10653/38688

Project Management Work Plan

Vapor Intrusion Evaluation for Sheridan Waste Oil Site Work Assignment #D004090-46

New York State Department of Environmental Conservation

Douglas M. Crawford, P.E.
Vice President

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O'BRIEN & GERE ENGINEERS, INC.

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1. Introduction

1.1. General

This document is the Project Management Work Plan (PMWP) for the Vapor Intrusion Evaluation (VIE) at the Sheridan Waste Oil Site listed in New York State Department of Environmental Conservation (the Department) Work Assignment D004090-46. The scope of work was developed based on the information contained in the Work Assignment transmittal letter dated February 9, 2006 and several discussions with Eric Hausamann, the Department's project manager.

This plan contains a scope of work that is sufficient to frame the scope of the investigation. The plan has been prepared with the expectation that it will be revised as necessary to incorporate additional information specific to the site. A project-specific DER-10 Quality Assurance Project Plan (DER-10 QAPP) is provided as an appendix to the PMWP. The DER-10 QAPP incorporates the Standby QAPP that O'Brien & Gere developed for the Department's projects (O'Brien & Gere 2005).

O'Brien & Gere's involvement in this project consists of subcontracting, field investigation oversight, field sampling, data validation, and development of a letter report describing the field investigation.

1.2. Project Objectives

The objectives of the VIE are to:

- Collect data for the Department and the New York State Department of Health (NYSDOH) to evaluate the potential need for further investigative work at the site.
- Assess the nature and relative extent of volatile contaminants in soil vapor and ground water at the site through the collection of soil vapor and ground water data.
- Collect data to evaluate current and potential exposures to site contaminants.
- Compile a set of validated data for decision-making purposes.
- Prepare a letter report that describes the field investigation.

1.3. Document Format

This PMWP consists of the following sections:

Section 1 – Introduction
Section 2 – Background
Section 3 – Site Characterization Documents
Section 4 – Scope of Work
Section 5 – Project Staffing Plan
Section 6 – Administration
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2. Background

Background information regarding the site was previously provided by the Department as a site-specific information package.

3. Site Characterization Documents

3.1. Project Management Work Plan

The PMWP describes the framework for implementing the field investigation at the site, and the procedures for collecting environmental samples, data validation requirements, and drilling methodologies (Section 4).

3.2. Quality Assurance Project Plan

The QAPP provides quality assurance/quality control (QA/QC) criteria for work efforts associated with the sampling of environmental media as part of this project. A Generic QAPP prepared for Standby Contract #D004090 (Standby QAPP, O'Brien & Gere 2005) and a project specific DER-10 QAPP comprise the QAPP for this project. The DER-10 QAPP that presents the seven elements of site-specific information required by DER-10-Technical Guidance for Site Investigation and Remediation is provided in Appendix A.

The QAPP has been prepared utilizing the guidance and format provided in the following documents:

- United States Environmental Protection Agency (USEPA), *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, Office of Emergency and Remedial Response, Washington, D.C. (USEPA 1988a).

- United States Environmental Protection Agency (USEPA), *EPA Requirements For Quality Assurance Project Plans For Environmental Data Operations*, EPA QA/R-5 (USEPA 2001a).

This QAPP will assist in generating data of a known and acceptable level of precision and accuracy. The QAPP provides information regarding the project description and personnel responsibilities, and sets forth specific procedures to be used during sampling of relevant environmental matrices, other field activities, and the analyses of data. The procedures in this QAPP will be followed by personnel participating in the field investigation and in the laboratory analyses and data validation of the environmental samples.

3.3. Health and Safety Plan

A project-specific Health and Safety Plan (HASP) (O'Brien & Gere 2006) has been developed to provide both general procedures and specific requirements to be followed by O'Brien & Gere personnel while performing field activities.

The HASP describes the responsibilities, training requirements, protective equipment, and standard operating procedures to be used by O'Brien & Gere personnel to address potential health and safety hazards while at the site. The plan specifies procedures and equipment to be used by O'Brien & Gere personnel during work activities and emergency response to minimize exposures of O'Brien & Gere personnel to hazardous materials.

3.4. Data Management and Validation

Analytical data from the laboratory will be received in hardcopy and electronic format within 30 days of sample receipt by the laboratory. O'Brien & Gere will submit tabulated analytical results to the Department upon receipt. Analytical data will be validated as discussed in the QAPP. A Data Usability Summary Report (DUSR) will be prepared by Nancy Potak, a subcontractor who is independent of the laboratory which performed the analysis. The DUSR will be attached to the site-specific field sampling letter report.

4. Scope of Work

4.1 General Scope of Work

The general scope of work associated with this work assignment includes:

- Project scoping: site visit and background information review
- Field investigation: soil vapor and ground water sampling
- Sample location marking
- Lab coordination and Data Validation/Usability Report
- Field sampling report preparation

This scope of work was developed based on the technical scope of work included in the Department Work Assignment letter, and subsequent discussions with the Department's Project Manager. For the purposes of scoping and preliminary planning, the following scenario is assumed:

- The site is considered to be located in a mixed commercial and residential use area with reasonable access to drilling equipment.
- Ground water is located no deeper than 16 feet below ground surface (bgs).
- The Department will obtain and provide access to private properties, as necessary.
- Constituents of concern (COCs) will be considered chlorinated solvents, specifically, tetrachloroethylene (PCE), trichloroethylene (TCE), and associated breakdown products.
- Existing monitoring wells on the site will not be sampled. Ground water samples will be collected from temporary well points advanced with a geoprobe.
- Five direct-push temporary ground water wells will be advanced at locations identified by the Department and ground water will be sampled.
- Soil vapor implants will be installed at five locations identified by the Department. At each of the five locations, shallow and deep samples will be collected. Shallow samples will be collected at the approximate depth of a typical basement (approximately 8 feet bgs) and deep samples will be collected approximately 1 foot above the site-specific water table depth. When ground water is shallow (approximately 10 feet bgs), only the shallow soil vapor sample will be collected.
- Pavement or concrete coring and patching may be required by the Department's drilling subcontractor to restore the area where the implants were installed.

- The Department will contract drilling activities directly with a drilling subcontractor and will be responsible for the performance of drilling activities at the site.

A site-specific investigation package was provided for the site and included a site description and a site map illustrating the proposed soil gas and ground water sampling locations. It may be necessary to modify the general scope of work based on site-specific field conditions.

The following scope of work describes the major tasks and sub-tasks proposed to acquire vapor intrusion evaluation data for the site.

Task 1 - Project Scoping

Prior to initiating field activities, O'Brien & Gere will complete scoping activities, including conducting a site visit and reviewing the site-specific investigation package provided by the Department.

Standby subcontractors for laboratory analyses and data validation, previously obtained in accordance with O'Brien & Gere's Superfund Standby Contract with the Department, will be utilized on this project. Costs for subcontracts were based on the quantities and assumptions stated in this PMWP and delineated in the Form 2.11 documents.

This PMWP and DER-10 QAPP reflect the subcontractors that were selected. Specific information from the laboratories that were selected is incorporated into the DER-10 QAPP. This includes analytical methods, practical quantitation limits (PQLs), method detection limits (MDLs) and required method reporting limits (MRLs) and analytical data turnaround time. The QAPP will be reviewed by the laboratory and revised as required.

Task 2 – Soil Vapor Investigation

Marking of Subsurface Utilities
Prior to initiation of intrusive activities, an underground facilities protective organization (UFPO) request will be made by the Department's drilling subcontractor. A date and time will then be established for the various companies to mark the locations of subsurface public utilities.

For project scoping and the level of effort for in-field logistics, it is assumed that no private utilities (for example on industrial properties) will be encountered and, therefore, a subcontract for utility locating services on private property will not be necessary.

Direct-Push Temporary Soil Vapor Points
Soil vapor investigations will be performed in accordance with the *New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (Public Comment Draft, February 2005).

Soil Vapor Probe Installation

Temporary soil vapor probes will be installed by the Department's drilling subcontractor at five locations selected by the Department, in consultation with NYSDOH, to assess whether vapor phase contamination is present at the site and to evaluate the extent to which these contaminants pose a threat to human health and the environment. For preliminary scoping and costing, sampling depths are assumed to be no greater than 16 feet bgs.

Two separate probe holes will be co-located (located in proximity to each other) at each sampling location selected; one shallow and one deep sample will be collected at each location. Shallow samples will be collected at the approximate depth of a typical basement (approximately 8 feet bgs) and deep samples will be collected approximately 1 foot above the water table.

