAARP Research Station or while operating a Government vehicle off station, shall immediately report the accident in writing to the COR or designated representative (CDRL 012) and to local authorities as required by law. Repair of damages, other than normal wear, to vehicles or equipment operated by contractor personnel shall be the responsibility of the contractor. Repairs shall be commenced within five (5) working days from the date of the accident.

4.2.4 Crane Rental Services. The contractor shall procure the services of a crane rental company to load and unload trucks, and lift or move equipment as required by the COR. Government experience suggests that a two-ton crane is required three times per year and a five-ton once per year.

4.3 Limited Repair and Maintenance of Vehicles and Grounds Equipment. The contractor shall ensure all equipment is properly readied for use. This shall include checking and adding fluids if necessary; greasing and oiling; replacing or sharpening blades; tightening belts; identifying potential problems; and tightening/replacement of bolts, etc. The contractor shall notify the COR in writing of any deficiencies detected during inspections or operations of equipment (CDRL 013).

5.0 REPLACEMENT VEHICLES AND EQUIPMENT. The vehicles and equipment indicated in TAB A are subject to change as the Government receives replacement vehicles. Replacements in

kind (type) or quantity in the range of plus or minus 1 vehicle and/or 1 piece of power equipment listed in TAB A will not constitute cause for a Change Order to this contract.

6.0 EQUIPMENT TURNOVER TO CONTRACTOR. All vehicles and equipment indicated in TAB A will be turned over to the contractor, as of the contract start date, in "as is" condition for the provision of services in accordance with this contract.

TAB A

CONTRACTOR EQUIPMENT INVENTORY LISTING

	Description	Manufacturer	Model	Serial No.
1.	Track Loader	Takeuchi	TL130	1FTWW31505EC46819
2.	Snow Blower	Honda	HS828S	
3.	Snowmobile Trailer			
4.	Generator	Onan	2500	
5.	Backhoe Attachment	Bradco	8509X	139207
6.	Posthole Digger Attachment	General	671 16	3712490
7.	Snowmobile	Polaris	950556	2408762
8.	Chainsaw	Poulan	2510	01337D200910-5

PART 6: ENVIRONMENTAL MONITORING

1.0 SCOPE OF WORK. In performing all of the work under this contract, the contractor shall comply with the HAARP Environmental Impact Statement (EIS), Record of Decision (ROD), Mitigation Plan and appropriate environmental permits and plans. Furthermore, the contractor is responsible for complying with all Federal, State, and local environmental laws and regulations. The contractor shall designate a facility Environmental Field Officer (EFO) who will be the overall point of contact for the Environmental Monitoring task.

2.0 PERSONNEL QUALIFICATIONS. The EFO shall have general knowledge in environmental compliance and be familiar with the environmental process and the obligations set forth in the HAARP EIS, ROD, Mitigation Plan, and appropriate environmental permits. The EFO is a part-time position and the designee is expected to have other primary responsibilities at the HAARP site.

3.0 GENERAL REQUIREMENTS. The contractor is responsible for complying with all applicable Federal, state and local environmental laws and regulations in performing the operations and maintenance of the HAARP Research Station. Operation of the HAARP facility is not expected to have a significant impact on the environment. However, it is reasonable that at least some degree of disturbance and impact will occur from the daily operation and maintenance of the HAARP Site. In recognition of this potential impact, the contractor is expected to avoid, minimize and rectify potential environmental harm.

(a) Avoidance. The process of avoidance includes making modification in the design, siting, or scheduling of activities in such a way to bypass any potential impacts. An example would be to avoid loud activities during the bird nesting season.

(b) Minimization. In some instances it will be impossible to avoid an impact. In these instances the preferred action would be to minimize the degree or level of impact. An example would be to collect and burn cut timber rather than leave timber on the ground that may lead to spruce bark beetle infestation.

(c) Rectification. If avoidance and minimization are not sufficient or feasible, then rectification should be followed. Rectification includes repairing, re-habitation, or restoring the affected environment to a pre-impact condition, if possible. An example of rectification might be to re-vegetate or re-contour a section of ground disturbed from the maintenance of the access road or from an accidental disturbance of a vehicle driving off the gravel access road and becoming imbedded in the adjacent wetlands.

3.1 ROUTINE REQUIREMENTS. The contractor shall be responsible for the following routine tasks of Environmental Monitoring:

3.1.1 Reporting. The facility EFO shall report to the government's Environmental Liaison Officer (ELO).

3.1.2 Status Reports. The EFO shall provide a brief summary of the Environmental Monitoring task in the standard monthly status report as stated in Section C Overview, paragraph 14.4 (CDRL 006). In addition, for the HAARP Air Quality Permit an annual fuel delivery report (CDRL 014) shall be made to the ELO listing the type of fuel, date of delivery and delivery quantity (Also see Attachment 10, Paragraph 3.4). The EFO shall be available to meet with the government's ELO at the HAARP Research Station approximately 2 times annually during normal business hours to review Environmental Monitoring compliance.

3.1.3 Training. The contractor shall be required to properly train all employees on proper environmental compliance at the HAARP Research Station using materials supplied by the Government. In addition the Contractor shall provide such training materials as may be necessary to maintain compliance with safety and environmental regulations for which it is responsible, as detailed in Table 1.

3.1.4 Licenses and Permits. Table 1 provides a listing of Licenses and Permits associated with operation of the HAARP Research Station and specifies those licenses and permits for which the Contractor shall have responsibility and those for which the Government shall have responsibility. The Contractor shall maintain as current, all permits for which it has responsibility, submitting applications for renewal as required to ensure no interruption in operations and paying the required filing fee if applicable. The Government shall supply the contractor with copies of all permits for which the Government is responsible as detailed in Table 1, including all permit applications and permit-associated and regulatory compliance correspondence and submittals.

3.1.5 Filing. The contractor shall maintain the existing Environmental Monitoring File at the HAARP Research Station. This file includes the EIS, Mitigation Plan, ROD and all environmental permits. The contractor shall retain in the Environmental Monitoring File, copies of all permits, permit applications, and permit-associated and regulatory compliance correspondence and submittals for which it is responsible or which have been provided by the Government, as detailed in Paragraph 3.1.4 and Table 1. The file shall be available for announced and unannounced regulatory agency review.

3.1.6 Regulatory Agency Interface. The government's ELO is the primary interface with all environmental regulatory agencies except that the contractor's EFO shall be the primary interface for regulatory issues involving only the contractor and not the HAARP Research Station. In the event that an agency visits the site unannounced the EFO shall be the immediate point of contact. The EFO shall assist with the agency visit to the maximum extent practicable. The EFO shall notify the ELO immediately upon notification that an agency will be visiting the Site, or immediately after the conclusion of any unannounced Site inspection by an agency.

3.2 SPECIFIC REQUIREMENTS. The contractor shall be responsible for the following specific requirements of Environmental Monitoring:

3.2.1 Mammal Removal. The contractor shall be responsible for the proper release of animals inadvertently trapped within fenced areas or caught in cabling. The Alaska State Police, US Fish and Wildlife Service, and/or Alaska Fish and Game should be consulted in responding to these

events. While this event is unlikely to occur, the contractor should be prepared for this possibility.

3.2.3 Winter Construction. Maintenance projects away from gravel roads shall be planned, whenever possible, to take advantage of the winter season to minimize impact to vegetative areas.

3.2.4 Wetland Disturbance. The contractor shall be responsible to allow wetland disturbance to only occur in those areas identified in the HAARP 404 Wetland Fill Permit.

