452-15

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

FNCL 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

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 00

ENCL 2

DESCRIPTION OF THE SELECTED REMEDY

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 acr 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 si 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

confirmed through additional sampling and, if confirmed, appropriate corrective measi 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.

FINAL

LONG-TERM MONITORING PLAN FOR OPEN BURNING (OB) GROUNDS SENECA ARMY DEPOT ACTIVITY ROMULUS, NEW YORK

Site SEAD OB4

Prepared for

U.S. Army, Engineering & Support Center, Huntsville

4820 University Square

Huntsville, AL 35816

and

Seneca Army Depot Activity

5786 State Route 96

PO Box 9

Romulus, New York 14541

Prepared by

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150 Federal Street, 4th Floor
Boston, MA 02110-1713

Contract DACA87-02-D-0005, Delivery Order 29
USEPA Site ID: NY0213820830; NY Site ID: 8-50-006

January 2007

ENCL 3

Groundwater data collected during the RI also indicated that, with the possible exception of two monitoring well locations, groundwater had not been impacted by metal contamination that was then present in the soil. Groundwater data from all but the two well locations indicated lead concentrations ranging from non-detectable to less than the 15 µg/L limit stipulated in the ROD. The two exceptions showed lead concentrations higher than 15 µg/L; however, these samples were highly turbid and results from filtered samples collected at these locations showed lead concentrations below 15 µg/L. Based on these findings, the Army indicated that the turbid nature of the samples resulted in the elevated concentrations of lead identified.

Based on the flow direction of groundwater, the existence of a groundwater divide, the lack of widespread metals contamination in groundwater at the OB Grounds, and the ROD requirement to prevent future degradation of Reeder Creek, the monitoring well network will consist of six wells, all of which will need to be constructed at the site. New wells are required due to abandonment of 32 historic wells during the OB Grounds remedial action (Weston Solutions, June 2005) and due to the lack of maintenance applied to the three remaining well installations at the OB Grounds. The locations of the six new proposed wells are shown on **Figure 5-1**, and they will be positioned as follows:

6 new wells

- Three wells will be installed on the east side of the OB Grounds, between the former grounds, the location of the buried lead contaminated soil, and Reeder Creek. These wells will be used to monitor the groundwater for possible future impacts to Reeder Creek.
- Two wells will be installed on the west side of the OB Grounds, west of the groundwater divide. These wells will be used to monitor groundwater flowing off the OB Grounds to the west southwest.
- One well will be installed south of the OB Grounds, outside the area that formerly contained contaminated soil. This well will serve as a background well for comparison to the five other wells installed at the site.

These wells will adequately monitor the OB Grounds to assess future degradation of groundwater in the area of the former OB Grounds and potential migration of affected groundwater towards Reeder Creek. Collection of groundwater levels and generation of potentiometric maps will be used to check the direction of groundwater flow and be used to evaluate the need for additional wells should the groundwater flow directions alter from that currently anticipated.

The exact details of the final monitoring well installations will be determined and documented once they are installed, and will be contingent on conditions found at the OB Grounds. However, based on details of the historic monitoring well network previously located at the OB Grounds, it is expected that all new wells placed at the former AOC will be installed in the till with the screen top set at a depth of 4 to 5 feet below grade surface (bgs), with the screen length extending down

into the underlying weathered shale horizon. Setting the top of the screen 4 to 5 feet bgs will allow for the construction of a permanent well installation consisting of a 2 foot thick concrete collar, overlying a 1 - 2 foot thick bentonite seal and a minimum of 1 foot of sand pack above the top of the screen. The screen length at each monitoring well location will be set to maximize coverage across the till and weathered shale horizons, and as such screen lengths may vary from 2 feet to 10 feet in length. All wells in the historic monitoring network at the OB Grounds had screen lengths of 5 feet.

