DEPARTMENT OF THE ARMY
SENECA ARMY DEPOT ACTIVITY
5786 STATE RTE 96
ROMULUS, NEW YORK 14541-5001

REPLY TO
ATTENTION OF

December 6, 2001

Schedules ?

Engineering and
Environmental Office

Mr. Julio Vazquez
U.S. Environmental Protection Agency
Emergency & Remedial Response Division
290 Broadway
18th Floor, E-3
New York, New York 10007-1866

Ms Alicia Thorne
NYS Department of Environmental Conservation
Division of Hazardous Waste Remediation
Bureau of Eastern Remedial Action
625 Broadway, 11th Floor
Albany, New York 12233-7015

Re: Old Construction Debris Landfill (SEAD-11), Seneca Army Depot, Romulus, NY

Dear Mr. Vazquez/Ms. Thorne:

SEDA requests a 30-day extension for the Draft Final Action Memorandum and Decision Document on SEAD-11. The extension is necessary because the Army is revising cleanup levels to TAGM values. We will submit the Draft Final Action Memorandum and Decision Document by January 10, 2002.

Questions may be directed to Stephen Absolom, BRAC Environmental Coordinator, at (607) 869-1309.

Sincerely,

Stephen M. Absolom

Stephen M. Absolom
Commander's Representative

Enclosure

Copies Furnished:

Todd Heino, Parsons Engineering Science, Inc.,
30 Dan Road
Canton, Massachusetts 02021

Commander, U.S. Corps of Engineers, Huntsville
Division, ATTN: CEHND-ED-CS (Kevin Healy and Major David Sheets)
P.O. Box 1600, Huntsville, Alabama 35807

Commander, U.S. Army Corps of Engineers, Seneca Army
Depot Activity, ATTN: CENAN-PP-M (Janet Fallo)
SEDA Resident Office, Romulus, New York 14541-5001

ATTACHMENT 5
SCHEDULES

The schedule of IRP work at SEDA is as follows:

RELEVANT MILESTONES

ASH LANDFILL (SEAD-003, 006, 008, 014, and 015) OU1

Draft Work Plan	(04 Dec 90)
Draft RI	(20 Oct 93)
Draft FS	(19 Sep 94)
Draft PRAP	(07 Mar 97)
Draft Treatability Study Work Plan	(04 Nov 98)
Treatability Study Start	(07 Dec 00)
Draft Treatability Memorandum Report	(01 Nov 01)
Draft ROD	(30 Aug 98)
Draft RD/RA Schedule	21 days after ROD
Draft Remedial Design	21 days after ROD
Remedial Action Completion Report	21 days after ROD

Ash Landfill Status: The Draft Final PRAP was submitted July 10, 2001. Regulatory Review comments were due August 10, 2001. NYSDEC comments were received 09 August 2001. As of 02 Oct 2001, Comments from EPA have not been received. The results have been received from ETI regarding column studies for the Treatability Study and are under review by the Army. Draft ROD submitted 30 Aug 1998 and held pending completion of the PRAP.

OPEN BURNING GROUNDS (SEAD-023) OU2

Draft Work Plan	(29 Aug 91)
Draft RI	(28 Jan 94)
Draft FS	(09 Mar 94)
Draft PRAP	(04 Jul 96)
Draft ROD	(14 Nov 97)
Final ROD	14 Jun 99
Draft Rd/RA Schedule	
Draft Remedial Design	
Remedial Action Completion Report	15 Jul 02

OB Grounds Status: Technical specs, RA Workplan submitted 5 Jul 99. Comments were received and incorporated in the Final RA Workplan.

The contract to complete the OB Grounds project was awarded 7 Aug 01. Sampling of soils previously stockpiled was initiated 13 Aug 01. Excavations of one-foot cut areas, Pad H, and Reeder Creek have begun. The planned field work completion date is 12 Mar 02. Fieldwork may be completed as early as December 2001. The Final RA Completion Report is planned after receipt of validated data.

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES
FIRE TRAINING AREAS (SEAD-025, 026) OU3

Draft RI/FS Work Plan	(29 Mar 95)
Draft RI Submission	(27 Jun 96)
Draft FS Submission	(05 Dec 97)
Draft PRAP	(17 Aug 01)
Draft ROD	17 Oct 01
Draft RD/RA Schedule	21 days after ROD
Draft Remedial Design	21 days after ROD
Remedial Action Completion Report	21 days after ROD

Fire Training Areas Status: Draft PRAP submission was August 17, 2001. Regulatory comment due date was extended until October 17, 2001.

DEACTIVATION FURNACES (SEAD-016, 017) OU4

Draft RI/FS Work Plan	(29 Mar 95)
Draft RI Submission	(08 May 97)
Draft FS Submission	(21 Nov 97)
Draft PRAP	(05 Sep 01)
Draft ROD	19 Mar 02
Draft RD/RA Schedule	21 days after ROD
Draft Remedial Design	21 days after ROD
Remedial Action Completion Report	21 days after ROD

Deactivation Furnaces Status: EPA and NYSDEC comments on the draft PRAP due 5 Oct 01.

RAD SITES (SEAD-012) OU5

Draft RI/FS Work Plan	(19 Dec 95)
Draft RI Submission	(22 May 00)
Draft FS Submission	12 Jan 02
Draft PRAP	02 May 02
Draft ROD	13 Nov 02
Draft RD/RA Schedule	21 days after ROD
Draft Remedial Design	21 days after ROD
Remedial Action Completion Report	21 Days after ROD

Rad Sites Status:

Army response to comments/Final RI document received 13 Nov 01. The Final RI document will be a Final document on 12 Dec 01 pending further regulator comments.

SEAD-059, 071 Fill Area/Paint Disposal

Draft RI/FS Work Plan	(30 Jan 96)
Draft RI Submission	(16 Jul 98)
Draft Action Memorandum	(29 Jun 01)
Draft Workplan	15 Jan 02
Removal Action	15 Apr 02
Removal Action Report	28 Sep 02
Draft PRAP	28 Nov 02
Draft ROD	28 Apr 03

Fill Area/Paint Disposal Status: Submission of the Draft Final Action Memorandum/Decision Document has been extended to December 17, 2001.

SEAD-004 Munitions Washout Facility

Draft RI/FS Work Plan	(25 Oct 95)
Draft RI Submission	(15 Nov 99)
Draft FS Submission	(31 Jul 01)
Draft PRAP	11 May 02
Draft ROD	23 Nov 02
Draft RD/RA Schedule	21 days after ROD
Draft Remedial Design	21 days after ROD
Remedial Action Completion Report	21 days after ROD

Munitions Washout Facility Status: Draft FS submitted 31 July 01. EPA comments received 28 Sep 01. DEC comments were due 30 Aug 01. Army Response to Comments/Draft-final FS submittal due 16 Dec 01.

SEAD-011 Old Construction Debris Landfill

Draft RI/FS Work Plan	(15 Jun 95)
Draft RI Submission	(06 Nov 98)
Draft Action Memorandum	(20 Jul 01)
Draft Workplan	15 Mar 02
Removal Action	30 Jun 02
Removal Action Report	15 Nov 02
Draft PRAP	15 Jan 03
Draft ROD	15 Jun 03

Old Const. Debris Status: The Draft Action Memorandum was submitted on 20 Jul 01. NYSDEC comments were received August 21, 2001 and September 7, 2001. EPA comments were received September 26, 2001. The Draft Final Action Memorandum is due on January 10, 2002.

SEAD-013 IRFNA Disposal Site

Draft RI/FS Work Plan	(14 Nov 95)
Draft RI Submission	* 29 Aug 99
Draft FS Submission	* 22 Jan 00
Draft PRAP	* 11 May 00
Draft ROD	* 22 Nov 00

IRFNA Disposal Site Status: * above schedule is on hold pending final regulator decision to the submittal of the No Action SWMU Decision Document submitted on 26 April 00. **Note**: Additional GW Monitoring wells and field sampling was done between 15-24 Aug 01 to support decision document. Due to low water table, sampling of GW wells have been scheduled for 2nd Quarter, FY02 (new wells dry). The revised Decision Document will be submitted 3 June 02.

SEAD-052, 060 Bldg 612 Complex

Draft RI/FS Work Plan (19 Jan 96)

Bldg 612 Complex Status: Final Completion Report for the Prison Parcel was submitted on 4 May 01. Comments from EPA and NYSDEC are pending. This OU is included in the No Further Action ROD.

SEAD-046 and 057 EOD/Small Arms Range

Draft RI/FS Work Plan SEAD-046, 057	(26 Feb 96)
Draft RI/FS Work Plan SEAD-046	(09 May 96)
Draft RI Submission	20 May 03
Draft FS Submission	25 Feb 04
Draft PRAP	22 Jun 04
Draft ROD	06 Feb 05
Draft RD/RA Schedule	21 days after ROD
Draft Remedial Design	21 days after ROD
Remedial Action Completion Report	21 days after ROD

EOD/Small Arms Range Status: Fieldwork for Phase I RI underway. A Draft RI Report as a Preliminary Site Characterization Report is to be submitted 20 May 02. The Army plans to perform OE removal activities at these sites, and address contaminants of concern under CERCLA incidental to the OE removal. The results of sampling of potential contaminants incidental to the OE removal will determine the next step in the CERCLA process, namely, a Completion Report versus a risk assessment/RI report. Additional time is needed for draft preparation due to confusing language regarding contamination.

SEAD-048 Pitchblende Storage Area

Draft RI/FS Work Plan	(19 Dec 95)
Draft RI Submission	05 Nov 00
Draft FS Submission	30 Mar 01
Draft PRAP	18 Jul 01
Draft ROD	29 Jan 02

Pitchblende Storage Area Status: The revised work plan incorporating the MARSSIM survey methodology due 15 Feb 2002. Upon acceptance of this work plan, the remaining dates will be updated.

SEAD-063 Miscellaneous Components Burial Site Removal Action

Draft EE/CA Approval Memorandum Document	(05 Oct 98)
Draft EE/CA Document	(23 Oct 99)
Draft EE/CA Action Memorandum Document	(23 Oct 99)
Release for Public Comment	
Draft Removal Work Plans	
Removal Action Begins	
Draft Removal Report	

Miscellaneous Components Burial Site Status: Final EE/CA Action Memorandum document submitted 2 Nov 01 and will become a Final document on 1 Dec 01 pending further regulator comments.

No Further Action ROD Sites:

The Draft Final Decision Document for Twenty-Six No Further Action (26 NFA) Sites was submitted 28 Sep 01. When final, this report will document both the background information and the decision of no further action at these sites. These sites are to be formally closed out of the CERCLA process with a No Further Action ROD.

The sites included in the "26 NFA" are: SEAD-1,2,7,10,18,19,20,21,22,29,30,31,32,35,36,37,42,47,49,51,53,55,60,61,65, and 72.

The EPA requested additional time to comment until 19 Nov 01. The EPA may disagree with the NFA status with SEAD-47 and other sites.

The Draft Final Decision Document – Mini-Risk Assessment was submitted February 6, 2001. This report documents background information for sites that had limited contaminants, for which risk assessment was performed with data from the SI. These are sites that are likely to have no risk, based upon the data, and are likely to be closed out as No Further Action. These sites are separated from the "26 NFA" sites above due to the additional risk assessment efforts.

The sites included in the mini-risk are: SEAD-9,27,28,32,33,34,43,44A,44B,52,56,58,62,64A,64B,64C,64D,66,68,69,72,120B.

The mini-risk sites will be included in the same NFA ROD if final concurrence is made.

CES ?

File
SEAD 11

PARSONS ENGINEERING SCIENCE, INC.
30 Dan Road, Canton, Massachusetts 02021-2809

M e m o r a n d u m

December 18, 2001

To: Major David Sheets, USACOE
Stephen Absolom, SEDA
Kevin Healy, USACOE
Janet Fallo, USACOE

From: Todd Heino and Megan Miller, Parsons

Subject: SEAD-11 Cost Estimate
Low Permeability Capping Alternative

Pursuant to a request from the Army Environmental Center (AEC), this memorandum presents revised costs estimates for two remedial alternatives to address the fill area in SEAD-11: 1) the construction of a low-permeability cap; and 2) excavation and off-site disposal of fill materials. Cost estimates for each of these alternatives were previously provided to AEC for comparison purposes in an October 17, 2001 memorandum. The cost estimates have been modified based on revised TAGM-based cleanup goals.

Based on recent conversations with AEC and the Seneca Army Depot Activity (SEDA), Parsons has revised the cost estimate for each alternative to reflect changes in the remedial approach for the site. Specifically, the costs for the capping alternative have been revised to further refine the quantities of "hot spot" removal prior to capping. In addition, costs associated with the performance of a Remedial Investigation/Feasibility Study (RI/FS) have been updated to reflect the current cost to complete these documents. The costs for the excavation and off-site disposal alternative have been revised to reflect new soil cleanup goals. Parsons has developed new soil cleanup goals for the SEDA sites as a result of recent meetings with SEDA and AEC, and comments provided by the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA). The revised cleanup goals reduce the quantity of soil requiring off site disposal.

Details regarding the two remedial alternatives for SEAD-11 and the associated cost estimates are provided below.

Low-Permeability Capping Alternative

The low-permeability capping alternative for SEAD-11 consists of installing a low permeability cap over the SEAD-11 landfill area in accordance with 6 NYCRR Part 360 regulations that govern the closure of solid waste landfills. The remedial action would generally consist of the activities identified below.

- Clearing and grubbing the 4-acre landfill area.
- Removing hot spots identified during previous investigation activities. Removal of hotspots is required as part of the presumptive remedy for capping of landfills. The hot spots include areas where buried drums or containers have been observed. Hot spot removal would involve the excavation and off-site disposal of the buried drums/containers and associated impacted material. The excavation quantity is high since geophysical test results have shown metals anomalies, and potentially drums, located across the entire landfill. The volume of material requiring excavation has been estimated to be approximately 20,765 cubic yards. The estimate was based on test pit logs and geophysical results potentially showing these materials. We have assumed that 50% of the excavated material would require off-site disposal, and 10% of this material would require off-site disposal as a hazardous waste.
- Adding fill to meet the 4% minimum grade required by 6 NYCRR Part 360.
- Placing of capping materials including 12 inches of sand for gas venting, a high density polyethylene (HDPE) liner, drainage net, a 24-inch soil protection layer, and a 6-inch layer of topsoil.
- Performing an RI/FS for the site.
- Post-closure monitoring and maintenance of the low-permeability cap.
- Post-closure monitoring of groundwater on a semi-annual basis.

Excavation and Off-Site Disposal Alternative

The excavation and off-site disposal alternative for SEAD-11 would generally consist of the activities identified below.

- Excavation of the entire landfill.
- Treatment of water from the excavation by air stripping and metals precipitation and discharging the treated water into a storm drain or drainage ditch;
- Screening of excavated soils to remove debris.
- Stockpiling and sampling the excavated soil for disposal characterization.
- Off-site disposal of debris, drums/containers, and soil exceeding cleanup goals. We have assumed that 50% of the excavated material would require off-site disposal, and 10% of this material would require off-site disposal as a hazardous waste.
- Verification sampling and analysis of excavation walls and bottom (at a frequency of one sample for every 2500 square feet).
- Backfilling the former landfill area with excavated soils with concentrations below the cleanup goals and clean fill.
- Covering the area with topsoil and a vegetative cover.
- Post closure monitoring of the groundwater on a semi-annual basis.

Remediation Cost

The revised cost estimates for each alternative are summarized below.

	Low-Permeability Capping Alternative	Excavation/Off-Site Disposal Alternative
Estimated Construction Cost	$2,833,720	$5,091,480
Engineering Cost	$2,014,940	$423,050
Present Worth O&M and Monitoring Cost (5 years)		$163,604
Present Worth Monitoring Cost (30 years)	$670,065	
Total Cost	$5,518,725	$5,678,134

The above cost estimates were developed using the TRACES/MCACES for Windows v1.2 software. The TRACES/MCACES printout is provided as an attachment to this memorandum.

If you have any questions, please call me at 781-401-2229.

Todd Heino, P.E.
Program Manager

SEAD-11
INSTALL.OF NYSDEC PART 360 SOLID
WASTE COVER

Designed By: Parsons ES
Estimated By: Parsons ES

Prepared By: Parsons ES

Preparation Date: 12/18/01
Effective Date of Pricing: 10/03/96
Est Construction Time: 200 Days

Sales Tax: 7.0%

PROJECT BREAKDOWN:

The estimate is structured as follows and uses a 2 digit number at each level. The 2 digit numbers for the first 3 title levels are taken from the HTRW Remedial Action Work Breakdown Structure. The 2 digit numbers for the remaining title levels are user defined. The detail items are at LEVEL 6.

LEVEL 1 - WBS Level 1 (Account)
LEVEL 2 - WBS Level 2 (System)
LEVEL 3 - WBS Level 3 (Subsystem)
LEVEL 4 - User Defined (Assembly Category or Other)
LEVEL 5 - User Defined (Assembly or Other)

PROJECT DESCRIPTION:

The following is a summary of the activities that are presently included in the Landfill Cover alternative.

