

**Statement of Work (SOW) Template  
For Site Inspection at Munitions and Explosives of Concern (MEC) Sites**

**Provided by the NAVFAC Munitions Response Workgroup**

The following Statement of Work (SOW) template is to be used for the Site Inspection (SI) phase of sites contaminated with Munitions and Explosives of Concern (MEC) or Munitions Constituents (MC). This template assumes subsurface soil sampling may be conducted for MC and other potential site contaminants, but that no intrusive or subsurface investigation will be done for MEC. Intrusive work for MEC is covered by the SOW Template for Remedial Investigation (RI). Intentional physical contact with MEC must not occur; therefore, anomaly avoidance techniques must be employed during MC sampling. For MEC sites, subsurface work that could potentially encounter MEC will require additional requirements and oversight. At a minimum, this includes review and approval of an Explosive Safety Submission (ESS) by the Naval Ordnance Safety and Security Activity (NOSSA) and the Department of Defense Explosives Safety Board (DDESB).

This SI SOW template is written to provide guidance to Remedial Project Managers (RPMs) for some of the specific issues related to completing SI work at MEC Sites. If you do not already have a Preliminary Assessment (PA) for your site, please refer to the SOW template for PAs and incorporate aspects of a PA SOW into the SI SOW. Conceptual Site Model guidance for MRP sites can be found in the US Army Corps of Engineer's (USACOE), Conceptual Site Models for Ordnance and Explosives (OE) and Hazardous, Toxic, And Radioactive Waste (HTRW) Projects, Feb 2003 as well as the Handbook on the Management of Munitions Response Actions from USEPA. MEC SIs are not intended to be a full-scale study of the nature and extent of contamination or explosives hazard.

The SI for a MEC site is intended to:

- Build upon PA information by gathering initial field data
- Perform field reconnaissance/surveys according to SI Work Plan
- Outline potential sources (disposal areas, target areas, operations areas)
- Determine more accurate MEC and MC site boundaries
- Develop or expand on a Conceptual Site Model (CSM) using field reconnaissance/survey data and initial hazard and risk screening results
- Conduct initial munitions hazard screening
- Summarize information and recommend future site actions
- Collect field data necessary to evaluate site through DoD Munitions Response Site Prioritization Protocol

Limited sampling is warranted in the SI phase and the main purpose of sampling is to confirm the presence or absence of MC contamination. Sampling for MC should be conducted in accordance with appropriate sampling protocol and quality control. For MC sampling, there are several types of constituents that may require analysis. The actual selection of MC for analysis should be based on the anticipated or known MEC items used at the site based on your PA. Potential MC include, but are not limited to EPA 8330 compounds and metals. Potential MCs at small arms ranges are typically limited to metals, specifically copper, lead and zinc. Chemical warfare material (CWM) are not

addressed in this SOW. If you have a site with suspected CWM you should contact NOSSA at 301-744-4450 (MARCORSYSCOM for Marine Corps sites at 703-432-4824). Additional guidance for sampling methodologies for munitions constituents can be found in USACOE, Military Munitions Center of Expertise, Technical Update for Munitions Constituents (MC) Sampling, March 2005, USACOE, EM 1110-1-4009, Military Munitions Response Actions, June 2007, and SW 846 EPA Method 8330B November, 2006, the Energetics Constituents Sampling Tool on the Navy's MR Portal, the Implementation of Incremental Sampling (IS) of Soil for the Military Munitions Response Program, USACE Interim Guidance 09-02, and the DoD EDQW Guide for Implementing EPA SW-846 Method 8330B available on the Internet.

Geophysical surveys and their specific requirements are outlined in the RI SOW template. Only detector-aided surface surveys are included in the SI SOW template.

A list of the regional participants in the NAVFAC Munitions Response Program (MRP) Workgroup is provided below as a resource to answer questions and provide assistance. The SI SOW template provides some references to Army Corps of Engineer documents that provide valuable information, but these are not policy for the Navy and are not always applicable to Navy MRP sites. The NORM CTC module for the PA/SI phase is under development. Cost sharing information is available to the government only on the MR Workgroup secure website.

### **Definitions**

**Anomaly avoidance:** Anomaly avoidance is a technique used by EOD or UXO personnel at sites with known or suspected MEC in order to avoid any potential surface MEC and any subsurface anomalies. It is usually employed at mixed hazard sites when hazardous, toxic, or radiological waste investigations must occur prior to execution of a MEC removal action. Intrusive anomaly investigation is not authorized during anomaly avoidance operations. Anomaly avoidance is sometimes referred to as MEC avoidance.

**Munitions and Explosives of Concern (MEC):** This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: (a) Unexploded Ordnance (UXO), as defined in 10 USC 2710 (e)(9); (b) Discarded Military Munitions (DMM), as defined in 10 USC 2710 (e)(2); or (c) Munitions constituents (e.g. TNT, RDX) present in high enough concentrations to pose an explosive hazard. (OUSD Memorandum, Definitions Related to Munitions Response Actions of 18 Dec 03).

**Munitions Constituents (MC):** Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (OUSD Memorandum, Definitions Related to Munitions Response Actions of 18 Dec 03).

### **NAVFAC Munitions Response Program Workgroup (as of Sep 2009)**

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**[INSERT DATE]**

**Department of the Navy**

**NAVFAC [fill in the appropriate FEC]**

**Statement of Work (SOW)**

**Contract Number:**

The statement of work shall be as outlined below and as described elsewhere in the basic contract number [insert].

**SITE INSPECTION**

**MUNITIONS RESPONSE PROGRAM**

**[Insert Installation/Site Name]**

***RPM – Please refer to the Remedial Project Manager (RPM) Notes provided throughout this template and delete all notes prior to submission***

**1.0 OBJECTIVE**

The objective for this task order is to perform a Site Inspection (SI) with respect to past use of Munitions and Explosives of Concern (MEC) and Munitions Constituents (MC) for a Munitions Response Area or Munitions Response Site (MRA/S) [insert the site-specific identifier] at [insert installation, City, State]. As used in this document, the term MEC includes Discarded Military Munitions (DMM) and Unexploded Ordnance (UXO), and MC in high enough concentrations to pose an explosive hazard. MC at lower concentrations can potentially pose a human health and ecological risk. The SI, as the second component of the overall site evaluation following the Preliminary Assessment (PA), is not intended as a full-scale study of the nature and extent of contamination or explosives hazards. The National Oil and Hazardous Substances Contingency Plan (NCP) identifies the SI as the on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. Its purpose is to augment the data collected in the PA and to generate, if necessary, sampling and other field data to determine if further response action or remedial investigation is appropriate. The objective of performing the SI is to efficiently gather data necessary to make this determination. All work under this task order shall be completed in accordance with all applicable Department of the Navy policies, regulations, and guidance, and Federal, State and local laws.

