452-19

DEPARTMENT OF THE ARMY
Office of the Assistant Chief of Staff for Installation Management
BRAC Division
Seneca Army Depot, Seneca, NY

MEMORANDUM FOR RECORD 17 May 2017

SUBJECT: Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115, SEAD 45) at Seneca Army Depot

1. This memorandum serves as formal documentation of the information used to develop the Cost-To-Complete (CTC) estimate for site SEAD-006-R-01 during the 2017 data call. Estimators experience is documented on the Estimator Experience Form, enclosure 7, per the Federal Accounting Standards Advisory Board (FASAB) Handbook Technical Release 2. This site also encompasses SEAD-023 (OB Grounds). Well Abandonment costs including site closeout were estimated using costs from the FY11 contract W912DY-08-D-0003, Task Order 0008; 6 wells @ $31,398= $5,223, and closeout report, $18,206.00. These costs were escalated to FY16 in the FY16 CTC. These costs were escalated from FY16 to FY17 using the FY17 escalation factor in the 3 April 2017 Data Call Memorandum. The technical and project management oversight costs were estimated using the hourly rates in the FY17 Data Call Memorandum. Seneca Army Depot Activity is in the "other US" areas and additional locality adjustment is not required. The SEAD-23 monitoring program, which was initiated in 2007 under this project, will be carried under the RI/FS phase until completion of the remediation. It is assumed six additional wells will be installed at SEAD 006-R-01 for additional GW monitoring at the site as part of a LTM plan. Contract W912DY-10-D-0014 Delivery Order 5, (Enclosure 5) provides the cost of the Long Term Monitoring Plan, well installation, first year monitoring cost, and out year monitoring cost. The cost for the GW monitoring during the RI/FS phase for SEAD 23 is provided by contract W912DY-0-D-0062 Delivery Order 0023 task 0003a. (Enclosure 6) and the requirement for testing is established in the ROD for the OB Grounds (Enclosure 2). It is assumed that after the completion of the remediation, monitoring GW for SEAD-006-R-01 will require sampling at a quarterly interval for the first year and then semi-annually in subsequent years for cap inspection and effectiveness. It is further assumed that the monitoring efforts at SEAD 23 will continue as part of the overall project (Enclosure 6). After the remediation is completed the monitoring will be carried out under the LTM phase. Due to EPA's disagreement with the planned IRA to include a cap, and due to the Army's agreement with Land Use Controls for munitions sites, the FS will be finalized and a ROD signed for the final remediation. It is assumed that the final remediation will be accomplished with funding provided in prior years. Contract W912DY-10-D-0014 Delivery Order 5, Enclosure 5, was terminated for convenience. Funding remains for the final remediation. This included the contract cost for

the cap alternative. It was assumed the first 5 year review will occur in 2021, this may need to be in 2026 given ROD signature and completion of remediation in 2019. The Owner Support for RA is S&A for the remedial action, which was postponed due to the ROD. This cost is shown in FY2019.

2. **Site History**: The Army destroyed ammunition by detonation and open burning at this site, which was in operation from 1948 through 1998. The OB ground consists of elevated burning tray. The site is in the northwest portion of the installation and covers 364 acres. The investigation of this site revealed contamination consisting of ordnance and explosives (OE) and heavy metals. This is a RCRA interim permitted site. This site also encompasses SEAD-023, OB Grounds, where a CERCLA remediation was completed in 2003.

3. **Current Site Status:**
    a. The cleanup strategy includes the ongoing removal of all munitions potentially posing an explosive hazard from the outer perimeter of the site at approximately 2500 feet, inwardly to the proposed 8 acre landfill cap. The work from 2500 feet to 1000 feet is underway through a Removal Action. The preferred FS Alternative has been to consolidate all soil that contains HTRW contamination will be placed under the cap. The cap will comply with State Regulatory standards. Soil under the cap will not have ordnance removed prior to the capping.
    b. Groundwater will require annual testing until results demonstrate cleanup criteria.
    c. EPA raised numerous concerns on MPPEH and disagrees with the cap alternative. A large amount of the <1000 feet radius was geophysically mapped and MPPEH removed. EPA has disagreed with the cap only alternative and has taken the position of removal of one foot and geophysics to three feet below this point on the entire site similar to the Umatilla site ($47M). The Army position is surface sweep is adequate for this site for the known future use of restricted access conservation. Higher level discussions are occurring and other alternatives are being considered. To address EPA's concerns, final remediation alternatives are to be evaluated using MMR LUCs, the Open Burning Grounds ROD as a precedent for HTRW soils (only), cap with slurry wall, mechanical separation, and soil stabilization.

4. **Exit Strategy**:
LTM includes Cap Maintenance, GW monitoring, LUCs, Five-Year reviews, and site closeout effort. MMR LUCs will be critical to final agreement on remediation.

For cost estimating purposes, the LTM duration as indicated in the phase schedule extends only to the end of the second five-year review; however, LTM is anticipated to continue in perpetuity.

5. **Enclosures**:

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

1. Draft Final Feasibility Study Report for Open Detonation Grounds Munitions Response Action, Parsons, April 2013
2. Final Record of Decision Former Open Burning Grounds Site, January 1999
3. Final Long Term Monitoring Plan for Open Burning Grounds, January 2007
4. Performance Work Statement for Contract W912DY-10-D-0014, DO #5
5. Contract W912DY-10-D-0014, Delivery Order #0005, DTD Nov 24, 2011
6. Final 2011 Long Term Monitoring Annual Report for the Open Burning Grounds, May 2013; Contract W912DS-09-D-0062 TO 0023; Escalation Rates.
7. Estimator's Experience Sheet, Environmental Liabilities training
8. Estimate Summary Table
9. Engineering Estimate for Site Closeout and Well Abandonment

6. Engineering Estimate Assumptions:

Site Closeout Documentation (LTM):

1. Site Closeout is moderate complexity
2. Kick-off, review and regulatory meetings
3. Work Plans and reports - all default values
4. Documents will be stored for 30 years

Well abandonment (LTM):

1. Number of wells: 12
2. Well depth: 15 feet
3. Well diameter: 2 inches
4. Formation type: Unconsolidated
5. Method: Overdrill/excavation

Five year MPPEH & CERCLA review

1. Review cycles (SEAD 006-R-01 and SEAD 23 combined)
2. Five year review cycle starts 2016 for SEAD 23
3. Five year review cycle starts 2021 for SEAD 006-R-01 and SEAD 23 combined
4. Site is moderate complexity
5. Reports, reviews, interviews and site inspections include all default parameters
6. MEC review included

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

7. Cost Summary SEAD-006-R-01 (SEAD-115/45)

Long Term Monitoring Plan preparation (enclosure 5) $23,333.12 (rounded to $23,334)	$ 23,334	
Install 6 and Monitor 12 GW wells quarterly 1st year, 2016 (source 5) $160,509.05 (rounded to $160,510	$160,510	
For years 2017-2045, Monitor 12 GW wells, semiannually x 29 years (source 5) $49,663.35X29= $1,440,237.15 (rounded to $1,440,237)	$1,440,237	
Subtotal RA(O) =	$1,624,081	
X FY17 Escalation Factor $1,624,081 x 1.0338= $1,678,974.94 (Rounded, $1,678,975)		**$1,678,975**

Assumption:

Owner Support for GW Monitoring (Source 4) **11% of total LTM Cost** ($184.50 X 980 Hours = $180,810.00 (Rounded $180,810)		**$180,810**
Owner Support for RA (Source 4) **11% of total LTM Cost** ($184.50 X 851 Hours = $157,009.50 (Rounded $157,010)		**$157,010**
Six five-year reviews for SEAD-23 and SEAD-006-R-01 (Starting in FY17) and Well Abandonment & Site Closeout (see Engineering Estimate) Cost $293,594.73 (Rounded, $293,595)		**$293,595**
Total Cost		**$2,310,390**

The cost to complete sum in the EST is rounded to $2,311K.

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

Material Change: The CTC for FY16 was $2,092,515 the CTC for FY17 is $2,310,390. The calculated percentage change was 6.8%. The Material Change was 6.8% (Rounded 7%).

Material Change = absolute value of (indexed prior year CTC – current CTC – current obligations)/indexed prior year CTC

MC = (($2,092,515 * 1.0338) – $2,310,390 – 0) / ($2,092,515 * 1.0338) = 6.8%

Prepared by: Randall Battaglia
Cost Estimator

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Signature Date

Reviewed by: Bill Millar
Cost Estimate Reviewer

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Date: 2017.09.27 09:18:48 -04'00'

Signature Date

ENCLOSURE 1

DRAFT FINAL

FEASIBILITY STUDY REPORT

Site

for

OPEN DETONATION GROUNDS MUNITIONS RESPONSE ACTION

SENECA ARMY DEPOT ACTIVITY
ROMULUS, SENECA COUNTY, NEW YORK

Prepared for:

U.S. Army Engineering and Support Center, Huntsville

and
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared by:

PARSONS
100 High Street
Boston, MA 02110

Contract Number W912DY-08-D-0003
Task Order No. 0013
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

APRIL 2013

ENCL 1

3.0 DEVELOPMENT AND SCREENING OF ALTERNATIVES

3.1 INTRODUCTION

This section summarizes the remedial action alternatives that were developed from the technologies screened in Section 2.0. Prior to the development of alternatives, an evaluation of general response actions and a technology screening was performed for inclusion into proposed remedial action alternatives for the OD Grounds. Technologies were combined into alternatives considering potential waste-limiting and site-limiting factors unique to the OD Grounds and the level of technical development for each technology. This information was used to differentiate alternatives with respect to effectiveness and implementability. This FS focuses on identifying and evaluating alternatives for the OD Grounds.

3.2 DESCRIPTION OF ALTERNATIVES

The following remedial action alternatives were developed for the OD Grounds:

- Alternative 1: NFA
- Alternative 2: Geophysical mapping, intrusive investigation, capping, LUCs; and
- Alternative 3: Geophysical mapping, intrusive investigation, excavation, off-site disposal, and LUCs.

Remedy

Technologies and processes associated with these actions were assembled into remedial action alternatives.

3.2.1 Alternative 1, No-Further Action

Alternative 1 is the no further action alternative. CERCLA and NYSDEC guidance for conducting feasibility studies recommends that the no-action alternative be considered against all other alternatives.

The no further action alternative would leave the OD Grounds undisturbed with the continuation of existing site security measures, such as locked gates, to prevent civilian access and direct contact with contaminated soil and possible exposure to potential MPPEH.

3.2.2 Alternative 2, Geophysical Mapping/Intrusive Investigation/Capping/LUCs

This alternative would complete the MPPEH clearance in areas that were not previously cleared by previous investigations. In the open and accessible areas, previously identified anomalies will be reacquired and removed. In areas that are wooded or inaccessible and were not previously cleared, mag and dig operations will be completed using a handheld magnetometer, such as a Schonstedt. In accessible areas that were not previously mapped (0 – 1,000 foot radius), DGM surveys will be conducted using EM61s over approximately 60 acres in the area surrounding the OD Hill. The newly mapped areas will be designated in two different categories:

1. metals saturated areas where the high density prohibits individual anomalies from being identified and manually removed (0 – 500 foot radius)
2. lower metals density areas where individual anomalies can be identified and manually removed (500 – 1,000 foot radius)

It is anticipated that metallic saturation (or a high density of potential MPPEH) will be encountered in areas located closer to the OD Hill (0 – 500 foot radius). At locations where the DGM survey indicates that there is metallic saturation, the top 6 inches of soil will be excavated. The soil will be screened to remove potential MPPEH, and the overburden will be staged on-site for potential reuse and/or incorporation into the site cap. The excavated area will then be resurveyed and the results of the DGM survey will be used to generate a dig list of target anomalies to be investigated. In the event that the results of the DGM survey indicate that areas are still saturated with metal an additional 6 inches of soil may be excavated, screened, and staged, as previously described, followed by a subsequent DGM survey of that area.

For the lower density metals areas, the anomalies on the generated dig list from the DGM surveys will be reacquired and intrusively investigated by a geophysicist and UXO dig team, in the same manner as the intrusive investigation in the Kickout area. A two-person UXO technician/ demolition team will perform any required MPPEH demolition procedures. The demolition team will dispose of any MPPEH suspected of containing explosives/spotting charges or inaccessible voids by detonation. All MD will be certified and disposed of as MDAS in accordance with current regulations.

The excavated soil that passed through the screen will be placed on the OD Hill and the resulting surface will be compacted and graded. An engineered cap, covering approximately 10 acres in aerial extent and approximately 75,000 cy (+/- 35%) of material, will be installed over the OD Hill and the surrounding area. The cap will comply with NYS Part 360 requirements. A geomembrane layer will be selected, and the total thickness of the cap will be at least 18 inches. Any identified soil with contaminant levels exceeding the selected soil cleanup goals would be incorporated under the cap. A design work plan will be prepared and the exact limits of the cap will be determined during the design phase of the project.

LTM would include maintenance of the cap and LUC inspections. Potential LTM of site groundwater conditions may be appropriate subsequent to the remedial alternative selected in this FS.

LUCs will be placed on the site to prohibit the use of groundwater, prohibit digging, and prevent the use of the site for use as a daycare or a residential facility.

Implementation of this alternative would be highly effective in achieving the RAOs, long-term effectiveness, preventing exposure, and implementability. The costs for this alternative are moderate.

3.2.3 Alternative 3, Geophysical Mapping/Intrusive Investigation/Excavation/Off-Site Disposal/LUCs

Alternative 3 is similar to Alternative 2, but this alternative would involve the excavation and off-site disposal of all soil containing MPPEH or contaminant concentrations that exceed cleanup goals in lieu of capping these soils. Similar to Alternative 2, reacquisition would be completed in the Kickout area. In areas outside of the OD Hill that are wooded or inaccessible and were not previously surveyed, mag and dig operations will be completed using a handheld magnetometer, such as a Schonstedt. In accessible areas that were not previously mapped (0 – 1,000 foot radius), DGM surveys will be conducted using EM61s over approximately 60 acres in the area surrounding the OD Hill. At locations where the DGM survey indicates that there is metallic saturation, the top 6 inches of soil will be excavated (estimate

Alternative 1 must be ruled out because it is ineffective in long-term permanence and does not achieve the RAOs. Overall, Alternatives 2 and 3 have similar levels of protectiveness, permanence, long-term effectiveness, and short-term effectiveness. They will both limit exposure to potential MPPEH or contaminated soil. Alternative 3 ranks slightly higher for reduction of toxicity, mobility, or volume due to the volume reduction of off-site disposal. Alternative 2 rates more favorably for implementability. Alternative 2 ranks better in terms of cost.

4.5 RECOMMENDED ALTERNATIVE

Based on a comparison of the criteria, the most effective remedy for the OD Grounds is Alternative 2, DGM Mapping, intrusive investigation, cap, and LUCs. Alternative 2 limits human exposure to potential MPPEH or soil contamination, is implementable using known techniques, and is cost effective. The capital cost for the alternative is $8.0M. The TPV is $8.9M. The total costs include $31,500 per year for LUC inspections and cap maintenance, plus $40,300 per five-year review over the 30 year period.

Recommended

ENCLOSURE 2

FINAL RECORD OF DECISION (ROD)
FORMER OPEN BURNING (OB) GROUNDS SITE
SENECA ARMY DEPOT ACTIVITY (SEDA)
ROMULUS, NY

Prepared For:
United States Army Corps of Engineers

Prepared By:
Parsons Engineering Science, Inc.
30 Dan Road
Canton, MA 02021-2809
January 1999
CONTRACT NO. DACA87-92-D-0022

Delivery Order 001

FNCL 2

The selected remedy outlined in this ROD addresses potential exposure to elevated le metals, such as lead, in the on-site soils and sediment in Reeder Creek. The following de the significant aspects of the remedy:

- The OB Grounds was used for surface burning of explosive trash and propellants. concern for OE below the surface, at depth, at this site is small. Although OE is not exp to be found at depth at this site, through a combination geophysics, excavation, si removal and soil cover, the Army will nevertheless remediate OE to meet the Departm Defense Explosive Safety Board (DDESB) requirements for unrestricted use or put place land use restrictions as may be required by the DDESB.
- Excavation of soils with lead concentrations above 500 mg/kg and sediments from Re Creek with concentrations of copper and lead above the NYSDEC criteria of the 16 m and 31 mg/kg, respectively.
- Treatment of soils exceeding the Toxicity Characteristic Leaching Procedure (TC estimated to be approximately 3,800 CY of the excavated soil, via solidification /stabiliza will be performed to remove the RCRA characteristic of toxicity. This will allow the so. be landfilled, in accordance with the requirements of the Land Disposal Restrictions (LI of RCRA.
- Disposal of the excavated and solidified soil in an off-site Subtitle D landfill. The t quantity of soil to be disposed of is estimated to be 17,900 CY, including the 3,800 CY solidified soil.
- Construction of a soil cover of at least 9 inches of compacted soils in the areas of the (Grounds with soils remaining on the site with lead concentrations above 60 ppm. The area be covered is estimated to be approximately 27.5 acres, which encompasses most of the ar of the OB Grounds. The PRAP incorrectly identified the area to be covered as 43.8 acre The cap will be vegetated with indigenous grasses to prevent erosion and to prevent dire contact and incidental soil ingestion by terrestrial wildlife. The monitoring program w ensure that the 9-inch soil/vegetative cover is maintained after the remedy is complete.
- Control of surface water runoff, as necessary, to prevent erosion of the vegetative cover ar solids loading to the creek. This will be accomplished with vegetation, regrading of sit topography and drainage swales.
- Conducting a monitoring program for site groundwater and sediment in Reeder Creek. This program will monitor metals. For groundwater, the level of detection will be to below 15 ug/L, the federal action level for lead in groundwater. For sediment, the detection limit for lead will be to 10 mg/kg. Should a significant exceedance be noted, the exceedance will be

will be implemented to eliminate the threat posed by the exceedance. For groundwate action may include metals removal via filtering. A similar process will apply for a sed. exceedance observed in Reeder Creek. First, the source of the exceedance will be ider and confirmed. If the exceedance is determined to originate from the OB Grounds site, maintenance of or improvements to the existing erosion control systems will be institut reduce the threat due to erosion of on-site soils to the Creek. This may include revegeta or the construction of drainage control swales or structures.

STATE CONCURRENCE

NYSDEC has concurred with the selected remedy. Appendix B of this Record of Dec contains a copy of the Declaration of Concurrence.

DECLARATION

The selected remedy is consistent with CERCLA and to the extent practicable the NCI protective of human health and the environment, complies with federal and state requirem that are legally applicable or relevant and appropriate to the remedial action, and is effective. The remedy uses a permanent solution for soil contamination. This remedy will result in hazardous substances, above cleanup goals, remaining at SEDA. Because th alternatives would result in hazardous substances, pollutants or contaminants remaining on-s above levels that allow for unlimited use and unrestricted exposure, CERCLA requires that lead agency review the remedial action no less than every five years after its initiation, justified by the review, remedial actions may be implemented to remove or treat the wastes.