- Mobilize, site prep, clear/grub, erosion control, and survey
- Excavate approx. 20 buried drums and containers and surrounding soils in the landfill.
- Screen excavated soils to remove debris and drums.
- Dispose of debris in off-site soilid waste landfill.
- Dispose of soils with concentrations > revised NYSDEC TAGM values at off site landfill.
- Assuming that 50% of excavated material is disposed of off-site; 50% used as backfill.
- Backfill excavated soils with concentrations < revised TAGMs.
- Install NYSDEC Part 360 Solid Waste Landfill cover
- Install underdrainage and gas venting for water runoff from cover.
- Demobilize

PRODUCTIVITY:

Productivity, as a baseline and as taken from the Unit Price Book

(UPB) Database, assumes a non-contaminated working environment with no level of protection productivity reduction factors. When required, productivity for appropriate activities will be adjusted for this project as follows:

1. Level of Protection A - Productivity ___%
2. Level of Protection B - Productivity ___%
3. Level of Protection C - Productivity ___%
4. Level of Protection D - Productivity 85%.

All activities are conducted in Level of Protection D.

The following daily time breakdown was assumed.

	Level A	Level B	Level C	Level D
Availiable Time (minutes)	480	480	480	480
Non-Productive Time (minutes):				
Safety meetings	20	20	10	10
Suit-up/off	60	60	40	10
Air tank change	160	20	0	0
*Breaks	60	60	40	30
Cleanup/decontamination	20	20	20	20
Productive Time (minutes)	160	300	370	410
Productivity:	160/480 X100%	300/480 X100%	370/480 X100%	410/480 X100%
	33%	63%	77%	85%
Example:				
Normal Production Rate (CY/HR)	250	250	250	250
X Productivity	.33	.63	.77	.85
=Reduced Production Rate(CY/HR)	83	158	193	213
* Break time ranges (minutes)	60-140	60-140	40-140	30-70

The following list are the areas where there is the biggest potential for changes in cost due to uncertainties:

Contractor costs are calculated as a percentage of running total as
5 % for field office support
15 % for home office support
10 % for profit
4 %for bond

Owner's cost are calculated as a percentage of running total as
2 % for design contingency
3 % for escalation
25 % for construction contingency
3.5 % for other costs
8 % for construction management

OTHER GOVERNMENT COSTS:

Other Government Costs consist of:

*Engineering and Design During Construction (EDC)	1.5%
As-Builts	0.5%
Operation and Maintenance (O&M) Manuals	0.5%
Laboratory Quality Assurance	1.0%
Total, use	3.5%

33. Remedial Action

33.01. Mobilization	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
33. Remedial Action									
33.01. Mobilization									
USR AA Mobilization	1.00	EA	0	793	2,500	535	0	3,828	3827.72
33.02. Sampling, & Testing									
33.02.11. Soil									
For disposal; TCLP analysis required for non hazardous landfill disposal. Assuming 1 sample every 150 cy: 23,025 cy x 1.40/150 = 215 x 1.2 = 260 samples									
HTW AA For Disposal: TCLP, volatile organics (SW-846 Methods 1311&8240), soil (Severn Trent Lab, 9/99) (Assume 1 sample every 150cy)	170.00	EA	0	0	0	0	20,400	20,400	120.00
AFH AA For Disposal: TCLP-SVOCs (SW-846 Methods 1311 & 8270A), soil (Severn Trent Lab, 9/99) (Assume 1 sample every 150cy)	170.00	EA	0	0	0	0	39,100	39,100	230.00
AFH AA For Disposal: TCLP - Metals (SW-846 Methods 1311 & 6010 & 7470), soil (Severn Trent Lab, 9/99) (Assume 1 sample every 150cy)	170.00	EA	0	0	0	0	20,400	20,400	120.00
33.02.13. Confirmatory-Soil - All Areas									
HTW AA Confirmatory: NYSDEC CLP, volatile organics, soil (Severn Trent Lab, 9/99) (Assume 1 sample every 50 ft of wall adn floor or excavation.	47.00	EA	0	0	0	0	8,225	8,225	175.00
AFH AA Confirmatory: NYSDEC CLP-SVOCs , soil (Severn Trent Lab, 9/99) (Assume 1 sample every 50 ft of wall and floor of excavation.	47.00	EA	0	0	0	0	17,390	17,390	370.00
AFH AA Confirmatory: NYSDEC CLP TAL - Metals , soil (Severn Trent	47.00	EA	0	0	0	0	7,285	7,285	155.00
33.03. Site Work									
33.03.02. Clearing and Grubbing									
AF AA Clearing, brush w/dozer & brush rake, light brush	4.00	ACR	64	1,731	2,516	0	0	4,246	1061.54

33. Remedial Action

33.03. Site Work	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
33.03.08. Survey Remediation Area									
Survey remediation area									
USR AA Survey remediation area	10.00	DAY	0	15,000	2,500	2,675	0	20,175	2017.50
33.03.11. Erosion control									
B MIL AA Silt Fence: Installation and materials high, polypropylene	2500.00	LF	525	12,500	1,250	4,013	0	17,763	7.11
B HTW AA Hay bales - stalked	2500.00	LF	1	425	0	2,675	0	3,100	1.24
B MIL AA Maintain silt fence and remove	2500.00	LF	17	425	0	2,675	0	3,100	1.24
33.10. Soil Remediation									
33.10.05. Soil and Drum Removal									
USR AA Excavate, stockpile, screen soil surrounding drums and debris	20765	CY	0	0	0	0	415,300	415,300	20.00
USR AA Plastic sheeting for ground: 6mil polyethylene liner (1000sf	690000	SF	0	0	0	59,064	0	59,064	0.09
USR AA Cover stockpiles w/ plastic sheeting: Plastic sheeting: 6mil polyethylene liner (1000sf / roll; 1 roll = $75)	690000	SF	0	0	0	59,064	0	59,064	0.09
AF AA Fill, spread borrow w/dozer to backfill nonhazardous soil,	10380	CY	125	3,737	6,747	0	0	10,484	1.01
AF Compaction, steel wheel tandem roller, 5 ton	10380	CY	74	2,180	1,868	0	0	4,048	0.39
L MIL AA Excavator for drum removal at Level B	20.00	EA	2	323	445	0	0	768	38.40
L MIL AA Excavator for drum moving at Level B	20.00	EA	2	323	445	0	0	768	38.40
L MIL AA Level B breathing unit, suit, overboots, gloves	4.00	EA	0	0	2,000	0	0	2,000	500.00
33.10.06. Disposal									
Transportation of drums to hazardous waste landfill.									
HTW AA Soils: Transport and Dispose haz waste, bulk (Earthwatch, 7/00)	1560.00	TON	0	0	0	0	171,600	171,600	110.00
USR AA Debris: Transport and Dispose nonhaz waste, bulk solid,	1560.00	TON	0	0	0	0	49,140	49,140	31.50
HTW AA Soils: Transport and Dispose nonhaz waste, bulk (Earthwatch, 7/00)	12480	TON	0	0	0	0	393,120	393,120	31.50
HTW HW packaging, overpacks, 18"dia x 34"H, 16ga stl drum, 55gal, DOT 17C	20.00	EA	0	0	0	1,583	0	1,583	79.13
USR AA Drums/Paint Cans: Transportation of Drums by dedicated van	1.00	EA	0	0	0	0	546	546	545.70

33. Remedial Action

33.10. Soil Remediation	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
USR AA Drums/Paint Cans: Disposal of Drums (Price quoted by Waste	20.00	EA	0	0	0	2,862	0	2,862	143.11
USR AA Extra fees for overpack use	20.00	EA	0	0	0	0	800	800	40.00
33.10.07. Multi-Layer Impermeable Cap									
MIL AA Loam or topsoil, furnish & place, imported, 6" deep	3544.00	CY	313	9,462	4,926	69,130	0	83,518	23.57
USR AA Protection Layer	20070	TON	0	0	0	93,416	0	93,416	4.65
CIV AA Geotextile fabric, 60 mil thick , non-woven polypropylene	21270	SY	340	8,508	1,702	12,973	0	23,182	1.09
HTW AA LGLCS, sheet drain sys, 1/4" thick HDPE, polthn, drainage net	191400	SF	249	5,742	0	28,672	0	34,414	0.18
CIV AA Membrane lining, HDPE, 100,000 SF or more, 60 mil thick	174000	SF	2,610	76,560	0	111,708	0	188,268	1.08
B MIL AA Gas venting layer	30120	TON	0	0	0	0	131,022	131,022	4.35
AF AA Fill, spread borrow w/dozer	51230	CY	615	18,443	33,300	0	0	51,742	1.01
RSM AA Seeding, athletic field mix, 8#/MSFpush spreader	174.00	MSF	174	4,399	0	7,745	0	12,144	69.79
M AF AA Soil testing of layers includin g sieve analysis, compaction,	1.00	EA	0	0	0	0	10,000	10,000	10000.00
AF AA Compaction, steel wheel tandem roller, 5 ton	51230	CY	364	10,758	9,221	0	0	19,980	0.39
USR AA Common fill (6") - Material for Backfill, includes cost of material (bank sand) and delivery (DeWitt 1999) to bring grade of landfill cover to 4%	10300	TON	0	0	0	47,941	0	47,941	4.65
AF AA Fill, spread borrow w/dozer to spread to 4% grade	8700.00	CY	104	3,132	5,655	0	0	8,787	1.01
33.26. Demobilization									
TOTAL Decontaminate Equipment	1.00	EA	0	1,321	5,000	2,500	0	8,821	8821.20
TOTAL Demobilization	1.00	EA	0	528	2,500	500	0	3,528	3528.48
33.31. Well Installation									
33.35. Remedial Design		LF							
B HTW AA Remedial Design Workplan	1.00	EA	0	27,600	0	2,568	0	30,168	30168.00
B HTW AA Preliminary Design Report	1.00	EA	0	46,000	0	4,280	0	50,280	50280.00
B HTW AA Pre-final/Final Design Report, Including O&M Plan, S&A Plan, QA Plan, Contingency Plan, Waste	1.00	EA	0	168,000	0	7,490	0	175,490	175490.00
B HTW AA Remedial Action Workplan, including QA/QC Plan, H&S Plan	1.00	EA	0	47,500	0	2,675	0	50,175	50175.00
B HTW AA Project Closeout Plan	1.00	EA	0	48,000	0	2,140	0	50,140	50140.00

33.37. RI/FS, PRAP, ROD	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
33.37. RI/FS, PRAP, ROD									
B HTW AA RI/FS	1.00	EA	0	513,545	0	183,163	0	696,708	696707.60
B HTW AA Post FS: PRAP and ROD	1.00	EA	0	123,730	0	44,132	0	167,862	167862.15
B HTW AA Project Management QA Plan, Contingency Plan, Waste	1.00	EA	0	212,550	0	25,270	0	237,820	237820.19
TOTAL SEAD-11			5,577	1,363,215	82,575	781,447	1,284,328	3,511,565	

** PROJECT OWNER SUMMARY - SUBSYSTM (Rounded to 10's) **

	QUANTY	UOM	CONTRACT	DES CONT	ESCALATN	CON CONT	OTHER	CON MGMT	TOTAL COST	UNIT COST
33 Remedial Action										
33.01 Mobilization	1.00	EA	5,290	110	160	1,390	240	570	7,760	7761.84
TOTAL Mobilization	1.00	EA	5,290	110	160	1,390	240	570	7,760	7761.84
33.02 Sampling, & Testing										
33.02.11 Soil	1.00	EA	110,370	2,210	3,380	28,990	5,070	12,000	162,020	162021.06
33.02.13 Confirmatory-Soil	1.00	EA	45,450	910	1,390	11,940	2,090	4,940	66,710	66714.55
TOTAL Sampling, & Testi	1.00	EA	155,820	3,120	4,770	40,930	7,160	16,940	228,740	228735.61
33.03 Site Work										
33.03.02 Clearing and Grub	4.00	ACR	5,870	120	180	1,540	270	640	8,610	2152.58
33.03.08 Survey Remediatio	1.00	ACR	27,870	560	850	7,320	1,280	3,030	40,910	40910.82
33.03.11 Erosion control	1.00	LF	33,100	660	1,010	8,690	1,520	3,600	48,590	48591.11
TOTAL Site Work	1.00	EA	66,840	1,340	2,050	17,550	3,070	7,270	98,110	98112.26
33.10 Soil Remediation										
33.10.05 Soil and Drum Rem	1.00	EA	760,280	15,210	23,260	199,690	34,950	82,670	1,116,060	1116056.08
33.10.06 Disposal	1.00	EA	855,370	17,110	26,170	224,660	39,320	93,010	1,255,640	1255640.00
33.10.07 Multi-Layer Imper	1.00	EA	973,060	19,460	29,780	255,580	44,730	105,810	1,428,410	1428409.51
TOTAL Soil Remediation	1.00	EA	2,588,710	51,770	79,210	679,930	118,990	281,490	3,800,110	3800105.59
33.26 Demobilization										
33.26.04 Decontaminate Equ	1.00	EA	12,190	240	370	3,200	560	1,330	17,890	17887.61
33.26.06 Demobilization	1.00	EA	4,870	100	150	1,280	220	530	7,160	7155.04
TOTAL Demobilization	1.00	EA	17,060	340	520	4,480	780	1,860	25,040	25042.66
33.35 Remedial Design	1.00	EA	492,120	9,840	15,060	129,260	22,620	53,510	722,410	722409.10
33.37 RI/FS, PRAP, ROD	1.00	EA	1,522,820	30,460	46,600	399,970	69,990	165,590	2,235,420	2235424.06
TOTAL Remedial Action	1.00	EA	4,848,660	96,970	148,370	1,273,500	222,860	527,230	7,117,590	7117591.12

SEAD-11
EXCAVATION/OFF-SITE DISPOSAL
TAGM-derived cleanup goals

Designed By: Parsons ES
Estimated By: Parsons ES

Prepared By: Parsons ES

Preparation Date: 06/20/01
Effective Date of Pricing: 10/03/96
Est Construction Time: 120 Days

Sales Tax: 7.0%

PROJECT BREAKDOWN:

The estimate is structured as follows and uses a 2 digit number at each level. The 2 digit numbers for the first 3 title levels are taken from the HTRW Remedial Action Work Breakdown Structure. The 2 digit numbers for the remaining title levels are user defined. The detail items are at LEVEL 6.

LEVEL 1 - WBS Level 1 (Account)
LEVEL 2 - WBS Level 2 (System)
LEVEL 3 - WBS Level 3 (Subsystem)
LEVEL 4 - User Defined (Assembly Category or Other)
LEVEL 5 - User Defined (Assembly or Other)

PROJECT DESCRIPTION:

The following is a summary of the activities that are presently included in the excavation/off site disposal alternative.

Off-Site Disposal: Excavate/Off-site Disposal
- Mobilize, site prep, clear/grub, erosion control, and survey
- Excavate soils in the Landfill. Depth of excavation varies depending on information from test pits.
- Screen excavated soils to remove debris and drums.
- Treat water by air stripping.
- Dispose of construction debris in off-site solid waste landfill.
- Dispose soils with concentrations > revised NYSDEC TAGM values at off site landfill.
- Assuming that 50% of excavated material disposed of off-site; 50% used as backfill.
- Backfill excavations with excavated soils with concentrations < revised TAGMs.
- Cover former landfill with 2' vegetative cover.
- Assuming that 10% material is debris, 90%is soil. Assuming that 10% soil is hazardous and 90% is non-hazardous.
- Demobilize
- Ground water monitoring for 5 years (costed separately). Monitoring wells have already been installed.

PRODUCTIVITY:

Productivity, as a baseline and as taken from the Unit Price Book (UPB) Database, assumes a non-contaminated working environment with no level of protection productivity reduction factors. When required, productivity for appropriate activities will be adjusted for this project as follows:

1. Level of Protection A - Productivity ___%
2. Level of Protection B - Productivity ___%
3. Level of Protection C - Productivity ___%
4. Level of Protection D - Productivity 85%.

All activities are conducted in Level of Protection D.

The following daily time breakdown was assumed.

	Level A	Level B	Level C	Level D
Availiable Time (minutes)	480	480	480	480
Non-Productive Time (minutes):				
Safety meetings	20	20	10	10
Suit-up/off	60	60	40	10
Air tank change	160	20	0	0
*Breaks	60	60	40	30
Cleanup/decontamination	20	20	20	20
Productive Time (minutes)	160	300	370	410
Productivity:	160/480 X100%	300/480 X100%	370/480 X100%	410/480 X100%
	33%	63%	77%	85%
Example:				
Normal Production Rate (CY/HR)	250	250	250	250
X Productivity	.33	.63	.77	.85
=Reduced Production Rate(CY/HR)	83	158	193	213
* Break time ranges (minutes)	60-140	60-140	40-140	30-70

The following list are the areas where there is the biggest potential for changes in cost due to uncertainties:

- Quantities of soil over TAGMs could increase based on the results of the confirmatory sampling done in the excavation.
- The quantities of soil requiring disposal as hazardous waste could increase based on the results of the confirmatory sampling done in the soil piles.

Contractor costs are calculated as a percentage of running total as

5 % for field office support
15 % for home office support
10 % for profit
4 %for bond

Owner's cost are calculated as a percentage of running total as

2 % for design contingency
3 % for escalation
25 % for construction contingency
3.5 % for other costs
8 % for construction management

Costs are reported in the memo or text as Cost to Owner; the Cost to Owner does not include contingencies listed above for design, escalation, construction, other, and management.