## 2.0 SCOPE

The scope of the SI will consider applicable and appropriate Department of Defense (DoD) guidance and policy for MRP response actions. Reference and policy documents include, but are not limited to, the following:

- Environmental Protection Agency (EPA) *Guidance for Performing Site Inspections Under CERCLA; Interim Final*, September 1992 (<http://www.epa.gov/superfund/sites/npl/hrsres/si/sitoc.pdf>)
- EPA Federal Facilities Remedial Preliminary Assessment Summary Guide, July 21, 2005
- EPA Federal Facilities Remedial Site Inspection Summary Guide July 21, 2005
- U.S. Army Corps of Engineers (USACE) guidance on MEC response actions under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS).
- PA Report for [Insert subject Munition Response Area/Site (MRA/S)] (if available)
- [TBD - Insert other applicable references here]

The SI shall consist of a visual and detector-aided field inspection focused on identifying surface evidence of MEC contamination using, as a basis, available information from the PA, Archive Search Reports and other existing information previously collected for the MRA/S. This information shall be used to delineate boundaries, collect broad site information, and assess the hazard/risk posed by any MEC/MC found at the site in order to support the final recommendations. The contractor personnel shall meet the requirements outlined in Section 10.

*RPM Note: Detailed geophysical surveys, which investigate subsurface anomalies, are more appropriately part of a remedial investigation (RI) phase and are covered in the RI/FS SOW Template. Any intrusive techniques, although not envisioned until the RI phase, must be clearly identified in the work plan and an Explosives Safety Submission (ESS) must receive approval from the Naval Ordnance Safety and Security Activity (NOSSA) and Department of Defense Explosives Safety Board (DDESB) prior to commencement of field work.*

## 3.0 BACKGROUND

**3.1 Safety.** The work required under this Statement of Work (SOW) falls under the Defense Environmental Restoration Program. MEC may exist on property formerly occupied or leased by the Department of the Navy. MEC is a safety hazard and may constitute an imminent and substantial endangerment to personnel and the local population. This action will be performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Sections 104 and 121; Executive Order 12580; and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). All activities involving work in areas potentially containing MEC hazards shall be conducted with approval from the NOSSA, and in accordance with Department of the Navy (DON) and DoD requirements regarding personnel, equipment and procedures. Federal Regulation 29 CFR 1910.120 (HAZWOPER) also applies to all actions taken at the site.

**3.2 Location.** [Describe the location of the site and provide a brief description of the terrain and vegetation, any existing buildings or infrastructure, photo(s), and any other information to help describe the general location and attributes for the study area.]

*RPM Note: Refer to the initial PA, if available, for summary language to include*

**3.3 History.** [Provide the history of the site and the reasons, known or suspected, for the potential presence of MEC. Add subsections if there are specific areas of known MEC and describe the types of munitions and filler if known. Include information on the source of MEC at each site (disposal, range, manufacturing, etc)].

*RPM Note: Refer to the initial PA, if available, for summary language to include*

**3.4 Chemical Warfare Material (CWM).** The site is not suspected to contain Chemical Warfare Materiel (CWM). However, if suspect CWM is encountered during any phase of site activities, the contractor shall immediately withdraw upwind from the work area, secure the site and contact the Navy RPM. The contractor shall maintain site security until written direction is provided by the Navy regarding the procedure to be followed for performing further SI work or response actions at the site. The RPM will coordinate with NOSSA.

## **4.0 TASK ORDER REQUIREMENTS**

**4.1 Pre-Bid Site Visit (Task 1) (Optional).** A pre-bid site visit [will/will not] be conducted by the Government. The pre-bid site visit will occur, [provide the date, time, assembly place, etc. for the visit]. The Government will prepare an abbreviated Site Safety and Health Plan to cover the site visit and, if the area has known MEC, provide a UXO-qualified safety escort.

*RPM Note: The need for a site visit will depend on the information available from the PA and the contractor's familiarity with the site.*

**4.2 SI Work Plan and Appendices (Task 2).** The contractor shall prepare and submit a Draft, Draft Final and Final SI Work Plan. The SI Work Plan will define project objectives and associated data needs to reach project closeout, describe Data Quality Objectives (DQOs), and contain the updated Conceptual Site Model (CSM). The work plan shall include equipment, methods, and staffing to perform the following tasks:

- Review the initial PA developed for the site and incorporate relevant information into the SI Work Plan.
- Gather site-specific data to further define the nature and extent of MEC and Munitions Constituent (MC) contamination. Topography, vegetation, soil characteristics, climate, land use on the site and adjacent real estate, potential exposure pathways, and ground scars should also be identified.
- Perform MEC field investigations to augment the data collected during the PA, including:

- Limited detector-aided surface investigations
- Limited MC sampling
- Site footprint analysis to determine the study areas for subsequent investigations
- Spatial analysis and, if necessary, an aerial survey or other wide area survey techniques to define the aerial extent of MEC
- Any additional tasks needed to gather sufficient data to determine the need for further investigation or the appropriate response action
- Further research of archives and photos to determine areas of concern
- No intrusive investigation is planned under the SI.

*RPM Note: The Navy does require a preliminary risk assessment be performed however, no standard format exists. At a minimum, the risk assessment should do three things: 1) Classify the strength of evidence for MEC at the site based on both the PA and SI, 2) Make an initial assessment of the nature and likelihood of MEC based on PA and SI data, and 3) Recommend follow-on actions for the site. The Munitions Response Site Prioritization Protocol (MRSPP) may be a useful resource until more specific guidance is developed for estimating MEC and MC site risks.*

*There are three recommendation options: 1) Declare No Further Action (NFA), 2) Conduct an accelerated removal action, or 3) Proceed to the RI phase.*

**4.2.1 Explosives Safety Submission (ESS) (Task 2a).** The contractor shall assume that no intrusive investigations will be conducted under the SI, thus an ESS will not be needed. The contractor shall outline anomaly avoidance measures in the work plan, including avoidance measures used during MC sampling. If MEC is located during the SI, the contractor's personnel will not disrupt the item, but proceed to note its location using GPS or other tools, describe the item and photograph the item for documentation in the SI report. Although subsurface soil sampling for MCs is considered an intrusive operation, no ESS is required so long as a UXO technician supports the sampling using anomaly avoidance techniques.