5.3 MONITORING ANALYTE LIST

The ROD stipulated that groundwater at the OB Grounds is required to contain less than 15 µg/L lead, and the sediment in Reeder Creek found to contain more that 16 mg/Kg copper and 31 mg/Kg lead was to be excavated. The ROD also required that these media be analyzed for metals. In accordance with these requirements, the samples of groundwater from the OB Grounds will be analyzed initially for total lead and total copper. If preliminary results suggest that turbidity is potentially affecting the sample results, groundwater analyses will also include the determination of total and dissolved lead and copper in the samples. The State of New York Contract Required Quantitation Limits for lead and copper are shown in **Table 5-1** below.

5.4 MONITORING FREQUENCY

As is indicated above, all wells proposed for monitoring groundwater at the OB Grounds will be new; therefore, the initial sampling frequency will be once per quarter for at least one year until it can be established that the wells meet or exceed the required concentrations limits, within the acceptable error tolerances specified in **Section 4.2** After collection of this initial data set and the decision regarding whether the wells meet the ROD-specified concentration limits, the Army anticipates that the sampling frequency will be reduced to once per year. After a total of five years of sampling, a decision will be made whether the sampling should be terminated or continued into the next five-year period.

1st year freq

year 2-30 freq

The vegetated, compacted soil cap overlying the lead contaminated soil that has been left at the former OB Grounds site will initially be inspected and documented once per quarter, concurrent to the quarterly groundwater monitoring events. Inspection of the surface will include observations pertinent to the integrity of the soil and indigenous vegetative covering, and the condition of surface water run-off channels, infiltration galleries, and swales. Any identified breach of the vegetated, soil cap or erosion in the run-off and infiltration galleries will be repaired within one month of being noted. After collection of this initial data set and the decision regarding whether the cap is effective in isolating the lead-contaminated soil, the cap inspections will be reduced to an annual basis. After a total of five years of inspections, a decision will be made whether the inspections should be terminated or continued into the next five-year period.

Owner Cost

In RACER, Owner Cost is the owner's workforce cost to initiate, contract, oversee, direct, implement and closeout the project. Owner costs may include the following categories or items:

- Supervision, Inspection, and Overhead (SIOH);
- Construction management and "Owner's Representative" services;
- Laboratory quality assurance;
- Operations and maintenance manual; and
- Other costs (e.g. technical, real estate, administrative, contracting, accounting, etc.).

The system default percentage for Owner Cost is 11 %. The valid range for the Owner Cost markup factor is 0% to 20%.

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 (YYYYMMMDD)	4. REQ./PURCH REQUEST NO.	5. PRIORITY
W912DY-10-D-0014	0005	2011 Nov 23	W31RYQ13254857	

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

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.

[illegible] E & I Inc	Stephen G Moran	Stephen G Moran PG PMP Program Manager	2011 Nov 24
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 BY: [signature] CONTRACTING/ORDERING OFFICER	25. TOTAL	$5,400,010.54
		26. DIFFERENCES	

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

27b. 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.

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
W912[illegible]-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	[illegible]	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 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

Delivery 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 process 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
0003		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: W31RYO13254857000I		$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

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 original proposal. Once these adjustments are complete the contractor shall be obligated to deliver the required

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.

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 Plans;

- 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.

[illegible] 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.

[illegible] **pecific Incentives/Disincentives**: Satisfactory or greater CPARS rating/poor CPARS rating and/or re-[illegible]ance 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.

3.3 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 Plans;

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

- 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.

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 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

Requirements:

- 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.

QC:

- 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 [illegible] 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.

5.0 (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.

5.1 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.

5.1 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):

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.

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.

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.

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.

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 <u>Task 8. Performance of Additional Long Term Monitoring (Optional)</u>. 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.

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.

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.

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):

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

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.