Temporary soil vapor probes will be installed using direct-push technology to drive steel rods equipped with detachable stainless steel drive points to the desired depth.

Once the desired depth is reached, a sampling screen attached to dedicated Teflon or other inert tubing of laboratory or food grade quality will be installed in the borehole to collect the soil vapor samples and the drive rod retrieved. The borehole will then be backfilled with sand or similar permeable material that does not contain volatiles (*i.e.*, glass beads) to a minimum of 6 inches above the screened interval. Bentonite pellets or bentonite powder will then be placed above the permeable sampling zone to the ground surface and will be immediately hydrated. Sufficient time should then be provided for the bentonite hydration (24-hour minimum).

The temporary soil vapor probes will be purged of approximately one to three probe volumes at a flow rate that will not exceed 0.2 liters per minute. A helium tracer gas will be used to evaluate short-circuiting of the sampling zone with ambient air according to the NYSDOH draft guidance. Unless otherwise directed by the NYSDEC project manager, all soil vapor sampling locations at each site will be evaluated with tracer gas in accordance with the NYSDOH guidance for evaluating soil vapor intrusion.

The budget for this work assignment assumes that if ground water is encountered at less than 16 feet bgs, a GeoProbe 5400 or similar direct-push equipment should be sufficient to obtain the desired sampling depth. If this rig is deemed insufficient, the sampling will be re-evaluated using either a larger direct push drill rig or a hollow stem auger

(HSA). Any additional costs associated with the use of a different drill rig will be charged to the project in collaboration with the Department.

Soil Vapor Sampling
The samples will be collected using a laboratory-certified clean silonite-coated or equivalent 6- or 1-liter SUMMA-type canisters with regulators calibrated for a two-hour duration. Sample tubing will be dedicated Teflon or other inert tubing of laboratory or food grade quality. Samples will be accompanied by a chain-of-custody and sent to Princeton Analytical Laboratory, an ELAP certified laboratory. Laboratory analysis will be according to the QAPP and USEPA Method TO15. The "full scan" analysis, which will include chlorinated solvents and associated breakdown products, will be performed at an analytical reporting limit (RL) identified in the DER-10 QAPP. It is anticipated that O'Brien & Gere will receive analytical results in electronic and hardcopy formats within 30 days of the laboratory receipt of the samples.

After sampling has been completed, the sample tubing will be removed to the extent practical and the temporary soil gas probe location will be backfilled with bentonite. The location will be marked with a stake/flag, labeled with the proper sample identification, and illustrated on the site map, so that it can be located at a later date. Borings performed in paved or concrete areas will be backfilled and refinished at the ground surface with concrete or cold patch by the Department's drilling subcontractor.

Task 3 - Ground Water Sampling (Temporary Wells)

Ground water samples will be collected from five locations at the site and submitted for analysis by EPA Method 8260 for Volatile Organic Compounds (VOCs) in order to evaluate the ground water quality in the vicinity of the proposed soil vapor sample locations. Samples will be collected from temporary direct-push well locations. Existing monitoring wells will be not be sampled.

Direct-Push Temporary Ground Water Wells
Direct-push temporary ground water wells are anticipated to be installed at five locations at the site by the Department's drilling subcontractor.

The proposed locations may be adjusted based on additional information, access issues or utility clearances. The borings will be advanced using Geoprobe® or similar direct push methods to a minimum of 1 foot below the site-specific ground water table depth. The depth of the boring will be selected in collaboration with the Department's project manager based on site-specific conditions. However, ground water is assumed, for scoping, to be 16 feet bgs. For the purposes of scoping and preliminary planning, five direct-push temporary ground water wells will be advanced and sampled.

Discrete ground water screening samples will be collected from each boring using Geoprobe® or similar discrete screen point ground water sampling methods. Direct-push ground water sampling consists of pushing a protected well screen to a known depth, retracting the drill

rods to expose the screen and allowing ground water to enter the sampler. Prior to sample collection, the sample point will be purged for up to 3 minutes or until turbidity stabilizes.

Ground water samples will be obtained with a 3/8" polyethylene tube utilizing a peristaltic pump or with a foot/check valve (hand oscillated) to drive the sample to the surface. Prior to the collection of samples, new nitrile gloves will be donned. Ground water will be collected in three 40-mil vials. The vials will be filled in a controlled manner. Sample bottles for VOC analyses will be filled completely so that there is no headspace or bubbles. The VOC sample vials will be examined for proper filling by inverting the vials immediately after filling. If a headspace is present, the vial will be discarded and a new vial will be filled and checked for no headspace within the vial. After the sample has been collected, the date and time will be recorded on the sample label and the Chain of Custody documentation will begin to be prepared.

Associated QA/QC samples will be collected in accordance with the QAPP.

Following collection of a discrete ground water sample, the downhole equipment will be decontaminated. Unless otherwise directed, purge water or decontamination water shall be temporarily collected in a container. If non-aqueous phase liquid (NAPL) is observed, or if odors are present, or if directed by the Department, the water will be staged in an appropriate container and disposed of accordingly. Otherwise, if NAPL or odors are not observed, the water will be discharged to the ground surface away from the well. At sites with existing water management protocols, those protocols should be followed. For the purposes of this work assignment, it is assumed that the collection, handling, characterization, and disposal of purge water or decontamination water will be the responsibility of the Department's drilling subcontractor.

Upon completion of the sampling, the sample tubing will be removed and the temporary ground water borehole will be backfilled with bentonite by the Department's drilling subcontractor. The location shall be marked with a stake/flag, labeled with the sample identification, and illustrated on the site map, so that it can be located at a later date. Boreholes performed in paved or concrete areas will be backfilled and refinished at the ground surface with concrete or cold patch by the Department's drilling subcontractor.

Ground Water Analysis

Subsequent to sample collection from temporary ground water wells, ground water samples will be analyzed by Mitkem Corporation, an ELAP certified lab, for VOCs by EPA Method 8260. The required method detection limit for the ground water samples shall meet the applicable water class (GA) water quality standards in accordance with the Division of Water Technical and Operational Guidance Series (1.1.1), June 1998.

4.2 Field Documentation

A field notebook will be maintained by the site sampling team during on-site work to document field activities. In addition, field sampling procedures will be photo-documented, as appropriate.

The following terminology shall be used for the soil vapor and ground water sample identification:

Soil Vapor Samples for Temporary Points

SITE ID[1] - V - 1S through 5S (for Shallow Locations) – SAMPLE DATE or

SITE ID - V - 1D through 5D (for Deep Locations) – SAMPLE DATE

Ground Water Samples

SITE ID - GW- 1 through 5 (for temporary points) – SAMPL DATE

SITE ID - GW- HISTORICAL WELL ID (for existing wells) – SAMPLE DATE

4.3 Sample location marking

Sampled locations will be flagged or staked and identified according to sample identification number during the field investigation. A legal survey or Global Positioning System (GPS) survey is not included in the scope of the existing work assignment. Should a survey be conducted at the request of the Department, any additional survey-related costs will be charged to the project in collaboration with the Department.

4.4 Lab Coordination and Data Validation/Usability Report

Samples will be packaged and sent to the laboratories together with a chain-of custody form as noted in Section 3.4. Upon receipt of the analytical results, the analytical data will be submitted to a qualified data validation subcontractor. One hundred percent of the analytical data will be validated as discussed in the QAPP. A DUSR will be prepared and attached to the field sampling letter report.

4.5 Field Sampling Report Preparation

O'Brien & Gere will prepare a brief letter report for the site. The letter report will summarize the field sampling activities and include the

[1] SITE ID = Department site identification number

DUSR. The laboratory analytical data package will also be attached. Maps will not be prepared for the sampling report.

The report will be submitted to the Department for review and approval. The report will be finalized following incorporation of the Department's comments. A total of one draft and two final copies of the report will be submitted. The report submittals will also be provided to the Department in electronic PDF format on CD along with the submittal of the hardcopy reports.

5. Project Staffing Plan

The general responsibilities of key project personnel are listed below:

Program Manager:

Douglas M. Crawford, P.E. will be responsible for overall State Superfund Standby Contract (#D004090) program management, including administration and financial issues. Mr. Crawford is NSPE level IX.