*RPM Note: Intrusive investigation is not normally conducted during the SI phase. An ESS is not required by NOSSA INST 8020.15(Series) for SI work that does not include intrusive investigation. However, to obtain a NOSSA N5 determination that an ESS is not required, the responsible project manager must complete and mail, fax, or e-mail to NOSSA the appropriate enclosure in NOSSA INST 8020.15 (Series), "Request for a NOSSA Explosives Safety Submission Determination". The request shall be an enclosure to a letter or memo, or attached to a digitally signed e-mail. Information provided in the request will allow NOSSA to evaluate the site-specific conditions and the responsible project manager's assessment of the risk/ hazard. NOSSA will concur or non-concur in writing. In order to meet operational time constraints, this concurrence/ non-concurrence may be faxed or e-mailed. Subsurface soil sampling for MC at the site may be conducted without an ESS provided the sampling is supported by a UXO technician using detector aided MEC/anomaly avoidance techniques, which will entail using detectors to clear the sample area prior to sampling. Sampling will be limited to the detection depth of the instrument and MEC expected at the site. If these limitations are not workable, the RPM should either wait until No Further Action (NFA) is reached for MEC, prepare an ESS, or do sampling during the RI phase when an ESS will typically be in place for broader MEC investigation.*

*If intrusive work is deemed necessary, refer to the RI/FS SOW Template for applicable language to include in this SOW.*

**4.2.2 Conceptual Site Model (Task 2b).** The contractor will update/revise the CSM, completed during the PA, to include the following elements:

- Identify past munitions related activities, including manufacturing, handling, storage, use, and disposal
- Determine expected MEC/MC contaminants
- Determine the most likely primary and secondary release mechanisms
- Determine potential migration pathways
- Identify exposure pathways for current and reasonably anticipated future land uses.

The CSM may be submitted in graphical, tabular, or text forms; however, the Navy prefers either of the first two approaches. The CSM will be included as an appendix to the SI Work Plan and incorporated into the SI Report.

**4.2.3 Accident Prevention Plan (Task 2c).** The contractor shall prepare an Accident Prevention Plan (APP) to include all the necessary Activity Hazard Analyses (AHA) relevant to site operations. The APP will be prepared as an appendix to the SI Work Plan or as part of the Health and Safety Plan.

**4.2.4 MEC UFP-QAPP(Task 2d).** The contractor shall prepare an MEC UFP-QAPP that will address all quality control methods to be used to control MEC activities on the project. The QAPP will discuss how the contractor intends to implement the three phases of control for all site operations, including the QC personnel proposed and their qualifications. The QAPP will be prepared as an Appendix to the SI Work Plan.

At the Government's discretion, a quality assessment plan to independently assess the quality of the contractor's work may be developed. If this quality assessment plan is developed, it is the Government's intention to use the contractor's MEC UFP-QAPP as the basis for developing the quality assessment plan.

*RPM Note: See the MEC UFP-QAPP template, the Adak MEC UFP-QAPP example, Adak Technical Management Plan (Workplan), and the Quality Assessment SOW template on the MR Portal for typical PQO's/DQOs, Measurement Performance Criteria, and SOPs. It should be noted that the PQCP in the Adak Technical Management Plan is abbreviated and refers to the Adak MEC UFP-QAPP for supporting details. RPMs are encouraged to review this format for their project sites. RPMs should also be aware that the Adak example was for a remedial investigation, not an SI. A MEC UFP-QAPP for an SI should be significantly smaller and less complex than the Adak example.*

*RPM Note: The Naval Explosive Ordnance Technology Division (NAVEODTECHDIV) has experience, expertise and technically trained personnel in conducting quality assessments and developing the quality assessment reports for munitions response projects. Another alternative is to use a third party contract not associated with the site to perform quality*

*assessment field activities for the Government. See the Quality Assessment SOW template on the MR Portal for more information.*

**4.2.5 MEC Management and Contingency Plan (Task 2e).** The contractor shall prepare as an appendix to the SI Work Plan, a MEC Management and Contingency Plan that describes, at a minimum, MEC/anomaly avoidance procedures and accounting processes, if MEC is encountered. Accounting processes shall be designed to ensure tracking and custody of all MEC items from field identification to future final disposal.

**4.2.6 Other Relevant Planning Documents (Task 2f).** The contractor shall prepare the following additional planning documents, based on knowledge of site condition provided by the PA and the site-specific SI requirements:

- [insert applicable documents (i.e., Erosion Control, Health and Safety Plan, Stormwater Management Plan, etc.)]

### 4.3 Field SI Activities (Task 3)

**4.3.1 Site Preparation (Task 3a).** The contractor shall perform necessary site preparation to adequately support the field survey and sampling methodology proposed. Information on the type and extent of site preparation requirements and/or restrictions can be obtained during the site visit [see Task 1]. Procedures and equipment requirements shall to be approved by the RPM prior to execution. MEC/anomaly avoidance techniques shall be strictly employed during site preparation activities.

**4.3.2 Location Surveys and Mapping (Task 3b).** The contractor shall perform location recording and mapping using techniques that allow easy conversion/submission of data in the required format e.g., state plane coordinates. The contractor may use established control monuments, however, should the contractor select to set any property boundaries or monuments, this work shall be performed by a Professional Land Surveyor licensed in the [insert State]. Existing monument locations will be provided to the contractor. Contractor personnel who are knowledgeable and competent in land surveying and use of surveying equipment may perform grid and/or transect location and layout. The contractor shall prepare all location data and submit following completion of the work. Data must be provided using the appropriate Naval Installation Restoration Information Solution (NIRIS) Electronic Data Deliverable (NEDD) via the web based data checker in accordance with the NEDD SOP. Survey data shall include, at a minimum, a drawing and spreadsheets of survey information. For each site, the drawing shall cover the entire site and will include the list of coordinates for corners, starting, ending, turning locations, reference monuments used in survey, and other pertinent features of grids or transects, to include but not limited to MEC location data including grid number where found, item number assigned, type of item, location coordinates to nearest foot, and depth below ground surface.