3.2.5 Removal of Timber and Brush. Removal of timber and brush shall be in accordance with the EIS and 404 Wetland Fill Permit.

3.2.6 Cuttings. Trees and brush cleared for routine maintenance shall be offered to the previous landowner, Ahtna Corporation, prior to burial or burning. The contractor shall obtain the appropriate burn permits to accomplish this task. These actions shall be accomplished in a timely manner to preclude spruce beetle infestation.

3.2.7 Gravel. In performing maintenance of the gravel roads and pads (either by the contractor or by an outside provider) the contractor shall assure compliance with proper sediment control practices and other appropriate environmental laws and regulations.

3.2.9 Surface Water. The contractor shall be responsible for the proper maintenance of all culverts to allow proper surface water flow across the HAARP Research Station.

3.2.10 Air Quality. Receipts shall be kept on file at the Operations Center of all fuel deliveries for compliance with air quality permitting requirements.

3.2.11 SPCC Plan. The contractor shall comply with all aspects of the HAARP Spill Prevention, Containment and Countermeasure (SPCC) plan. The plan covers all types of hazardous liquid substances to be stored or used on the HAARP Site.

3.2.12 Fuel and Hazardous Materials Storage. The contractor shall monitor all fuel deliveries and storage areas for potential fuel leaks. All fuel and hazardous material storage areas shall be inspected on a schedule to be developed by the contractor but no less frequently than monthly. Any detected leakage shall be corrected in the prescribed manner and reported to the COR or his designated representative and to the Air Force HAARP Program Office. The contractor shall maintain all appropriate conditions necessary for the storage of fuel and hazardous materials including but not limited to proper tracking systems, storage facilities, and spill response capability.

3.2.13 Noise Impacts. The contractor shall be responsible for maintaining the integrity of all existing and installed machinery sound dampening equipment to avoid undue noise emissions. The contractor shall ensure that sound dampening measures are used and equipment properly configured during equipment operation.

3.2.14 Burning. If burning is required in performance of this Statement of Work, the contractor shall have responsibility for obtaining a burning permit, following regulatory procedures for fire containment and assuring the burn is extinguished at completion.

3.2.14 NPDES Permit. The contractor shall comply with the HAARP National Pollution Discharge Elimination System (NPDES) Storm Water Multi-Sector General Permit.

4.0 WORK STOPPAGE. The EFO shall have the authority to stop any effort associated with this contract that is deemed a major hazard to the environment, or that is not in compliance with environmental or safety statutes, regulations or permits. In the event of a potential or actual work stoppage due to an unacceptable environmental hazard, the EFO is to immediately notify the COR, HAARP Program Office and ELO. The EFO does not have the authority to stop the work of Government personnel or the Government's other contractors. However, the EFO shall advise such personnel of and suspected non-compliant activity and shall notify the COR and/or the ELO of the possible compliance violation.

PART 7: FACILITIES INVENTORY MANAGEMENT

1.0 SCOPE OF WORK. The contractor shall maintain an inventory of all accountable O&M Contractor Owned Equipment (COE), Government Furnished Equipment (GFE), Government Owned Equipment (GOE) and independently owned diagnostic equipment located on the HAARP Research Station. Initial inventories of GFE, GOE and independently owned diagnostic equipment shall be developed by the Government with the cooperation of the contractor over the first three months of the contract. The contractor shall be responsible for additional entries to maintain the documents as current. Documents shall be maintained and available for inspection on site in electronic format with both electronic and hard copy backup (CDRL 015).

2.0 INVENTORY DESCRIPTION.

2.1 Contractor Owned Equipment. All COE with a value at acquisition of $100 or more shall be included. Additional items designated by the contractor may be included. The inventory shall be organized by equipment category and include manufacturer, model number, serial number, value at acquisition, contractor identification, and location of item. Each item shall be labeled with a contractor identification sticker.

2.1.1 Equipment categories to be included. The equipment categories shall include, but not be limited to the following:

(a) General Maintenance.

(b) Powered Equipment.

(c) Hand and Power Tools.

(d) Vehicles and all terrain vehicles.

(e) Automated Data Processing Equipment (ADPE).

(f) Computer Software.

(f) Office Equipment.

(g) Electronic Test Equipment.

(h) Furnishings.

2.2 GFE. The inventory shall include all accountable GFE and additional items as designated by the Government. It shall be organized by equipment category and include manufacturer, model number, serial number, Government identification number, and location of item.

2.2.1 GFE Equipment Categories. The GFE equipment categories shall include the following:

(a) Vehicles.

(b) ADPE (excluding any equipment specifically associated with operation and control of the HF transmitter system and the diagnostic network).

(c) General Equipment.

2.3 GOE. This inventory shall include all accountable GOE and additional items as designated by the Government. It shall be organized by equipment category and include manufacturer, model number, serial number, Government EMAS number and location of item.

2.3.1 GOE Equipment categories to be included. The GOE equipment categories shall include but are not limited to the following:

(a) Vehicles.

(b) ADPE

(c) Hand and Power Tools.

(d) General Electronic Test Equipment.

2.4 Independently Owned Diagnostic Equipment. This inventory shall include all non-Government diagnostic equipment located on the HAARP Research Station. It shall be organized by equipment category and include manufacturer, model number, serial number, Government and location of item. Ownership of this equipment remains with the providing institution.

3.0 TOOL CONTROL DESCRIPTION. COE, GFE and GOE hand and power tools shall be painted to color code these three categories of equipment. The color-coding shall consist of a bright band of paint around each item. The tools shall be maintained in a locked tool crib. The Contractor shall establish and enforce a tool check-out and return procedure for tools held in the tool crib. Any variation in this procedure must be coordinated and approved by the COR.

4.0 EXPENDABLE SUPPLIES DESCRIPTION. Expendable supplies shall include the following:

(a) Cleaning supplies for the Operations Center, JET-F Facility and shelters.

(b) Restroom supplies for the Operations Center and JET-F Facility.

(c) Kitchen supplies for the Operations Center and JET-F Facility including provisions for coffee and other hot beverages.

(d) Supplies for O&M ADPE equipment.

(e) Lubricants, fluids, and standard motor vehicle maintenance items.

5.0 PERSONNEL QUALIFICATIONS. The contractor shall provide qualified personnel to perform the work.

6.0 ROUTINE RECURRING SERVICE. The contractor shall provide the routine recurring services described below.

6.1 Inventory Services.

6.1.1 Frequency of Overall Facility Inventory Review. A complete facility inventory shall be conducted annually on a schedule to be approved by the COR. This inventory shall include COE, GFE and GOE equipment including diagnostic instruments and associated supporting supplies located on site and at any diagnostic off-site locations. A copy of the inventories shall be provided to the COR within ten working days including a list of any discrepancies (CDRL 016).

6.1.2 Addition of Items to the Inventories. The COE, GFE, GOE and independently owned equipment inventories shall be maintained current through the addition of items as they are procured or delivered to the HAARP Research Station.

6.1.3 Removal of Items from the Inventory. Items shall be removed from the COE, GFE and GOE inventories only with the approval of the COR.

6.1.4 Removal of Independently Owned Diagnostic Equipment. Removal of independently owned diagnostic equipment shall be approved on a case-by-case basis by the COR and the Air Force HAARP Program Office and in accordance with the HAARP Research Guidelines.

6.2 Tool Control Services. The contractor shall provide an orderly tool crib with all tools maintained in a fully operational and safe condition. Unsafe tools shall be taken out of service immediately and repaired or repaired. The contractor shall establish and enforce a tool sign-out procedure acceptable to the COR. No unsafe tools will be released for use from the tool crib. The tool supply shall be maintained by submitting a request to the COR for replacement or additional items.