Performance Work Statement
Remedial Action
Seneca Army Depot Activity (SEDA)
Open Detonation Ground
Romulus, New York
22 Nov 2011

– Project Site

1.0 OBJECTIVE: The objective of this task order is to design and complete the installation of a NYS Part 360 landfill cap to inter hazardous soils at the Seneca Army Depot Activity (SEDA) in Romulus, New York. Additionally, the Contractor shall perform other activities in support of the landfill construction to include additional investigation and Long Term Monitoring at the site. All activities shall be performed in compliance with CERCLA and Department of Defense, Army, and USACE Regulations and Guidance to include Interim Guidance and Data Item Descriptions (DID's). The subject site is considered a Munitions Response (MRS) and Hazardous, Toxic and Radiological Waste (HTRW) site.

This task order shall be conducted pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and National Oil and Hazardous Substances Contingency Plan (NCP) requirements, with regulatory coordination, as appropriate, of the New York Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) Region II.

2.0 BACKGROUND

2.1 Work under this Performance Work Statement (PWS) falls within the Military Munitions Response Program (MMRP) for the Open Burn/Open Detonation Ground Area of Concern (AOC) at Seneca Army Depot located in Seneca County, NY. The AOC consists of 365 acres and was used to perform open detonation and open burning of munitions.
Of particular concern for this effort is an area of approximately 18 acres with potential ancillary needs over a wider area than the actual landfill cap construction. The contractor will complete all actions necessary to meet CERCLA requirements and achieve acceptance of the required designs and construction so the parcel can be closed out.

This requirement involves a legacy BRAC-funded, Military Munitions Response Program (MMRP) site (Munitions Response Site or MRS). The Department of Defense (DoD) established the MMRP under the Defense Environmental Restoration Program (DERP) to address unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) located on current and former military installations. The Contractor shall perform all work in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP), 40 CFR Part 300. Any activities involving work in areas potentially containing explosive hazards shall be conducted in full compliance with United States Army Corps of Engineers (USACE), Department of the Army (DA), and Department of Defense (DOD) regulations.

3.0 GENERAL REQUIREMENTS:

3.0.1 Contractor Methods: This is a performance based task order. The performance objectives and standards included herein are the basis of the task order requirements. The technical approach and level of effort expended to achieve task order objectives and standards are solely up to the contractor to select and adjust as necessary through the life of the task order. Government recognizes the contractor's right to change the technical approach and level of effort from that proposed with the understanding that the contractor shall still meet all project objectives and gain government Quality Assurance acceptance in order to receive payment. Given the short time available during the pre-award phase to evaluate the site it is possible that after award and refinement of the conceptual site model and data needs that the contractor will wish to adjust the investigation strategy. If before the field work begins, an adjustment in the quantities or types of field investigations are required to achieve the performance standard or the Government determines that the performance standard must be adjusted the Government at its discretion may choose to modify the contract with the price adjustment based upon the prorated unit prices proposed in the accepted proposal. Once these adjustments are complete the contractor shall be obligated to deliver the required

ENCL 4

Task specific **Incentives/Disincentives**: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- All UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.
- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

SOW PLAN

3.6 Task 6, **Preparation of A Long Term Monitoring Plan**. This is a Firm Fixed Price task.
Objective: The Contractor shall prepare, submit and gain acceptance of a Long Term Monitoring (LTM) Plan for the monitoring of groundwater and the management of the installed cap. Groundwater monitoring shall be based upon the six existing wells and the installation of another six wells. The Contractor shall assume an average depth of 15 feet per well.

Performance Standard: Prepare the plan in accordance with DID WERS-001 and EM 1110-1-4009, EM 385-1-1 and EM 385-1-97. Prepare the sampling and analysis plan, field sampling, and UFP-QAPP in accordance with EM 1110-1-4009, DID WERS-009.01, and UFP-QAPP, as appropriate. UFP-QAPP content shall also meet the requirements of DoD Quality Systems Manual for Environmental Laboratories (current version). Draft QASP includes requirements in regulations, guidance, DIDs and the Quality Control Plan in the WP.

AC: Acceptance of LTM Plan and UFP-QAPP with two revisions. Draft QASP reflects requirements and QCP with one revision required.

Measurement / Monitoring: Review of LTM Plan, UFP-QAPP and QASP per guidance to verify that the minimum acceptable content has been provided and acceptance by the project team and regulatory agencies.

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements: The sampling and analysis plan (SAP) shall include the Contractor's phased approach and address contaminants of interest and sample media (soil/groundwater/sediment/surface water). The Contractor shall provide a discussion on data evaluation.

3.7 Task 7, **Performance of Long Term Monitoring**. This is a Firm Fixed Price task.
Objective: Following regulatory approval of the Long Term Monitoring Plan prepared under Task 6, the Contractor shall implement the LTM plan and perform monitoring of the ground water and management of the installed cap. The Contractor shall provide all the labor, material and equipment required to install ground water monitoring wells required in the approved plan. As part of this task, the contractor shall perform one year of Long Term Monitoring on a quarterly basis. The effort will also include submission and approval of Long Term Monitoring reports presenting a description of the effort performed, the results achieved and recommendations for the next period of monitoring.

SOW GW monito 1ST yea

Performance Standard: Field work, data quantity and quality, and analysis of said data provides the results required to meet approved plans and be acceptable to the regulators.

- Demonstrate that the work was performed in accordance with the applicable laws, regulations, and guidance

documents;

- Perform the field sampling activities in accordance with the accepted Work Plans (prepared previously)/ LTM

Plan.

- Proper processing and disposition of any UXO, DMM and MC encountered in accordance with approved Work

Plan(s).

- Any Material Potentially Presenting an Explosive Hazard (MPPEH) and munitions debris processed in accordance with Chapter 14, EM 1110-1-4009 and Errata Sheet No. 2.

- Meet the project DQOs.

MC: Conduct the field activities in accordance with the accepted/approved LTM Plan. QC data submitted meets LTM Plan requirements. No more than 3 CARs for non-critical violations and/or 1 CAR for critical violations. No unresolved Corrective Action Requests. All final data and QC tests/documentation submitted. Government QA acceptance QC tests/documentation gained. No Class "A" Safety, contractor at fault, violations during execution of work. "1 non-explosive related Class D, accidents, or <2 non-explosive Class C accidents IAW AR 385-40. Major safety violations, 1 non-explosive related safety violation. Minor safety violations, 2 safety violations. Zero letters of reprimand, grievances, or formal complaints.

Measurement / Monitoring: Period inspection/review of field work. Verify compliance with accepted LTM Plan and other Plans as required. Quality control tests/documentation submitted per the QASP for government review. Boundary precision will be determined by evaluation of the sampling footprint as it relates to the reported contaminated/ uncontaminated areas in question.

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- Any UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.

- Hazardous, Toxic and Radiological Waste (HTRW) Disposal: The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

3.8 Task 8, Performance of Additional Long Term Monitoring (Optional). These are Firm Fixed Price tasks. Objective: If awarded, the Contractor shall provide additional LTM for the site and perform monitoring of the ground water and management of the installed cap. As part of this task, the contractor shall perform Long Term Monitoring on the basis requested as part of the individual options. The effort will also include submission and approval of Long Term Monitoring reports presenting a description of the effort performed, the results achieved and recommendations for the next period of monitoring.

soil GW monit Optional year 2 +

Performance Standard: Field work, data quantity and quality, and analysis of said data provides the results required to meet approved plans and be acceptable to the regulators.

- Demonstrate that the work was performed in accordance with the applicable laws, regulations, and guidance

documents;

- Perform the field sampling activities in accordance with the accepted Work Plans (prepared previously)/ LTM

Plan

- Proper processing and disposition of any UXO, DMM and MC encountered in accordance with approved Work

Plan(s).

- Any Material Potentially Presenting an Explosive Hazard (MPPEH) and munitions debris processed in accordance with Chapter 14, EM 1110-1-4009 and Errata Sheet No. 2.

- Meet the project DQOs.

AQC: Conduct the field activities in accordance with the accepted/approved LTM Plan. QC data submitted meets LTM Plan requirements. No more than 3 CARs for non-critical violations and/or 1 CAR for critical violations. No unresolved Corrective Action Requests. All final data and QC tests/documentation submitted. Government QA acceptance QC tests/documentation gained. No Class "A" Safety, contractor at fault, violations during execution of work, 1 non-explosive related Class D, accidents, or <2 non-explosive Class C accidents IAW AR 385-40. Major safety violations, 1 non-explosive related safety violation. Minor safety violations, 2 safety violations. Zero letters of reprimand, grievances, or formal complaints.

Measurement / Monitoring: Period inspection/review of field work. Verify compliance with accepted LTM Plan and other Plans as required. Quality control tests/documentation submitted per the QASP for government review. Boundary precision will be determined by evaluation of the sampling footprint as it relates to the reported contaminated/ uncontaminated areas in question.

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- Any UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.
- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

3.8.1 Task 8.1, Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (2nd overall) year on a quarterly basis.

3.8.2 Task 8.2, Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (3rd overall) year on a quarterly basis.

3.8.3 Task 8.3, Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (4th overall) year on a semi-annual basis.

Monitoring done on a semi-annual Basis

3.9 Task 9, Performance of the Five Year Review (Optional). This is a Firm Fixed Price task.

Objective:

- If awarded, the Contractor shall provide an additional (5th overall) year of LTM for the site and perform

monitoring of the ground water and management of the installed cap on a semi-annual basis.

- If awarded, the Contractor shall perform the regulatory-required Five Year Review. This review shall include presentation and analysis of the five years of annual monitoring and maintenance activities and will include meetings, presentations, report preparation/ revision/ response to comments and recommendations for the future of the site.
- The Contractor shall prepare, submit and gain acceptance of the Five Year Review report which shall certify

that all items identified in the Work Plans and the LTM Plan have been completed.

Performance Standard:

- Field work, data quantity and quality, and analysis of said data provides the results required to meet approved plans and be acceptable to the regulators.
- Demonstrate that the work was performed in accordance with the applicable laws, regulations, and guidance

documents;

- Perform the field sampling activities in accordance with the accepted Work Plans (prepared previously)/

LTM Plan.

- Proper processing and disposition of any UXO, DMM and MC encountered in accordance with approved

Work Plan(s).

- Any Material Potentially Presenting an Explosive Hazard (MPPEH) and munitions debris processed in accordance with Chapter 14, EM 1110-1-4009 and Errata Sheet No. 2.
- Meet the project DQOs.
- Prepare report documents in accordance with the DIDS, the WP/LTM Plan and all applicable Federal, State and local regulations.

AC:

- Conduct the field activities in accordance with the accepted/approved LTM Plan. QC data submitted meets

LTM Plan requirements. No more than 3 CARs for non-critical violations and/or 1 CAR for critical violations. No unresolved Corrective Action Requests. All final data and QC tests/documentation submitted. Government QA acceptance QC tests/documentation gained. No Class "A" Safety, contractor at fault, violations during execution of work. 1 non-explosive related Class D, accidents, or <2 non-explosive Class C accidents IAW AR 385-40. Major safety violations, 1 non-explosive related safety violation. Minor safety violations, 2 safety violations. Zero letters of reprimand, grievances, or formal complaints.

- Acceptance of all report documents (with two revisions) by the Project Team and regulators.

Measurement / Monitoring:

- Period inspection/review of field work. Verify compliance with accepted LTM Plan and other Plans as required. Quality control tests/documentation submitted per the QASP for government review. Boundary precision will be determined by evaluation of the sampling footprint as it relates to the reported contaminated/ uncontaminated areas in question.
- Review of reports per guidance to verify that the minimum acceptable content has been provided.

Task specific **Incentives/Disincentives:** Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- Any UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.
- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

3.10 (Task 10) Project Management. The Contractor shall manage the task order in accordance with the basic contract statement of work. All project management associated with the task order, with the exception of the direct technical oversight of the work described in the preceding tasks, shall be accounted for in this task.

4.0 SUBMITTALS.

Even though draft and draft final submittals are requested, the term "draft" shall not reflect upon the quality of the submittal being provided by the Contractor. Submittals shall include all supporting materials including supporting data whether electronic or hardcopy. Submittals not meeting the requirements of referenced guidance or Data Item Descriptions or missing supporting data may be rejected and revised by the contractor at the contractor's own expense.

4.1 The Contractor shall deliver the specified number of copies shown in Table 4.2 of each report listed in Table 4-1 to the following addressees (addresses to be verified by Contractor):

ENCLOSURE 5

(contract
Delivery order

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 40

1. CONTRACT/PURCH ORDER/ AGREEMENT NO	2. DELIVERY ORDER/CALL NO.	3. DATE OF ORDER/CALL (YYYYMMDD)	4. REQ./PURCH. REQUEST NO.	5 PRIORITY
W912DY-10-D-0014	0005	2011 Nov 23	W91RY0132548S7	

6. ISSUED BY	CODE W912DY	7. ADMINISTERED BY (If other than 6)	CODE	8. DELIVERY FOB
US ARMY ENGINEERING & SUPPORT CENTER CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822		SEE ITEM 6		[X] DESTINATION [ ] OTHER (See Schedule if other)

9. CONTRACTOR	CODE 8X202	FACILITY 8X202	10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD)	11. MARK IF BUSINESS IS
NAME AND ADDRESS SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC WILLIAM WINKLER 312 DIRECTORS DR KNOXVILLE TN 37923-4705			SEE SCHEDULE 12. DISCOUNT TERMS Net30 Days	[ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED
				13. MAIL INVOICES TO THE ADDRESS IN BLOCK See Item 15

14. SHIP TO	CODE W912DY	15. PAYMENT WILL BE MADE BY	CODE 964145	
US ARMY ENGINEERING & SUPPORT CENTER NO CONTACT SPECIFIED CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822		US ARMY ENG & SUP CENTER - FINANCE OFFIC US ARMY CORPS OF ENGRS FINANCE CTR 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005		MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMDD)
Shaw E & I Inc	Stephen G. Moran	Stephen G Moran PGM/P Program Manager	2011 Nov 24

[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE

See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.

24. UNITED STATES OF AMERICA
TEL:
EMAIL:
BY: [signature] CONTRACTING/ORDERING OFFICER

25. TOTAL $5,460,010.54
26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
	[ ] PARTIAL [ ] FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
f. TELEPHONE NUMBER g. E-MAIL ADDRESS	31. PAYMENT		34. CHECK NUMBER
36. I certify this account is correct and proper for payment.	[ ] COMPLETE [ ] PARTIAL [ ] FINAL		
a. DATE (YYYYMMDD) b. SIGNATURE AND TITLE OF CERTIFYING OFFICER			35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO	42. S/R VOUCHER NO.

DD Form 1155, DEC 2001 PREVIOUS EDITION IS OBSOLETE.

ENCL 5

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 40

1. CONTRACT/PURCH ORDER/ AGREEMENT NO	2. DELIVERY ORDER/CALL NO.	3. DATE OF ORDER/CALL (YYYYMMMDD)	4. REQ./PURCH. REQUEST NO.	5. PRIORITY
W912DY-10-D-0014	0005	2011 Nov 23	W31RYO13254857	

6. ISSUED BY CODE W912DY	7. ADMINISTERED BY (If other than 6) CODE	8. DELIVERY FOB
US ARMY ENGINEERING & SUPPORT CENTER CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822	SEE ITEM 6	[X] DESTINATION [ ] OTHER (See Schedule if other)

9. CONTRACTOR CODE 8X202 FACILITY 8X202	10. DELIVER TO FOB POINT BY (Date) (YYYYMMMDD)	11. MARK IF BUSINESS IS
NAME AND ADDRESS SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC WILLIAM WINKLER 312 DIRECTORS DR KNOXVILLE TN 37923-4705	SEE SCHEDULE 12. DISCOUNT TERMS Net 30 Days	[ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED
	13. MAIL INVOICES TO THE ADDRESS IN BLOCK See Item 15	

14. SHIP TO CODE W912DY	15. PAYMENT WILL BE MADE BY CODE 964145	
US ARMY ENGINEERING & SUPPORT CENTER NO CONTACT SPECIFIED CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822	US ARMY ENG & SUP CENTER - FINANCE OFFIC US ARMY CORPS OF ENGRS FINANCE CTR 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005	MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR | SIGNATURE | TYPED NAME AND TITLE | DATE SIGNED (YYYYMMMDD)

[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/LOCAL USE

See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.

24. UNITED STATES OF AMERICA
TEL:
EMAIL:
BY: CONTRACTING / ORDERING OFFICER

25. TOTAL $5,460,010.54

26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE | c. DATE (YYYYMMMDD) | d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

f. TELEPHONE NUMBER | g. E-MAIL ADDRESS

36. I certify this account is correct and proper for payment.
a. DATE (YYYYMMMDD) | b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
[ ] PARTIAL [ ] FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
31. PAYMENT [ ] COMPLETE [ ] PARTIAL [ ] FINAL		34. CHECK NUMBER 35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO	42. S/R VOUCHER NO.

Section A - Solicitation/Contract Form

AWARD NARRATIVE

Task Order 0005, which contains Firm Fixed Price (FFP) and Fixed Unit Price (FUP) tasks, is being issued to Shaw Environmental & Infrastructure, Inc. for the Remedial Action at Seneca Army Depot Activity (SEDA) Open Detonation Ground in Romulus, New York in accordance with the Performance Work Statement entitled Remedial Action Seneca Army Depot Activity (SEDA) Open Detonation Ground in Romulus, New York, dated 11 August 2011.

The Period of Performance for this Task Order is 24 months from the NTP or Date of Award.

The terms and conditions of the basic contract, W912DY-10-D-0014, takes precedence in the case of any ambiguity or conflict.

US Department of Labor Wage Determination Number 2005-2381, Revision 11 dated June 17, 2011 shall be used with project task order.

