DATA VALIDATION REPORT

November/December 1999 Sampling Event Barkhamsted-New Hartford Landfill Superfund Site Barkhamsted, Connecticut

Barkhamsted Site PRP Group

March 2000

O'BRIEN & GERE
ENGINEERS, INC.

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O'BRIEN & GERE
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March 31, 2000

<u>VIA OVERNIGHT DELIVERY</u>

Ms. Carolyn Pina-Springer
Remedial Project Manager
Office of Site Remediation & Restoration
(mail code: HBT)
U.S. Environmental Protection Agency
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Validation Report
Barkhamsted – New Hartford
Landfill Superfund Site

File: 5268/22708 #2

Dear Ms. Pina-Springer:

Please find enclosed three copies of the revised draft Validation Report for November/December 1999 sampling event performed at the above-referenced site. The report was revised in accordance with EPA's letter dated March 7, 2000.

Please feel free to call me if you should have any questions.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

James R. Heckathorne, P.E.
Vice President

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Enclosures

cc: S. Gleason, P.E. – CTDEP (w/ enclosure)
A. Azadpour-Keeley, Ph.D. – USEPA (w/ enclosure)
C. McLane, P.E. – Metcalf & Eddy (w/ enclosure)
R. Bell, P.E. – TRW Inc. (w/ enclosure)
D. Trickey, Esq. – PRP Co-Chair
J. Shanahan, P.E. – O'Brien & Gere

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1. Introduction

Data validation was performed for ground water, drinking water, surface water, and leachate seep samples collected from the Barkhamsted-New Hartford Landfill Superfund Site, in Barkhamsted, Connecticut. The samples were collected between November 17 and December 8, 1999, by O'Brien & Gere Engineers, Inc. (O'Brien & Gere). Sampling was conducted to provide additional data for the completion of the risk assessment and to assess whether natural attenuation of contaminants is occurring in the ground water.

Samples were submitted for laboratory analysis for various constituents which included the following target compound list (TCL) volatile and semivolatile organics, target analyte list (TAL) metals, TCL pesticides, nonhalogenated volatiles, sulfide, chloride, alkalinity, sulfate, total organic carbon, nitrite-nitrate, nitrite, and nitrate. Field tests were conducted which included dissolved oxygen, pH, ferrous iron, temperature, specific conductance, and turbidity.

The primary purpose of this report is to summarize the quality and defensibility of the analytical and field data based on its adherence to the data quality objections and quality assurance/quality control (QA/QC) requirements that were established in the *Quality Assurance Project Plan, Barkhamsted-New Hartford Landfill Superfund Site, Barkhamsted, Connecticut,* O'Brien & Gere Engineers, Inc., November 1999 (QAPP).

The following four sections of this report address distinct aspects of the validation process. Section 2 lists the analytical methodology employed in sample analysis. Section 3 lists the data quality assurance/quality control (QA/QC) protocols used to validate the sample data. Specific QA/QC excursions and qualifications performed on the sample data are discussed in Section 4. Data usability with respect to the intended purposes of the data are discussed in Section 5.

1.1. General considerations

Validation is a process of determining the suitability of a measurement system for providing useful analytical data. Although the term is frequently used in discussing analytical methods, it applies to all aspects of the process and especially to the samples, their measurement, and the actual data generated. Accordingly, this report outlines excursions from the applicable quality control outlined in the following documents:

- Quality Assurance Project Plan (QAPP), Barkhamsted-New Hartford Landfill Superfund Site, Barkhamsted, Connecticut, O'Brien & Gere Engineers, Inc., November 1999.

- Sampling and Analysis Plan (SAP) Barkhamsted-New Hartford Landfill Superfund Site, Barkhamsted, Connecticut, O'Brien & Gere Engineers, Inc., November 1999.

- Test Methods for Evaluating Solid Wastes: Physical and Chemical Methods, SW-846, Final Update III, (USEPA, December 1996).

- Region I USEPA-New England (NE) Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part II, Volatile/Semivolatile Data Validation Functional Guidelines (USEPA Region I, December 1996).

- USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluation of Organic Analyses (USEPA Region I, November 1988).

- USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluation of Inorganic Analyses (USEPA Region I, February 1989).

- USEPA Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), 540/1-89/002 (USEPA, revised 1992).

The following sections of this document address distinct aspects of the validation process. Section 2 lists the analytical methodology employed in sample analysis. Section 3 lists the data quality assurance/quality control (QA/QC) protocols used to validate the sample data. Specific QA/QC excursions and qualifications performed on the sample data are discussed in Section 4. Data usability with respect to the intended purposes of the data is discussed in Section 5.

2. Analytical methods

Samples were analyzed by O'Brien & Gere Laboratories, Inc. for selected target compounds utilizing USEPA methods in Table 2.1.

Table 2.1 Sample Analysis

Parameter	Analytical Method
TCL volatiles	SW5030B/SW8260B
TCL semivolatiles	SW3510C/SW8270C
TCL pesticides	SW3510C/8081
TAL metals (except mercury and thallium)	SW3005A/SW6010B
Mercury	SW7470A
Nonhalogenated volatiles	Kampbel, Don. H., "Analysis of Dissolved Methane, Ethane, and Ethylene in Ground Water by a Standard Gas Chromatographic Technique", (Journal of Chromatographic Science, Vol. 36, May 1998)
Total organic carbon (TOC)	EPA 415.1
Nitrate	EPA 353.2
Nitrite-Nitrate	EPA 353.2
Nitrite	EPA 353.2
Sulfide	EPA 376.1
Alkalinity	EPA 310.1
Sulfate	EPA 375.4
Chloride	EPA 325.2

Table Notes:

SW- Test Methods for Evaluating Solid Wasters, Physical and Chemical Methods, Final Update (USEPA, December 1996).

EPA – Methods for Chemical Analysis of Water and Wastes, EPA 600-4-070-020 (USEPA, 1983)

Source: O'Brien & Gere Engineers, Inc.

Analytical results for these analyses are presented in the tables presented in Attachment D. The letters found immediately to the right of individual sample results serve to qualify the sample data. When the data validation process identified more than one quality control deficiency, the qualifier added to the sample result represents the cumulative effect of the individual QC excursions. Consistent with the listed guidance document, the following qualifiers may be used during the data validation:

U Indicates that the compound was analyzed for, but was not detected. The quantitation limit is presented and adjusted for dilution. This qualifier is also used when the quantitation limit is raised due to presence of blank contamination.

J Indicates that the detected sample result should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process. Additionally, this qualifier is used when analytes or compounds are detected at concentrations above the method detection limit (MDL) but below the laboratory method reporting limit (MRL) formerly referred to as the practical quantitation limit (PQL)in the QAPP. Results below the MRL should be considered approximate since method accuracy and precision are not defined for these concentration levels.

UJ Indicates that the detection limit for the analyte in this sample should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process.

R Indicates that the previously reported detection limit or sample result was rejected due to a major deficiency in the data generation procedure. The data should not be used for qualitative or quantitative purposes.

It should be noted that the "R" qualifier was not required based on the excursions observed.

3. Data validation protocols

Quality control data were evaluated based on accuracy and precision criteria specified in Section 9 of the QAPP. The following are method specific QA/QC parameters used in the validation of sample data generated for this investigation:

Volatile and semivolatile analyses

- Holding times and sample preservation
- GC/MS tuning criteria
- Initial and continuing calibration
- Blank analysis
- Surrogate recovery
- Internal standard performance
- Matrix spike/matrix spike duplicate (MS/MSD) analysis
- Field duplicate analysis
- Laboratory control sample (LCS) analysis
- Performance evaluation sample (PE) analysis
- System performance
- Target compound identification, quantitation, and reporting limits
- Documentation completeness
- Overall data assessment

Pesticide and nonhalogenated volatile analyses

- Holding times and sample preservation
- Initial and continuing calibration
- Retention time windows
- Degradation requirements (pesticides only)
- Blank analysis
- Surrogate recovery and retention time (pesticides only)
- MS/MSD analysis (pesticides only)
- Field duplicate analysis
- LCS analysis
- PE analysis
- System performance
- Target compound identification, quantitation, and reporting limits
- Documentation completeness
- Overall data assessment

Metals and wet chemistry analyses

- Holding times and sample preservation
- Initial and continuing calibration
- Interference check standard and serial dilution analysis (metals only)
- Blank analysis
- MS/MSD analysis
- Laboratory duplicate analysis
- Field duplicate analysis
- LCS analysis
- PE analysis (metals only)
- Verification of instrument parameters
- Analyte quantitation and reporting limits
- Documentation completeness
- Overall data assessment

In accordance with Section 3.2 of the QAPP and analytical method requirements, laboratory control limits were used to assess MS/MSD, LCS, surrogate, and laboratory duplicate data. In accordance with Section 10.2 of the QAPP and SW-846 method requirements, laboratory control limits were assessed during the validation for reasonableness. Overall, laboratory control limits were found to have similar or narrower acceptance ranges than applicable limits documented in the analytical methods.

Field duplicates were assessed based on criteria presented in Section 3.2 of the QAPP. Based on guidance provided in EPA Region I's validation guidelines (USEPA Region I, November 1988, February 1989, December 1996), analytical data were qualified in the following manner when laboratory control limits were not met:

- If percent recoveries were less than laboratory control limits but greater than ten percent, non-detected and detected results were approximated (UJ, J).

- If percent recoveries were greater than laboratory control limits detected results were approximated (J).

- If percent recoveries were less than ten percent, detected results were approximated (J) and non-detected results were rejected (R).

- If relative percent differences (RPDs) for MSDs and laboratory duplicates were outside of laboratory control limits, detected results greater than the MRL were approximated.

- If RPDs for field duplicate pairs were >30% for results >5xMRL (or results were not within +2xMRL for results <5xMRL), the affected data were approximated.

It should be noted that qualification of data for MS/MSD analyses was performed only when both MS and MSD percent recoveries were outside of laboratory control limits. Qualification of data was not performed if MS/MSD or surrogate recoveries were outside of laboratory control limits due to sample dilution.

Qualification for MS/MSD and field duplicate excursions were conducted as follows:

- for organic analyses, qualification of data was limited for the unspiked sample or the field duplicate pair unless otherwise stated.
- for inorganic analyses, qualification of data was performed for samples within the same analytical batch for MSDs or for same matrix for field duplicates.

4. Data quality evaluation

This section summarizes the QA/QC parameters which met validation criteria and describes qualifications performed on sample data when QA/QC criteria were not met. Samples that required qualification are identified in the following sections by the sample location documented on the field chain of custody record. Equipment and trip blank data were used to assess contamination that may have been introduced during field sampling and sample shipment and were not qualified with respect to QA/QC excursions.

Field chain of custody records were accurate and complete. In accordance with Section 4.3 and Table 2 of the QAPP, field duplicates and MS/MSDs were collected at a frequency of five percent. Field duplicates for nonhalogenated volatile organic analyses were collected at a frequency of ten percent as specified in the analytical method.

In accordance with the QAPP, equipment blanks were collected for sampling equipment that was not dedicated to monitoring well locations. In addition, an equipment blank was collected by rinsing a piece of the dedicated polyethylene tubing used in the wells, EQBLK-1. An equipment blank was also collected by rinsing the pump used to collect ground water samples from monitoring well locations that did not have dedicated pumps, EQBLK-2. Lastly, equipment blanks were collected by rinsing sample equipment used to collect the leachate seep samples, EQBLK-SEEP and surface water samples, EQBLK-SW. Table 4.1 is a summary of the field QC samples that were collected.

Table 4.1. Field QC sample collection.

Field Duplicate Ids	MS/MSD ID	Equipment Blanks	Trip Blanks
BlindDup1(11/24/99)=MW-104B	MW-105S	EQBLK-1(11/24/99)	TB 11/1899
BlindDup1(11/29/99)=MW-4R-2	MW-111B	EQBLK-2(11/29/99)	TB 11/19/99
BlindDup-SW(12/1/99)=SW-13	SW-10	EQBLK-SW (12/1/99)	TB 11/19/99
BlindDup-SEEP(12/8/99)=SEEP 4	SEEP-3	EQBLK-SEEP (12/3/99)	TB 11/23/99
BlindDup(12/7/99)=MW-113D*		EQBLK (12/8/99)*	TB 11/24/99
			TB 11/30/99
			TB 12/1/99
			TB 12/2/99
			TB 12/3/99
			TB 12/3/99
			TB 12/7/99
			TB 12/8/99
			TB 12/8/99

Table Notes:
Equipment blanks and field duplicates were identified by date collected.
Trip blanks were identified by date received.
* Analyzed for dissolved gases only.
Source: O'Brien & Gere Engineers, Inc.

4.1. Volatile organic analyses

Thirty-six ground water, three residential wells, seven surface waters, and six leachate seep samples with associated QC samples were validated for volatile organic compounds. The following QA/QC parameters met validation criteria or did not result in qualification of data:

- Holding times and sample preservation
- GC/MS tuning criteria
- Initial calibration
- Surrogate recovery
- Internal standard performance
- LCS analysis
- System performance
- TCL compound identification and quantitation
- Documentation completeness

Continuing calibration. Continuing calibration percent difference (%D) criterion of <25% specified by the validation guidelines was not met in a few instances. Table 4.2 is a summary of the data qualified. Laboratory corrective actions were not required since USEPA method 8260B requirements were met for the continuing calibration check compounds (CCCs).

Table 4.2. Qualification of volatile data: continuing calibration criteria

Date analyzed	Compound	%D	Action	Samples Affected
11/30/99 at 09:41	Chloroethane	26.1	UJ	MW-113B
12/1/99 at 08:48	Chloroethane	30.6	UJ, J	MW-115S, MW-110I, MW-106S
12/2/99 at 08:44	Chloroethane	32.4	UJ	MW-118S, MW-111B, MW-111I, MW-111S, MW-117B
12/6/99 at 09:58	Chloromethane	26.4	UJ, J	S-3, MW-4R, MW-101B, DW1, MW-4R-1, MW-4S, MW-5B
	Chloroethane	27.9	UJ, J	
12/8/99 at 09:04	Chloroethane	28.8	UJ	SW-15, SW-6, SW-3, Blindduplicate-SW, MW-101D, MW-113S, DW-3
12/10/99 at 08:40	Chloroethane	28.8	UJ, J	MW-113I, DW-2, MW-113D, SEEP 1
12/11/99 at 09:10	Chloroethane	26.1	UJ, J	MW-1R, MW-1S
12/12/99 at 07:23	Bromomethane	25.8	UJ	MW-115B, SEEP 3, SEEP 4, SEEP 5, SEEP 6, SEEP 8, Blinddup-SEEP
	Chloroethane	26.1	UJ, J	

Source: O'Brien & Gere Engineers.