Project Manager:

Paul T. Curran, P.E. will be responsible for overall management of the work assignment under State Superfund Standby Contract (#D004090-46). Responsibilities will include coordination with the Department and reviewing field activities and the site characterization report. Mr. Curran is NSPE level V.

Project Officer:

Douglas M. Crawford, P.E. will be responsible for assuring the availability of resources and overall project performance.

Sampling Team:

The sampling team will consist of Kevin Ballou and Paul D'Annibale. The sampling team will collect ground water, soil vapor, and structure air samples. Mr. Ballou will also be responsible for coordination with the subcontractors and the daily activities associated with field work. Mr. Ballou and Mr. D'Annibale are NSPE levels II and III, respectively.

Technical Advisor:

Ralph E. Morse, C.P.G. will be the technical advisor and will assist in the preparation and review of reports prior to submission to the Department.

6. Administration

The scope of services provided in this PMWP is anticipated to be completed over approximately a four-month time period. Administration for the project will consist of preparing monthly reports and preparing/reviewing monthly Contractors Application for Payment (CAP). In addition, management of subcontracts and MWBE utilization will also be completed as administration activities.

7. Proposed Subcontractors

O'Brien & Gere anticipates utilizing these subcontractors for project activities:

- Nancy Potak is a State certified WBE that will provide laboratory data validation packages.
- Princeton Analytical is an ELAP certified laboratory and also a State certified WBE. Princeton will perform air analysis.
- Mitkem Corporation is an ELAP certified laboratory and also a State certified MBE. Mitkem will perform water analyses.
- Advantage Travel is a State certified WBE that will make travel arrangements for the project.

8. Minority and Women Business Enterprise Utilization

As summarized in Table 1 and Section 7, O'Brien & Gere anticipates utilizing these minority and women business enterprises (M/WBE) for project activities:

- Nancy Potak is a State certified WBE that will provide laboratory data validation packages.
- Princeton Analytical is an ELAP certified laboratory and also a State certified WBE. Princeton will perform air analysis.
- Mitkem Corporation is an ELAP certified laboratory and also a State certified MBE. Mitkem will perform water analyses.
- Advantage Travel is a State certified WBE that will make travel arrangements for the project.

9. Work Assignment Budget

The following State Superfund Standby Contract schedules are included in Appendix B:

Schedule 2.11(a)	Summary of Work Assignment
Schedule 2.11(b)	Direct Labor Hours Budgeted
Schedule 2.11(b-1)	Direct Administrative Labor Hours Budgeted
Schedule 2.11(c)	Direct Non-Salary Costs – In-House, Field Supplies, and Travel
Schedule 2.11(d)2	Consultant Owned Equipment
Schedule 2.11(d)3	Vendor Rental Equipment
Schedule 2.11(d)5	Consumable Supplies
Schedule 2.11(f)	Unit Price Subcontract-Nancy Potak
Schedule 2.11(f)	Unit Price Subcontract –Princeton Analytical
Schedule 2.11(f)	Unit Price Subcontract- Mitkem Corporation
Schedule 2.11(g)	Monthly Cost Control Report – Fiscal Information (Summary and Each Individual Task)
Schedule 2.11 (g supplemental)	Cost Control Report for Subcontracts
Schedule 2.11(h)	Monthly Cost Control Report – Labor Hours (Summary and Each Individual Task)

The costs presented in the Schedule 2.11 consist of those incurred since project inception and estimated costs to complete the above-described tasks. These costs represent our estimate based on the current status of the project and available information and assumptions stated in this PMWP. The costs of the project may be affected by site-specific field conditions and additional information or issues raised during execution of the project. Out of scope efforts will be estimated and presented to the Department for approval prior to execution.

10. Project Schedule

Table 2 is a project schedule that is based on information that is available for the site. Some of these dates may change based on the date that the Department provides the notice to proceed and actual field activities.

References

O'Brien & Gere Engineers, Inc. 2005. Quality Assurance Project Plan, Revision 0. New York State Department of Environmental Conservation. Standby Contract No. D004090. O'Brien & Gere Engineers, Inc.: Syracuse, New York. August 2005.

O'Brien & Gere Engineers, Inc. 2006. Health and Safety Plan. Vapor Intrusion Evaluation for Sheridan Waste Oil Site. NYSDEC Work Assignment #D004090-46. O'Brien & Gere Engineers, Inc.: Syracuse, New York. March 2006.

New York State Department of Environmental Conservation
Sheridan Waste Oil Site
Brookhaven, New York

SVI Evaluation, WA D004090-46

Table 1. *Minority and Woman Owned Business Enterprise Participation for Sheridan Site SVI*

Total estimated WA Budget	$	14,500
MWBE Participation goal (20%)	$	2,900

Opportunities for MWBE participation

Firm	Service	Project status	WA Budget
MWBE firms accepted (A) for particpation			
Princeton Analytical Laboratory (WBE)	Laboratory services	A	$2,365
Mitkem Corporation (MBE)	Laboratory services	A	$700
Nancy J. Potak (WBE)	DUSR	A	$231
Advantage Travel (WBE)	Lodging	A	$378
	Total Budget Accepted		$3,674
	Accepted MWBE participation (%)		25%

Notes:
A = accepted

Table 2
NYSDEC
Vapor Intrusion Evaluation #D004090-46
Tentative Project Schedule

Activities	Date
Issuance of Work Assignment (WA)	2/9/06
Acknowledge Receipt of WA	2/20/06
Scoping Session/Site Visit	2/24/06
Submit Draft Work Plan	3/24/06
NYSDEC Comments on Draft Work Plan	3/29/06
Submit Final Work Plan	3/31/06
Issue Notice to Proceed (NTP)	4/13/06
Commence Tasks 2 thru 4 Field Sampling	within 1 week of receipt of NTP
Tasks 2 thru 4 Field Sampling Completed	within 3 weeks of initiation field activities
Submit Draft Report	within 5 weeks of receipt of final Lab Data Packages
NYSDEC Provides Comments on Draft Report (with NYSDOH input)	4 weeks after Draft Report submitted
Submit Final Report	within 2 weeks of receipt of NYSDEC comments

APPENDIX A

DER-10 Quality Assurance Project Plan

DER-10 Quality Assurance Project Plan

The Quality Assurance Project Plan provided below presents the seven elements of site-specific information required by DER-10 *Technical Guidance for Site Investigation and Remediation* (DER-10 QAPP, NYSDEC 2002). A *Generic QAPP* prepared for Standby Contract #D004090 (Standby QAPP, O'Brien & Gere 2005) will be provided separately. The Standby Contract QAPP provides supplemental and more detailed laboratory information, including corrective action tables for laboratory analyses associated with investigation activities. The combination of the DER-10 QAPP and the Standby QAPP address data quality assurance and management of those air and ground water data associated with the Soil Vapor Intrusion (SVI) Evaluation at the Sheridan Waste Oil Site.

1. **Project scope and goals**:

   How project relates to overall site investigation or remediation strategy:

   The principal data quality objectives (DQOs) and project objectives of this SVI include the following:

   - Collect sufficient data for the Department and the New York State Department of Health (NYSDOH) to evaluate the potential need for further investigative work at the site.
   - Assess the nature and relative extent of volatile contaminants in soil vapor and ground water at the site through the collection of soil vapor and ground water data.
   - Evaluate air data, including comparison to applicable screening values specified by the USEPA's Office of Solid Waste and Emergency Response (OSWER) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Ground water to Soils.*
   - Evaluate ground water data, including comparison to applicable New York State Class GA ground water standards in the Division of Water Technical and Operational Guidance Series 1.1.1, dated June 1998.
   - Provide documentation of laboratory data that will allow for complete data validation. Data validation results will be reported in a data usability summary report (DUSR) and incorporate results into data summaries.

2. **Project organization**: Personnel assigned to the project are listed in Table 1.

3. **Sampling procedures and equipment decontamination procedures** are provided in the Project Management Work Plan.

4. **Sample locations** are presented in the Project Management Work Plan.

5. The **Analytical Methods/Quality Assurance Summary** of air analyses using Method TO-15 is presented as Table 2 and ground water analyses using Method 8260 is in the Standby QAPP (O'Brien & Gere, 2005). NYSDEC Analytical Services Protocol (ASP) Exhibit E quality control requirements will be used to perform the sample analysis utilizing the laboratory interpretation of the requirements as they apply to USEPA Methods. The provisions of the Standby QAPP (O'Brien & Gere, 2005) are amended with Revision 1 of Tables 4-2 and 4-12 (dated March 21, 2006), attached. Refrigeration of air samples is not required.

