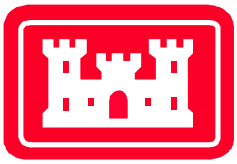

U.S. Army Corps of Engineers
Kansas City District

Performance Work Statement

Vestal Water Supply Well 1-1
Superfund Site, Operable Unit 2
Area 4 – Soil Vapor Extraction System
Vestal, New York (Broome County)

Pre-placed Remedial Action Contract
DACW41-01-D-0001
Fixed Price Plus Award Fee

September 2002 - Final

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Superfund Site
Area 4- Soil Vapor Extraction System
Vestal, New York (Broome County)

PART 1
TASK ORDER ADMINISTRATION
FOR
PERFORMANCE BASED CONTRACTING

VESTAL SUPERFUND SITE- AREA 4
PROPOSAL SCHEDULE

Item	Description	Unit	Estimated Quantity	Unit Cost	Total
BASE SCHEDULE					
0001	Pre-construction Submittals	L.S.	N/A	N/A	
0002	Mobilization	L.S.	N/A	N/A	
0003	General Conditions	L.S.	N/A	N/A	
0004	Installation of SVE Wells and Associated Piping	EA.	56		
0005	Installation of VECS	L.S.	N/A	N/A	
0006	Operation and Maintenance of SVE and VECS	DAYS	300		
0007	Carbon Purchase and Disposal	LBS.	10,000		
0008	Sampling Events	L.S.	N/A	N/A	
0009	Demobilization/Restoration	L.S.	N/A	N/A	
	Total Base Schedule				
OPTION 1 SCHEDULE					
0010	Installation of Additional SVE Wells	EA.	5		
0011	Additional O & M of SVE and VECS	DAYS	150		
0012	Carbon Purchase and Disposal	LBS.	5,000		
	Total Option 1 Schedule				
OPTION 2 SCHEDULE					
0013	Additional O & M of SVE and VECS	DAYS	150		
0014	Carbon Purchase and Disposal	LBS.	5,000		
	Total Option 2 Schedule				
BASE PLUS OPTIONS					
	Total Base Plus Options 1 and 2 Schedules				

VESTAL SUPERFUND SITE- AREA 4
PERFORMANCE REQUIREMENT SUMMARY

Preparatory Engineering and Planning Up to 20 percent of Award Fee Pool			
Required Service	**PWS Section**	**Performance Standard**	**Performance Monitoring/ Method of Surveillance**
Preparatory Period Submittals and Procedures Project Meetings Site Submittal Requirements	 2.3 2.4 3.0	Acceptable performance achieved by meeting PWS criteria. Submittals shall have written Corps approval prior to work initiation.	100 percent inspection on all written submittals and documentation. Refer to Award Fee Plan
Remedial Action Construction Up to 40 percent of Award Fee Pool			
Required Service	**PWS Section**	**Performance Standard**	**Performance Monitoring/ Method of Surveillance**
Remedial Action Mobilization Surveying Clearing and Grubbing SVE and VECS Installation SVE and VECS Start-up	 4.1 4.2 4.3 4.4 4.5	Acceptable performance achieved by meeting PWS criteria. System operational and functional. Written approval obtained after prove-out to begin O&M period.	100 percent inspection or Periodic and Final Inspections. (Task dependent) Refer to Award Fee Plan and Table.
Support Activities Submittals and Procedures Project Meetings Project Records Health and Safety Contractor Quality Control Chemical Quality Control Work Plan Requirements Environmental Controls	 2.3 2.4 2.5 3.1 3.2 3.3 3.4 3.5	Acceptable performance achieved by meeting PWS criteria. Performance measurement considers how effectively site plans are implemented.	Periodic reviews and feedback during award fee determination. Refer to Award Fee Plan and Table.
Operation and Maintenance Up to 40 percent of Award Fee Pool			
Required Service	**PWS Section**	**Performance Standard**	**Performance Monitoring/ Method of Surveillance**
Operational Period Submittals and Procedures Project Meetings Project Closeout Site Submittal Requirements SVE & VECS Operation Monitoring Requirements O & M Manuals Monthly Operating Reports Transportation and Disposal Demobilization and Restoration	 2.3 2.4 2.6 3.0 4.5 4.6 4.7 4.8 4.9 4.10	Acceptable performance achieved by meeting PWS criteria. Effectiveness of site plan implementation. System operational, functional, and effective in accomplishing site remediation objectives.	Periodic Inspections. System effectiveness evaluation. Review of monitoring reports. Refer to Award Fee Plan

PRS Table 1: Performance Requirement Summary

VESTAL SUPERFUND SITE – AREA 4
AWARD FEE PLAN

1.0 GENERAL

The purpose of this document is to establish the award fee evaluation procedure for determining the amount of award fee payable under this contract. For each specified award fee period, the amount of award fee shall range from no fee to the maximum amounts listed in this plan. The amount of award fee earned each period shall be determined by the Fee Determination Official (FDO) whose decision shall not be subject to appeal under the "Disputes" clause of this contract. Each period's performance award fee shall be determined based on the Contractor's performance as assessed by the procedures set forth below.

2.0 EVALUATION ORGANIZATION AND FUNCTIONS

The Award Fee Evaluation Process shall utilize a three-tier organization arrangement consisting of the Performance Evaluation Committee (PEC), Award Fee Board (AFB) and Fee Determination Official (FDO). An Award Fee Organization Chart is provided as AFP Table 2. The functions of this three-tier organization are shown in the flow chart in AFP Table 3.

2.1 FREQUENCY

The duration of the award fee evaluation period shall be quarterly. The first quarter shall begin the day after Task Order award. The fee will be determined at the end of each quarter for the duration of the contract. The schedule is subject to change with mutual agreement between the parties involved.

3.0 EVALUATION AND AWARD FEE DETERMINATION PROCEDURES

3.1 CONTRACTOR SELF-ASSESSMENT

Within seven (7) calendar days following each evaluation period, the Contractor may submit a written self-evaluation, which shall not exceed 15-pages, to the Chair of the PEC. The performance assessment for the evaluation period may contain information that may reasonably assist the PEC in their evaluation.

3.2 AWARD FEE EVALUATION REPORT

Within fourteen (14) calendar days following each evaluation period, the PEC submits its Award Fee Evaluation Report to the AFB and Contractor. The PEC uses AFP Table 4 for obtaining the Rating Score and using this score to find the weighting for the particular criteria.

3.3 CONTRACTOR RESPONSE

Within seven (7) calendar days following the receipt of the Award Fee Evaluation Report, the Contactor may submit a written response to the Award Fee Evaluation Report to the Chair of the AFB.

3.4 RATING DETERMINATION

Within fourteen (14) calendar days following receipt of Award Fee Evaluation Report, the AFB considers the Award Fee Evaluation Report, the Contractor's response, and any other data to compute the overall numerical rating and forwards its written determination to the FDO.

3.5 AWARD FEE DETERMINATION

Within seven (7) calendar days of receipt of the AFB determination, the FDO will review all pertinent information and will determine the total award fee granted for the evaluation period. The Contractor will be notified in writing by the FDO within seven (7) calendar days after determination.

4.0 PERFORMANCE CRITERIA FOR AWARD FEE

The areas of performance and their associated weighting factors shall be reflected in Performance Criteria developed by the Contracting Officer (CO) and provided in writing to the Contractor at the time the Task Order is awarded. These Performance Evaluation Criteria are provided in AFP Tables 5, 6, and 7.

The CO shall give specific notice, in writing, to the Contractor of any change to the evaluation criteria or weighting factors prior to the start of a new evaluation period. If no changes are made, the criteria listed for the preceding period shall be used in the following award fee evaluation period.

5.0 EVALUATION RATINGS FOR AWARD FEE

The award fee determinations are unilateral and based on quantifying criteria as presented in this plan. The numerical rating summarized below will be applied to each criterion and then multiplied by the weighting factor for each item. The products will then summed to assign a total rating for the performance period.

Numerical Rating	Objective Rating	Definition
90-100	Excellent	Performance exceeds standard. Few areas can be cited for improvement, all of which are minor.
75-89	Satisfactory	Performance meets standards. Areas for improvement are approximately offset by better performance in other areas.
61-74	Marginal	Performance is less than standard. Although there are areas of satisfactory or better performance, these are more than offset by lower rated performance in other areas.
60 and below	Unsatisfactory	Performance is substantially less than standard and many critical areas for improvement can be cited.

AFP Table 1: Numerical Ratings

6.0 AWARD FEE

The base fee for this contract shall be ___percent of the total negotiated contract price. All contract modifications will consist of the same fixed fee percentage.

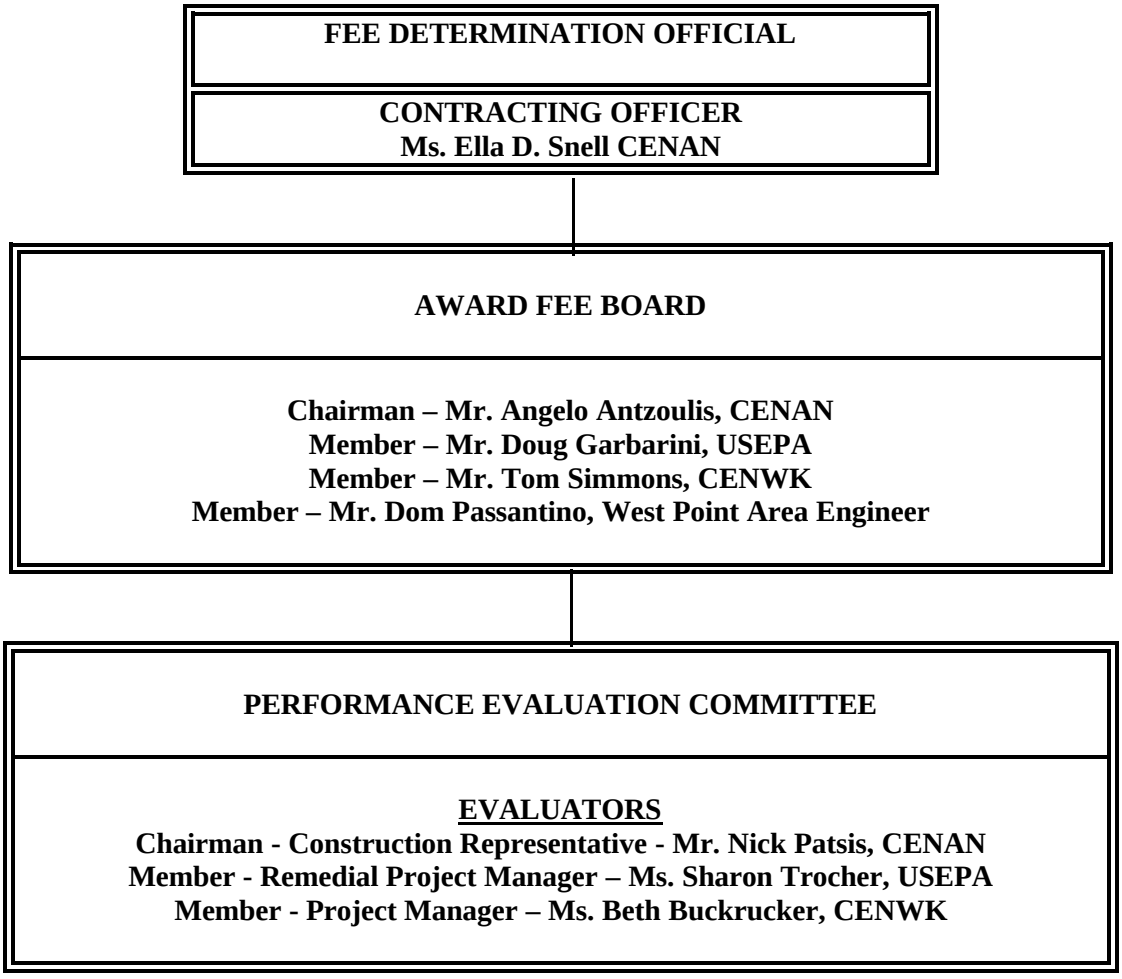
The total award fee pool for the contract period shall consist of ___percent on work performed by the Contractor.