6.3 Expendable Supplies Services. The contractor is responsible for maintaining, as a minimum, a 30-day supply of the expendable material required for the operation and maintenance of the HAARP Research Station.

PART 8: SAFETY REQUIREMENTS

1.0 GENERAL REQUIREMENTS. The Contractor shall implement and maintain a safety program to insure safe operation of the HAARP Research Station and to safeguard the safety and health of staff members and site visitors. Safe and healthy work environments shall be maintained through proactive management of all Operations and Maintenance activities by the contractor in order to avoid accidental injury to personnel and damage to property. The contractor shall develop and implement a safety program (CDRL 017) in accordance with the HAARP Safety Plan, (HAARP OPLAN 91-101). Information for downloading the safety plan over the internet will be provided to the contractor by the COR. A current version of this plan is maintained on the internet at (http://www.haarp.alaska.edu/safety/safetyPlan.doc).

2.0 FACILITY SAFETY OFFICER. The contractor shall designate a Facility Safety Officer (FSO), trained in safety requirements and responsibilities. The FSO shall retain currency in safety policy and procedures by attending safety classes as required, and by obtaining and assimilating all applicable current safety documentation. The FSO shall maintain the necessary safety documentation, complete regular safety inspections and monitor daily activities on site to assure compliance with safety requirements by contractor personnel, the contractor's subcontractors and all other site visitors.

3.0 WORK AREA SAFETY. The contractor shall establish policies and procedures, in accordance with the HAARP Safety Plan, to promote a safe workplace environment and comply with safety requirements.

3.1 General Housekeeping. The FSO shall monitor individual and central work areas to insure that they are maintained neat, clean and free of debris. Accumulated scrap and waste material shall be disposed of in suitable containers. Spills shall be cleaned up immediately. Drip pans shall be used where spills or drips are likely to occur. Use only non-combustible absorbents to dry up spills of flammable materials.

(a) The contractor shall provide separately marked containers for the segregation of batteries, fluorescent light bulbs, electronic components (including lead solder), and standard trash (paper, plastic, office materials, etc.) at appropriate locations around the site.

(b) All visitors to the site shall be instructed on current housekeeping procedures including the placing of waste into appropriate containers.

(c) The contractor shall ensure that all contractor personnel and the contractor's subcontractors and visitors place waste appropriately into the various containers.

3.2 Building Safety. All walking surfaces, passageways, doorways, wall and floors areas shall be maintained in accordance with 29CFR1910 and AFOSH Std. 91-22. Where wet processes are used, drainage shall be maintained and raised floors, platforms, mats or other dry standing places

must be provided. Raised floors must not be loaded beyond their safe maximum floor load capacity. Cabling laid on the floor must be covered to prevent tripping.

3.3 Fire Safety. The contractor shall promote fire safety and protection relative to maintenance of fire and evacuation alarms, fire extinguishers, fire training and compliance with the guidelines for fire safety indoors and outdoors as outlined in the HAARP Safety Plan.

3.4 Noise, Radiation Hazard and Laser Safety. The contractor shall adhere to and implement the requirements of the HAARP Safety Plan with regard to Noise and hearing conservation, non-ionizing radiation and laser operation.

3.5 Material Handling and Storage Safety. The contractor shall comply with the safe handling and storage practices as outlined in the HAARP Safety Plan. Safety aspects of fuel handling and other flammable fluids, compressed gasses, and chemicals shall be adhered to as delineated in the HAARP Safety Plan.

3.6 Hazardous Material List. The contractor shall develop and maintain a list of all hazardous materials located and stored at the HAARP Research Station. The Hazardous Materials List (HML) shall be kept in a permanent, readily accessible file. The Contractor shall maintain a readily accessible file containing the Material Safety Data Sheet (MSDS) for each item listed in the HML. The contractor shall assure that all employees are aware of and are trained in proper handling and storage procedures for all items listed in the HML and MSDS files

3.7 Food Waste Disposal. Disposal of food waste in outside containers has the potential for attracting animals and acclimating them to return. The Contractor shall take precautions to ensure that proper containers and procedures are in place to minimize the potential for animal hazard.

4.0 PERSONNEL TRAINING. The contractor shall set up a training program to train site personnel and selected visitors in site safety procedures and requirements as outlined in the HAARP Safety Plan. A record of personnel trained shall be maintained by the contractor at the site.

PART 9: FACILITY SECURITY AND ACCESS CONTROL

1.0 GENERAL REQUIREMENTS. The contractor shall maintain and carry out policies and procedures, as established by the COR, to provide physical security of property, equipment, facilities and personnel and to control access to the facility on a 24-hour per day basis. This task includes maintaining the Research Station badging system, creating physical security awareness among the on-site employees and visitors and using physical security equipment or measures to reduce vulnerability to a threat. At no time shall the contractor be required to engage in physical force to carry out these policies and safety of employees and visitors shall be the primary consideration. In order to assist in developing and enforcing these policies and procedures, the contractor shall interact, as necessary and when requested, with appropriate Air Force, Navy, or Department of Defense security and investigative organizations and Federal and state investigative or law enforcement agencies. The contractor shall provide a report of any violation of these policies or procedures to the COR or his designee (CDRL 018).

2.0 PERSONNEL DUTIES AND QUALIFICATIONS. The contractor shall designate one member of his staff as the site security officer and one member as the alternate site security officer. These designations shall be in addition to their normal duties. It shall be their responsibility to maintain records of facility security training and inspections, to maintain the facility badging system, and to maintain and monitor the implementation of all other security functions at the site. The security officer or his alternate will receive notification of Force Protection Condition (FPCON) Level and visitor authorization from the COR or his designated representative. The security officer and his alternate shall have training, at a level mutually agreed upon by the contractor and the COR, for record keeping, badging system operation, and in vehicle and personnel inspections, and suspicious mail identification.

3.0 DESCRIPTION OF PROCEDURES. Physical Security of the facility shall be maintained through training, physical barriers, security lighting, intrusion detection systems (IDS), off-hour site inspections and facility access control

3.1 Training. The contractor shall provide training and information on physical security and force protection to on-site personnel and visitors, including information on the current Force Protection Level and actions appropriate for that level. It will be the duty of the COR or his designee to provide FPCON alerts to the contractor.

3.2 Evacuation Procedure. The contractor shall implement a procedure to alert all on-site personnel of an evacuation and, following the evacuation, to establish a common assembly point. The contractor shall test and demonstrate the procedure at least once per year. As time and circumstance permit, evacuation procedures shall include arming of intrusion detection systems and locking of all buildings, shelters, and gates.

3.3 Perimeter Fence Lines. The contractor shall inspect annually and maintain all perimeter fence lines.

3.4 Signs. The contractor shall inspect at least monthly and maintain and/or replace as required all controlled access signs including those on all building, shelters and fences and at the entry to all pad areas.

3.5 Entry Gate and Barriers. The contractor shall maintain the electronic entry gate and audiovisual monitoring system for the gate. The entry gate shall not be left in the open position except for limited periods of time at the direction of or with the approval of the COR. The contractor shall maintain a system of movable barriers at the front gate, which can be moved into place to limit vehicle speed approaching the front gate. These barriers shall be moved into place whenever a FPCON Level of BRAVO, CHARLIE or DELTA has been designated.

3.6 Intrusion Detection Systems. The contractor shall inspect and maintain any intrusion detection systems installed in the operations center or ancillary buildings. Once installed, these systems shall be functional whenever authorized personnel do not occupy the facility. The intrusion detection systems shall be monitored in the Operations Center during working hours. The contractor shall designate an employee to receive an automatic page from this system (if so equipped) after normal working hours.