Blank analyses. Laboratory method blanks met criteria Acetone and carbon disulfide were detected in EQBLK-1 (11/24/99). This equipment blank was collected from the submersible pump used to collect ground water samples MW-104B, Blinddup1 (11/24/99) and MW-118B.

Carbon disulfide, ethyl benzene and xylenes were detected in the equipment blank associated with surface water sample collection. Additionally, methylene chloride was detected in one of the thirteen trip blanks submitted for volatile analysis. The remaining equipment and trip blanks met criteria.

Qualification of data was based on calculation of a blank action level five times (ten times for acetone and methylene chloride) the concentration detected. Detected results less the practical quantitation limit (MRL) and the calculated blank action level were replaced with the MRL and qualified as non-detected (U). Detected results greater than the MRL but less than the calculated blank action level were qualified as nondetected (U). Nondetected results or detected results greater than the calculated blank action level were not qualified. Table 4.3. is a summary of the data qualified. It should be noted that qualification was not required for ethyl benzene and xylenes since these compounds were not detected in the surface water samples.

Table 4.3. Qualification of volatile data: equipment blank criteria

Blank ID	Compound	Concentration (ug/L)	Action	Samples Affected
EQBLK-1 (11/24/99)	acetone	21	U	MW-104B, MW-118B, Blinddup1(11/24/99)
	Carbon disulfide	45	U	MW-104B, Blinddup1(11/24/99)
EQBLK-SW	Carbon disulfide	0.75	U	SW-10, SW-9, SW-15, SW-13
TB 12/8/99	Methylene chloride	0.61	Replace result with MRL, U	MW-1R, SEEP 1

Source: O'Brien & Gere Engineers.

PE analyses. Tentatively identified compounds (TICs) for volatile organic analyses were not required and therefore, were not assessed during the validation. Volatile compounds were within warning limits with the exception of 1,2-dichloroethane which was scored as warning low. In accordance with Region I validation guidelines, qualification of data was not required for this compound. It should be noted that laboratory LCS requirements were met for 1,2-dichloroethane.

Volatile compounds, 1,1,1-trichloroethane and tetrachloroethene that were detected at estimated concentrations less than MRLs were scored as PE contaminants. Qualification of data was not required, since these contaminants were isolated to the PE and were not observed in laboratory method or field blanks associated with this project

MS/MSD analyses. Percent recoveries were not within laboratory control limits in several instances. Table 4.4. is a summary of the data qualified. Laboratory corrective actions were not required since the associated LCSs met requirements. In addition, it should be noted that lower recoveries observed for acetone, 2-butanone and 2-hexanone can be attributed to the fact that the concentration spiked (10 ug/L) was at or just two times their MRL.

Table 4.4. Qualification of volatile data: MS/MSD criteria				
MS/MSD ID	**Compound**	**%Recovery**	**Action**	**Samples Affected**
MW-105S	Acetone	35, 36	UJ	MW-105S
	Carbon disulfide	61, 56	UJ	
	2-butanone	43, 43	UJ	
	2-hexanone	47, 49	UJ	
	1,1,2,2-tetrachloroethane	43, 49	UJ	
MW-111B	2-butanone	53, 57	UJ	MW-111B
	cis-1,2-dichloroethene	120, 125	J	
SW-10	Carbon disulfide	Met, 150 RPD 39%	J	SW-10
	2-butanone	48, 51	UJ	
SEEP 3	2-butanone	40, 59	UJ	SEEP 3
	2-hexanone	34, 43	UJ	
Source: O'Brien & Gere Engineers.				

Field duplicate analyses. Four field duplicate pairs were collected. Precision requirement were not met in two instances Table 4.5 is a summary of the data qualified. It should be noted that acetone and carbon disulfide data summarized in Table 4.5 were also impacted by equipment blank actions (refer to Table 4.3).

Table 4.5. Qualification of volatile data: field duplicate criteria				
Field Duplicate Pair	**Compound**	**RPD**	**Action**	**Samples Affected**
Blindup1(11/24/99) MW-104B	Acetone	37%	J	Blindup1(11/24/99) MW-104B
Blinddup-SW SW-13	Carbon disulfide	>± 2xMRL	J	Blinddup-SW SW-13
Source: O'Brien & Gere Engineers.				

Compound reporting limits. Elevated reporting limits were reported for samples MW-5S, MW-101S, and MW-1S. These samples were diluted prior to sample analysis to obtain target compounds within the linear calibration range. In accordance with the QAPP, dilutions were performed based on historical data so that concentrations were in the upper range of the calibration curve. These samples were not reanalyzed undiluted due to high concentrations of target compounds which would negatively impact instrumentation and data quality.

Several samples required dilution and reanalysis to obtain target compounds within the linear calibration range. Table 4.6. is a summary of the samples affected, the dilution factors and the compounds that were reported from the diluted analysis conducted.

Table 4.6. Sample dilutions for volatile analyses.		
Sample ID	**Dilution Factor**	**Compounds Reported**
MW-118B	5	Acetone
MW-5S	250	All target compounds
MW-104B	5	Acetone
Blindup 1 (11/24/99)	5	Acetone
MW-4R	20	Acetone

Table 4.6. Sample dilutions for volatile analyses.		
Sample ID	**Dilution Factor**	**Compounds Reported**
MW-101S	625	All target compounds
MW-101D	5	Acetone
MW-1S	200	All target compounds
Source: O'Brien & Gere Engineers.		

Correlation between undiluted and diluted concentrations was good with one exception.. Carbon disulfide was detected at a concentration above the linear calibration range in sample SEEP 8. When this sample was diluted by a factor of two and reanalyzed, the concentration for carbon disulfide decreased from 54 ug/L to 9 ug/L. Reanalysis could not be performed due to insufficient sample. Carbon disulfide result was reported as 54 ug/L and qualified as approximate in sample SEEP 8.

Overall data assessment. The laboratory performed volatile organic analyses and QC procedures in accordance with method and QAPP requirements. Volatile organic data are usable for qualitative and quantitative purposes. Some volatile data were qualified as approximate (J or UJ) based on minor excursions from continuing calibration, MS/MSD, and field duplicate criteria. In addition, the carbon disulfide result in sample SEEP-8 was qualified as approximate based on poor correlation between the undiluted and diluted concentrations. Detected results were also qualified as nondetected (U) for acetone, carbon disulfide, and methylene chloride in a minor number of samples based on concentrations observed for these compounds in associated field blanks.

4.2. Semivolatile analyses

Thirty-six ground water, three residential wells, seven surface waters, and six leachate seep samples with associated QC samples were validated for volatile organic compounds. Included in the semivolatile analyses was a tentatively identified compound library search for the following four compounds: 3,4-dihydroxybenzoic acid, 4-hydroxybenzyl alcohol, 4-hydroxybenzaldehyde, and 4-hydroxybenzoic acid.

The following QA/QC parameters met validation criteria or did not result in qualification of data

- Holding times and sample preservation
- GC/MS tuning criteria
- Initial calibration
- Blank analysis
- MS/MSD analysis
- Field duplicate analysis
- System performance
- Target compound identification and quantitation
- Documentation completeness

Continuing calibration. Continuing calibration percent difference (%D) criterion of <25% specified by the validation guidelines was not in a few instances. Table 4.7 is a summary of the data qualified. Laboratory corrective actions were not required since USEPA method 8270C requirements were met for the continuing calibration check compounds (CCCs).

Table 4.7. Qualification of semivolatile data: continuing calibration criteria

Date analyzed	Compound	%D	Action	Samples Affected
11/29/99 at 13:41	Indeno(1,2,3-cd)pyrene	27.8	UJ	MW-115S
11/30/99 at 14:24	Indeno(1,2,3-cd)pyrene	38.7	UJ	MW-105S, MW-103B, MW-103S, MW-102B, MW-102S, MW-110I, MW-106S
	Dibenzo(a,h)antharace	26.2	UJ	
	Benzo(g,h,i)perylene	26.9	UJ	
12/15/99 at 13:05	4-nitroaniline	29.6	UJ	MW-104B
12/23/99 at 07:39	2,4-dinitrophenol	31.0	UJ	DW-3, SW-6, MW-113I, DW-2, MW-115B, SEEP 3, SEEP 4, SEEP 6, SEEP 8
	2,4-dinitrotoluene	26.0	UJ	

Source: O'Brien & Gere Engineers.

Surrogate recovery. Surrogate recoveries were below laboratory control limits for 2-fluorophenol (53%) and phenol-d5 (40%) in sample MW-102S. Therefore, nondetected results for the following acid-extractable compounds were qualified as approximate in sample MW-102S: phenol, 2-chlorophenol, 2-methylphenol, 4-methylphenol, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 4-chloro-3-methylphenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, 2,4-dinitrophenol, 4-nitrophenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol.

LCS analyses. Percent recoveries were biased low for 1,3-dichlorobenzene and hexachlorobutadiene in two LCSs. These LCSs were reanalyzed with similar results. Table 4.8. is a summary of the data qualified. Laboratory corrective actions were not required since more than 90% of the target compounds in the LCSs had recoveries within control limits.

Table 4.8. Qualification of semivolatile data: LCS criteria

LCS ID	Compound	%Recovery	Action	Samples Affected
L112199W2	1,3-dichlorobenzene	55, 55	UJ	MW-115S, MW-110I, MW-106S, MW-105B, MW-105S, MW-103B, MW-103S, MW-102B, MW-102S
	hexachlorobutadiene	42, 43	UJ	
L120899W1	1,3-dichlorobenzene	48, 47	UJ	MW-1S, MW-113D, MW-1R, SEEP 1
	hexachlorobutadiene	35, 40	UJ	

Source: O'Brien & Gere Engineers.

PE analyses. TICs with the exception of the four specified in the QAPP were not required. Qualification of data was not required with respect to TIC data.

With the exception of three compounds, semivolatile results were within warning limits. Semivolatile compounds, 4,6-dinitro-2-methylphenol and 2,4-dinitrophenol were scored as warning low and hexachloroethane was scored as warning high. In accordance with Region I validation guidelines, qualification of data was not required for these compounds. It should be noted that laboratory LCS requirements were met for the 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and hexachloroethane.

Internal standard analysis. Internal standard areas were not within method requirements (50% to 200%) for several samples and for LCS D120199W1. The samples were reanalyzed as required. The LCS was not reanalyzed since spiked recoveries were within laboratory control limits. Table 4.9. is a summary of the data that required qualification.

Table 4.9. Qualification of semivolatile data: internal standard area criteria

Sample ID	Internal Standard	Area Percent	Action	Compounds Affected
MW-110I	Perylene-d12	47%	UJ	Benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene
MW-101B	Perylene-d12	41%	UJ	
MW-4R-2	Perylene-d12	41%	UJ	
MW-4S	Perylene-d12	31%	UJ	
MW-4R	Perylene-d12	40%	UJ	
SEEP 3	Perylene-d12	42%	UJ	
SEEP 4	Perylene-d12	37%	UJ	
SEEP 5	Perylene-d12	49%	UJ	
SEEP 6	Perylene-d12	32%	UJ	
MW-1R	Perylene-d12	45%	UJ	

Source: O'Brien & Gere Engineers.

Reporting limits. Elevated reporting limits were reported for samples MW-5S, MW-101S, and MW-1S. These samples were diluted prior to sample analysis to obtain target compounds within the linear calibration range. In accordance with the QAPP, dilutions were performed based on historical data so that concentrations were in the upper range of the calibration curve. It should be noted that these three samples may not be able to be analyzed at lesser dilutions due to interferences from organic acids that are present.

Overall data assessment. The laboratory performed semivolatile organic analyses and QC procedures in accordance with method and QAPP requirements. Semivolatile organic data are usable for qualitative and quantitative purposes. Some semivolatile data were qualified based on minor excursions from continuing calibration, surrogate recovery, LCS, and internal standard area performance criteria.

4.3. Nonhalogenated volatile organic analyses

Nineteen ground water samples with associated QC samples were validated for nonhalogenated volatile organic analyses. The following

QA/QC parameters met validation criteria or did not result in qualification of data:

- Holding times
- Initial and continuing calibration
- Retention time windows
- Blank analysis
- Field duplicate analysis
- LCS analysis
- System performance
- Target compound identification and quantitation
- Documentation completeness

Sample preservation. The following ground water samples were collected in unpreserved containers: MW-4R-2, Blinddup1 (11/29/99), MW-101S, and MW-5B. According to field log book, after attempting to collect these samples in preserved containers without air bubbles, the samples were collected in unpreserved containers. Since there is no holding time requirement presented in the method for unpreserved samples, nonhalogenated volatile results for these samples were qualified as approximate (UJ or J).

Reporting limits. Elevated reporting limits were reported for the majority of the samples. The affected samples required dilution in order to obtain methane results within the linear calibration range of the instrument.

Overall data assessment. The laboratory performed nonhalogenated volatile organic analyses and QC procedures in accordance with method and QAPP requirements. Nonhalogenated volatile organic data are usable for qualitative and quantitative purposes. Nonhalogenated volatile results were qualified as approximate in samples MW-4R-2, Blindduplicate1(11/29/99), MW-101S, and MW-5B based on preservation requirements.

It should be noted that the laboratory did not observe the same average recovery for methane and ethene as documented in the method (average recoveries of 87% for methane spiked at 22.7 mg/L and 90% recovery for ethene spiked at 131 mg/L) The laboratory LCSs were spiked at approximately 0.012 mg/L for methane and at 0.022 mg/L for ethane and ethene which were approximately ten times the reporting limits. Average recoveries observed at these concentrations were 64%, 55.5%, 36.5% for methane, ethane, and ethene, respectively. The lower recoveries observed for methane and ethene was likely due to the lower concentrations that were used by the laboratory to evaluate accuracy closer to the reporting limit. Nonhalogenated volatile data were not qualified with respect to LCS recoveries since the recoveries were within established laboratory control limits.