For each award fee period, the available award fee will be determined based on the Contractor's estimate, and Government concurrence, of incremental percentage completed for of each Performance Criteria. That percentage of each Performance Award Fee Pool will then be available for that award fee period. Over the duration of the contract, for each Performance Criteria, the sum of the incremental percentages shall total 100 percent.

The award fee must be invoiced separately upon receipt of notification of FDO determination of award fee earned. The award fee invoices should not include payment request for any other work or service.

7.0 CONTRACT TERMINATION

If the contract or Task Order is terminated for the convenience of the Government after the start of an award fee evaluation period, the award fee for that period shall be determined by the FDO using the normal award fee evaluation process. After termination for convenience, the remaining award fee amounts allocated to all subsequent award fee evaluation periods cannot be earned by the Contractor, and therefore, shall not be paid.



AFP Table 2: Organizational Chart

AFP Table 3: Award Fee Flowchart

Rating Score	Weighting for Available Award Fee	Rating Score	Weighting for Available Award Fee
100	100.0	80	70.0
99	99.0	79	68.0
98	98.0	78	66.0
97	97.0	77	64.0
96	96.0	76	62.0
95	95.0	75	60.0
94	94.0	74	58.0
93	93.0	73	56.0
92	92.0	72	54.0
91	91.0	71	52.0
90	90.0	70	50.0
89	88.0	69	48.0
88	86.0	68	46.0
87	84.0	67	44.0
86	82.0	66	42.0
85	80.0	65	40.0
84	78.0	64	30.0
83	76.0	63	20.0
82	74.0	62	10.0
81	72.0	61	5.0
		60	0.0

AFP Table 4: Weighting Factors

(For Use in Column E of Award Fee Evaluation)

VESTAL SUPERFUND SITE – AREA 4
AWARD FEE EVALUATION REPORT

Performance Evaluation Criteria	Criteria Weighting (%)	Performance Criteria Award Fee Pool*
A. Project Management and Submittals	20	
B. Remedial Action Construction	40	
C. Operation & Maintenance	40	

*The total Award Fee pool will be determined after contract award and the Award Fee dollars available for each evaluation criteria will be determined at that time.

Calculation of Award Fee

The calculation of Award Fee will be based on the percentage of work complete for each Performance Evaluation Criteria. The table below will be completed at the end of each evaluation period.

Percent of Work Complete: The Contractor shall propose the percent complete during the rating period for each criteria. This is not a cumulative amount, but solely the amount of work completed within the specific rating period.

Award Fee Dollars Available: The Award Fee dollars available for the specific rating period is determined by multiplying the total amount of Award Fee dollars (see table above) by the percent complete in Column B.

Rating Score: This score is assigned by the Performance Evaluation Committee and is based on Contractor performance (refer to Award Fee Plan).

Weighting: This weighting is obtained from using the Rating Score and AFP Table 4 of the Award Fee Plan.

Award Fee Earned for Current Rating Period: This is the dollar amount for each Criterion during the specific rating period and is determined by multiplying Column C and Column E.

AWARD FEE EVALUATION					
A	**B**	**C**	**D**	**E**	**F**
Performance Evaluation Criteria	**Percent Work Completed**	**Award Fee Dollars Available**	**Rating Score (1-100)**	**Weighting (**AFP Table 4**)**	**Award Fee for Rating Period (Col. C)*(Col. E/100)**
A. Preparatory Engineering and Planning					
B. Remedial Action Construction					
C. Operation and Maintenance					
Total Award Fee Earned for Rating Period ===➔					

AFP Figure 1: Example Award Fee Evaluation Report

Performance Evaluation Criteria Vestal Superfund Site – Area 4	
A. Preparatory Engineering & Planning	
Key Rating Items: Submittals and Procedures Project Meetings Site Submittal Requirements Responsiveness	PWS Section Reference: 2.3 2.4 3.0 --
Objective/Numerical Rating	**Rating Criteria**
Excellent (90-100)	o Documentation is of outstanding quality; clearly above PWS requirements; technical competence and capability are well demonstrated. o Method for quality control of deliverables is clearly successful. o Progress meetings are professional, organized and conducted in an efficient manner. Agendas and minutes are timely and accurate with action items documented and tracked. o The Contractor shows initiative in anticipating Corps information needs and offers recommendations. o Timeliness is of high priority with all documentation and follow up is very dependable.
Satisfactory (75-89)	o Documentation quality meets PWS intent; technical competence and capability are satisfactory with no obvious technical errors. o Quality Control is satisfactory with apparent implementation of a plan for document checks. o Contractor well organized for meetings and agendas and minutes are kept; with action items documented. o Contractor makes effort to provide requested information in a timely manner and to ensure its accuracy. o Timeliness can be depended on and follow up is adequate.
Marginal (61-74)	o Some deliverables do not meet PWS requirements, quality control is lacking. Some technical errors and/or omissions exist; documents may be rejected. o Quality of documentation is lacking. o Contractor is not sufficiently prepared to host project meetings. o Contractor does not adequately address Corps requests; missing or incomplete information. Follow up on action items is not adequate. o Timeliness is not consistently dependable.
Unsatisfactory (60 and below)	o Deliverables clearly do not meet PWS requirements; quality control has failed. Serious technical errors and/or omissions exist; documents rejected. o Contractor fails to prepare for and record project meetings. o Contractor ignores Corps requests for information. Follow up is not performed. o Lack of timeliness causes delay in project schedule.

AFP Table 5: Preparatory Engineering and Planning Performance Evaluation Criteria

Performance Evaluation Criteria Vestal Superfund Site – Area 4	
B. Remedial Action Construction	
Key Rating Items: Submittals and Procedures Project Meetings Project Records Health and Safety Contractor Quality Control Chemical Quality Control Work Plan Requirements Environmental Controls Mobilization Surveying Clearing and Grubbing SVE and VECS Installation SVE and VECS Startup Responsiveness	PWS Section Reference: 2.3 2.4 2.5 3.1 3.2 3.3 3.4 3.5 4.1 4.2 4.3 4.4 4.5 --
Objective/Numerical Rating	**Rating Criteria**
Excellent (90-100)	o Contractor clearly meets all PWS requirements and implements the WP in a safe, efficient and effective manner. o Contractor technical capability and construction quality is outstanding. o The site management is superior and the flow of work is organized and clearly demonstrates Contractor ability to provide a quality system. Subcontractor work is superior. o Safety is top priority and the work clearly demonstrates this commitment. o Construction support activities (mobilization, survey work, photo documentation, temporary controls, etc.) are all performed and implemented in a safe and efficient manner with positive results. o Contractor clearly demonstrates ability to coordinate fieldwork and demonstrates initiative where scheduled work may be consolidated to save time. o Documentation is of outstanding quality. o Progress meetings are professional, organized and conducted in an efficient manner. Agendas and minutes are timely and accurate with action items documented and tracked.

AFP Table 6: Remedial Action Construction Performance Evaluation Criteria

Objective/Numerical Rating	Rating Criteria
Satisfactory (75-89)	o Contractor routinely performed in accordance with the PWS. Contractor adheres to site Work Plans for majority of work; only minor infractions occur. o Systems are correctly installed and are operationally and functionally correct. o Site Management effectiveness is adequate with evidence of Quality Control measures being used. Contractor plans daily work in an organized manner. Control and organization of subcontractors adequate. o Safety is top priority and the work clearly demonstrates this commitment. o Construction support activities (mobilization, survey work, photo documentation temporary controls, etc.) are performed adequately in a safe and efficient manner with adequate results. o Contractor adheres to construction schedule with only minor delay (excluding weather). o Documentation quality meets PWS intent; quality control is satisfactory. o Contractor well organized for meetings and agendas and minutes are kept; with action items documented.
Marginal (61-74)	o Contractor does not meet PWS requirements or the site Work Plan is not followed. o System installation is not correct; government intervention required. o Site management is not adequately controlling work at the site. Subcontractor control and work effort is lacking. o Lost time accident occurs or a major safety and health violation is documented. o Support activities not well implemented. o Project documentation lacks quality and meetings are not well organized not documented. o Contractor experiences delays in fieldwork due to inefficiencies (excluding weather)
Unsatisfactory (60 and below)	o Contractor has disregard for meeting PWS requirements or following the site Work Plan. o System is not operational. Site management is poor and subcontractor control is not adequate. o Disregard for safety. Lost time accident occurs or a major safety and health violation is documented. o Project documentation does not meet PWS requirements; quality control has failed. Contractor fails to prepare for and record project meetings. o Lack of timeliness causes delay in project schedule.

AFP Table 6: Remedial Action Construction Performance Evaluation Criteria

Performance Evaluation Criteria Vestal Superfund Site – Area 4	
C. Operation and Maintenance	
Key Rating Items: Submittals and Procedures Project Meetings Project Closeout Site Submittal Requirements SVE and VECS Operation Monitoring Requirements O&M Manuals Monthly Operating Reports Transportation and Disposal Demobilization & Restoration Responsiveness	PWS Section Reference: 2.3 2.4 2.6 3.0 4.5 4.6 4.7 4.8 4.9 4.10 --
Objective/Numerical Rating	**Rating Criteria**
Excellent (90-100)	o Contractor clearly understands the operation of the entire system is implementing the remedy and is achieving performance objectives as required by the PWS. o The functional operation of the SVE system is changed as required for site conditions or operational effectiveness; Contractor recommends strategies for maximum system effectiveness. Coordination with subcontractor is maximized for timely changes. o Safety continues to be top priority to ensure safe site operation. o O&M documentation timely and of excellent quality; clearly above PWS requirements; technical competence and capability are well demonstrated. o Quality control clearly implemented throughout the whole operation and maintenance work; documentation and fieldwork. o Progress meetings are professional, organized and conducted in an efficient manner. o Project closeout process is well planned and implemented, including excellent documentation; clearly exceeding PWS expectations.
Satisfactory (75-89)	o Contractor operates the system in accordance with the PWS and is implementing the remedy, achieving performance objectives as required. o Contractor identifies and reports operational issues that affect operational effectiveness and takes action to correct ineffectiveness. o Safety continues to be top priority to ensure safe site operation. o O&M documentation timely and adequate quality; Contractor is technically competent. o Quality Control is adequate for both site work and documentation. o Meetings are conducted with contractor organization to ensure all issues are identified, discussed, documented and resolutions implemented. o Project closeout process is adequately planned and implemented; with satisfactory closeout documentation.