3.7 After-hour Site Inspections. The contractor shall provide three random site inspections per day outside of the normal working hours of the facility (0800 to 1630 local time) during the week and four per day during the weekend. Personnel performing these inspections shall drive over all access roads at the facility, including both the science and radar roads and observe any signs of unusual activity. Any unusual activity shall be reported immediately to the contractor's security officer. Each site inspection shall be logged and annotated to describe unusual observations.

3.8 Facility Access Control. The contractor shall maintain and enforce a facility access control function consisting of three elements: (1) a system for authorizing, personnel for entry onto the site; (2) a badging system to identify on-site employees, government employees, authorized visitors, foreign nationals, and all limitations or restrictions placed on these people; and (3) physical access control including cipher locks on entry doors and for controlled areas within facilities. Authorization for access to the site shall come only from the COR, his designated representative, the Air Force HAARP Program Office or JET-F. However, the contractor is designated to authorize personnel entering the site for the performance of this Statement of Work.

3.9 Vehicle and Personnel Inspections. In the event of FPCON BRAVO or higher, the contractor shall perform briefcase inspections for all personnel entering the site and vehicle inspections on random vehicles (FPCON BRAVO or CHARLIE) and all vehicles (FPCON DELTA) entering the site.

4.0 RESPONSIBILITY OF THE CONTRACTOR FOR ENFORCEMENT. At no time shall the contractor be required to use physical force to enforce established physical security or visitor control policies. The safety of on-site personnel and visitors shall be of prime consideration. In any confrontation, support from the designated law enforcement authority should be requested. In all life threatening situations evacuation of the site is the preferred procedure.

5.0 REPORTS AND NOTIFICATION. The Contractor shall provide reports and notifications to the Government as follows:

5.1 Notification. The contractor shall notify the designated law enforcement authority immediately of any threat to the facility or personnel, including but not limited to hostile trespassers, suspicious mail or deliveries. Notifications shall also be provided to the COR, or his designated representative, and the Air Force HAARP Program Office within one hour.

5.2 Reporting. On a monthly basis the contractor shall provide reports of anticipated visitors to the site for he upcoming month and a report of all actual visitors to the site for the past month, including entry and exit dates and times, the organization the visitor represented, and the visitor's citizenship (CDRL 019).Variations and updates to the report shall be provided as they occur.

PART 10: UTILITY MANAGEMENT AND BILLING

1.0 SCOPE OF WORK. The contractor shall ensure that all HAARP Research Station utility services are provided for in an uninterrupted manner. This function shall include inspection of site utilities and arranging for deliveries where appropriate. The contractor shall receive utility billing statements and pay for the utility services in a timely manner so as to ensure uninterrupted service or supply. The contractor shall provide to the COR, a monthly summary of utility usage, billing and payments made (CDRL 020).

2.0 PERSONNEL QUALIFICATIONS. The contractor shall provide a qualified site manager who shall have responsibility for this function.

3.0 GENERAL REQUIREMENTS. The performance of work under this enclosure shall include responsibility for all HAARP Research Station utility services including those at the JTE-F Facility. The contractor shall develop an inspection schedule for each utility and submit it to the COR for approval (CDRL 021). The contractor's schedule shall be developed to take into account increased usage for some of the utilities during research operations or construction activities at the Facility. The contractor shall receive and inspect billing notices and provide a consolidated monthly report to the COR of quantities (where appropriate), charges, and payments made (CDRL 022). The following utility services are required at the Facility:

3.1 Electrical Power The contractor shall receive billing invoices from the local commercial Power Company (Copper Valley Electrical Cooperative). The contractor shall inspect each invoice and make payment in a timely manner. The contractor shall notify the COR of any unexpected or unusual charges prior to payment. The contractor shall act as an interface between the Government and the electrical provider in the following cases:

(a) The contractor shall receive notification from the electric utility of planned power disruptions and shall notify the COR immediately of such plans.

(b) The contractor shall provide an interface with the power provider where service interruption is necessary due to modifications or improvements to the HAARP Research Station electrical distribution system or in the case of an emergency.

(c) The contractor shall provide an interface with the power provider to arrange for and schedule the services of specialized personnel from the power provider when required and when notified by the COR.

3.2 Potable Water. The contractor shall inspect potable water supplies at the HAARP Research Station on a regular schedule. The contractor shall submit the proposed inspection schedule to the COR for approval (CDRL 023). Based on these regular inspections, contractor shall arrange for water delivery in a timely manner to ensure a continuous supply. The contractor shall receive billing invoices from the water supplier, shall inspect each invoice and shall make payment in a timely manner. The contractor shall notify the COR of any unexpected or unusual charges prior to payment.

3.3 Sewage Removal. The contractor shall arrange for sewage removal from the HAARP Research Station on a regular schedule. The contractor shall receive billing invoices from the sewage removal company, shall inspect each invoice and shall make payment in a timely manner. The contractor shall notify the COR of any unexpected or unusual charges prior to payment.

3.4 Fuel Oil Delivery. The contractor shall inspect the fuel oil supply at the HAARP Research Station on a regular schedule. The contractor shall submit the proposed inspection schedule to the COR for approval (CDRL 024). Based on these regular inspections, contractor shall arrange for fuel oil delivery in a timely manner to ensure that an adequate and continuous supply is available for normal facility fuel oil needs.

The contractor shall schedule additional fuel oil deliveries that are required for research operations at the HAARP Research Station. The COR shall provide the contractor with an estimate of anticipated extra Fuel Oil needs associated with research operations and the dates of those operations. This information will be provided by the COR two weeks prior to the beginning of the operation. The contractor shall determine appropriate delivery schedule to meet normal requirements as well as the additional research needs.

The contractor shall receive billing invoices from the fuel oil company, shall inspect each invoice and shall make payment in a timely manner. The contractor shall notify the COR of any unexpected or unusual charges prior to payment. The contractor shall retain all receipts for fuel oil delivery in accordance with the requirements of Attachment 6. An annual report summarizing all of the year's deliveries shall be provided to the Environmental Liaison Officer (CDRL 014).

3.5 Telephone Service. Telephone service to the HAARP Research Station, Gakona is provided by Copper Valley Telephone Cooperative (CVTC). CVTC is responsible for cabling coming into the site up to the first interface panel. Telephone service on-site is digital and the Contractor shall maintain all components and cabling beyond the first interface panel. Telephone service for all diagnostic road shelters (diagnostic Pads 1-3) is distributed through a sub-panel located in the Pad 2 shelter. After an extended power failure, the telephone distribution equipment in the Pad 2 shelter must be reset.

The contractor shall receive billing invoices from the local telephone provider, shall inspect each invoice and shall make payment in a timely manner. The contractor shall notify the COR of any unexpected or unusual charges prior to payment. The contractor shall act as an interface between the Government and the telephone provider in the following cases:

(a) The contractor shall receive notification from the telephone provider of planned service disruptions and shall notify the COR immediately of such plans.

(b) The contractor shall act as an interface with the telephone provider for the scheduling of new service or the modification or removal of existing service. The COR will notify the contractor when such modification is required.

3.6 Internet Access Provider. The contractor shall receive billing invoices from the internet access provider (currently AT&T ALASCOM), shall inspect each invoice and shall make payment in a timely manner. The contractor shall notify the COR of any unexpected or unusual charges prior to payment.