4.4. Pesticide analysis

Seven surface water and six leachate seep samples with associated QC samples were validated for pesticides. The following QA/QC parameters met validation criteria or did not result in qualification of data

- Holding times and sample preservation
- Initial calibration
- Retention time windows
- Degradation requirements
- Blank analysis
- Surrogate retention time
- Field duplicate analysis
- LCS analysis
- System performance
- Target compound identification, quantitation, and reporting limits
- Documentation completeness

Surrogate recovery. Surrogate recoveries were not within laboratory control limits for decachlorobiphenyl (DCB) in the leachate seep samples. Qualification of data was not required since surrogate compound, tetrachloro-m-xylene met criteria and DCB recoveries were greater than ten percent.

Continuing calibration. Continuing calibration %D requirement (%D<15%) was slightly exceeded for delta-BHC on column DB-608 at 12/29/99 23:25. Nondetected results for this compound were qualified as approximate (UJ) in the following associated samples: Blindduplicate-SW, SEEP 3, SEEP 4, SEEP 5, SEEP 6, SEEP 8, and BlindDup-SEEP. Laboratory corrective actions were not implemented as required. The laboratory case narrative stated that corrective actions were not implemented since d-BHC sensitivity increased and it was not detected.

PE analyses. PE results were within warning limits. Endrin ketone was detected at concentration below laboratory MRL was identified as PE contaminant. This compound was not detected in method blanks or samples associated with this site. Therefore, qualification of data was not required.

MS/MSD analysis. Percent recoveries and RPDs were not within laboratory control limits for several pesticides in MS/MSD sample SEEP 3. Table 4.10. is a summary of the data qualified. Laboratory corrective action was not required since the associated LCS met criteria.

Table 4.10. Qualification of pesticide: MS/MSD criteria				
MS/MSD ID	**Compound**	**%Recovery**	**Action**	**Samples Affected**
SEEP 3	b-BHC	52, 49	UJ	SEEP 3
	Lindane	57, 53	UJ	
	Heptachlor epoxide	67, 62	UJ	
	Methoxychlor	39, 28 RPD 33%	UJ	
Source: O'Brien & Gere Engineers.				

Overall data assessment. The laboratory performed pesticide analyses and QC procedures in accordance with method and QAPP requirements. The pesticide data are usable for qualitative and quantitative purposes. Some pesticide data were qualified as approximate (UJ) based on minor excursions from continuing calibration and MS/MSD criteria.

4.5. Metal analyses

Thirty-six ground water, three residential wells, seven surface waters, and six leachate seeps with associated QC samples were validated for target analyte list metals. The following QA/QC parameters met validation criteria or did not result in qualification of data

- Holding times and sample preservation
- Initial and continuing calibration
- Interference check standard analysis
- Serial dilution analysis
- Blank analysis
- MS/MSD analysis
- Laboratory duplicate analysis
- LCS analysis
- PE analyses
- Verification of instrument parameters
- Analyte quantitation and reporting limits
- Documentation completeness

Field duplicate analyses. Precision requirements were met with one exception. The RPD for aluminum (61.8%) was greater than thirty percent in field duplicate pair BlindDup-SEEP and SEEP-4. Detected results for aluminum were qualified as approximate (J). The following leachate seep samples were impacted: SEEP 4, SEEP 5, SEEP 6, SEEP 8, SEEP 1, and BlindDup-SEEP.

Overall data assessment. The laboratory performed metal analyses and QC procedures in accordance with method and QAPP requirements. The metals data are usable for qualitative and quantitative purposes. Detected results for aluminum results were qualified as approximate in the leachate seep samples based on minor excursion from field duplicate criterion.

4.6. Wet chemistry analyses

Nineteen ground water samples with associated QC samples were validated for the wet chemistry parameters summarized in Table 4.1. The following QA/QC parameters met validation criteria or did not result in qualification of data

- Holding times and sample preservation
- Initial and continuing calibration
- Interference check standard and serial dilution analysis (metals only)
- Blank analysis
- MS/MSD analysis
- Laboratory duplicate analysis
- Field duplicate analysis
- LCS analysis
- Verification of instrument parameters
- Analyte quantitation
- Documentation completeness

Reporting limits. The reporting limit for sulfate specified in the QAPP at 1 mg/L was raised by the laboratory to 5 mg/L based on the lowest initial calibration standard analyzed.

Overall data assessment. The laboratory performed wet chemistry analyses and QC procedures in accordance with method and QAPP requirements. Wet chemistry data are usable for qualitative and quantitative purposes without further qualification.

4.7. Field measurements

The sampling log books were reviewed to verify that field measurements were conducted in accordance with calibration requirements specified in Appendix C of the SAP.

Based on review of the field logbooks provided, field equipment were calibrated in accordance with SAP requirements. The field data are useable without further qualification. Copies of field data have been included in Attachment I.

5. Data usability

Analytical data were validated for samples collected from the Barkhamsted-New Hartford Landfill Superfund Site, in Barkhamsted, Connecticut. Ground water, drinking water, surface water, and leachate seep samples were validated for parameters summarized in Table 4.1. based on accuracy and precision criteria specified in the QAPP. When excursions were observed from QA/QC requirements, the analytical data were qualified based on guidance provided in the USEPA Region I validation guidelines (USEPA Region I, November 1988, February 1989, December 1996).

Approximation of a data point indicates uncertainty in the reported concentration of the analyte, but not its assigned identity. The conservative assumptions used in the development of conclusions based on the analytical data verifies that approximated analytical data adheres to the project data quality objectives. This approach to the use of analytical data is consistent with the guidance presented in the USEPA Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), 540/1-89/002 (USEPA, 1992). A summary of the qualified data and its effect on data usability is presented in Attachment B, Table II.

This section summarizes the adherence of the analytical data to the data quality objectives (DQOs) established in the QAPP for precision, accuracy, representativeness, comparability, completeness, and sensitivity. A detailed discussion of the analytes and samples which were qualified is presented in Section 4. Summary tables of validated sample results with data validation qualifiers have been provided in Attachment D. In addition, a summary of the qualifications that were performed for each parameter and sample are included in Attachment A, Table I.

Data quality objectives were evaluated using percent usability defined as the percentage of sample results that are usable for qualitative and quantitative purposes.

Precision was assessed from laboratory MSD and field duplicate analyses. Data usability with respect to precision was calculated as 100.

Accuracy was assessed from GC/MS tuning, calibration, surrogate recovery, internal standard performance MS/MSD, LCS, and PE data. Data usability with respect to accuracy was calculated as 100%.

Representativeness was assessed from holding times, sample preservation, blank analysis, target compound identification and quantitation, sampling and analytical methodologies used. Data usability with respect to representativeness was 100%.

Overall, sensitivity requirements were met. Sulfate reporting limits specified in the QAPP (1 mg/L) was revised to 5 mg/L based on decrease sensitivity. The reporting limit for sulfate was based on the lowest standard analyzed for the initial calibration.

Elevated reporting limits were observed for volatile and semivolatile organic compounds in ground water samples MW-5S, MW-101S, and MW-1S. In accordance with the QAPP, these samples were diluted prior to sample analysis based on concentrations observed for previous sampling rounds. Elevated reporting limits were also observed for non-halogenated volatile organic compounds in the majority of the samples which required dilution to obtain methane concentrations within the linear calibration range.

Detected results reported at concentrations less than the MRL were approximated since method accuracy and precision data are not defined below the MRL.

Data completeness was calculated as 100%, exceeding the 95% requirement established in the QAPP.

Table I: Recommendation Summary Table

Table 1 Recommendation Summary For Natural Attenuation Parameters Barkhamsted Landfill, November –December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers
MW-5S	GW	A
MW-5B	GW	J^1
MW-113S	GW	A
MW-113D	GW	A
Blind Duplicate 12/7/99 (MW-113D)	GW	A
MW-118B	GW	A
MW-118S	GW	A
MW-111S	GW	A
MW-111I	GW	A
MW-111B	GW	A
MW-101D	GW	A
MW-101S	GW	J^1
MW-101B	GW	A
MW-101I	GW	A
MW-113B	GW	A
MW-4R	GW	A
MW-4S	GW	A
MW-4R-1	GW	A
MW-4R-2	GW	J^1
Blind Duplicate 1 (MW-4R-2)	GW	J^1
MW-113I	GW	A

Table Notes:
A - Accept all data.

J^1 - Accept the data, but estimate the nondetected (UJ) and detected (J) results for methane, ethane, and ethane based on an excursions from preservation requirements. This qualification has a minor effect on data usability.

Source: O'Brien & Gere Engineers.

Table 1 Recommendation Summary For Metals (6010B, 7470A, 7841) Barkhamsted Landfill, November - December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers
MW-101D	GW	A
MW-101S	GW	A
Blind Duplicate 2 (MW-101S)	GW	A
MW-101B	GW	A
MW-101I	GW	A
MW-102B	GW	A
MW-102S	GW	A
MW-103B	GW	A
MW-103S	GW	A
MW-104B	GW	A
Blind Duplicate (MW-104B)	GW	A
MW-104S	GW	A
MW-105B	GW	A
MW-105S	GW	A
MW-106S	GW	A
MW-110I	GW	A
MW-111B	GW	A
MW-111I	GW	A
MW-111S	GW	A
MW-113B	GW	A
MW-113D	GW	A
MW-113I	GW	A
MW-113S	GW	A
MW-115B	GW	A
MW-115S	GW	A
MW-117B	GW	A
MW-117S	GW	A
MW-118B	GW	A
MW-118S	GW	A
MW-1S	GW	A
MW-1R	GW	A
MW-4R	GW	A
MW-4S	GW	A
MW-4R-1	GW	A
MW-4R-2	GW	A
Blind Duplicate (MW-4R-2)	GW	A
MW-5S	GW	A
MW-5B	GW	A
MW-S3	GW	A
DW-1	DW	A
DW-2	DW	A
DW-3	DW	A
SW-3	SW	A
SW-6	SW	A
SW-9	SW	A
SW-10	SW	A
SW-13	SW	A
Blind Duplicate-SW (SW-13)	SW	A

Table 1 Recommendation Summary For Metals (6010B, 7470A, 7841) Barkhamsted Landfill, November - December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers
SW-15	SW	A
SW-16	SW	A
SEEP 1	Leachate	J[1]
SEEP 3	Leachate	A
SEEP 4	Leachate	J[1]
Blind Duplicate-SEEP (SEEP 4)	Leachate	J[1]
SEEP 5	Leachate	J[1]
SEEP 6	Leachate	J[1]
SEEP 8	Leachate	J[1]

Table Notes:

GW – ground water
SW – surface water
DW – residential well

A - Accept all data

J[1] – Accept the data, but estimate detected results (J) for aluminum based on an excursion from field precision requirements. This qualification has a minor effect on the data usability.

Source: O'Brien & Gere Engineers.

Table 1
Recommendation Summary
For Volatile Organics (8260B)
Barkhamsted Landfill, November - December 1999 Sampling Event

Sample ID	Matrix	Qualifiers
MW-101D	GW	J[1]
MW-101D (5x DL for acetone only)	GW	A
MW-101S	GW	A
Blind Duplicate 2 (MW-101S)	GW	A
MW-101B	GW	J[1]
MW-101I	GW	A
MW-102B	GW	A
MW-102S	GW	A
MW-103B	GW	A
MW-103S	GW	A
MW-104B	GW	J[3]
MW-104B (5x DL for acetone only)	GW	A[2]
Blind Duplicate (MW-104B)	GW	J[3]
Blind Duplicate (MW-104B) (5x DL for acetone only)		A[2]
MW-104S	GW	A
MW-105B	GW	A
MW-105S	GW	J[2]
MW-106S	GW	J[1]
MW-110I	GW	J[1]
MW-111B	GW	J[1,2]
MW-111I	GW	J[1]
MW-111S	GW	J[1]
MW-113B	GW	J[1]
MW-113D	GW	J[1]
MW-113I	GW	J[1]
MW-113S	GW	J[1]
MW-115B	GW	J[1]
MW-115S	GW	J[1]
MW-117B	GW	J[1]
MW-117S	GW	A
MW-118B	GW	A
MW-118B (5x DL for acetone only)	GW	A[2]
MW-118S	GW	J[1]
MW-1S	GW	J[1]
MW-1R	GW	A[1], J[1]
MW-4R	GW	J[1]
MW-4R (20x DL for acetone only)	GW	A
MW-4S	GW	J[1]
MW-4R-1	GW	J[1]
MW-4R-2	GW	A
Blind Duplicate (MW-4R-2)	GW	A
MW-5S	GW	A
MW-5B	GW	J[1]
MW-S3	GW	J[1]
DW-1	DW	J[1]
DW-2	DW	J[1]
DW-3	DW	J[1]
SW-3	SW	J[1]

Table 1
Recommendation Summary
For Volatile Organics (8260B)
Barkhamsted Landfill, November - December 1999 Sampling Event

Sample ID	Matrix	Qualifiers
SW-6	SW	J^1
SW-9	SW	A^2
SW-10	SW	A^2, J^2
SW-13	SW	A^2, J^3
Blind Duplicate-SW (SW-13)	SW	J^1, J^3
SW-15	SW	A^2, J^1
SW-16	SW	A
SEEP 1	Leachate	A^1, J^1
SEEP 3	Leachate	$J^{1,2}$
SEEP 4	Leachate	J^1
Blind Duplicate-SEEP (SEEP 4)	Leachate	J^1
SEEP 5	Leachate	J^1
SEEP 6	Leachate	J^1
SEEP 8	Leachate	J^1, J^4

Table Notes:

GW – ground water
SW – surface water
DW – residential well

A - Accept all data.

A^1 – Accept all data, but consider detected results for methylene chloride as nondetect at the method reporting limit due to trip blank contamination. The results are usable for project objectives. These qualifications have a minor effect on data usability since detected results were less than the method reporting limit.

A^2 - Accept the data, but consider the positive results for the following compounds and samples nondetected. The results are usable for project objectives as elevated quantitation limits.

- Acetone: MW-104B, MW-118B, Blind Duplicate 1(11/24/99).
- Carbon disulfide: MW-104B, Blind Duplicate 1(11/24/99), SW-10, SW-9, SW-15, SW-13.