OTHER GOVERNMENT COSTS:

Other Government Costs consist of:

*Engineering and Design During Construction (EDC)	1.5%
As-Builts	0.5%
Operation and Maintenance (O&M) Manuals	0.5%
Laboratory Quality Assurance	1.0%
Total, use	3.5%

33. Remedial Action

33.01. Mobilization	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
33. Remedial Action									
33.01. Mobilization									
USR AA Mobilization	1.00	EA	0	793	2,500	535	0	3,828	3827.72
33.02. Sampling, & Testing									
33.02.06. Groundwater									
Groundwater - from holding tanks									
HTW AA For Disposal: NYSDEC CLP TCL VOCs, volatile organics , groundwater (Severn Trent Lab 9/98) (Assume 1 sample for each tank)	15.00	EA	0	0	0	0	2,625	2,625	175.00
AFH AA For Disposal: NYSDEC CLP TAL SVOCs modified , groundwater, (Severn Trent Lab, 9/98) (Assume 1 sample per tank)	15.00	EA	0	0	0	0	5,550	5,550	370.00
AFH AA For Disposal: NYSDEC TAL - Inorganics, groundwater (Severn Trent Lab, 9/98) (Assume 1 sample per tank)	15.00	EA	0	0	0	0	2,325	2,325	155.00
33.02.11. Soil									
For disposal; TCLP analysis required for non hazardous landfill disposal. Assuming 1 sample every 150 cy: 23,025 cy x 1.40/150 = 215 x 1.2 = 260 samples									
HTW AA For Disposal: TCLP, volatile organics (SW-846 Methods 1311&8240), soil (Severn Trent Lab, 9/99) (Assume 1 sample every 150cy)	415.00	EA	0	0	0	0	49,800	49,800	120.00
AFH AA For Disposal: TCLP-SVOCs (SW-846 Methods 1311 & 8270A), soil (Severn Trent Lab, 9/99) (Assume 1 sample every 150cy)	415.00	EA	0	0	0	0	95,450	95,450	230.00
AFH AA For Disposal: TCLP - Metals (SW-846 Methods 1311 & 6010 & 7470), soil (Severn Trent Lab, 9/99) (Assume 1 sample every 150cy)	415.00	EA	0	0	0	0	49,800	49,800	120.00
33.02.13. Confirmatory-Soil - All Areas									
HTW AA Confirmatory: NYSDEC CLP, volatile organics, soil (Severn Trent Lab, 9/99) (Assume 1 sample every 50 ft of wall adn floor or excavation.	47.00	EA	0	0	0	0	8,225	8,225	175.00

33. Remedial Action

33.02. Sampling, & Testing	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
AFH AA Confirmatory: NYSDEC CLP-SVOCs , soil (Severn Trent Lab, 9/99) (Assume 1 sample every 50 ft of wall and floor of excavation.	47.00	EA	0	0	0	0	17,390	17,390	370.00
AFH AA Confirmatory: NYSDEC CLP TAL - Metals , soil (Severn Trent	47.00	EA	0	0	0	0	7,285	7,285	155.00
33.03. Site Work									
33.03.02. Clearing and Grubbing									
AF AA Clearing, brush w/dozer & brush rake, light brush	4.00	ACR	64	1,731	2,516	0	0	4,246	1061.54
33.03.08. Survey Remediation Area Survey remediation area									
USR AA Survey remediation area	10.00	DAY	0	15,000	2,500	2,675	0	20,175	2017.50
33.03.11. Erosion control									
B MIL AA Silt Fence: Installation and materials high, polypropylene	16000	LF	3,360	80,000	8,000	25,680	0	113,680	7.11
B HTW AA Hay bales - stalked	16000	LF	5	2,720	0	17,120	0	19,840	1.24
B MIL AA Maintain silt fence and remove	16000	LF	107	2,720	0	17,120	0	19,840	1.24
33.04. Fencing									
MIL AA Site dml, chain link fence, remove & salvage for reuse	2000.00	LF	103	2,600	0	0	0	2,600	1.30
MIL AA Fence, CL scty, std FE-6, 6' high, no gates/signs	2000.00	LF	96	2,820	0	39,847	0	42,667	21.33
MIL AA Fence, CL, set in conc, 6' H, indl, corner post, galv stl, 4" OD	4.00	EA	2	55	9	295	0	358	89.48
MIL AA Fence, CL, double, 24' W, indl, gates, swing, 6' high	1.00	EA	0	0	0	435	0	435	435.38
33.05. Wastewater									
33.05. 1. Wastewater									
L MIL AA Pump, cntfgl,6"D, horiz mtd, horiz splt, sgl stg,1500GPM,50HP	1.00	EA	0	0	0	10,767	0	10,767	10766.88
M HTW AA 21,000 Gal, Steel, hold tank stationary	4.00	EA	0	0	0	5,264	0	5,264	1316.10
33.07. Air Stripping									
HTW AA HTRW,PTTU,1'dia,14.5'pkng hgt, 30GPM,850CFM,FRP shell	1.00	EA	97	3,257	0	7,009	0	10,265	10265.47
AFH AA HTRW,PTTU, >= 12' high, install air strip tower, 1'- 3' diam.	1.00	EA	91	3,035	226	0	0	3,261	3261.05

33.07. Air Stripping	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
HTW AA HTRW, PT opt, air flow switch (loss of air flow - motor failure)	1.00	EA	0	0	0	512	0	512	511.81
33.10. Soil Remediation									
33.10.02. Sitework - Soils									
Excavating the entire landfill at SEAD-11 Volumes are increased by 30% for expansion and 10% contingency. For weight calculations, the volume is increased by 10% only. All fill, topsoil, and seeding items for soil remediation are included in the Sitework - Soils category.									
USR AA Excavate, stockpile, screen soi l (volumes used for estimate are	51910	CY	0	0	0	0	1,038,200	1,038,200	20.00
USR AA Plastic sheeting for ground: 6mil polyethylene liner (1000sf	865170	SF	0	0	0	74,059	0	74,059	0.09
USR AA Cover stockpiles w/ plastic sheeting: Plastic sheeting: 6mil polyethylene liner (1000sf / roll; 1 roll = $75)	865170	SF	0	0	0	74,059	0	74,059	0.09
MIL AA Loam or topsoil, furnish & place, imported, 6" deep	17025	CY	1,502	45,457	23,665	332,091	0	401,213	23.57
USR AA Common fill (6") - Material for Backfill, includes cost of material (bank sand) and delivery (DeWitt, 1999) For this option, excavated material with concentrations of COCs less than Clean up Goals will be used as backfill.	0.01	TON	0	0	0	0	0	0	4.65
AF AA Fill, spread borrow w/dozer	26000	CY	312	9,360	16,900	0	0	26,260	1.01
AF Compaction, steel wheel tandem roller, 5 ton	26000	CY	185	5,460	4,680	0	0	10,140	0.39
RSM AA Seeding, athletic field mix, 8#/MSFpush spreader	174.00	MSF	174	4,399	0	7,745	0	12,144	69.79
33.10.04. Drum Removal									
Assuming approximately 20 drums.									
L MIL AA Assuming that no drums will be intact based on test pit logs.	20.00	EA	2	323	445	0	0	768	38.40
L MIL AA Excavator for drum moving at Level B	20.00	EA	2	323	445	0	0	768	38.40
L MIL AA Level B breathing unit, suit, overboots, gloves	4.00	EA	0	0	2,000	0	0	2,000	500.00

33.10. Soil Remediation	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
33.10.06. Disposal: Disposal and Transportation of debris and soil in solid waste landfill; treatment of and disposal of soils exceeding TCLP in haz. waste facility. Assuming 50% of excavated material will exceed the revised TAGM values and will be disposed of off-site. The remaining 50% will be backfilled. Assuming that the material for off-site disposal will consist of 10% debris and 90% soil (10% hazardous and 90% non-hazardous).									
HTW AA HW packaging, overpacks, 18"dia x 34"H, 16ga stl drum, 55gal, DOT 17C	20.00	EA	0	0	0	1,583	0	1,583	79.13
USR AA Drums/Paint Cans: Transportation of Drums by dedicated van	1.00	EA	0	0	0	0	546	546	545.70
USR AA Drums/Paint Cans: Disposal of Drums (Price quoted by Waste Management	20.00	EA	0	0	0	2,862	0	2,862	143.11
USR AA Extra fees for overpack use	20.00	EA	0	0	0	0	800	800	40.00
USR AA Debris: Transport and Dispose nonhaz waste, bulk solid,	3900.00	TON	0	0	0	0	122,850	122,850	31.50
HTW AA Soils: Transport and Dispose nonhaz waste, bulk (Earthwatch, 7/00)	31200	TON	0	0	0	0	982,800	982,800	31.50
HTW AA Soils: Transport and Dispose haz waste, bulk (Earthwatch, 7/00)	3900.00	TON	0	0	0	0	429,000	429,000	110.00
33.26. Demobilization									
TOTAL Decontaminate Equipment	1.00	EA	0	1,321	5,000	2,500	0	8,821	8821.20
TOTAL Demobilization	1.00	EA	0	528	2,500	500	0	3,528	3528.48
33.31. Remedial Design									
B HTW AA Remedial Design Workplan	1.00	EA	0	27,600	0	2,568	0	30,168	30168.00
B HTW AA Preliminary Design Report	1.00	EA	0	46,000	0	4,280	0	50,280	50280.00
B HTW AA Pre-final/Final Design Report, Including O&M Plan, S&A Plan, QA Plan, Contingency Plan, Waste	1.00	EA	0	118,000	0	7,490	0	125,490	125490.00
B HTW AA Remedial Action Workplan, including QA/QC Plan, H&S Plan	1.00	EA	0	47,500	0	2,675	0	50,175	50175.00
B HTW AA Project Closeout Plan	1.00	EA	0	48,000	0	2,140	0	50,140	50140.00
TOTAL SEAD-11			6,101	469,001	71,385	641,810	2,812,646	3,994,842	

	QUANTY	UOM	CONTRACT	DES CONT	ESCALATN	CON CONT	OTHER	CON MGMT	TOTAL COST	UNIT COST
33 Remedial Action										
33.01 Mobilization	1.00	EA	5,290	110	160	1,390	240	570	7,760	7761.84
TOTAL Mobilization	1.00	EA	5,290	110	160	1,390	240	570	7,760	7761.84
33.02 Sampling, & Testing										
33.02.06 Groundwater	1.00	EA	14,500	290	440	3,810	670	1,580	21,290	21291.88
33.02.11 Soil	1.00	EA	269,440	5,390	8,240	70,770	12,380	29,300	395,520	395521.99
33.02.13 Confirmatory-Soil	1.00	EA	45,450	910	1,390	11,940	2,090	4,940	66,710	66714.55
TOTAL Sampling, & Testi	1.00	EA	329,390	6,590	10,080	86,510	15,140	35,820	483,530	483528.42
33.03 Site Work										
33.03.02 Clearing and Grub	4.00	ACR	5,870	120	180	1,540	270	640	8,610	2152.58
33.03.08 Survey Remediatio	1.00	ACR	27,870	560	850	7,320	1,280	3,030	40,910	40910.82
33.03.11 Erosion control	1.00	LF	211,850	4,240	6,480	55,640	9,740	23,040	310,980	310983.09
TOTAL Site Work	1.00	EA	245,580	4,910	7,510	64,500	11,290	26,700	360,500	360504.24
33.04 Fencing	1.00	EA	63,630	1,270	1,950	16,710	2,920	6,920	93,400	93400.60
33.05 Wastewater										
33.05. 1 Wastewater	1.00	EA	22,150	440	680	5,820	1,020	2,410	32,510	32508.19
TOTAL Wastewater	1.00	EA	22,150	440	680	5,820	1,020	2,410	32,510	32508.19
33.07 Air Stripping	1.00	EA	19,390	390	590	5,090	890	2,110	28,470	28466.90
33.10 Soil Remediation										
33.10.02 Sitework - Soils	1.00	EA	2,256,170	45,120	69,040	592,580	103,700	245,330	3,311,950	3311950.26
33.10.04 Drum Removal	1.00	EA	4,880	100	150	1,280	220	530	7,170	7170.29
33.10.06 Disposal:	1.00	EA	2,127,930	42,560	65,110	558,900	97,810	231,390	3,123,700	3123702.04
TOTAL Soil Remediation	1.00	EA	4,388,990	87,780	134,300	1,152,770	201,730	477,250	6,442,820	6442822.60
33.26 Demobilization										
33.26.04 Decontaminate Equ	1.00	EA	12,190	240	370	3,200	560	1,330	17,890	17887.61
33.26.06 Demobilization	1.00	EA	4,870	100	150	1,280	220	530	7,160	7155.04
TOTAL Demobilization	1.00	EA	17,060	340	520	4,480	780	1,860	25,040	25042.66

	QUANTY	UOM	CONTRACT	DES CONT	ESCALATN	CON CONT	OTHER	CON MGMT	TOTAL COST	UNIT COST
33.31 Remedial Design	1.00	EA	423,050	8,460	12,950	111,110	19,450	46,000	621,020	621019.20
TOTAL Remedial Action	1.00	EA	5,514,530	110,290	168,740	1,448,390	253,470	599,630	8,095,050	8095054.65

ANNUAL MONITORING COSTS
FOR SEMI-ANNUAL
GROUNDWATER MONITORING
SEAD-11

Designed By: Parsons ES
Estimated By: Parsons ES

Prepared By: Parsons ES

Preparation Date: 11/22/99
Effective Date of Pricing: 10/03/96

Sales Tax: 7.0%

PROJECT BREAKDOWN:

The estimate is structured as follows and uses a 2 digit number at each level. The 2 digit numbers for the first 3 title levels are taken from the HTRW Remedial Action Work Breakdown Structure. The 2 digit numbers for the remaining title levels are user defined. The detail items are at LEVEL 6.

LEVEL 1 - WBS Level 1 (Account)
LEVEL 2 - WBS Level 2 (System)
LEVEL 3 - WBS Level 3 (Subsystem)
LEVEL 4 - User Defined (Assembly Category or Other)
LEVEL 5 - User Defined (Assembly or Other)

PROJECT DESCRIPTION:

The scope of work for the contractors is summarized below.

- Sample 7 wells (total of 9 samples including 1 dup and 1 qa sample)for VOCs and metals analyses.
- Assumptions: 2-person crew, 6 wells sampled per day locations 1 day for set-up, 1 day for de-mob, no air travel; 2 events per year, and metals laboratory analyses.

PRODUCTIVITY:

Productivity, as a baseline and as taken from the Unit Price Book (UPB) Database, assumes a non-contaminated working environment with no level of protection productivity reduction factors. When required, productivity for appropriate activities will be adjusted for this project as follows:

1. Level of Protection A - Productivity ___%
2. Level of Protection B - Productivity ___%
3. Level of Protection C - Productivity ___%
4. Level of Protection D - Productivity 85%.

All activities are conducted in Level of Protection D.

The following daily time breakdown was assumed.

	Level A	Level B	Level C	Level D
Availiable Time (minutes)	480	480	480	480
Non-Productive Time (minutes):				
Safety meetings	20	20	10	10
Suit-up/off	60	60	40	10
Air tank change	160	20	0	0
*Breaks	60	60	40	30
Cleanup/decontamination	20	20	20	20
Productive Time (minutes)	160	300	370	410
Productivity:	160/480 X100%	300/480 X100%	370/480 X100%	410/480 X100%
	33%	63%	77%	85%
Example:				
Normal Production Rate (CY/HR)	250	250	250	250
X Productivity	.33	.63	.77	.85
=Reduced Production Rate(CY/HR)	83	158	193	213
* Break time ranges (minutes)	60-140	60-140	40-140	30-70

The following list the areas where there is the biggest potential for changes in cost due to uncertainties:

- Time necessary to complete sampling may increase depending on the flow of water.
- This estimate does not include the potential for additional wells or the repair of existing wells.