AFP Table 7: Operations and Maintenance Performance Evaluation Criteria

Objective/Numerical Rating	Rating Criteria
Marginal (61-74)	o Operation of the SVE is not effective and operational issues arise as a result of the Contractor lack of technical expertise. o Contractor does not recommend strategies for system effectiveness. o Schedule of operation is affected due to Contractor inefficiencies. o Site management lacks effectiveness; subcontractor work effort is lacking. o Project documentation lacks quality and meetings are not well organized not documented o
Unsatisfactory (60 and below)	o Total system failure due to Contractor errors and misjudgments. Lack of successful operation and lack of meeting objectives. No quality control evident. o Serious technical errors in Contractor recommendations. o Lack of proper documentation; omissions. Lack of communication. o Serious delays in project schedule.

AFP Table 7: Operations and Maintenance Performance Evaluation Criteria

VESTAL SUPERFUND SITE – AREA 4
REMEDIAL ACTION QUALITY ASSURANCE PLAN

1.0 PURPOSE

The purpose of the Quality Assurance Plan (QAP) is to describe procedures to be used to verify compliance with the Record of Decision (ROD) and Performance Work Statement (PWS). It describes the organization, responsibility, and authority of key personnel. Surveillance protocols will be completed in a manner that will not interfere or inhibit progress of the project.

1.1 DEFINITIONS

Quality Assurance (QA) - The procedures by which the Government fulfills its responsibility to ensure the Contractor Quality Control (QC) system is functioning and the end results are provided as specified in the PWS.

Quality Assurance Evaluator (QAE) – The Government employee who ensures that QC procedures are implemented at the project site**.**

Quality Control (QC) - The Contractor's system to manage, control, and document activities undertaken, insuring compliance with contract requirements by his own organization and that of subcontractors and suppliers. This includes documentation demonstrating adequate implementation of project plans, specifications, regulatory requirements, and material applications.

1.2 SUMMARY OF CONTRACT

The Contractor shall follow guidance provided in the PWS and approved Work Plans prepared by the Contractor. The Task Order is issued under a Preplaced Remedial Action Contract (PRAC) and will utilize a Firm-Fixed Price with Award Fee contract. Total fee for the Task Order is limited to nine (9) percent of all costs incurred. The award fee structure will allow a distribution of two (2) percent base fee and zero (0) – seven (7) percent award fee.

The Performance Evaluation Committee, consisting of representatives from the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers, will evaluate the Contractor's performance. Quarterly, a performance rating will assigned, in accordance with the Performance Standards included in the Performance Requirements Summary and the appropriate award fee determined in accordance with the Award Fee Plan.

1.3 QUALITY ASSURANCE OBJECTIVES

This QA program will be implemented through the use of various inspection methods and daily Contractor communications. This program is intended to focus more on task completion rather than processes used to implement tasks. However, process aspects will be reviewed if it is found that processes are not being performed safely or are disadvantageous to the Government.

2.0 RESPONSIBILITY AND AUTHORITY

The responsibility and lines of authority relating to the implementation of this plan are delineated

below. An understanding the lines of communication, responsibilities, and authorities will assist in effective and timely decision-making.

2.1 U.S. ENVIRONMENTAL PROTECTION AGENCY

The EPA, Region II is the lead regulatory agency having overall project authority and responsibility for public relation efforts. In addition, the EPA will be a member of the Performance Evaluation Committee, as detailed in the Award Fee Plan.

2.2 U.S. ARMY CORPS OF ENGINEERS

The Corps of Engineers is responsible for ensuring the proper level of Contractor performance is maintained to satisfy requirements of the Performance Work Statement (PWS). Both the New York (CENAN) and Kansas City (CENWK) districts will participate as members of the Performance Evaluation Committee.

2.2.1 KANSAS CITY DISTRICT

The CENWK will provide project management and technical support throughout the term of the contract. CENWK will work in coordination with the QAE on technical issues and will provide support and approval recommendations during submittal review. CENWK will participate in project meetings and assist in project documentation and customer contact.

2.2.2 NEW YORK DISTRICT

The CENAN will be responsible for Construction Quality Assurance required for this project. CENAN will be responsible to assign and complete QAE responsibilities. The CENAN Project Engineer, West Point Office, will serve as Contracting Officer's Representative (COR) and point of contact for construction contract issues. The Contracting Officer and their authorized representative(s) are the only entities allowed to direct the Contractor regarding contractual issues. The QAE will ensure the EPA and CENWK are kept apprised, in a timely manner, of all site-related activities.

2.3 CONSTRUCTION CONTRACTOR

Sevenson Environmental Services (SES) will perform the remedial action and QC activities at this site. SES is responsible for providing a system that meets ROD and PWS requirements, as contracted. SES' Site Superintendent has authority for all personnel at the site, including subcontractors and visitors. SES will have full-time onsite construction and QC managers responsible for performance and schedule coordination tasks.

3.0 INSPECTIONS

The QAE will conduct inspections on a regular basis of all site activities to assure the Contractor is performing duties to the level of quality required. The Performance Requirements Summary details the Methods of Inspection consisting of Periodic, 100 percent and Final Inspections among other items. In addition, the Award Fee Plan also includes Performance Evaluation Criteria by which results of inspections will be evaluated and the award fee assessed.

Vestal Water Supply Well 1-1
Superfund Site
Area 4 – Soil Vapor Extraction System
Vestal, New York (Broome County)

PART 2
PERFORMANCE WORK STATEMENT

1.0 GENERAL INFORMATION

1.1 SITE DESCRIPTION

The Vestal Water Supply Well 1-1 Superfund Site (Vestal) consists of two (2) operable units. Operable Unit 1 (OU1) is one of three production wells in Water District 1 that were intended to provide drinking water to the Vestal area. The well is moderately contaminated with volatile organic compounds (VOCs). Construction of an air stripper was completed in 1990 to treat the contaminated groundwater from Well 1-1 before discharge to the Susquehanna River. The 1986 Record of Decision (ROD) also recommended that a second RI/FS be undertaken by EPA to evaluate suspected source areas of contamination upgradient of Well 1-1. EPA assumed the lead role for the second operable unit (OU2) source investigation and initiated the RI/FS in November 1988. This investigation found inorganic and organic soil contamination primarily in two discrete source areas (Areas 2 and 4) upgradient of Well 1-1. A ROD for OU2 was signed on September 27, 1990 for remediation of Area 2 and Area 4 soils contaminated by VOCs.

Areas 2 and 4 are located within a light industrial/commercial area in the Stage Road Industrial Park. A mixed residential/commercial area is located nearby. It is expected that industrial uses of the site will continue after cleanup occurs. Area 2 was previously treated using a soil vapor extraction system and is not included within the scope of this Performance Work Statement (PWS). Remediation of Area 4, which is currently a parking lot for a manufacturing operation, will be performed in accordance with this PWS.

1.2 PROJECT OBJECTIVES

This PWS sets forth the framework and performance requirements for implementing the OU2 Remedial Action (RA) for Area 4. Remediation shall be performed in accordance with Performance Based Contracting (PBC) principles. As such, work will be completed using a Fixed Price Task Order with Award Fee described in the Award Fee Plan-Part 1 of the PWS.

The Contractor shall propose an approach to accomplish Area 4 cleanup objectives and shall develop their proposal in accordance with the PWS requirements. The Contractor will be required to develop, propose and implement an appropriate in-situ soil vapor extraction (SVE) and treatment system including all components necessary to accomplish PWS performance requirements. Contractor performance will primarily be measured based on the tasks described in the Performance Requirements Summary and the Award Fee Plan in Part 1 of the PWS.

Area 4 of the Vestal site will be remediated by utilization of SVE technology. Remediation shall be complete when the contractor meets the following soil cleanup criteria:

Trichloroethene	140 ug/kg
1,1,1-Trichloroethane	170 ug/kg

1.3 SUMMARY OF WORK

Since Area 4 remediation will use a performance based approach, the Contractor is responsible for all system layout, detailed system engineering, construction, testing, demonstration, operation, sampling, analysis and removal of an in-situ SVE and treatment system.

1.3.1 REMEDY COMPONENTS

The major components of the selected remedy that will be implemented for Vestal Area 4 by this PWS include:

a) In-situ vapor extraction of volatile organics from soil in source Area 4
b) Treatment of the extracted vapor
c) Treatment and disposal of contaminated materials associated with remediation
d) Monitoring program to evaluate the progress of the vapor extraction remedy

1.3.2 WORK REQUIREMENTS

Area 4 remediation and all associated deliverable(s) required under this work assignment shall be performed in accordance with local, state and federal regulations, the RODs for the site, and all other EPA and USACE guidance identified in Section 5 of the PWS.

The following summary of work requirements provides an overview of Contractor project responsibilities. The summary should be read in conjunction the remaining sections of the PWS that identify technical and performance requirements associated with completion of the assigned work.

Preparing, maintaining and implementing the following:

a) Work Plan
b) Project Schedule
c) Site Specific Health and Safety Plan
d) Contractor Quality Control Plan
e) Sampling and Analysis Plan (SAP)
f) Environmental Controls Plan
g) Waste Management Plan

Site Preparation and Site Support:

a) Mobilization
b) Clearing and grubbing
c) Utilities and utility clearances
d) Site support facilities (trailers, parking)
e) Equipment and material staging areas
f) Site control
g) Personnel decontamination and hygiene facilities
h) Fencing
i) Field engineering / Surveying
j) Demobilization and Restoration

In-situ Soil Vapor Vacuum Extraction and Treatment System including:

a) Use of existing pre-engineered building to house system
b) Wells, materials, equipment, instruments, controls, piping, and electrical
c) Operation and maintenance of the system
d) Monitoring of remediation process
e) System security
f) Removal of system from Areas 2 and 4, and site restoration upon achievement of cleanup levels
g) Submittal of results, tests and analyses performed during all phases of work
h) As-built drawings and Final Remedial Action Report

Offsite Transportation and Disposal:

a) Responsible for all project-related waste materials generated
b) Water separated in vapor system
c) Spent treatment materials
d) Decontamination liquids
e) Disposable protective clothing and equipment
f) Drill cuttings
g) Cleared and grubbed material

2.0 GENERAL AND ADMINISTRATIVE REQUIREMENTS

2.1 PROJECT SCHEDULE

The Contractor shall furnish all labor, materials, equipment and incidentals required to prepare and update a critical path method project schedule for review at the Pre-Construction Conference and subsequent progress meetings. The project schedule shall be prepared using computer software that produces legible, easily updated critical path schedules.