**4.3.3 Detector Aided, Non-Intrusive Survey (Task 3c) (Optional).** The contractor shall propose a methodology and staffing for conducting a detector-aided, non-intrusive site inspection. At no time will there be intentional physical contact with MEC, even for the purpose of identification, unless permission to do so is obtained from NOSSA and the DDESB through an approved ESS. The purpose of this area survey is to look for indications of MEC releases, identify pertinent site features, confirm/refine the boundaries of the site, and identify or confirm areas of concern.

*RPM Note: The detector-aided surface survey in an SI is often used to confirm that MEC is not an issue at a site when the PA did not conduct on-site reconnaissance and anecdotal evidence supports that MEC activities were not conducted in the past. The detector-aided survey can also be used to confirm site features identified in the PA or in other research when there's already a strong indication that future investigation is needed. Some level of inspection is required before proceeding to NFA, removal action, or the RI.*

*If the likelihood of MEC at a site is low, NFA should be obtainable through documentation and a visual survey without a geophysical survey. A detector aided surface survey gives indications of locations of metal anomalies, but does not record the anomaly signal real time like a digital geophysical investigation. The goal of a site survey in the SI phase is to better define site boundaries and to gather information that will be key to future investigation decisions. A geophysical survey is more appropriate in the RI phase for a site or possibly when a RI is likely.*

[complete Table 1]

Site	Overall Site Acreage	Minimum Investigation Acreage
[insert site]	[insert acreage]	[insert acreage]
[insert site]	[insert acreage]	[insert acreage]

**4.3.4 Instrument Functional Checks.** For the limited investigation in a SI, the contractor needs to verify and document instrument serviceability using a setup and function check prior to start of the investigation. Thereafter, a daily pre- and post-operation functional check of the detector, daily periodic verification of the accuracy of the positioning method, (e.g., GPS, wheel mode, fiducially) and daily QC of the data processing shall be required.

**4.3.5 Intrusive Investigation (Task 3e) (Optional).**

*RPM Note: The RPM should consider intrusive investigation to be part of the RI phase considering the risks and the added administrative burden (ESS approval) involved. The RI/FS SOW template incorporates language for performing intrusive investigations . Intrusive investigation is required to confirm subsurface MEC presence, type, and condition [i.e., discarded military munitions (DMM) or UXO] at the site and to provide information necessary to estimate concentration (i.e., number per acres/acre).*

**4.3.6 MEC Accountability (Task 3f).** The contractor shall propose a method for maintaining a detailed accounting of all MEC items/components, if any, encountered during the SI. This accounting shall include the amounts of MEC, nomenclature and condition, location and orientation of MEC, and a photograph. The item should not be touched or moved during the SI consistent with MEC/anomaly avoidance procedures. The contractor shall assume that no MEC disturbance will occur. If a finding requires immediate response, the contractor will coordinate with the RPM. This accounting shall be a part of the MEC Management and Contingency Plan as an Appendix to the SI Report.

*RPM Note: Handling or removal of MEC from the site is not part of an SI and it requires appropriate prior planning and documentation in the work plan and ESS, which will require NOSSA approval. Using MEC/anomaly avoidance, any MEC found will be left undisturbed for further investigation during the RI Phase. The RPM needs to consider if additional security measures need to be taken to prevent access to the area. If there is a reason to respond to specific findings, coordinate with the base Explosives Safety Officer, or potentially the local Explosive Ordnance Disposal (EOD) for further actions.*

*RPM Note: If there is significant material potentially presenting an explosive hazard (MPPEH), it is likely that a RI will be required. Since handling of MPPEH entails the identification and certification that there is no energetic material, this is more appropriately addressed in the RI.*

**4.4 Munitions Constituents Sampling and Analysis Activities (Task 4).** The contractor shall propose a plan to collect surface soil samples from a depth of 0 to 5 centimeters. For estimating and planning purposes, the contractor should expect to collect a total of [insert number] samples [including quality control (QC) and quality assurance (QA) samples]. The laboratories shall provide analytical results within 30 days of sample receipt. In accordance with Navy IR QA Program requirements presented in the most current version of the Navy Installation Chemical Data Quality Manual, SP-02056-ENV, the contractor shall be responsible for quality control planning and implementation, performing data validation, and for providing the appropriate NIRIS electronic data deliverable (EDD)s via the web based data checker in accordance with the NIRIS NEDD SOP.

*RPM Note: The latest Army research shows that MC particulate residues are generally within the first 5 centimeters of soil on ranges. OB/OD and other types of sites may however have a different distribution.*

**4.4.1 Sampling and Analysis Plan (Task 4a).** The contractor shall prepare a Draft and Final Uniform Federal Policy Sampling and Analysis Plan/Quality Assurance Project Plan (UFP-SAP/QAPP). The SAP/QAPP will be prepared in accordance with the Guidance for Quality Assurance Project Plans, EPA QA/G-5, December 2002 and the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), which was signed by EPA and DoD in March 2005. The SAP will consist of the Field Sampling Plan and a QAPP, at a minimum. The SAP/QAPP will be submitted as an appendix to the approved SI Work Plan. .

*RPM Note: The RPM also is required to develop a UFP-SAP. The UFP QAPP Manual Guidance is implemented by NAVFAC through completion of thirty seven separate worksheets that address specific elements of the UFP QAPP guidance. Each of the worksheets references the applicable section of the UFP QAPP Manual it is intended to address. The Navy UFP-SAP template for each of these worksheets is included as a reference. The Navy UFP-SAP team has developed "Greentext" for the required UFP-SAP which provides suggestions and examples on how to populate the UFP-SAP worksheets for a MC sampling project. These worksheets are NAVFAC specific and provide a graded approach to developing the sampling and analysis plan.*

*RPM Note: The following references for MC Sampling may be useful to the RPM.*

*a. Munitions Constituent (MC) Sampling Technical Update, USACE Military Munitions Center of Expertise, March 2005*

*b. Protocols for Collection of Surface Soil Samples at Military Training and Testing Ranges for the Characterization of Energetic Munitions Constituents, USACE ERDC, July 2007*

*c. USEPA SW 846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Method 8330B Nitroaromatics, Nitramines and Nitrate Esters by High Performance Liquid Chromatography and Method 8321A Solvent Extractable Nonvolatile Compounds by High Performance Liquid Chromatography/Thermospray/Mass Spectrometry (HPLC/TS/MS) or Ultraviolet (UV) Detection*

*d. USACOE, EM 1110-1-4009, Military Munitions Response Actions, June 2007*

*e. DoD Environmental Data Quality Workgroup Guide for Implementing EPA SW-846 Method 8330B*

*f. Implementation of Incremental Sampling (IS) of Soil for the Military Munitions Response Program, USACE Interim Guidance 09-02, July 20, 2009*

**4.4.1.1 Quality Control and Quality Assurance.** The UFP-SAP/QAPP will outline the contractor's Quality Control and Quality Assurance measures. The duplicate QA and QC samples shall be analyzed for the same parameters as the field samples. All samples will be submitted to a Navy approved laboratory. Each sample collected for QA shall be homogenized thoroughly, and then divided equally. All procedures for samples collected and analyzed for MC shall be addressed and identified in the SAP/QAPP.