6. **Site specific sampling methods, sample storage in the field and sample holdling time requirements** are presented in the Project Management Work Plan and QAPP.

7. **Provision of laboratory data in electronic format** is discussed in the Standby QAPP (O'Brien & Gere 2005).

Table 1. Project organization & responsibilities		
New York State Department of Environmental Conservation (NYSDEC)		
Project Manager	Eric Hausamann	• Overall responsibility for the soil vapor intrusion evaluation.
O'Brien & Gere Engineers, Inc.		
Project Officer	Douglas M. Crawford, P.E.	• Responsible for overall corporate management of the project. • Provide for the allocation of staff and other resources required to complete the project within the specified schedule and budget. • Verify that technical, financial, and scheduling objectives are achieved successfully. • Sign final reports submitted to NYSDEC.
Project Manager	Paul T. Curran, P.E.	• Responsible for implementation and completion of each task identified in the Work Plan. • Manage technical and administrative aspects of the project and function as the principle contact to the NYSDEC Project Manager. • Define project objectives and schedule. • Apply technical and corporate resources. • Develop and meet ongoing project staffing requirements. • Review work performed on each task to verify quality, responsiveness, and timeliness. • Review overall task performance with respect to scope and authorizations. • Approve reports prior to submission to NYSDEC. • Represent the project team at meetings.
Technical Advisor	Ralph E. Morse, CPG	• Assist O'Brien & Gere Project Manager in defining project objectives. • Assist in preparation and review of reports prior to submission to NYSDEC. • Report to the O'Brien & Gere Project Officer.
Quality Assurance (QA) Officer	Karen A. Storne	• Review project plans and revisions to verify that QA is maintained. • Responsible for performance and system audits, if necessary. • Report to the O'Brien & Gere Project Manager.

Table 1. Project organization & responsibilities		
Field Coordinator	Kevin Ballou	• Oversee field and related activities as described in the Work Plan. • Responsible for leading, coordinating, and supervising day-to-day field activities of the sampling personnel. • Coordinate with O'Brien & Gere Project Manager on technical issues. • Coordinate with laboratory prior to collection and shipment of samples. • Develop and implement field-related sampling plans and schedule. • Supervise or act as the field sample custodian. • Implement quality control (QC) of technical data including field measurements. • Implement QC of project-specific chain of custody documentation. • Adhere to work schedules. • Authorize and approve text and graphics required for field efforts. • Identify and resolve problems at the field team level in consultation with the O'Brien & Gere Project Manager. • Implement and document corrective action procedures and provide communication between the sampling personnel and upper management.
Sampling personnel	Paul D'Annibale	• Responsible for documentation of proper sample collection protocols, sample collection, field measurements, equipment decontamination, and chain of custody documentation. • Report to O'Brien & Gere Field Coordinator.
Data management	Jessica Domery	• Responsible for assisting with the development of data collection documentation procedures (*e.g.* chain of custody) to support data management needs. • Responsible for data management activities including execution of electronic data deliverables (EDD) to develop a project database and verification of data QC. • Coordinate with laboratory to resolve data quality issues, as necessary. • Assist in the coordination of QA/QC efforts between O'Brien & Gere and the laboratory.
Nancy Potak		
Data Validator	Nancy Potak	• The data validator will review the analytical data packages and will validate the data in accordance with the QAPP. • The data validator will also prepare a Data Usability Summary Report for the data reviewed.

Table 1. Project organization & responsibilities

Princeton Analytical Laboratory		
Project Supervisor	William Gunter	• The project supervisor is the point of contact between O'Brien & Gere and Princeton Analytical Laboratory
Laboratory QA Coordinator(s)	Jane Dennison	• Responsible for laboratory QA/QC activities associated with the project. • Verify that analyses are conducted within the appropriate holding times. • Verify that laboratory custody procedures are followed. • Monitor daily precision and accuracy records. • Maintain detailed copies of procedures. • Reschedule analyses based upon unacceptable data accuracy or precision • Identify and implement corrective actions necessary to maintain QA standards. • Conduct initial validations and assessments of analytical results and report the findings directly to the Princeton Analytical Laboratory Project Supervisor. • Perform final QC of laboratory EDD prior to submittal to O'Brien & Gere. • Approve final laboratory reports prior to delivery to O'Brien & Gere.
Laboratory Sample Custodian	Jeff Schmitt	• Verify proper sample entry and sample handling procedures by laboratory personnel. • Set up sampling coolers and containers. • Receive and inspect incoming sample containers. • Sign appropriate documentation. • Verify accuracy of chain-of-custody forms. • Notify Laboratory QC Coordinator of sample receipt and inspection. • Assign each sample a unique identification number and enter each into the sample receiving log. • Control and monitor access and storage of samples.
Mitkem Corporation		
Project Supervisor	Agnes Ng (401-732-3400)	• The project supervisor is the point of contact between O'Brien & Gere and Mitekm Corporation
Laboratory QA Coordinator(s)	Sharyn Lawloer (401-732-3400)	• Responsible for laboratory QA/QC activities associated with the project. • Verify that analyses are conducted within the appropriate holding times. • Verify that laboratory custody procedures are followed. • Monitor daily precision and accuracy records. • Maintain detailed copies of procedures. • Reschedule analyses based upon unacceptable data accuracy or precision

Table 1. Project organization & responsibilities		
		• Identify and implement corrective actions necessary to maintain QA standards. • Conduct initial validations and assessments of analytical results and report the findings directly to the Mitkem Corporation Project Supervisor. • Perform final QC of laboratory EDD prior to submittal to O'Brien & Gere. • Approve final laboratory reports prior to delivery to O'Brien & Gere.
Laboratory Sample Custodian	Nathan Reynolds (401-732-3400)	• Verify proper sample entry and sample handling procedures by laboratory personnel. • Set up sampling coolers and containers • Receive and inspect incoming sample containers • Sign appropriate documentation • Verify accuracy of chain-of-custody forms • Notify Laboratory QA Coordinator of sample receipt and inspection • Assign each sample a unique identification number and enter each into the sample receiving log. • Control and monitor access and storage of samples.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Sampling procedure	As per USEPA Method TO-15	As per USEPA Method TO-15	As per USEPA Method TO-15
Canister Blank Test	Prior to sample collection.	Canisters used for indoor air will be individually certified as clean. A canister that has not tested clean (compared to direct analysis of humidified zero air of less than 0.2 ppbv of targeted VOCs) will not be used. Canisters used for ambient air will be batch certified as clean.	As a "blank" check of the canister(s) and cleanup procedure, the final humid zero air fill of 100% of the canisters is analyzed until the cleanup system and canisters are proven reliable (less than 0.2 ppbv of any target VOCs). The check can then be reduced to a lower percentage of canisters.
Sampling System certification	Prior to sample collection	1. Verify that the calibration system is clean (less than 0.2 ppbv of any target compounds) by sampling a humidified gas stream, *without* gas calibration standards, with a previously certified clean canister. 2. The assembled dynamic calibration system is certified clean if less than 0.2 ppbv of any targeted compounds is found. 3. A recovery of between 90% and 110% is expected for all targeted VOCs.	Certification is not achieved until recovery criterion is met.
Holding times	Samples must be extracted and analyzed within holding time.	Although method indicates that most VOCs can be recovered from canisters near their original concentrations after storage times of up to thirty days, analyze within 14 days from collection for air.	1. If holding times are exceeded for initial or any reanalyses required due to QC excursions, notify QAO immediately since resampling may be required. 1. Document corrective action in the case narrative.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
MS Tuning	Once every 24hours prior to initial calibration and calibration verifications.	1. BFB key ions and abundance criteria listed in the method must be met for all 9 ions and analyses must be performed within 12 hours of injection of the BFB. 2. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged. Background subtraction is conducted using a single scan prior to the elution of BFB. 2. Part of the BFB peak will not be background subtracted to meet tune criteria. 3. Documentation of all BFB analyses and evaluation must be included in the data packages.	1. Tune the mass spectrometer. 2. Document corrective action in the case narrative - samples cannot be analyzed until control limit criteria have been met.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Initial Calibration	Prior to sample analysis and when calibration verifications criteria are not met. Initial calibration will contain all target analytes in each standard.	1. Five concentrations bracketing expected concentration range for all compounds of interest; one std must be near the PQL. 2. The calculated %RSD for the RRF for each compound in the calibration table must be less than 30%. 3. The RRT for each target compound at each calibration level must be withiin 0.06 RRT units of the mean RRT for the compound. 4. The area response of internal standards at each calibration level must be within 40% of the mean area response over the initial calibration range for each internal standard. 5. The retention time shift for each of the internal standards at each calibration level must be within 20 s of the mean retention time over the initial calibration range for each internal standard.	1. Identify and correct problem. 2. If criteria are still not met, recalibrate. 3. Document corrective action in the case narrative - samples cannot be analyzed until calibration control limit criteria are met. Contact QAO to discuss problem target analytes before proceeding with analysis.
Calibration Verification	Every 12 hours, following BFB. The calibration verification will contain all target analytes in each standard at a concentration that is representative of the midpoint of the initial calibration.	1. The %D for each target compound in a daily calibration sequence must be within ±30 percent in order to proceed with the analysis of samples and blanks.	1. Reanalyze. 2. If criteria are still not met, identify and correct problem, recalibrate. 3. Document corrective action in the case narrative - samples cannot be analyzed until calibration control limit criteria are met.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Analysis Sequence	1. Perform instrument performance check using bromofluorobenzene (BFB). 2. Initiate multi-point calibration or daily calibration checks. 3. Perform a laboratory method blank. 4. Complete this sequence for analysis of less than or equal to 20 field samples.	NA	NA