Contractor costs are calculated as a percentage of running total as
0.5 % for field office support
10.0 % for home office support
10.0 % for profit
0.0 % for bond

Owner's cost are calculated as a percentage of running total as
0.0 % for design contingency
3.0 % for escalation
0.0 % for construction contingency
3.0 % for other costs
0.0 % for construction management

OTHER GOVERNMENT COSTS:

Other Government Costs consist of:

*Engineering and Design During Construction (EDC)	1.0%
As-Builts	0.5%
Operation and Maintenance (O&M) Manuals	0.5%
Laboratory Quality Assurance	1.0%
Total, use	3.0%

33.02. Sampling, & Testing	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
33. Remedial Action									
33.02. Sampling, & Testing									
33.02.01. Health and Safety									
HTW AA Case of 25, disposable coveralls, Tyvek (Pine Environmental Services 9/98)	1.00	EA	0	0	0	115	0	115	114.69
USR AA Poly Tyvek (case of 12) (Pine Environmental Services 9/98)	1.00	EA	0	0	0	74	0	74	73.83
HTW AA First aid kits, 36 ingredients	1.00	EA	0	0	0	80	0	80	79.93
HTW AA Eye prot, safety glasses	2.00	EA	0	0	0	11	0	11	5.62
M HTW AA Latex Gloves (100/box) (Pine Environmental Services 9/98)	4.00	BX	0	0	0	42	0	42	10.43
USR AA North Respirator Cartridges (2 per/pkg) (Pine Environmental Services 9/98)	2.00	PK	0	0	0	9	0	9	4.49
33.02.02. Personnel									
AFH AA Personnel per diem (2 people x 4 days x 2 events)	18.00	DAY	0	0	0	1,907	0	1,907	105.93
AFH AA Car or van mileage charge	2000.00	MI	0	0	0	706	0	706	0.35
HTW AA Daily rate, subcontracted	18.00	EA	0	0	0	0	12,240	12,240	680.00
33.02.04. Sample Groundwater Groundwater monitoring costs for one year are included in this estimate. Each monitoring well is sampled semi-annually for TAL metals.									
USR AA Turbidimeter Rental (Pine Environmental Services 9/98)	2.00	WK	0	0	160	0	0	160	80.00
USR AA Hydrolab Rental (Hydrolab Corp. 9/98)	2.00	WK	0	0	690	0	0	690	345.00
USR AA Bladder Pump Rental (Marschalk Corporation 9/98)	2.00	WK	0	0	190	0	0	190	95.00
USR AA Pump Controller Rental (Marschalk Corp. 9/98)	2.00	WK	0	0	300	0	0	300	150.00
USR AA 12-volt Compressor Rental (Marschalk Corp. 9/98)	2.00	WK	0	0	350	0	0	350	175.00
USR AA Misc. Equipment Rental (Marschalk Corp. 9/98)	2.00	WK	0	0	65	0	0	65	32.50
USR AA Thermo Environmental 580B (OVM) Rental (US Environmental, 12/98)	2.00	WK	0	0	400	0	0	400	200.00
USR AA Teflon Tubing (1/4" ID x 3/8") (Pine Environmental Services 9/98)	1000.00	FT	0	0	0	2,675	0	2,675	2.68
USR AA Isobutylene Calibration Gas (Pine Environmental Services 9/98)	2.00	EA	0	0	0	173	0	173	86.40
USR AA pH4 Buffer Solution (Cole-Parmer Instrument Co. 9/98)	2.00	EA	0	0	0	22	0	22	11.24

33.02. Sampling, & Testing	QUANTY	UOM	MANHOUR	LABOR	EQUIPMNT	MATERIAL	SUBCONTR	TOTAL COST	UNIT COST
USR AA pH7 Buffer Solution (Cole-Parmer Instrument Co. 9/98)	2.00	EA	0	0	0	22	0	22	11.24
USR AA 700 Conductivity Solution (Cole-Parmer Instrument Co. 9/98)	2.00	EA	0	0	0	39	0	39	19.26
USR AA 2060 Conductivity Solution (Cole-Parmer Instrument Co. 9/98)	2.00	EA	0	0	0	39	0	39	19.26
HTW AA 32 oz HDPE bottle, 12/case (including packaging and	72.00	EA	0	0	0	2,372	0	2,372	32.95
HTW AA Custody seals (package of 10)	8.00	EA	0	0	0	126	0	126	15.75
HTW AA 1gal,4/case,safe trans can w/vermiculite	2.00	EA	0	0	0	58	0	58	29.21
AFH AA Packing Tape: Testing, packaging & shipping, per roll	8.00	EA	0	0	0	13	0	13	1.65
HTW AA Shipping coolers: Testing, packaging & shipping, 51# to 70# pkg, overnight dlvy	14.00	EA	0	0	0	0	1,096	1,096	78.27
AFH AA Testing, packaging & shipping, bag ice	100.00	EA	0	0	0	0	119	119	1.19
HTW AA 48 quart ice chest, cooler & ice chest	2.00	EA	0	0	0	0	55	55	27.62
33.02.07. Analysis of Groundwater									
AFH AA NYSDEC CLP TCL VOCs(unit cost from Severn Trent Lab 9/98)	18.00	EA	0	0	0	0	3,150	3,150	175.00
AFH AA TAL metals (NYSDEC CLP TAL Inorganics - unit cost from Severn Trent Lab 9/98)	18.00	EA	0	0	0	0	2,790	2,790	155.00
33.02.12. Disposal of IDW									
Disposal of Investigation Derived Wastes									
USR AA Disposal of purge water drums (1 drum of purge water for 2 rounds of sampling for 12 wells) (Price quoted by Waste Management Inc., 5/99. Includes 7% sales tax. Does NOT include transportation. Price quoted under assumption that drums contain oily liquid of low viscosity containing PAHs, metals (and does not contain PCBs).)	1.00		0	0	0	0	134	134	133.75
TOTAL ANNUAL MONITORING COSTS			0	0	2,155	8,483	19,584	30,222	

	QUANTY UOM	CONTRACT	DES CONT	ESCALATN	CONTINGN	OTHER	CON MGMT	TOTAL COST	UNIT COST
33 Remedial Action									
33.02 Sampling, & Testing									
33.02.01 Health and Safety	1.00 EA	400	0	10	0	10	0	430	426.26
33.02.02 Personnel	1.00 EA	18,060	0	540	0	560	0	19,160	19161.89
33.02.04 Sample Groundwate	1.00 EA	10,900	0	330	0	340	0	11,570	11565.13
33.02.07 Analysis of Groun	1.00 EA	7,220	0	220	0	220	0	7,660	7663.24
33.02.12 Disposal of IDW	1.00 EA	160	0	0	0	10	0	170	172.55
TOTAL Sampling, & Testi	1.00 EA	36,750	0	1,100	0	1,140	0	38,990	38989.07
TOTAL Remedial Action	1.00 EA	36,750	0	1,100	0	1,140	0	38,990	38989.07

63RemovalSOW
6 March 2002

APPENDIX
ANNEX

NON-TIME CRITICAL REMOVAL ACTION AT THE MISCELLANEOUS COMPONENTS BURIAL SITE (SEAD-63), SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

1.0 GENERAL STATEMENT OF SERVICES

1.1 Background.

1.1.1 General. An Expanded Site Inspection (ESI) and Engineering Evaluation/Cost Analysis (EE/CA) have been performed at the Miscellaneous Components Burial Site (SEAD-63) at the Seneca Army Depot Activity (SEDA) in Romulus, NY. Releases of contaminants and the physical presence of drums and debris have been documented. The depot has officially been closed by the DoD and the US Army and in accordance with the Base Realignment and Closure (BRAC) process, portions of the depot are now being released to the public and private sectors for reuse. As increased access is afforded, the potential for exposure to any residual chemicals that are present at this site will increase.

The goal of the proposed non time-critical removal action (NTCRA) at SEAD-63 is (1) to eliminate and contain an identified source of residual materials in the soil and (2) to remove or at least lessen the magnitude of the potential threat that it represents to surrounding populations and the environment. While removal of drums, miscellaneous components and other containers is the focus of the planned removal action for this site, the potential for contamination to be present in the soils and groundwater that surround these items will also be addressed by this action.

1.1.2 Site Characterization.

1.1.2.1 Base Description and History. This section provides a brief overview of SEDA. The SEDA facility is situated on the western flank of a topographic high between Cayuga and Seneca lakes in the Finger Lakes region of central New York. The SEDA was constructed in 1941 and has been owned by the United States Government and operated by the Department of the Army since that time. The post generally consists of an elongated central area for storage of ammunitions and weaponry in Quonset-style buildings, an operations and administration area in the eastern portion, and an army barracks area at the north end of the depot. The base was expanded to encompass a 1,524-meter airstrip, formerly the Sampson Air Force Base. The mission of the SEDA was: (1) receiving, storing, and distributing ammunition and explosives, (2) providing receipt, storage, and distribution of items that support special weapons, and (3) performing depot-level maintenance, demilitarization, and surveillance on conventional ammunition and special weapons. The depot formerly employed approximately 1,000 civilian and military personnel.

1.1.2.2 Site Description.

1.1.2.2.1 The Miscellaneous Components Burial Site (SEAD-63) is located in the northern portion of SEDA on the west side of what used to be known as the Special Weapons Area. The SEAD-63 site encompasses an area approximately 480 feet by 300 feet and is bound on the north, south and west by paved roads and on the east by open grassland. The site is mostly undeveloped except for a grass-covered bunker in the southeast corner and an elevated machine gun turret made of soil in the northwest corner of the site. In general, the western portion of the site is less vegetated and appears to have been physically worn by vehicular traffic. The site was used during the 1950's and 1960's as a disposal area for classified parts. Multiple disposal pits were excavated along the north-south line approximately 200 feet long. The individual pits were 10 to 30 feet long and were likely to have been excavated down to the surface of the weathered shale. The types of materials disposed at this site have been identified as metal parts and inert materials.

1.1.2.2.2 Topography on site is generally flat with only a small westward slope. Drainage ditches are adjacent to each of the roads that surround the site on three sides. A light ground depression, sloping south to north, is located in the northeastern quadrant of the site. Reeder Creek is located approximately 1,500 feet southwest of the site where it flows west to Seneca Lake.

1.1.2.2.3 The Finger Lakes uplands area is underlain by a broad north-to-south trending series of rock terraces mantled by glacial till. As part of the Appalachian Plateau, the region is underlain by a tectonically undisturbed sequence of Paleozoic rocks consisting of shale, sandstone, conglomerate, limestone, and dolostone. In the vicinity of SEDA, Devonian age (385 million years bp) black shale of the Hamilton group is monoclinally folded and dips gently to the south. No evidence of faulting or folding of the sediments is present. Pleistocene age glacial till deposits overlie the shale. The till matrix, the result of glaciation, varies locally but generally consists of horizons of unsorted silt, clay, sand, and gravel. In the Finger Lakes region of New York, the till thickness varies from 1 to 50 meters. However, on the till plain between Seneca and Cayuga Lake it is near the surface and generally thin (Muller and Cadwell, 1986). In the central and eastern portions of SEDA the till is thin and bedrock is exposed or within 1 meter of the surface in some locations. The soils at the site are classified as unsorted inorganic clays, inorganic silts, and silty sands. In general, the topographic relief associated with these soils is 3 to 8%.

1.1.2.2.4 Regionally, four distinct hydrologic units have been identified within Seneca County. These include two distinct shale formations, a series of limestone units, and unconsolidated beds of Pleistocene glacial till. Overall, the groundwater in the county is very hard, and therefore, the quality is minimally acceptable for use as potable water. Approximately 95 percent of the wells are used for domestic or farm supply and the average daily withdrawal is approximately 500 gallons. About 5 percent of the wells in the county are used for commercial, industrial, or municipal purposes. Regionally, the till aquifer would be expected to flow in a direction consistent with the ground surface elevations. Geologic cross-sections from Seneca Lake and Cayuga Lake have been constructed by the State of New York, (Mazola, A.J., 1951 and Crain, L.J., 1974). This information suggests that a groundwater divide exists approximately halfway between the two finger lakes. SEDA is located on the western slope of this divide and, therefore, regional surficial groundwater is expected to flow westward toward Seneca Lake. Most of the groundwater in Seneca County is derived from precipitation that falls on the land surface and percolates into surficial deposits (Mazola, 1951). Three geologic strata have been used to produce water for both domestic and agricultural purposes. These include the following: 1) a bedrock aquifer, which in this area is predominantly shale; 2) an overburden aquifer, which includes Pleistocene deposits (glacial till); and 3) a deep aquifer present within beds of limestone present within the underlying shale.

1.1.2.2.5 Determination of the site geology was based on the drilling and test pit programs conducted for the ESI at SEAD-63. This program included 3 soil borings in which monitoring wells were installed and 12 test pits. The soil borings were drilled to a maximum depth of 8.3 feet below ground surface. Based on the results of the drilling and test pitting programs, fill material, till, weathered gray shale, and competent gray shale were the four major geologic units identified on-site. A thin topsoil layer (0.1 to 0.9 feet) was present at all three soil boring locations and 10 of the 12 test pit locations. Fill material was encountered in 5 test pits and two drums were found in another test pit. Fill material thickness ranged from 0.6 feet to over 8 feet. The fill consisted of waste material with trace amounts of till, gravel sized shale fragments and sand. The waste material was comprised of miscellaneous military components. The till was characterized as brown or olive gray silt and very fine sand with small (less than 1 inch) fragments of shale. Clay lenses were observed occasionally. Larger shale fragments, thought to be rip-up clasts, were encountered in some of the soil borings. The till was observed to be 5.0 to 6.9 feet thick in the three soil borings performed at SEAD-63. The weathered shale that forms the transition between till and competent shale was observed in all three of the soil borings and ranged in thickness from approximately 1.3 to 3 feet. Competent gray shale was observed in all three soil borings. The depths to bedrock ranged from 8.0 to 8.3 feet below ground surface. In all three soil borings, competent shale was inferred by auger refusal.

1.1.2.2.6 Surface water flow from precipitation events is controlled by local topography and the drainage ditches along the northern, western, and southern boundaries of the site. As part of the ESI program, three monitoring wells were installed at SEAD-63. Groundwater elevations were measured in all three wells. Based on these data, the groundwater flow direction is primarily to the west and no appreciable changes in the groundwater flow direction were observed over the one month period from June 25, 1994 to July 26,1994, when groundwater elevations were measured at SEAD-63.

1.1.2.3 Contamination Assessment. Geophysical surveys and test pits were performed during the ESI to identify burial sites at SEAD-63. Soil, groundwater, surface water, and sediment were analyzed as part of the ESI conducted at SEAD-63 in 1994. The results of the ESI investigation were presented in the report titled "Expanded Site Inspection, Seven Low Priority AOCs, SEADs 60, 62, 63, 64 (A, B, C, and D), 67. 70 and 71" which was issued in April 1995. A total of 12 subsurface soil samples, 3 groundwater samples and 4 surface water and sediment samples were collected as part of the ESI at SEAD-63. In addition, 18 surface water and sediment samples were collected in 1997 during RI activities. The following sections describe the nature and extent of contamination identified at SEAD-63.

1.1.2.3.1 Geophysical Survey.

1.1.2.3.1.1 Seismic Survey. Seismic refraction profiles showed 6 to 9 feet of unconsolidated overburden (estimated at 1,600 ft/sec) overlying bedrock (11,200 to 13,400 ft/sec). The mid-spread data of profile P3 revealed a compact, 3,900 ft/sec, overburden layer. Saturated overburden was not detected by the seismic survey. Due to inherent limitations of the seismic refraction method, a thin layer of saturated overburden overlying the bedrock surface would be undetectable. Poor surface conditions prevailed during this seismic survey. Snow melt waters and slush covered much of the site and in many areas was pooled over frozen ground. These conditions resulted in unusually high velocities of the direct arrival waves from the surface layer (typically 2,600 to 4,700 ft/sec). Therefore, the surface velocities were manually reduced to a value of 1,600 ft/sec (the surface wave velocity detected from unfrozen ground on profile P3) during the data interpretation phase. The depths to bedrock calculated from these interpretations were corroborated by the depths to bedrock measured during the monitoring well installations at SEAD-63. The elevations of the bedrock surface, as determined by these surveys, indicate that the bedrock slopes to the west, generally following the surface topography. Groundwater flow is also expected to move to the west, following the slope of the bedrock.

1.1.2.3.1.2 EM-31 Survey. A square shaped conductivity anomaly was detected in the northwest portion of the site. This anomaly was correlated to the suspected miscellaneous components burial site. The large conductivity anomaly at the southeastern corner of the site corresponded to Igloo A0101. A linear anomaly running the length of the western boundary of the site was presumably associated with underground utilities or an accumulation of road salt in the drainage ditch along Patrol Road. The guard post III the northwestern corner of the site was also detected. In general, the ground in the western portion of the grid exhibited slightly higher apparent conductivities than the ground in the eastern portion. An anomaly in the north-central area of the grid better defines the boundaries of the suspected burial pits; however, the square feature identified by the apparent conductivity survey was not detected. Anomalies associated with the guard post, the underground utility and Igloo A0101 were also observed. Additional EM-31 surveying was conducted during the RI field activities and confirmed the findings of the earlier survey.

1.1.2.3.1.3 GPR Survey. A GPR survey was also conducted at SEAD-63 during the ESI to delineate the extent of the suspected burial pits. A layer of conductive shale gravel, typically 12 inches thick, overlaid the western portion of the survey area, greatly reducing the radar signal penetration through the underlying native soils. In spite of this limitation, the GPR data revealed the presence of several areas where the radar signal reflections from the base of the gravel fill and underlying layers disappeared. The burial pit boundaries delineated by these anomalies coincided with the boundaries established by the in-phase data from the EM-31 survey. GPR surveys conducted during the RI confirmed the findings of the ESI survey.

1.1.2.3.2 Test Pit Results. A total of twelve test pits were excavated in SEAD-63 to characterize the sources of the geophysical anomalies. Nine test pits were excavated in the area of suspected burial pits located by the in-phase response data and the GPR records from SEAD-63 . Three test pits were excavated in the square shaped area of increased apparent ground conductivities identified by the EM-31 survey. Miscellaneous military components were found in 5 test pits. Each of these excavations was characterized by dark gray shale gravel fill overlying the burial pits. The base of the burial pits could not be determined in any of these five excavations due to the presence of a perched water layer within the buried materials. Components found in these test pits included battery assemblies, accelerometers, lock mechanisms, fire/safe pins, baroswitches, wiring, and quick connects. In one test pit, two drums buried in an up-right position were identified with their tops approximately one foot below grade. Both drums were in good condition and very little rust was noted on their surfaces. One of these drums had the word "BURIAL PIT" stenciled on its side. This drum was opened during the test pitting activities and electronics components were observed within it. No liquids were observed in the drum and all radiation and organic vapor- field screening measurements that were taken around and within the drum had readings that were equal to background levels. Five test pits revealed only a layer of shale gravel to a depth of 1 foot, which would explain the source of the elevated ground conductivity

observed by the EM-31 survey. All excavated material was continuously screened for organic vapors with an OVM-580B and for
radioactivity with a Victoreen-190 alpha-beta-gamma rate meter, a Ludlum-19 micro-R beta and gamma rate meter and a Ludlum 2221 alpha scintillometer. No readings above background levels (0 ppm for the OVM, 10-15 microrem per hour for the beta and gamma meters, and 6 counts per minute on the alpha meter) were observed during the excavations.