**4.4.1.2 Sample Location Selection.** The contractor shall propose a methodology for selecting sample locations to meet the needs of the SI. Samples will be collected utilizing anomaly avoidance procedures.

**4.4.1.3 Analytical Methods.** Samples shall be analyzed in accordance with the most current and approved methods.

**4.4.1.4 Laboratory Qualifications.** The laboratory used should have experience in handling military munitions samples. The analytical laboratory should be identified in the proposal and must be identified in the SAP and hold applicable state certifications to perform the analytical methods required (if available). Laboratories must also meet Navy IR QA Program requirements presented in the most current version of the Navy Installation Chemical Data Quality Manual, SP-02056-ENV.

**4.4.1.5 Sample Location Data.** Contractor shall position sample locations using Global Positions Satellite System (GPS) or other location mechanism with a horizontal accuracy of [insert feet] feet. The contractor shall prepare a drawing and spreadsheet of sample location information (name, coordinates), and submit it as part of the MC Data Package within the SI Report, and by preparing and submitting the appropriate NEDDs via the web based data checker in accordance with the NIRIS NEDD SOP.

*RPM Note: The USACE has a reference that can be useful for MC sampling titled USACOE MM CX Technical Update for Munitions Constituents Sampling dated March, 2005. In addition, the EPA's SW 846 Method 8330B (November 2006 update to the original 8330) includes field sampling techniques as well as analytical procedures for munitions constituents sampling on ranges. EPA Method 8321 uses a mass spectrometer to positively identify the compounds present.*

*RPMs will need to choose which method to use based on site-specific DQOs. It should be noted that because EPA Method 8330B is relatively new, only a few commercial laboratories have been approved by the Navy to perform this analytical method. If method 8330B is chosen it is important to review the DoD Environmental Data Quality Workgroup Guide for Implementing EPA SW-846 Method 8330B. Important considerations include involving a risk assessor, and processing the entire field sample through the machine grinding process to reduce error. RPMs should be aware that the grinding and subsequent extraction procedure may overestimate the risk posed by the constituents by altering the sample's matrix conditions. Method 8330B uses a UV detector, which is not definitive, so a confirmatory method (Ic/ms is an option in 8330B or 8321) could also be used on a subset of the samples to positively identify the constituents present. The RPM will have to determine how to cost effectively manage the sampling and analysis costs. Also, the MR portal has a summary on Energetic Constituent Sampling.*

#### **4.5 Geographic Information System (GIS) Support (Task 5).**

*RPM Note: NAVFAC is in the process of deploying the Naval Installation Restoration Information Solution (NIRIS) at all FECs in 2008. Training on the use of NIRIS for both RPMs and contractors started in 2008. Coordinate with your local IR GIS Data Management Workgroup member regarding access and training for NIRIS and mapping needs. NIRIS is designed to manage both IR and MRP site data using GIS and other end user tools. NIRIS will be able to link to Regional Shore Installation Management System (RSIMS) for basemap data, realstate parcel information and aerial photography for most sites, and NIRIS is NMCI compatible. Once NIRIS is deployed, all ER data must be submitted via the NIRIS EDDs and automated data checker. NIRIS should be used for MRP projects mapping needs, however, if there is an existing, legacy system with data to migrate to NIRIS, or specialized applications or tools, talk to your local IR GIS Data Management Workgroup member. New*

***GIS should not be created for typical projects, likewise, the use of contractor GIS is strongly discouraged.***

MRP data is inherently spatial in nature. A GIS shall be used to facilitate decision making, perform analysis and visualize results, to ensure effective cleanup decisions are made in cooperation with the Navy, regulators, and other stakeholders. GIS data may include: past and present uses, site conditions, historical photographs, land use controls (LUCs), geophysical data, MEC findings data, and MC data collected throughout the RI/FS. The Government will provide the contractor access to NIRIS for management of the project GIS, and provide the initial base mapping data and information on the format of the data. The NIRIS Non-NEDD Deliverable Submittal Guidelines SOP contains detailed requirements and specifications and should be used for all GIS, spatial, modeling, CADD or aerial photograph type deliverables.

The contractor shall update and manage the project GIS in NIRIS, or if there is a critical project need NIRIS can not fulfill, an export of the NIRIS data using a local machine running ArcGIS or ArcInfo. Any project related spatial data including maps, models and associated collected or created data must then be submitted back to NIRIS according to the NIRIS Non-NEDD Deliverable Submittal Guidelines SOP. This would include geophysical data, anomalies, ordnance related items found during the investigation, positively identified MEC, and environmental sample locations.

**4.6 SI Report (Task 6).** The contractor shall prepare a comprehensive SI Report describing the scope of the project, the rationale and data used to arrive at conclusions and recommendations and the QA/QC procedures utilized to check assumptions and verify findings. The SI Report shall include the results of the archive search and appropriate portions of the work plan to ensure the entire project will be understood without frequent reference to additional documents. The contractor shall provide detailed maps of the site(s) illustrating areas of potential concern, if any, densities of anomalies, site boundaries, resources, structures and other site-specific details. The SI Report should compile and analyze defensible data in clear and concise charts and graphs to support findings and recommendations, including explanations understandable to non-engineer professionals. The SI Report should anticipate stakeholder concerns and preemptively address them, reference applicable regulations and guidance and provide well-articulated and defensible justifications for recommendations.

The contractor shall prepare a Draft, Draft-Final, and Final SI Report. The contractor shall receive comments on both draft versions of the document, prepare a "Response to Comments" table and address all comments received from the Government and other parties reviewing the report (if applicable). If conflicting comments are evident, the contractor shall identify those comments to the Government for resolution.