The critical path schedule shall be in the form of a bar chart with project title and a separate horizontal bar for each work activity or operation. The chronological order of the start of each major operation or segment of work will determine the vertical location of its bar on the chart. Milestones marking the scheduled completion date for all critical tasks shall be included on the schedule.

2.1.1 WORK SEQUENCE

The project schedule is to show the complete sequence of work by activity, including dates for the beginning and completion for each major operation or segment of work including at a minimum:

a) Mobilization
b) Site preparation
c) Installation of SVE system
d) Installation of SVE treatment system
e) Prove-Out Period
f) Operation of SVE and treatment system
g) Health and Safety requirements
h) Security

i) Site utilities and temporary facilities
j) Site Surveys
k) Site restoration and final cleanup
l) Project closeout and demobilization

The project schedule shall also include an expenditure curve as an overlay. Estimated accumulated percentage of completion of each item, and estimated total percentage of work completed as of the last day of each month shall be noted at appropriate points on the schedule.

Five (5) copies of the initial project schedule shall be provided to the Project Manager within twenty (20) calendar days after the Notice to Proceed.

2.1.2 REVISIONS

Project schedule revisions shall be provided weekly to indicate progress of each activity to date of submission. The revisions will show changes occurring since previous submission of schedule; major changes in scope or quantities (if any); activities modified since previous submission; revised projection of progress and completion; and other identifiable changes.

Schedule revisions shall provide a brief narrative report as needed to define problem areas, anticipated delays, and the impact on schedule; corrective action recommended; the effect of changes; and impact of changes to subcontractors.

2.2 MEASUREMENT AND PAYMENT

Payments will be made to the Contractor based on the quantities of work in accordance with the prices stipulated on the Proposal Schedule. The quantities of work performed under lump sum items will not be measured except for the purpose of determining reasonable interim payments. Interim payments will be made in accordance with the estimated value of work done as determined by the Contracting Officer or as specified in this section and in accordance with CONTRACT CLAUSE titled: "Payments Under Fixed-Price Construction Contracts."

Described below is a brief summary of the work to be accomplished for the pay items listed in the Proposal Schedule.

2.2.1 PROPOSAL ITEMS

Proposal Item No. 0001 – Pre-construction Submittals: Work shall include materials, labor and equipment required to develop Pre-construction submittals required by this PWS.

Proposal Item No. 0002 - Mobilization: Work shall include labor, materials, and equipment necessary to transport to the site all personnel and equipment; establish work areas and boundaries; and initial setup including temporary facilities.

Proposal Item No. 0003 – General Conditions: Work includes all of the items required by the PWS and base contract that is not explicitly covered under other bid items. Examples of this are the Contractor's cost for insurance, bonds, fees, permits, and other similar expenses directly related to the work; project-dedicated supervisory staff and equipment; compliance with specified regulatory requirements; pre-construction and

construction period planning, project schedule updates, periodic submittals, reporting, administration; Contractor quality control; environmental protection and spill control; project photographs and videotaping; weather monitoring; weekly inspection during shutdown periods; maintaining temporary facilities; disposal of SVE generated water and general site maintenance for SVE building.

Proposal Item No. 0004 - Installation of SVE Wells and Associated Piping: Work includes all requirements for SVE well installation, including well materials, well installation, associated piping, hookups, electrical work, disposal of wastes, and successful startup of the SVE wells.

Proposal Item No. 0005 - Installation of Vapor Emission Control System (VECS): Work includes all treatment system requirements including treatment system process equipment, structural foundations, process equipment building, electrical work, piping, hookups, disposal of all wastes, and the construction and successful startup of the VECS in accordance with the PWS.

Proposal Item No. 0006 – Operation and Maintenance of SVE and VECS: Work includes all material, labor, and equipment required for operation, maintenance, and monitoring the SVE and VECS until soil cleanup levels are achieved. This includes monitoring the mass of contaminant removed from the system and ensuring that the emissions from the VECS are in compliance with State and Federal regulations. The unit of measurement for system O&M will be based on operating days. An operating day is defined as all days in which the entire system operates greater than or equal to 8 hours for a given calendar day. The time period for this proposal item is estimated at 300 operating days and approximately 65 non-operating days for a total duration of 365 calendar days.

Proposal Item No. 0007 – Carbon Purchase and Disposal: Work includes all material, labor, and equipment required for purchasing replacement carbon and disposing of spent carbon for the SVE.

Proposal Item No. 0008 – Sampling Events: Work includes all labor, materials, and equipment necessary to determine when soil cleanup levels have been achieved by interim soil sampling and final confirmation sampling.

Proposal Item No. 0009 – Demobilization and Restoration: This item also includes abandonment of SVE wells, treatment system and associated piping removal, and site restoration of the treated area following the operation period.

2.2.2 OPTION 1 PROPOSAL ITEMS

Proposal Item No. 0010 - Installation of Additional SVE Wells: Work includes all labor, materials, and equipment necessary to install additional SVE wells and piping, hookups and electrical necessary to connect the well(s) to the existing system with the unit of measurement being the cost per additional well.

Proposal Item No. 0011 – Additional O & M of SVE and VECS: Work includes all material, labor, and equipment required for operation, maintenance, and monitoring of the SVE and VECS for 150 operational days after the initial 300 day operational period (base) or until soil cleanup levels are achieved. The unit of measurement for system O&M shall be based on operating days. An operating day is defined as all days in which the entire system operates greater than or equal to eight (8) hours for a given calendar

Day. The time period for this proposal item is estimated at 150 operating days and approximately 30 non-operating days for a total duration of 180 calendar days.

2.2.3 OPTION 2 PROPOSAL ITEMS

Proposal Item No. 0012 – Additional O & M of SVE and VECS: Work includes all material, labor, and equipment required for operation, maintenance, and monitoring of the SVE and VECS for 150 operational days after the 150 operational day (Option 1) period or until soil cleanup levels are achieved. The unit of measurement O&M shall be based on operating days. An operating day is defined as all days in which the entire system operates greater than or equal to eight (8) hours for a given calendar day. The time period for this proposal item is estimated at 150 operating days and approximately 30 non-operating days for a total duration of 180 calendar days.

2.3 REQUIRED SUBMITTALS AND PROCEDURES

The Contractor shall provide to the Government all submittals identified in this PWS. The Contracting Officer may request submittals in addition to those specified as deemed necessary to adequately describe the work covered in the respective sections. Each submittal shall be complete and in sufficient detail to allow determination of compliance with contract requirements. The Contractor shall follow submittal procedures in accordance with Section C1-1.10 (Submittal Procedures) of the base Kansas City District Pre-placed Remedial Action Contract (PRAC). Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified.

A Submittal Register (ENG Form 4288) is provided. The register lists items of equipment and materials for which submittals are required by this PWS. The Contractor shall complete columns "q" through "v" and submit the forms to the Contracting Officer for approval within twenty (20) calendar days after Notice to Proceed. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

The Contractor shall submit for approval five (5) copies of all submittals. The mailing addresses for these submittals will be provided at the Pre-Construction Conference.

Submittals covering component items forming a system or items that are interrelated shall be coordinated and submitted concurrently. Adequate time (a minimum of thirty (30) calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

2.4 PROJECT MEETINGS

The Contractor shall schedule and administer each of the meetings and conferences outlined in this section. General requirements to be fulfilled by the Contractor for each meeting include:

a) Prepare agenda for meetings
b) Make physical arrangements for meetings
c) Preside at meetings
d) Record the minutes.

Meetings and conferences may take place at the project site or some other location that is agreed to by both the Contracting Officer and the Contractor.

2.4.1 PRE-CONSTRUCTION CONFERENCE

Within thirty (30) calendar days after issuance of the Notice to Proceed, the Contractor shall meet with the Contracting Officer's Representatives (COR) for a Pre-Construction Conference. The purpose of this conference is to discuss the contract clauses and project schedules.

2.4.2 PRE-WORK CONFERENCE

Within thirty (30) calendar days after the Pre-Construction Conference and prior to mobilization, a Pre-Work Conference will be held between the Contractor and Contracting Officer's Representatives. Attendance by the Contractor's superintendent, quality control personnel, safety personnel, and any major subcontractor's superintendents will be required. The purpose of this conference is to review submittals, safety, payrolls and labor relations, environmental protection, project schedules and payment, and procurement of materials.

At least twenty (20) calendar days prior to the Pre-Work Conference, the Contractor shall submit six (6) copies of the following for review at the Pre-Work Conference:

a) Work Plan
b) Contractor Quality Control Plan
c) Site Safety and Health Plan
d) Sampling and Analysis Plan (SAP)
e) Environmental Controls Plan

The plans listed above and initial project schedule will be discussed during the Pre-Work Conference. Questions concerning the administrative requirements outlined during the Pre-Construction Conference or any other aspect of the project may also be addressed.

A Quality Control Conference will be held between the Contractor and Contracting Officer as part of the Pre-Work Conference. The purpose of this conference is to discuss the quality control procedures to be used for all onsite and offsite work, and defining the interrelationship of Contractor's Management and the Government's Quality Assurance.

The Contractor's quality control system will be discussed. A mutual understanding of the system details shall be developed, including forms for recording CQC operations, control activities, definition of definable features of work, testing, administration of the system for onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Subsequent conferences will be called by either party, as necessary, to reconfirm mutual understandings and address deficiencies that may require corrective action by the Contractor or Government.

The Contractor's quality control processes associated with chemical testing will also be discussed. Quality control associated with activities that involve any chemical parameter measurement will be documented in the SAP. A list of definable features for activities involving chemical measurements will be agreed upon. Each matrix (soil, water, air, containerized wastes) and each type of chemical parameter measurement will be included as a definable work feature. The meeting will be used to come to a mutual understanding

of the Contractor's chemical data quality system including Data Quality Objectives (DQO), chemical data documentation, chemical data validation, sampling and analysis protocols, total matrix and parameter sampling requirements, and minimum data reporting requirements. The meeting will serve to establish an interrelationship between the Contractor's chemical data quality management and Government personnel responsible for Chemical Quality Assurance. Subsequent conferences may be called to address chemical quality issues by either party, to reconfirm mutual understandings, resolve issues and address deficiencies in the chemical quality control system.

2.4.3 PRE-CONSTRUCTION SAFETY CONFERENCE

Before the start of construction, the Contractor shall meet with the Contracting Officer for a safety conference. The purpose of this conference is to discuss how work will be implemented, including safety considerations associated with those work procedures such as: heavy equipment operation; additional training requirements; and safety equipment.

2.4.4 PROGRESS MEETINGS

The Contractor shall schedule and administer progress meetings/conference calls at a minimum of one per week. Additional meetings shall be scheduled when requested by either the Contracting Officer or the Contractor during any stage of this project.

The Contractor shall ensure that all necessary personnel attend these meetings, as determined by the Contracting Officer, for the duration of this Contract.

The suggested agenda for Progress Meetings is as follows:

a) Review and approval of minutes of previous meeting.
b) Review of action items.
c) Review of work progress.
d) Field observations, problems, and conflicts.
e) Planned work for upcoming period.
f) Problems that impede the schedule.
    - Review of offsite delivery schedules.
    - Conflicts and proposed corrective measures.
    - Revisions to project schedule.
    - Review submittal schedules; expedite as required.
g) Maintenance of quality and safety standards.
h) Pending changes and substitutions.
i) Other business, as appropriate.