The following Task Listing reflects funding allocation:

Seneca ADA OB/OD Grounds Remedial Action				
Task, Title, Type	Qty	Unit	Price	Funded
BASIC TASKS				
Task 1. Preparation of Work Plans and Designs (FFP)	1.0	LS	$360,199.55	$360,199.55
Task 2. Field Sampling Activities (FFP/FUP).				
Task 2a.1 (Formerly Task 2a.1 and 2a.3). The Contractor shall geophysically map the 500-1000 foot radius area (40.6 acres). The Contractor shall delineate all areas which exhibit metallic saturation, whereby individual anomalies >50mV are not distinguishable. The Contractor's work shall include construction support while this work is on-going.	58.6	Acres	$3,568.98	$209,142.44
Task 2a.2 (Formerly Task 2a.4). The Contractor shall excavate those areas exhibiting metallic saturation to a depth of 6 inches, pushing or transporting the excavated soils to within the 0-500 foot radius area and regrading these with the existing OD hill material. The regraded material shall be maintained within the 0-500 foot radius area as necessary. The Contractor's work shall include construction support while earth work is on-going. For the purposes of estimation, the Contractor shall assume that 20 acres of this overall area will exhibit saturation.	20	Acres	$24,336.56	$486,731.20
Task 2a.3 (Formerly Task 2b.1 and 2b.2). The Contractor shall perform a surface sweep of the existing OD hill material for potential MPPEH. The Contractor shall remove all MPPEH in the regraded OD hill material. For the purposes of estimation, the Contractor shall assume that this will amount to 50 anomalies per acre or 900 anomalies.	900	Anomalies	$76.60	$68,938.31
Task 2a.4 (Formerly Task 2a.5). The Contractor shall geophysically re-map the portions of the 500-1000 foot radius area which were considered saturated and which were excavated to a depth of 6 inches. For the purposes of estimation, the Contractor shall assume that 20 acres of this overall area will require re-mapping. The Contractor's work shall include construction support while this work is on-going.	20	Acres	$911.82	$18,236.46
Task 2a.5 (Formerly Task 2a.2). The Contractor shall reacquire and prosecute all identified, mapped targets in the area of the 500-1000 foot radius which exceed the 50mV threshold (15,240).	15,240	Anomalies	$43.07	$656,460.82

Seneca ADA OB/OD Grounds Remedial Action				
Task, Title, Type	Qty	Unit	Price	Funded
Task 2c. Area of 0-1000 foot radius for the existing OD Hill. The Contractor shall mag, flag and prosecute identified targets in wooded or severely overgrown or sloped terrain in this area. For purposes of estimation, the cost for this task shall be based upon 700 anomalies per acre and an FUP cost per additional anomaly given as well	9,800	Anomalies	$28.42	$278,564.32
Task 2g. Open Burning Tray. The Contractor shall close the Open Burning Tray IAW the approved work plan	1.0	LS	$82,556.23	$82,556.23
Task 3. Environmental Sampling & Analysis (Optional): (FFP/FUP)	2	EA/SDG	$57,740.48	$115,480.96
Task 4. Remedial Action Report (FFP)	1.0	LS	$54,324.63	$54,324.63
Task 5. Installation of an Engineered Cap (FFP)	1.0	LS	$2,655,220.43	$2,655,220.43
Task 6. Preparation of a Long Term Monitoring Plan	1.0	LS	$23,333.12	$23,333.12
Task 7. Performance of Long Term Monitoring	1.0	LS	$160,509.05	$160,509.05
Task 10. Project Management	1.0	LS	$290,313.02	$290,313.02
OPTIONAL TASKS				
Task 8. Performance of Additional Long Term Monitoring (Optional)				
Task 8.1. Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (2nd overall) year on a quarterly basis.	1.0	LS	$99,875.46	
Task 8.2. Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (3rd overall) year on a quarterly basis.	1.0	LS	$98,282.29	
Task 8.3. Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (4th overall) year on a semi-annual basis.	1.0	LS	$49,663.35	
Task 9. Performance of Five Year Review (Optional).	1.0	LS	$76,255.29	
			Total Funded	$5,460,010.54

The following Payment Milestone Schedule is acceptable for use on this project task order:

Payment Milestone Schedule	
Final Submittals	Upon government acceptance
Field Work	For defined units and activities completed and QA review and acceptance
Meetings	After completion of meetings with government acceptance of meeting minutes

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001		1	Lump Sum	$5,460,010.54	$5,460,010.54

Seneca RA at OD Grounds
FFP
The objective of this task order is to design and complete the installation of a NYS Part 360 landfill cap to inter hazardous soils at the Seneca Army Depot Activity (SEDA) in Romulus, New York. Additionally, the Contractor shall perform other activities in support of the landfill construction to include additional investigation and Long Term Monitoring at the site. All activities shall be performed in compliance with CERCLA and Department of Defense, Army, and USACE Regulations and Guidance to include Interim Guidance and Data Item Descriptions (DID's). The subject site is considered a Munitions Response (MRS) and Hazardous, Toxic and Radiological Waste (HTRW) site.
FOB: Destination
MILSTRIP: W31RYO13254857
PURCHASE REQUEST NUMBER: W31RYO13254857

	MAX NET AMT	$5,460,010.54
ACRN AA CIN: W31RYO13254857O001		$5,460,010.54

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002		2	Each	$0.00	$0.00 NC

Contractor Manpower Reporting
FFP
This CLIN is used for the pricing of the collection and reporting of Contractor Manpower Reporting data as described in Section C. Reporting period will be the period of performance not to exceed twelve months ending 30 September of each Government Fiscal Year and must be reported by 31 October of each calendar year.
FOB: Destination
MILSTRIP: W31RYO13254857
PURCHASE REQUEST NUMBER: W31RYO13254857

MAX NET AMT	$0.00

ENCLOSURE 6

FINAL

2011 LONG-TERM MONITORING ANNUAL REPORT

FOR THE OPEN BURNING GROUNDS
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Prepared for:

U.S. ARMY, CORPS OF ENGINEERS, ENGINEERING AND SUPPORT CENTER,
HUNTSVILLE, ALABAMA

and

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared by:

PARSONS
100 High Street
Boston, MA 02110

Contract Number W912DY-08-D-0003
Task Order No. 0008
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

May 2013

ENCL 6

6.0 LONG-TERM MONITORING CONCLUSIONS AND RECOMMENDATIONS

The following conclusions can be made based on the results of the sixth round of LTM at the OB Grounds:

- Residual lead and copper concentrations remaining in the soils have not impacted groundwater at, or in the immediate vicinity of, the Site above the applicable action levels.
- The integrity of the vegetated soil cover overlying interred contaminated soils at the Site was intact and there was no evidence that terrestrial wildlife are exposed or will be exposed to the lead-contaminated soils interred below the 9-inch soil cover.
- The washout area noted during in Grid Cell L7 in (identified as L8 in 2008 Report) during the February and May 2008 inspections and in the August 2010 inspection was observed again during the 2011 soil cover inspection. As discussed in Section 4.2 the washout area is outside of the areas where contaminated soils were interred beneath clean soil; this area therefore will not be repaired by the Army at this time. If subsequent inspections suggest that this area is becoming larger, the Army will evaluate the need for a permanent repair.
- An approximately 21-ft long area of minor erosion was observed in Grid Cell K6, outside of the area where lead-contaminated soil is interred beneath clean soil. Grid Cell K6 is located adjacent to Grid Cell J6, which is part of the soil cover, and therefore the condition of this location will be reassessed during the next inspection event to determine if corrective measures are needed.
- The Army will continue to monitor soil cover erosion, and will note any instance of cover erosion or exposed native or interred soil.
- Based on evaluation of the groundwater data and the results of the cover inspection, there is no evidence to suggest that the OB Grounds may be contributing to the degradation of sediment quality in Reeder Creek.
- The Army will continue to inspect Reeder Creek for evidence of sediment deposition and if it is observed, a sediment sampling and analysis program plan will be prepared, submitted for approval, and implemented for Reeder Creek at locations adjacent to the OB Grounds.

Continue to monitor

Based on the result of the LTM events conducted at the OB Grounds, the Army recommends continuing the monitoring frequency of once per year. As presented and summarized above, available monitoring data shows no evidence of lead or copper in the groundwater above the cleanup goals subsequent to the completion of the remedial action for the Site. These findings are consistent with the groundwater analytical results obtained during the remedial investigation stage (1990s) of work at the Site, indicating that there is no evidence of groundwater quality deterioration over approximately 15 years. Further, the annual inspections of the soil cover have shown minimal evidence of erosion or animal breaching of the

ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. W912DY-09-D-0062	2. DELIVERY ORDER/ CALL NO. 0023	3. DATE OF ORDER/CALL (YYYYMMMDD) 2016 Mar 30	4. REQ./ PURCH. REQUEST NO. W31RYO60838303	5. PRIORITY

6. ISSUED BY CODE W912DY US ARMY ENGINEERING & SUPPORT CENTER CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822	7. ADMINISTERED BY (if other than 6) CODE W912DY DIRECTORATE OF CONTRACTING - HNC ATTN: MICHELLE BLACKMON 256-895-2531 HUNTSVILLE AL 35816

8. DELIVERY FOB
- [X] DESTINATION
- [ ] OTHER

(See Schedule if other)

9. CONTRACTOR CODE 1BVK6 FACILITY

NAME AND ADDRESS: PARSONS GOVERNMENT SERVICES INC.
MICHELLE SMITH
100 W WALNUT ST
PASADENA CA 91124-0001

10. DELIVER TO FOB POINT BY (Date) (YYYYMMMDD)
SEE SCHEDULE

11. MARK IF BUSINESS IS
- [ ] SMALL
- [ ] SMALL DISADVANTAGED
- [ ] WOMEN-OWNED

12. DISCOUNT TERMS
Net 30 Days

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Item 15

14. SHIP TO CODE W912DY SEE SCHEDULE SEE SCHEDULE SEE SCHEDULE SEE SCHEDULE AA	15. PAYMENT WILL BE MADE BY CODE 964145 US ARMY ENG & SUP CENTER - FINANCE OFFIC US ARMY CORPS OF ENGRS FINANCE CTR 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005

MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER

DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
PURCHASE		Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

Parsons Gov Services	[signature]	Don Silberhorn, VP 3/30/16	3/30/16
NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMMDD)

[X] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE

See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.

24. UNITED STATES OF AMERICA
TEL:
EMAIL: MULLADY.RICHARD.J.1090040282
BY:
Digitally signed by MULLADY.RICHARD.J.1090040282 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=MULLADY.RICHARD.J.1090040282 Date: 2016.03.30 15:19:53 -05'00'
CONTRACTING / ORDERING OFFICER

25. TOTAL $637,951.83

26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
- [ ] INSPECTED
- [ ] RECEIVED
- [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS:
	[ ] PARTIAL [ ] FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
f. TELEPHONE NUMBER / g. E-MAIL ADDRESS			
36. I certify this account is correct and proper for payment.	31. PAYMENT		34. CHECK NUMBER
a. DATE (YYYYMMMDD) / b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	[ ] COMPLETE [ ] PARTIAL [ ] FINAL		35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO.	42. S/R VOUCHER NO.

Section A - Solicitation/Contract Form

AWARD NARRATIVE

Task Order 0023, which contains Firm Fixed-Price (FFP) tasks, is being issued to Parsons Government Services, Inc for Remedial Action at Seneca Army Depot Activity, Romulus, NY, EPA Site ID# NY0213820830, NY Site ID# 8-50-006 in accordance with Performance Work Statement Revision 2, dated March 24, 2016.

The period of performance is date of award through March 30, 2018.

US Department of Labor Wage Determination Number 15-2381, Revision 1, dated March 1, 2016 shall be used with project task order.

The Terms and Conditions of the basic contract, W912DY-09-D-0062 takes precedence in the case of any ambiguity or conflict.

This task order is awarded in the amount of $1,211,190.20 of which $637,951.83 is being funded at the time of award.

Task	Description	Type	Amount	Total
1	UFP-QAPP and QASP	FFP	7,063.20	7,063.20
2	GIS	FFP	3,908.96	3,908.96
2a	Optional, Additional GIS per FY	FFP	1,525.90	
3	Long Term Monitoring of The OB Grounds	FFP		
3a	(FY17) First Annual Groundwater Monitoring	FFP	21,453.84	21,453.84
3b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	21,457.76	
3c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	21,461.68	
3d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	21,465.59	
3e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	21,469.51	
4	Long Term Monitoring of the Fire Training and Demonstration Pad Area	FFP		
4a	(FY17) First Annual Groundwater Monitoring	FFP	26,049.47	26,049.47
4b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	26,080.17	
4c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	26,110.87	
4d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	26,141.57	
4e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	26,172.27	
5	Long Term Monitoring of the Ash Landfill Operable Unit	FFP		
5a	(FY17) First Annual Groundwater Monitoring	FFP	51,594.03	51,594.03
5b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	51,686.28	
5c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	51,778.54	
5d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	51,870.79	
5e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	51,963.04	
6	Ash Landfill Operable Unit Biowall Recharge	FFP	440,038.65	440,038.65
7	Long Term Monitoring of the Deactivation Furnaces Operable Unit	FFP		
7a	(FY17) First Annual Groundwater Monitoring	FFP	23,146.49	23,146.49
7b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	23,178.47	
7c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	23,210.46	
7d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	23,242.44	
7e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	23,274.43	
8	Monitoring of LUCs at Various Sites	FFP		
8a	(FY17) First Annual Monitoring Event	FFP	17,934.42	17,934.42

8b	Optional, (FY18) Second Annual Monitoring Event	FFP	17,934.42	
8c	Optional, (FY19) Third Annual Monitoring Event	FFP	17,934.42	
8d	Optional, (FY20) Fourth Annual Monitoring Event	FFP	17,934.42	
9	Monitoring of LUCs at Various Munition Sites	FFP		
9a	(FY17) First Annual Monitoring Event	FFP	5,895.00	5,895.00
9b	Optional, (FY18) Second Annual Monitoring Event	FFP	5,895.28	
9c	Optional, (FY19) Third Annual Monitoring Event	FFP	5,895.28	
9d	Optional, (FY20) Fourth Annual Monitoring Event	FFP	5,895.28	
10	Five-year Review	FFP	27,488.41	27,488.41
11	Community Relations Support	FFP	13,379.36	13,379.36
11a	Optional, Additional Meetings	FUP	8,646.02	
12	Optional, Administrative Record	FFP	1,013.48	
	Totals		$1,211,190.20	$637,951.83

ESCALATION RATES

Constant Year (FY17) Dollars

The CTC estimates shall be reported on a current cost basis (unadjusted for inflation). The following factors should be used to bring previous year costs to the current year.

Base Fiscal Year	Escalation Rate*
FY12	1.0897
FY13	1.0736
FY14	1.0578
FY15	1.0463
FY16	1.0338

* Rates based on FY18 Joint Inflation Calculator (weighted index) – 9 Mar 2017

Encl 6

ESTIMATOR EXPERIENCE

ESTIMATOR NAME: Randall Battaglia	**POSITION: Project Manager**
LOCATION: USACE NY Seneca Proj. Ofc	**YEARS OF EXPERIENCE: 31 years**
EMAIL: Randy.W.Battaglia@usace.army.mil	**PHONE NUMBER: 607-869-1532**

DESCRIPTION: (Insert description of experience here, such as educational background, training, etc.)
B.S. Chemical Engineering, 1982; Certified Project Manager, 2007

Work Experience: Project Manager, USACE, 1995-Present: Prepare and manage Life-Cycle Cost for HTRW projects; executes the COE project management business process & establishing a project management plan with a project development team consisting of interdisciplinary, regional or other agencies teams to execute & ensure all projects meet customer, budgetary, safety, scope and schedule requirements during the life cycle of the project, under changing management parameters. Represents the Army as an Alternate for the installation manager in all customer/sponsor, congressional, public contacts, including public meetings, organizations, property transfers with the state, EPA, county, & independent organizations interested in the projects. Served also as the BRAC Environmental Coordinator, 2016-Present.

Environmental Coordinator, Seneca Army Depot, 1985-1995; performed all program management, cost estimation, budget regulatory, permitting, and other management for the environmental program at the active Seneca Army Depot for hazardous waste, TSDF, air, wetlands, CERCLA, RCRA, engineering projects, etc.

Process Engineer, IEC Electronics, 1983-1985 Process engineering for production, product development, personnel, process & Quality

Relevant Continuing Education: Network Systems Analysis; Project Management for Military Projects & HTRW projects; Environmental Auditing; Economic Assessment; Various Project Management & environmental remediation courses; Cost Estimating

SITE TYPE REVIEWED: Insert site number(s) at which experience gained for each site type to the maximum extent possible.

	SITE TYPE	SITE NUMBER		SITE TYPE	SITE NUMBER
	Above Ground Storage Tank	SEAD 5,59,71		Open Burn	SEAD 23, 24, 006-R-01, 003-R-01, 007-R-01
	Burn Area	SEAD 24,45,25,26		Plating Shop	
	Chemical Disposal	SEAD 13,72,4		POL (Petroleum/Lubricant Lines	SEAD 9
	Contaminated Buildings	SEAD 12, 16,17, 3		Radioactive Waste Area	SEAD 012,48,72, 63, NRC License closeout
	Contaminated Fill	SEAD 3, 9,4		Sewage Treatment Plant	SEAD 20,21
	Contaminated Groundwater	SEAD 025,006, 001-R-01, 023, 064B&D, 041		Small Arms Range	SEAD 57, 46, 120B,122A,122B
	Contaminated Sediments	SEAD 4, 3,		Soil Contamination After Tank Removal	SEAD 59,
	Contaminated Soil Piles	SEAD 5		Spill Site Area	SEAD 122
	Dip Tank			Storage Area	SEAD 123
	Disposal Pit/Dry Well			Surface Disposal Area	
	Explosive Ordnance Disposal Area	SEAD 23, 24, 006-R-01, 003-R-01, 007-R-01		Training and Maneuver Area	
	Fire/Crash Training Area	SEAD 025,026		Underground Storage Tank	SEAD 27
	Firing Range			Underground Tank Farm	
	Incinerator	SEAD 006, 001-R-01,019, 018		Unexploded Munitions/Ordnance	SEAD 115
	Industrial Discharge			Wash rack	
	Landfill	SEAD 006, 064 A,B&D, 011,		Waste Lines	
	Maintenance Yard	SEAD 122		Waste Treatment Plant	SEAD
	Oil Water Separator	SEAD 27			

US Army Corps of Engineers®

Certificate of Completion

Randall Battaglia

has successfully completed

Environmental Liability (EL)/Cost to Complete (CTC) Training

Jan 18, 2017 - Web/Audio Teleconference

Sandra M. Zebrowski

Sandi Zebrowski, P.E.
Director, USACE Environmental and Munitions Center of Expertise,

FUDS Training Services
fudstraining@usace.army.mil

DEPARTMENT OF THE ARMY
Office of the Assistant Chief of Staff for Installation Management
BRAC Division
Seneca Army Depot, Seneca, NY

MEMORANDUM FOR RECORD **27 September** 2017

SUBJECT: Environmental Liabilities for site SEAD-006-R-01 (HQAES WBS# 36760.1100) RCRA Closure of the OB/OD Grounds (alias SEAD-115 [not listed in HQAES], SEAD 45 [Demolition Area HQAES WBS# 36760.1045]) at Seneca Army Depot

This memorandum serves as formal documentation of the information used to develop the Cost-To-Complete (CTC) estimate for site SEAD-006-R-01 during the 2017 data call. This site also encompasses SEAD-023 (OB Grounds) (not listed in HQAES). Estimators experience is documented on the Estimator Experience Form, enclosure 7, per the Federal Accounting Standards Advisory Board (FASAB) Handbook Technical Release 2.

Well abandonment and site closeout costs were previously covered in a contract from FY11 (W912DY-08-D-0003, Task Order 0008). The contract is out of date and not used for cost estimating. The cost for well abandonment and site closeout will require a new contract or an engineering estimate, until a valid cost estimate is available the cost is to be determined.

The SEAD-23 monitoring program, which was initiated in 2007 under this project, will be carried under the RI/FS phase until completion of the remediation. A zero dollar CTC has been prepared for SEAD-23. It is assumed six additional wells will be installed at SEAD 006-R-01 for additional GW monitoring at the site as part of a LTM plan. Contract W912DY-10-D-0014 Delivery Order 5, 23 November 2011, (Enclosure 5) provides the cost of the Long Term Monitoring Plan, well installation, first year monitoring cost, and out-year monitoring cost. The cost for the GW monitoring during the RI/FS phase for SEAD 23 is provided by contract W912DY-09-D-0062 Delivery Order 0023 task 0003a, 30 March 2016. (Enclosure 6) and the requirement for testing is established in the ROD for the OB Grounds (Enclosure 2). It is assumed that after the completion of the remediation, monitoring GW for SEAD-006-R-01 will require sampling at a quarterly interval for the first year and then semi-annually in subsequent years for cap inspection and effectiveness. It is further assumed that the monitoring efforts at SEAD 23 will continue as part of the overall project (Enclosure 6). After the remediation is completed the monitoring will be carried out under the LTM phase. Due to EPA's disagreement with the planned IRA to include a cap, and due to the Army's agreement with Land Use Controls for munitions sites, the FS will be finalized and a ROD signed for the final remediation. It is assumed that the final remediation will be accomplished with funding provided in prior years. Contract W912DY-10-D-0014 Delivery Order 5, 23 November 2011, Enclosure 5, was terminated for convenience. Funding remains for the final remediation. This included the contract cost for the cap alternative. It was

assumed the first 5 year review will occur in 2021, this may need to be in 2026 given ROD signature and completion of remediation in 2019. The Owner Support for RA is S&A for the remedial action, which was postponed due to the ROD. This cost is shown in FY19.