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 control

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 20,21,22
	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	SEAD 023, 006-R-01, 024,
	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	SEAD 122		Underground Tank Farm	
	Incinerator	SEAD 006, 001-R-01,019, 018		Unexploded Munitions/Ordnance	SEAD 006-R-01, 001-R-01,003-R-01, 007-R-01
	Industrial Discharge			Wash rack	
	Landfill	SEAD 006, 064 A,B&D, 011,		Waste Lines	
	Maintenance Yard	SEAD 122		Waste Treatment Plant	
	Oil Water Separator	SEAD 27,			

Enclosure 7

Estimate Documentation Report

System:

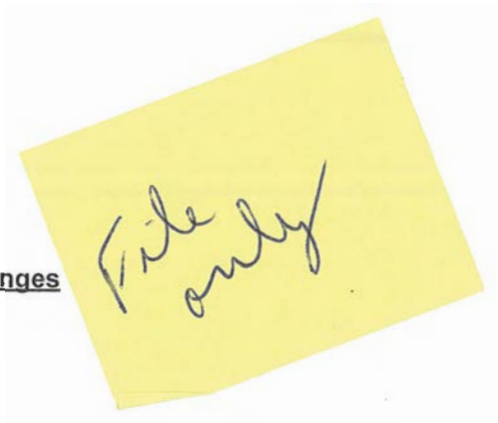
RACER Version: RACER® Version 11.2.16.0
Database Location: C:\Users\e3pperwb\Documents\RACER 11.2\Racer.mdb

Folder:

Folder Name: Seneca Army Depot

Project:

ID: SEAD 006-R-01
Name: Open Burning/Open Detonation Grounds
Category: None



Location
State / Country: NEW YORK
City: SENECA ARMY DEPOT

Location Modifier	Default	User	Reason for changes
	1.100	1.100	

Options
Database: System Costs
Cost Database Date: 2015
Report Option: Fiscal

Description

SEAD 006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD 115)
The RACER system was used to estimate the cost of the Groundwater monitoring and Site Closeout Documentation costs
Source:
1. Final OE EECA, January 2004
2. Final ROD Former Open Burning Grounds Site, Jan 1999
3. Professional judgement based on site knowledge
RACER Assumptions:
Site Closeout Documentation:
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. Depth of wells 125 feet
3. Diameter of wells: 2 inches
4. Unconsolidated
5. Overdrill/Removal

Five Year Review
1. 6 review cycles
2. Review period continues starting in 2016
3. Moderate complexity
4. Tasks include Document Review, Interviews, and Site Inspections

5. Report for Five Year Review to include all default parameters
6. Included is an MMR review

RCRA Closure of OBOD Grounds and OB Grounds (SEAD 23) are combined.

The OBOD Grounds is an AOC that the Army used to demilitarize old, obsolete or off spec ammunition and explosives. This was a rCRA permitted facility. The cleanup strategy included the removalof all munitions potentially posign and explosive hazard. Groundwater will require annual testing until it meets cleanup criteria.

Site Closeout documentation OBOD -includes MMR Site visits. Five Year Reviews included one for SEAD 23 in 2011, and six Five Year Reviews in outyears starting in 2016 for combined SEAD 23 and SEAD 006-R-01.

Estimate Documentation Report

Site:

ID: SEAD 006-R-01
Name: OB OD Grounds
Type: None

Media/Waste Type

Primary: Groundwater
Secondary: Soil

Contaminant

Primary: Metals
Secondary: None

Phase Names

Pre-Study ☐
Study ☐
Design ☐
Removal/Interim Action ☐
Remedial Action ☐
Operations & Maintenance ☐
Long Term Monitoring ☑
Site Closeout ☑

Documentation

Description: See MFR3. Professional judgement based on site knowledge
RACER Assumptions:
Site Closeout Documentation:
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. Depth of wells 125 feet
3. Diameter of wells: 2 inches
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1. 6 review cycles
2. Review period continues starting in 2016
3. Moderate complexity
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RCRA Closure of OBOD Grounds and OB Grounds (SEAD 23) are combined. The OBOD Grounds is an AOC that the Army used to demilitarize old, obsolete or off spec ammunition and explosives. This was a rCRA permitted facility. The cleanup strategy included the removalof all munitions potentially posign and explosive hazard. Groundwater will require annual testing until it meets cleanup criteria.