2.5 PROJECT RECORDS

2.5.1 PHOTOGRAPHIC DOCUMENTATION

Photographs and video shall be taken throughout the project that is representative of the work tasks and areas described below. The Contractor shall provide three (3) copies including electronic versions of photographs and color quality prints (may be from color printer), All photos shall include date stamp and time. Video documentation shall include approximately 2 hours of edited VHS tape (2 copies) with commentary depicting the main operations prior to, during and after project completion. The photography and

video shall be spaced out, as appropriate, over each activity period to provide views representative of the project work. Identification shall include the date of the photograph / video and a brief description of coverage in the photograph. Each photograph shall be numbered in sequence.

a) Before construction begins:
   - Existing Site Conditions
   - Adjacent Properties
   - Parking lot and roads

b) During construction and operations:
   - Mobilization
   - Site preparation
   - Installation and operation of SVE System
   - Installation and operation of SVE Treatment System
   - Decontamination
   - Sample collection
   - Health and safety activities
   - Demobilization and Restoration

2.5.2 PROJECT RECORD DOCUMENTS

The Contractor shall maintain for the Contracting Officer one record copy in the Contractor's Field Office apart from documents used for construction work.

a) Construction schedule and progress chart of work
b) Technical Specifications
c) Change Orders and other modifications to the Contract
d) Manufacturers' certificates
e) Verification and Laboratory Data
f) Written reports of any significant Quality Assurance problems
g) Contracting Officer's Directives
h) Daily Work Activity Reports
i) Monthly Reports

The Contractor shall keep up-to-date a complete record set of drawings, which shall be corrected daily to show every change. This set shall be legibly marked. The Contractor shall keep up-to-date a complete set of specifications and addenda to record changes made by directive or by change order. This set shall be legibly marked. The set shall be submitted to the Contracting Officer at the completion of construction.

2.6 PROJECT CLOSEOUT

Project Closeout activities shall include the following:

a) Decontamination and removal of all equipment operated by the Contractor
b) Restoration of the project site
c) Disconnection and removal of temporary utilities and facilities
d) Decommissioning and disposal of facilities
e) Disposal of Contractor-generated contaminated equipment for which decontamination is inappropriate
f) Preparation of a Draft and Final Remedial Action (RA) Report

2.6.1 UTILITIES

Telephone and electric lines shall be disconnected at the source. Service lines, utility poles and outdoor lighting fixtures shall be removed from all private and public properties. Underground and aboveground utilities and utility hookups in and around the sites that have been damaged shall be restored to service.

2.6.2 FINAL INSPECTION

The inspection shall ensure the following items were completed in accordance with the terms of this PWS and RA access agreements:

a) The quality of restored features is equal to the pre-existing features and conforms to local building codes.
b) The quality of restored landscape and other site features is equal to the pre-existing features.

2.6.3 REMEDIAL ACTION REPORT

The Contractor shall prepare and submit a RA Report documenting Area 4 soil remediation. The RA Report will summarize the completion of the work performed under this PWS. The RA Report is the basis for the U.S. Environmental Protection Agency (EPA) determining that the work meets the remedial objectives of the Record of Decision. The RA Report should include, by reference, all of the necessary information needed to make these determinations. The RA Report should refer to detailed information contained in other documents including SVE system layout reports; chemical data reports; as-built drawings; Operation & Maintenance manuals as well as other appropriate documents.

The draft RA Report shall be submitted for Government review within thirty (30) calendar days of the final inspection. The Final RA Report, which addresses Government comments on the Draft Report, shall be submitted within 21 calendar days of receipt of Government comments on the Draft Report. The submittal shall include written responses to all Government comments. The RA Report shall conform to EPA Guidance, "Close Out Procedures for National Priorities List Sites", EPA 540-R-98-016, dated January 2000, and follow the general outline below. It is anticipated that the report will be approximately twenty (20) pages in length.

a) Introduction:
Provide a short description of the site, the contaminants of concern and the components of the remedy, which were implemented.

b) Construction Activities:
A summary description of the activities undertaken to construct and implement the work including a description and quantity of the equipment and materials used or installed and cleanup levels achieved. The particular project successes, challenges and problems should be briefly discussed. The as-built drawings should be identified and major project changes discussed. If there are significant changes or contract disputes which have not been resolved, they should be identified as unresolved. "Lessons learned" should also be included.

Chronological information about the treatment process such as: start-up, testing,

monitoring and sampling events, systems modifications, shut down periods, date when facility met final operational objectives and how long facility operated.

c) Performance Standards and Construction Quality Control:
Identify performance standards including cleanup levels, quality criteria and other substantive requirements used during the project. Each performance standard shall be addressed by providing the standard; maximum level permissible; testing results; location and frequency of tests; and the basis for measuring achievement. The CQC Plan and quality control procedures used during the work shall be referenced and briefly described. Explain any substantial problems or deviations. Data collection and material testing done should be identified and the results referenced. Duplicate sample testing results and other quality control tests should be discussed. The analytical data quality assurance and quality control procedures and the use of the Quality Assurance Project Plan should be referenced and briefly described.

d) Final Inspection and Certification:
Report on formal contract inspections and formal inspections conducted by USACE and/or EPA noting the major findings. Identify the date of contract final inspection and the attendees. Identify the date of any pre-final or final inspection conducted by EPA, if different from the contract final inspection. Briefly describe adherence to health and safety requirements. Identify the date of certification by a Professional Engineer that the work was properly performed. Identify the approvals made by the USACE and/or EPA. Identify the date for beneficial occupancy, if appropriate. In some cases, EPA and the State will identify a date that the work was found to be operational and functional. Identify that date. If that date has not been established before this report, explain why the work should be considered operational and functional at this time.

e) Operation and Maintenance:
Describe any post-construction operation, maintenance and monitoring that is appropriate. Reference all Operation and Maintenance (O&M) Manuals. Describe what they cover, where they are located and if they need to be periodically updated. Identify the persons responsible for post-construction activities, how are they funded and if they are currently under contract. Identify any alarms or emergency procedures that can occur. Ensure that proper arrangements have been made to respond to alarms or emergency conditions.

f) Summary of Project Costs:
Provide the agreed contract amount and final cost. Explain any significant difference. The USACE and/or EPA may also provide information which can be included in the report identifying the original cost estimate in the Record of Decision and the final design estimate as well as an explanation of any significant difference between the cost estimates and the actual final costs.

g) Contact Information:
Identify the site managers and principal persons responsible for the work. Identify the USACE, EPA, State inspectors and/or project managers. Provide contact information for the contractor responsible for the work and contacts for significant equipment suppliers, if appropriate.

h) Appendix A:
Treatment cost and performance information should be summarized in Appendix A. Suggested format is contained in the "Guide to Documenting and Managing Cost and Performance Information for Remediation Projects", EPA.

3.0 SITE SUBMITTALS AND REQUIREMENTS

3.1 HEALTH AND SAFETY

3.1.1 CORPORATE AND SITE SAFETY AND HEALTH PLANS

The Contractor's corporate safety and health program (CSHP) and Site Safety and Health Plan (SSHP) shall comply with requirements of 29 CFR 1910.120(b)(1) through (4); EM 385-1-1 01.A.02 and 28.B; and ER 385-1-92 Appendix C. The CSHP and SSHP shall integrate appropriate industry health and safety guidance and standards published by nationally recognized standard-setting organizations, such as the American National Standards Institute (ANSI); American Conference of Governmental Industrial Hygienists (ACGIH); International Drilling Federation (IDF); and the National Fire Protection Association (NFPA).

As stipulated by 29 CFR 1910.120(b)(4)(iv), the SSHP shall be frequently reviewed and changed or amended as necessary. All changes shall be approved by the Contractor's Health and Safety Professional and provided to the Contracting Officer's Representative (COR). Changes that may incur significant changes in project cost require COR approval. As required, fieldwork shall not be permitted until Government approval has been received.

Each subcontractor shall be given the opportunity to review and comment on the approved SSHP. Subcontractors shall agree to meet the standards specified therein before being permitted onsite. For COR approval, the Contractor shall submit written certification, signed by each subcontractor's Competent Person and the Contractor's Health and Safety Professional, that work will be performed in accordance with standards specified therein. In addition, The Contractor's Health and Safety Professional shall provide written certification that all subcontractor safety and health programs comply with appropriate standards.

3.1.2 SAFETY AND HEALTH ORGANIZATION

The Contractor shall identify qualified personnel responsible for the development, administration, and evaluation the CSHP and SSHP; and the review, certification, and field evaluation of subcontractor programs and performance. The Contractor shall submit for approval, the resume of each key individual, as identified in the project safety and health organizational structure meet qualification requirements stipulated by 29 CFR 1910.120 (b)(2) and ER 385-1-92 C-2.

Each subcontractor shall identify a Competent Person, as defined in ER 385-1-92 B, responsible for ensuring compliance with the approved SSHP and coordinating and assisting the designated Site Safety and Health Officer (SSHO). The Contractor's Health and Safety Professional shall submit the names of designated subcontractor personnel.

3.1.3 MEDICAL SURVEILLANCE AND TRAINING

The Contractor's Health and Safety Professional shall submit written certification that site personnel, Contractor and subcontractor, meet required training and medical surveillance requirements identified in 29 CFR 1910.120 (e) and (f).

3.1.4 SUBCONTRACTOR SITE ACTIVITIES

All site activities, including those performed by subcontractors, shall be incorporated into the approved SSHP as required by EM 385-1-1; 28.B.01 d. The SSHO shall have authority to restrict site access to any individual or company for nonconformance to standards specified in the approved SSHP.

3.2 CONTRACTOR QUALITY CONTROL

The Contractor shall furnish the labor, supervision, materials, equipment, and services required to prepare a Contractor Quality Control (CQC) Plan for approval by the Contracting Officer and to perform quality control in accordance with the approved CQC Plan. The detailed CQC Plan shall be developed in order to implement the requirements of the Contract Clause entitled "Inspection of Construction" (FAR 52.246-12) and Section C1-3.13 (Contractor Quality Control) of the base PRAC contract. The plan shall be submitted to the Contracting Officer for approval at least 20 business days prior to the Pre-Work Conference.

The quality control system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. For purposes of this section the term "construction" shall include all activities relating to excavation, backfill, disposal demolition, hazardous and toxic waste removal, restoration, etc., as indicated in the contract documents. Other sections of the contract documents may also require separate, specially qualified individuals in such areas as chemical data acquisition, sampling and analysis, medical monitoring, industrial hygiene, safety, etc. The CQC organization will coordinate the activities of these individuals. The Site Superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The Site Superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production. Deficiencies cited and verbal instructions given to the Contractor by the Government Representative shall be entered into the daily CQC Report.

The Contractor shall maintain current records providing factual evidence that required CQC activities and / or tests have been performed. These records shall include the work of subcontractors and suppliers.