At a minimum, the SI report must include:

- A description of the historical activities potentially resulting in the presence of MEC/MC

- Current, and reasonably anticipated future land uses and associated activities
- A description of the MEC/MC encountered at the site
- A brief description of the site setting, including regional and site-specific geologic and hydrogeologic information
- An updated/revised CSM, including a description of the primary source, release mechanism, and exposure pathways
- A description of pathways of migration and exposure to the MEC/MC
- An identification and description of potential human and environmental receptors
- The results of the initial munitions hazard screening
- A recommendation on what, if any, further action is warranted.

The SI Report shall document the findings of the data collection efforts and field investigation. The SI Report will present the refined CSM, which will be the basis for recommendations for future actions. It will report the results of the initial munitions hazard screening process and describe areas that pose varying levels and types of risks/hazards, as well as areas that pose little or no risk/hazard to human health and the environment and/or areas that warrant further action. The SI Report will identify what additional data must be collected, if any, in order to make decisions regarding future response actions. Major elements of the SI Report include (but are not limited to):

- Executive Summary
- Review of Existing Information
  - Data Collection Activities
  - Archive Search Report
  - Site Description, Operational History, and documented HW management activities, if any
  - Results of Preliminary Assessment
- Discussion and Results of SI Survey
  - Revised CSM
  - Survey design and methods
  - Assess potential MEC/MC hazards/risks
  - Results of the initial munitions hazard screening
- Conclusions and Recommendations
  - Potential or existing MEC/MC hazards/risks
  - Recommendation for future action
  - A cost-to-complete estimate for each MEC and/or MC site identified for further action

*RPM Note: Refer to the initial PA, if available and the Final Navy Programmatic Work Plan for Preliminary Assessments on MMRP Ranges and Sites for assumptions used to calculate a cost to complete estimate. RACER (Remedial Action Cost Engineering and Requirements) Cost Model has a module for estimating cleanup at munitions sites. The Final Navy Programmatic Work Plan for Preliminary Assessments on MMRP Ranges and Sites can be found on the Navy Environmental Restoration and BRAC website.*

## **5.0 PROJECT MANAGEMENT (Task 7)**

The contractor shall perform project management activities necessary to maintain project control and to meet reporting requirements including but not limited to the following:

**5.1 Schedule (Task 7a).** The contractor will prepare a comprehensive project schedule which shall be due within [insert weeks/months] after project award. The schedule will be prepared using MS Project. Electronic delivery is acceptable. The contractor shall update the schedule monthly and provide this as an electronic deliverable (email only for this electronic deliverable) to the RPM. The contractor shall consider the timing of required deliverables when preparing the project schedule.

## **5.2 Meetings and Project Coordination (Task 7b).**

**5.2.1 Kickoff Meeting** The contractor shall plan to attend a kickoff meeting/formal site visit at [insert site] site or FEC location. Attendees of this meeting may include the Navy RPM, Environmental Coordinators and others from the site and various FEC personnel. At a minimum, the contractor's Project Manager and Technical Lead for the delivery order shall attend. Regulators and stakeholders may be included as determined by the RPM. The agenda for this meeting will include discussions of roles and responsibilities, emergency response, health and safety, access to the site, project schedule, explosives safety, contracted deliverables, investigation methodology, and other issues related to the delivery order. The contractor shall provide a written meeting agenda to all invited participants not less than [insert number of days] prior to the scheduled meeting, coordinate with the RPM to arrange meeting facilities, and provide invited participants written meeting minutes within [insert number of days] after the meeting.

**5.2.2 Project Meetings.** The contractor shall coordinate and attend [insert number] additional meetings at [insert location] to be held at the discretion of the RPM. Attendees normally include regulators and stakeholders. To the extent possible, it is recommended to schedule project meetings during times when the contractor's staff are already visiting [insert location] for project-related duties. Teleconference meetings may also be necessary. The contractor is responsible for agendas and minutes of all meetings as described below.

**5.2.3 Meeting Agendas.** The contractor will provide an agenda, via e-mail, no less than [insert number] days prior to any meeting to participants identified by the RPM. For meetings involving review of a deliverable, include a brief synopsis of the latest comments and recommendations for the deliverable.

**5.2.4 Meeting Minutes.** The contractor will provide invited participants written meeting minutes within [insert number] days after the meeting.

## **6.0 SUBMITTALS AND CORRESPONDENCE**

**6.1 Format for Reports.** The final SI Report shall consist of a black and white master adequate for printing and copying on 8 1/2" X 11" paper size. It is permissible to use foldout sheets as long as the eleven-inch vertical dimension is retained. Maps should be in color to easily distinguish the various features, however, the contractor must ensure

that critical data are not lost if the map is reproduced in black and white. All draft and final submittals must be letter quality; all pages must be numbered with chapter number followed by page number (1-1, 1-2, 1-3, 2-1, 2-2, 2-3, etc.). Appendix documentation submittals must be letter quality with all pages numbered (A-1, A-2, B-1, B-2 etc.).

**6.2 Administrative Record File (ARF).** The contractor will not establish or maintain an ARF during this phase of the project, however, all documents will be prepared and indexed for inclusion in the ARF should the project proceed to the RI phase.

**6.3 Electronic Data Deliverables.** The electronic version/file of the preliminary/internal draft, draft, and final after comments are addressed shall be submitted in both A) the native format, which Navy prefers be a Microsoft product, and B) Adobe Acrobat .PDF (or compatible) format. The .PDF version of all final deliverables (other than raw analytical and databases) must be a complete, mirror image of the hardcopy, and include appendices, maps, signature pages, etc. At completion of the project with the final report submittals, the contractor will provide an electronic deliverable with a copy of all reports, meeting minutes, responses to comments, correspondence, point papers, maps and map databases, and briefings. All electronic submittals will be certified "virus free" and include the statement "virus free" on the disk or transmittal message. The contractor shall verify, with the RPM, the appropriate data management requirements and electronic data deliverables.

**6.4 Spatial Data Standards.** Spatial data such as maps, CADD drawings, aerial photos, etc. may be required in support of the project. All CADD and Geographic Information Systems (GIS) graphics deliverables shall be compliant with the latest Navy and DOD spatial data requirements i.e., Naval Installation Restoration Information Solution (NIRIS) Non-NEDD Deliverable Submittal Guidelines SOP).

**6.5 GIS Deliverables.** Any project related spatial data including maps, models and associated collected or created outside of NIRIS, must be submitted back to NIRIS according to the NIRIS Non-NEDD Deliverable Submittal Guidelines SOP. This would include geophysical data, anomalies, ordnance related items found during the investigation, positively identified MEC, and environmental sample locations.