Site Closeout documentation OBOD -includes MMR Site visits. Five Year Reviews included one for SEAD 23 in 2011, and six Five Year Reviews in

outyears starting in 2016 for combined SEAD 23 and SEAD 006-R-01.

Support Team: Estimator 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.

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.

References: 1. Concept Plan, Ordnance and explosives for a RCRA Closure of the OBOD Grounds at Seneca Army Depot Activity, Sept 2002
2. Final OE EECA, Jan 2004
3. Draft RCRA Closure Plan Open Burn Tray in SWMU 23, (SEAD 23, OB Grounds) December 2004
4. Professional judgement based on site knowledge.

Estimator Information

Estimator Name: Randall W. Battaglia
Estimator Title: Project Manager
Agency/Org./Office: USACE- New York District
Business Address: USACE
Building 125
Seneca Army Depot
5786 Route 96
Romulus NY 14541
Telephone Number: 607-869-1523
Email Address: randy.w.battaglia@usace.army.mil
Estimate Prepared Date: 03/23/2015

Estimator Signature: _____ **Date:** _____

Reviewer Information

Reviewer Name: Stephen M. Absolom
Reviewer Title: Installation Manager
Agency/Org./Office: BRACD
Business Address: Building 123
Seneca Army Depot
5786 Route 96
Romulus, NY 14541
Telephone Number: 607-869-1309
Email Address: stephen.m.absolom.civ@mail,mil
Date Reviewed: 03/23/2015

Reviewer Signature: _____ **Date:** _____

Estimate Costs:

Estimate Documentation Report

Phase Names	Direct Cost	Marked-Up Cost
Long Term Monitoring	$114,078	$283,431
Total Cost:	$114,078	$283,431
Total Project Cost:	$114,078	$283,431

Phase Documentation:

Phase Type: Long Term Monitoring
Phase Name: Long Term Monitoring
Description: Long Term groundwater monitoring
Approach: Ex Situ
Start Date: March, 2015
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markup Template: System Defaults

Technology Markups	Markup	% Prime	% Sub.
Site Close-Out Documentation	True	100	0
Well Abandonment	True	100	0
Five-Year Review	True	100	0

Total Marked-up Cost: $283,430.96

Technologies:

Technology Name: **Five-Year Review (#1)**
User Name: **Five-Year Review**

Description	Default	Value	UOM
System Definition			
Required Parameters			
Site Complexity		Low	n/a
Document Review		True	n/a
Interviews		True	n/a
Site Inspection		True	n/a
Report		True	n/a
Travel		True	n/a
Rebound Study		False	n/a

Estimate Documentation Report

Technology Name: **Five-Year Review (#1)**

User Name: **Five-Year Review**

Description	Default	Value	UOM
System Definition			
Secondary Parameters			
No. Reviews		6	EA
Safety Level		D	n/a
Document Review			
Required Parameters			
5-Year Review Check List		True	n/a
Record of Decision		True	n/a
Remedial Action Design & Construction		True	n/a
Close-Out Report		True	n/a
Operations & Maintenance Manuals & Reports		True	n/a
Consent Decree or Settlement Records		True	n/a
Groundwater Monitoring & Reports		True	n/a
Remedial Action Required		True	n/a
Previous 5-Year Review Reports		True	n/a
Interviews			
Required Parameters			
Current and Previous Staff Management		True	n/a
Community Groups		True	n/a
State Contacts		True	n/a
Local Government Contacts		True	n/a
Operations & Maintenance Contractors		True	n/a
PRPs		True	n/a
Remedial Design Consultant		True	n/a
Site Inspection			
Required Parameters			
General Site Inspection		True	n/a
Containment System Inspection		True	n/a
Monitoring Systems Inspection		True	n/a
Treatment Systems Inspection		True	n/a
Regulatory Compliance		True	n/a
Site Visit Documentation (Photos, Diagrams, etc.)		True	n/a
Report			
Required Parameters			
Introduction		True	n/a
Remedial Objectives		True	n/a
ARARs Review		True	n/a
Summary of Site Visit		True	n/a
Areas of Non Compliance		True	n/a
Technology Recommendations		True	n/a
Statement of Protectiveness		True	n/a
Next Review		True	n/a
Implementation Requirements		True	n/a