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Laboratory Method Blank Analysis	A laboratory method blank (LMB) is an unused, certified canister that has not left the laboratory. The blank canister is pressurized with humidified, ultra-pure zero air and carried through the same analytical procedure as a field sample. The injected aliquot of the blank must contain the same amount of internal standards that are added to each sample. 2. Method blanks are analyzed at least once in a 24-hour analytical sequence. All steps in the analytical procedure are performed on the blank using all reagents, standards, equipment, apparatus, glassware, and solvents that would be used for a sample analysis. 3. The laboratory method blank must be analyzed after the calibration standard(s) and before any samples are analyzed. 4. Whenever a high concentration sample is encountered (i.e., outside the calibration range), a blank analysis should be performed immediately after the sample is completed to check for carryover effects.	1. The area response for each internal standard in the blank must be within ±40 percent of the mean area response of the IS in the most recent valid calibration. 2. The retention time for each of the internal standards must be within ±0.33 minutes between the blank and the most recent valid calibration. 3. The blank should not contain any target analyte at a concentration greater than its quantitation level (three times the MDL as defined) and should not contain additional compounds with elution characteristics and mass spectral features that would interfere with identification and measurement of a method analyte.	1. Reanalyze blank. 2. If limits are still exceeded, clean instrument, recalibrate analytical system, and reanalyze all samples if detected for same compounds as in blank. 3. Document corrective action in the case narrative - samples cannot be analyzed until blank criteria have been met.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Laboratory Control Sample Analysis	Each analytical batch. Prepared from independent calibration standards. Spike must contain all target analyte and should be at a concentration, which is in the lower 1/2 of the calibration curve.	Recovery within 70-130% recovery.	1. If recovery failures are above control limits and these compounds are not detected in the associated samples, report results. 2. If recovery failures are below control limits, reanalyze LCS and examine results of other QC analyses. 3. If other QC criteria have not been met, stop analysis, locate and correct problem, recalibrate instrument and reanalyze samples since last satisfactory LCS. 4. Document corrective action in the case narrative.
Laboratory Control Sample Duplicate Analysis	Each analytical batch. Prepared from independent calibration standards. Spike must contain all target analyte and should be at a concentration, which is in the lower 1/2 of the calibration curve.	Precision within 25 RPD.	1. If recovery failures are outside of control limits, reanalyze LCS and examine results of other QC analyses. 2. If other QC criteria have not been met, stop analysis, locate and correct problem. 3. Document corrective action in the case narrative.
Internal Standards	All samples and blanks (including MS/MSD)	1- Retention times for any internal standard must be within 20 sec from the latest daily (24-hour) calibration standard (or mean retention time over the initial calibration range). 2- The area response for any internal standard must not change by more than ±40 percent between the sample and the most recent valid calibration.	1. Reanalyze. 2. If still outside of the limits, report both analyses. 3. Document corrective action in the case narrative. .
Field Dup. Analysis	Collected 1 per matrix; every 20 samples of similar matrix	50% RPD for waters and 100% RPD for soil. For sample results that are less than or equal to five times the PQL, the criterion of plus or minus two times the PQL will be applied to evaluate field duplicates.	No corrective action required of the laboratory since the laboratory will not know the identity of the field duplicate samples. If these criteria are not met, sample results will be evaluated on a case-by-case basis.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Dilutions	1. When target analyte concentration exceeds upper limit of calibration curve. 2. When matrix interference is demonstrated by the lab and documented in the case narrative (highly viscous samples or a large number of nontarget peaks on the chromatogram). The QAO* will be contacted. 3. A reagent blank will be analyzed if an analyte saturates the detector or if highly concentrated analytes are detected. 4. Laboratory will note in the data deliverables which analytical runs were reported.	Not applicable	Not applicable
Sample Batching	The laboratory will batch project samples together along with QC samples specified from the project. Non-project information will not be included in the data packages.	Not applicable	Not applicable

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Laboratory control limits	Generated with results for an analyte from a minimum of 20 sample analyses. The average of the sample results and the standard deviation are calculated. The internal warning limits are established at 2 times the standard deviation and the control limits are established at 3 times the standard deviation. The control limits are updated annually.	Not applicable	Not applicable
Deliverables	1.NYSDEC deliverables, as listed in the QAPP, must be provided to document each audit item for easy reference and inspection. 2.An example calculation will be provided for each analysis, for each type of matrix in the data package using samples from the project. 3.Any laboratory abbreviations or notations presented in the raw data or summary information will be explained or referenced in the case narrative. 4.Final spiking concentrations will be presented in summary form. 5.Standard tracing information will be provided. 6.Run logs will be provided in the data packages.	Not applicable	Provide missing or additional deliverables for validation purposes.

Table 4-2. *Volatile organic compounds using USEPA Method TO-15 quality control requirements and corrective actions.*

Audit	Frequency	Control Limits	Corrective Action
Method and QAPP requirements	The laboratory will perform the method as presented in this QAPP and will adhere to the QAPP requirements presented herein. Otherwise the laboratory will specifically note any procedures that differ from the method or the QAPP in the data package case narrative.	Not applicable	Not applicable

Note:
Communications with the QAO will be documented and included in the data packages.
Data validation will be performed in accordance with QA/QC criteria established in this table and the analytical methods. Excursions from QA/QC criteria will be qualified based on guidance provided in this QAPP.
The laboratory will document and provide that documentation in the data package each time the laboratory contacts the QAO or the Project Manager.

Source: O'Brien & Gere Engineers, Inc.

Table 4-12. *Laboratory PQLs and MDLs for volatile organic compounds (USEPA Method TO-15) for air samples.*		
Parameter	**PQL (µg/cubic meter)**	**MDL (µg/cubic meter)**
1,1-Dichloroethene	0.40	0.12
Cis- 1,2-Dichloroethene	0.48	0.19
Trans-1,2-Dichloroethene	0.60	0.24
1,1,1-Trichloroethane	0.55	0.17
Trichloroethene	0.25	0.078
Tetrachloroethene	0.68	0.13

Source: O'Brien & Gere

Notes:

PQL indicates practical quantitation limit.
MDL indicates method detection limit.
* Indicates that PQLs and MDLs will be provided by the laboratory used in the project.

Princeton Analytical Laboratory Practical Quantitation Limits (PQLs) and Method Detection Limits (MDLs) for analysis of volatile organic compounds in air samples (USEPA Method TO-15).