1.1.2.3.3 Radiological Survey. A radiological survey was conducted at SEAD-63 as part of the RI field investigation in September 1997. The survey was conducted using a PDR-77 and measured total counts per minute of low energy gamma radiation from the grounds of SEAD-63. As this area was classified as Class II, 50 percent of the grounds was covered by the survey as outlined in the RI/FS Project Scoping Plan for SEAD-12 and SEAD-63. The results of this survey did not indicate that there were any hot spot areas within the grounds of SEAD-63 that required further investigation or an upgrade in classification. All readings were within 50 percent of background levels. Typically, levels between 200 and 300 percent of background may indicate the need for additional surveying and investigation.

1.1.2.3.4 Soils. The following sections describe the nature and extent of contamination in SEAD-63 soils.
1.1.2.3.4.1 Volatile Organic Compounds. Five volatile organic compounds were detected in two of the 12 soil samples collected. All were found at low concentrations and all were below their respective TAGM values. The volatiles detected were acetone, 2-butanone, benzene, toluene, and xylenes (total).

1.1.2.3.4.2 Semivolatile Organic Compounds. A total of 12 semivolatile organic compounds (SVOCs) were found in the subsurface soil samples analyzed. Only one SVOC compound, dibenz(a,h)anthracene, was detected in a single sample at an estimated concentration of 281 mg/kg which exceeded its associated TAGM value of 14 mg/kg. All of the remaining concentrations of SVOCs detected in the soil samples from SEAD-63 were below their respective TAGM values.

1.1.2.2.4.3 Pesticides/PCBs and Herbicides. Three pesticide compounds were detected in three of the 12 soil samples collected. The pesticides detected were 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT. All three of these pesticides were detected at concentrations below their respective TAGM values. No PCBs were detected in any of the soil samples.

1.1.2.2.4.4 Metals and Cyanides. Several soil samples were found to contain metals at concentrations that exceeded the associated TAGM values. Of the 22 metals reported, 6 were found in one or more soil samples at concentrations above the TAGM values. In earlier reports on SEAD-63 (ESI for Seven Low Priority Sites, April 1995), a greater number of metals exceeded TAGMs. However, since the time of the ESI, more background data have been collected to establish a more representative concentration of metals in background. In addition, the 95th percentile value has been selected as the background concentration rather than the 95th upper confidence level of the mean, which was
previously used. The most current background values for metals have been incorporated into this EE/CA. Of the metals that exceeded the TAGM, cadmium and mercury were the only metals that exceeded their TAGM values by more than a factor of 2. Cadmium and mercury are the only two metals present in soil that exceed two times the average background concentration of these metals. The highest concentration of cadmium was almost 10 times the TAGM value of 2.46 mg/kg. The concentration of mercury in one sample (0.49 mg/kg) was the only detected concentration of this element that exceeded the TAGM value of 0.1 mg/kg.

1.1.2.2.4.4 Radioactivity. The principal radionuclides found in gamma spectral analyses of the soil samples collected during the ESI from SEAD-63 are from the Uranium, Thorium and Actinium decay series. The principal radionuclides Radium-226, Lead-210, and Uranium-235 were detected. The presence of the principal radionuclide Radium-228, Thorium-228, and Uranium-238 was inferred by the detection of one or more of their associated radionuclides. When more than one associated radionuclide was detected, the radionuclide having the highest concentration was assigned to that principal radionuclide. Cs-137 and K-40 were also reported in the gamma spectral analysis. Potassium-40 is a naturally occurring radioisotope. Cs-137 is a fission product and is present in the environment due to nuclear weapons testing fallout (Eisenbud and Gesell, 1997).

Background soil samples were collected in 1997 during the RI field activities for SEAD-12 and SEAD-63. These samples were analyzed for radioisotopes by gamma spectrometry as well as alpha spectrometry for Th-230/2, U-235/8, and Pu-239/240. Some gamma emitters in the Actinium, Thorium, and Uranium series that were detected during the ESI are weak gamma emitters and are more accurately detected using alpha spectrometry. .Alpha spectrometry methods provide lower detection limits for certain radionuclides such as Thorium and Uranium isotopes. While it would be best to compare data derived from the same methods, U-235/238 data from SEAD-63, derived from gamma spectrometry analyses, is compared to background data, derived from alpha spectrometry analyses. Additional radionuclides detected in background using alpha spectrometry or radiochemistry methods other than gamma spectrometry, include Pu-239/240, Tritium, Th-230/232, and Pm-1470.

Principal and associated radionuclides were detected in the RI background soil sample analyses. As in the site soils, Ra-226, Pb-210 and U-235 were detected. In addition, principal radionuclides Ac-227, Cs-137, Co-57, Pu-239/240, Ra-228, Th-230, Th-232, U-233/234, and U-238 were detected. The presence of Ac-227 was inferred by the detection of one or more associated radionuclides. When associated radionuclides of principal radionuclides detected were also detected, the highest detected concentration of either the associated or principal radionuclide was assigned to the principal.

1.1.2.4 Contamination Assessment Summary. The results of the ESI and RI field work conducted at SEAD-63 indicate that past activities on site have had some impact on the soil quality. It is also possible that past activities on site may have impacted the groundwater and surface water quality, though the elevated chemical and radiogenic results in the groundwater samples may be due solely to the high turbidity levels of those samples. Miscellaneous military debris was found in several test pits on site. The extent of the former disposal pits on site were confirmed by geophysical surveys and the test pits conducted. The chemical and radiological impact on environmental media due to past activities on site is summarized below.

1.1.2.4.1 Soils. The soil analysis results indicate that soils are impacted by cadmium in several areas that were investigated by test pits during the ESI at SEAD-63. Cadmium concentrations in three test pit samples exceeded the TAGM value of 2.4 mg/kg by up to an order of magnitude. Mercury was detected in one test pit sample (TP63-3) at a concentration of 0.49 mg/kg, exceeding the TAGM value of 0.1 mg/kg. The average concentrations of both cadmium and mercury in SEAD-63 soils exceeded twice the average background concentration.

Based on a statistical comparison of radionuclide data from SEAD-63 and from background, the level of radionuclides from SEAD-63 are not distinguishable from background. Therefore, the soils at SEAD-63 do not exhibit a dose equivalent above the NYSDEC TAGM (10 mrem/yr above background). Volatile organic compounds, semivolatile organic compounds, and pesticides were detected at low concentrations and only one semivolatile compound, dibenz(a,h)anthracene, was found at a concentration that exceeded its associated TAGM value. Dibenz(a,h)anthracene exceeded its TAGM value by 2 in one soil sample.

1.1.2.4.2 Groundwater. Radioactivity analysis results indicate that the groundwater located hydraulically downgradient of the disposal pits may be impacted by gross alpha and gross beta radiation. The level of gross alpha radiation in this well was an order of magnitude above the NYS AWQS Class GA and federal drinking water criteria. In addition, gross alpha levels exceeded the NYS AWQS in MW63-1, which is considered to be the background location for the purpose of the ESI). Gross beta radiation levels detected in the groundwater samples collected from groundwater
monitoring wells MW63-3 and MW63-1 may be similarly impacted, though the elevated gross beta levels may be due to the high NTUs of those groundwater samples. The NYS AWQS for gross beta was not exceeded. Other constituents that were detected include one semivolatile organic compound and metals. Phenol was detected at a concentration of 2J mg/L, exceeding its criteria value of 1 mg/L. Iron and manganese were detected above their criteria in all of the groundwater samples collected at SEAD-63.

1.1.2.4.3 Surface Water. Surface water at SEAD-63 has been impacted by SVOCs (primarily phthalates). Two SVOCs were detected at levels exceeding the NYS AWQS. In addition, aluminum, cobalt, iron, lead and silver were detected above their respective NYS AWQS at SEAD-63. In addition, Co-60, Ra-226, Th-230, and U-233/234 were also detected at SEAD-63. The maximum and average values of the radionuclides detected at SEAD-63 were greater than the maximum and average background concentrations. Gross alpha and gross beta levels were significantly

greater at SEAD-63 in at least one surface water location than at background locations. However, the elevated levels at one location may be due to the high turbidity of this sample. Statistical comparison of the SEAD-63 and background data sets indicate that Ac-227, Radon 222, tritium, U-235, and U-238 are elevated above background. There are no NYS Ambient Water Quality Standards for radionuclides in Class C surface waters.

1.1.2.4.4 Sediments. Sediment at the site has been impacted by semivolatile organic compounds {mostly PAHs) and pesticides. The PAHs benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)anthracene, chrysene, benzo(a)pyrene, and indeno(1,2,3-cd) pyrene were detected at concentrations which exceeded the NYSDEC' criteria value of 1.3 mg/kg by 2 to 3 times. No pesticides/PCBs were detected at levels greater than NYSDEC sediment criteria. Copper, manganese, nickel, and zinc were detected at concentrations at least twice their respective criteria values. All radionuclides detected at SEAD-63, except for Pb-210, were also found in background sediment samples collected. Although the maximum values detected in the SEAD-63 samples exceeded the maximum values of the background samples, average values were comparable. Wilcoxson rank sum tests indicated that Cs-137, Th-230, U-233/234 and U-238 were elevated above background levels. No NYSDEC sediment criteria exist for these radionuclides. However, in comparison to the NYSDEC TAGM Cleanup Guideline for Soils Contaminated with Radioactive Material, radionuclides distinguishable from background in the sediment do not exhibit a dose equivalent greater than the 10 mrem/yr cleanup guideline based on RESRAD modeling.

1.2 State And Local Actions To Date. There have been no related state or local actions to date at the SEAD-63. However, state and local authorities have been active in reviewing the ESI work plans and reports, and have provided oversight for the field work.

1.3 Potential For Continued State/Local Response. There are no known plans for state or local response at the site. The removal action proposed in this action memorandum will be conducted by the Army. State authorities will continue to be given the opportunity to review and comment on site documents.

1.4 Location. SEDA is a US Army facility located in Seneca County, New York. SEDA occupies approximately 10,600 acres. It is bounded on the west by State Route 96A and on the east by State Route 96. The cities of Geneva and Rochester are located to the northwest (14 and 50 miles, respectively); Syracuse is 50 miles to the northeast and Ithaca is 31 miles to the south. The surrounding area is generally used for farming.

1.5 Regulatory Status. SEDA was included on the Federal Facilities National Priorities List on 13 July 1989. Consequently, all work to be performed under this contract shall be performed according to CERCLA guidance and the Federal Facilities Agreement in effect for Seneca Army Depot (Reference 11.1).

1.6 Statutory Authority. Authority for responding to releases or threats of releases from a hazardous waste site is addressed in section 104 of CERCLA, as amended. The Army has been delegated the response authority for Army sites, whether or not the sites are on the National Priorities List of the U.S. Environmental Protection Agency (EPA). Under CERCLA Section 104(b), the Army is authorized to investigate, survey, test, or gather other data required to identify the existence, extent, and nature of contaminants, including the extent of danger to human health or welfare and the environment. In addition, the Army is authorized to undertake planning, engineering, and other studies or investigations appropriate to directing response actions that prevent, limit, or mitigate the risk to human health or welfare and the environment.

1.7 Basis of this Removal. The "Expanded Site Inspection Report for Seven Low Priority AOCs -SEADs 60, 62, 63, 64 (A, B, C, and D), 67, 70, and 71" (Reference 11.2), the "Final, Project Scoping Plan for Performing a CERCLA Remedial Investigation / Feasibility Study (RI/FS) at the Miscellaneous Components Burial Site (SEAD-63)" (Reference 11.3) and the "Action Memorandum For the Miscellaneous Components Burial Site (SEAD-63), Seneca Army Depot Activity" (Reference 11.4) are the basis under which the removal activities provided for under this Statement of Work (SOW) are to be carried out.

2.0 OBJECTIVE

The objective of this Statement of Work is to perform a Non-Time Critical Removal Action at the Miscellaneous Components Burial Site (SEAD-63) at Seneca ADA as defined in this SOW and as laid out in the design documents. In general, the purpose of this action is to remove the source of contamination at the sites and thereby reduce the

potential for further contamination of soils and groundwater. Because the impetus for the removal action is the presence of drums and miscellaneous component debris, and due to the uncertain nature of the contents, excavation and disposal, rather than any sort of in-situ treatment of these items is logical.

3.0 DETAILED DESCRIPTION OF SERVICES

3.1 General Requirements.

3.1.1 All work performed by the Contractor shall be designed and implemented in a manner which complements earlier investigations and shall conform to this SOW, the approved design and the requirements of EPA, NYSDEC and SEDA. All work shall be performed under the general supervision of a Professional Engineer registered in the State of New York.

3.1.2 All volumes referenced in this SOW are in-place volumes. Payment will be made based upon actual in-place volumes and not excavated, expanded volumes. The Contractor shall be responsible for performing survey work necessary to determine that required excavation depths and extents have been attained.

3.2 (Task 1) Site Visit and Records Review (Firm Fixed Price). The Contractor shall visit the sites for the purpose of gaining familiarity with the physical characteristics of each site. Additionally, the Contractor shall review pertinent records and prior investigations.

3.3 Non-Time Critical Removal Action.

3.3.1 (Task 2) Preparation of Remedial Action Work Plans (Firm Fixed Price). Using the project layout/progression given in Appendix 1 of this SOW, the Contractor shall prepare a complete Remedial Action Work Plan for the removal actions to be carried out. This RAWP shall form the design of the removal to be conducted. The Contractor shall layout all aspects of the work to be done. At a minimum, the plan shall include, but not be limited to the following:

- Construction Quality Control (QC) and Government Quality Assurance (QA): to be conducted IAW NYD Specification 01440 and ER 1180-1-6. Copies can be provided electronically if requested.
- Sampling and Analysis Plan: to include Data Quality Objectives
- Site Safety Plan IAW ER 385-1

3.3.2 (Task 3) Non-Time Critical Removal Action at the Miscellaneous Components Burial Site (SEAD-63).

3.3.2.1 (Task 3.1) Excavation (Ceiling Price). The Contractor shall provide the personnel, equipment and resources to properly perform site layout, excavation and staging of 4,500 CY of soils and geophysical anomalies and 40CY of sediments per this SOW and the design documents. Additionally, the Contractor shall segregate and stage excavated materials according to the following:

- non-~~hazardous~~ soils/sediments
- non-~~hazardous~~ debris
- hazardous soils/sediments (HTW standpoint)
- hazardous debris (HTW standpoint)
- mixed waste soils/sediments
- mixed waste debris
- radiologically-contaminated soils/sediments
- radiologically-contaminated debris

The contractor shall be responsible for staging/properly containing excavated materials and testing the materials prior to disposal. The Contractor shall also be responsible for managing and recording the quantities of waste generated under each category. All associated activities shall be performed according to this SOW and the design documents.

3.3.2.2 The Contractor shall take verification samples as presented in the design documents and as discussed in Appendix 3 of this SOW. If these samples demonstrate that the concentrations of the contaminants are below the appropriate cleanup values, then the SEAD-63 excavation shall be considered to have been acceptably completed.

3.3.2.3 The Contractor shall replace soils that meet cleanup levels back in the excavation following completion of the required verification sampling and receipt of regulatory approval as discussed in Appendix A of this SOW. The Contractor shall assume that 14 days will be required to receive regulatory approval and shall plan accordingly.

3.3.2.4 All sampling shall include splitting of samples for Government QA testing. The Contractor shall be responsible for splitting, properly managing/packaging and shipping QA samples to the appropriate USACE QA laboratory.

3.3.2.5 (Task 3.2) Disposal of Excavated Materials (Ceiling Price). The Contractor shall provide the personnel, equipment and resources to properly dispose of all excavated materials as dictated by the test results received. Disposal shall be assumed as follows:

- non-hazardous soils/sediments → Not suitable Beach.
- non-hazardous debris
- hazardous soils/sediments (HTW standpoint)
- hazardous debris (HTW standpoint)
- mixed waste soils/sediments
- mixed waste debris
- radiologically-contaminated soils/sediments
- radiologically-contaminated debris

3.3.2.6 (Task 3.3) Restoration of the Site (Ceiling Price). The Contractor shall provide the personnel, equipment and resources to properly restore the site. Fill materials that are demonstrated to comply with cleanup levels shall be used to backfill and restore the site.

3.3.3 (Task 4) Weekly Reports (Firm Fixed Price). During field work, the Contractor shall submit Weekly Reports according to the distribution in paragraph 4.7.2 and in the quantities shown in 4.7.3, "Letter Reports". These reports shall address the following:

- A summary of work completed in the field. Upon request, copies of trip reports and/or field logs shall be provided.
- Anticipated or actual delay of a scheduled field activity, to include basis and any effect on subsequent events or scheduled activities.
- Minutes of all formal Project Manager or other formal meetings held during the preceding period, at which the Contractor is in attendance.
- Status report on all milestones met on schedule during the period, report and explanation for any milestones not met during the preceding period and an assessment of milestones scheduled for the next reporting period.
- Outside inspection reports, audits, or other administrative information developed during the preceding period, including notice of any outside inspections or audits scheduled during the next reporting period.
- Permit status as applicable.
- Personnel staffing status or update.
- Community relations activity update.
- Sampling data

3.4 (Task 5) Removal Completion Report (Firm Fixed Price). At the conclusion of field work, the Contractor shall submit a Removal Completion Report to the distribution in Section 4.7.2 in the quantities shown in paragraph 4.7.3. This report shall not only present a recapitulation of the work that was done but shall also include discussions of the following:

- Confirmation sample results and how those results demonstrate success in the removal area
- Conclusions regarding overall success at each site.
- Discussions/Recommendations that support a finding of "No Further Action" at each site.