1. **Site History**: The Army destroyed ammunition by detonation and open burning at this site, which was in operation from 1948 through 1998. The OB ground consists of elevated burning trays. The site is in the northwest portion of the installation and covers 364 acres. The investigation of this site revealed contamination consisting of ordnance and explosives (OE) and heavy metals. This is a RCRA interim permitted site. This site also encompasses SEAD-023 (not listed in HQAES), OB Grounds, where a CERCLA remediation was completed in 2003.

2. **Current Site Status:**
   a. The cleanup strategy includes the ongoing removal of all munitions potentially posing an explosive hazard from the outer perimeter of the site at approximately 2500 feet, inwardly to the proposed 8 acre landfill cap. The work from 2500 feet to 1000 feet is underway through a Removal Action. The preferred FS Alternative has been to consolidate all soil that contains hazardous toxic or radiological waste (HTRW) contamination will be placed under the cap. The cap will comply with State Regulatory standards. Soil under the cap will not have ordnance removed prior to the capping.
   b. Groundwater will require annual testing until results demonstrate cleanup criteria.
   c. EPA raised numerous concerns on materials potentially presenting an explosive hazard (MPPEH) and disagrees with the cap alternative. A large amount of the <1000 feet radius was geophysically mapped and MPPEH removed. EPA has disagreed with the cap only alternative and has taken the position of removal of one foot and geophysics to three feet below this point on the entire site similar to the Umatilla site ($47M). The Army position is surface sweep is adequate for this site for the known future use of restricted access conservation. Higher level discussions are occurring and other alternatives are being considered. To address EPA's concerns, final remediation alternatives are to be evaluated using MMR LUCs, the Open Burning Grounds ROD as a precedent for HTRW soils (only), cap with slurry wall, mechanical separation, and soil stabilization.

3. **Exit Strategy**:
LTM includes Cap Maintenance, GW monitoring, LUCs, Five-Year reviews, and site closeout effort. MMR LUCs will be critical to final agreement on remediation.

For cost estimating purposes, the LTM duration as indicated in the phase schedule extends only to the end of the second five-year review; however, LTM is anticipated to continue in perpetuity.

4. **Enclosures**:
   1. Draft Final Feasibility Study Report for Open Detonation Grounds Munitions Response Action, Parsons, April 2013

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

2. Final Record of Decision Former Open Burning Grounds Site, January 1999
3. Final Long Term Monitoring Plan for Open Burning Grounds, January 2007
4. Performance Work Statement for Contract W912DY-10-D-0014, DO 0005, 23 November 2011
5. Contract W912DY-10-D-0014, Delivery Order 0005, DTD 23 November 2011
6. Final 2011 Long Term Monitoring Annual Report for the Open Burning Grounds, May 2013; Contract W912DS-09-D-0062 TO 0023, 30 March 2016; Escalation Rates.
7. Estimator's Experience Sheet, Environmental Liabilities training
8. Estimate Summary Table
9. Engineering Estimate for Site Closeout and Well Abandonment

5. Engineering Estimate Assumptions:

Site Closeout Documentation (LTM):

1. Site Closeout is moderate complexity
2. Kick-off, review and regulatory meetings
3. Work Plans and reports - all default values
4. Documents will be stored for 30 years

The cost estimate for site closeout documentation is out of date, the cost to complete is to be determined.

Well abandonment (LTM):

1. Number of wells: 12
2. Well depth: 15 feet
3. Well diameter: 2 inches
4. Formation type: Unconsolidated
5. Method: Overdrill/excavation

The cost estimate for well abandonment is out of date, the cost to complete is to be determined.

Five year MPPEH & CERCLA review

1. Review cycles (SEAD 006-R-01 and SEAD 23 combined)
2. Five year review cycle starts 2016 for SEAD 23
3. Five year review cycle starts 2021 for SEAD 006-R-01 and SEAD 23 combined
4. Site is moderate complexity
5. Reports, reviews, interviews and site inspections include all default parameters
6. MEC review included

7. Cost Summary SEAD-006-R-01 (SEAD-115/45)

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

Remedial Action (Operations) (RA(O)):

Long Term Monitoring Plan preparation (enclosure 5); FY12 $23,333.12 escalated to FY17 x 1.0897 =	$25,426.10
Install 6 and Monitor 12 GW wells quarterly 1st year, 2016 (source 5); FY12 $160,509.05 escalated to FY17 x 1.0897 =	$174,906.71
For years 2017-2045, Monitor 12 GW wells, semiannually x 29 years (source 5); FY12 $49,663.35 x 29 years x escalated to FY17 x 1.0897 =	$1,569,426.42
Owner Support for RA (Source 4) 11% of total LTM Cost $184.50 x 851 Hours =	$157,009.50
Subtotal RA(O) = or $1,927K	$1,926,768.74

Long Term Monitoring (LTM):

Six five-year reviews for SEAD-23 and SEAD-006-R-01 (W912DY-09-D-0023, 30 March 2016) 27,488.41 x 1.0338 (escalate to FY17) = $28,417.52 x 6 events =	$170,505.11
Well abandonment and site closeout (no current estimate)	TBD
Owner Support for GW Monitoring (Source 4) 11% of total LTM Cost $184.50 x 980 Hours =	$180,810.00
Subtotal LTM: or $351K	**$351,315.11**
Total Cost or $2,278K	**$2,278,083.84**

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

Material Change: The CTC for FY16 was $2,093K the CTC for FY17 is $2,278K. The calculated percentage change was 5.3%. No material change.

Material Change = absolute value of (indexed prior year CTC – current CTC – current obligations)/indexed prior year CTC

MC = ((2,093 * 1.0338) – 2,278 – 0) / (2,093 * 1.0338) = 5.3%

Prepared by: Randall Battaglia
Cost Estimator

BATTAGLIA.RANDALL.W.1228816724

Digitally signed by BATTAGLIA.RANDALL.W.1228816724
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=BATTAGLIA.RANDALL.W.1228816724
Date: 2017.09.27 16:42:48 -04'00'

Signature Date

Reviewed by: Peter F. Tuebner
Cost Estimate Reviewer

Signature Date

ENCLOSURE 1

DRAFT FINAL

FEASIBILITY STUDY REPORT

for

Site

OPEN DETONATION GROUNDS MUNITIONS RESPONSE ACTION

SENECA ARMY DEPOT ACTIVITY
ROMULUS, SENECA COUNTY, NEW YORK

Prepared for:

U.S. Army Engineering and Support Center, Huntsville

and
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared by:

PARSONS
100 High Street
Boston, MA 02110

Contract Number W912DY-08-D-0003
Task Order No. 0013
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

APRIL 2013

ENCL 1

3.0 DEVELOPMENT AND SCREENING OF ALTERNATIVES

3.1 INTRODUCTION

This section summarizes the remedial action alternatives that were developed from the technologies screened in **Section 2.0**. Prior to the development of alternatives, an evaluation of general response actions and a technology screening was performed for inclusion into proposed remedial action alternatives for the OD Grounds. Technologies were combined into alternatives considering potential waste-limiting and site-limiting factors unique to the OD Grounds and the level of technical development for each technology. This information was used to differentiate alternatives with respect to effectiveness and implementability. This FS focuses on identifying and evaluating alternatives for the OD Grounds.

3.2 DESCRIPTION OF ALTERNATIVES

The following remedial action alternatives were developed for the OD Grounds:

- Alternative 1: NFA
- Alternative 2: Geophysical mapping, intrusive investigation, capping, LUCs; and
- Alternative 3: Geophysical mapping, intrusive investigation, excavation, off-site disposal, and LUCs.

Remedy

Technologies and processes associated with these actions were assembled into remedial action alternatives.

3.2.1 Alternative 1, No-Further Action

Alternative 1 is the no further action alternative. CERCLA and NYSDEC guidance for conducting feasibility studies recommends that the no-action alternative be considered against all other alternatives.

The no further action alternative would leave the OD Grounds undisturbed with the continuation of existing site security measures, such as locked gates, to prevent civilian access and direct contact with contaminated soil and possible exposure to potential MPPEH.

3.2.2 Alternative 2, Geophysical Mapping/Intrusive Investigation/Capping/LUCs

This alternative would complete the MPPEH clearance in areas that were not previously cleared by previous investigations. In the open and accessible areas, previously identified anomalies will be reacquired and removed. In areas that are wooded or inaccessible and were not previously cleared, mag and dig operations will be completed using a handheld magnetometer, such as a Schonstedt. In accessible areas that were not previously mapped (0 – 1,000 foot radius), DGM surveys will be conducted using EM61s over approximately 60 acres in the area surrounding the OD Hill. The newly mapped areas will be designated in two different categories:

1. metals saturated areas where the high density prohibits individual anomalies from being identified and manually removed (0 – 500 foot radius)
2. lower metals density areas where individual anomalies can be identified and manually removed (500 – 1,000 foot radius)

It is anticipated that metallic saturation (or a high density of potential MPPEH) will be encountered in areas located closer to the OD Hill (0 – 500 foot radius). At locations where the DGM survey indicates that there is metallic saturation, the top 6 inches of soil will be excavated. The soil will be screened to remove potential MPPEH, and the overburden will be staged on-site for potential reuse and/or incorporation into the site cap. The excavated area will then be resurveyed and the results of the DGM survey will be used to generate a dig list of target anomalies to be investigated. In the event that the results of the DGM survey indicate that areas are still saturated with metal an additional 6 inches of soil may be excavated, screened, and staged, as previously described, followed by a subsequent DGM survey of that area.

For the lower density metals areas, the anomalies on the generated dig list from the DGM surveys will be reacquired and intrusively investigated by a geophysicist and UXO dig team, in the same manner as the intrusive investigation in the Kickout area. A two-person UXO technician/ demolition team will perform any required MPPEH demolition procedures. The demolition team will dispose of any MPPEH suspected of containing explosives/spotting charges or inaccessible voids by detonation. All MD will be certified and disposed of as MDAS in accordance with current regulations.

The excavated soil that passed through the screen will be placed on the OD Hill and the resulting surface will be compacted and graded. An engineered cap, covering approximately 10 acres in aerial extent and approximately 75,000 cy (+/- 35%) of material, will be installed over the OD Hill and the surrounding area. The cap will comply with NYS Part 360 requirements. A geomembrane layer will be selected, and the total thickness of the cap will be at least 18 inches. Any identified soil with contaminant levels exceeding the selected soil cleanup goals would be incorporated under the cap. A design work plan will be prepared and the exact limits of the cap will be determined during the design phase of the project.

LTM would include maintenance of the cap and LUC inspections. Potential LTM of site groundwater conditions may be appropriate subsequent to the remedial alternative selected in this FS.

LUCs will be placed on the site to prohibit the use of groundwater, prohibit digging, and prevent the use of the site for use as a daycare or a residential facility.

Implementation of this alternative would be highly effective in achieving the RAOs, long-term effectiveness, preventing exposure, and implementability. The costs for this alternative are moderate.

3.2.3 Alternative 3, Geophysical Mapping/Intrusive Investigation/Excavation/Off-Site Disposal/LUCs

Alternative 3 is similar to Alternative 2, but this alternative would involve the excavation and off-site disposal of all soil containing MPPEH or contaminant concentrations that exceed cleanup goals in lieu of capping these soils. Similar to Alternative 2, reacquisition would be completed in the Kickout area. In areas outside of the OD Hill that are wooded or inaccessible and were not previously surveyed, mag and dig operations will be completed using a handheld magnetometer, such as a Schonstedt. In accessible areas that were not previously mapped (0 – 1,000 foot radius), DGM surveys will be conducted using EM61s over approximately 60 acres in the area surrounding the OD Hill. At locations where the DGM survey indicates that there is metallic saturation, the top 6 inches of soil will be excavated (estimate

Alternative 1 must be ruled out because it is ineffective in long-term permanence and does not achieve the RAOs. Overall, Alternatives 2 and 3 have similar levels of protectiveness, permanence, long-term effectiveness, and short-term effectiveness. They will both limit exposure to potential MPPEH or contaminated soil. Alternative 3 ranks slightly higher for reduction of toxicity, mobility, or volume due to the volume reduction of off-site disposal. Alternative 2 rates more favorably for implementability. Alternative 2 ranks better in terms of cost.

4.5 RECOMMENDED ALTERNATIVE

Based on a comparison of the criteria, the most effective remedy for the OD Grounds is Alternative 2, DGM Mapping, intrusive investigation, cap, and LUCs. Alternative 2 limits human exposure to potential MPPEH or soil contamination, is implementable using known techniques, and is cost effective. The capital cost for the alternative is $8.0M. The TPV is $8.9M. The total costs include $31,500 per year for LUC inspections and cap maintenance, plus $40,300 per five-year review over the 30 year period.

RECOMMENDED

ENCLOSURE 2

FINAL RECORD OF DECISION (ROD)
FORMER OPEN BURNING (OB) GROUNDS SITE
SENECA ARMY DEPOT ACTIVITY (SEDA)
ROMULUS, NY

Prepared For:
United States Army Corps of Engineers

Prepared By:
Parsons Engineering Science, Inc.
30 Dan Road
Canton, MA 02021-2809
January 1999
CONTRACT NO. DACA87-92-D-0022

Delivery Order 001

FNCL 2

The selected remedy outlined in this ROD addresses potential exposure to elevated le metals, such as lead, in the on-site soils and sediment in Reeder Creek. The following de the significant aspects of the remedy:

- The OB Grounds was used for surface burning of explosive trash and propellants. concern for OE below the surface, at depth, at this site is small. Although OE is not exp to be found at depth at this site, through a combination geophysics, excavation, si removal and soil cover, the Army will nevertheless remediate OE to meet the Departm Defense Explosive Safety Board (DDESB) requirements for unrestricted use or put place land use restrictions as may be required by the DDESB.
- Excavation of soils with lead concentrations above 500 mg/kg and sediments from Re Creek with concentrations of copper and lead above the NYSDEC criteria of the 16 m and 31 mg/kg, respectively.
- Treatment of soils exceeding the Toxicity Characteristic Leaching Procedure (TC estimated to be approximately 3,800 CY of the excavated soil, via solidification /stabiliza will be performed to remove the RCRA characteristic of toxicity. This will allow the so. be landfilled, in accordance with the requirements of the Land Disposal Restrictions (LI of RCRA.
- Disposal of the excavated and solidified soil in an off-site Subtitle D landfill. The t quantity of soil to be disposed of is estimated to be 17,900 CY, including the 3,800 CY solidified soil.
- Construction of a soil cover of at least 9 inches of compacted soils in the areas of the (Grounds with soils remaining on the site with lead concentrations above 60 ppm. The area be covered is estimated to be approximately 27.5 acres, which encompasses most of the ar of the OB Grounds. The PRAP incorrectly identified the area to be covered as 43.8 acre The cap will be vegetated with indigenous grasses to prevent erosion and to prevent dire contact and incidental soil ingestion by terrestrial wildlife. The monitoring program w ensure that the 9-inch soil/vegetative cover is maintained after the remedy is complete.
- Control of surface water runoff, as necessary, to prevent erosion of the vegetative cover ar solids loading to the creek. This will be accomplished with vegetation, regrading of sit topography and drainage swales.
- Conducting a monitoring program for site groundwater and sediment in Reeder Creek. This program will monitor metals. For groundwater, the level of detection will be to below 15 ug/L, the federal action level for lead in groundwater. For sediment, the detection limit for lead will be to 10 mg/kg. Should a significant exceedance be noted, the exceedance will be

will be implemented to eliminate the threat posed by the exceedance. For groundwate action may include metals removal via filtering. A similar process will apply for a sed. exceedance observed in Reeder Creek. First, the source of the exceedance will be ider and confirmed. If the exceedance is determined to originate from the OB Grounds site, maintenance of or improvements to the existing erosion control systems will be institut reduce the threat due to erosion of on-site soils to the Creek. This may include revegeta or the construction of drainage control swales or structures.

STATE CONCURRENCE

NYSDEC has concurred with the selected remedy. Appendix B of this Record of Dec contains a copy of the Declaration of Concurrence.

DECLARATION

The selected remedy is consistent with CERCLA and to the extent practicable the NCI protective of human health and the environment, complies with federal and state requirem that are legally applicable or relevant and appropriate to the remedial action, and is effective. The remedy uses a permanent solution for soil contamination. This remedy will result in hazardous substances, above cleanup goals, remaining at SEDA. Because th alternatives would result in hazardous substances, pollutants or contaminants remaining on- above levels that allow for unlimited use and unrestricted exposure, CERCLA requires that lead agency review the remedial action no less than every five years after its initiation, justified by the review, remedial actions may be implemented to remove or treat the wastes.

Section C - Descriptions and Specifications

Performance Work Statement
Remedial Action
Seneca Army Depot Activity (SEDA)
Open Detonation Ground
Romulus, New York
22 Nov 2011

Project Site

1.0 OBJECTIVE: The objective of this task order is to design and complete the installation of a NYS Part 360 landfill cap to inter hazardous soils at the Seneca Army Depot Activity (SEDA) in Romulus, New York. Additionally, the Contractor shall perform other activities in support of the landfill construction to include additional investigation and Long Term Monitoring at the site. All activities shall be performed in compliance with CERCLA and Department of Defense, Army, and USACE Regulations and Guidance to include Interim Guidance and Data Item Descriptions (DID's). The subject site is considered a Munitions Response (MRS) and Hazardous, Toxic and Radiological Waste (HTRW) site.

This task order shall be conducted pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and National Oil and Hazardous Substances Contingency Plan (NCP) requirements, with regulatory coordination, as appropriate, of the New York Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) Region II.

2.0 BACKGROUND

2.1 Work under this Performance Work Statement (PWS) falls within the Military Munitions Response Program (MMRP) for the Open Burn/Open Detonation Ground Area of Concern (AOC) at Seneca Army Depot located in Seneca County, NY. The AOC consists of 365 acres and was used to perform open detonation and open burning of munitions.

Of particular concern for this effort is an area of approximately 18 acres with potential ancillary needs over a wider area than the actual landfill cap construction. The contractor will complete all actions necessary to meet CERCLA requirements and achieve acceptance of the required designs and construction so the parcel can be closed out.

This requirement involves a legacy BRAC-funded, Military Munitions Response Program (MMRP) site (Munitions Response Site or MRS). The Department of Defense (DoD) established the MMRP under the Defense Environmental Restoration Program (DERP) to address unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) located on current and former military installations. The Contractor shall perform all work in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP), 40 CFR Part 300. Any activities involving work in areas potentially containing explosive hazards shall be conducted in full compliance with United States Army Corps of Engineers (USACE), Department of the Army (DA), and Department of Defense (DOD) regulations.