3.7 Snow Removal. The contractor shall arrange for snow removal services to ensure that all access roads are kept plowed during the winter season. Snow removal shall be scheduled after each snowfall exceeding 4 inches or greater or when the accumulated snow on access roads exceeds 4 inches. The COR shall provide a listing and drawing of access roads and other site areas to be plowed. The contractor shall receive billing invoices from the snow removal operator, shall inspect each invoice and shall make payment in a timely manner.

3.8 Trash and Sanitation. The contractor shall arrange for trash pickup on a regular schedule. The contractor shall receive billing invoices, inspect each invoice and make payment in a timely manner.

4.0 ROUTINE RECURRING SERVICE. The function of site manager and accounting is a recurring service.

5.0 MAINTENANCE AND REPAIR SERVICES. There are no maintenance and repair services associated with this task.

PART 11: AUTOMATIC DATA PROCESSING EQUIPMENT MAINTENANCE AND SUPPORT

1.0 SCOPE OF WORK. The contractor shall provide services in support of ongoing technical and scientific activity at the HAARP Research Station. Support shall be provided for ongoing, background data collection, during active research periods using the high power HF transmitter and for periodic testing activities related to engineering development. Specific services are required for maintenance of computer systems, operation of the Aircraft Alert Radars (AAR) and operation of the IRI.

2.0 PERSONNEL QUALIFICATIONS. The contractor shall provide qualified personnel consistent with best commercial practice. Some identified tasks are of an intermittent or occasional nature and the required functions and duties shall be combined with other facility assignments wherever possible to minimize total personnel requirements. Personnel should have the following qualifications:

The ability to install new software, software updates or patches or delete unneeded software. Experience in the administration and development of high performance networks consisting of more than 30 workstations. Experience with the UNIX, Linux, and Windows 2000 operating systems and IP network configuration and management. Experience with network security including secure VPN servers, Kerberos authentication and network vulnerability management. Experience with a wide variety of advanced technology hardware including but not limited to Sun Microsystems workstations, Cisco routers and other network devices, Enterprise parallel systems, Windows NT workstations, Mac OS X workstations and servers.

In addition, the contractor shall have the ability to maintain or replace, in cooperation with the manufacturer if the unit is still under warranty, ADPE hardware to the level of plug-in PC board or major component such as monitors and hard drives. The function includes the ability to provide basic maintenance of printers and copiers including replacement of ink cartridges and toners.

3.0 GENERAL REQUIREMENTS. The contractor shall provide personnel capable of performing basic ADPE operations and maintenance to support the research mission of the HAARP Research Station. The performance of work under this enclosure shall include, but is not limited to, the following types of work.

3.1 General ADPE and Customer Support. Contractor shall provide support for day-to-day and for Research operations at the HAARP Research Station, Gakona. The Contractor shall perform normal ADPE maintenance and respond to customer reports of problems and requests including but not limited to the following:

(a) Maintain the ADPE spare parts and software inventory at the HAARP Research Station. Spare parts and software shall be held in stock for repair or for turn-in to appropriate Air Force facilities. All components not installed on the network shall be held in locked cabinets or rooms as specified and approved by the COR. The contractor shall support the government in performing annual equipment and ADPE inventories.

(b) Conduct observation and inspection of installed and operating computer systems within the Operations Center Building on a daily basis. Troubleshoot and resolve issues related to network user workstations and supported servers. Advise the COR immediately, of any computer condition that appears to be unusual or faulty. The contractor shall diagnose the faulty condition and recommend an appropriate corrective action.

(c) Install & setup hardware peripherals to include but not limited to Speakers, Hard drives, CD-ROM R/W and DVD R/W. Following authorization from the COR, replace faulty components such as monitors or disk drives using spare equipment from the inventory, if available, or upon shipment of a replacement to the HAARP Research Station.

(d) Maintain the printer and copier equipment at the HAARP Research Station. This function shall include maintaining an adequate supply of expendable supplies, inspecting equipment on a regular basis and replacing or adding materials as needed to ensure continuous availability.

(e) Perform workstation configuration to include the installation and configuration of new workstations to desktop configuration standards. The Contractor shall disassemble and reassemble workstations and/or servers for relocation to other sites.

(f) Install, configure and upgrade end user systems. Migrate data between workstations. Configure each system so that approved, end users can log into the HAARP network and gain access to network resources. Configure laptops and workstations for remote access for approved users.

(g) Provide on-site support and over the phone to users who call in during the business hours of 8:00 AM and 4:00 PM (Monday through Friday) and at all times during research operations. Answer technical questions and provide guidance to end users as requested.

(h) Reconfigure, upgrade and prepare for re-issue used and older end user systems. This includes the installation and re-installation of software. Sanitize equipment to be surplused or transferred.

(i) Maintain software functionality for system users. Monitor and update systems software for latest critical software patches and updates.

(j) Maintain a Trouble Log (TL). All problem reports or customer requests will initiate an entry into the TL, listing but not limited to: date, time, trouble description, person calling, person receiving call and resolution if any.

(k) Interface with service provider network group (currently University of Alaska, Fairbanks) as required to resolve network related issues.

3.2 Network Engineering and Technical Support. The Contractor shall provide high level technical and engineering support for the Operations and Diagnostics Networks at the HAARP Research Station, Gakona including but not limited to the following services:

(a) Conduct analyses of various network characteristics such as traffic, throughput, protocols, errors, etc and make recommendations for improvement of network performance.

(b) Participate in and recommend optimal network designs based on analysis of user requirements. Make recommendations for enhancement of existing network systems. Develop product specifications for network connectivity, nodes and materials. Obtain vendor quotes and provide cost analyses.

(c) Conduct a network site survey at award in order to document physical plant, network connectivity and cable layouts:

(1) Document building layouts and systems deployed in physical and logical diagrams.
(2) Document the backbone infrastructure in both physical and logical drawings.

(d) Manage the HAARP Operations and Diagnostics networks to include but not limited to the configuring, deploying, testing, monitoring and troubleshooting of network devices. Download and install the latest patches, and software for network devices as required. Provide performance, configuration, fault, asset and security management.

(e) Provide network troubleshooting and resolve complex technical problems through diagnostic testing and analysis of data obtained from network management platforms, packet analyzers, device logs, etc.

(f) Provide cable plant maintenance. The Contractor shall maintain and prepare the media, connectivity devices, and cable for data, voice and video communications at HAARP Research Station, Gakona. Tasks associated with maintaining the existing cable plants and connectivity include, but are not limited to, relocating existing user connections, routing and reconnecting cables, repair and/or replacement of cables, connectors, or integral control devices (amplifiers, splitters, couplers, attenuators, interface devices, etc.). Conduct preventive or corrective maintenance actions to ensure reliable network control and operations. Logs of repairs will be maintained.

(g) Support Government configuration management activities to include tracking of configuration changes, plans, reports, engineering change requests, waivers and deviations.

3.3 Windows Server Support. The Contractor shall provide Windows system administrator support including but not limited to Operating Systems (OS) upgrades, patch installation and management, backups, account maintenance, system and network security integrity, application installation and configuration and operating system, hardware, and network troubleshooting and resolution. The Contractor shall:

(a) Install, configure, and maintain central and distributed Windows system hardware, software and peripherals.

(b) Maintain all Windows systems within the Operations Center plus any additional Windows systems at other on-site locations as designated.

(c) Perform general system administration tasks including but not limited to operating system upgrades, patch installation, backups, account maintenance, system and network security, disk quota maintenance and file system integrity checks.