Estimate Documentation Report

Technology Name: **Five-Year Review (#1)**

User Name: **Five-Year Review**

Description	Default	Value	UOM
Travel			
Required Parameters			
Number of Travelers		1	EA
Number of Days		2	EA
Air Fare Ticket Price		1500.00	$
Need a rental car?		True	n/a

Comments:

Technology Name: **Site Close-Out Documentation (#1)**

User Name: **Site Close-Out Documentation**

Description	Default	Value	UOM
System Definition			
Required Parameters			
Meetings		True	n/a
Work Plans and Reports		True	n/a
Documents		True	n/a
Site Close-Out Complexity		Moderate	n/a
Meetings			
Required Parameters			
Kick Off/Scoping Meetings		True	n/a
Kick Off/Scoping Meetings: Number of Meetings	1	1	EA
Kick Off/Scoping Meetings: Travel		False	n/a
Kick Off/Scoping Meetings: Travelers		0	EA
Kick Off/Scoping Meetings: Days		0	Days
Kick Off/Scoping Meetings: Air Fare		0.00	$
Review Meetings		True	n/a
Review Meetings: Number of Meetings	1	1	EA
Review Meetings: Travel		False	n/a
Review Meetings: Travelers		0	EA
Review Meetings: Days		0	Days
Review Meetings: Air Fare		0.00	$
Regulatory Review Meetings		True	n/a
Regulatory Review Meetings: Number of Meetings	1	1	EA
Regulatory Review Meetings: Travel		False	n/a
Regulatory Review Meetings: Travelers		0	EA
Regulatory Review Meetings: Days		0	Days
Regulatory Review Meetings: Air Fare		0.00	$
Work Plans & Reports			
Required Parameters			
Work Plans		True	n/a
Draft Work Plan		True	n/a
Final Work Plan		True	n/a

Estimate Documentation Report

Technology Name: **Site Close-Out Documentation (#1)**

User Name: **Site Close-Out Documentation**

Description	Default	Value	UOM
Work Plans & Reports			
Secondary Parameters			
Reports		True	n/a
Draft Close-Out Report		True	n/a
Draft Final Close-Out Report		True	n/a
Final Close-Out Report		True	n/a
Progress Reports		True	n/a
Project Duration	10	10	months
Documents			
Required Parameters			
Draft Decision Document		True	n/a
Draft Final Decision Document		True	n/a
Final Decision Document		True	n/a
Long Term Document Storage		True	n/a
Number of Boxes		6	EA
Duration of Storage		30	Yrs

Comments:

Technology Name: **Well Abandonment (#1)**

User Name: **Well Abandonment**

Description	Default	Value	UOM
System Definition			
Required Parameters			
Safety Level		D	n/a
Abandon Wells			
Required Parameters			
Technology/Group Name		Well Group	n/a
Number of Wells	6	6	n/a
Well Depth		15	FT
Well Diameter		2	IN
Well Abandonment Method		Overdrill / Removal	n/a
Formation Type		Unconsolidated	n/a
Karst Formation Type		False	n/a

Comments:

SEAD - 006-R-01

Phase	2015	2016	2017	2018	2019	2020	2021	2022	Out Years
LTM			189	50	50	50	50	50	1190
5yr							48		236
CTO			19	5	5	5	10	5	130
			203	55	55	55	108	55	1556