J^1 – Accept data, but estimate nondetected results (UJ) and detected results for the following compounds and samples based on minor excursions from continuing calibration %D requirements:

- Chloroethane: MW-113B, MW-115S, MW-110I, MW-106S, MW-118S, MW-111B, MW-111I, MW-111S, MW-117B, MW-S3, MW-4R, MW-101B, DW-1, MW-4R-1, MW-4S, MW-5B, SW-15, SW-6, SW-3, Blind Duplicate-SW, MW-101D, MW-113S, DW-3, MW-113I, DW-2, MW-113D, SEEP 1, MW-1R, MW-1S, MW-115B, SEEP 3, SEEP 4, SEEP 5, SEEP 6, SEEP 8, Blind Duplicate-SEEP.

- Chloromethane: MW-S3, MW-4R, MW-101B, DW1, MW-4R-1, MW-4S, MW-5B.

- Bromomethane: MW-115B, SEEP 3, SEEP 4, SEEP 5, SEEP 6, SEEP 8, Blind Duplicate-SEEP.

The detected results and quantitation limits are usable for project objectives as estimates. These qualifications have a minor effect on data usablity.

Table 1 Recommendation Summary For Volatile Organics (8260B) Barkhamsted Landfill, November - December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers

Table Notes continued:

J^2 – Accept data, but estimate nondetected results (UJ) and detected results (J) for the following compounds and samples based on MS/MSD percent recoveries or RPDs outside of laboratory control limits:

- Acetone, carbon disulfide, 2-butanone, 2-hexanone, and 1,1,2,2-tetrachloroethane in MW-105S.
- Carbon disulfide and 2-butanone in sample SW-10.
- 2-Butanone and 2-hexanone in sample SEEP 3.
- 2-Butanone and cis-1,2-dichloroethene in sample MW-111B.

The quantitation limits are usable for project objectives as estimates with the potential for false negative results. Detected results for cis-1,2-dichloroethene in sample MW-111B and carbon disulfide in SW-10 may be biased high based on high percent recoveries or high RPD values. These qualifications have a minor effect on data usablity.

J^3 - Accept data, but estimate detected results (J) for acetone in samples MW-104B and Blind Duplicate (11/24/99) and carbon disulfide in samples SW-13 and Blind Duplicate-SW based on minor excursions from field precision requirements. These qualifications have a minor effect on data usability.

J^4 - Accept data, but estimate detected results (J) for carbon disulfide in sample SEEP 8 based on poor correlation between undiluted and diluted values. The carbon disulfide results is usable as an estimated value and may be biased high. This qualification has a minor effect on data usability.

Source: O'Brien & Gere Engineers.

Table 1 Recommendation Summary For Semivolatile Organics (8270C) Barkhamsted Landfill, November - December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers
MW-101D	GW	A
MW-101S	GW	A
Blind Duplicate 2 (MW-101S)	GW	A
MW-101B	GW	J[4]
MW-101I	GW	A
MW-102B	GW	J[1,3]
MW-102S	GW	J[1,2,3]
MW-103B	GW	J[1,3]
MW-103S	GW	J[1,3]
MW-104B	GW	J[1]
Blind Duplicate (MW-104B)	GW	A
MW-104S	GW	A
MW-105B	GW	J[3]
MW-105S	GW	J[1,3]
MW-106S	GW	J[1,3]
MW-110I	GW	J[1,3,4]
MW-111B	GW	A
MW-111I	GW	A
MW-111S	GW	A
MW-113B	GW	A
MW-113D	GW	J[3]
MW-113I	GW	J[1]
MW-113S	GW	A
MW-115B	GW	J[1]
MW-115S	GW	J[1,3]
MW-117B	GW	A
MW-117S	GW	A
MW-118B	GW	A
MW-118S	GW	A
MW-1S	GW	J[3]
MW-1R	GW	J[3,4]
MW-4R	GW	J[4]
MW-4S	GW	J[4]
MW-4R-1	GW	A
MW-4R-2	GW	J[4]
Blind Duplicate (MW-4R-2)	GW	A
MW-5S	GW	A
MW-5B	GW	A
MW-S3	GW	A
DW-1	DW	A
DW-2	DW	J[1]
DW-3	DW	J[1]
SW-3	SW	A
SW-6	SW	J[1]
SW-9	SW	A
SW-10	SW	A
SW-13	SW	A
Blind Duplicate-SW (SW-13)	SW	A

Table 1
Recommendation Summary
For Semivolatile Organics (8270C)
Barkhamsted Landfill, November - December 1999 Sampling Event

Sample ID	Matrix	Qualifiers
SW-15	SW	A
SW-16	SW	A
SEEP 1	Leachate	J^{3}
SEEP 3	Leachate	$J^{1,4}$
SEEP 4	Leachate	$J^{1,4}$
Blind Duplicate-SEEP (SEEP 4)	Leachate	A
SEEP 5	Leachate	J^{4}
SEEP 6	Leachate	$J^{1,4}$
SEEP 8	Leachate	J^{1}

Table Notes;

GW – ground water
SW – surface water
DW – residential well

A - Accept all data.

J^{1} – Accept data, but estimate nondetected results (UJ) and detected results for the following compounds and samples based on minor excursions from continuing calibration %D requirements:

- Indeno(1,2,3-cd)pyrene: MW-115S, MW-105S, MW-103B, MW-103S, MW-102B, MW-102S, MW-110I, MW-106S.
- Dibenzo(a,h)anthracene: MW-105S, MW-103B, MW-103S, MW-102B, MW-102S, MW-110I, MW-106S.
- Benzo(g,h,i)perylene: MW-105S, MW-103B, MW-103S, MW-102B, MW-102S, MW-110I, MW-106S.
- 4-nitroaniline: MW-104B.
- 2,4-dinitrophenol: DW-3, SW-6, MW-113I, DW-3, MW-115B, SEEP 3, SEEP 4, SEEP 6, SEEP 8.
- 2,4-dinitrotoluene: DW-3, SW-6, MW-113I, DW-3, MW-115B, SEEP 3, SEEP 4, SEEP 6, SEEP 8.

The detected results and quantitation limits are usable for project objectives as estimates. These qualifications have a minor effect on data usablity.

Table 1 Recommendation Summary For Semivolatile Organics (8270C) Barkhamsted Landfill, November - December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers

Table Notes continued:

J[2] - Accept the data, but estimate nondetected (UJ) for acid extractable compounds based on surrogate recoveries which were below laboratory control limits. The results are usable for project objectives as estimated values. These qualifications have a minor effect on data quality.

J[3] - Accept the data, but estimate nondetected (UJ) results for the following compounds and samples based on LCS recoveries which were below laboratory control limits.

- 1,3-dichlorobenzene and hexachlorobutadiene: MW-115S, MW-110I, MW-106S, MW-105B, MW-105S, MW-103B, MW-103S, MW-102B, MW-102S, MW-1S, MW-113D, MW-1R, SEEP 1.

These results are usable for project objectives as estimated values. These qualifications had minor effect on data usability.

J[4] - Accept data, but estimate nondetected results (UJ) for the following samples and compounds based on internal areas that were below requirements. The quantitation limits are usable for project objectives as estimated values. These qualifications have a minor effect on data usability.

- MW-110I, MW-101B, MW-4R-2, MW-4S, MW-4R, SEEP 3 SEEP 4, SEEP 5, SEEP 6, MW-1R: benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene.

Source: O'Brien & Gere Engineers.

Table 1 Recommendation Summary For Pesticides (8081) Barkhamsted Landfill, November - December 1999 Sampling Event		
Sample ID	Matrix	Qualifiers
SW-3	SW	A
SW-6	SW	A
SW-9	SW	A
SW-10	SW	A
SW-13	SW	A
Blind Duplicate-SW (SW-13)	SW	J^1
SW-15	SW	A
SW-16	SW	A
SEEP 1	Leachate	A
SEEP 3	Leachate	$J^{1,2}$
SEEP 4	Leachate	J^1
Blind Duplicate-SEEP (SEEP 4)	Leachate	J^1
SEEP 5	Leachate	J^1
SEEP 6	Leachate	J^1
SEEP 8	Leachate	J^1

Table Notes:

GW – ground water
SW – surface water

A - Accept all data

J^1 – Accept the data, but estimate nondetected results for delta-BHC based on minor excursion from continuing calibration %D requirement. This qualification has a minor impact on data usability.

J^2 – Accept the data, but estimate nondetected results (UJ) for the following compounds based on MS/MSD percent recoveries below laboratory control limits: beta-BHC, lindane, heptachlor expoxide, and methoxychlor. The quantitation limits are usable for project objectives as estimates with the potential for false negative results. These qualifications have a minor effect on data usablity.

Source: O'Brien & Gere Engineers.

Table II: Overall Evaluation of Data

Table II

Overall Evaluation of Data for Natural Attenuation Parameters

Barkhamsted Landfill, November – December 1999 Sampling Event

DQO	Sampling* and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
Supplement previous site analytical data to up-date risk assessment To provide data for natural attenuation study	Both - Yes	Refer to qualifications in Table I J [1]	None	Not applicable	**Minor impact on data usablity:** Nondetected and detected results were estimated for methane, ethane, and ethene in 4 samples since preservation requirements could not be met due.

Table Notes:

* The evaluation of "sampling error" cannot be completely assess in the data validation. Field sampling notes were reviewed during the validation for compliance with SAP requirements. Excursions from SAP requirements were not observed based on review of the field sampling logs and notes.

**Sampling variability is not assessed in the data validation.

Source: O'Brien & Gere

Table II
Overall Evaluation of Data for Metals
Barkhamsted Landfill, November – December 1999 Sampling Event

DQO	Sampling* and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
Supplement previous site analytical data to up-date risk assessment To provide data for natural attenuation study	Both - Yes	None	Refer to qualifications in Table 1	Not applicable	**Minor impact on data usability**: Detected results for aluminum were estimated in six leachate samples based on an excursion from field precision criterion.

Table Notes:

* The evaluation of "sampling error" cannot be completely assess in the data validation. Field sampling notes were reviewed during the validation for compliance with SAP requirements. Excursions from SAP requirements were not observed based on review of the field sampling logs and notes.

**Sampling variability is not assessed in the data validation.

Source: O'Brien & Gere

Table II
Overall Evaluation of Data for Volatile Organics
Barkhamsted Landfill, November – December 1999 Sampling Event

DQO	Sampling* and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
Supplement previous site analytical data to up-date risk assessment To provide data for natural attenuation study	Both - Yes	Refer to qualifications in Table I: $J^{1,2,4}$	Refer to qualifications in Table I: $A^{1,2}$ J^{3}	Not applicable	**Minor impact on data usablity**: Detected results were qualified as nondetected at the method reporting limit for methylene chloride in samples SEEP 3 and MW-1R based on associated trip blank results. Detected results were qualified as nondetected at elevated method reporting limit for carbon disulfide in six samples and for acetone in 3 samples based on associated equipment blank results. Nondetected results were estimated for the following compounds based on minor excursions from continuing calibration requirements: • Chloroethane in 36 samples; • Chloromethane in 7 samples; • Bromomethane in 7 samples. Detected results were estimated and may be biased high for cis-1,2-dichloroethene in sample MW-111B and for carbon disulfide in SW-10 based on high MS/MSD recovery and RPD values

Table II
Overall Evaluation of Data for Volatile Organics
Barkhamsted Landfill, November – December 1999 Sampling Event

		Measurement Error			
					Minor impact on data usability continued: Nondetected results were estimated for the following compounds based on MS/MSD recoveries that were biased low: acetone, carbon disulfide, and 1,1,2,2-tetrachloroethane in 1 sample; 2-butanone in 4 samples, and 2-hexanone in 2 samples. Detected results were qualified as estimated for the following compounds based on minor excursions from field precision criteria; acetone in field duplicate pairs MW-104B and Blind Duplicate (11/24/99) and for carbon disulfide in field duplicate pairs SW-13 and Blind Duplicate-SW. Estimated detected result for carbon disulfide in sample SEEP-8 based on poor correlation between undiluted and diluted runs. The carbon disulfide result may be biased high.

Table Notes:

* The evaluation of "sampling error" cannot be completely assess in the data validation. Field sampling notes were reviewed during the validation for compliance with SAP requirements. Excursions from SAP requirements were not observed based on review of the field sampling logs and notes.

**Sampling variability is not assessed in the data validation.

Source: O'Brien & Gere

Table II
Overall Evaluation of Data for Semivolatile Organics
Barkhamsted Landfill, November -- December 1999 Sampling Event

DQO	Sampling* and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
Supplement previous site analytical data to up-date risk assessment To provide data for natural attenuation study	Both - Yes	Refer to qualifications in Table I: J [1,2,3,4,]	None	Not applicable	**Minor impact on data usability**: Detected and nondetected results were estimated for the fourteen acid-extractable phenolic compounds in sample MW-102S based on surrogate recoveries that were below laboratory control limits. Nondetected results were estimated for 1,3-dichlorobenzene and hexachlorobutadiene in 13 samples based on LCS recoveries that were biased low: Nondetected results were estimated for the following compounds based on minor excursions from continuing calibration %D requirements: • Indeno(1,2,3-cd)pyrene in 8 samples; • Dibenzo(a,h)anthracene and benzo(g,h,i)perylene in 7 samples; • 4-nitroaniline in 1 sample; • 2,4-dinitrophenol and 2,4-dinitrotoluene in 9 samples. Nondetected results were estimated for the following compounds based on minor excursions from internal standard requirements: • benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene in 10 samples.

Table II
Overall Evaluation of Data for Semivolatile Organics
Barkhamsted Landfill, November – December 1999 Sampling Event

		Measurement Error		

Table Notes:

* The evaluation of "sampling error" cannot be completely assess in the data validation. Field sampling notes were reviewed during the validation for compliance with SAP requirements. Excursions from SAP requirements were not observed based on review of the field sampling logs and notes.

**Sampling variability is not assessed in the data validation.

Source: O'Brien & Gere

Table II
Overall Evaluation of Data for Pesticides
Barkhamsted Landfill, November – December 1999 Sampling Event

DQO	Sampling* and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
Supplement previous site analytical data to up-date risk assessment To provide data for natural attenuation study	Both - Yes	Refer to qualifications in Table I: J[1,2]	None	Not applicable	**Minor impact on data usablity**: Nondetected results were estimated for delta-BHC based on a minor excursion from continuing calibration %D requirement. Nondetected results were estimated for beta-BHC, lindane, heptachlor expoxide, and methyoxychlor in sample SEEP 3 based on MS/MSD recoveries that were biased low.