3.5 (Task 6) Project Management (Firm Fixed Price). The Contractor shall manage the Order in accordance with the GSA FSS basic contract SOW. The Contractor shall perform all project management associated with this TO as a part of this task including, but not limited to, preparing and submitting a master network schedule, cost and manpower plan, monthly progress reports, monthly individual performance report and cost/schedule variance report, work task proposals and a program plan.

4.0 SUBMITTALS AND PRESENTATIONS

4.1 Format and Content. Documents shall present all data, analyses, and recommendations. All drawings shall be of engineering quality in drafted form with sufficient details to show interrelations of major features on the installation site map. When drawings are required, data may be combined to reduce the number of drawings. The report shall consist of 8-½ x 11" pages with drawings folded, if necessary, to this size. A decimal paragraphing system shall be used, with each section and paragraph of the reports having a unique decimal designation. The report covers shall consist of vinyl 3-ring binders and shall hold pages firmly while allowing easy removal, addition, or replacement of pages. A report title page shall identify the Contractor, the Corps of Engineers, New York District, and the date. The Contractor identification shall not dominate the title page. Each page of draft and draft-final reports shall be stamped "DRAFT" and "DRAFT-FINAL", respectively. Each report shall identify the members and title of the Contractor's staff which had significant, specific input into the report's preparation or review. Submittals shall include incorporation of all previous review comments accepted by the Contractor as well as a section describing the disposition of each comment. Disposition of comments submitted with the final report shall be separate from the report document. All final submittals shall be sealed by the registered Professional Engineer-In-Charge.

4.2 Presentations. The Contractor shall make presentations of work performed according to the schedule in paragraph 4.6. Each presentation shall consist of a summary of the work accomplished and anticipated followed by an open discussion among those present. The Contractor shall provide a minimum of two persons at the meetings which are expected to last one day each.

4.3 Conference Minutes. The Contractor shall be responsible for taking notes and preparing the minutes of all conferences, presentations, and review meetings. Conference notes shall be prepared in typed form and the original furnished to the Contracting Officer (within five (5) working days after date of conference) for concurrence and inclusion in the next monthly report. This report shall include the following items as a minimum:

a. The date and place the conference was held with a list of attendees. The roster of attendees shall include name, organization, and telephone number;

b. Written comments presented by attendees shall be attached to each report with the conference action noted. Conference action as determined by the Government's Project Manager shall be "A" for an approved comment, "D" for a disapproved comment, "W" for a comment that has been withdrawn, and "E" for a comment that has an exception noted;

c. Comments made during the conference and decisions affecting criteria changes must be recorded in the basic conference notes. Any augmentation of written comments should be documented by the conference notes.

4.4 Confirmation Notices. The Contractor shall be required to provide a record of all discussions, verbal directions, telephone conversations, etc., participated in by the Contractor and/or representatives on matters relative to this contract and the work. These records, entitled "Confirmation Notices", shall be numbered sequentially and shall fully identify participating personnel, subject discussed, and any conclusions reached. The Contractor shall forward to the Contracting Officer, within 5 working days, a reproducible copy of said confirmation notices. Distribution of said confirmation notices shall be made by the Government.

4.5 Progress Reports and Charts. The Contractor shall submit progress reports to the Contracting Officer with each request for payment. The progress reports shall indicate work performed and problems incurred during the payment period. Upon award, the Contractor shall, within 15 days, prepare a progress chart to show the proposed schedule for completion of the project. The progress chart shall be prepared in reproducible form and submitted to the Contracting Officer for approval. The actual progress shall be updated and submitted by the 15th of each month and may be included with the request for payment.

4.6 Proposed Schedule. The proposed schedule for the removal and the post removal work is given below. All work and services shall be completed by 31 August 2004.

Milestone	Date
Notice To Proceed	01 Oct 03
Site Visit	06 Nov 03
Draft Work Plan	20 Nov 03
Comments to Contractor	[illegible]
Draft Final Work Plan	[illegible]

Comments to Contractor	[illegible]
Final Work Plan	[illegible]
Initiation of Field Work	[illegible]
Completion of Field Work	[illegible]
Draft Removal Report	10 Apr 03
Comments to Contractor	17 Apr 03
Final Removal Report	30 Apr 03
RAP/ROD	TBD
Meetings/Presentations	TBD

4.7 Submittals.

4.7.1 General Submittal Requirements.

4.7.1.1 Distribution. The Contractor is responsible for reproduction and distribution of all documents. The Contractor shall furnish copies of submittals to each addressee listed in paragraph 4.7.2 in the quantities listed in the document submittal list. Submittals are due at each of the addresses not later than the close of business on the dates shown in paragraph 4.6.

4.7.1.2 Partial Submittals. Partial submittals will not be accepted unless prior approval is given.

4.7.1.3 Cover Letters. A cover letter shall accompany each document and indicate the project, project phase, the date comments are due, to whom comments are submitted, the date and location of the review conference, etc., as appropriate. (Note that, depending on the recipient, not all letters shall contain the same information). The contents of the cover letters should be coordinated with CENAN-PM prior to the submittal date. The cover letter shall not be bound into the document.

4.7.1.4 Supporting Data and Calculations. The tabulation of criteria, data, circulations, etc., which are performed but not included in detail in the report shall be assembled as appendices. Criteria information provided need not be reiterated, although it should be referenced as appropriate. Persons performing and checking calculations are required to place their full names on the first sheet of all supporting calculations, etc., and initial the following sheets. These may not be the same individual. Each sheet should be dated.

4.7.1.5 Reproducibles. One camera-ready, unbound copy of each submittal shall be provided to the Contracting Officer in addition to the submittals required in the document and submittal list.

4.7.2 Addresses.

Commander
U.S. Army Corps of Engineers,
Huntsville Division
ATTN: CEHND-PM (Mr. Greene)
4820 University Square
Huntsville, AL 35816

Commander's Representative
Seneca ADA
ATTN: SMASE-CO (Bld.123, Mr. Absolom)
5786 State Route 96, P.O. Box 9
Romulus, New York, 14541-5001

Commander
USACHPPM (PROV)
ATTN: MCHB-ME-R (Mr. Hoddinott)
Building E1677
Aberdeen Proving Ground, MD
21010-5422

Commander
US Army Engineer District, New York
Seneca Office for Project Management
ATTN: Mr. Tom Enroth, Bld.125
P.O. Box 9
5786 State Route 96
Romulus, New York, 14541-5001

Commander
U.S. Army Environmental Center,
ATTN: Mr. Clayton Kim
Aberdeen Proving Ground, MD
21010-5422

Commander
US Army Engineer District, New York
Seneca Office for Project Management
ATTN: Mr. Thomas Battaglia, Bld.125
P.O. Box 9

4.7.3 Document and Submittal List

	DRAFT	DRAFT-FINAL	FINAL
CEHND-PM	3	3	3
AEC	1	1	1
SMASSE-CO	3	8	8
CENAN-PM	2	2	2
CENAN-Construction	2	2	2
MCHB-ME-R	5	5	5
TOTAL	16	21	21

5.0 SAFETY REQUIREMENTS

5.1 Site activities in conjunction with this project may pose unique safety hazards which require specialized expertise to effectively address and eliminate.

5.2 Prior to commencement of field activities, the Contractor shall submit for review an amendment to the Work Plan SHERP which is to contain the following:

5.2.1 A discussion of the Contractor's organization structure, to include lines of authority of the Contractor and all subcontractors, shall be provided along with an organization chart showing the lines of authority for safety and health from site level to corporate management. Each person assigned specific safety and health responsibilities shall be identified and pertinent qualifications and experience shall be described.

5.2.2 Documentation of compliance with training and medical surveillance requirements for affected employees shall be provided. A format for such documentation is provided in the Work Plan SHERP.

6.0 QUALITY ASSURANCE PROJECT PLAN REQUIREMENTS

The Contractor shall perform all sampling and analysis activities according to the requirements presented in the Work Plan.

7.0 SOIL BORING AND MONITORING WELL REQUIREMENTS

All drilling, installation and sampling activities shall be performed according to the requirements presented in the Work Plan.

8.0 SURVEY REQUIREMENTS

All surveying shall be completed according to the requirements presented in the Work Plan.

9.0 MANAGEMENT OF FUNDS

No transfer of funds by the Contractor between tasks will be allowed without the prior approval of the Contracting Officer or the Contracting Officer's Representative.

10.0 PUBLIC AFFAIRS

The Contractor shall not publicly disclose any data generated or reviewed under this contract. The Contractor shall refer all requests for site information to the SEDA Public Affairs Office and requests for contract information shall be forwarded to the Contracting Officer, US Army Engineering and Support Center, Huntsville. Reports and data generated under this contract shall become the property of the Department of Defense and distribution to any other source by the Contractor unless authorized by the Contracting Officer, is prohibited. The Contractor shall notify the Contracting Officer and Installation Public Affairs Office prior to any contacts with regulatory agencies.

11.0 REFERENCES

11.1 "Federal Facility Agreement under CERCLA Section 120 in the matter of Seneca Army Depot, Romulus, New York", Docket No. II-CERCLA-FFA-00202, USEPA, U.S. Department of the Army, and the New York State Department of Environmental Conservation, November 1990.

11.2 "Expanded Site Inspection Report for Seven Low Priority AOCs -SEADs 60, 62, 63, 64 (A, B, C, and D), 67, 70, and 71", Parsons ES, 1995.

11.3 "Project Scoping Plan for Performing a CERCLA Remedial Investigation/Feasibility Study (RI/FS) at the Miscellaneous Components Burial Site (SEAD-63)", Parsons ES.

11.4 "Final, Action Memorandum For the Miscellaneous Components Burial Site (SEAD-63), Seneca Army Depot Activity", Parsons Engineering Science, October 2001.

APPENDIX 1

DETAILED DESCRIPTION OF REQUIREMENTS

A.1.0 DETAILED DESCRIPTION OF REQUIREMENTS

A.1.1 MOBILIZATION

A.1.1.1 Off Site Or On Site Borrow Pit. Prior to starting the removal actions, the RA Contractor shall locate an off-site borrow pit that will be used to provide clean backfill. The RA Contractor shall be responsible for evaluating and certifying alternative borrow pit sites to ensure that the borrow material used for site backfill operations is clean. The borrow soil must be sampled and analyzed, and the results of the analyses must be provided to the Army prior to its use at the site. There must be enough borrow material available to meet the project requirements. The RA Contractor shall estimate the amount of borrow available prior to the initiation of the work. The RA Contractor shall submit a report that presents the data collected from the potential borrow pit(s) evaluated. This report shall include a site plan of the alternative sites along with an estimate of the quantity of borrow material available. The report shall present chemical and physical laboratory analysis results.

A.1.1.2 Utilities. The RA Contractor shall be responsible for the mobilization of necessary temporary site facilities for the performance of this removal action. The RA contractors shall provide and maintain all temporary site utilities needed. Temporary site utilities may include telephone, electricity, natural gas (if required), potable water and sanitation facilities. Non-potable water, telephone and electric services are available in the area for tie-in by the RA Contractor. The RA Contractor shall furnish portable sanitation facilities, communications equipment and potable water. Payment for telephone, electricity and water will be through SEDA.

A.1.1.3 Site Clearance. The RA Contractor shall locate, identify, mark, and protect site structures and utilities from damage. The RA Contractor shall protect survey benchmarks from damage or displacement. The RA Contractor shall remove surface debris and clear areas required for site access and excavation.

A.1.1.4 Site Security. The RA Contractor shall be responsible for limiting and controlling personnel and wildlife entry into the exclusion zone, excavation, and any other potentially hazardous locations. The RA Contractor shall construct a security fence around the work areas.

A.1.1.5 Decontamination Facility. This section describes the basic requirements for decontamination activities that must be completed during, and the facilities that must be developed for, each removal action site.

A.1.1.5.1 The RA Contractor shall supply all labor, materials, and equipment needed to design, construct, and equip decontamination facilities in accordance with these specifications.

A.1.1.5.2 The RA Contractor shall decontaminate all excavation and transport equipment prior to its:

- use at a new site,
- removal from SEDA,
- use for handling of clean borrow materials intended for backfilling.

A.1.1.5.3 The RA Contractor shall design and operate decontamination facilities in a manner that ensures that all of the debris resulting from, and the materials used during, the decontamination process are captured and recovered prior to their release to the surrounding environment.

A.1.1.5.4 Fluids and solids generated during decontamination activities will be segregated, and recovered. Fluids and solids may be separated by allowing the mixed wastes to flow into a lined sump where they are allowed to settle. The top layer of liquids will be decanted from the sump and placed into appropriate containers for transport to storage, treatment, and disposal facilities. Recovered solids will be added to the excavated soils stockpiled for disposal, or placed in other suitable transport containers for subsequent transport and disposal at off-site facilities.

A.1.1.5.5 All personnel protective equipment used during site operations will be segregated from other removal action debris and collected as a separate stream for off-site disposal at approved facilities.

A.1.2 SITE OPERATIONS

A.1.2.1 Staging Areas. The RA Contractor shall construct, operate and maintain separate staging areas for the temporary storage and stockpiling of clean and contaminated soil. Additional requirements for the staging areas are provided below:

A.1.2.1.1 The locations of the staging areas established for clean and contaminated soil shall be clearly marked and identified on the site plan. Each staging area shall have sufficient capacity for up to 6 days volume of soil.

A.1.2.1.2 The RA Contractor shall underline all staging areas with 2 to 3 inches of sand covered by a 40-mil HDPE (or equivalent) liner.

A.1.2.1.3 The RA Contractor shall use berms or equivalent means to prevent surface water run-on and run-off from the designated staging areas.

A.1.2.1.4 The RA Contractor shall cover all soil stockpiles with a tarp that is weighted appropriately to prevent erosion of the pile by wind, rain, snow, or storm water. All soil stockpiles shall be covered to the fullest extent possible. Storage piles shall be covered at all times when they are not being actively worked.

A.1.2.1.5 The RA Contractor shall minimize vehicular traffic on staging area liners to prevent damage to the liner. The RA Contractor shall use only rubber-tired loaders in the staging area to minimize damage to the liner.

A.1.2.1.6 The RA Contractor shall inspect storage pile liners and covering tarps at least once per work day. If the integrity of the liner or the covering tarp is breached, the breach shall be immediately repaired or the contents of the stockpile shall be moved to another location that is constructed per the specifications defined above.

A.1.2.1.7 If a stockpile is relocated due to a failure of the liner or covering tarp, the new location will be marked on the site plan and reported to the Army.

A.1.2.2 Preparation For Excavation. The RA Contractor shall survey and mark each site to delineate the proposed extent of the excavation. Tasks that require surveying are layout of the soil excavations, sampling locations, and preparation of the project record drawings. All surveying shall be done under the supervision of a New York licensed and registered surveyor. The RA Contractor shall identify the required excavation lines, levels, contours, and datum used to delineate the extent of the proposed excavation. The RA Contractor shall identify and protect existing structures, utilities and existing benchmarks from damage during the site operations.

A.1.2.3 Excavation. The RA Contractor shall be responsible for excavation of contaminated areas. Specifications pertinent to the excavation of contaminated soil are provided below.

A.1.2.3.1 The extent of the proposed excavations may be modified as are required to comply with other parts of this subsection, which are provided subsequently.

A.1.2.3.2 SEAD-63. The Contractor shall excavate 4,500cy of soils at this site as laid out in Figure 1 of Appendix 2. The site will be regraded. It is assumed that NYCRR Part 360 will no longer apply because the fill area is being removed. The remaining areas will be covered with crushed stone. The excavation will be dewatered and the water placed in holding tanks. Any groundwater collected will be treated and disposed in accordance with all state and federal regulations. During the excavation process, the sides of the excavation may be sloped to the levels required by OSHA. Shoring or bracing may also be used. Site groundwater will be monitored on a semi-annual basis and analyzed for radiological parameters. Four additional monitoring wells will be installed at the site as required. In accordance with

the Federal Facility Agreement CERCLA SECTION 120, Docket Number: II-CERCLA-FFA-00202, the monitoring program will be reviewed after five years.

A.1.2.3.3 The RA Contractor shall excavate and manage all contaminated soil from the removal action site. The minimum extent of the required excavation is defined in the decision documents. The excavation limits shown shall be considered as initial. The RA Contractor shall collect soil samples along the perimeter and bottoms of the areas excavated, and analyze the samples to confirm that the proposed limits of excavation meet the specified performance standards. These samples shall be analyzed for radiological parameters, semivolatile organic compounds, pesticides and metals via US EPA SW-846 Methods 8270 (semivolatile organic compounds), 8081 (pesticides/PCBs), and 6010 et. al. (metals), respectively, or other approved methods. The resulting data shall be compared to TAGM-derived cleanup levels. Compliance with the requirements of the excavation via this means shall be based on the determination that all resulting analytical data is less than or equal to the TAGM-derived cleanup levels identified in this specification.

A.1.2.3.4 The RA Contractor shall collect samples of the excavated soil and submit them for analysis to develop source characterization data needed by the disposal facility.