3.0 GENERAL REQUIREMENTS:

3.0.1 **Contractor Methods:** This is a performance based task order. The performance objectives and standards included herein are the basis of the task order requirements. The technical approach and level of effort expended to achieve task order objectives and standards are solely up to the contractor to select and adjust as necessary through the life of the task order. Government recognizes the contractor's right to change the technical approach and level of effort from that proposed with the understanding that the contractor shall still meet all project objectives and gain government Quality Assurance acceptance in order to receive payment. Given the short time available during the pre-award phase to evaluate the site it is possible that after award and refinement of the conceptual site model and data needs that the contractor will wish to adjust the investigation strategy. If before the field work begins, an adjustment in the quantities or types of field investigations are required to achieve the performance standard or the Government determines that the performance standard must be adjusted the Government at its discretion may choose to modify the contract with the price adjustment based upon the prorated unit prices proposed in the accepted proposal. Once these adjustments are complete the contractor shall be obligated to deliver the required

ENCL 4

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- All UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.
- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

SOW PLAN

3.6 Task 6, Preparation of A Long Term Monitoring Plan. This is a Firm Fixed Price task.
Objective: The Contractor shall prepare, submit and gain acceptance of a Long Term Monitoring (LTM) Plan for the monitoring of groundwater and the management of the installed cap. Groundwater monitoring shall be based upon the six existing wells and the installation of another six wells. The Contractor shall assume an average depth of 15 feet per well.

Performance Standard: Prepare the plan in accordance with DID WERS-001 and EM 1110-1-4009, EM 385-1-1 and EM 385-1-97. Prepare the sampling and analysis plan, field sampling, and UFP-QAPP in accordance with EM 1110-1-4009, DID WERS-009.01, and UFP-QAPP, as appropriate. UFP-QAPP content shall also meet the requirements of DoD Quality Systems Manual for Environmental Laboratories (current version). Draft QASP includes requirements in regulations, guidance, DIDs and the Quality Control Plan in the WP.

AC: Acceptance of LTM Plan and UFP-QAPP with two revisions. Draft QASP reflects requirements and QCP with one revision required.

Measurement / Monitoring: Review of LTM Plan, UFP-QAPP and QASP per guidance to verify that the minimum acceptable content has been provided and acceptance by the project team and regulatory agencies.

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements: The sampling and analysis plan (SAP) shall include the Contractor's phased approach and address contaminants of interest and sample media (soil/groundwater/sediment/surface water). The Contractor shall provide a discussion on data evaluation.

SOW GW monito 1st yea

3.7 Task 7, Performance of Long Term Monitoring. This is a Firm Fixed Price task.
Objective: Following regulatory approval of the Long Term Monitoring Plan prepared under Task 6, the Contractor shall implement the LTM plan and perform monitoring of the ground water and management of the installed cap. The Contractor shall provide all the labor, material and equipment required to install ground water monitoring wells required in the approved plan. As part of this task, the contractor shall perform one year of Long Term Monitoring on a quarterly basis. The effort will also include submission and approval of Long Term Monitoring reports presenting a description of the effort performed, the results achieved and recommendations for the next period of monitoring.

Performance Standard: Field work, data quantity and quality, and analysis of said data provides the results required to meet approved plans and be acceptable to the regulators.

- Demonstrate that the work was performed in accordance with the applicable laws, regulations, and guidance

documents;

- Perform the field sampling activities in accordance with the accepted Work Plans (prepared previously)/ LTM

Plan.

- Proper processing and disposition of any UXO, DMM and MC encountered in accordance with approved Work Plan(s).

- Any Material Potentially Presenting an Explosive Hazard (MPPEH) and munitions debris processed in accordance with Chapter 14, EM 1110-1-4009 and Errata Sheet No. 2.

- Meet the project DQOs.

AQL: Conduct the field activities in accordance with the accepted/approved LTM Plan. QC data submitted meets LTM Plan requirements. No more than 3 CARs for non-critical violations and/or 1 CAR for critical violations. No unresolved Corrective Action Requests. All final data and QC tests/documentation submitted. Government QA acceptance QC tests/documentation gained. No Class "A" Safety, contractor at fault, violations during execution of work. "1 non-explosive related Class D, accidents, or <2 non-explosive Class C accidents IAW AR 385-40. Major safety violations, 1 non-explosive related safety violation. Minor safety violations, 2 safety violations. Zero letters of reprimand, grievances, or formal complaints.

Measurement / Monitoring: Period inspection/review of field work. Verify compliance with accepted LTM Plan and other Plans as required. Quality control tests/documentation submitted per the QASP for government review. Boundary precision will be determined by evaluation of the sampling footprint as it relates to the reported contaminated/ uncontaminated areas in question.

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- Any UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.

- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store, and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

3.8 Task 8, Performance of Additional Long Term Monitoring (Optional). These are Firm Fixed Price tasks. Objective: If awarded, the Contractor shall provide additional LTM for the site and perform monitoring of the ground water and management of the installed cap. As part of this task, the contractor shall perform Long Term Monitoring on the basis requested as part of the individual options. The effort will also include submission and approval of Long Term Monitoring reports presenting a description of the effort performed, the results achieved and recommendations for the next period of monitoring.

Performance Standard: Field work, data quantity and quality, and analysis of said data provides the results required to meet approved plans and be acceptable to the regulators.

- Demonstrate that the work was performed in accordance with the applicable laws, regulations, and guidance documents;

- Perform the field sampling activities in accordance with the accepted Work Plans (prepared previously)/ LTM Plan

- Proper processing and disposition of any UXO, DMM and MC encountered in accordance with approved Work Plan(s).

- Any Material Potentially Presenting an Explosive Hazard (MPPEH) and munitions debris processed in accordance with Chapter 14, EM 1110-1-4009 and Errata Sheet No. 2.

- Meet the project DQOs.

AQC: Conduct the field activities in accordance with the accepted/approved LTM Plan. QC data submitted meets LTM Plan requirements. No more than 3 CARs for non-critical violations and/or 1 CAR for critical violations. No unresolved Corrective Action Requests. All final data and QC tests/documentation submitted. Government QA acceptance QC tests/documentation gained. No Class "A" Safety, contractor at fault, violations during execution of work, >1 non-explosive related Class D, accidents, or <2 non-explosive Class C accidents IAW AR 385-40. Major safety violations, 1 non-explosive related safety violation. Minor safety violations, 2 safety violations. Zero letters of reprimand, grievances, or formal complaints.

Measurement / Monitoring: Period inspection/review of field work. Verify compliance with accepted LTM Plan and other Plans as required. Quality control tests/documentation submitted per the QASP for government review. Boundary precision will be determined by evaluation of the sampling footprint as it relates to the reported contaminated/ uncontaminated areas in question.

Task specific Incentives/Disincentives: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific Task Requirements:

- Any UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.
- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

3.8.1 Task 8.1, Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (2nd overall) year on a quarterly basis.

3.8.2 Task 8.2, Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (3rd overall) year on a quarterly basis.

3.8.3 Task 8.3, Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (4th overall) year on a semi-annual basis.

Monitoring same annual Basis

3.9 Task 9, Performance of the Five Year Review (Optional). This is a Firm Fixed Price task.

Objective:

- If awarded, the Contractor shall provide an additional (5th overall) year of LTM for the site and perform

monitoring of the ground water and management of the installed cap on a semi-annual basis.

- If awarded, the Contractor shall perform the regulatory-required Five Year Review. This review shall include presentation and analysis of the five years of annual monitoring and maintenance activities and will include meetings, presentations, report preparation/ revision/ response to comments and recommendations for the future of the site.
- The Contractor shall prepare, submit and gain acceptance of the Five Year Review report which shall certify

that all items identified in the Work Plans and the LTM Plan have been completed.

Performance Standard:

- Field work, data quantity and quality, and analysis of said data provides the results required to meet approved plans and be acceptable to the regulators.
- Demonstrate that the work was performed in accordance with the applicable laws, regulations, and guidance

Elements:

- Perform the field sampling activities in accordance with the accepted Work Plans (prepared previously)/

LTM Plan.

- Proper processing and disposition of any UXO, DMM and MC encountered in accordance with approved

Work Plan(s).

- Any Material Potentially Presenting an Explosive Hazard (MPPEH) and munitions debris processed in accordance with Chapter 14, EM 1110-1-4009 and Errata Sheet No. 2.
- Meet the project DQOs.
- Prepare report documents in accordance with the DIDS, the WP/LTM Plan and all applicable Federal, State and local regulations.

AC:

- Conduct the field activities in accordance with the accepted/approved LTM Plan. QC data submitted meets

LTM Plan requirements. No more than 3 CARs for non-critical violations and/or 1 CAR for critical violations. No unresolved Corrective Action Requests. All final data and QC tests/documentation submitted. Government QA acceptance QC tests/documentation gained. No Class "A" Safety, contractor at fault, violations during execution of work. 1 non-explosive related Class D, accidents, or <2 non-explosive Class C accidents IAW AR 385-40. Major safety violations, 1 non-explosive related safety violation. Minor safety violations, 2 safety violations. Zero letters of reprimand, grievances, or formal complaints.

- Acceptance of all report documents (with two revisions) by the Project Team and regulators.

Measurement / Monitoring:

- Period inspection/review of field work. Verify compliance with accepted LTM Plan and other Plans as required. Quality control tests/documentation submitted per the QASP for government review. Boundary precision will be determined by evaluation of the sampling footprint as it relates to the reported contaminated/ uncontaminated areas in question.
- Review of reports per guidance to verify that the minimum acceptable content has been provided.

Task specific **Incentives/Disincentives**: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-performance of work at contractor's expense.

Specific **Task Requirements**:

- Any UXO, DMM and MC encountered during this effort shall be processed in accordance with the approved work and safety plans.
- **Hazardous, Toxic and Radiological Waste (HTRW) Disposal:** The Contractor shall collect, secure, store,

and arrange for disposal of any HTRW generated as a result of field activities. The HW containers shall be staged, secured, labeled, sampled and analyzed (if required) IAW the approved work plan. The Contractor shall recommend appropriate disposal actions for all waste items. The Contractor shall perform the HW disposal in a timely manner.

3.11 (Task 10) Project Management. The Contractor shall manage the task order in accordance with the basic contract statement of work. All project management associated with the task order, with the exception of the direct technical oversight of the work described in the preceding tasks, shall be accounted for in this task.

4.0 SUBMITTALS.

Even though draft and draft final submittals are requested, the term "draft" shall not reflect upon the quality of the submittal being provided by the Contractor. Submittals shall include all supporting materials including supporting data whether electronic or hardcopy. Submittals not meeting the requirements of referenced guidance or Data Item Descriptions or missing supporting data may be rejected and revised by the contractor at the contractor's own expense.

4.1 The Contractor shall deliver the specified number of copies shown in Table 4.2 of each report listed in Table 4-1 to the following addressees (addresses to be verified by Contractor):

ENCLOSURE 5

Contract Delivery order

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 40

1. CONTRACT/PURCH ORDER/ AGREEMENT NO. W912DY-10-D-0014	2. DELIVERY ORDER/CALL NO. 0005	3. DATE OF ORDER/CALL (YYYYMMMDD) 2011 Nov 23	4. REQ/PURCH. REQUEST NO. W31RYO13254857	5. PRIORITY

6. ISSUED BY CODE W912DY
US ARMY ENGINEERING & SUPPORT CENTER
CEHNC-CT
4820 UNIVERSITY SQUARE
HUNTSVILLE AL 35816-1822

7. ADMINISTERED BY (if other than 6) CODE
SEE ITEM 6

8. DELIVERY FOB
[X] DESTINATION
[ ] OTHER
(See Schedule if other)

9. CONTRACTOR CODE 8X202 FACILITY 8X202
NAME AND ADDRESS
SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC
WILLIAM WINKLER
312 DIRECTORS DR
KNOXVILLE TN 37923-4705

10. DELIVER TO FOB POINT BY (Date) (YYYYMMMDD)
SEE SCHEDULE

11. MARK IF BUSINESS IS
[ ] SMALL
[ ] SMALL DISADVANTAGED
[ ] WOMEN-OWNED

12. DISCOUNT TERMS
Net 30 Days

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Item 15

14. SHIP TO CODE W912DY
US ARMY ENGINEERING & SUPPORT CENTER
HQ CONTACT SPECIFIED
CEHNC-CT
4820 UNIVERSITY SQUARE
HUNTSVILLE AL 35816-1822

15. PAYMENT WILL BE MADE BY CODE 964145
US ARMY ENG & SUP CENTER - FINANCE OFFIC
US ARMY CORPS OF ENGRS FINANCE CTR
5722 INTEGRITY DRIVE
MILLINGTON TN 38054-5005

MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER
[X] DELIVERY/CALL — This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
[ ] PURCHASE — Reference your quote dated ... Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMMDD)
Shaw E & I, Inc	Stephen G. Moran	Stephen G Moran PG PMP Program Manager	2011 Nov 24

[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE
See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.

24. UNITED STATES OF AMERICA
TEL:
EMAIL:
BY: [signature] CONTRACTING / ORDERING OFFICER

25. TOTAL 15,460,010.51
26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
c. DATE (YYYYMMMDD)
d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE
28. SHIP NO.
29. DO VOUCHER NO.
30. INITIALS
[ ] PARTIAL
[ ] FINAL
32. PAID BY
33. AMOUNT VERIFIED CORRECT FOR

f. TELEPHONE NUMBER
g. E-MAIL ADDRESS

36. I certify this account is correct and proper for payment.
a. DATE (YYYYMMMDD)
b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

31. PAYMENT
[ ] COMPLETE
[ ] PARTIAL
[ ] FINAL
34. CHECK NUMBER
35. BILL OF LADING NO.

37. RECEIVED AT
38. RECEIVED BY
39. DATE RECEIVED (YYYYMMMDD)
40. TOTAL CONTAINERS
41. S/R ACCOUNT NO.
42. S/R VOUCHER NO.

ENCL 5

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 40

1. CONTRACT/PURCH ORDER/ AGREEMENT NO	2. DELIVERY ORDER/CALL NO.	3. DATE OF ORDER/CALL (YYYYMMMDD)	4. REQ./PURCH. REQUEST NO.	5. PRIORITY
W912DY-10-D-0014	0005	2011 Nov 23	W31RYO13254857	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than 6)	CODE	8. DELIVERY FOB
US ARMY ENGINEERING & SUPPORT CENTER CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822	W912DY	SEE ITEM 6		[X] DESTINATION [ ] OTHER (See Schedule if other)

9. CONTRACTOR	CODE	FACILITY	10. DELIVER TO FOB POINT BY (Date) (YYYYMMMDD)	11. MARK IF BUSINESS IS
NAME AND ADDRESS SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC WILLIAM WINKLER 312 DIRECTORS DR KNOXVILLE TN 37923-4705	8X202	8X202	SEE SCHEDULE 12. DISCOUNT TERMS Net 30 Days	[ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Item 15

14. SHIP TO	CODE	15. PAYMENT WILL BE MADE BY	CODE	
US ARMY ENGINEERING & SUPPORT CENTER NO CONTACT SPECIFIED CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822	W912DY	US ARMY ENG & SUP CENTER - FINANCE OFFIC US ARMY CORPS OF ENGRS FINANCE CTR 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005	964145	MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMMDD)

[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE
See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.	24. UNITED STATES OF AMERICA TEL: EMAIL: BY: CONTRACTING / ORDERING OFFICER	25. TOTAL	$5,460,010.54
		26. DIFFERENCES	

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
	[ ] PARTIAL [ ] FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
f. TELEPHONE NUMBER. g. E-MAIL ADDRESS			
36. I certify this account is correct and proper for payment.	31. PAYMENT		34. CHECK NUMBER
a. DATE (YYYYMMMDD) b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	[ ] COMPLETE [ ] PARTIAL [ ] FINAL		35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO	42. S/R VOUCHER NO.

Section A - Solicitation/Contract Form

AWARD NARRATIVE

Task Order 0005, which contains Firm Fixed Price (FFP) and Fixed Unit Price (FUP) tasks, is being issued to Shaw Environmental & Infrastructure, Inc. for the Remedial Action at Seneca Army Depot Activity (SEDA) Open Detonation Ground in Romulus, New York in accordance with the Performance Work Statement entitled Remedial Action Seneca Army Depot Activity (SEDA) Open Detonation Ground in Romulus, New York, dated 11 August 2011.

The Period of Performance for this Task Order is 24 months from the NTP or Date of Award.

The terms and conditions of the basic contract, W912DY-10-D-0014, takes precedence in the case of any ambiguity or conflict.

US Department of Labor Wage Determination Number 2005-2381, Revision 11 dated June 17, 2011 shall be used with project task order.