Table Notes:

* The evaluation of "sampling error" cannot be completely assess in the data validation. Field sampling notes were reviewed during the validation for compliance with SAP requirements. Excursions from SAP requirements were not observed based on review of the field sampling logs and notes.

**Sampling variability is not assessed in the data validation.

Source: O'Brien & Gere

Table III: Tentatively Identified Compounds

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	DW-1 BARK4000 11/29/1999	DW-2 BARK4059 12/02/1999	DW-3 BARK4000 12/01/1999	MW-101B BARK4000 11/29/1999	MW-101D BARK4000 12/01/1999	MW-101I BARK4000 11/30/1999	MW-101S BARK4000 11/30/1999	MW-102B BARK3946 11/19/1999	MW-102S BARK3946 11/19/1999
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	MW-103B BARK3946 11/19/1999 ug/L	MW-103S BARK3946 11/19/1999 ug/L	MW-104B BARK4000 11/24/1999 ug/L	MW-104B Dup BARK4000 11/24/1999 ug/L	MW-104S BARK3946 11/23/1999 ug/L	MW-105B BARK3946 11/19/1999 ug/L	MW-105S BARK3946 11/19/1999 ug/L	MW-106S BARK3946 11/18/1999 ug/L	MW-110I BARK3946 11/18/1999 ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	MW-111B BARK3946 11/22/1999 ug/L	MW-111I BARK3946 11/22/1999 ug/L	MW-111S BARK3946 11/22/1999 ug/L	MW-113B BARK3946 11/17/1999 ug/L	MW-113D BARK4059 12/07/1999 ug/L	MW-113I BARK4059 12/02/1999 ug/L	MW-113S BARK4000 12/01/1999 ug/L	MW-115B BARK4059 12/03/1999 ug/L	MW-115S BARK3946 11/18/1999 ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	MW-117B BARK3946 11/22/1999	MW-117S BARK3946 11/22/1999	MW-118B BARK3946 11/23/1999	MW-118S BARK3946 11/22/1999	MW-1R BARK4059 12/08/1999	MW-1S BARK4059 12/06/1999	MW-4R BARK4000 11/29/1999	MW-4R-1 BARK4000 11/29/1999	MW-4R-2 BARK4000 11/29/1999
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	MW-4R-2 Dup BARK4000 11/29/1999 ug/L	MW-4S BARK4000 11/29/1999 ug/L	MW-5B BARK4000 11/30/1999 ug/L	MW-5S BARK3946 11/23/1999 ug/L	S-3 BARK4000 11/24/1999 ug/L	SW-03 BARK4000 12/01/1999 ug/L	SW-06 BARK4000 12/01/1999 ug/L	SW-09 BARK4000 12/01/1999 ug/L	SW-10 BARK4000 12/01/1999 ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	SW-13 BARK4000 12/01/1999 ug/L	SW-13 Dup BARK4000 12/01/1999 ug/L	SW-15 BARK4000 12/01/1999 ug/L	SW-16 BARK4000 12/01/1999 ug/L	Seep 1 BARK4059 12/08/1999 ug/L	Seep 3 BARK4059 12/03/1999 ug/L	Seep 4 BARK4059 12/03/1999 ug/L	Seep 4 Dup BARK4059 12/03/1999 ug/L	Seep 5 BARK4059 12/03/1999 ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Tentatively Identified Compound Semivolatile Organic Compound Data

Analyte	Seep 6 BARK4059 12/03/1999 ug/L	Seep 8 BARK4059 12/03/1999 ug/L	Eq. Blank Seep BARK4059 12/03/1999 ug/L	Equip. Blank #1 BARK4000 11/24/1999 ug/L	Equip. Blank #2 BARK4000 11/30/1999 ug/L
3,4-Dihydroxybenzoic acid	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

Appendix D

Data Summary Tables

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	DW-1 BARK4000 11/29/99 ug/L	DW-2 BARK4059 12/02/99 ug/L	DW-3 BARK4000 12/01/99 ug/L	MW-101B BARK4000 11/29/99 ug/L	MW-101D BARK4000 12/01/99 ug/L	MW-101I BARK4000 11/30/99 ug/L	MW-101S BARK4000 11/30/99 ug/L	MW-102B BARK3946 11/19/99 ug/L	MW-102S BARK3946 11/19/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	7.2	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	1	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.16 J	0.5 U	0.5 U	310 U	0.5 U	0.5 U
2-Butanone (MEK)	10 U	10 U	10 U	10 U	10 U	10 U	13000	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	3100 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	5 U	1800 J	5 U	5 U
Acetone	10 U	10 U	10 U	10 U	190	10 U	5000 J	10 U	10 U
Benzene	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.5 U	310 U	1.6	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	620 U	1 U	1 U
Carbon disulfide	0.5 U	0.5 U	0.5 U	4.6	2.6	0.5 U	310 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Chloroethane	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U	620 U	2.6	1 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Chloromethane	1 UJ	1 U	1 U	1 UJ	1 U	1 U	620 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.78	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Methylene chloride	2 U	2 U	0.69 J	2 U	2 U	0.92 J	1200 U	2 U	0.66 J
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	DW-1 BARK4000 11/29/99 ug/L	DW-2 BARK4059 12/02/99 ug/L	DW-3 BARK4000 12/01/99 ug/L	MW-101B BARK4000 11/29/99 ug/L	MW-101D BARK4000 12/01/99 ug/L	MW-101I BARK4000 11/30/99 ug/L	MW-101S BARK4000 11/30/99 ug/L	MW-102B BARK3946 11/19/99 ug/L	MW-102S BARK3946 11/19/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
Toluene	0.27 J	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	22000	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.26 J	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	620 U	0.38 J	1 U
Xylene (total)	0.5 U	0.5 U	0.5 U	1.7	0.5 U	0.5 U	310 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.21 J	0.5 U	0.5 U	310 U	1.4	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.2 J	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	310 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-103B BARK3946 11/19/99 ug/L	MW-103S BARK3946 11/19/99 ug/L	MW-104B BARK4000 11/24/99 ug/L	MW-104B Dup BARK4000 11/24/99 ug/L	MW-104S BARK3946 11/23/99 ug/L	MW-105B BARK3946 11/19/99 ug/L	MW-105S BARK3946 11/19/99 ug/L	MW-106S BARK3946 11/18/99 ug/L	MW-110I BARK3946 11/18/99 ug/L
1,1,1-Trichloroethane	0.67	0.25 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.38 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.61
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.13 J
2-Butanone (MEK)	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10 U	10 U	330 UJ	480 UJ	10 U	10 U	10 UJ	10 U	10 U
Benzene	0.39 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.7
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0..5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	0.5 U	0.5 U	0.58 U	0.66 U	0.5 U	0.5 U	0.5 UJ	0.5 U	4.5
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.43 J
Chloroethane	0.24 J	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	2.9 J
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.26 J	0.19 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	3.6	1.1 J	0.75 J	0.57 J	2 U	0.6 J	0.67 J	0.29 J	0.5 J
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-103B BARK3946 11/19/99 ug/L	MW-103S BARK3946 11/19/99 ug/L	MW-104B BARK4000 11/24/99 ug/L	MW-104B Dup BARK4000 11/24/99 ug/L	MW-104S BARK3946 11/23/99 ug/L	MW-105B BARK3946 11/19/99 ug/L	MW-105S BARK3946 11/19/99 ug/L	MW-106S BARK3946 11/18/99 ug/L	MW-110I BARK3946 11/18/99 ug/L
Tetrachloroethene	0.6	0.26 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	0.5 U	1.5	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.89
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-111B BARK3946 11/22/99 ug/L	MW-111I BARK3946 11/22/99 ug/L	MW-111S BARK3946 11/22/99 ug/L	MW-113B BARK3946 11/17/99 ug/L	MW-113D BARK4059 12/07/99 ug/L	MW-113I BARK4059 12/02/99 ug/L	MW-113S BARK4000 12/01/99 ug/L	MW-115B BARK4059 12/03/99 ug/L	MW-115S BARK3946 11/18/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1.5	2.6	0.48 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.3 J	0.63	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10 U	10 U	10 U	10 U	21	10 U	20	70	10 U
Benzene	0.69	1.6	0.16 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U
Carbon disulfide	0.5 U	0.5 U	0.5 U	0.68	0.75	26	0.68	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	1.8 J	4.8 J	0.46 J	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.43 J	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	0.89 J	0.68 J	2 U	2 U	2 U	2 U	0.92 J	2 U	2 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

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Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-111B BARK3946 11/22/99 ug/L	MW-111I BARK3946 11/22/99 ug/L	MW-111S BARK3946 11/22/99 ug/L	MW-113B BARK3946 11/17/99 ug/L	MW-113D BARK4059 12/07/99 ug/L	MW-113I BARK4059 12/02/99 ug/L	MW-113S BARK4000 12/01/99 ug/L	MW-115B BARK4059 12/03/99 ug/L	MW-115S BARK3946 11/18/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.48 J	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	2.7	2.5	0.65	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	13 J	12	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.17 J	0.21 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-117B BARK3946 11/22/99 ug/L	MW-117S BARK3946 11/22/99 ug/L	MW-118B BARK3946 11/23/99 ug/L	MW-118S BARK3946 11/22/99 ug/L	MW-1R BARK4059 12/08/99 ug/L	MW-1S BARK4059 12/06/99 ug/L	MW-4R BARK4000 11/29/99 ug/L	MW-4R-1 BARK4000 11/29/99 ug/L	MW-4R-2 BARK4000 11/29/99 ug/L
1,1,1-Trichloroethane	0.33 J	0.52	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.19 J	0.5 U	0.5 U	0.5 U	8.5	100 U	6.1	0.5 U	8.2
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	1.5	100 U	1.1	0.5 U	0.94
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.47 J	100 U	0.37 J	0.5 U	0.43 J
2-Butanone (MEK)	10 U	10 U	10 U	10 U	10 U	2000 U	10 U	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	1000 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	1000 U	5 U	5 U	5 U
Acetone	10 U	10 U	140	10 U	10 U	2000 U	710	10 U	10 U
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	4.9	100 U	3.2	0.5 U	3.3
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	200 U	1 U	1 U	1 U
Carbon disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.6	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Chloroethane	1 UJ	1 U	1 U	1 UJ	5.6 J	200 UJ	9.3 J	1 UJ	3.2
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	200 U	1 UJ	1 UJ	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.67	0.5 U	5.4	38 J	5.4	0.12 J	0.16 J
Methylene chloride	2 U	2 U	2 U	2 U	2 U	400 U	0.65 J	2 U	0.3 J
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-117B BARK3946 11/22/99 ug/L	MW-117S BARK3946 11/22/99 ug/L	MW-118B BARK3946 11/23/99 ug/L	MW-118S BARK3946 11/22/99 ug/L	MW-1R BARK4059 12/08/99 ug/L	MW-1S BARK4059 12/06/99 ug/L	MW-4R BARK4000 11/29/99 ug/L	MW-4R-1 BARK4000 11/29/99 ug/L	MW-4R-2 BARK4000 11/29/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	1.9	4700	7.3	0.5 U	0.1 J
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.38 J	1.4
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	200 U	1 U	0.72 J	1 U
Xylene (total)	0.5 U	0.5 U	4.1	0.5 U	12	90 J	9.4	0.67	0.75
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.14 J	0.5 U	0.24 J
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-4R-2 Dup BARK4000 11/29/99 ug/L	MW-4S BARK4000 11/29/99 ug/L	MW-5B BARK4000 11/30/99 ug/L	MW-5S BARK3946 11/23/99 ug/L	S-3 BARK4000 11/24/99 ug/L	SW-03 BARK4000 12/01/99 ug/L	SW-06 BARK4000 12/01/99 ug/L	SW-09 BARK4000 12/01/99 ug/L	SW-10 BARK4000 12/01/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	8.1	1.2	2.6	120 U	0.81	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.93	0.91	0.59	120 U	0.65	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.37 J	0.64	0.48 J	120 U	0.22 J	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	10 U	10 U	10 U	2500 U	10 U	10 U	10 U	10 U	10 UJ
2-Hexanone	5 U	5 U	5 U	1200 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	1200 U	5 U	5 U	5 U	5 U	5 U
Acetone	10 U	4.8 J	10 U	2500 U	10 U	10 U	10 U	10 U	10 U
Benzene	3.3	7.7	1.8	120 U	11	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	250 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	0.5 U	0.5 U	0.88	120 U	0.5 U	9.7	13	0.57 U	0.86 UJ
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.51	0.5 U	120 U	4.2	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	3.2	6.1 J	1.3 J	250 U	7 J	1 UJ	1 UJ	1 U	1 U
Chloroform	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 UJ	1 UJ	250 U	2.3 J	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.17 J	18	0.33 J	120 U	12	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	0.31 J	0.58 J	2 U	500 U	0.72 J	2 U	0.67 J	2 U	2 U
Styrene	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	MW-4R-2 Dup BARK4000 11/29/99 ug/L	MW-4S BARK4000 11/29/99 ug/L	MW-5B BARK4000 11/30/99 ug/L	MW-5S BARK3946 11/23/99 ug/L	S-3 BARK4000 11/24/99 ug/L	SW-03 BARK4000 12/01/99 ug/L	SW-06 BARK4000 12/01/99 ug/L	SW-09 BARK4000 12/01/99 ug/L	SW-10 BARK4000 12/01/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.35 J	0.16	7200	0.92	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	1.4	0.5 U	0.64	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	250 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.71	7.3	0.88	120 U	4.6	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.23 J	120 U	0.17 J	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.23 J	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	120 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	SW-13 BARK4000 12/01/99 ug/L	SW-13 Dup BARK4000 12/01/99 ug/L	SW-15 BARK4000 12/01/99 ug/L	SW-16 BARK4000 12/01/99 ug/L	Seep 1 BARK4059 12/08/99 ug/L	Seep 3 BARK4059 12/03/99 ug/L	Seep 4 BARK4059 12/03/99 ug/L	Seep 4 Dup BARK4059 12/03/99 ug/L	Seep 5 BARK4059 12/03/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.47 J	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.29 J	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	0.62 J	5 U	5 U	5 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.2 J	10 U
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.21 J	1.9	1.2	1.2	0.58
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.28 J	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ
Carbon disulfide	4.3 J	1.1 UJ	3.1 U	12	19	0.5 U	0.77	1.1	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.34 J	1.3	1.3	0.5 U
Chloroethane	1 U	1 UJ	1 UJ	1 U	0.78 J	1.5 J	1 UJ	1 UJ	1 UJ
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.15 J	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	2 U	2 U	0.39 J	2 U	2 U	0.24 J	2 U	2 U	2 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