A.1.2.3.5 Backfill of the excavation shall not begin until the confirmational sample laboratory results are reviewed and the final limits of excavation are defined. If the laboratory results indicate that additional soils must be excavated, the RA Contractor shall notify the KO.

A.1.2.3.6 Excavations shall be made and maintained in accordance with the Grading and Excavation Plan submitted by the RA Contractor and approved by the Army. The RA Contractor shall grade the upper perimeter edge of the excavation to prevent surface water inflow into the open excavation.

A.1.2.3.7 The RA Contractor shall use appropriate dust suppression and vapor control measures to minimize emissions from the excavation. The RA Contractor shall conduct air monitoring in accordance with the NYSDOH "Community Air Monitoring Plan". Should the air monitoring action levels be exceeded, work shall be stopped until appropriate air emission control measures can be instituted.

A.1.2.3.8 The RA Contractor shall notify the Army of any unexpected subsurface conditions and discontinue work in the affected area until notified to resume work. Work is to continue in unaffected portions of the site.

A.1.2.3.9 Excavation shall not be conducted during periods of inclement weather (i.e., rain or snow events).

A.1.2.3.10 The RA Contractor shall stockpile all excavated soils in accordance with these specifications pending off-site transport and disposal.

A.1.2.3.11 The RA Contractor shall record the volume of material excavated and report this volume to the Army as part of the weekly reports required in these specifications.

A.1.2.3.12 The RA Contractor shall prepare a drawing that documents the extent of the excavations.

A.1.2.4 Backfilling. The RA Contractor shall provide all labor, material and equipment needed to backfill the complete excavation. Additional details pertinent to the completion of the backfill operations are provided below.

A.1.2.4.1 Backfilling of Excavated Soils. Following receipt of confirmation sampling results, the Contractor shall perform a QC review of the data to determine its acceptability for the purposes required. The Contractor shall summarize all raw data, including comparisons to project criteria, and provide the data, data summary and Contractor backfill recommendation to the Government for a QA review. The Contractor shall be responsible for recommending whether soils meet all backfill requirements according to this contract. Upon receipt of data and recommendations from the Contractor, the Government shall have fourteen days to review the data and recommendations and to acquire regulatory approval to backfill. The ~~ten~~ 14 days shall be figured into the Contractor schedule, cost and plan of operation.

A.1.2.4.2 Backfilling Using Off-Site Source Soils.

A.1.2.4.2.1 The RA Contractor shall backfill excavation with certified, clean backfill as required to make up for volume losses during the excavation. The backfill shall come from an off-site facility. The RA Contractor shall provide documentation that certifies that the material used as backfill is clean and free of undesirable substances including debris, rubble, wood, chemicals, etc. The documentation shall include laboratory testing results of soil samples collected from the borrow pit and a description of the location of the borrow pit.

A.1.2.4.2.2 Testing results of the soil samples from each borrow pit must be submitted and approval granted prior to the use of any material as backfill. At least one sample shall be collected from each borrow pit and analyzed for the following parameters:

- TAL Metals
- TCL Organic compounds (volatile and semi-volatile organic compounds)
- PCB/Pesticides
- Radiological contaminants

Analytical results shall be compared to the TAGM-derived cleanup levels to determine whether the backfill is clean, and suitable for use, as backfill.

A.1.2.4.2.3 The RA Contractor shall visually inspect each load of backfill to assure that the material is similar to the material that was sampled in the borrow pit and tested.

A.1.2.4.2.4 Satisfactory borrow materials for use as backfill shall be selected from materials designated as GW-Gravel, well graded; GM -Gravels, mixed, non plastic, fines; GC -Gravels, clayey-plastic, fines; SW -Sands, well graded; SM -Sands, mixed-plastic, fines; or SC -Sands, clayey-plastic, fines in ASTM D 2487 "Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)". The selected backfill shall be free of roots and other organic matter, trash, debris, frozen materials, and stones larger than 3 inches in any dimension. Any material classified as SM shall not have more than 25 percent by weight passing the No. 200 sieve.

A.1.2.4.2.5 The RA Contractor shall not backfill an excavation if standing water is present in the excavation. The water either shall be allowed to naturally infiltrate through the base of the excavation or shall be pumped from the excavation and treated prior to disposal.

A.1.2.4.2.6 All material backfilled into the excavation shall be compacted enough to support the construction traffic. The final grading plan shall allow for proper drainage after any estimated subsidence of the backfilled material has taken place.

A.1.2.5 Disposal.

A.1.2.5.1 Disposal Of Contaminated Soil. The RA Contractor shall provide all labor, material, and equipment necessary to dispose of the contaminated soil. All disposal operations shall be completed in accordance with prevailing environmental statutes, laws, and regulations. This section describes the disposal requirements for all soils residue, and decontamination residuals generated as part of this removal action.

A.1.2.5.1.1 SEDA and the Army shall be identified as the Generator of all project-derived wastes (i.e., excavated soil, wastewater, PPE and miscellaneous debris -e.g., tarps and plastic sheeting). The RA Contractor shall be identified as the Generator of any waste resulting due to the release of a hazardous material from his equipment or resulting from improper use of chemical materials at the site.

A.1.2.5.1.2 The RA Contractor shall comply with all applicable federal, state, and local regulations. At a minimum, the RA Contractor shall identify and comply with all hazardous and solid waste, and transportation requirements.

A.1.2.5.1.3 The RA Contractor shall be responsible for determining whether the waste residuals generated from the excavation processes are hazardous wastes. Wastes include any excavated soil, waste oils or lubricants, hydraulic fluids, coolants, plastic sheeting, used personnel protection equipment and other miscellaneous debris.

A.1.2.5.1.4 The RA Contractor shall specify analytical determinations that shall be performed to assess the nature of the contamination contained in all excavated soils and other wastes generated during the identified removal actions.

A.1.2.5.1.5 The RA Contractor shall collect, secure analytical services and obtain results from a state certified laboratory identifying the contents of all generated waste streams resulting from the removal action. The RA Contractor shall provide the generated data to the Army and to the proposed disposal facility for review.

A.1.2.5.1.6 The RA Contractor shall obtain approval from the Army of all off-site disposal facilities that are selected to receive wastes from SEDA.

A.1.2.5.1.7 All waste shall be disposed off-site at a permitted waste treatment storage and disposal facility.

A.1.2.5.1.8 The RA Contractor shall transport all generated waste materials from the removal actions from the site of the excavation and on-site stockpiles to the selected disposal site. All waste transportation shall be completed following procedures that are necessary to document the transfer of the waste from SEDA, over public roads, to the approved disposal site.

A.1.2.5.1.9 At a minimum, the RA Contractor shall document the quantity and type of waste materials moved from SEDA each day to an approved disposal site. At a minimum, collected records shall include a listing of all quantities and types of wastes transported. If necessary, bills of lading and hazardous waste manifests shall be prepared and entered into the project files to document the transportation to and disposal of materials at off-site licensed and approved landfills.

A.1.2.5.2 Treatment Of Water.

A.1.2.5.2.1 The RA Contractor shall store all wastewater in portable tanks appropriate for managing wastewater. The RA Contractor shall ensure that the tanks used have been constructed in accordance with all applicable codes and standards. The RA Contractor shall visually inspect all tanks for leaks and shall replace all leaking tanks.

A.1.2.5.2.2 The RA Contractor shall treat all wastewater on site and shall discharge the treated water in accordance with the approved discharge permit.

A.1.2.5.2.3 Following treatment of wastewater, the RA Contractor shall discharge all treated waters from this removal action including groundwater to a nearby drainage ditch. The RA Contractor shall include in the site plans all specific testing requirements for this discharge permit, and shall be responsible for meeting these testing requirements.

A.1.2.6 Drainage Control.

A.1.2.6.1 Runon Control. The RA Contractor shall implement and maintain, for the duration of the removal action, run on control measures to prevent non-excavation related and non-contaminated surface water from entering the work areas of the site. These measures shall consist of berms and ditches, as are necessary, that redirect the flow of surface water around the excavation site to the historic surface water discharge points.

A.1.2.6.2 Runoff Control. The RA Contractor shall implement and maintain, for the duration of the removal action, measures to prevent surface water from leaving the area of the excavation sites or stockpiles. These measures shall include berms or ditches that capture surface water in the work area for subsequent testing and disposal. The RA Contractor shall construct berms around all staging areas to prevent runoff from the stockpiled materials. Any collected runoff from the staging areas shall be collected and disposed of in accordance with the requirements of these specifications.

A.1.2.6.3 Excavation Drainage. The RA Contractor shall provide pumps, hoses, and any other equipment necessary to remove accumulated water from the open excavation. The RA Contractor shall be required to remove water from the excavation when necessary to continue excavation activities, or if a safety threat exists. The water from the excavation shall be collected and treated in accordance with the requirements of these specifications.

A.1.2.7 Erosion/Dust Control

A.1.2.7.1 Erosion Control. The RA Contractor shall provide the materials and labor required to control erosion of soils originating from the site. These measures may include limiting the exposure area, placement of hay bales and silt fences or berms.

A.1.2.7.2 Dust Control. The RA Contractor shall take necessary measures, in addition to those required by federal, state, and local regulations, to eliminate or minimize the migration of dust off site due to site activities. At a minimum, the RA Contractor shall follow the requirements of the NYSDEC TAGM HWR-89-4031, "Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites," October, 27, 1989 (or most recent version) and the monitoring requirements in these specifications.

A.1.2.8 Air Monitoring And Action Levels

A.1.2.8.1 General. The RA Contractor shall monitor the emissions from the excavations and soil staging areas to assure compliance with all federal, state, and local regulations. Monitoring shall be conducted in accordance with the NYSDEC TAGM, "Fugitive Dust Suppression and Particulate Monitoring at Inactive Hazardous Waste Sites," October 27, 1989 (or most recent version), and with the New York State Department of Health "Community Air Monitoring Plan."

A.1.2.8.2 Calibration. The RA Contractor shall calibrate all air monitoring equipment weekly in accordance with the manufacturer's instructions, and shall maintain records of all calibrations. These records shall be made available to the Army's representative or to the regulators upon request.

A.1.2.9 Confirmatory Sampling And Analysis.

A.1.2.9.1 General. Confirmatory sampling shall be performed by the RA Contractor to verify the successful removal of soil, wastewaters and sediment containing contaminants of concern. The RA Contractor shall be responsible for confirmatory sampling and analysis in the excavations. Requirements are as presented in Appendix 3 of this SOW.

A.1.2.10 Demobilization And Site Restoration.

A.1.2.10.1 Demobilization. Following completion and acceptance of the work by the Contracting Officer, the RA Contractors shall provide all Contractor and subcontractor labor and materials required to decontaminate, dismantle, package, and transport from the site all Contractor or subcontractor equipment, materials, and personnel. Demobilization shall not be complete until site restoration is complete.

A.1.2.10.2 Removal. At the completion of the removal actions, the RA Contractor shall remove all temporary facilities, utility services, and debris, unless otherwise directed by the Army's representative. The RA Contractor shall restore the area in accordance with these specifications.

A.1.2.10.3 Site Restoration

A.1.2.10.3.1 General. The RA Contractor shall restore the site to its original condition except as described in these specifications or as directed by the Army. The RA Contractor shall grade the excavation sites to approximate the original site conditions. As necessary, the RA Contractor shall bring in documented clean fill to make up for any volume losses. The RA Contractor shall also grade the sites to minimize erosion during the revegetation period.

A.1.2.10.3.2 Revegetation. The RA Contractor shall revegetate the sites using grass seed upon completion of the backfill operations and demobilization. The RA Contractor shall revegetate the backfilled excavations and all work areas in which site work has killed off the vegetation.

A.1.3 Documentation/Recordkeeping

A.1.3.1 Daily Logs. The RA Contractor shall maintain daily logs that include the quantities of the soil excavated and treated the previous day and copies of all analytical data received the previous day. The daily logs shall also include any air monitoring results obtained the previous day and the volume of water treated the previous day.

A.1.3.2 Weekly Reports. The RA and Asbestos Contractor shall submit weekly reports each Monday morning to the Contracting Officer or his representative. The weekly reports shall summarize the daily logs from the previous week, and address administrative issues. Topics which shall be included in the weekly report are:

- A summary of the work completed.
- A discussion of the work planned for the upcoming week period.
- A review of problems that arose during the previous week and the resolution to each item.
- Documentation of health and safety meetings
- A review of health and safety issues
- Site visitor logs

A.1.4 Performance Schedule. The RA Contractor shall complete each of the project tasks within the time frame presented in the Contract Data Requirements List.

A.1.5 Deliverable Data

A.1.5.1 The RA Contractor shall prepare and submit a CDAP in accordance with ER 1110-1-263 and DD Forms 1423 and 1664-1.

A.1.5.2 The RA Contractor shall prepare and submit a written certification of the HSP in accordance with DD Forms 1423 and 1664-1.

A.1.5.3 The RA Contractor shall prepare and submit an SSHP in accordance with DD Forms 1423 and 1664-1.

A.1.5.4 The RA Contractor shall prepare and submit a Work Plan in accordance with DD Forms 1423 and 1664-1.

A.1.5.5 The RA Contractor shall prepare and submit weekly progress reports in accordance with DD Forms 1423 and 1664-1.

A.1.5.6 The RA Contractor shall prepare and submit a Final Report at the conclusion of the treatment period in accordance with DD Forms 1423 and 1664-1.

A.1.5.7 The RA Contractor shall submit all deliverable data to the Contracting Officer or his representatives. The Contracting Officer or his representatives will review the submissions to determine whether they meet the minimum contract requirements and will accept or reject them accordingly. The RA Contractor shall correct the deficiencies of the rejected deliverables and resubmit them within 30 days of rejection. The Contracting Officer's acceptance of any submittal does not constitute or imply approval or endorsement, and in no way relieves the RA Contractor of his responsibility to meet all the requirements of this document.

For excavations where the depth of the excavation is less than or equal to 12 inches in depth, confirmational samples will be collected from the perimeter of the excavation at a rate of no less than one sample per every 30 linear feet of length on each edge of the excavation. A minimum of one sample will be collected along each edge of the excavation. Additionally, at least one sample will be collected from the base of the excavation, and additional samples will be collected from the base of the excavation at a rate of at least one per every additional 900 square feet or less of surface area.

Locations of confirmational sampling will be biased towards areas that are most likely to be contaminated. Visual and olfactory sensing and use of portable field monitoring devices (e.g., photo-ionization detectors) should be used, within the bounds of the site-specific health and safety plan and good operating procedures, to assist in the selection of additional confirmational sampling locations.

Additional confirmational samples will be collected and analyzed, as follows:

- ***5 samples shall be taken from areas surrounding each site from areas that are considered not to have been impacted by the release. This will be part of an effort to establish background and will be used for comparison to analytical results from other, more site-specific, confirmation samples.***
- ***all existing monitoring wells from each site shall be re-developed, sampled and analyzed to re-verify that no impacts on groundwater quality have resulted.***
- as needed, based on results of field screening and observations, or based on professional judgment. Samples may be collected at a rate of one sample per 625 square feet if particularly high contamination concentrations are noted during excavation or initial confirmatory sampling and analysis.

4.0 Sampling Method

Once the excavation is complete, a drawing of the completed excavation will be prepared and necessary measurements shall be recorded in the field notes. Specific measurements will be collected including the length, width, and depth (if subsurface excavation) of the excavation. The depth of the excavation will be reported at each corner, and at intermediate locations that are no further than 100 feet apart. These measurements will be used to document that sufficient samples have been collected from the excavation to reasonably assess whether residual contamination remains in the area of the excavation.

Once the drawing of the excavation is prepared, all proposed sampling locations will be marked and labeled and information describing the location of each proposed sampling location will be transcribed into the field notes and onto site maps. Each sampling location must be uniquely identified with a sample location.

Confirmational samples will be collected from a depth of not less than one-inch below the excavation's surface and not more than six inches below the excavation's surface. The one-inch minimum is recommended to ensure that soils exposed directly to the atmosphere, which could result in the off-gassing of volatile organic or inorganic (e.g., sulfide or cyanide) compounds and a decreased level of volatile content over time, are not collected and used for the volatile compound analyses. The depth from which confirmational samples are obtained will be recorded in the field notes at the time of collection.

At the time of their collection, confirmational soil samples will be visually described for:

- soil type,
- color,
- moisture content,
- texture,
- grain size and shape,
- consistency,
- visible evidence of staining or discoloration, and
- any other observations (e.g., odors).

All data collected at the time of sample collection will be transcribed into the field records. The identity of the sampler, the date and time of sample collection, the location of the sample collection (i.e., location id), the identity of the sample (i.e., sample number), a description of the sampling method (e.g., auger, trowel, spade, homogenized, etc.) used, the number of sample containers collected, and the intended analysis that will be completed will be recorded.

All sampling will be completed using decontaminated, inert (e.g., stainless steel, Teflon®, etc.) sampling equipment. Selected sampling equipment may be used for all collection activities conducted at one location (e.g., the sample and its duplicate for all required analyses) during one contiguous time period; however, once the equipment has been used at one location, it can not be used at another location until it has been thoroughly decontaminated per prescribed procedures.

Samples collected for volatile compound analyses (e.g., volatile organic compounds or cyanide) will be collected first and will be transferred directly from the ground to the appropriate sample container (e.g., EnCore™). Samples for volatile compound analyses will not be homogenized. Samples collected for non-volatile analyses (e.g., semivolatile organic compounds, pesticides, metals, nitrate, TOC, TPH) should be collected and transferred to an inert mixing bowl and homogenized prior to being placed into their final sample bottles.