All CQC personnel shall be subject to acceptance by the Contracting Officer. The CQC System Manager shall have identified an alternate, in the plan to serve in the event of the System Manager’s absence. The CQC System Manager shall have completed, within the last five years, the course entitled “Construction Quality Management for Contractors”. This course is given at a cost of $25 by Government personnel and is a two-day duration course. The Government will provide one instruction manual for the course.

3.3 CHEMICAL DATA QUALITY CONTROL REQUIREMENTS

Chemical Data Quality Control (CDQC) shall be as defined in ER 1110-1-263 and supplemented by EM 200-1-6. Plans that address sampling and analytical requirements shall

be according to or consistent with EM 200-1-3. CDQC procedures shall be described in the CQC Plan and the Sampling and Analysis Plan (SAP).

In addition to the quality control requirements specified in Section 3.2 CONTRACTOR QUALITY CONTROL, the CQC Plan shall incorporate the qualifications, authority and responsibilities of all chemical quality management and support personnel. Chemical measurements including sampling and/or chemical parameter measurement will not be permitted to begin until after production and Government approval of the CQC Plan and SAP.

3.3.1 SAMPLING AND ANALYSIS PLAN

The SAP shall be prepared in accordance with CDQC requirements and EM 200-1-3. The SAP shall be a single or two-part document that contains two distinct elements: The Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP). Sections of the FSP and QAPP may be cross-referenced. The SAP shall confirm the Contractor's understanding of the contract requirements for chemical data quality control and shall describe procedures for field sampling; sample submittal for analysis; field chemical parameter measurement; data documentation; data assessment and data reporting requirements. The SAP shall delineate the methods the Contractor intends to use to accomplish the chemical quality control items to assure accurate, precise, representative, complete, legally defensible and comparable data. The SAP shall describe all chemical parameter measurements for all matrices for all phases of the remediation contract.

For each type of sample, provide a table that identifies the number of samples, including Quality Control (QC) and Quality Assurance (QA) samples, extraction and analytical methods, precision, accuracy, representativeness, comparability, completeness and sensitivity for analytical determinations. Sampling and analysis of soils performed by the Contractor shall comply with SW-846 Method 5035/8260B for volatile organic compounds. Methods for air sampling and analysis shall be clearly described in the SAP.

The FSP shall provide a comprehensive description and full detail for personnel to perform all onsite activities required to attain project Data Quality Objectives (DQO). The frequency; location; rationale of duplicate, blank, and spike samples shall be specified in the SAP. The QAPP shall contain necessary technical detail and direction for field and laboratory personnel to understand project sample analysis, quality control, reporting requirements, analytical methods, detection limits, and data validation.

The Contractor may propose laboratories that shall subsequently be validated by the USACE, or select currently validated USACE laboratories in accordance with EM 200-1-1. The Contractor shall identify all proposed project laboratories in the sampling and analysis plan (SAP).

3.3.2 ANALYTICAL RESULTS REPORTING

After completion of interim and final soil sampling events, a Chemical Data Final Report (CDFR) shall be prepared which documents the methods of sample collection and the analytical results. All reports based on field or laboratory analytical data shall include a data review report documenting that specified precision, accuracy, representativeness, comparability, completeness and sensitivity requirements have been achieved.

3.4 WORK PLAN

3.4.1 TEMPORARY SITE FACILITIES AND UTILITIES

The Contractor shall, during the construction period, provide temporary site facilities and utilities including design, layout, furnishing, installing operating and maintaining the following temporary facilities and utilities and their removal on completion of the project.

Minimum Facilities:

a) Contractor's Office and Contracting Officer's office during construction, testing and demonstration.
b) Personnel Decontamination Facilities
c) Parking Areas and Storage Areas
d) Fencing
e) Security and Communications

Utilities:

a) Electricity, water, and gas
b) Telephone service
c) Contaminated wash water handling
d) Sanitation facilities

The Contractor shall provide a Temporary Facilities Plan for approval prior to delivery and installation at the site. It shall include the following:

a) General arrangement of site facilities - layout and location of all facilities.
b) Electricity, water, and gas - source point, storage, layout locations, fixtures and materials.
c) Sanitation facilities - source point, layout locations, fixtures, materials and methods of disposal.
d) Parking and storage areas including layout, locations, source and documentation of materials and construction details.
e) Name of the fence fabricator, size of fabric and type of posts

The Contracting Officer shall approve any changes to the site layout. All utilities shall be provided in accordance with federal, state and local regulations and local utility company requirements. Electrical installation shall be in accordance with the National Electric Code. Sanitation facilities, and disposal of sanitary wastes, shall be in accordance with state and local regulations.

The Contractor shall be responsible for the operation and maintenance of all equipment and systems to assure that necessary services are provided without disruption. The Contractor shall be responsible for all water, electrical, gas and oil charges including source connection, installation, service charges and disconnection. The Contractor shall be responsible for all telephone charges including connection, installation, service and disconnection.

The Contractor shall take all necessary precautions to prevent freezing of water and sewer lines in cold weather. All materials shall be suitable for their intended use and shall conform to applicable codes and standards. Manufacturers' requirements shall be strictly

followed. Used materials may be utilized provided that they are sound and capable of performing the intended function.

The Contractor shall provide one trailer with two offices; one for his own use and one for the Contracting Officer's use. Offices shall have adequate furniture to conduct everyday site operations and maintain records. The Contractor shall supply and maintain separate lockable offices desk within office for the use of the EPA and NYSDEC representatives. All trailers and equipment supplied by the Contractor shall be removed from the site at the close of construction.

3.4.2 SYSTEM MONITORING

As described in Section 4.6, the Contractor shall provide for regularly scheduled System Monitoring, which shall include a plan describing the tasks and frequency of the following items:

a) Monitoring of the VECS Stack
b) SVE System Monitoring
c) Contaminant Mass Removal Monitoring
d) Radius of Extraction Well Influence
e) Groundwater Table Elevation

3.4.3 SITE SECURITY

The Contractor shall be responsible for maintaining site security within the limits of this contract throughout the duration of the field activities from mobilization to demobilization. At minimum, the Security Plan shall address the following:

a) Names and qualification of the Security Officer
b) Description of proposed daily security operations
c) Method and frequency for conducting security checks
d) Description of how a breach of security will be handled.
e) Location of security check points
f) List of personnel to be contacted in case of emergency

The Security Officer is the Contractor's employee with overall responsibility for the preparation, implementation and enforcement of the site security plan. The Security Officer shall have a minimum of three (3) years specialized experience in the chemical hazardous waste industry security systems. The security officer shall have a broad working knowledge of state and federal safety regulations. The Security Officer or his designee shall be onsite during construction activities.

The Contractor shall control of all persons, equipment, and vehicles entering and leaving the site.

3.4.4 WASTE MANAGEMENT PLAN

As detailed in Section 4.9, the Contractor shall submit a Waste Management Plan that describes the manner in which wastes will be managed. The Plan shall include a program for the proposed transportation and disposal of material generated by the execution of the overall site work including identification of transport routes and needed traffic control items.

3.5 ENVIRONMENTAL CONTROLS

The Contractor shall prepare and submit for approval an Environmental Controls Plan. The plan shall identify methods and processes that will be utilized to protect the human and natural environment during site operations. The Contractor shall provide all labor, materials, equipment and incidentals to implement the plan, as approved by the Contracting Officer. The Environmental Controls Plan shall include the following:

a) Environmental Protection Plan
b) Erosion and Sediment Control Plan
c) Dust Control Plan
d) Spill Control Plan

3.5.1 ENVIRONMENTAL PROTECTION

The Contractor shall furnish all labor, materials, equipment, and incidentals required to provide environmental pollution and damage control. This includes protection of human and natural environment during all site activities.

The Contractor shall submit an Environmental Protection Plan including the following:

a) A list of Federal, State and local laws, regulations, and permits concerning environmental protection that are applicable to the proposed operations and the requirements imposed by the laws and regulations.
b) Methods of protection for features to be preserved within the work areas including trees, shrubs, ground cover, landscape features, air and water quality, soil, historical, archaeological and cultural resources.
c) Procedures to be implemented to comply with applicable laws and regulations, and to correct pollution due to accident or natural causes.
d) Environmental monitoring plans including land water and noise monitoring.
e) Methods of protecting surface and groundwater during construction.

3.5.2 EROSION AND SEDIMENT CONTROL

The Contractor shall provide for erosion control for all construction activities within the limits of the construction site. The protection of disturbed sites shall continue throughout the construction period. The temporary pollution control provisions contained herein shall be coordinated with the permanent erosion control features to ensure economical, effective, and continuous erosion control throughout the construction and post-construction period.

The Contractor shall limit the surface area of erodible earth material exposed by site operations to the greatest extent practicable. Erodible earth material shall not be exposed without approval of the Contracting Officer. The Contractor shall provide immediate temporary pollution control measures to prevent contamination of adjacent properties, streams, or other watercourses.

Siltation and erosion control practices shall be consistent with procedures outlined in the New York standards for soil erosion and sedimentation control. The Contractor shall prepare and obtain State of New York approval for a Soil Erosion and Sediment Control Plan. The Contractor shall not be permitted to divert extraneous water onto adjacent

properties. All control measures employed by the Contractor, as approved by the Contracting Officer and the State of New York, shall divert water to existing storm water collection systems.

In the event of conflict between these requirements and pollution control laws, rules or regulations, or other Federal, State, or local agencies, the more restrictive laws, rules, or regulations shall apply.

3.5.3 DUST CONTROL

The Contractor shall implement strict dust control measures during active construction periods onsite so as to minimize the creation and dispersion of dust. Dust control shall be used throughout the work at the site including during clearing and grubbing, well installation and sampling, construction, handling, and transport, and dismantling. The Contractor shall provide clean water, free from salt, oil, and other deleterious material to be used for onsite dust control in any area. These control measures will generally consist of water applications that shall be applied as required to prevent dust emissions. For water application to soil surfaces, the Contractor shall:

a) Apply water with equipment consisting of a tank, spray bar, pump with discharge pressure gauge.
b) Arrange spray bar height nozzle spacing and spray pattern to provide complete coverage of ground with water.
c) Disperse water through nozzles on spray bar at 20 psi, minimum. Keep areas damp without creating nuisance conditions such as ponding.

3.5.4 SPILL CONTROL

The Contractor shall develop, implement, maintain, supervise, and be responsible for a comprehensive Spill Control Plan. This plan shall provide contingency measures for potential spills and discharges from the SVE and treatment system during construction and operation and during offsite transportation. The Spill Control Plan shall also identify all potential notification and reporting requirements under federal, state and local laws and regulations.

The Contractor shall provide methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment, or material by the discharge of wastes from spills due to Subcontractor's operations.

The Contractor is required to provide equipment and personnel to perform emergency measures required to contain any spillages and to remove spilled materials and soils or liquids that become contaminated due to spillage. The Contractor will provide equipment and personnel to perform decontamination measures that may be required to remove spillage from previously uncontaminated structures, equipment, material, or existing ground. Collected spill material and decontamination residues must be properly disposed of at the Contractor's expense.