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Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	SW-13 BARK4000 12/01/99 ug/L	SW-13 Dup BARK4000 12/01/99 ug/L	SW-15 BARK4000 12/01/99 ug/L	SW-16 BARK4000 12/01/99 ug/L	Seep 1 BARK4059 12/08/99 ug/L	Seep 3 BARK4059 12/03/99 ug/L	Seep 4 BARK4059 12/03/99 ug/L	Seep 4 Dup BARK4059 12/03/99 ug/L	Seep 5 BARK4059 12/03/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.21 J	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.2	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.12 J	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	Seep 6 BARK4059 12/03/99 ug/L	Seep 8 BARK4059 12/03/99 ug/L	Eq. Blank Seep BARK4059 12/03/99 ug/L	Equip. Blank #1 BARK4000 11/24/99 ug/L	Equip. Blank #2 BARK4000 11/30/99 ug/L	Equip. Blank SW BARK4000 12/01/99 ug/L	QC Trip Blank BARK3946 11/17/99 ug/L	QC Trip Blank BARK3946 11/18/99 ug/L	QC Trip Blank BARK3946 11/19/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10 U	10 U	10 U	21	10 U	10 U	10 U	10 U	10 U
Benzene	0.35 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	1.4	54 J	0.5 U	45	0.5 U	0.69	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.11 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.29 J	0.5 U	0.5 U	0.5 U
Methylene chloride	2 U	0.36 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	Seep 6 BARK4059 12/03/99 ug/L	Seep 8 BARK4059 12/03/99 ug/L	Eq. Blank Seep BARK4059 12/03/99 ug/L	Equip. Blank #1 BARK4000 11/24/99 ug/L	Equip. Blank #2 BARK4000 11/30/99 ug/L	Equip. Blank SW BARK4000 12/01/99 ug/L	QC Trip Blank BARK3946 11/17/99 ug/L	QC Trip Blank BARK3946 11/18/99 ug/L	QC Trip Blank BARK3946 11/19/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	QC Trip Blank BARK3946 11/22/99 ug/L	QC Trip Blank BARK3946 11/23/99 ug/L	QC Trip Blank BARK4000 11/24/99 ug/L	QC Trip Blank BARK4000 11/29/99 ug/L	QC Trip Blank BARK4000 11/30/99 ug/L	QC Trip Blank BARK4000 12/01/99 ug/L	QC Trip Blank BARK4059 12/02/99 ug/L	QC Trip Blank BARK4059 12/03/99 ug/L	QC Trip Blank BARK4059 12/06/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	QC Trip Blank BARK3946 11/22/99 ug/L	QC Trip Blank BARK3946 11/23/99 ug/L	QC Trip Blank BARK4000 11/24/99 ug/L	QC Trip Blank BARK4000 11/29/99 ug/L	QC Trip Blank BARK4000 11/30/99 ug/L	QC Trip Blank BARK4000 12/01/99 ug/L	QC Trip Blank BARK4059 12/02/99 ug/L	QC Trip Blank BARK4059 12/03/99 ug/L	QC Trip Blank BARK4059 12/06/99 ug/L
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	QC Trip Blank BARK4059 12/07/99 ug/L	QC Trip Blank BARK4059 12/08/99 ug/L
1,1,1-Trichloroethane	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U
2-Butanone (MEK)	10 U	10 U
2-Hexanone	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5 U	5 U
Acetone	10 U	10 U
Benzene	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U
Bromomethane	1 U	1 U
Carbon disulfide	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U
Chloroethane	1 U	1 U
Chloroform	0.5 U	0.5 U
Chloromethane	1 U	1 U
Dibromochloromethane	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U
Methylene chloride	2 U	0.61 J
Styrene	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Volatile Organic Compound Data