**6.6 Review Comments.** Deliverables shall contain a "Response to Comments" (RTC) table indicating how each comment was addressed. The contractor shall not incorporate Government review comment response(s) into the SI Report unless the RPM indicates that the contractor's response appropriately addresses the Government comments during comment resolution period.

**6.7 Public Affairs.** The contractor shall not disclose any data resulting from actions in this contract to the news media, the public, regulatory agencies, or any other non-project-involved personnel. The contractor shall refer all press or public contacts to the RPM. The contractor may not distribute reports or data to any other source, unless specifically authorized, in writing, by the Public Affairs Officer in accordance with NAVFAC Instruction 5720.10A. All project-related materials become permanent property of the United States Government.

**6.8 Submittals.** The contractor shall forward all deliverables to the RPM for distribution to Installation/Activity and regulatory POCs unless otherwise directed. A copy of the deliverable transmittal letter shall also be forwarded to the Contract Specialist (CS). The contractor will provide cover letters for deliverables intended for regulatory agencies, customer review, etc. as appropriate.

**6.9 Distribution.** Deliverables must be approved by the RPM prior to distribution (see Table 2).

[complete Table 2]Table 2

Deliverable	# of Hard Copies/Disks			Due Date
	RPM	Activity/Installation	Regulatory/Other	
<b>MEETINGS</b>				
Kick-off				2 weeks from award
Initial Project Meeting				30 days from award – TBD by RPM
Additional Meetings				TBD by RPM
<b>SI WORK PLANNING DOCUMENTS</b>				
Project Schedule	1/1	0/0	0/0	2 weeks from award
Draft Work Plan	0/3	0/0	0/0	30 days from award
Gov't comments				1 week
Draft Final Work Plan				
All review comments				
Final Work Plan	1/1	1/1	0/0	1 week
Draft Survey/Sampling Design	1/1	1/0	1/0	60 days from award
Gov't comments (SAP, SOP, etc.)				30 days (after receipt)
Final Survey/Sampling Design	1/1	1/0	1/0	120 days from award
<b>SI REPORT</b>				
Draft SI Report	1/1	1/1	0/0	180 days from award
Navy Review/comment				200 days from award
Draft-Final SI Report	1/1	1/1	1/1	220 days from award
All Review/Comment				250 days from award
Final SI Report	2/2	1/1	1/1	280 days

				from award
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## 7.0 SPECIAL CONDITIONS

**7.1** The contractor will obtain written approval from the appropriate installation personnel [insert location and phone number] prior to obtaining photographic records, still or motion picture, and aerial or ground photographs; in accordance with Public Law 18 U.S. Code 795 and applicable Station Regulations. The Government may provide a representative to act in an advisory capacity to prevent unauthorized disclosure of classified information.

**7.2** Any oral directions, instructions, explanations, commitments and/or acceptances given by any government employee to the contractor, shall not be construed by the contractor as a change in scope to this delivery order. Any change in scope of work must be issued to the contractor, in writing, by the Contracting Officer in order to be binding to the government.

**7.3** The contractor's project manager shall notify the RPM, in writing (email acceptable), when each work element is about to commence. The contractor shall, as a minimum, brief the RPM once per month, in writing, as to the progress and status of project operations.

**7.4** The contractor shall provide copies of all project correspondence to the RPM as well as synopses of all phone conversations with regulators in a timely manner. The RPM is to be copied on all electronic correspondence with FEC and Installation/Activity representatives, and others as appropriate and as requested by the RPM.

**7.5** The Government reserves the right to review the resumes of and interview contractor employees performing under the contract solely for the purpose of ascertaining their qualifications relative to the personnel qualifications required for execution of the work. Accordingly, the contractor shall furnish such resumes to the CO upon request.

**7.6** The contractor shall organize, furnish, maintain, supervise, and direct a work force, which, within the limitations of the provisions of the contract, is thoroughly capable and qualified to effectively perform the work set forth in this delivery order. The contractor will ensure that personnel have been appropriately trained for the tasks and duties assigned. The contractor will maintain and provide upon request, records of training and qualifications of individuals involved in the project.

**7.7** The contractor and his employees and subcontractors shall become familiar with and obey installation regulations, including fire, traffic, and security regulations. Contractor personnel employed on the installation shall keep within the limits of the work (and avenues of ingress and egress), and shall not enter restricted areas unless required to do so and are cleared for such entry. The contractor's equipment shall be conspicuously marked for identification.

**7.8** Identification badges and vehicle passes will be furnished without charge; application for and use of passes will be specified by [insert Installation/Activity ] Installation Security when issued. Immediately report lost or stolen passes to [insert Installation/Activity ] Installation Security and, in writing, to the CS and RPM. Issuance to be coordinated through the RPM. No employee or representative of the contractor will be admitted to the installation unless the employee or representative furnishes satisfactory proof of United States citizenship, or is specifically authorized admittance by the government.

**7.9** The contractor shall be responsible for obtaining permission and clearance from the appropriate Navy or Marine Corps Security Personnel, including EOD, to enter and perform the required field survey. The contractor shall schedule the field survey with the installations operational and environmental representatives, the RPM and other key personnel.

## **8.0 REFERENCES**

References: (Include the latest version of the applicable documents below)

- NAVSEA OP-5, Vol. 1, Seventh Revision, "Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation and Shipping".
- OPNAV INSTRUCTION 8020.15A/MCO 8020.13A, "Explosives Safety Review, Oversight, And Verification of Munitions Responses", (Feb 2008)
- NOSSA Instruction 8020.15B (or Marine Corps Equivalent), "Explosives Safety Review, Oversight, And Verification of Munitions Responses"
- DoD Explosives Safety Board (DDESB) Standard 6055.09-STD
- DDESB Technical Paper Number 18, dated December 2004
- Marine Corps Order P 8020.10A, "Marine Corps Ammunition Management and Explosives Safety Policy Manual" (for work perform at USMC installations)
- Automated Quality Assessment Planning System (AQAPS) outline reports for Preliminary Assessments
- Automated Quality Assessment Planning System (AQAPS) CD.
- PA report or Archives Search Report of installation
- Department of the Navy Environmental Restoration Program Manual, August 2006
- Range Identification and Preliminary Range Assessment
- Environmental Impact Study
- Environmental Impact Statement
- Installation Comprehensive Land Use Plan
- Installation Master Plan
- IRP Initial Assessment Study/Preliminary Assessment and other IRP reports related to the site
- Environmental Baseline Survey or Environmental Condition of Property
- Integrated Natural Resources Management Plan