(d) Maintain printers and other attached system peripherals in accordance with DoD directives. Support for the HAARP Research Station, Gakona Windows server systems that perform many functions, include the following:

(1) Active Directory (AD)
(2) Windows Internet Name Service (WINS)
(3) Internet Information web services (IIS)
(4) File Storage Server
(5) Application Server
(6) Desktop Workstation

(e) Obtain, implement and report on the completion of vulnerability directives issued by DoD informing IT and security personnel of security holes, vulnerabilities and countermeasures for vulnerabilities. Such directives generally direct the implementation of a software patch or other actions to correct the vulnerability. This Software Vulnerability Mitigation Report shall be submitted to the COR immediately following completion of the compliance requirements (CDRL 025).

3.4 UNIX and Linux Server Support The Contractor shall provide UNIX and Linux system administrator support including but not limited to OS Upgrades, patch installation and management, backups, account maintenance, system and network security integrity, application installation and configuration, and operating system, hardware, network trouble shooting and resolution. The Contractor shall:

(a) Install, configure, and maintain central and distributed UNIX/Linux workstations hardware, software and peripherals.

(b) Maintain all UNIX/Linux systems in the Operations Center plus any additional UNIX/Linux systems in other locations on-site as designated.

(c) Perform general system administration including but not limited to operating system upgrades and patches, backups, account maintenance, system and network security, maintenance of disk quotas, space and integrity.

(d) Develop and maintain network file systems (NFS), network information system (NIS), e-mail, printer, auto-mount and modem servers. The central site includes UNIX systems that perform many functions, including the following:

(1) Domain Name Service
(2) DHCP Service
(3) HTTP Web Server
(4) FTP Server
(5) Network Storage Server
(6) Network backup server
(7) Virtual Private Network (VPN) Server
(8) Secure Shell server
(9) Application server
(10) Desktop workstation

(e) Provide support to computer and workstation users, including account creation, user training and general help with system and related UNIX/Linux and TCP/IP network problems.

(f) Obtain, implement and report on the completion of vulnerability directives issued by DoD informing IT and security personnel of security holes, vulnerabilities and countermeasures for vulnerabilities. Such directives generally direct the implementation of a software patch or other actions to correct the vulnerability. This Software Vulnerability Mitigation Report shall be submitted to the COR immediately following completion of the compliance requirements (CDRL 025).

3.5 Computer Security. The Contractor shall be responsible for the Information Systems Security (ISS) function at the HAARP Research Station, Gakona. Examples of the type of Contractor services required include but are not limited to intrusion detection, vulnerability scanning, incident management, and anti-virus management.

The Contractor shall provide the ISS function for the HAARP operations network and for those components of the HAARP diagnostic network over which he has control (also see Part 12, Para 3.1).

In performing the ISS function, the Contractor shall:

(a) Provide Network Security, maintain logon and security scripts, maintain software auditing information, implement and maintain Norton Anti-Virus servers and clients, generate firewall requirements and ensure that these are met, report the results of all security breeches to the COR, indicating how the system was compromised and remedies applied to prevent recurrence.

(b) Rectify problems caused by intrusions or malicious software on workstations and servers.

(c) Obtain, implement and report on the completion of vulnerability directives issued by DoD informing IT and security personnel of security holes, vulnerabilities and countermeasures for vulnerabilities. Such directives generally direct the implementation of a software patch or other actions to correct the vulnerability.

(d) Work with DoD, ONR or Air Force Office of Special Investigations, (OSI) and other AF organizations investigating computer security incidents.

4.0 ROUTINE RECURRING SERVICE. ADPE functional requirements are recurring services under this contract.

INDEFINITE QUANTITY WORK

5.0 Research Operations. Research operations at the HAARP Research Station are normally scheduled on a campaign basis. Research or engineering operations may also be required on short notice to unplanned scientific opportunities or to satisfy ongoing engineering development needs. The contractor shall provide the services described in section 3.1 according to the following provisions:

(a) Contractor shall provide the required services within two days following schedule notification by the COR.

(b) Contractor shall schedule personnel to provide these services to meet the schedule provided by the COR. The schedule may include operations at any time of day for up to 20 hours per day.

(c) A total of up to 1,000 hours of operation may be planned per calendar year.

(d) The contractor shall combine the skills and responsibilities of personnel required under this task with other site functions to the maximum extent possible.

PART 12: DIAGNOSTIC INSTRUMENT MAINTENANCE AND SUPPORT

1.0 SCOPE OF WORK. The contractor shall ensure that all scientific and diagnostic instruments located at the HAARP Research Station are maintained in a functional condition and capable of collecting scientific data as originally designed.

2.0 PERSONNEL QUALIFICATIONS. The contractor shall provide permanent site personnel or support through subcontract, capable of maintaining proper operation of each diagnostic instrument.

3.0 GENERAL REQUIREMENTS. The contractor shall provide the manpower to support the Government and other groups and organizations identified by the government as having legitimate need of HAARP related diagnostics support, including interfacing of scientific hardware into the HAARP network and any associated additions or modifications to diagnostics-related software and network management software.

The contractor shall maintain on-site diagnostic instruments, diagnostic servers, the diagnostic network, and remote dial-up access to diagnostic network, the diagnostic web log and the Internet connection. This task includes routine instrument and computer system checks, configuration management, periodic data backup, archival of data to CD-ROM, and coordination with responsible scientists.

3.1 Diagnostic Instruments. The diagnostic instrument suite located at the HAARP Research Station consists of scientific instruments that operate to assess results of research that is conducted using the High Power HF Transmitter. These instruments are also expected to operate during non-campaign periods in an observatory role for the purpose of monitoring and documenting the background ionospheric and geomagnetic environment.

3.1.1 Diagnostic Instrument Categories. The two categories of instruments at the HAARP Gakona Research Station are (1) Facility instruments and (2) Specialized instruments. Table 2 provides a listing of current diagnostics, the instrument Point of Contact (POC) and their category type.

3.1.2 Facility Instruments. The contractor shall be responsible for maintenance of Facility Instruments such that they are operational for research purposes with 90% availability. The contractor shall develop and maintain a yearly budget based on analysis of anticipated hardware and software replacements for each individual instrument in this category. Alternatively, the contractor may enter into subcontracted maintenance agreements with the instrument designer for selected instruments.

3.1.3 Specialized Instruments. Instruments in this category shall be maintained by the equipment designer (as indicated in Table 2). The contractor shall cooperate with the instrument POC during visits to the site for the purpose of maintenance or repair and shall provide technical assistance for any interfaces to site infrastructure to include electrical or data connections.

3.1.4 Change of Category. It is expected that the government may re-designate the category of certain instruments, initially placed in the Specialized category, as their operation becomes more routine.

3.1.5 Responsibility for Computer Systems. All of the scientific instruments comprising the diagnostic suite at the facility use their own computer system to collect raw instrument data, process the data and transfer information and products to the network diagnostic server. Those computers associated with Specialized Instruments are maintained by the equipment designer or POC. The equipment designer or POC is responsible for software updates and patches and for malicious software detection for his/her specific system only. The contractor shall take reasonable precautions to prevent the network proliferation of inadvertently introduced malicious software originating from one of the Specialized Instruments to other computers on the network for which the Contractor has responsibility including the diagnostic server and Facility Instruments.

3.2 Diagnostic Shelters. The contractor shall maintain all on-site diagnostic shelters. The contractor shall regularly inspect all external cables and cable entrances and provide preventative maintenance where required.

3.2.1 Shelter Interior Wiring. The contractor shall regularly inspect all interior wiring (including electrical and data wiring) and replace any wiring found defective.

3.2.2 Uninterruptible Power Supplies (UPS). The contractor shall test all shelter UPS equipment on a regular schedule. The contractor shall replace the battery found to be defective in any UPS, or, if necessary, the UPS itself.