Analyte	QC Trip Blank BARK4059 12/07/99 ug/L	QC Trip Blank BARK4059 12/08/99 ug/L
Tetrachloroethene	0.5 U	0.5 U
Toluene	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U
Vinyl chloride	1 U	1 U
Xylene (total)	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 U
cis-1,3-Dichloropropylene	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	DW-1 BARK4000 11/29/99 ug/L	DW-2 BARK4059 12/02/99 ug/L	DW-3 BARK4000 12/01/99 ug/L	MW-101B BARK4000 11/29/99 ug/L	MW-101D BARK4000 12/01/99 ug/L	MW-101I BARK4000 11/30/99 ug/L	MW-101S BARK4000 11/30/99 ug/L	MW-102B BARK3946 11/19/99 ug/L	MW-102S BARK3946 11/19/99 ug/L
1,2,4-Trichlorobenzene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 UJ	10 UJ
1,4-Dichlorobenzene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Bis(2-chloroisopropyl) ether	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2,4,5-Trichlorophenol	51 U	51 U	51 U	53 U	52 U	52 U	10000 U	51 U	51 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	43	10 U	10 U	2200	10 U	10 U
2,4-Dinitrophenol	51 U	51 UJ	51 UJ	53 U	52 U	52 U	10000 U	51 U	51 U
2,4-Dinitrotoluene	10 U	10 UJ	10 UJ	11 U	10 U	10 U	2100 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	11 U	10 U	10 U	1300 J	10 U	10 U
2-Nitroaniline	51 U	51 U	51 U	53 U	52 U	52 U	10000 U	51 U	51 U
2-Nitrophenol	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
3,3-Dichlorobenzidine	20 U	20 U	20 U	21 U	21 U	21 U	4100 U	20 U	21 U
3-Nitroaniline	51 U	51 U	51 U	53 U	52 U	52 U	10000 U	51 U	51 U
4,6-Dinitro-2-methylphenol	51 U	51 U	51 U	53 U	52 U	52 U	10000 U	51 U	51 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	DW-1 BARK4000 11/29/99 ug/L	DW-2 BARK4059 12/02/99 ug/L	DW-3 BARK4000 12/01/99 ug/L	MW-101B BARK4000 11/29/99 ug/L	MW-101D BARK4000 12/01/99 ug/L	MW-101I BARK4000 11/30/99 ug/L	MW-101S BARK4000 11/30/99 ug/L	MW-102B BARK3946 11/19/99 ug/L	MW-102S BARK3946 11/19/99 ug/L
4-Methylphenol	10 U	10 U	10 U	11 U	10 U	10 U	44000	10 U	10 U
4-Nitroaniline	51 U	51 U	51 U	53 U	52 U	52 U	10000 U	51 U	51 U
4-Nitrophenol	51 U	51 U	51 U	53 U	52 U	52 U	10000 U	51 U	51 U
Acenaphthene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Anthracene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Benzo[a]pyrene	10 U	10 U	10 U	11 UJ	10 U	10 U	2100 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	11 UJ	10 U	10 U	2100 U	10 U	10 U
Benzo(ghi)perylene	10 U	10 U	10 U	11 UJ	10 U	10 U	2100 U	10 UJ	10 UJ
Benzo(k)fluoranthene	10 U	10 U	10 U	11 UJ	10 U	10 U	2100 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Carbazole	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Chrysene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	11 UJ	10 U	10 U	2100 U	10 UJ	10 UJ
Dibenzofuran	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	5 J	10 U	10 U	450 J	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Fluorene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Hexachlorobutadiene	9 U	9 U	9 U	9 U	9 U	9 U	1800 U	9 UJ	9 UJ
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	DW-1 BARK4000 11/29/99 ug/L	DW-2 BARK4059 12/02/99 ug/L	DW-3 BARK4000 12/01/99 ug/L	MW-101B BARK4000 11/29/99 ug/L	MW-101D BARK4000 12/01/99 ug/L	MW-101I BARK4000 11/30/99 ug/L	MW-101S BARK4000 11/30/99 ug/L	MW-102B BARK3946 11/19/99 ug/L	MW-102S BARK3946 11/19/99 ug/L
Hexachloroethane	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	11 UJ	10 U	10 U	2100 U	10 UJ	10 UJ
Isophorone	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
N-Nitrosodipropylamine	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Pentachlorophenol	25 U	25 U	25 U	26 U	26 U	26 U	5200 U	25 U	26 U
Phenanthrene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Phenol	10 U	10 U	10 U	11 U	10 U	10 U	1600 J	10 U	10 U
Pyrene	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	10 U	10 U	10 U	11 U	10 U	10 U	2100 U	10 U	10 U
Benzoic acid	50 U	50 U	50 U	50 U	50 U	50 U	7600 J	50 U	50 U
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-103B BARK3946 11/19/99 ug/L	MW-103S BARK3946 11/19/99 ug/L	MW-104B BARK4000 11/24/99 ug/L	MW-104B Dup BARK4000 11/24/99 ug/L	MW-104S BARK3946 11/23/99 ug/L	MW-105B BARK3946 11/19/99 ug/L	MW-105S BARK3946 11/19/99 ug/L	MW-106S BARK3946 11/18/99 ug/L	MW-110I BARK3946 11/18/99 ug/L
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroisopropyl) ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	52 U	51 U	51 U	51 U	50 U	50 U	51 U	52 U	51 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	52 U	51 U	51 U	51 U	50 U	50 U	51 U	52 U	51 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	52 U	51 U	51 U	51 U	50 U	50 U	51 U	52 U	51 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	21 U	20 U	20 U	20 U	20 U	20 U	20 U	21 U	20 U
3-Nitroaniline	52 U	51 U	51 U	51 U	50 U	50 U	51 U	52 U	51 U
4,6-Dinitro-2-methylphenol	52 U	51 U	51 U	51 U	50 U	50 U	51 U	52 U	51 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-103B BARK3946 11/19/99 ug/L	MW-103S BARK3946 11/19/99 ug/L	MW-104B BARK4000 11/24/99 ug/L	MW-104B Dup BARK4000 11/24/99 ug/L	MW-104S BARK3946 11/23/99 ug/L	MW-105B BARK3946 11/19/99 ug/L	MW-105S BARK3946 11/19/99 ug/L	MW-106S BARK3946 11/18/99 ug/L	MW-110I BARK3946 11/18/99 ug/L
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	52 U	51 U	51 UJ	51 U	50 U	50 U	51 U	52 U	51 U
4-Nitrophenol	52 U	51 U	51 U	51 U	50 U	50 U	51 U	52 U	51 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo[a]pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
Benzo(ghi)perylene	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3.1 J
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	9 UJ	9 UJ	9 U	9 U	9 U	9 UJ	9 UJ	9 UJ	9 UJ
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-103B BARK3946 11/19/99 ug/L	MW-103S BARK3946 11/19/99 ug/L	MW-104B BARK4000 11/24/99 ug/L	MW-104B Dup BARK4000 11/24/99 ug/L	MW-104S BARK3946 11/23/99 ug/L	MW-105B BARK3946 11/19/99 ug/L	MW-105S BARK3946 11/19/99 ug/L	MW-106S BARK3946 11/18/99 ug/L	MW-110I BARK3946 11/18/99 ug/L
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodipropylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	26 U	25 U	25 U	26 U	25 U	25 U	25 U	26 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	11	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-111B BARK3946 11/22/99	MW-111I BARK3946 11/22/99	MW-111S BARK3946 11/22/99	MW-113B BARK3946 11/17/99	MW-113D BARK4059 12/07/99	MW-113I BARK4059 12/02/99	MW-113S BARK4000 12/01/99	MW-115B BARK4059 12/03/99	MW-115S BARK3946 11/18/99
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	11 UJ	10 U	10 U	10 U	10 UJ
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-chloroisopropyl) ether	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	51 U	50 U	51 U	51 U	53 U	51 U	52 U	50 U	51 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	51 U	50 U	51 U	51 U	53 U	51 UJ	52 U	50 UJ	51 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	11 U	10 UJ	10 U	10 UJ	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Nitroaniline	51 U	50 U	51 U	51 U	53 U	51 U	52 U	50 U	51 U
2-Nitrophenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	20 U	20 U	21 U	20 U	21 U	20 U	21 U	20 U	20 U
3-Nitroaniline	51 U	50 U	51 U	51 U	53 U	51 U	52 U	50 U	51 U
4,6-Dinitro-2-methylphenol	51 U	50 U	51 U	51 U	53 U	51 U	52 U	50 U	51 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-111B BARK3946 11/22/99 ug/L	MW-111I BARK3946 11/22/99 ug/L	MW-111S BARK3946 11/22/99 ug/L	MW-113B BARK3946 11/17/99 ug/L	MW-113D BARK4059 12/07/99 ug/L	MW-113I BARK4059 12/02/99 ug/L	MW-113S BARK4000 12/01/99 ug/L	MW-115B BARK4059 12/03/99 ug/L	MW-115S BARK3946 11/18/99 ug/L
4-Methylphenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Nitroaniline	51 U	50 U	51 U	51 U	53 U	51 U	52 U	50 U	51 U
4-Nitrophenol	51 U	50 U	51 U	51 U	53 U	51 U	52 U	50 U	51 U
Acenaphthene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo[a]pyrene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(ghi)perylene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	11 U	10 U	3.4 J	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	4.4 J	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	9 U	9 U	9 U	9 U	9 UJ	9 U	9 U	9 U	9 UJ
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-111B BARK3946 11/22/99 ug/L	MW-111I BARK3946 11/22/99 ug/L	MW-111S BARK3946 11/22/99 ug/L	MW-113B BARK3946 11/17/99 ug/L	MW-113D BARK4059 12/07/99 ug/L	MW-113I BARK4059 12/02/99 ug/L	MW-113S BARK4000 12/01/99 ug/L	MW-115B BARK4059 12/03/99 ug/L	MW-115S BARK3946 11/18/99 ug/L
Hexachloroethane	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 UJ
Isophorone	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosodipropylamine	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25 U	25 U	26 U	25 U	26 U	26 U	26 U	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	10 U	10 U	10 U	10 U	2.8 J	2.3 J	2.7 J	65	10 U
Benzoic acid	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-117B BARK3946 11/22/99 ug/L	MW-117S BARK3946 11/22/99 ug/L	MW-118B BARK3946 11/23/99 ug/L	MW-118S BARK3946 11/22/99 ug/L	MW-1R BARK4059 12/08/99 ug/L	MW-1S BARK4059 12/06/99 ug/L	MW-4R BARK4000 11/29/99 ug/L	MW-4R-1 BARK4000 11/29/99 ug/L	MW-4R-2 BARK4000 11/29/99 ug/L
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 UJ	110 UJ	11 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Bis(2-chloroisopropyl) ether	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2,4,5-Trichlorophenol	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	140	1000	58	10 U	7.9 J
2,4-Dinitrophenol	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	2.2 J	140	3.8 J	10 U	10 U
2-Nitroaniline	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
3,3-Dichlorobenzidine	20 U	21 U	20 U	20 U	20 U	210 U	21 U	21 U	21 U
3-Nitroaniline	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
4,6-Dinitro-2-methylphenol	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-117B BARK3946 11/22/99 ug/L	MW-117S BARK3946 11/22/99 ug/L	MW-118B BARK3946 11/23/99 ug/L	MW-118S BARK3946 11/22/99 ug/L	MW-1R BARK4059 12/08/99 ug/L	MW-1S BARK4059 12/06/99 ug/L	MW-4R BARK4000 11/29/99 ug/L	MW-4R-1 BARK4000 11/29/99 ug/L	MW-4R-2 BARK4000 11/29/99 ug/L
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	89 J	2.3 J	10 U	10 U
4-Nitroaniline	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
4-Nitrophenol	51 U	51 U	51 U	51 U	51 U	530 U	53 U	52 U	51 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Benzo[a]pyrene	10 U	10 U	10 U	10 U	10 UJ	110 U	11 UJ	10 U	10 UJ
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 UJ	110 U	11 UJ	10 U	10 UJ
Benzo(ghi)perylene	10 U	10 U	10 U	10 U	10 UJ	110 U	11 UJ	10 U	10 UJ
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 UJ	110 U	11 UJ	10 U	10 UJ
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 UJ	110 U	11 UJ	10 U	10 UJ
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	57	93 J	8.5 J	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Hexachlorobutadiene	9 U	9 U	9 U	9 U	9 UJ	90 UJ	9 U	9 U	9 U
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-117B BARK3946 11/22/99 ug/L	MW-117S BARK3946 11/22/99 ug/L	MW-118B BARK3946 11/23/99 ug/L	MW-118S BARK3946 11/22/99 ug/L	MW-1R BARK4059 12/08/99 ug/L	MW-1S BARK4059 12/06/99 ug/L	MW-4R BARK4000 11/29/99 ug/L	MW-4R-1 BARK4000 11/29/99 ug/L	MW-4R-2 BARK4000 11/29/99 ug/L
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 UJ	110 U	11 UJ	10 U	10 UJ
Isophorone	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
N-Nitrosodipropylamine	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Pentachlorophenol	25 U	26 U	25 U	25 U	25 U	260 U	27 U	26 U	26 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	110 U	11 U	10 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	4.7 J	10 U	10 U	10 U	10 U	110 U	14	10 U	10 U
Benzoic acid	50 U	50 U	50 U	50 U	50 U	500 U	50 U	50 U	50 U
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-4R-2 Dup BARK4000 11/29/99 ug/L	MW-4S BARK4000 11/29/99 ug/L	MW-5B BARK4000 11/30/99 ug/L	MW-5S BARK3946 11/23/99 ug/L	S-3 BARK4000 11/24/99 ug/L	SW-03 BARK4000 12/01/99 ug/L	SW-06 BARK4000 12/01/99 ug/L	SW-09 BARK4000 12/01/99 ug/L	SW-10 BARK4000 12/01/99 ug/L
1,2,4-Trichlorobenzene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	11 U	11 U	510 U	4.3 J	10 U	10 U	10 U	10 U
Bis(2-chloroisopropyl) ether	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	52 U	53 U	53 U	2500 U	52 U	51 U	52 U	51 U	52 U
2,4,6-Trichlorophenol	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	8.2 J	18	8.5 J	390 J	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	52 U	53 U	53 U	2500 U	52 U	51 U	52 UJ	51 U	52 U
2,4-Dinitrotoluene	10 U	11 U	11 U	510 U	10 U	10 U	10 UJ	10 U	10 U
2,6-Dinitrotoluene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	11 U	11 U	210 J	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	52 U	53 U	53 U	2500 U	52 U	51 U	52 U	51 U	52 U
2-Nitrophenol	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	21 U	21 U	21 U	1000 U	21 U	20 U	21 U	20 U	21 U
3-Nitroaniline	52 U	53 U	53 U	2500 U	52 U	51 U	52 U	51 U	52 U
4,6-Dinitro-2-methylphenol	52 U	53 U	53 U	2500 U	52 U	51 U	52 U	51 U	52 U
4-Bromophenyl phenyl ether	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-4R-2 Dup BARK4000 11/29/99 ug/L	MW-4S BARK4000 11/29/99 ug/L	MW-5B BARK4000 11/30/99 ug/L	MW-5S BARK3946 11/23/99 ug/L	S-3 BARK4000 11/24/99 ug/L	SW-03 BARK4000 12/01/99 ug/L	SW-06 BARK4000 12/01/99 ug/L	SW-09 BARK4000 12/01/99 ug/L	SW-10 BARK4000 12/01/99 ug/L
4-Methylphenol	10 U	11 U	11 U	3700	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	52 U	53 U	53 U	2500 U	52 U	51 U	52 U	51 U	52 U
4-Nitrophenol	52 U	53 U	53 U	2500 U	52 U	51 U	52 U	51 U	52 U
Acenaphthene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Benzo[a]pyrene	10 U	11 UJ	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	11 UJ	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Benzo(ghi)perylene	10 U	11 UJ	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	11 UJ	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Carbazole	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	11 UJ	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	11	2.4 J	510 U	10 U	10 U	10 U	10 U	10 U
Dimethyl phthalate	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	9 U	9 U	9 U	450 U	9 U	9 U	9 U	9 U	9 U
Hexachlorocyclopentadiene	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	MW-4R-2 Dup BARK4000 11/29/99 ug/L	MW-4S BARK4000 11/29/99 ug/L	MW-5B BARK4000 11/30/99 ug/L	MW-5S BARK3946 11/23/99 ug/L	S-3 BARK4000 11/24/99 ug/L	SW-03 BARK4000 12/01/99 ug/L	SW-06 BARK4000 12/01/99 ug/L	SW-09 BARK4000 12/01/99 ug/L	SW-10 BARK4000 12/01/99 ug/L
Hexachloroethane	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	11 UJ	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodipropylamine	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	11	11 U	510 U	7.6 J	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	26 U	27 U	26 U	1300 U	26 U	25 U	26 U	26 U	26 U
Phenanthrene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	11 U	11 U	130 J	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	11 U	11 U	510 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	10 U	11 U	11 U	510 U	10 U	10 U	3.9 J	10 U	10 U
Benzoic acid	50 U	50 U	50 U	2400	50 U	NA	NA	NA	NA
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	SW-13 BARK4000 12/01/99 ug/L	SW-13 Dup BARK4000 12/01/99 ug/L	SW-15 BARK4000 12/01/99 ug/L	SW-16 BARK4000 12/01/99 ug/L	Seep 1 BARK4059 12/08/99 ug/L	Seep 3 BARK4059 12/03/99 ug/L	Seep 4 BARK4059 12/03/99 ug/L	Seep 4 Dup BARK4059 12/03/99 ug/L	Seep 5 BARK4059 12/03/99 ug/L
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroisopropyl) ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	52 U	51 U	52 U	51 U	52 U	51 U	50 U	51 U	51 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	24	10 U	10 U	10 U
2,4-Dinitrophenol	52 U	51 U	52 U	51 U	52 U	51 UJ	50 UJ	51 U	51 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	52 U	51 U	52 U	51 U	52 U	51 U	50 U	51 U	51 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	21 U	20 U	21 U	20 U	21 U	20 U	20 U	20 U	20 U
3-Nitroaniline	52 U	51 U	52 U	51 U	52 U	51 U	50 U	51 U	51 U
4,6-Dinitro-2-methylphenol	52 U	51 U	52 U	51 U	52 U	51 U	50 U	51 U	51 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	SW-13 BARK4000 12/01/99 ug/L	SW-13 Dup BARK4000 12/01/99 ug/L	SW-15 BARK4000 12/01/99 ug/L	SW-16 BARK4000 12/01/99 ug/L	Seep 1 BARK4059 12/08/99 ug/L	Seep 3 BARK4059 12/03/99 ug/L	Seep 4 BARK4059 12/03/99 ug/L	Seep 4 Dup BARK4059 12/03/99 ug/L	Seep 5 BARK4059 12/03/99 ug/L
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	52 U	51 U	52 U	51 U	52 U	51 U	50 U	51 U	51 U
4-Nitrophenol	52 U	51 U	52 U	51 U	52 U	51 U	50 U	51 U	51 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo[a]pyrene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
Benzo(ghi)perylene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	2.6 J	10 U	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	9 U	9 U	9 U	9 U	9.6 UJ	9 U	9 U	9 U	9 U
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	SW-13 BARK4000 12/01/99 ug/L	SW-13 Dup BARK4000 12/01/99 ug/L	SW-15 BARK4000 12/01/99 ug/L	SW-16 BARK4000 12/01/99 ug/L	Seep 1 BARK4059 12/08/99 ug/L	Seep 3 BARK4059 12/03/99 ug/L	Seep 4 BARK4059 12/03/99 ug/L	Seep 4 Dup BARK4059 12/03/99 ug/L	Seep 5 BARK4059 12/03/99 ug/L
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodipropylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	26 U	25 U	26 U	26 U	26 U	25 U	25 U	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	Seep 6 BARK4059 12/03/99 ug/L	Seep 8 BARK4059 12/03/99 ug/L	Eq. Blank Seep BARK4059 12/03/99 ug/L	Equip. Blank #1 BARK4000 11/24/99 ug/L	Equip. Blank #2 BARK4000 11/30/99 ug/L
1,2,4-Trichlorobenzene	10 U	10 U	10 U	11 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	11 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	11 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	11 U	10 U
Bis(2-chloroisopropyl) ether	10 U	10 U	10 U	11 U	10 U
2,4,5-Trichlorophenol	51 U	51 U	51 U	53 U	51 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	11 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	11 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	11 U	10 U
2,4-Dinitrophenol	51 UJ	51 UJ	51 U	53 U	51 U
2,4-Dinitrotoluene	10 UJ	10 UJ	10 U	11 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	11 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	11 U	10 U
2-Chlorophenol	10 U	10 U	10 U	11 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	11 U	10 U
2-Methylphenol	10 U	10 U	10 U	11 U	10 U
2-Nitroaniline	51 U	51 U	51 U	53 U	51 U
2-Nitrophenol	10 U	10 U	10 U	11 U	10 U
3,3-Dichlorobenzidine	20 U	20 U	20 U	21 U	20 U
3-Nitroaniline	51 U	51 U	51 U	53 U	51 U
4,6-Dinitro-2-methylphenol	51 U	51 U	51 U	53 U	51 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	11 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	11 U	10 U
4-Chloroaniline	10 U	10 U	10 U	11 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	11 U	10 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	Seep 6 BARK4059 12/03/99 ug/L	Seep 8 BARK4059 12/03/99 ug/L	Eq. Blank Seep BARK4059 12/03/99 ug/L	Equip. Blank #1 BARK4000 11/24/99 ug/L	Equip. Blank #2 BARK4000 11/30/99 ug/L
4-Methylphenol	10 U	10 U	10 U	11 U	10 U
4-Nitroaniline	51 U	51 U	51 U	53 U	51 U
4-Nitrophenol	51 U	51 U	51 U	53 U	51 U
Acenaphthene	10 U	10 U	10 U	11 U	10 U
Acenaphthylene	10 U	10 U	10 U	11 U	10 U
Anthracene	10 U	10 U	10 U	11 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	11 U	10 U
Benzo[a]pyrene	10 UJ	10 U	10 U	11 U	10 U
Benzo(b)fluoranthene	10 UJ	10 U	10 U	11 U	10 U
Benzo(ghi)perylene	10 UJ	10 U	10 U	11 U	10 U
Benzo(k)fluoranthene	10 UJ	10 U	10 U	11 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	11 U	10 U
Carbazole	10 U	10 U	10 U	11 U	10 U
Chrysene	10 U	10 U	10 U	11 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	11 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	11 U	10 U
Dibenzo(a,h)anthracene	10 UJ	10 U	10 U	11 U	10 U
Dibenzofuran	10 U	10 U	10 U	11 U	10 U
Diethyl phthalate	10 U	10 U	10 U	11 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	11 U	10 U
Fluoranthene	10 U	10 U	10 U	11 U	10 U
Fluorene	10 U	10 U	10 U	11 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	11 U	10 U
Hexachlorobutadiene	9 U	9 U	9 U	9 U	9 U
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5 U

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

Table 2
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Semivolatile Organic Compound Data

Analyte	Seep 6 BARK4059 12/03/99 ug/L	Seep 8 BARK4059 12/03/99 ug/L	Eq. Blank Seep BARK4059 12/03/99 ug/L	Equip. Blank #1 BARK4000 11/24/99 ug/L	Equip. Blank #2 BARK4000 11/30/99 ug/L
Hexachloroethane	10 U	10 U	10 U	11 U	10 U
Indeno(1,2,3-cd)pyrene	10 UJ	10 U	10 U	11 U	10 U
Isophorone	10 U	10 U	10 U	11 U	10 U
N-Nitrosodipropylamine	10 U	10 U	10 U	11 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	11 U	10 U
Naphthalene	10 U	10 U	10 U	11 U	10 U
Nitrobenzene	10 U	10 U	10 U	11 U	10 U
Pentachlorophenol	26 U	26 U	25 U	26 U	25 U
Phenanthrene	10 U	10 U	10 U	11 U	10 U
Phenol	10 U	10 U	10 U	11 U	10 U
Pyrene	10 U	10 U	10 U	11 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	11 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	11 U	10 U
Bis(2-ethylhexyl)phthalate (BEHP)	10 U	10 U	10 U	11 U	10 U
Benzoic acid	NA	NA	NA	50 U	50 U
3,4-Dihydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND
4-Hydroxybenzyl alcohol (TIC)	ND	ND	ND	ND	ND
4-Hydroxybenzaldehyde (TIC)	ND	ND	ND	ND	ND
4-Hydroxybenzoic acid (TIC)	ND	ND	ND	ND	ND