Parameter	PQL, ug/m3	MDL, ug/m3
Chloromethane	0.38	0.15
Vinyl chloride	0.28	0.11
Bromomethane	0.90	0.36
Chloroethane	0.30	0.12
Acetone	0.98	0.39
1,1-Dichloroethene	0.40	0.12
Methylene chloride	0.70	0.28
cis-1,2-Dichloroethene	0.48	0.19
trans-1,2-Dichloroethene	0.60	0.24
1,1-Dichloroethane	0.55	0.22
Chloroform	0.50	0.20
1,1,1-Trichloroethane	0.55	0.17
Carbon tetrachloride	0.93	0.37
1,2-Dichloroethane	0.43	0.17
Benzene	0.32	0.084
Trichloroethene	0.25	0.078
1,2-Dichloropropane	0.46	0.13
cis-1,3-Dichloropropene	0.68	0.27
Toluene	0.38	0.041
trans-1,3-Dichloropropene	0.73	0.29
1,1,2-Trichloroethane	0.55	0.11
Tetrachloroethene	0.68	0.13
Chlorobenzene	0.46	0.060
Ethylbenzene	0.43	0.045
m/p-xylene	0.43	0.13
o-Xylene	0.43	0.15
Styrene	0.43	0.12
1,1,2,2-Tetrachloroethane	0.69	0.085

APPENDIX B

Schedule 2.11s

O'BRIEN & GERE

MEMORANDUM

To: Laurie Rizzo (NYSDEC) WAM
From: William Ayling
Re: Review of Cost Sections for Work Assignment #D004090-46
File: D004090-46
OBG: 10653/38688 #1
Date: March 30, 2006

cc:

I have reviewed the cost sections for the above referenced Work Assignment (WA). The cost sections appear to be reasonable and satisfactorily completed. The following checklist outlines the review process and review comments.

	GENERAL COST REVIEW CHECKLIST	Yes	No	Comments
	Is there a complete set of 2.11 Schedules (a) through (h)?	X		
1.	**Schedule 2.11(a)**			
	Do rates for indirect and fixed fee match contract rates?	X		
	Do numbers add up?	X		
2.	**Schedule 2.11(b) – Direct Labor**			
	Are average reimbursement rates used for each year? (Check rates in contract vs. time period of WA.)	X		
	Are hours segregated by year?			NA
	Is total cost for each NSPE level shown?	X		
	Does total direct labor costs match amount on Schedule 2.11(a)?	X		
	Do total hours match hours on Schedule 2.11(h)?	X		
	Is the Principal's (NSPE level 9) time less than 2% of total labor time?	X		
3.	**Schedule 2.11(b-1) – Direct Administrative Labor Hours**			
	Is breakdown of Schedule 2.11(b-1) reasonable (i.e within acceptable guidelines – 4% of overall labor time budget and 2% of overall labor time budget for Principal – as listed in Schedule 2.11 (b))? If not, did Consultant submit acceptable justification?	X		

4.	**Schedules 2.11(c) and (d) – Direct Non-Salary**			
	Are rates listed in Schedule 2.11(c) consistent with contract?	X		
	Are rates for in-house and/or miscellaneous costs in the contract (Schedule 2.10(b)? If not, are quotes included for any item (including equipment purchases & rentals; excluding air fare) >$1K? (For estimated cost-not unit cost.)	X		
	Are there any unallowable costs?		X	
	Are appropriate lodging/per diem rates used?	X		
	Does total direct non-salary costs match amount on Schedule 2.11(a)?	X		
	Are other direct costs (# of travel days, lodging, and field equipment usage) reasonable based on field work schedule or supporting documentation from project manager?	X		
5.	**Schedule 2.11(e) – Cost-plus-fixed-fee Subcontracts**			
	Is proposed subconsultant on standby?			NA
	Is subcontract contract active and do rates (salary, indirect and fee) match?			NA
	Is there a breakdown of direct non-salary costs (i.e, are additional Sch. 2.11's needed)?			NA
	Does total subcontract amount match Schedule 2.11(a)?			NA
	Has subcontractor justified/obtained adequate quotes for equipment rentals, or subcontracted work where subconsultant is not on standby?			NA
6.	**Schedule 2.11(f) – Unit Price Subcontracts** (per diem, lump sum)			
	Are proposed subcontractors on standby? If not, are there quotes for subcontracts >$1K? Bids should be comparable (quantities and items) and provide unit costs plus job total. Bid comparisons should be provided as a separate package (1 copy) along with the PMWP sent to Contracting for review (5 copies). Bid backup information should be provided to the Department Project Manager.	X		
	Standby Drillers (Two phase process) – Are costs from at least 3 standbys compared? If not, an additional quote from a non-standby driller may be needed. Are proper unit costs and mob/demob costs used?			NA
	Standby Lab and Data Validators (Used on a rotational basis) – Do unit cost per sample match unit cost in standby contract?	X		
	Other – Standard solicitation rules (quotes) apply for services >$1K.			NA
	M/WBE – Are single source M/WBE contracts <$5K and cost reasonableness documented?			NA
	Is management fee calculated only on non-professional unit priced subs >$10K? Appropriate rate? Management fee is not allowed on professional engineering firms, architects or surveyors.			NA
7.	**Schedule 2.11(g) – Cost Control Report**			
	Do individual 2.11(g)s equal summary 2.11(g) and costs match 2.11(a)?	X		
8.	**Supplemental 2.11(g) – Cost Control Report (subs)**			

	Do schedules include all applicable subcontracts and management fees? (For Unit Price Only).	X		
9.	***Schedule 2.11(h) – Summary of Labor Hours***			
	Do hours on 2.11(h) match those on 2.11(b)?	X		
10.	***General Comments not Covered Above***			

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SCHEDULE 2.11(a)
SUMMARY OF WORK ASSIGNMENT PRICE
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

			TOTAL
1	Direct Salary Costs (Schedules 2.10(a) and 2.11(b))		$2,712
2	Indirect Costs (Schedule 2.10(g))		$4,420
3	Direct Non-Salary Costs (Schedules 2.11(c) and (d))		$3,608
	SUBCONTRACT COSTS		
4	Cost-Plus-Fixed-Fee Subcontracts (Schedule 2.11(e))		
	Name of Subcontractor	Services to be Performed	
a	NONE		
4	Total Cost-Plus-Fixed Fee Subcontracts		$0
5	Unit Price Subcontracts (Schedule 2.11(f))		
	Name of Subcontractor	Services to be Performed	
a	Mitkem Corporation (MBE)	Laboratory Analyses	$700
b	Princeton Analytical Laboratory (WBE)	Laboratory Analyses	$2,365
c	Nancy J. Potak (WBE)	Data Validation	$231
5	Total Unit Price Subcontracts (Schedule 2.11(f))		$3,296
6	Subcontract Management Fee		$0
7	Total Subcontract Costs (lines 4 + 5 + 6)		$3,296
8	Fixed Fee (Schedule 2.10(h))		$464
9	Total Work Assignment Prices (lines 1 + 2 + 3 + 7 + 8)		$14,500

SCHEDULE 2.11(b) - DIRECT LABOR HOURS
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

NSPE	IX	VIII	VII	VI	V	IV	III	II	I	Admin	TOTAL HOURS
2006 AVERAGE RATES	$61.58	$50.56	$46.28	$45.40	$35.01	$29.38	$25.11	$21.88	$18.36	$18.36	
Task 1 - Work Plan Development	0	0	0	2	3	0	0	2	1	1	9.0
Site visit				2							2.0
Plan development					1				1		2.0
Field activities Plan					1			1			2.0
Subcontractor procurement					1			1		1	3.0
Task 2 - Soil Vapor Investigation	1	0	0	1	1	2	14	22	11	1	53.0
SV probe installation							12		4		16.0
SV probe sampling								14			14.0
SV sampling DUSR						2			1		3.0
SV sampling reporting	1			1	1		2	8	6	1	20.0
Task 3 - Groundwater Sampling	1	0	0	3	3	3	14	10	10	2	46
GW sampling				2	1	1	10	4	2		20.0
GW sampling DUSR						2			4		6.0
GW sampling reporting	1			1	2		4	6	4	2	20.0
TOTAL HOURS	2	0	0	6	7	5	28	34	22	4	108
ANTICIPATED LABOR COST - TOTA	$123	$0	$0	$272	$245	$147	$703	$744	$404	$73	$ 2,712

SCHEDULE 2.11(b) -1, DIRECT ADMINISTRATIVE LABOR HOURS
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

NSPE	IX	VIII	VII	VI	V	IV	III	II	I	Admin	TOTAL HOURS
2006 AVERAGE RATES	$61.58	$50.56	$46.28	$45.40	$35.01	$29.38	$25.11	$21.88	$18.36	$18.36	
Tasks 1 thru 3 - Administration	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**5**
Prepare monthly report					1						1
Prepare/review CAP-2006										4	4
TOTAL HOURS	0	0	0	0	1.0	0	0	0	0	4.0	5
TOTAL DIRECT LABOR COSTS	$0	$0	$0	$0	$35	$0	$0	$0	$0	$73	$108