3.2.3 Shelter Environmental Control. The contractor shall ensure, through periodic preventative maintenance, that all on-site diagnostic shelters are able to maintain nominal interior temperatures during all seasons and within the designed temperature regulation capability of the shelter HVAC system.

3.2.4 External Cabling. The Contractor shall inspect external cabling passing from diagnostic shelters to external sensors on a regular schedule but not less than once a month. The Contractor shall repair or replace damaged cabling for Facility Instruments and shall notify the POC for instruments in the Specialized category.

3.3 Diagnostic Network. The HAARP Research Station diagnostic network is composed of diagnostic instruments, wired network connections, routers, switches, network cabling, dedicated network computer assets and mass storage, archival storage and network management software.

3.3.1 Instrument Connectivity. Most of the instruments in the HAARP diagnostic suite are connected to the network to allow real-time access to instrument data. Depending on instrument location, the network may consist of wiring located entirely on-site or may consist of a combination of networks owned by HAARP or by an internet service provider (ISP). All instruments located on-site use network wiring owned and installed by the government. The contractor shall maintain this wired network.

3.3.2 Network Hardware. Network hardware is equipment associated with the network functionality including but not limited to routers, switches and hubs. The contractor shall maintain all network hardware located on-site and connected to the diagnostic network.

3.3.3. Network Computer Assets. The integrated HAARP diagnostic suite uses a dedicated network computer acting as a network controller, server and data archive. The Network Computer accepts or requests data from instruments, processes the data for real-time products that can be made available to users over the internet, formats data when necessary for storage, and archives the data on mass storage media. The contractor shall ensure that the network computer is functional with 95 % availability by maintaining a spare parts inventory of common replacement parts and shall include yearly maintenance costs in the diagnostic budget described in paragraph 3.1.2.

3.3.4 Network Management Software. Operation of the diagnostic network is controlled by operating system and network management software installed on the Network Computer. This software also performs network security services by controlling access to the network from outside sources. The contractor shall maintain all software installed on the Network Computer. Maintenance shall include installation of all patches and updates. Installation of major version updates shall be approved by the COR.

3.3.5 Data Archive. Data collected by all of the instruments in the HAARP diagnostic suite is normally archived as it is collected for permanent retention. The HAARP diagnostic network uses a high capacity RAID mass storage system for ease of storage and retrieval. The contractor shall maintain the mass storage hardware. The contractor shall periodically advise the COR of the remaining available memory of the archival storage system.

Certain instruments in the Specialized category may require additional data storage and archival on alternative media such as CD or DVD. The contractor shall provide assistance to individual principle investigators when requested and approved by the COR, for the archiving of data to these alternative media.

3.4 Configuration Management. The Contractor shall be responsible for configuration management and version control of all Facility diagnostic instruments.

3.4.1 Version Maintenance. The contractor shall not permit, except as noted below, changes to the hardware components of any Facility instrument. Hardware components include but are not limited to antennas, sensors, cabling, receiving systems, processors and associated computer systems. The contractor shall not permit, except as noted below, any changes to the software portion of any Facility instrument whether commercially available or of custom design.

3.4.2 Temporary Change of Operation. Upon the approval of the COR or his representative designated for this function, a visiting scientist shall be permitted to make temporary changes to the hardware or software of a specific diagnostic instrument for the purpose of developing future improvements or for using the instrument in a unique manner for research purposes. For all such

temporary alteration approvals, the visiting scientists shall be responsible for returning the instrument to its standard configuration prior to leaving the facility.

3.4.3 Changes to Instrument Configuration. Upon approval of the COR, permanent changes to hardware or software portions of a Facility diagnostic instrument may be required. All such changes will be coordinated in advance with the contractor and the contracting officer.

4.0 Availability for Research. The contractor shall ensure that the diagnostic Facility Instruments are maintained so as to provide a functionally operational availability of 90 % of all yearly hours. The contractor shall develop a yearly repair budget based on anticipated instrument failure rates and shall maintain a spare parts inventory where appropriate. The government will provide historical information on site instruments to assist in this analysis. In the event of instrument failure, the contractor shall identify a method of repair, the estimated repair cost and its impact on the diagnostic repair budget and shall provide this information to the COR (CDRL 026). The COR will approve the proposed repair.

PART 13: RESEARCH OPERATIONS SUPPORT SERVICES

1.0 SCOPE OF WORK. The contractor shall provide services in support of ongoing technical and scientific activity at the HAARP Research Station. Support shall be provided for ongoing, background data collection, during active research periods using the high power HF transmitter and for periodic testing activities related to engineering development. Specific services are required for maintenance of computer systems, operation of the Aircraft Alert Radars (AAR) and operation of the IRI.

2.0 PERSONNEL QUALIFICATIONS. The contractor shall provide qualified personnel consistent with best commercial practice. Some identified tasks are of an intermittent or occasional nature and the required functions and duties shall be combined with other facility assignments wherever possible to minimize total personnel requirements. The types of labor that shall be required in support of research operations are as follows:

2.1 Research Operator. Demonstrated ability to convert desired operating procedures into software code. Demonstrated or proven ability to work with scientists to understand and apply specific research objectives into logical and sequential programs capable of controlling research instruments similar to those at the HAARP Research Station, Gakona.

2.2 Power Generator Operator. Demonstrated ability or experience and knowledge of large, high power, electrical generation equipment. Demonstrated ability to recognize improper operation, diagnose causes and respond immediately to ensure the safety and integrity of equipment.

2.3 High Power Transmitter Maintenance. The HAARP IRI consists of 180 high power, high frequency transmitters operating in the frequency range 2.8 to 10 MHz. The transmitter cabinets consist of two individual 10,000 watt amplifiers. The transmitters use a combination of solid state and vacuum tube technology in operation. All electrical parameters of each transmitter are accessible over the HAARP network from within the operations center. Regular and periodic maintenance to interior mechanical components is required. Personnel responsible for transmitter maintenance must have demonstrated ability or experience and knowledge of high power transmitter equipment and the ability to diagnose existing or developing failures from the indicated transmitter electrical data.

2.4 Specialized Maintenance Personnel. Specialized maintenance personnel are required during research operations for the prompt maintenance and repair of subsystems that support research, including the aircraft alert radar and the power generation equipment (see paragraph 2.4). Personnel should have knowledge acquired through prior experience or training to allow identification of failures in the HAARP transmitter system at the level where substitution of components at the board level will restore capability during research operations.

2.5 Available Training. Proposed operators will have the opportunity to utilize on-line training materials to become proficient in operation of the HAARP transmitter including start-up, status monitoring, failure recognition, and programming the operation of on-site equipment to achieve research objectives.

3.0 GENERAL REQUIREMENTS. Research at the HAARP Gakona Facility is conducted either in organized, campaign periods typically lasting one to two weeks or in short duration, experiments of opportunity. The contractor shall provide personnel capable of supporting all research operations at the HAARP Research Station, Gakona. The performance of work under this enclosure shall include, but is not limited to, the following types of work.

3.1 Research Campaign Planning. The Contractor shall participate in advance planning for research campaigns.

3.2 Operation of the HAARP Transmitter. The Contractor shall operate the HAARP High Frequency Transmitter during all research operations. In support of this requirement, the Contractor shall:

(a) Provide all aspects of research experimental planning to include the following:

(1) Accept experimental plans from designated HAARP researchers and principle investigators. Work with researchers to devise appropriate operating modes within technical and regulatory limits. Advise researchers of system incompatibilities or alternative approaches to achieve experimental goals.