Pursuant to the applicable requirements under the Clean Water Act (CWA) or the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA), the Contractor shall follow the following reporting procedures for any spill (discharge or release) of hazardous substances and wastes in a quantity equal to or exceeding the reportable quantity:

a) Where a spill directly contaminates surface water, sewers, or drinking water supplies, the Contractor shall immediately notify the appropriate EPA regional office, other appropriate agencies and obtain guidance for appropriate clean-up measures in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

b) Where a spill directly contaminates grazing lands or vegetable gardens, the Contractor shall notify the appropriate EPA regional office, and other appropriate agencies and proceed with the immediate requirements specified in this section, in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

In addition to the immediate notification of spills to appropriate agencies, all spills shall be immediately notified to the Contracting Officer.

4.0 SOIL VAPOR EXTRACTION AND VAPOR EMISSION CONTROL SYSTEM INSTALLATION AND OPERATION

The Contractor shall furnish labor, equipment, materials and incidentals necessary for all work elements associated with completion of the Area 4 soil remediation, which will be accomplished by use of a Soil Vapor Extraction (SVE) and Vapor Emission Control System (VECS). All work shall be performed by competent, trained workmen, skilled in the field in which they are executing the work.

4.1 MOBILIZATION

Mobilization shall include transportation of personnel, equipment, and operating supplies to the site; establishment of temporary facilities and utilities; installation of temporary security fences and gates. The Contractor shall construct and maintain onsite access as necessary for execution of the required work.

4.2 SURVEYING

The Contractor shall provide all survey services associated with the Area 4 soil remediation. The Contractor shall verify the existing conditions, contours and location of structures within the construction limits for SVE system installation. The Surveyor shall be a qualified and Registered Land Surveyor in the State of New York. The Surveyor shall also have a minimum of two years of experience in construction surveying, and layout and maintenance of as-built construction drawings, with a record of performing horizontal and vertical control requirements. The name, address, New York registration number, and telephone number of the Surveyor shall be submitted by the Contractor to the Contracting Officer before starting survey work.

A complete, accurate log of control and survey work as it progresses shall be maintained at the work site by the Contractor. Upon completion of the work, all record documents and as-built drawings shall be submitted to the Contracting Officer.

The Contractor shall establish and maintain control points as necessary for accomplishment of the work and preparation of as-built drawings. X, Y and Z coordinates of survey control points shall be determined and recorded with a maximum permissible error of 0.10 feet in any coordinate direction. The Contractor shall establish lines and levels, and locate and layout by instrumentation and similar appropriate means, all site features to be constructed or executed.

4.3 CLEARING AND GRUBBING

The Contractor shall perform clearing and grubbing of trees and vegetation necessary for installation and operation of the SVE and VECS. The work shall include preserving and protecting from damage all vegetation and objects designated to remain. Materials from clearing and grubbing shall be decontaminated and shall be disposed of in an approved landfill as appropriate based on regulatory and landfill requirements.

Clearing shall consist of the removal of all trees, brush, vegetation and all other obstructions on the surface of the original ground as required for the installation of the SVE and treatment system, except such trees and vegetation as directed by the Contracting Officer to remain. Clearing for the installation of SVE wells may require access through an existing asphalt and/or gravel parking area.

Grubbing shall consist of the removal and disposal of stumps, matted roots and decayed matter as required for the installation of the SVE and VECS.

4.4 SVE AND VECS INSTALLATION

The Contractor shall provide and install a SVE system that includes vapor extraction wells and associated piping to bring soil gases to the existing VECS located in Area 2. Secondly, the Contractor shall repair, replace or upgrade the existing equipment in Area 2 (prefabricated building containing blowers, carbon adsorption system, etc.) to ensure this system is capable of handling all soil gases extracted from Area 4. The Contractor shall perform all work necessary to supply, construct, test, and operate the SVE and VECS. The system shall be started up and demonstrated to meet all required criteria. The Contractor shall also propose locations and number of monitoring wells or piezometers to measure the ground water level to aide in monitoring the SVE. These wells shall be installed in accordance with the approved site plans.

4.5 SVE AND VECS STARTUP AND OPERATION

The Contractor shall startup, operate and maintain the SVE and VECS in a safe and efficient manner in accordance with manufacturer's recommendations and all applicable workplace standards. At all times the system shall operate within air discharge permit equivalency requirements.

The startup period shall consist of the prove-out of the system. This startup period shall be considered complete when the system has:

a) Demonstrated the expected flow rate and radius of influence for each extraction well as approved in the site layout;
b) Flows from each well that correlates with total flow to the VECS;
c) System controls have been verified to properly shutdown the system as required and flow measurement devices have been installed and demonstrated to be accurate in accordance with the approved site layout;
d) Operated for 72 continuous hours without shutting down while maintaining flows from each well and meeting emission discharge criteria.

Once the startup has been completed and results approved in writing by the Contracting Officer, the operation and maintenance of the system shall begin. The period of operation of the SVE and VECS shall consist of a period of 300 operating days. The Contracting Officer will have the option to extend the period an additional 300 operating days, consisting of two

150-day operational day options, following the initial period of operation. An operating day is defined as all days in which the entire system operates greater than or equal to eight (8) hours for a given calendar day including operation of all wells, except as otherwise approved by the Contracting Officer.

The Contractor shall operate and maintain the system throughout the period of operation. The system shall operate continuously and automatically with minimal/no operator intervention. Periodic shutdown/startup and temporary operations may be required for routine maintenance, power loss and/or automatic equipment shutdown. The Contractor shall propose a regular maintenance schedule for both operational and non-operational periods. Telemetry or other automated means of alerting the Contractor's Chief Operator and Contracting Officer shall be provided to inform of trouble (upset or emergency) conditions requiring manual attention. The Contractor shall notify the Contracting Officer of any trouble conditions within 24 hours of initial notification received by the Contractor.

4.6 MONITORING REQUIREMENTS

The objectives of the soil remedial action at Area 4 is to reduce the contamination concentration levels of the following indicator chemicals in the soil to below the following concentrations:

Trichloroethene	140 ug/kg
1,1,1-Trichloroethane	170 ug/kg

The performance of the remedial action will be measured by post treatment soil concentrations in the contaminated areas. The performance objective of the remedial action will be accomplished when all soil samples collected and analyzed meet each contaminant cleanup criteria.

Subsurface soil sampling events will be initiated based on the analysis of in-situ soil gas and extracted soil gas samples collected from the influent line. The results of the soil sampling events shall be analyzed for determination of ultimate site confirmation sampling, reaching site cleanup criteria and system shut down. Key criteria for determining when the system can be shut down include: cumulative amount of contaminant removed, extraction well vapor concentrations, extraction well vapor composition, soil gas contaminant concentration and composition, or remaining soil concentration. Cleanup is considered complete when soil samples indicate that the residual indicator contaminant concentrations remaining are below the soil cleanup target levels. The Contracting Officer will provide official written notification to the Contractor when cleanup is considered complete.

Each day that soil or air samples are collected for laboratory analysis, a Daily Chemical Quality Control Report (DCQCR) shall be prepared and submitted daily to the CO.

4.6.1 SOIL SAMPLING METHODS AND AMOUNTS

The Contractor shall propose to the Contracting Officer in writing when they suggest they have attained performance criteria and recommend soil sampling. The Contractor shall include, in each request, the boring locations and sampling intervals. The Contracting Officer shall approve each sampling event prior to its occurrence. Soil sampling shall be in accordance with the approved SAP.

Subsurface soil sampling events shall be performed as necessary to confirm the removal of target volatile contaminants from the source areas. An interim soil sampling event is defined as the drilling of six (6) soil borings and the collection of twelve (12) soil samples.

For final confirmation sampling to determine if site cleanup criteria has been met; fifteen (15) soil borings shall be drilled and thirty (30) soil samples (2 samples per boring) shall be collected. The Contracting Officer may require that the Contractor provide split or replicate samples for independent verification.

To maximize the use of existing data, the borehole location and sampling depths will be similar to the previous soil sampling efforts. The Contractor shall plan for two (2) interim sampling events and the final confirmation sampling.

4.6.2 MONITORING OF VECS STACK

The permit equivalency shall be developed using New York State Air Guide-1 Guidelines for the Control of Toxic Ambient Air Contaminants (DAR-1) criteria. The potential air toxics to be emitted from the in situ soil vapor vacuum extraction and treatment system are those identified to be present in site soils during the latest soils investigation. The site contains both chlorinated solvents as well as petroleum hydrocarbons.

The vapor discharged from the vapor extraction system will be treated to remove air toxics and eventually discharged through the stack to the atmosphere. The NYSDEC requires that the emissions from the stack be monitored for process evaluation, destruction removal efficiency, and mass loading to the atmosphere in terms of each contaminant of concern. Stack sampling and performance requirements shall be in accordance with the State of New York criteria.

4.6.3 SVE SYSTEM MONITORING

In situ soil vapor vacuum extraction and treatment system performance must be monitored to insure efficient operation and to determine when it is appropriate to shut off the system. The frequency of sampling and monitoring shall be as many as required for the system performance monitoring. The following parameters shall be monitored and reported in the monthly report:

a) Data and time of measurements.
b) Vapor flow rates at each extraction well. Measurements can be made by a variety of flow meters, including pitot tubes, orifice plates, and rotameters.
c) Pressure readings at each extraction well can be measured with manometers and magnehelic gauges. Pressure should also be monitored at each soil gas probe location.
d) Vapor concentrations and composition from each extraction well. If wells are not sampled then a quantitative evaluation may be performed either by a PID (at each well) or a vapor concentration (analytical sample) on the influent vapors. This information can be combined with vapor flow rate data to calculate removal rates (mass/time) and the cumulative amount of contaminant removed.
e) Temperature of the soil and ambient air.
f) Water table elevation (for soils with a relatively shallow water table). Water level measurements can be made with electronic sensors located in airtight monitoring wells.
g) Meteorological data, including barometric pressure, precipitation, and similar data.
h) NY State Air Emissions Monitoring data
i) Recommendations for process changes or to begin interim soil sampling

4.6.4 CONTAMINANT MASS REMOVAL MONITORING

Mass removal rates are calculated based upon the contaminant concentration in the extracted soil gas and the flow rate from all extraction wells. Flow rate measurements will be made in the duct with an inline flow measurement sensor such as a calibrated orifice plate, venturi, or Annubar flow sensor. Differential pressure readings across the flow measurement sensor are then converted to the actual flow rate using the appropriate flow equations. Grab samples shall be obtained periodically as approved in the Work Plan at the manifold header and for each well to determine the extracted gas composition

a) Location: Flow rate measurements shall be made in the duct between the blower and the stack and at the head of each extraction well.
b) Frequency: Sampling frequency shall be in accordance with the approved Work Plan.
c) Methodology: The method to determine mass and concentrations shall be performed in accordance with approved Work Plan.

4.6.5 RADIUS OF EXTRACTION WELL INFLUENCE

The extraction well radius of influence is critical information for optimizing system performance. The extraction well radius of influence must cover, at a minimum, the entire contaminated soil area. All measurements of pressure/vacuum in the subsurface will be recorded as absolute pressure. The degree of accuracy of measurements will be to the nearest 0.1 inch of water.