SCHEDULE 2.11(c)
DIRECT NON-SALARY COSTS
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

ITEM	MAXIMUM REIMBURSEMENT RATE	UNIT	ESTIMATED NUMBER OF UNITS	TOTAL ESTIMATED COST
IN-HOUSE	In-House subtotal		$602	
Telephone/Fax	$1.00	At Cost	175	$175
Photocopies	$0.05	Page	1,750	$88
Color Photocopies	$1.25	Page	60	$75
D-size copies	$3.00	Sheet	0	$0
Color D-size copies	$15.00	Sheet	0	$0
AutoCadd	$7.50	Hour	4	$30
Computer Usage	$1.00	Hour	49	$49
LVE	$0.80	Hour	75	$60
Shipping Documents	$25.00	Each	5	$125
FIELD INV. SUPPLIES	field supplies subtotal		$764	
Nitrile sampling gloves	$14	box	1	$14
Distilled Water	$1.50	gallon	10	$15
Methane/air gas (for PID)	$35	cylinder	1	$35
Teflon tubing	$2	ft	125	$250
Sample shipping	$75.00	Each	6	$450
TRAVEL	Travel subtotal		$1,198	
mileage	$0.445	per mi	267	$119
Van Rental	$75.00	per day	3	$225
Meals - Suffolk County	$64.00	per day	4	$256
Lodging - Suffolk County	$126.00	per night	3	$378
Gasoline (van)	$90.00	trip	2	$180
Tolls	$20.00	trip	2	$40
TOTAL DIRECT NON-SALARY COSTS				$2,563

SCHEDULE 2.11(D)2
CONSULTANT_OWNED EQUIPMENT
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

ITEM	D PURCHASE PRICE x 85%	USAGE RATE* ($/Day)	CAPITOL RECOVERY RATE** ($/Day)	O&M RATE ($/Day)	ESTIMATED USAGE (Days)	ESTIMATED USAGE COST/Day (COL. 3X6))
Estimated purchase price each (1):	*$610*					
Helium Tracer Gas for Subsurface Vacuum Sampling System	$518	$16	$5	$11	2	$31
Additional Helium Chamber w/ Guages and Valves	$308	$6	$1	$4	2	$11
Additional Field Cylinder w/ Guage and Regulator	$73	$5	$0	$4	2	$9
					TOTAL	$51

* Usage Rate = Capitol Recovery Rate + O&M Rate. The maximum usage rate for an item of equipment reverts to the O&M rate when the total capital reccovery reimbursement rate exceeds 85% of the purchase price.
** The Capital Recovery Rate is the equipment's depreciation for the useful life of the item.

SCHEDULE 2.11(D)3
VENDOR RENTED EQUIPMENT
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

ITEM	MAXIMUM REIMBURSEMENT RATE	TIME PERIOD	ESTIMATED USAGE (period of time)	ESTIMATED RENTAL COST (Col. 2 x 3)
Helium Leak Detector	$98	day	2	$196
PPB RAE PID	$99	day	3	$297
Photoionization Detector	$99	day	1	$99
Water Quality Meter (Horiba U-10)	$66	day	1	$66
Peristaltic Pump	$85	day	1	$85
Equipment delivery/pickup	$50	delivery	1	$50
			TOTAL	$793

SCHEDULE 2.11(D)5

CONSUMABLE SUPPLIES

Sheridan Waste Oil Site SVI Evaluation

WORK ASSIGNMENT # D004090-46

ITEM	ESTIMATED QUANTITY	UNIT COST	TOTAL BUDGETED COST (Col. 2 x 3)
MISC SUPPLIES		LUMP SUM	$200
		TOTAL	$200

SCHEDULE 2.11(F)
UNIT PRICE SUBCONTRACTS
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

NAME OF SUBCONTRACTOR		SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Mitkem Corporation (MBE)		Laboratory Analyses	$700	$0
ITEM		MAXIMUM REIMBURSEMENT RATE (specify unit)	ESTIMATED NO. OF UNITS	TOTAL ESTIMATED COSTS
Ground Water VOCs (USEPA 8260)		$70	10	$700
		NOTE: THIS AMOUNT GOES ON 2.11(a) LINE 4 →	SUBTOTAL	$700
		THIS AMOUNT GOES ON 2.11(a) LINE 6 →	SUB MGMT FEE	$0
			TOTAL	$700

SCHEDULE 2.11(F)
UNIT PRICE SUBCONTRACTS
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

NAME OF SUBCONTRACTOR		SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Princeton Analytical Laboratory (WBE)		Laboratory Analyses	$2,365	$0
ITEM		MAXIMUM REIMBURSEMENT RATE (specify unit)	ESTIMATED NO. OF UNITS	TOTAL ESTIMATED COSTS
Soil vapor				
VOCs (USEPA TO-15)		$ 215	11	$2,365
		NOTE:		
		THIS AMOUNT GOES ON 2.11(a) LINE 4 →	SUBTOTAL	$2,365
		THIS →	SUB MGMT FEE	$0
		AMOUNT GOES ON 2.11(a) LINE 6	TOTAL	$2,365

SCHEDULE 2.11(F)
UNIT PRICE SUBCONTRACTS
Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

NAME OF SUBCONTRACTOR		SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Nancy J. Potak (WBE)		Data Validation	$231	$0
ITEM		MAXIMUM REIMBURSEMENT RATE (per sample)	ESTIMATED NO. OF UNITS	TOTAL ESTIMATED COSTS
Soil Vapor VOCs (USEPA TO-15)		$11	11	$121
Ground water VOCs (USEPA 8260)		$11	10	$110
		NOTE: THIS AMOUNT GOES ON 2.11(a) LINE 4 →	SUBTOTAL	$231
		THIS AMOUNT GOES ON 2.11(a) LINE 6 →	SUB MGMT FEE	
			TOTAL	$231

O'Brien & Gere Engineers, Inc.
Contract No: D004090-46
Project Name: Sheridan waste Oil Site SVI
Work Assignment No: D004090-46
Task No./Name: Summary
Task Percent Complete 0%

SCHEDULE 2.11(G)

Sheridan Waste Oil Site SVI Evaluation

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Date Prepared :
Billing Period:
Invoice No.:

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD	B PAID TO DATE	C TOTAL DISALLOWED TO DATE*	D TOTAL COSTS INCURRED TO DATE (A+B)	E ESTIMATED COSTS TO COMPLETION	F ESTIMATED TOTAL WORK ASSIGNMENT PRICE (A+B+E)	G APPROVED BUDGET	H ESTIMATED UNDER/OVER (G-F)
1. DIRECT SALARY COSTS	$ -	$ -	$ -	$ -	$ 2,712	$ 2,712	$ 2,712	$0
2. INDIRECT COSTS 163%	$ -	$ -	$ -	$ -	$ 4,420	$ 4,420	$ 4,420	$0
3. SUBTOTAL DIRECT SALARY COSTS AND INDIRECT COSTS	$ -	$ -	$ -	$ -	$ 7,132	$ 7,132	$ 7,132	$0
4. TRAVEL	$ -	$ -	$ -	$ -	$ 1,198	$ 1,198	$ 1,198	$0
5. OTHER NON-SALARY COSTS	$ -	$ -	$ -	$ -	$ 2,410	$ 2,410	$ 2,410	$0
6. SUBTOTAL DIRECT NON-SALARY COSTS	$ -	$ -	$ -	$ -	$ 2,327	$ 2,327	$ 3,608	$0
7. SUBCONTRACTORS	$ -	$ -	$ -	$ -	$ 3,296	$ 3,296	$ 3,296	$0
8. TOTAL WORK ASSIGNMENT COST	$ -	$ -	$ -	$ -	$ 14,036	$ 14,036	$ 14,036	$0
9. FIXED FEE	$ -	$ -	$ -	$ -	$ 464	$ 464	$ 464	$0
10. TOTAL WORK ASSIGNMENT PRICE	$ -	$ -	$ -	$ -	$ 14,500	$ 14,500	$ 14,500	$0

Project Manager (Engineer) _____ Date _____

Date Prepared : 1/0/1900
Billing Period: 1/0/1900
Invoice No.: 0

O'Brien & Gere Engineers, Inc.
Contract No: D004090-46
Project Name: Sheridan waste Oil Site SVI
Work Assignment No: D004090-46
Task No./Name: 001 - Work Plan Development
Task Percent Complete 0%

SCHEDULE 2.11(G)