2087

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)	$1,629,498	Contract	Optional Task 6,7,8.1,8.3	Contract Costs	Contract W912DY-10-D-0014-0005	HNC
							4820 University Square
							Huntsville Al 35816
	LTM/Close out	283900	IGE	RACER	RACER	RACER SEAD-006-R-01	USACE NY
							5786 State Route 96
							Romulus, NY 14541
	RA(O)	178649	IGE	COE Oversight	RACER Cost to Owner		USACE NY
					11% if contract cost		5786 State Route 96
							Romulus, NY 14541
Total cost to complete		$2,086630					
Does the CTC estimate include work through site closure? (Yes/No)		yes					

Enclosure 8

MEMORANDUM FOR RECORD

Date: 25 February 2015

SUBJECT: Environmental Liabilities for site SEAD-006-R-01 RCRA Closure of the OB/OD Grounds (alias SEAD-115) 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 2015 data call. Estimators experience is documented on the Estimator Experience Form, enclosure 7, per the Financial Accounting Standards Board Handbook (FASB) Technical Release 2. This site also encompasses SEAD-023 (OB Grounds). The Remedial Action Cost Engineering and Requirements (RACER) 11.2 system was used to estimate the cost of Site Closeout, Well Abandonment, and Land Use controls. 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 IRA. 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. Monitoring for SEAD 006-R-01 will start in 2017. Contract W912DY-10-D-0014 Delivery Order 5, (Source 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-08-D-0003 Delivery Order 0015 task 0001b. (Encl 6) and the requirement for testing is established in the ROD for the OB Grounds (Encl 2). It is assumed that after the completion of the IRA, 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 (Source 6). After the IRA is completed the monitoring will be carried under the LTM phase. In FY 2021, the first 5-year review will occur.

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.

Current Site Status: The clean up 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 an Interim Removal Action. 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 ordinance removed prior to the capping. Groundwater will require annual testing

until results demonstrate cleanup criteria. A performance based contract with CBI is in place to complete the work required between 1000 ft inward to the landfill cap area. The contract includes the construction of the cap upon signing of the Record of Decision.

Exit Strategy:
LTM includes Cap Maintenance, GW monitoring, LUCs, Five-Year reviews, and site closeout effort. The LUCs,

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.

Enclosures:

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. RACER Guidance for Cost to Owner
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.
7. Estimator's Experience Sheet
8. Estimate Summary Table

RACER 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. UXO review included

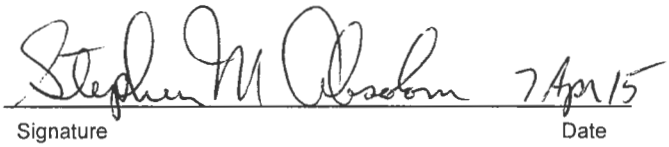
Cost Summary	**SEAD-006-R-01 (SEAD-115)**
Long Term Monitoring Plan preparation (source 5) $23,333.12 (rounded to $23,334)	$ 23,334
Install 6 and Monitor 12 GW wells quarterly 1st year, 2016 (source 5) $160,509.05 (rounded to $160,510	$160,510
For years 2017-2045, Monitor 12 GW wells, semi annually x 29 years (source 5) $49,663.35X29= $1,440,237.15 (rounded to $1,440,237)	$1,440,237
Assumption: Owner Support for GW Monitoring (Source 4) 11% of total LTM Cost ($23,334+$160,510+$1,440,237)x 11%= $1,624,081 x 0.11= $178,648.91 (rounded to $178,649)	$178,649
5-year Reviews for MPPEH and CERCLA Reviews Six five-year reviews for SEAD-23 and SEAD-006-R-01 (Starting in FY16) and Well Abandonment & Site Closeout (RACER) Cost $283,870.04 (rounded to $283,870)	$283,900
Cost	**$2,086,630**

Material Change: no
Reason:

Prepared by: Randall Battaglia
Cost Estimator

Signature Date

Reviewed by: Stephen M. Absolom
Cost Estimate Reviewer



Signature Date