The following Task Listing reflects funding allocation:

Seneca ADA OB/OD Grounds Remedial Action				
Task, Title, Type	Qty	Unit	Price	Funded
BASIC TASKS				
Task 1. Preparation of Work Plans and Designs (FFP)	1.0	LS	$360,199.55	$360,199.55
Task 2. Field Sampling Activities (FFP/FUP).				
Task 2a.1 (Formerly Task 2a.1 and 2a.3). The Contractor shall geophysically map the 500-1000 foot radius area (40.6 acres). The Contractor shall delineate all areas which exhibit metallic saturation, whereby individual anomalies >50mV are not distinguishable. The Contractor's work shall include construction support while this work is on-going.	58.6	Acres	$3,568.98	$209,142.44
Task 2a.2 (Formerly Task 2a.4). The Contractor shall excavate those areas exhibiting metallic saturation to a depth of 6 inches, pushing or transporting the excavated soils to within the 0-500 foot radius area and regrading these with the existing OD hill material. The regraded material shall be maintained within the 0-500 foot radius area as necessary. The Contractor's work shall include construction support while earth work is on-going. For the purposes of estimation, the Contractor shall assume that 20 acres of this overall area will exhibit saturation.	20	Acres	$24,336.56	$486,731.20
Task 2a.3 (Formerly Task 2b.1 and 2b.2). The Contractor shall perform a surface sweep of the existing OD hill material for potential MPPEH. The Contractor shall remove all MPPEH in the regraded OD hill material. For the purposes of estimation, the Contractor shall assume that this will amount to 50 anomalies per acre or 900 anomalies.	900	Anomalies	$76.60	$68,938.31
Task 2a.4 (Formerly Task 2a.5). The Contractor shall geophysically re-map the portions of the 500-1000 foot radius area which were considered saturated and which were excavated to a depth of 6 inches. For the purposes of estimation, the Contractor shall assume that 20 acres of this overall area will require re-mapping. The Contractor's work shall include construction support while this work is on-going.	20	Acres	$911.82	$18,236.46
Task 2a.5 (Formerly Task 2a.2). The Contractor shall reacquire and prosecute all identified, mapped targets in the area of the 500-1000 foot radius which exceed the 50mV threshold (15,240).	15,240	Anomalies	$43.07	$656,460.82

Seneca ADA OB/OD Grounds Remedial Action				
Task, Title, Type	Qty	Unit	Price	Funded
Task 2e. Area of 0-1000 foot radius for the existing OD Hill. The Contractor shall mag, flag and prosecute identified targets in wooded or severely overgrown or sloped terrain in this area. For purposes of estimation, the cost for this task shall be based upon 700 anomalies per acre and an FUP cost per additional anomaly given as well	9,800	Anomalies	$28.42	$278,564.32
Task 2g. Open Burning Tray. The Contractor shall close the Open Burning Tray IAW the approved work plan	1.0	LS	$82,556.23	$82,556.23
Task 3. Environmental Sampling & Analysis (Optional): (FFP/FUP)	2	EA/SDG	$57,740.48	$115,480.96
Task 4. Remedial Action Report (FFP)	1.0	LS	$54,324.63	$54,324.63
Task 5. Installation of an Engineered Cap (FFP)	1.0	LS	$2,655,220.43	$2,655,220.43
Task 6. Preparation of a Long Term Monitoring Plan	1.0	LS	$23,333.12	$23,333.12
Task 7. Performance of Long Term Monitoring	1.0	LS	$160,509.05	$160,509.05
Task 10. Project Management	1.0	LS	$290,313.02	$290,313.02
OPTIONAL TASKS				
Task 8. Performance of Additional Long Term Monitoring (Optional)				
Task 8.1. Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (2nd overall) year on a quarterly basis.	1.0	LS	$99,875.46	
Task 8.2. Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (3rd overall) year on a quarterly basis.	1.0	LS	$98,282.29	
Task 8.3. Performance of An Additional Year of Long Term Monitoring (Optional). If awarded, the Contractor shall provide LTM for an additional (4th overall) year on a semi-annual basis.	1.0	LS	$49,663.35	
Task 9. Performance of Five Year Review (Optional).	1.0	LS	$76,255.29	
			Total Funded	$5,460,010.54

1 LTM Plan 1st Cost

2nd Year Cost Quarterly

Semi Ann Cost

The following Payment Milestone Schedule is acceptable for use on this project task order:

Payment Milestone Schedule	
Final Submittals	Upon government acceptance
Field Work	For defined units and activities completed and QA review and acceptance
Meetings	After completion of meetings with government acceptance of meeting minutes

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001		1	Lump Sum	$5,460,010.54	$5,460,010.54

Seneca RA at OD Grounds
FFP
The objective of this task order is to design and complete the installation of a NYS Part 360 landfill cap to inter hazardous soils at the Seneca Army Depot Activity (SEDA) in Romulus, New York. Additionally, the Contractor shall perform other activities in support of the landfill construction to include additional investigation and Long Term Monitoring at the site. All activities shall be performed in compliance with CERCLA and Department of Defense, Army, and USACE Regulations and Guidance to include Interim Guidance and Data Item Descriptions (DID's). The subject site is considered a Munitions Response (MRS) and Hazardous, Toxic and Radiological Waste (HTRW) site.
FOB: Destination
MILSTRIP: W31RYO13254857
PURCHASE REQUEST NUMBER: W31RYO13254857

MAX NET AMT	$5,460,010.54
ACRN AA	$5,460,010.54

CIN: W31RYO132548570001

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002		2	Each	$0.00	$0.00 NC

Contractor Manpower Reporting
FFP
This CLIN is used for the pricing of the collection and reporting of Contractor Manpower Reporting data as described in Section C. Reporting period will be the period of performance not to exceed twelve months ending 30 September of each Government Fiscal Year and must be reported by 31 October of each calendar year.
FOB: Destination
MILSTRIP: W31RYO13254857
PURCHASE REQUEST NUMBER: W31RYO13254857

MAX NET AMT	$0.00

ENCLOSURE 6

FINAL

2011 LONG-TERM MONITORING ANNUAL REPORT

FOR THE OPEN BURNING GROUNDS
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Prepared for:

U.S. ARMY, CORPS OF ENGINEERS, ENGINEERING AND SUPPORT CENTER,
HUNTSVILLE, ALABAMA

and

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared by:

PARSONS
100 High Street
Boston, MA 02110

Contract Number W912DY-08-D-0003
Task Order No. 0008
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

May 2013

ENCL 6

6.0 LONG-TERM MONITORING CONCLUSIONS AND RECOMMENDATIONS

The following conclusions can be made based on the results of the sixth round of LTM at the OB Grounds:

- Residual lead and copper concentrations remaining in the soils have not impacted groundwater at, or in the immediate vicinity of, the Site above the applicable action levels.
- The integrity of the vegetated soil cover overlying interred contaminated soils at the Site was intact and there was no evidence that terrestrial wildlife are exposed or will be exposed to the lead-contaminated soils interred below the 9-inch soil cover.
- The washout area noted during in Grid Cell L7 in (identified as L8 in 2008 Report) during the February and May 2008 inspections and in the August 2010 inspection was observed again during the 2011 soil cover inspection. As discussed in Section 4.2 the washout area is outside of the areas where contaminated soils were interred beneath clean soil; this area therefore will not be repaired by the Army at this time. If subsequent inspections suggest that this area is becoming larger, the Army will evaluate the need for a permanent repair.
- An approximately 21-ft long area of minor erosion was observed in Grid Cell K6, outside of the area where lead-contaminated soil is interred beneath clean soil. Grid Cell K6 is located adjacent to Grid Cell J6, which is part of the soil cover, and therefore the condition of this location will be reassessed during the next inspection event to determine if corrective measures are needed.
- The Army will continue to monitor soil cover erosion, and will note any instance of cover erosion or exposed native or interred soil.
- Based on evaluation of the groundwater data and the results of the cover inspection, there is no evidence to suggest that the OB Grounds may be contributing to the degradation of sediment quality in Reeder Creek.
- The Army will continue to inspect Reeder Creek for evidence of sediment deposition and if it is observed, a sediment sampling and analysis program plan will be prepared, submitted for approval, and implemented for Reeder Creek at locations adjacent to the OB Grounds.

Continue to monitor

Based on the result of the LTM events conducted at the OB Grounds, the Army recommends continuing the monitoring frequency of once per year. As presented and summarized above, available monitoring data shows no evidence of lead or copper in the groundwater above the cleanup goals subsequent to the completion of the remedial action for the Site. These findings are consistent with the groundwater analytical results obtained during the remedial investigation stage (1990s) of work at the Site, indicating that there is no evidence of groundwater quality deterioration over approximately 15 years. Further, the annual inspections of the soil cover have shown minimal evidence of erosion or animal breaching of the

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 58

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO.	2. DELIVERY ORDER/ CALL NO.	3. DATE OF ORDER/CALL (YYYYMMMDD)	4. REQ./ PURCH. REQUEST NO.	5. PRIORITY
W912DY-09-D-0062	0023	2016 Mar 30	W31RYO60838903	

6. ISSUED BY	CODE W912DY	7. ADMINISTERED BY (If other than 6)	CODE W912DY	8. DELIVERY FOR
US ARMY ENGINEERING & SUPPORT CENTER CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822		DIRECTORATE OF CONTRACTING - HNC ATTN: MICHELLE BLACKMON 256-895-2531 HUNTSVILLE AL 35816		[X] DESTINATION [ ] OTHER (See Schedule if other)

9. CONTRACTOR	CODE 18VK6	FACILITY	10. DELIVER TO FOB POINT BY (Date) (YYYYMMMDD)	11. MARK IF BUSINESS IS
NAME AND ADDRESS: PARSONS GOVERNMENT SERVICES INC. MICHELLE SMITH 100 W WALNUT ST PASADENA CA 91124-0001			SEE SCHEDULE	[ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED
			12. DISCOUNT TERMS Net 30 Days	
			13. MAIL INVOICES TO THE ADDRESS IN BLOCK See Item 15	

14. SHIP TO	CODE W912DY	15. PAYMENT WILL BE MADE BY	CODE 964145	
SEE SCHEDULE SEE SCHEDULE SEE SCHEDULE SEE SCHEDULE AA		US ARMY ENG & SUP CENTER - FINANCE OFFIC US ARMY CORPS OF ENGRS FINANCE CTR 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005		MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract:
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

PARSONS GOV SERVICES	[signature]	DON SILVERHORN, VP	3/30/16
NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMMDD)

[X] If this box is marked, supplier must sign Acceptance and return the following number of copies: 3/30/16

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE

See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle:

24. UNITED STATES OF AMERICA
TEL:
EMAIL: MULLADY.RICHARD.J.1090040282
BY: CONTRACTING / ORDERING OFFICER

Digitally signed by MULLADY.RICHARD.J.1090040282
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=MULLADY.RICHARD.J.1090040282
Date: 2016.03.30 15:13:53 -07'00'

25. TOTAL	$537,951.83
26. DIFFERENCES	

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS:
	[ ] PARTIAL [ ] FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
f. TELEPHONE NUMBER / g. E-MAIL ADDRESS	31. PAYMENT		34. CHECK NUMBER
36. I certify this account is correct and proper for payment. a. DATE (YYYYMMMDD) / b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	[ ] COMPLETE [ ] PARTIAL [ ] FINAL		35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO	42. S/R VOUCHER NO.

Section A - Solicitation/Contract Form

AWARD NARRATIVE
Task Order 0023, which contains Firm Fixed-Price (FFP) tasks, is being issued to Parsons Government Services, Inc for Remedial Action at Seneca Army Depot Activity, Romulus, NY, EPA Site ID# NY0213820830, NY Site ID# 8-50-006 in accordance with Performance Work Statement Revision 2, dated March 24, 2016.

The period of performance is date of award through March 30, 2018.

US Department of Labor Wage Determination Number 15-2381, Revision 1, dated March 1, 2016 shall be used with project task order.

The Terms and Conditions of the basic contract, W912DY-09-D-0062 takes precedence in the case of any ambiguity or conflict.

This task order is awarded in the amount of $1,211,190.20 of which $637,951.83 is being funded at the time of award.

Task	Description	Type	Amount	Total
1	UFP-QAPP and QASP	FFP	7,063.20	7,063.20
2	GIS	FFP	3,908.96	3,908.96
2a	Optional, Additional GIS per FY	FFP	1,525.90	
3	Long Term Monitoring of The OB Grounds	FFP		
3a	(FY17) First Annual Groundwater Monitoring	FFP	21,453.84	21,453.84
3b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	21,457.76	
3c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	21,461.68	
3d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	21,465.59	
3e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	21,469.51	
4	Long Term Monitoring of the Fire Training and Demonstration Pad Area	FFP		
4a	(FY17) First Annual Groundwater Monitoring	FFP	26,049.47	26,049.47
4b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	26,080.17	
4c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	26,110.87	
4d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	26,141.57	
4e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	26,172.27	
5	Long Term Monitoring of the Ash Landfill Operable Unit	FFP		
5a	(FY17) First Annual Groundwater Monitoring	FFP	51,594.03	51,594.03
5b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	51,686.28	
5c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	51,778.54	
5d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	51,870.79	
5e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	51,963.04	
6	Ash Landfill Operable Unit Biowall Recharge	FFP	440,038.65	440,038.65
7	Long Term Monitoring of the Deactivation Furnaces Operable Unit	FFP		
7a	(FY17) First Annual Groundwater Monitoring	FFP	23,146.49	23,146.49
7b	Optional, (FY18) Second Annual Groundwater Monitoring	FFP	23,178.47	
7c	Optional, (FY19) Third Annual Groundwater Monitoring	FFP	23,210.46	
7d	Optional, (FY20) Fourth Annual Groundwater Monitoring	FFP	23,242.44	
7e	Optional, (FY21) Fifth Annual Groundwater Monitoring	FFP	23,274.43	
8	Monitoring of LUCs at Various Sites	FFP		
8a	(FY17) First Annual Monitoring Event	FFP	17,934.42	17,934.42

8b	Optional, (FY18) Second Annual Monitoring Event	FFP	17,934.42	
8c	Optional, (FY19) Third Annual Monitoring Event	FFP	17,934.42	
8d	Optional, (FY20) Fourth Annual Monitoring Event	FFP	17,934.42	
9	Monitoring of LUCs at Various Munition Sites	FFP		
9a	(FY17) First Annual Monitoring Event	FFP	5,895.00	5,895.00
9b	Optional, (FY18) Second Annual Monitoring Event	FFP	5,895.28	
9c	Optional, (FY19) Third Annual Monitoring Event	FFP	5,895.28	
9d	Optional, (FY20) Fourth Annual Monitoring Event	FFP	5,895.28	
10	Five-year Review	FFP	27,488.41	27,488.41
11	Community Relations Support	FFP	13,379.36	13,379.36
11a	Optional, Additional Meetings	FUP	8,646.02	
12	Optional, Administrative Record	FFP	1,013.48	
	Totals		$1,211,190.20	$637,951.83

ESCALATION RATES

Constant Year (FY17) Dollars

The CTC estimates shall be reported on a current cost basis (unadjusted for inflation). The following factors should be used to bring previous year costs to the current year.

Base Fiscal Year	Escalation Rate*
FY12	1.0897
FY13	1.0736
FY14	1.0578
FY15	1.0463
FY16	1.0338

* Rates based on FY18 Joint Inflation Calculator (weighted index) – 9 Mar 2017

Encl 6

ESTIMATOR EXPERIENCE

ESTIMATOR NAME: Randall Battaglia	**POSITION: Project Manager**
LOCATION: USACE NY Seneca Proj. Ofc	**YEARS OF EXPERIENCE: 31 years**
EMAIL: Randy.W.Battaglia@usace.army.mil	**PHONE NUMBER:607-869-1532**

DESCRIPTION: (Insert description of experience here, such as educational background, training, etc.)
B.S. Chemical Engineering, 1982; Certified Project Manager, 2007

Work Experience: Project Manager, USACE, 1995-Present: Prepare and manage Life-Cycle Cost for HTRW projects; executes the COE project management business process & establishing a project management plan with a project development team consisting of interdisciplinary, regional or other agencies teams to execute & ensure all projects meet customer, budgetary, safety, scope and schedule requirements during the life cycle of the project, under changing management parameters. Represents the Army as an Alternate for the installation manager in all customer/sponsor, congressional, public contacts, including public meetings, organizations, property transfers with the state, EPA, county, & independent organizations interested in the projects. Served also as the BRAC Environmental Coordinator, 2016-Present.

Environmental Coordinator, Seneca Army Depot, 1985-1995; performed all program management, cost estimation, budget regulatory, permitting, and other management for the environmental program at the active Seneca Army Depot for hazardous waste, TSDF, air, wetlands, CERCLA, RCRA, engineering projects, etc.

Process Engineer, IEC Electronics, 1983-1985 Process engineering for production, product development, personnel, process & Quality

Relevant Continuing Education: Network Systems Analysis; Project Management for Military Projects & HTRW projects; Environmental Auditing; Economic Assessment; Various Project Management & environmental remediation courses; Cost Estimating

SITE TYPE REVIEWED: Insert site number(s) at which experience gained for each site type to the maximum extent possible.

	SITE TYPE	SITE NUMBER		SITE TYPE	SITE NUMBER
	Above Ground Storage Tank	SEAD 5,59,71		Open Burn	SEAD 23, 24, 006-R-01, 003-R-01, 007-R-01
	Burn Area	SEAD 24,45,25,26		Plating Shop	
	Chemical Disposal	SEAD 13,72,4		POL (Petroleum/Lubricant Lines	SEAD 9
	Contaminated Buildings	SEAD 12, 16,17, 3		Radioactive Waste Area	SEAD 012,48,72, 63, NRC License closeout
	Contaminated Fill	SEAD 3, 9,4		Sewage Treatment Plant	SEAD 20,21
	Contaminated Groundwater	SEAD 025,006, 001-R-01, 023, 064B&D, 041		Small Arms Range	SEAD 57, 46, 120B,122A,122B
	Contaminated Sediments	SEAD 4, 3,		Soil Contamination After Tank Removal	SEAD 59,
	Contaminated Soil Piles	SEAD 5		Spill Site Area	SEAD 122
	Dip Tank			Storage Area	SEAD 123
	Disposal Pit/Dry Well			Surface Disposal Area	
	Explosive Ordnance Disposal Area	SEAD 23, 24, 006-R-01, 003-R-01, 007-R-01		Training and Maneuver Area	
	Fire/Crash Training Area	SEAD 025,026		Underground Storage Tank	SEAD 27
	Firing Range			Underground Tank Farm	
	Incinerator	SEAD 006, 001-R-01,019, 018		Unexploded Munitions/Ordnance	SEAD 115
	Industrial Discharge			Wash rack	
	Landfill	SEAD 006, 064 A,B&D, 011,		Waste Lines	
	Maintenance Yard	SEAD 122		Waste Treatment Plant	SEAD
	Oil Water Separator	SEAD 27			

Enclosure 7

US Army Corps of Engineers®

Certificate of Completion

Randall Battaglia

has successfully completed

Environmental Liability (EL)/Cost to Complete (CTC) Training

Jan 18, 2017 - Web/Audio Teleconference

Sandra M. Zebrowski

Sandi Zebrowski, P.E.
Director, USACE Environmental and Munitions Center of Expertise,

FUDS Training Services
fudstraining@usace.army.mil

ESTIMATOR EXPERIENCE

ESTIMATOR NAME: Bill Millar	**POSITION: Environmental Support, CALIBRE**
LOCATION: Army BRAC, Arlington, VA	**YEARS OF EXPERIENCE: 31**
EMAIL: william.w.millar.ctr@army.mil	**PHONE NUMBER: 703-545-2493**

DESCRIPTION: (Insert description of experience here, such as educational background, training, etc.)
1983: BA Environmental Science, University of Virginia
1988: MS, Geology, University of Georgia
1986-2001: Environmental Consulting for various environmental companies (McCrone Environmental Services, Crosby & Overton, SNR, Mittelhauser Corp., Certified Engineering & Testing, Giles Engineering, CAPE Environmental Management, JBR Environmental Consultants) for public sector and private clients in California and Utah. Work included cost estimating for environmental investigation, remediation projects, and underground/above ground storage tank specifications cost estimating and project over sight.
2001 – 2008: Plexus Scientific, Alexandria, VA: Worked at numerous BRAC facilities performing reviews of groundwater pump and treat systems. Under contract to the USACE Louisville worked on various FUDS sites in Illinois, Indiana, Ohio and Kentucky. Under contract to the USACE worked at the Sacramento Army Depot on the groundwater pump & treat system, and at the Hawthorne Army Depot in Nevada on groundwater monitoring and remediation.
2008 – Present: CALIBRE, Alexandria, VA government cost estimates and/or cost to complete estimates as well as developed BRAC environmental work plans, technical reviews and project management at the following locations: ALAAP Childersburg, AL (2009-2015); VOAAP, Chattanooga, TN (2009-2015); FTSH, Fort Sheridan, IL (2013-2015). Review of CTC estimates for the various sites BRAC Office (2013 – Present). BRAC Property Conveyance KSAAP (2008-2009), NECD (2009-2010), FTG (2009-2012), FTMP (2009-2011), and RBAAP (2013 – Present). Currently providing Environmental Support under contract to the Army BRAC Office.
Professional Geologist Licensed in California, Virginia and Illinois.

Specific environmental related training:
1992: Environmental Site Assessment and Remediation Certification, University of California, Irvine
1989 HAZWOPER (40 hrs), 1990 – 2017 Annual HAZWOPER Refresher Training
2009 –2017: Environmental Liabilities Training -- 2009-2014: RACER and AEDBR Refresher Training -- 2017 HQAES Training

SITE TYPE REVIEWED: Insert site number(s) at which experience gained for each site type to the maximum extent possible.