(2) Convert research goals into the control system experiment definition tables to provide the desired mode of operation for each experiment including frequency, modulation, and beam control as well as timing and scheduling for mode changes.

(3) Conduct simulated or on-the-air dry runs of proposed experiment procedures prior to the scheduled experiment time.

(4) Perform each experiment in a campaign in accordance with the planned schedule.

(b) Prior to beginning research operations, ensure the power generation equipment, control system, transmitting equipment, and environmental monitoring equipment are functional.

(c) Support configuration and operation of all HAARP diagnostic instruments required during research periods.

(d) Maintain the Research Operations Log. Once yearly, a copy of this log shall be delivered to the COR (CDRL 027)

3.3 Operate On-Site Power Generation Equipment. The Contractor shall operate the on-site power generation equipment during research operations. Operation of the power generation equipment is semi-automatic, controllable from the main control room in addition to the generator room. Contractor shall monitor the power generation function continuously during all research operations. Abnormal conditions must be diagnosed immediately for safe shutdown or to allow alternative configurations for continuing the research activity at lesser capability.

3.4 Prompt Maintenance. The Contractor shall provide the capability for prompt repair of transmitting, power generation and transmitter shelter environmental monitoring functions during a research campaign. This capability is distinguished from routine maintenance and repair by the need for repairing individual system components in real time while minimizing down time. Requirements include the ability to diagnose and promptly repair the AAR and diesel generation equipment where diagnosed failures permit component substitution as a means for resumption of normal operation.

3.5 External Interface. The Contractor shall interface with outside agencies and with the public during all research operations. In support of this requirement, the Contractor shall:

(a) Notify designated agencies of planned operations according to the notification schedule provided by the COR.

(b) Monitor dedicated telephone lines provided in the Operations Center MCR. These telephones shall be answered promptly during any research operation. The Contractor shall cooperate with personnel using these dedicated telephone lines to report interference or request cessation of operations.

(c) Monitor the dedicated Public Response telephone line. The Contractor shall cooperate with callers, accepting reports of interference. For all reports of interference received during a research operation, the Contractor shall initiate the approved interference validation procedure and note the event in the research operations log.

(d) Requests for frequency assignment are the responsibility of the government and the COR will provide evidence of transmitter licensing to the Contractor. The Contractor shall maintain a file of this documentation on-site and shall display operating licenses prominently if required.

3.6 Aircraft Alert Radar. The Contractor shall ensure that the on-site Aircraft Alert Radar (AAR) is functional at all times during operation of the HAARP high power transmitter. In support of this requirement, the Contractor shall:

(a) Operate the AAR at intervals not less than twice per month to determine continued satisfactory operation. Ensure that the lockout interface between the AAR and the high power transmitter is functional. Any observed faults shall be reported immediately to the COR.

(b) Prior to scheduled research operations, the Contractor shall determine proper operation of the Aircraft Alert Radar equipment. If operation is not acceptable, the contractor shall notify the COR and terminate planned operations until the equipment is repaired.

INDEFINITE QUANTITY WORK

4.0 Research Operations. Research operations at the HAARP Research Station are normally scheduled on a campaign basis. Research or engineering operations may also be required on

short notice to unplanned scientific opportunities or to satisfy ongoing engineering development needs. The contractor shall provide the services described in section 3.0 according to the following provisions:

(a) Contractor shall provide the required services within two days following schedule notification by the COR.

(b) Contractor shall schedule personnel to provide these services to meet the schedule provided by the COR. The schedule may include operations at any time of day for up to 20 hours per day.

(c) A total of up to 1,000 hours of operation may be planned per calendar year.

(d) The contractor shall combine the skills and responsibilities of personnel required under this task with other site functions to the maximum extent possible

List of Acronyms

ACRONYM	MEANING
AAR	Aircraft Alert Radar
ADPE	Automated Data Processing Equipment
AFOSH	Air Force Occupational and Safety Hazard
BLM	Bureau of Land Management
CDRL	Contract Data Requirements List
CFR	U. S. Code of Federal Regulations
COE	Contractor Owned Equipment
COR	Contracting Officer's Representative
DoD	Department of Defense
EFO	Environmental Field Officer
EIS	Environmental Impact Statement
ELO	Environmental Liaison Officer
FPCON	Force Protection Condition
FSO	Facility Safety Officer
GFE	Government Furnished Equipment
GOE	Government Owned Equipment
HAARP	High-frequency Active Auroral Research Program
HF	High Frequency
IDS	Intrusion Detection Systems
JET-F	Joint Electronic Test Facility
kV	kilo-Volts
kVA	kilo-Volt-Amperes
MCR	Mission Control Room
NPDES	National Pollution Discharge Elimination System
O&M	Operations and Maintenance
OPLAN	Operation Plan
PM	Preventive Maintenance
QAE	Quality Assurance Employee
ROD	Record of Decision SOP Standard Operating Procedure
SOW	Statement of Work
SPCC	Spill Prevention, Containment, and Countermeasure
UPS	Uninterruptible Power Supply
VAC	Volts Alternating Current
VHF	Very High Frequency

TABLE 1. LICENSES AND PERMITS

Description	Responsibility
1. Air Quality State of Alaska Department of Environmental Conservation Title V Operating Permit	
2. Wetland Fill Permit	
3. Solid Waste Disposal	
4. Sewage Disposal	
5. Burn Permit	
6. Gravel Mining Plan	
7. Spill Prevention, Control and Countermeasure (SPCC) Plan	
8. Radio Frequency Transmitter Certifications and Permits	

TABLE 2. ON-SITE DIAGNOSTIC INSTRUMENT LISTING

ON-SITE (HAARP Research Station)

Instrument	Category	Developer	Point of Contact	Phone
1. Magnetometer (Fluxgate)	SP	U. Alaska Fairbanks / GI	Dr. J. Olson	907-474-7559
2 Magnetometer (Induction)	F	Univ of Tokyo	Dr. Hayashi	
3. Riometer (All sky)	F	J. Ostergard	J. Ostergard	207-236-9651
4. Riometer (Imaging)	SP	U. Alaska Fairbanks / GI	Dr. B. Watkins	907-474-7479
5. Digisonde	SP	U. Mass. (Lowell)	Dr. B. Rienisch	978-934-4903
6. Modular UHF Ionos. Radar	SP	SRI, International	Dr. B. Watkins	907-474-7479
7. VHF Ionospheric Radar	F	Geospace Research, Inc.	Dr. F. Djuth	310-322-1160
8. Optics (All Sky Imager)	SP	AF Research Lab	Dr. T. Pedersen	781-377-2845
9. Optics (Telescopic Imager)	F	Keo Scientific, Ltd.	Dr. E. Kendall	650-859-4906
10. GPS Scintillation (Novatel)	SP	AF Research Lab	Dr. K. Groves	781-377-3137
11. Total Electron Content	SP	AF Research Lab	Dr. K. Groves	781-377-3137
12. Spectrum Monitor	F	Naval Research Lab	E. Kennedy	202-404-8469
13. ELF Receiver (UAF)	F	U. Alaska - Fairbanks / GI	Dr. D. Sentman	907-455-2274
14. ELF Receiver (Stanford)	SP	Stanford University	Dr. U. Inan	650-723-4994
15. Seismometer	SP	U. Alaska Fairbanks / GI	K. Lawson	907-474-7773
16. HF Spiracone Receive Ant.	F		E. Kennedy	202-404-8469
17. Ionos. Tomography Receiver	SP	NW Research Assoc.	J. Secan	520-319-7773
18. GPS Scintillation & TEC Rx	SP	NW Research Assoc.	J. Secan	520-319-7773