- Military Munitions Rule [Federal Register: February 12, 1997 (Volume 62, Number 29)]
- DoD Policy to Implement the EPA's Military Munitions Rule (July 1, 1998)
- DODD 4715.11E, Environment, Safety, and Occupational Health (ESOH) (March, 2005)
- Handbook on the Management of Munitions Response Actions, USEPA (Draft Final May 2005)
- Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA Section 120 (h) 42 U.S.C. Section 9620) and as amended by the SARA of 1986
- Community Environmental Response Facilitation Act (CERFA), Public Law 102-426 (Oct 19, 1992)
- DoD EDQW Guide for Implementing EPA SW-846 Method 8330B
- The National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Part 300, Chapter 40, CFR
- USACOE, Military Munitions Center of Expertise, Technical Update for Munitions Constituents (MC) Sampling, March 2005
- USACOE, Conceptual Site Models for Ordnance And Explosives (OE) and Hazardous, Toxic, And Radioactive Waste (HTRW) Projects, Feb 2003
- USACOE, MEC Detection, Recovery, And Disposal Technology Assessment Report, Dec 2005
- USACOE, Military Munitions Response Actions, June 2007
- USACOE, Implementation of Incremental Sampling (IS) of Soil for the Military Munitions Response Program, Interim Guidance 09-02, July 20, 2009
- USEPA, OERR, Guidance for Performing Preliminary Assessments under CERCLA, Publication 9345.0-01A (Sept. 1991)
- USEPA, Improving Site Assessment: Abbreviated Preliminary Assessments, Publication 9375.2-09FS (October 1999)
- USEPA, OERR, Guidance for Performing Site Inspections Under CERCLA, Directive 9345.1-05 (September 1992)
- USEPA, OERR, Improving Site Assessment: Combined PA/SI Assessments, Directive 9375.2-10FS, Quick Reference Guide Series (October 1999)
- USEPA Federal Facilities Remedial Preliminary Assessment Summary Guide, July 21, 2005
- USEPA Federal Facilities Remedial Site Inspection Summary Guide July 21, 2005
- USEPA SW 846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Method 8330B Nitroaromatics, Nitramines and Nitrate Esters by High Performance Liquid Chromatography and Method 8321A Solvent Extractable Nonvolatile Compounds by High Performance Liquid Chromatography/Thermospray/Mass Spectrometry (HPLC/TS/MS) or Ultraviolet (UV) Detection
- USEPA Uniform Federal Policy for Quality Assurance Project Plans Manual, March 2005
- NAVFAC Uniform Federal Policy –Sampling and Analysis Plan Template, (See your FEC QA POC for the latest version)

- NAVFAC MEC UFP-QAPP template, (Latest version posted on the MR Portal at [www.ert2.org/t2mrportal](http://www.ert2.org/t2mrportal))
- Adak MEC UFP-QAPP example, (Posted on the MR Portal at [www.ert2.org/t2mrportal](http://www.ert2.org/t2mrportal))

The Navy will make available for in-house review and/or photocopying, where available, existing or completed environmental surveys or SI reports.

The Navy will provide, where available, applicable regulatory agency reports, notices of violation or noncompliance, federal/state agreements, current and/or discontinued permits pertaining to environmentally regulated activity or other similar records.

The Navy will provide an installation map of the subject property on request.

**9.0 DEPARTMENT OF THE NAVY POINTS OF CONTACT**

**Remedial Project Manager (RPM):**

Name:  
 Address:  
 Phone:  
 Fax:  
 Email:

**Contract Specialist (CS):**

Name:  
 Address:  
 Phone:  
 Fax:  
 Email:

**Activity/Installation Point of Contact (POC):**

Name:  
 Address:  
 Phone:  
 Fax:  
 Email:

**10.0 PERSONNEL QUALIFICATIONS**

The contractor shall have UXO technicians having varying levels of UXO expertise to perform the work under this task order. The minimum qualifications for UXO-qualified personnel are listed below (*from the DDESB TP-18 Table 4.1*).

**DDESB TP-18 Table 4.1. Minimum Qualification Standards**

<b>Position Description</b>	<b>Training Required (Notes 1, 2, &amp; 3)</b>	<b>Minimum Years of EOD/UXO Experience (Note 4)</b>	<b>Special Requirements (Note 5)</b>
Senior UXO Supervisor	1, 2, or 3	10 years	Significant experience in all aspects of munitions response actions or range clearance activities, as appropriate for the contracted operation. Five years experience in supervisory positions.
UXO Safety Officer	1, 2, or 3	8 years	Experience in all phases of munitions response actions or range clearance activities, as appropriate for the contracted operation, and applicable safety standards.

UXO Quality Control Specialist	1, 2,3	8 years	Experience in all phases of munitions response actions or range clearance activities, as appropriate for the contracted operation, and the transportation, handling and storage of munitions and commercial explosives.
UXO Technician III	1, 2 or 3	8 years	Prior military EOD and/or commercial UXO experience in munitions response actions or range clearance activities, as appropriate for the contracted operation.
UXO Technician II	1 or 2 -----or----- 3	N/A -----or----- 3 years	Prior military EOD experience -----or----- Experience in response munitions response actions or range clearance activities, as appropriate for the contracted operation, plus specific project/explosives safety training.
UXO Technician I	3	0	Successfully completed formal course of instruction appropriate to this skill level.
UXO-Sweep Personnel	Equipment and site specific training	N/A	Safety equipment and site specific training. (Experience at this position is not required for UXO Technician I certification.)

**Notes:**

1. Graduate of a military EOD School of the United States.
2. Graduate of a military EOD school of Canada, Great Britain, Germany, or Australia.
3. Graduate of a formal training course of instruction (see chapter 3 for detailed requirements) or EOD assistant courses.
4. Personnel working in the commercial industry may have significant breaks between jobs. Only actual time performing UXO-related tasks should be counted. (2080 hours = 1 man-year)
5. Divers conducting underwater detection and identification of munitions must have completed both the basic and the underwater portions of NAVSCOLEOD (or foreign equivalent) training.

**11.0 PERIOD OF PERFORMANCE**

[Insert the start and end date of the delivery order]

**12.0 BID SCHEDULE**

[Insert the bid schedule]