5.0 Sampling Equipment Decontamination. The RA Contractor shall use disposable sampling equipment wherever possible to minimize decontamination requirements. When reusable equipment is used, the RA Contractor shall decontaminate all equipment prior to use in sampling. The decontamination procedure shall consist of successive washes in the following order:

- Potable water rinse
- Wash with laboratory grade detergent (Alconox or equivalent)
- Distilled water rinse
- Methanol rinse
- Hexane rinse
- Distilled water rinse

If samples are to be analyzed for metals, a nitric acid rinse and an additional distilled water rinse shall be added between steps 3 and 4. All decontamination wastes shall be disposed of off-site as hazardous waste.

6.0 Sample Volumes. Containers. and Preservation. The RA Contractor shall ensure that all sample containers, preservation, packaging, and holding times are in accordance with EPA Region 2 and NYSDEC protocols. All samples collected shall be properly logged, labeled, packaged, and stored in an iced cooler immediately after collection and until arrival at the laboratory. All samples shall be accompanied by a completed chain-of-custody form that can be used to document sample custody.

7.0 Laboratory Analyses. All soil samples shall be analyzed using NYSDEC Analytical Services Protocols (ASP) and EPA SW-846 Methods. The RA Contractor shall ensure that the laboratory is capable of providing reporting limits below the soil cleanup levels so that reported non-detect values may be compared to the cleanup levels. The RA Contractor shall ensure that the selected laboratory has been approved by NYSDEC and the Corps of Engineers, Missouri River Division.

TABLE 1
TAGM-DERIVED CLEAN UP GOALS FOR SOIL
SEAD-63, NON-TIME CRITICAL REMOVAL ACTION

Clean Up Goals for Chemicals of Concern:

Cadmium	50mg/kg [1]

Clean Up Goals for Radionuclides

Isotope	Background Screening Level[3]	Preliminary DCGL - pCi/g[2] Park Worker[4]	Rec Child[5]	Construction Worker[5]	Residential
Ac-227	0.4	10.52	15.86	3.412	1.6
Cs-137	0.7	8.473	9.759	6.839	12.2
Co-57	0.1	56.06	64.56	45.31	94.2
Co-60	0.305	1.771	2.04	1.432	3.0
Lead-210	4.3	151	1156	22.57	2.79
Pm-147					49350
Pu-239/240	0.2	260	2820	34.83	20
Ra-226	2.315	2.55	2.944	2.033	0.12
Ra-228	2.645	4.765	5.517	3.749	2.35
Th-228		2.791	3.225	2.211	3.89
Th-230	1.75	924.6	9481	110.9	0.33
Th-232	1.81	192	2813	22.25	1.3
Tritium	16.51	52930	2148000	52020	80
U-233/234	1.14	2048	21860	24.92	38.5
U-235	0.305	36.68	42.88	27.09	6.7
U-238	1.21	191.3	238.6	104.2	73.6

1a - Based upon TAGM value; 1b based upon health risk calculation.

2 - Derived using RESRAD and a Dose Equivalent of 10mrem/yr. Assumed an impacted area (above background) of 3439 m2.

3 - Background screening level set to 95th percentile value. If 95th percentile exceeded the max value (due to high SQL's), the maximum value was used instead.

4 - The preliminary DCGL's derived for SEAD-63 for the Construction Worker scenario included the following pathways: dermal contact to soil, inhalation of dust to ambient air and soil ingestion.

5 - The Preliminary DCGL's derived for SEAD-63 for the Park Worker and the Recreational scenarios included the following pathways; dermal contact to soil, inhalation of dust in ambient soil ingestion and ingestion of groundwater.

Bid Schedule
NON-TIME CRITICAL REMOVAL ACTION
SEAD-63

Notes : EFAR Text of Provisions and Clauses.

- **52.211-5000 Evaluation of Subdivided Items (Mar 1995). Item Numbers 2 and 3 are subdivided into two or more estimated quantities and are to be separately priced. The Government will evaluate each of these items on the basis of total price of its sub-items.**
- **52.211-5001 Variations in Estimated Quantities - Subdivided items (Mar 1995). The variation in estimated quantities clause is applicable only to Items 2 and 3**
  - **Variation from the estimated quantity in the actual work performed under any second or subsequent sub-item or elimination of all work under a second or subsequent sub-item will not be the basis for an adjustment in contract unit price.**
  - **Where the actual quantity of work performed for items 2 and 3 is less than 85% of the quantity of the first sub-item listed under such item, the Contractor will be paid at the contract unit price for that sub-item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.**
  - **If the actual quantity of work performed under items 2 and 3 exceeds 115% or is less than 85% of the total estimated quantity of the sub-items under that item and/or if the quantity of the work performed under the second sub-item or any subsequent subitem under items 2 and 3 exceeds 115% or is less than 85% of the estimated quantity of any such subitem, and if such variation causes an increase or a decrease in the time required for performance of this contract, the contract completion time will be adjusted in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.**

FAR Variation in Estimated Quantities Clause 52.211-18 is incorporated herein by reference.

Item 1. Site visit, records review and preparation of work plans as specified in the Statement of Work (SOW) SEAD 63. LS $_____

Item 2. Removal Action SEAD-63

2.1 Soil and Sediment Excavation

	Description	Quantity	Unit	Unit Price	Total Amount
2.1.1	First 4,000 CY	4,000 (Est.)	CY	$_____	$_____
2.1.2	Over 4,000 CY	500 (Est.)	CY	$_____	$_____

2.2 Off Site Disposal of Soil at Rad Facility

2.2.1	First 200 CY	200 (Est.)	CY	$_____	$_____
2.2.2	Over 200 CY	45 (Est.)	CY	$_____	$_____

Bid Schedule (continued)
NON-TIME CRITICAL REMOVAL ACTION
SEAD-63

2.3 Fill From Off-Site Borrow					
2.3.1 First 1,500 CY	1,500 (Est.)	CY	$_____	$_____
2.3.2 Over 1,500 CY	100 (Est.)	CY	$_____	$_____
2.4 Off Site Disposal of Drums, debris, Sediment: Subtitle D facility, etc.				
2.4.1 First 700 CY	700 (Est.)	CY	$_____	$_____
2.4.2 Over 700 CY	100 (Est.)	CY	$_____	$_____
2.5 Off Site Disposal of Drums, debris, at a Rad facility, etc.				
2.5.1 First 20 CY	20 (Est.)	CY	$_____	$_____
2.5.2 Over 20 CY	1 (Est.)	CY	$_____	$_____

Item 4. Project Management, Weekly and Final Reports as specified in the SOW. LS $_____

Item 5. All other tasks, requirements, and effort described in the SOW LS $_____

Total Items 1 through 5 $_____

APPENDIX 2

SITE MAPS

APPENDIX 3

CONFIRMATION SAMPLING REQUIREMENTS

Confirmatory Sampling
Non Time-Critical Removal Action,
Miscellaneous Components Burial Site (SEAD 63)

1. Introduction

Confirmatory soil sampling will be conducted at each site where excavations are performed. The goal of the confirmatory sampling is to verify that the identified contamination has been removed, and that concentrations of contaminants remaining at the subject site comply with the cleanup objectives. If the results of the confirmatory analysis verify that the cleanup objectives have been achieved, no further excavation will be conducted at the subject site. If the confirmatory results show that the Army's cleanup objectives have not been achieved, further excavation may be conducted until such verification is provided.

2. Equipment and Supplies

The following equipment and supplies will be required to complete the confirmatory sampling.
Field Book and Project Plans
Sample Labels
Shipping Labels
Sample Records
Shipping Forms
Chain-of-Custody Forms
Camera
Photo-ionization Detector
Personal Protective Equipment in accordance with the Health and Safety Plan
Marker stakes, flagging and paint
Tape Measures
Decontamination Supplies
Inert (e.g., stainless steel or Teflon®) sampling equipment
Hand Auger
Mixing Bowls
Pre-cleaned Sample Bottles
Plastic Sheeting
Shipping Tape
Ice Chests and Ice (for sample transport)

3. Number, Frequency and Location of Confirmatory Sampling

In general, confirmational soil samples will be collected from the base and sidewalls of each excavation. Sidewall samples will not be collected where the depth of the excavation measures 12 inches or less. In situations where the sidewalls of an excavation are 12 inches or less in depth, confirmational samples will be collected outside the perimeter of the excavation.

At least one discrete sample will be collected from each face of an open excavation that is 12 inches in depth or greater. Thus, a minimum of five confirmational samples (i.e., one base, and four sidewall samples) will be collected at each excavation. Additional confirmational samples will be collected from the base of each excavation at a rate of at least one per every 900 square feet, or fraction thereof, of surface area. Furthermore, additional sidewall samples will be collected for each additional 30-foot length, or fraction thereof, of excavation opened on any sidewall face.

30 January 2002

GSA CONTRACT

SELECTION CRITERIA

NON TIME CRITICAL REMOVAL ACTIONS
AT THE
MISCELLANEOUS COMPONENTS BURIAL SITE (SEAD-63)
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

1.0 GENERAL REQUIREMENTS

1.1 All work performed by the Contractor shall be designed and implemented in a manner which complements earlier investigations and shall conform to the Contract SOW, the approved design and the requirements of EPA, NYSDEC and SEDA. All work shall be performed under the general supervision of a Professional Engineer registered in the State of New York.

1.2 The following clauses will govern any variations in estimated quantities.

1.2.1 EFAR Text of Provisions and Clauses.

1.2.1.1 52.211-5000 Evaluation of Subdivided Items (Mar 1995). Item Numbers 2 and 3 (See Bid Schedule in Appendix 1 to the SOW) are subdivided into two or more estimated quantities and are to be separately priced. The Government will evaluate each of these items on the basis of total price of its sub-items.

1.2.1.2 52.211-5001 Variations in Estimated Quantities. Subdivided items (Mar 1995). The variation in estimated quantities clause is applicable only to Items 2 and 3 of the bid schedule.

- Variation from the estimated quantity in the actual work performed under any second or subsequent sub-item or elimination of all work under a second or subsequent sub-item will not be the basis for an adjustment in contract unit price.
- Where the actual quantity of work performed for items 2 and 3 is less than 85% of the quantity of the first sub-item listed under such item, the Contractor will be paid at the contract unit price for that sub-item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.
- If the actual quantity of work performed under items 2 and 3 exceeds 115% or is less than 85% of the total estimated quantity of the sub-items under that item and/or if the quantity of the work performed under the second sub-item or any subsequent subitem under items 2 and 3 exceeds 115% or is less than 85% of the estimated quantity of any such subitem, and if such variation causes an increase or a decrease in the time required for performance of this contract, the contract completion time will be adjusted in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.

1.2.1.3 FAR Variation in Estimated Quantities Clause 52.211-18 is incorporated herein by reference.

1.3 Payment for excavation work will be made based upon actual in-place volumes and not excavated, expanded volumes. The Contractor shall be responsible for performing survey work necessary to determine that required excavation depths and extents have been attained. Payment for disposal will be made based upon the truckload and volumes computed therefrom.

In order to use the GSA FSS contract vehicle, only firms which have been given a contract (pre-qualified) can be considered.

2.0 SELECTION CRITERIA

2.1 Evaluation Factor 1 - LOCALITY - To meet BRAC preferences for use of local business

- **SubFactor 1 - Prime Contractor**
  - **Element 1 - Local Business (Company/Division performing the work is based within 75 miles of Romulus, New York)**
  - **Element 2 - Small Business/Small, Disadvantaged/8a firms that are not local**

- **Subfactor 2 - SubContractors - Heavier weighting will be given to use of local/New York State subcontractors (laboratories and landfills excluded)**
  - **Element 1 - Earthwork SubContractor**
    - **Sub-Element 1 - Local Business (Company/Division performing the work is based within 50 30 miles of Romulus, New York)**
    - **Sub-Element 2 - Local Business (Company/Division performing the work is based in New York State**
    - **Sub-Element 3 - Non-Local Business (Company/Division performing the work is based outside of New York State**
  - **Element 2 - Surveying SubContractor**
    - **Sub-Element 1 - Local Business (Company/Division performing the work is based within 50 30 miles of Romulus, New York)**
    - **Sub-Element 2 - Local Business (Company/Division performing the work is based in New York State**
    - **Sub-Element 3 - Non-Local Business (Company/Division performing the work is based outside of New York State**
  - **Element 3 - Drilling Subcontractors (if required)**
    - **Sub-Element 1 - Local Business (Company/Division performing the work is based within 50 30 miles of Romulus, New York)**
    - **Sub-Element 2 - Local Business (Company/Division performing the work is based in New York State)**
    - **Sub-Element 3 - Non-Local Business (Company/Division performing the work is based outside of New York State)**

2.2 Evaluation Factor 2 - EXPERIENCE

- **Subfactor 1 - Demonstrated experience performing radiological/mixed waste remediation work**
- **Subfactor 2 - Demonstrated experience performing remediation work by excavation/off-site disposal**
- **Subfactor 3 - Demonstrated experience performing radiological/mixed waste remediation work in New York State**
- **Subfactor 4 - Demonstrated experience performing remediation by excavation/off-site disposal in New York State**
- **Subfactor 5 - Health Physicist Qualifications. Three references for same type of work. Demonstrated experience on radiological sites in New York State.**
-
- **Subfactor 6 - Demonstrated Experience preparing documents for/negotiating specifics with the NYSDEC/EPA II**

- Subfactor 7 - Demonstrated Experience preparing documents for/negotiating specifics with State Regulators/EPA

2.3 Evaluation Factor 3 - LABORATORY

- Subfactor 1 - Demonstrated USACE certification/validation
- Subfactor 2 - Demonstrated NYSDEC/EPA Contract Laboratory Program Certification
- Subfactor 3 - Demonstrated past working relationship with chosen laboratory
- Subfactor 4 - Demonstrated experience of chosen laboratory with radiological projects. Give POC's
- Subfactor 5 - Demonstrated ability to provide 2-4 day turnaround if required
- Subfactor 6 - Demonstrated ability to achieve detection limits below the required Cleanup Goals for all required analytes (radiological and otherwise).

2.4 Evaluation Factor 4 - PROJECT TECHNICAL DISCUSSION - in the recommended number of pages or less, Contractor shall discuss their understanding of the required work. Evaluation will focus on, but not necessarily be limited to, the following concerns.

- Subfactor 1 - Understanding of the project and intentions (5 pages)
- Subfactor 2 - Excavation approach (2 pages)
- Subfactor 3 - Control of run-on/run-off (1 page)
- Subfactor 4 - Mitigation of the spread of contamination into all media (1 page)
- Subfactor 5 - Transportation and considerations (1 page)
- Subfactor 6 - Disposal requirements (2 pages)
- Subfactor 7 - Confirmation sampling requirements (1 page)
- Subfactor 8 - Closure requirements (2 pages)
- Subfactor 9 - Restoration concerns (2 pages) (1 Page)

In all discussions, demonstrations of past experience will be scored highest, with apparent understanding being rated next lowest and no apparent understanding beyond what's presented in the SOW rated lowest.

2.5 Evaluation Factor 5 - PROPOSED COST - Contractor shall provide a complete cost proposal for the required remediation. The proposal shall be a combination of Ceiling Price and firm-fixed price tasks as indicated in the Statement of Work.

- Subfactor 1 - Contractor Proposal is technically sound and inclusive?
- Subfactor 2 - Contractor is within a reasonable range of the Government Estimate (+/- 25%)?
- Subfactor 3 - Contractor Ranking relative to other Contractors? (Rank depends upon 3 (<$5,000k) or 5 (>$5,000k) competing firms)

3.0 SELECTION CRITERIA WEIGHTING

Of the Evaluation Factors, "Experience" and "Project Technical Discussion" are of equal importance. Each is slightly more important than "Locality" and about twice as important as "Proposed Cost", which is about 2.5 times

as important as "Laboratory". All of the Evaluation Factors other than "Cost", when added togather, are significantly more important than "Cost".

All of the 5 subfactors shown under the "Experience" Evaluation Factor are of equal importance. Of the nine subfactors under the "Project Technical Discussion" Evaluation Factor, "Understanding of the Project and Intentions" is 1.5 times as important as "Excavation Approach" which is 2 times as important as "Control of Run-on/Run-off", "Mitigation of the Spread of Contamination into All Media" and "Confirmation Sampling Requirements". Each of these are slightly more than 1.5 times as important as "Transportation and Considerations", "Disposal Requirements" and "Closure Requirements" which are equal and 3 times as important as "Restoration Concerns".

Each of the two subfactors in the "Locality" Evaluation Factor are of equal importance. Of the two Elements in the first subfactor, each is equal in importance. Of the three elements in the second subfactor, the first, "Earthwork SubContractor", is three times as important as the second which is twice as important as the third. Of the three sub-elements within each of the three elements of the second sub-factor, the first ("Company/Division performing the work is based within 75 miles of Romulus, New York") is twice as important as the second ("Company/Division performing the work is based in New York State") which is four times as important as the third ("Company/ Division performing the work is based outside of New York State").

All of the 5 subfactors of the third Evaluation Factor, "Laboratory" are of equal importance. Of the three subfactors under the fifth Evaluation factor, "Proposed Cost", the first "Contractor Proposal is Technically Sound and Inclusive" is about 3 times as important as the second subfactor "Contractor is Within a Reasonable Range of the Government Estimate (+/- 25%)" which is slightly less important than the third subfactor, "Contractor Ranking Relative to Other Contractors".