	SITE TYPE	SITE NUMBER		SITE TYPE	SITE NUMBER
	Above Ground Storage Tank	CAPE-1996		Open Burn	
	Burn Area	ALAAP-16		Plating Shop	C&O 1990
	Chemical Disposal	ALAAP		POL (Petroleum/Lubricant Lines	CAPE-1996, VAAP-36
	Contaminated Buildings	CAPE, and McCrone,		Radioactive Waste Area	
	Contaminated Fill	ALAAP, & FTSH		Sewage Treatment Plant	
	Contaminated Groundwater	ALAAP-34, VOAAP AOC 6		Small Arms Range	JBR-2000
	Contaminated Sediments	ALAAP-24, ALAAP-26, ALAAP-09		Soil Contamination After Tank Removal	CAPE-1996
	Contaminated Soil Piles	Plexus 2007		Spill Site Area	C&O 1990
	Dip Tank	SNR		Storage Area	C&O 1990
	Disposal Pit/Dry Well			Surface Disposal Area	SNR, ALAAP
	Explosive Ordnance Disposal Area			Training and Maneuver Area	
	Fire/Crash Training Area			Underground Storage Tank	CAPE-1996
	Firing Range			Underground Tank Farm	CAPE-1996, SAEP
	Incinerator			Unexploded Munitions/Ordnance	FTSH-64
	Industrial Discharge	SNR		Wash rack	
	Landfill	ALAAP-22, ALAAP-08, FTSH-05, FTSH-06, FTSH-07, FTSH-08		Waste Lines	
	Maintenance Yard			Waste Treatment Plant	
	Oil Water Separator				

Enclosure __

Estimate Summary Table
Site # SEAD-006-R-01

Site Number	Phase	CTC Subtotal ($K)	Estimate Type	Assumption	Basis of Assumption	Basis of Assumption Document Name	Location of Basis of Assumption Document
SEAD 006-R-01	RA(O)	1,927	EE & Contract	Long Term Monitoring Plan Preparations FY12 $23,333.12 escalated to FY17 x 1.0897 = $25,426.10	Contract Costs for LTM Plan	Contract #: W912DY-10-D-0014 Delivery Order 0005, 23 November 2011	HNC 1600 University Square Huntsville Al Attached
				Install 6 and Monitor 12 GW wells quarterly for 1st year. FY12 $160,509.05 escalated to FY17 x 1.0897 = $174,906.71	Contract Costs for one year of groundwater monitoring	Contract #: W912DY-10-D-0014 Delivery Order 0005, 23 November 2011	HNC 1600 University Square Huntsville Al Attached
				Groundwater monitoring will go on semiannually for 30 years (2017-2045) $49,663.35 x 29 events = $1,440,237.15	DoD guidance is 30 years or monitoring for indefinite period	The DoDM 4715.20, DERP Management, March 9, 2012 required CTC estimates for RA(O) or LTM phases that are expected to continue indefinitely should include a finite period of 30 years.	HNC 1600 University Square Huntsville Al Attached
				Groundwater monitoring cost estimate from FY12 $1,440,237.15 x 1.0897 = $1,569,426.42	Escalation of groundwater monitoring costs	Contract #: W912DY-10-D-0014 Delivery Order 0005, 23 November 2011	HNC 1600 University Square Huntsville Al Attached
				Owner Support for RA 11% of total LTM Cost $184.50 x 851 hours = $157,009.50	Engineering Estimate (EE), Owner Cost at 11%	EE - Oversight Estimate	HNC 1600 University Square Huntsville Al Attached
	LTM	351	EE & Contract	Five Year Reviews of 30 years $27,488.41	Contract including Five Year Review.	W912DY-09-D-0023, 30 March 2016	USACE, NY 5786 State Route 96 Romulus, NY 14541 Attached
				Escalate from FY16 to FY17 $27488.41 x 1.0338 = $28,417.52	Escalation	FY17 Environmental Cleanup Data Calls, 03 April 2017	Attached
				30 years for remediation $28,417.52 x 6 events = $170,505.11	DoD guidance is 30 years or monitoring for indefinite period	The DoDM 4715.20, DERP Management, March 9, 2012 required CTC estimates for RA(O) or LTM phases that are expected to continue indefinitely should include a finite period of 30 years.	Attached

Enclosure __

Estimate Summary Table
Site # SEAD-006-R-01

Site Number	Phase	CTC Subtotal ($K)	Estimate Type	Assumption	Basis of Assumption	Basis of Assumption Document Name	Location of Basis of Assumption Document
				COE Oversight of Contract 11% of total LTM Cost $184.50 x 980 = $180,810.00	Engineering Estimate	EE - Oversight Estimate	USACE NY 5786 State Route 96 Romulus, NY 14541 Attached
				Well abandonment and site closeout, source out of date, cost estimate to be determined.	No current source	Need a valid source of cost estimate.	TBD
Total cost to complete		2,278					
Does the CTC estimate include work through site closure? (Yes/No)		No					

Enclosure __

Seneca Army Depot Cost Estimate
Site Closeout and Well Abandonment
SEAD 006-R-01

TASK	UNITS	UNIT COST (FY11)	NO. units	Amount	ESCALATION FACTOR	FY16 Estimate= Amt x Esc	FY17 Escalation Factor	FY17 Estimate =FY16 X Esc	BASIS/DOCUMENTATION
WELL ABANDONMENT	LS	$ 5,223.00	12	$ 62,676.00	1.0666	$ 66,850.22	1.0338	$ 69,109.76	W912DY-08-D-0003, TASK ORDER 0008, FY11; 6 wells @ $31,398= $5,223
Five Year Reviews	LS	$ 27,488.41	6	$ 164,930.46	1	$ 164,930.46	1.0338	$ 170,505.11	
Closeout Report	LS	$ 18,206.00			1.0666	$ 19,419.00	1.0338	$ 20,075.36	
Assembly No.	**Assembly Description**		**FY17 Labor Rate**	**HRS**					
33220101	Senior Project Manager		$ 110.73	10				$ 1,107.30	FY17 Data Call Memorandum
33220102	Project Manager		$ 101.83	40				$ 4,073.20	FY17 Data Call Memorandum
33220105	Project Engineer		$ 70.33	80				$ 5,626.40	FY17 Data Call Memorandum
33220106	Staff Engineer		$ 92.60	80				$ 7,408.00	FY17 Data Call Memorandum
33220108	Project Scientist (Geologist)		$ 76.57	80				$ 6,125.60	FY17 Data Call Memorandum
33220110	QA/QC Officer		$ 72.61	80				$ 5,808.80	FY17 Data Call Memorandum
33220112	Field Technician		$ 46.94	80				$ 3,755.20	FY17 Data Call Memorandum
								$ 293,594.73	

ENCL 9

SEAD - 006-R-01 **2017**

Phase	2017	2018	2019	2020	2021	2022	2023	2024	Outyears	**CTC**
RA(O)	56	56	56	56	56	56	56	56	1121	
RA (oversight)			157							
LTM										
LTM wells and plan					200					
FIVE YEAR REVIEW					28				153	
WELL ABANDONMENT										
AND CLOSEOUT									171	
	56	56	213	56	284	56	56	56	1445	2278

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

APR 03 2017

DAIM-IS

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Fiscal Year 2017 Environmental Cleanup Data Calls

1. Headquarters Army Environmental System (HQAES) is the Army's database of record for the Fiscal Year (FY) 17 data calls. The transition to HQAES, which is a Systems, Applications, and Products based solution, will ultimately change the way the Army reviews and validates environmental data; however, until system stabilization is achieved, the cleanup program will continue to operate using a Spring and Fall data call.

2. HQAES originally went live in May 16 using FY11 data that was migrated from the legacy systems, which include the Army Environmental Database Restoration and Army Environmental Database Compliance Cleanup systems. Data Support Teams are working to assist installations with their FY17 updates by initially transitioning the data from the legacy systems to HQAES. Installation visits by the Data Support Team will continue through May 17. Installations are not required to recreate their FY12, FY13, FY14, FY15, or FY16 data sets in HQAES.

3. The Spring 2017 data call reporting period end date is 31 Mar 17, and to the extent possible, installations will update their cost-to-complete estimates, cost requirements spread, phase schedules and the programmed funding spread prior to 5 May 17. Enclosures 1-9 of this memorandum provides detailed instructions, data call schedule, escalation rates, professional labor categories and rates, Department of Defense area cost factor, memorandum for record template, peer review checklist, supervisory review checklist, and HQAES specific contacts for technical, reporting and program management assistance.

4. The point of contact for this action is Mr. Bryan Frey, 571-256-9733; e-mail: bryan.m.frey.civ@mail.mil.

9 Encls

ROBERT L. MENIST
Colonel, GS
Acting Director, Installation Services

DISTRIBUTION:
(see next page)

DAIM-IS
SUBJECT: Fiscal Year 2017 Environmental Cleanup Data Calls

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CF
U.S. ARMY CORPS OF ENGINEERS

ESCALATION RATES

Constant Year (FY17) Dollars

The CTC estimates shall be reported on a current cost basis (unadjusted for inflation). The following factors should be used to bring previous year costs to the current year.

Base Fiscal Year	Escalation Rate*
FY12	1.0897
FY13	1.0736
FY14	1.0578
FY15	1.0463
FY16	1.0338

* Rates based on FY18 Joint Inflation Calculator (weighted index) – 9 Mar 2017

PEER REVIEW CHECKLIST

Installation Name: Seneca Army Depot

Review Date: 27 September 2017 **Total Number of Sites Reviewed:** 27

Use this checklist to assess the reasonableness of the installation's estimates, appropriate methodology, and to document peer review. Reviewer should also use the OACSIM Memorandums entitled, *Corrective Action Procedures for Achieving Audit Readiness - 24 Dec 2015, FY16 Audit Testing Corrective Action Procedures - 23 Sep 2016*, and the OACSIM annual data call memo as guides.

1. **Are sound estimating methodology and reasonable assumptions used?** Does the database of record capture and document the assumptions used to develop the CTC? Does the information in the database of record match the information in the MFR and EST?

YES ☐ / **NO** ■ Comments: The data in HQAES is being fine-tuned to match the MFRs, but is a work in progress. MFRs and HQAES do not match currently.

2. **Does cost-to-complete (CTC) packages contain supporting documentation that is clear, traceable, and defendable?** (use *Corrective Action Procedures for Achieving Audit Readiness Memo - 24 Dec 2015, FY16 Audit Testing Corrective Action Procedures - 23 Sep 2016, and OACSIM annual data call memos*)

YES ■ / **NO** ☐ Comments: _____

_____

3. **Did the estimator compare prior year to the current year estimates and address unresolved comments from the previous data call QC review?** Did the assumptions used to determine the selected site remedial actions in the previous data call change? Changes to assumptions may result in a change to the cost estimate. Comments are required if there is a 10% material change or change amount of $25,000 in costs from previous data call. Were the QC comments from the previous data call addressed?

YES ■ / **NO** ☐ Comments: _____

_____

4. **Does the estimate include all relevant phases and costs to complete the cleanup?** Project completion may not require all phases. To ensure proper consideration and show that no phases are missing, provide explanation in comments if RA, RA-O, CMI-O, CMI-C, or LTM phases are not included in the estimate.

YES ■ / NO ☐ Comments: _____

_____

5. **Does the estimator have the proper qualifications and required training (see CTC Guidance section 5.3) to compile/generate the estimate? Ensure the Estimators Experience Form documenting proper qualifications and required training is part of the supporting documentation for the estimator.** ***Note: The Peer Reviewer should also submit an EEF to substantiate their training.***

YES ■ / NO ☐ Comments: _____

_____

6. **Is there an adequate audit trail? Are necessary memos for record included to document assumptions for cost estimates made early in the remediation process where more complete remedial investigation, feasibility study, or other engineering cost estimates may not be available? Can the peer reviewer recreate the estimate based on the supplied supporting documentation?**

YES ■ / NO ☐ Comments: _____

_____

7. **Is there adequate documentation to support the underlying assumptions used to develop the estimate? Were outlined procedures in the CTC Guidance followed? Are appropriate documents (MFR, EST, EEF's, all supporting documentation) included in the database of record?**

YES ■ / NO ☐ Comments: _____

_____

Peer Review Checklist

8. **Is the estimate maintained in the current year cost? Is there a material change? Is the material change calculation contained in the MFR?** Note: annotation of the MFR is required even if there is no material change.

YES ■ / **NO** ☐ Comments: _____

_____

9. **Are proper and consistent rounding techniques used for the estimates? Round** to the penny for all intermediate (sub-phase) steps. Round to the thousand at the phase level. If there are multiple phases, then sum the rounded phases to get to the total estimate value.

YES ■ / **NO** ☐ Comments: _____

_____

10. **Are proper and consistent escalation factors used to bring past unexecuted phases up to current year dollars? The CTC package should also include a copy of the annual datacall memo from OACSIM issued latest by first week in March beginning of each year.**

YES ■ / **NO** ☐ Comments: _____

_____

11. **Are the estimated figures on the CTC, MFR, EST, and within the database of record all match for a particular phase? If the figures do not match, is there an explanation in the MFR for the discrepancy?**

YES ☐ / **NO** ■ Comments: The data in HQAES is being fine-tuned to match the MFRs, but is a work in progress. MFRs and HQAES do not match currently.

"I have reviewed the supporting documentation; for estimating methodology, facts, and assumptions are appropriate for the site cost and the documentation properly and completely supports the estimate".

Reviewer's Signature MILLAR.WILLIAM.WINSTON.SR.13914603 09

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Estimate Summary Table
Site # SEAD-006-R-01

Site Number	Phase	CTC Subtotal ($K)	Estimate Type	Assumption	Basis of Assumption	Basis of Assumption Document Name	Location of Basis of Assumption Document
SEAD 006-R-01	RA(O)	1,569	Contract	Optional Task 6,7,8.1,8.3	Contract Costs	Contract #: W912DY-10-D-0014-0005	HNC 1600 University Square Huntsville Al
				30 years for remediation	$49,663.35 x 29 events = $1,440,237 rounded to ($1,440K) DoD guidance is 30 years. $1440K x 1.0897 = $1569K	The DoDM 4715.20, DERP Management, March 9, 2012 required CTC estimates for RA(O) or LTM phases that are expected to continue indefinitely should include a finite period of 30 years.	
	RA	157		Oversight of field work	Owner Cost at 11%	Oversight Estimate	
	LTM	181	IGE	Engineering Estimate	Engineering Estimate		USACE, NY 5786 State Route 96 Romulus, NY 14541
					$180,810 rounded to $181K		
	LTM	200	IGE		$ 25,426.10 +174,906.71= $200, 331.81	LTM plan prep, encl5, Install 6 wells, Source 5	
	LTM	171	IGE	COE Oversight of Contract	Engineering Estimate	Well Closure and five year review costs	USACE NY 5786 State Route 96 Romulus, NY 14541
				30 years for remediation	$27,448 x 6 5YRs x 1.0338= $170,505.11	The DoDM 4715.20, DERP Management, March 9, 2012 required CTC estimates for RA(O) or LTM phases that are expected to continue indefinitely should include a finite period of 30 years.	
				Escalation from 2016	$170,505 rounded to $171K.	USAEC ACSIM FY17 Data Call Memo, 3 April 2017	
Total cost to complete		2,278					
Does the CTC estimate include work through site closure? (Yes/No)		yes					

SEAD - 006-R-01 **2017**

Phase	2017	2018	2019	2020	2021	2022	2023	2024	Outyears	**CTC**
LTM	53	53	53	53	53	53	53	53		424
RA(O)			50	50	50	50	50	50	1321	1621
RA OVERSIGHT COST			157							157
LTM (OVERSIGHT COST)	3	3	3	3	3	3	3	3	157	181
FIVE YEAR REVIEW					58					58
WELL ABANDONMENT										
AND CLOSEOUT									294	294
	56	56	263	106	164	106	106	106	1772	2311

Seneca Army Depot Cost Estimate
Site Closeout and Well Abandonment
SEAD 006-R-01

TASK	UNITS	UNIT COST (FY11)	NO. units	Amount	ESCALATION FACTOR	FY16 Estimate= Amt x Esc	FY17 Escalation Factor	FY17 Estimate =FY16 X Esc	BASIS/DOCUMENTATION
WELL ABANDONMENT	LS	$ 5,223.00	12	$ 62,676.00	1.0666	$ 66,850.22	1.0338	$ 69,109.76	W912DY-08-D-0003, TASK ORDER 0008, FY11; 6 wells @ $31,398= $5,223
Five Year Reviews	LS	$ 27,488.41	6	$ 164,930.46	1	$ 164,930.46	1.0338	$ 170,505.11	
Closeout Report	LS	$ 18,206.00			1.0666	$ 19,419.00	1.0338	$ 20,075.36	
Assembly No.	**Assembly Description**		**FY17 Labor Rate**	**HRS**					
33220101	Senior Project Manager		$ 110.73	10				$ 1,107.30	FY17 Data Call Memorandum
33220102	Project Manager		$ 101.83	40				$ 4,073.20	FY17 Data Call Memorandum
33220105	Project Engineer		$ 70.33	80				$ 5,626.40	FY17 Data Call Memorandum
33220106	Staff Engineer		$ 92.60	80				$ 7,408.00	FY17 Data Call Memorandum
33220108	Project Scientist (Geologist)		$ 76.57	80				$ 6,125.60	FY17 Data Call Memorandum
33220110	QA/QC Officer		$ 72.61	80				$ 5,808.80	FY17 Data Call Memorandum
33220112	Field Technician		$ 46.94	80				$ 3,755.20	FY17 Data Call Memorandum
								$ 293,594.73	

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DEPARTMENT OF THE ARMY
Office of the Assistant Chief of Staff for Installation Management
BRAC Division
Seneca Army Depot, Seneca, NY

MEMORANDUM FOR RECORD **27 September** 2017

SUBJECT: Environmental Liabilities for site SEAD-006-R-01 (HQAES WBS# 36760.1100) RCRA Closure of the OB/OD Grounds (alias SEAD-115 [not listed in HQAES], SEAD 45 [Demolition Area HQAES WBS# 36760.1045]) at Seneca Army Depot

This memorandum serves as formal documentation of the information used to develop the Cost-To-Complete (CTC) estimate for site SEAD-006-R-01 during the 2017 data call. This site also encompasses SEAD-023 (OB Grounds) (not listed in HQAES). Estimators experience is documented on the Estimator Experience Form, enclosure 7, per the Federal Accounting Standards Advisory Board (FASAB) Handbook Technical Release 2.

Well abandonment and site closeout costs were previously covered in a contract from FY11 (W912DY-08-D-0003, Task Order 0008). The contract is out of date and not used for cost estimating. The cost for well abandonment and site closeout will require a new contract or an engineering estimate, until a valid cost estimate is available the cost is to be determined.

The SEAD-23 monitoring program, which was initiated in 2007 under this project, will be carried under the RI/FS phase until completion of the remediation. A zero dollar CTC has been prepared for SEAD-23. It is assumed six additional wells will be installed at SEAD 006-R-01 for additional GW monitoring at the site as part of a LTM plan. Contract W912DY-10-D-0014 Delivery Order 5, 23 November 2011, (Enclosure 5) provides the cost of the Long Term Monitoring Plan, well installation, first year monitoring cost, and out-year monitoring cost. The cost for the GW monitoring during the RI/FS phase for SEAD 23 is provided by contract W912DY-09-D-0062 Delivery Order 0023 task 0003a, 30 March 2016. (Enclosure 6) and the requirement for testing is established in the ROD for the OB Grounds (Enclosure 2). It is assumed that after the completion of the remediation, monitoring GW for SEAD-006-R-01 will require sampling at a quarterly interval for the first year and then semi-annually in subsequent years for cap inspection and effectiveness. It is further assumed that the monitoring efforts at SEAD 23 will continue as part of the overall project (Enclosure 6). After the remediation is completed the monitoring will be carried out under the LTM phase. Due to EPA's disagreement with the planned IRA to include a cap, and due to the Army's agreement with Land Use Controls for munitions sites, the FS will be finalized and a ROD signed for the final remediation. It is assumed that the final remediation will be accomplished with funding provided in prior years. Contract W912DY-10-D-0014 Delivery Order 5, 23 November 2011, Enclosure 5, was terminated for convenience. Funding remains for the final remediation. This included the contract cost for the cap alternative. It was

assumed the first 5 year review will occur in 2021, this may need to be in 2026 given ROD signature and completion of remediation in 2019. The Owner Support for RA is S&A for the remedial action, which was postponed due to the ROD. This cost is shown in FY19.