Sheridan Waste Oil Site SVI Evaluation

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD	B PAID TO DATE	C TOTAL DISALLOWED TO DATE	D TOTAL COSTS INCURRED TO DATE (A+B)	E ESTIMATED COSTS TO COMPLETION	F ESTIMATED TOTAL WORK ASSIGNMENT PRICE (A+B+E)	G APPROVED BUDGET	H ESTIMATED UNDER/OVER (G-F)
1. DIRECT SALARY COSTS	$ -	$ -		$ -	$ 276	$ 276	$ 276	
2. INDIRECT COSTS 163%	$ -	$ -		$ -	$ 450	$ 450	$ 450	
3. SUBTOTAL DIRECT SALARY COSTS AND INDIRECT COSTS	$ -	$ -		$ -	$ 727	$ 727	$ 727	
4. TRAVEL	$ -	$ -		$ -	$ 110	$ 110	$ 110	
5. OTHER NON-SALARY COSTS	$ -	$ -		$ -	$ 116	$ 116	$ 116	
6. SUBTOTAL DIRECT NON-SALARY COSTS	$ -	$ -		$ -	$ 226	$ 226	$ 226	
7. SUBCONTRACTORS	$ -	$ -		$ -	$ -	$ -	$ -	
8. TOTAL WORK ASSIGNMENT COST	$ -	$ -		$ -	$ 953	$ 953	$ 953	
9. FIXED FEE	$ -	$ -		$ -	$ 47.24	$ 47	$ 47	
10. TOTAL WORK ASSIGNMENT PRICE	$ -	$ -		$ -	$ 1,000	$ 1,000	$ 1,000	

Project Manager (Engineer) _____ Date _____

O'Brien & Gere Engineers, Inc.
Contract No: D004090-46
Project Name: Sheridan waste Oil Site SVI
Work Assignment No: D004090-46
Task No./Name: 002 - Soil Vapor Sampling
Task Percent Complete 0%

SCHEDULE 2.11(G)

Sheridan Waste Oil Site SVI Evaluation

Date Prepared : 1/0/1900
Billing Period: 1/0/1900
Invoice No.: 0

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD	B PAID TO DATE	C TOTAL DISALLOWED TO DATE	D TOTAL COSTS INCURRED TO DATE (A+B)	E ESTIMATED COSTS TO COMPLETION	F ESTIMATED TOTAL WORK ASSIGNMENT PRICE (A+B+E)	G APPROVED BUDGET	H ESTIMATED UNDER/OVER (G-F)
1. DIRECT SALARY COSTS	$ -	$ -		$ -	$ 1,254	$ 1,254	$ 1,254	$0
2. INDIRECT COSTS 163%	$ -	$ -		$ -	$ 2,043.97	$ 2,044	$ 2,044	$0
3. SUBTOTAL DIRECT SALARY COSTS AND INDIRECT COSTS	$ -	$ -		$ -	$ 3,298	$ 3,298	$ 3,298	$0
4. TRAVEL	$ -	$ -		$ -	$ 361	$ 361	$ 361	$0
5. OTHER NON-SALARY COSTS	$ -	$ -	$ -	$ -	$ 1,741	$ 1,741	$1,740.74	$0
6. SUBTOTAL DIRECT NON-SALARY COSTS	$ -	$ -	$ -	$ -	$ 2,101	$ 2,101	$ 2,101	$0
7. SUBCONTRACTORS	$ -	$ -		$ -	$ 2,486	$ 2,486	$2,486	$0
8. TOTAL WORK ASSIGNMENT COST	$ -	$ -	$ -	$ -	$ 7,885	$ 7,885	$ 7,885	$0
9. FIXED FEE	$ -	$ -	$ -	$ -	$ 214.37	$ 214	$ 214	$0
10. TOTAL WORK ASSIGNMENT PRICE	$ -	$ -	$ -	$ -	$ 8,100	$ 8,100	$ 8,100	$0

Project Manager (Engineer) _____ Date _____

O'Brien & Gere Engineers, Inc.
Contract No: D004090-46
Project Name: Sheridan waste Oil Site SVI
Work Assignment No: D004090-46
Task No./Name: 003 - Groundwater Sampling
Task Percent Complete 0%

SCHEDULE 2.11(G)

Sheridan Waste Oil Site SVI Evaluation

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Date Prepared : 1/0/1900
Billing Period: 1/0/1900
Invoice No.: 0

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD	B PAID TO DATE	C TOTAL DISALLOWED TO DATE	D TOTAL COSTS INCURRED TO DATE (A+B)	E ESTIMATED COSTS TO COMPLETION	F ESTIMATED TOTAL WORK ASSIGNMENT PRICE (A+B+E)	G APPROVED BUDGET	H ESTIMATED UNDER/OVER (G-F)
1. DIRECT SALARY COSTS	$ -	$ -		$ -	$ 1,182	$ 1,182	$1,182	$0
2. INDIRECT COSTS 163%	$ -	$ -		$ -	$ 1,926	$ 1,926	$ 1,926	$0
3. SUBTOTAL DIRECT SALARY COSTS AND INDIRECT COSTS	$ -	$ -		$ -	$ 3,108	$ 3,108	$ 3,108	$0
4. TRAVEL	$ -	$ -		$ -	$ 727	$ 727	$727	$0
5. OTHER NON-SALARY COSTS	$ -	$ -		$ -	$ 554	$ 554	$ 554	$0
6. SUBTOTAL DIRECT NON-SALARY COSTS	$ -	$ -		$ -	$ 1,281	$ 1,281	$ 1,281	$0
7. SUBCONTRACTORS	$ -	$ -		$ -	$ 810	$ 810	$810	$0
8. TOTAL WORK ASSIGNMENT COST	$ -	$ -		$ -	$ 5,198	$ 5,198	$ 5,198	$0
9. FIXED FEE	$ -	$ -		$ -	$ 202	$ 202	$ 202	$0
10. TOTAL WORK ASSIGNMENT PRICE	$ -	$ -		$ -	$ 5,400	$ 5,400	$ 5,400	$0

Project Manager (Engineer) _____ Date _____

Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

SCHEDULE 2.11(G)
SUPPLEMENTAL

COST CONTROL REPORT
SUBCONTRACTS

Date Prepared
Billing Period
Invoice No.

SUBCONTRACT NAME	A SUBCONTRACT COSTS CLAIMED THIS APPLICATION INC. RESUBMITTALS	B SUBCONTRACT COSTS APPROVED FOR PAYMENT ON PREVIOUS APPS.	C TOTAL SUBCONTRACT COSTS TO DATE (A plus B)	D SUBCONTRACT APPROVED' BUDGET	E MANAGEMENT FEE BUDGET	F MANAGEMENT FEE PAID	G TOTAL COSTS TO DATE (C plus F)
Mitkem Corporation (MBE) Laboratory Analyses				$700	$0		
Princeton Analytical Laboratory (WBE) Laboratory Analyses				$2,365	$0		
Nancy J. Potak (WBE) Data Validation				$231	$0		
TOTAL				$3,296	$0		

Project Manager (Engineer) _____ Date _____

Sheridan Waste Oil Site SVI Evaluation
WORK ASSIGNMENT # D004090-46

SCHEDULE 2.11(h)

Date Prepared
Billing Period
Invoice No.

MONTHLY COST CONTROL REPORT
SUMMARY OF LABOR HOURS

NSPE Labor Classification	IX EXP/EST	VIII EXP/EST	VII EXP/EST	VI EXP/EST	V EXP/EST	IV EXP/EST	III EXP/EST	II EXP/EST	I EXP/EST	Admin EXP/EST	TOTAL NUMBER OF DIRECT LABOR HOURS EXP/EST
Task 1 - Work Plan Development	/ 0	/ 0	/ 0	/ 2	/ 3	/ 0	/ 0	/ 2	/ 1	1 / 1	1 / 9
Task 2 - Soil Vapor Investigation	/ 1	/ 0	/ 0	/ 1	/ 1	/ 2	/ 14	/ 22	/ 11	/ 1	0 / 53
Task 3 - Groundwater Sampling	/ 1	/ 0	/ 0	/ 3	/ 3	/ 3	/ 14	/ 10	/ 10	/ 2	0 / 46
TOTAL HOURS	0 / 2	0 / 0	0 / 0	0 / 6	0 / 7	0 / 5	0 / 28	0 / 34	0 / 22	1 / 4	1 / 108