Vacuum measurements will be taken at the well head, air/water separator outlet, and at perimeter monitoring locations. These measurements will be used to evaluate the system performance and radius of vacuum influence around the extraction well. Pressure measurements will be taken at the well head and drum. Due to the low vacuum expected away from the extraction well, gages with lower pressure range limits shall be used at the perimeter monitoring locations. Additional gauges shall be provided to insure accurate and timely data collection. Sampling and pressure monitoring points will be located appropriately radially away from the extraction well(s) to demonstrate that the entire contaminated soil area is under influence. The radius of influence monitoring shall be performed as many times as required for the efficient and optional operation of the system.

4.6.6 GROUNDWATER TABLE ELEVATION

Fluctuations of the water table due to variations in precipitation and changes in vacuum pressure, and drawdown due to ground water pump and treat systems, complicate the performance of the system.

It is important to monitor the water table level to insure that contaminated soils remain exposed to vapor flow. Measuring the water table level during venting is not a trivial task because the extraction well must remain sealed. Uncapping the well releases the vacuum and reduces any effect that it has on the water table level. The well cap must be constructed to allow one to measure simultaneously the water table level and vacuum in the well. They should be constructed from a commercially available monitoring well cap and utilize an electronic water level sensor.

Because the soil remediation will occur very near the water table, data shall be collected by the Contractor to determine the influence of the groundwater on the performance of the soil vapor extraction system. Water levels in all monitoring wells shall be measured as approved in the Work Plan.

4.7 OPERATING AND MAINTENANCE MANUALS

The Contractor shall develop and implement operating and maintenance manuals for the equipment that is part of the SVE and VECS. The work shall include the compilation into a complete and comprehensive volume any and all instructions, procedures and techniques for the continued operation and proper maintenance of various components of the system.

4.8 MONTHLY OPERATING REPORTS

Operating reports shall be both quantitative and qualitative describing all activities during the reporting period. Some information to be included is listed in PWS Section titled SVE System Monitoring. These reports at a minimum shall contain an estimate of contaminants removed (monthly and cumulative), evaluation of system operations (equipment requiring replacement or repair), detailed report of system down time, review of wells and their removal rates and radius of influence, sampling and analytical data. The Contractor shall evaluate remediation progress by area and provide recommendations for system adjustments and well configuration as required. These monthly reports shall contain all data required in the approved site plans. The Contractor shall plan on submission of 5 copies of this monthly report to three addresses, which will be provided at the Pre-Work Conference. The first monthly operating report shall be submitted within 30 calendar days of successful system startup. Subsequent operating reports shall be submitted monthly thereafter.

4.9 TRANSPORTATION AND DISPOSAL

In accordance with the approved Waste Management Plan, the Contractor shall provide for removal, transportation, offsite treatment if necessary and disposal of generated waste and spent materials including contaminated solids and liquids generated during construction and operation according to the type of material and degree of contamination. The Contractor shall ensure that all loading and hauling of contaminated materials is in compliance with federal, state and local laws and regulations. The Contractor shall utilize appropriate vehicles and operating practices to prevent spillage or leakage of contaminated material from occurring en route.

The Contractor shall submit commitment letter(s) from the properly licensed and insured hauler/transporter(s) and treatment storage and disposal (TSD) facilities for approval by the Contracting Officer. Any subsequent deviations from the list of transporter(s) and TSDs shall have a written approval from the Contracting Officer.

The Contractor shall organize and maintain the material shipment records/manifests required by the Federal Resource Conservation and Recovery Act (RCRA), the State of New York and the state where the treatment/disposal facility is located. The Contractor shall not deliver waste to any facility other than the disposal facilities listed on the shipping manifest. It shall be the responsibility of the Contractor to coordinate vehicle inspection and tracking of quantities leaving the site and arriving at the disposal facilities.

The Contractor shall be held responsible for all actions necessary to remedy situations involving material spilled in transit. The Contractor shall report any such incidents to the Contracting Officer within 24 hours and any necessary cleanup shall be accomplished at the Contractor's expense. As a requirement of the Spill Control Plan, the Contractor shall include all emergency response, clean-up, decontamination, notification, reporting, recordkeeping and certification requirements for any spill or emergency occurring during offsite transportation.

The Contracting Officer will provide an EPA generator identification number for use on the manifest. EPA Region II is the generator of hazardous waste, however, the Contracting

Officer will sign the manifest on behalf of EPA.

The Contractor shall be responsible for acceptance of material at the approved treatment, disposal, or recovery facility, for ensuring that the facility is properly permitted to accept the stated material, and that the facility provides the stated treatment and/or disposal services.

In the event that the identified and approved facilities cease to accept the stated materials or the facilities ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility for accepting materials. The Contractor is responsible for making the necessary arrangements to utilize the facilities, and the alternate facilities must be approved in writing the by the Contracting Officer in the same manner and with the same requirements as for the original facilities. This shall be done with no extra cost to the government.

The Contractor shall obtain manifest forms, obtain material code numbers, and complete the shipment manifest records as required by the appropriate regulatory agencies for verifying the material type (Code No.) and quantity of each load in units of volume and weight. Copies of each manifest shall be submitted to the Contracting Officer within two business days following shipment, and within two (2) business days after notification of receipt of the disposal facility. Any manifest discrepancies shall be reported to the Contracting Officer within 24 hours and shall be resolved by the Contractor. Certificates of disposal shall be provided to the Contracting Officer for all material disposed offsite within 30 calendar days of disposal.

4.10 DEMOBILIZATION AND RESTORATION

At the conclusion of the operation and maintenance period, as approved by the Contracting Officer, the Contractor shall dismantle, decontaminate where required, remove and properly dispose the SVE and VECS for Areas 2 and 4. This work shall include the abandonment of extraction wells, injection wells, monitoring wells and test borings and all temporary and supporting facilities. The abandonment of extraction wells, injection wells, monitoring wells and test borings shall be conducted as per the New York State requirements (6NYCRR Part 360 Solid Waste Management Facilities Section 360-2.11(a)(8)(vi)).

The Contractor shall restore Areas 2 and 4 of the site shall including restoration of asphalt and/or gravel parking areas, establishing vegetation in areas where the grass, trees, shrubs or other were disturbed and general restoration of the area as it existed prior to the initiation of work.

5.0 REGULATIONS AND GUIDANCE

5.1 REGULATORY REQUIREMENTS

The Contractor shall use the most recent revision of all regulatory documents identified below:

42 USC 6901 Sub. C	Federal Resource Conservation and Recovery Act (RCRA) as last amended
40 CFR 110,117	Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 110, 117)
PL 99-499	(1986)Superfund Amendments Reauthorization Act (SARA)
49 CFR 100-179	Hazardous Materials Transportation Act
NCP	U.S. EPA National Contingency Plan as last amended.
49 CFR 390-397	Federal Highway Administration Regulation
42 USC 4901	Noise Control Act of 1972.
42 USC 1857 (b)	Clean Air Act, Section 306
33 USC 1368	Clean Water Act, Section 508
One Call	New York "One Call" System.
DAR-1	New York State Air Guide – 1. Guidelines for the Control of the Toxic Ambient Air Contaminants
6 NYCRR 370	Hazardous Waste Management Regulations
6 NYCRR 371	Regulations for the Identification and Listing of Hazardous Waste
6 NYCRR 372	Hazardous Waste Manifest System and Regulations Applicable to Generators and Transporters of Hazardous Waste
6 NYCRR 373-2	Regulations Applicable to Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
6 NYCRR 376	Hazardous Waste Land Disposal Restrictions
6 NYCRR 360	Solid Waste Management Regulations

6 NYCRR 364	Regulations Applicable to Transporters of Regulated Waste
6 NYCRR 200, 201, 212, 231	Air Pollution Control Regulations

5.2 CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1904	Department of Labor; Recording and Reporting Occupational Injuries and Illnesses
29 CFR 1910	Department of Labor; Occupational Safety and Health Standards
29 CFR 1926	Department of Labor; Safety and Health Regulations for Construction
49 CFR 171	Department of Transportation; General Information, Regulations, and Definitions
49 CFR 172	Department of Transportation; Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

5.3 EPA GUIDANCE DOCUMENTS

"Revised Procedures for Implementing Off-Site Response Actions", EPA OSWER Directive Number 9834.11, November 13, 1987

“Close Out Procedures for National Priorities List Sites”, EPA 540-R-98-016, January 2000.

“Guide to Documenting and Managing Cost and Performance Information for Remediation Projects”, EPA 542-B-98-007.

USEPA QAMS-004/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Program Plans".

EPA QA/R-5 "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations", October 1997

OSWER Directive 9355.0-4A "Superfund Remedial Design and Remedial Action Guidance".

5.4 USACE ENGINEERING MANUALS AND REGULATIONS

U.S. Army Corps of Engineers (USACE) Engineering Manuals (EM) and Engineering Regulations (ER) appropriate to the PWS requirements are identified below:

EM-200-1-3	(2001) U.S. Army Corps of Engineers; Requirements for the Preparation of Sampling and Analysis Plans

EM 385-1-1(1996)	U.S. Army Corps of Engineers; Safety and Health Requirements Manual
ER 385-1-92	(2000) U.S. Army Corps of Engineers; Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities
ER 1180-1-6	(1995) Construction Quality Management

5.5 OTHER APPLICABLE INDUSTRY GUIDANCE AND STANDARDS

ACGIH	(2001) American Conference of Governmental Industrial Hygienists; Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices
ASTM D 3740	Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	Agencies Engaged in Testing and/or Inspection of Materials as Used in Construction
NDF	(2000) National Drilling Association Drilling Safety Guide
NEC	(1999) National Electrical Code, National Fire Protection Association.
NFPA	(1999) National Fire Protection Association Life Safety Code.
NIOSH Pub No. 85-115	(1985) National Institute for Occupational Safety and Health; Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
NJBPU	(1998) New Jersey Board of Public Utilities; Excavator Handbook

5.6 SITE SPECIFIC DOCUMENTS

Final Supplemental Remedial Investigation Report, Vestal Well 1-1 site, May, 1990; Ebasco Services

Final Pre-Design Study Report, C1 Liquidators of NY, Inc., Vestal, NY; Volume I: Report 23 Feb 94; prepared by ERM-Northest.

Final Performance Specification, Vestal Well 1-1 Site, Operable Unit 2, Area 2, Vestal, NY, August 1994, prepared by Ebasco Services, Inc., ARCS II Program. Appendix B of this report is "Pre-Design Investigation at Area 4" which is Item 2 above.

Summary of the Vestal Well 1-1 Superfund Site SCAPS Investigation, Broome County, Vestal, NY, September 1999, prepared by USACE Savannah District.

Final Report Geoprobe Soil Sampling, PRAC Program, Vestal Superfund Site, Vestal NY, July 1997.

Final Soil Sampling Work Plan, Area 4, Vestal, New York, Sevenson Environmental, September 2001.