1. **Site History**: The Army destroyed ammunition by detonation and open burning at this site, which was in operation from 1948 through 1998. The OB ground consists of elevated burning trays. The site is in the northwest portion of the installation and covers 364 acres. The investigation of this site revealed contamination consisting of ordnance and explosives (OE) and heavy metals. This is a RCRA interim permitted site. This site also encompasses SEAD-023 (not listed in HQAES), OB Grounds, where a CERCLA remediation was completed in 2003.

2. **Current Site Status:**
   a. The cleanup strategy includes the ongoing removal of all munitions potentially posing an explosive hazard from the outer perimeter of the site at approximately 2500 feet, inwardly to the proposed 8 acre landfill cap. The work from 2500 feet to 1000 feet is underway through a Removal Action. The preferred FS Alternative has been to consolidate all soil that contains hazardous toxic or radiological waste (HTRW) contamination will be placed under the cap. The cap will comply with State Regulatory standards. Soil under the cap will not have ordnance removed prior to the capping.
   b. Groundwater will require annual testing until results demonstrate cleanup criteria.
   c. EPA raised numerous concerns on materials potentially presenting an explosive hazard (MPPEH) and disagrees with the cap alternative. A large amount of the <1000 feet radius was geophysically mapped and MPPEH removed. EPA has disagreed with the cap only alternative and has taken the position of removal of one foot and geophysics to three feet below this point on the entire site similar to the Umatilla site ($47M). The Army position is surface sweep is adequate for this site for the known future use of restricted access conservation. Higher level discussions are occurring and other alternatives are being considered. To address EPA's concerns, final remediation alternatives are to be evaluated using MMR LUCs, the Open Burning Grounds ROD as a precedent for HTRW soils (only), cap with slurry wall, mechanical separation, and soil stabilization.

3. **Exit Strategy**:
LTM includes Cap Maintenance, GW monitoring, LUCs, Five-Year reviews, and site closeout effort. MMR LUCs will be critical to final agreement on remediation.

For cost estimating purposes, the LTM duration as indicated in the phase schedule extends only to the end of the second five-year review; however, LTM is anticipated to continue in perpetuity.

4. **Enclosures**:
   1. Draft Final Feasibility Study Report for Open Detonation Grounds Munitions Response Action, Parsons, April 2013

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

2. Final Record of Decision Former Open Burning Grounds Site, January 1999
3. Final Long Term Monitoring Plan for Open Burning Grounds, January 2007
4. Performance Work Statement for Contract W912DY-10-D-0014, DO 0005, 23 November 2011
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6. Final 2011 Long Term Monitoring Annual Report for the Open Burning Grounds, May 2013; Contract W912DS-09-D-0062 TO 0023, 30 March 2016; Escalation Rates.
7. Estimator's Experience Sheet, Environmental Liabilities training
8. Estimate Summary Table
9. Engineering Estimate for Site Closeout and Well Abandonment

5. Engineering Estimate Assumptions:

Site Closeout Documentation (LTM):

1. Site Closeout is moderate complexity
2. Kick-off, review and regulatory meetings
3. Work Plans and reports - all default values
4. Documents will be stored for 30 years

The cost estimate for site closeout documentation is out of date, the cost to complete is to be determined.

Well abandonment (LTM):

1. Number of wells: 12
2. Well depth: 15 feet
3. Well diameter: 2 inches
4. Formation type: Unconsolidated
5. Method: Overdrill/excavation

The cost estimate for well abandonment is out of date, the cost to complete is to be determined.

Five year MPPEH & CERCLA review

1. Review cycles (SEAD 006-R-01 and SEAD 23 combined)
2. Five year review cycle starts 2016 for SEAD 23
3. Five year review cycle starts 2021 for SEAD 006-R-01 and SEAD 23 combined
4. Site is moderate complexity
5. Reports, reviews, interviews and site inspections include all default parameters
6. MEC review included

7. Cost Summary SEAD-006-R-01 (SEAD-115/45)

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

Remedial Action (Operations) (RA(O)):

Long Term Monitoring Plan preparation (enclosure 5); FY12 $23,333.12 escalated to FY17 x 1.0897 =	$25,426.10
Install 6 and Monitor 12 GW wells quarterly 1st year, 2016 (source 5); FY12 $160,509.05 escalated to FY17 x 1.0897 =	$174,906.71
For years 2017-2045, Monitor 12 GW wells, semiannually x 29 years (source 5); FY12 $49,663.35 x 29 years x escalated to FY17 x 1.0897 =	$1,569,426.42
Owner Support for RA (Source 4) 11% of total LTM Cost $184.50 x 851 Hours =	$157,009.50
Subtotal RA(O) = or $1,927K	$1,926,768.74

Long Term Monitoring (LTM):

Six five-year reviews for SEAD-23 and SEAD-006-R-01 (W912DY-09-D-0023, 30 March 2016) 27,488.41 x 1.0338 (escalate to FY17) = $28,417.52 x 6 events =	$170,505.11
Well abandonment and site closeout (no current estimate)	TBD
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Subtotal LTM: or $351K	**$351,315.11**
Total Cost or $2,278K	**$2,278,083.84**

Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) at Seneca Army Depot

Material Change: The CTC for FY16 was $2,093K the CTC for FY17 is $2,278K. The calculated percentage change was 5.3%. No material change.

Material Change = absolute value of (indexed prior year CTC – current CTC – current obligations)/indexed prior year CTC

MC = ((2,093 * 1.0338) – 2,278 – 0) / (2,093 * 1.0338) = 5.3%

Prepared by: Randall Battaglia
Cost Estimator

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Date: 2017.09.27 16:18:30 -04'00'

Signature Date

Reviewed by: Erin Mauer
Cost Estimate Reviewer

Signature Date

DEPARTMENT OF THE ARMY
Office of the Assistant Chief of Staff for Installation Management
BRAC Division
Seneca Army Depot, Seneca, NY

MEMORANDUM FOR RECORD 03 August 2017

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Prepared by: Randall Battaglia
Cost Estimator

Signature Date

Reviewed by: Bill Millar
Cost Estimate Reviewer

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Date: 2017.09.27 12:37:47 -04'00'

Signature Date

DEPARTMENT OF THE ARMY
Office of the Assistant Chief of Staff for Installation Management
BRAC Division
Seneca Army Depot, Seneca, NY

MEMORANDUM FOR RECORD 03 August 2017

SUBJECT: Environmental Liabilities for site SEAD-006-R-01 (HQAES WBS# 36760.1100) RCRA Closure of the OB/OD Grounds (alias SEAD-115 [not listed in HQAES], SEAD 45 [Demolition Area HQAES WBS# 36760.1045]) at Seneca Army Depot

This memorandum serves as formal documentation of the information used to develop the Cost-To-Complete (CTC) estimate for site SEAD-006-R-01 during the 2017 data call. This site also encompasses SEAD-023 (OB Grounds) (not listed in HQAES). Estimators experience is documented on the Estimator Experience Form, enclosure 7, per the Federal Accounting Standards Advisory Board (FASAB) Handbook Technical Release 2.

Well abandonment and site closeout costs were previously covered in a contract from FY11 (W912DY-08-D-0003, Task Order 0008). The contract is out of date and not used for cost estimating. The cost for well abandonment and site closeout will require a new contract or an engineering estimate, until a valid cost estimate is available the cost is to be determined.

The SEAD-23 monitoring program, which was initiated in 2007 under this project, will be carried under the RI/FS phase until completion of the remediation. A zero dollar CTC has been prepared for SEAD-23. It is assumed six additional wells will be installed at SEAD 006-R-01 for additional GW monitoring at the site as part of a LTM plan. Contract W912DY-10-D-0014 Delivery Order 5, 23 November 2011, (Enclosure 5) provides the cost of the Long Term Monitoring Plan, well installation, first year monitoring cost, and out-year monitoring cost. The cost for the GW monitoring during the RI/FS phase for SEAD 23 is provided by contract W912DY-09-D-0062 Delivery Order 0023 task 0003a, 30 March 2016. (Enclosure 6) and the requirement for testing is established in the ROD for the OB Grounds (Enclosure 2). It is assumed that after the completion of the remediation, monitoring GW for SEAD-006-R-01 will require sampling at a quarterly interval for the first year and then semi-annually in subsequent years for cap inspection and effectiveness. It is further assumed that the monitoring efforts at SEAD 23 will continue as part of the overall project (Enclosure 6). After the remediation is completed the monitoring will be carried out under the LTM phase. Due to EPA's disagreement with the planned IRA to include a cap, and due to the Army's agreement with Land Use Controls for munitions sites, the FS will be finalized and a ROD signed for the final remediation. It is assumed that the final remediation will be accomplished with funding provided in prior years. Contract W912DY-10-D-0014 Delivery Order 5, 23 November 2011, Enclosure 5, was terminated for convenience. Funding remains for the final remediation. This included the contract cost for the cap alternative. It was

assumed the first 5 year review will occur in 2021, this may need to be in 2026 given ROD signature and completion of remediation in 2019. The Owner Support for RA is S&A for the remedial action, which was postponed due to the ROD. This cost is shown in FY19.

1. **Site History**: The Army destroyed ammunition by detonation and open burning at this site, which was in operation from 1948 through 1998. The OB ground consists of elevated burning trays. The site is in the northwest portion of the installation and covers 364 acres. The investigation of this site revealed contamination consisting of ordnance and explosives (OE) and heavy metals. This is a RCRA interim permitted site. This site also encompasses SEAD-023 (not listed in HQAES), OB Grounds, where a CERCLA remediation was completed in 2003.

2. **Current Site Status:**
   a. The cleanup strategy includes the ongoing removal of all munitions potentially posing an explosive hazard from the outer perimeter of the site at approximately 2500 feet, inwardly to the proposed 8 acre landfill cap. The work from 2500 feet to 1000 feet is underway through a Removal Action. The preferred FS Alternative has been to consolidate all soil that contains hazardous toxic or radiological waste (HTRW) contamination will be placed under the cap. The cap will comply with State Regulatory standards. Soil under the cap will not have ordnance removed prior to the capping.
   b. Groundwater will require annual testing until results demonstrate cleanup criteria.
   c. EPA raised numerous concerns on materials potentially presenting an explosive hazard (MPPEH) and disagrees with the cap alternative. A large amount of the <1000 feet radius was geophysically mapped and MPPEH removed. EPA has disagreed with the cap only alternative and has taken the position of removal of one foot and geophysics to three feet below this point on the entire site similar to the Umatilla site ($47M). The Army position is surface sweep is adequate for this site for the known future use of restricted access conservation. Higher level discussions are occurring and other alternatives are being considered. To address EPA's concerns, final remediation alternatives are to be evaluated using MMR LUCs, the Open Burning Grounds ROD as a precedent for HTRW soils (only), cap with slurry wall, mechanical separation, and soil stabilization.

3. **Exit Strategy**:
LTM includes Cap Maintenance, GW monitoring, LUCs, Five-Year reviews, and site closeout effort. MMR LUCs will be critical to final agreement on remediation.

For cost estimating purposes, the LTM duration as indicated in the phase schedule extends only to the end of the second five-year review; however, LTM is anticipated to continue in perpetuity.

4. **Enclosures**:
   1. Draft Final Feasibility Study Report for Open Detonation Grounds Munitions Response Action, Parsons, April 2013

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2. Final Record of Decision Former Open Burning Grounds Site, January 1999
3. Final Long Term Monitoring Plan for Open Burning Grounds, January 2007
4. Performance Work Statement for Contract W912DY-10-D-0014, DO 0005, 23 November 2011
5. Contract W912DY-10-D-0014, Delivery Order 0005, DTD 23 November 2011
6. Final 2011 Long Term Monitoring Annual Report for the Open Burning Grounds, May 2013; Contract W912DS-09-D-0062 TO 0023, 30 March 2016; Escalation Rates.
7. Estimator's Experience Sheet, Environmental Liabilities training
8. Estimate Summary Table
9. Engineering Estimate for Site Closeout and Well Abandonment

5. Engineering Estimate Assumptions:

Site Closeout Documentation (LTM):

1. Site Closeout is moderate complexity
2. Kick-off, review and regulatory meetings
3. Work Plans and reports - all default values
4. Documents will be stored for 30 years

The cost estimate for site closeout documentation is out of date, the cost to complete is to be determined.

Well abandonment (LTM):

1. Number of wells: 12
2. Well depth: 15 feet
3. Well diameter: 2 inches
4. Formation type: Unconsolidated
5. Method: Overdrill/excavation

The cost estimate for well abandonment is out of date, the cost to complete is to be determined.

Five year MPPEH & CERCLA review

1. Review cycles (SEAD 006-R-01 and SEAD 23 combined)
2. Five year review cycle starts 2016 for SEAD 23
3. Five year review cycle starts 2021 for SEAD 006-R-01 and SEAD 23 combined
4. Site is moderate complexity
5. Reports, reviews, interviews and site inspections include all default parameters
6. MEC review included

7. Cost Summary SEAD-006-R-01 (SEAD-115/45)

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Remedial Action (Operations) (RA(O)):

Long Term Monitoring Plan preparation (enclosure 5);
FY12 $23,333.12 escalated to FY17 x 1.0897 = $25,426.10

Install 6 and Monitor 12 GW wells quarterly 1st year, 2016 (source 5); FY12 $160,509.05 escalated to FY17 x 1.0897 = $174,906.71

For years 2017-2045,
Monitor 12 GW wells, semiannually x 29 years (source 5); FY12 $49,663.35 x 29 years x escalated to FY17 x 1.0897 = $1,569,426.42

Owner Support for RA (Source 4)
11% of total LTM Cost
$184.50 x 851 Hours = $157,009.50

Subtotal RA(O) = $1,926,768.74
or $1,927K

Long Term Monitoring (LTM):

Six five-year reviews for SEAD-23 and SEAD-006-R-01
(W912DY-09-D-0023, 30 March 2016)
27,488.41 x 1.0338 (escalate to FY17) = $28,417.52 x 6 events = $170,505.11

Well abandonment and site closeout (no current estimate) TBD

Owner Support for GW Monitoring (Source 4)
11% of total LTM Cost
~~$184.50~~ x 980 Hours = $180,810.00

Subtotal LTM: **$351,315.11**
or $351K

Total Cost **$2,278,083.84**
or $2,278K

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Material Change: The CTC for FY16 was $2,093K the CTC for FY17 is $2,278K. The calculated percentage change was 5.3%. No material change.

Material Change = absolute value of (indexed prior year CTC – current CTC – current obligations)/indexed prior year CTC

MC = ((2,093 * 1.0338) – 2,278 – 0) / (2,093 * 1.0338) = 5.3%

Prepared by: Randall Battaglia
Cost Estimator

Signature Date

Reviewed by: Bill Millar
Cost Estimate Reviewer

MILLAR.WILLIAM.WINSTON.SR.1391460309

Digitally signed by MILLAR.WILLIAM.WINSTON.SR.1391460309
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=CONTRACTOR, cn=MILLAR.WILLIAM.WINSTON.SR.1391460309
Date: 2017.09.27 12:37:47 -04'00'

Signature Date

FORM 4 - VISUAL INSPECTIONS

Team Member Name: _____; Date: _____
Installation Name: _____; Installation Code: _____
Area: _____; Parcel: _____; Facility No. _____;
Facility Name: _____; Map ID: _____; Coordinates: _____
Address: _____
Area/Facility Use: (*Undeveloped, Agriculture, Housing, Recreation, Commercial, Utilities, Light Industrial, Heavy Industrial, Other:* _____); Acreage: _____;
Associated IRP Site, SWMU, or OU? Y/N/U ; If yes, Site ID(s): _____
Area/Facility contact name/title: _____; Phone: _____

Escort Information:
Name: _____; Organization: _____; Title: _____
Role/Responsibility: _____; Phone: _____;
Period for which the person would have specific and detailed knowledge of the area or facility in question:
_____

Inspection Information:
Methods used to observe area or facility: (*Air, Auto, Walk, Onsite, Remote:* _____)
Inspection Complete? Y/N If no, explain: _____
_____

Setting:
Adjoining land use (show on map): _____
_____
Roads without outlets? Y/N ; Describe use: _____
Wetlands, Streams, Springs/seeps?: Y/N (delineate on map as W, S, SS, respectively);
Surface Cover: (*Vegetation, Manmade; Type:* _____);

Construction:
Structure: (*Metal frame, Wood frame, Concrete*);
Siding (*Metal, Wood, Concrete, PVC, Other* _____);
Flooring Material: (*Wood, Concrete, Ceramic, Vinyl*);
Roofing Material: (*Composition, Sheet Metal, Tar, Tiles, Slate, Cedar Shake, Rubberized, Fiberglass*)
Insulation Material: (*Fiberglass, Foam, Unknown*)

Facility Utilities:
Heating/Ventilation/Cooling (HVAC) System: (*Oil/forced air, Gas/forced air, Electrical, Steam, Hot water*);
HVAC Power: (*Gas, Oil, Coal, Electric*); Backup Power Supply? Y/N;
Boiler Room? Y/N; Exhaust System? Y/N

Use History:
Describe in Table I-2 additional information regarding the use history of this area or facility discovered during the visual inspection that was not already described during interviews.

Installation Code: _____; Area: _____; Parcel: _____; Facility No: _____
Team Member Name: _____; Date: _____

FEATURES (Circle each form used. Use the appropriate form listed below.)

FORM V1: STORAGE TANKS: ASTs, USTs, Oil/Water Separators
FORM V2: HAZARDOUS SUBSTANCES AND/OR PETROLEUM PRODUCTS USED OR GENERATED, AND THEIR STORAGE AND DISPOSAL (except for USTs and ASTs).
FORM V3: POTENTIAL RELEASES: As indicated by stains, pools, stressed vegetation, odors, burned areas, illicit dumping and other uncontrolled waste.
FORM V4: WASTE WATER: Occurrence and disposition, including storm water, cooling water, waste water from processes, facility floors, oil-water separators, sumps, dry wells, etc.
FORM V5: PIPELINES
FORM V6: TRANSFORMERS: inventory, including capacitors.
FORM V7: PONDS: Including infiltration ponds, waste water treatment reservoirs, etc.
FORM V8: AIR EMISSIONS: Including incinerators, boilers, process, or laboratory exhaust.
FORM V9: POTENTIAL ASBESTOS CONTAINING MATERIALS
FORM V10: WELLS: Including drinking water, process water, agricultural, monitoring, injection, oil, and gas.

PHOTOGRAPHS

Frame Number Compass View Subject