NOTES: U,ND - Not detected. J - Estimated value. NA - Not Analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	DW-1 BARK4000 11/29/99	DW-2 BARK4059 12/02/99	DW-3 BARK4000 12/01/99	MW-101B BARK4000 11/29/99	MW-101D BARK4000 12/01/99	MW-101I BARK4000 11/30/99	MW-101S BARK4000 11/30/99	MW-102B BARK3946 11/19/99	MW-102S BARK3946 11/19/99
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.1 U	0.1 U	0.1 U	0.1 U	0.5	0.1 U	0.1 U	0.1 U	0.1 U
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.019	0.005 U	0.005 U
Barium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.6	0.1 U	0.1 U
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	11	5	3.1	120	26	49	380	110	29
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.02	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01 U	0.09	0.77	0.01 U	0.01 U	0.01 U	0.01	0.01 U	0.01 U
Iron	0.05 U	0.05 U	0.05 U	8.4	0.65	0.1	38	0.05 U	0.13
Lead	0.003	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	2	1	1	34	2	5	190	48	12
Manganese	0.05 U	0.05 U	0.05 U	6.7	0.83	0.05 U	0.06	0.48	0.05 U
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.21	0.05 U	0.05 U
Potassium	5 U	5 U	5 U	5 U	5 U	5 U	19	5 U	5 U
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.006	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	10	3	2	120	17	7	800	20	47
Thallium	0.0002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.03	0.02	0.01 U	0.01 U	0.02	0.01 U	0.01 U	0.01 U	0.05

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	MW-103B BARK3946 11/19/99 mg/L	MW-103S BARK3946 11/19/99 mg/L	MW-104B BARK4000 11/24/99 mg/L	MW-104B Dup BARK4000 11/24/99 mg/L	MW-104S BARK3946 11/23/99 mg/L	MW-105B BARK3946 11/19/99 mg/L	MW-105S BARK3946 11/19/99 mg/L	MW-106S BARK3946 11/18/99 mg/L	MW-110I BARK3946 11/18/99 mg/L
Aluminum	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	88	20	19	20	3.9	24	4.7	43	210
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.06	0.08	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.16	0.75
Lead	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	24	8	3	4	1 U	6	1 U	12	61
Manganese	0.08	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.12	0.45
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Potassium	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.03 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	56	49	5	5	3	7	180	8	94
Thallium	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01	0.01	0.01 U	0.01 U

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	MW-111B BARK3946 11/22/99 mg/L	MW-111I BARK3946 11/22/99 mg/L	MW-111S BARK3946 11/22/99 mg/L	MW-113B BARK3946 11/17/99 mg/L	MW-113D BARK4059 12/07/99 mg/L	MW-113I BARK4059 12/02/99 mg/L	MW-113S BARK4000 12/01/99 mg/L	MW-115B BARK4059 12/03/99 mg/L	MW-115S BARK3946 11/18/99 mg/L
Aluminum	0.1 U	0.1 U	0.1 U	0.1 U	0.2	2.7	0.4	0.5	0.1 U
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	130	310	54	15	17	19	15	9.3	6.6
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.06	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.05 U	0.05 U	0.08	0.05 U	0.31	1.9	0.48	0.28	0.09
Lead	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	31	75	13	3	1 U	2	4	4	2
Manganese	0.05 U	0.05 U	0.07	0.05 U	0.05 U	0.07	0.05 U	0.05 U	0.05 U
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Potassium	5 U	6	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	71	120	96	5	7	21	5	6	4
Thallium	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.01 U	0.01 U	0.01 U	0.02	0.03	0.03	0.01 U	0.01 U	0.01 U

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	MW-117B BARK3946 11/22/99 mg/L	MW-117S BARK3946 11/22/99 mg/L	MW-118B BARK3946 11/23/99 mg/L	MW-118S BARK3946 11/22/99 mg/L	MW-1R BARK4059 12/08/99 mg/L	MW-1S BARK4059 12/06/99 mg/L	MW-4R BARK4000 11/29/99 mg/L	MW-4R-1 BARK4000 11/29/99 mg/L	MW-4R-2 BARK4000 11/29/99 mg/L
Aluminum	2.7	0.1 U	1.6	0.1 U	1.2	0.3	0.4	0.1 U	0.1 U
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.005 U	0.005 U	0.005 U	0.007	0.017	0.016	0.005 U	0.005 U
Barium	0.1 U	0.1 U	0.1 U	0.1 U	0.3	0.6	0.1	0.1 U	0.3
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	24	10	68	10	170	79	140	34	160
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01	0.1	0.02	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	2.9	0.36	0.45	0.05 U	18	12	27	0.38	0.65
Lead	0.007	0.003 U	0.003 U	0.003 U	0.006	0.003 U	0.005	0.003 U	0.007
Magnesium	8	4	3	3	100	83	57	2	53
Manganese	0.77	0.1	0.05 U	0.05 U	6.9	0.08	6.1	0.05	4.3
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.07	0.23	0.05 U	0.05 U	0.05 U
Potassium	5 U	5 U	5 U	5 U	21	170	5 U	5 U	5 U
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	33	38	40	20	210	700	130	12	55
Thallium	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02	0.01 U	0.01 U	0.01 U	0.01	0.02	0.01	0.01 U	0.01 U

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	MW-4R-2 Dup BARK4000 11/29/99 mg/L	MW-4S BARK4000 11/29/99 mg/L	MW-5B BARK4000 11/30/99 mg/L	MW-5S BARK3946 11/23/99 mg/L	S-3 BARK4000 11/24/99 mg/L	SW-03 BARK4000 12/01/99 mg/L	SW-06 BARK4000 12/01/99 mg/L	SW-09 BARK4000 12/01/99 mg/L	SW-10 BARK4000 12/01/99 mg/L
Aluminum	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.013	0.005 U	0.005	0.007	0.005 U	0.005 U	0.005 U	0.005 U
Barium	0.3	0.2	0.1	0.8	0.9	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	170	110	190	250	140	2.1	2.5	8.2	8.4
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.74	59	3.1	62	39	0.05 U	0.05 U	1.2	0.9
Lead	0.007	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	54	47	47	86	77	1 U	1 U	3	3
Manganese	4.4	1.7	5.2	2	3.5	0.05 U	0.05 U	0.25	0.24
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Potassium	5 U	9	5 U	30	23	5 U	5 U	5 U	5 U
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	57	350	32	390	340	2	2	9	12
Thallium	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	SW-13 BARK4000 12/01/99	SW-13 Dup BARK4000 12/01/99	SW-15 BARK4000 12/01/99	SW-16 BARK4000 12/01/99	Seep 1 BARK4059 12/08/99	Seep 3 BARK4000 12/03/99	Seep 4 BARK4059 12/03/99	Seep 4 Dup BARK4059 12/03/99	Seep 5 BARK4059 12/03/99
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.1 U	0.1 U	0.1 U	0.1 U	0.7 J	0.1 U	1.9 J	3.6 J	0.5 J
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.005 U	0.005 U	0.005 U	0.005	0.005 U	0.005 U	0.005 U	0.005 U
Barium	0.1 U	0.1 U	0.1 U	0.1 U	0.1	0.2	0.2	0.2	0.4
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	6.1	6.9	3.2	3.8	59	100	140	150	130
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01	0.01	0.01
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.94	1.2	0.48	0.68	39	43	52	55	76
Lead	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	2	2	1	1	19	46	54	56	51
Manganese	0.19	0.22	0.07	0.11	3.9	4.2	5	5.3	9.4
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Potassium	5 U	5 U	5 U	5 U	8	18	61	63	53
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	7	8	3	3	110	200	240	240	210
Thallium	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.01 U	0.01 U	0.01 U	0.01 U	0.02	0.01 U	0.01 U	0.01	0.01 U

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 3
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Metals Data

Analyte	Seep 6 BARK4059 12/03/99 mg/L	Seep 8 BARK4059 12/03/99 mg/L	Eq. Blank Seep BARK4059 12/03/99 mg/L	Equip. Blank #1 BARK4000 11/24/99 mg/L	Equip. Blank #2 BARK4000 11/30/99 mg/L	Equip. Blank SW BARK4000 12/01/99 mg/L
Aluminum	0.2 J	0.1 J	0.1 U	0.1 U	0.1 U	0.1 U
Antimony	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	0.2	0.1	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Cadmium	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	150	60	0.21 U	0.21 U	0.32	0.21 U
Chromium	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.77 U
Iron	29	30	0.05 U	0.05 U	0.05 U	0.05 U
Lead	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	59	19	1 U	1 U	0.1 U	1 U
Manganese	16	4.3	0.05 U	0.05 U	0.05 U	0.05 U
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Potassium	43	17	5 U	5 U	5 U	5 U
Selenium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Sodium	230	65	1 U	1 U	1 U	1 U
Thallium	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.01	0.01	0.01 U	0.01 U	0.01 U	0.01 U

NOTES: U - Not detected. J - Estimated value.
--- = Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 4
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Pesticide Compound Data

Analyte	SW-03 BARK4000 12/01/99 ug/L	SW-06 BARK4000 12/01/99 ug/L	SW-09 BARK4000 12/01/99 ug/L	SW-10 BARK4000 12/01/99 ug/L	SW-13 BARK4000 12/01/99 ug/L	SW-13 Dup BARK4000 12/01/99 ug/L	SW-15 BARK4000 12/01/99 ug/L	SW-16 BARK4000 12/01/99 ug/L	Seep 1 12/03/99 ug/L
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Heptachlor	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
Heptachlor epoxide	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
Lindane	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
Methoxychlor	0.51 U	0.51 U	0.51 U	0.51 U	0.52 U	0.51 U	0.51 U	0.51 U	0.5 U
Toxaphene	0.51 U	0.51 U	0.51 U	0.51 U	0.52 U	0.51 U	0.51 U	0.51 U	0.5 U
alpha-BHC	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
a-Chlordane	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
beta-BHC	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U
delta-BHC	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 UJ	0.051 U	0.051 U	0.05 U
gamma-Chlordane	0.051 U	0.051 U	0.051 U	0.051 U	0.052 U	0.051 U	0.051 U	0.051 U	0.05 U

NOTES: U - Not detected. J - Estimated value.
--- - Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 4
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Pesticide Compound Data

Analyte	Seep 3 BARK4059 12/03/99 ug/L	Seep 4 BARK4059 12/03/99 ug/L	Seep 4 Dup BARK4059 12/03/99 ug/L	Seep 5 BARK4059 12/03/99 ug/L	Seep 6 BARK4059 12/03/99 ug/L	Seep 8 BARK4059 12/03/99 ug/L	Eq. Blank Seep BARK4059 12/03/99 ug/L
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Heptachlor	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lindane	0.05 UJ	0.018 J	0.05 U	0.05 U	0.05 U	0.008 J	0.05 U
Methoxychlor	0.5 UJ	0.5 U	0.5 U	0.52 U	0.5 U	0.52 U	0.5 U
Toxaphene	0.5 U	0.5 U	0.5 U	0.52 U	0.5 U	0.52 U	0.5 U
alpha-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
a-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
gamma-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

NOTES: U - Not detected. J - Estimated value.
--- - Not analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 5
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Dissolved Gas Analysis (Method RSK175-M) Data

	MW-101B BARK4000 11/29/99	MW-101D BARK4000 12/01/99	MW-101I BARK4000 11/30/99	MW-101S BARK4000 11/30/99	MW-111B BARK3946 11/22/99	MW-111I BARK3946 11/22/99	MW-111S BARK3946 11/22/99	MW-113B BARK3946 11/17/99	MW-113D BARK4059 12/07/99
Analyte	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Ethane	0.56 U	0.56 U	0.11 U	2.2 UJ	0.56 U	1.1 U	0.56 U	0.0020 U	0.0022 U
Ethene	0.56 U	0.56 U	0.11 U	2.2 UJ	0.56 U	1.1 U	0.56 U	0.0020 U	0.0022 U
Methane	6.6	0.88	0.043	26 J	3.1	4.6	0.91	0.0010 U	0.0028

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 5
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Dissolved Gas Analysis (Method RSK175-M) Data

Analyte	MW-113D, Dup BARK4059 12/07/99 mg/L	MW-113I BARK4059 12/02/99 mg/L	MW-113S BARK4000 12/01/99 mg/L	MW-118B BARK3946 11/23/99 mg/L	MW-118S BARK3946 11/22/99 mg/L	MW-4R BARK4000 11/29/99 mg/L	MW-4R-1 BARK4000 11/29/99 mg/L	MW-4R-2 BARK4000 11/29/99 mg/L	MW-4R-2 Dup BARK4000 11/29/99 mg/L
Ethane	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	1.1 U	0.56 U	0.56 UJ	1.1 UJ
Ethene	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	1.1 U	0.56 U	0.56 UJ	1.1 UJ
Methane	0.0027	0.0011 U	0.0011 U	0.0011 U	0.0011 U	17	0.68	16 J	19 J

NOTES: U - Not detected. J - Estimated value.

Table 5
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Dissolved Gas Analysis (Method RSK175-M) Data

Analyte	MW-4S BARK4000 11/29/99 mg/L	MW-5B BARK4000 11/30/99 mg/L	MW-5S BARK3946 11/23/99 mg/L	Equip. Blank BARK4059 12/08/99 mg/L	Equip. Blank #2 BARK4000 11/30/99 mg/L
Ethane	0.56 U	2.2 UJ	2.2 U	0.0022 U	0.0022 U
Ethene	0.56 U	2.2 UJ	2.2 U	0.0022 U	0.0022 U
Methane	12	16 J	17	0.0011 U	0.0011 U

NOTES: U - Not detected. J - Estimated value.

O'BRIEN & GERE ENGINEERS, INC.

Table 6
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Other Data

Analyte	MW-101B BARK4000 11/29/99	MW-101B, F BARK4000 11/29/99	MW-101D BARK4000 12/01/99	MW-101D, F BARK4000 12/01/99	MW-101I BARK4000 11/30/99	MW-101I, F BARK4000 11/30/99	MW-101S BARK4000 11/30/99	MW-101S, F BARK4000 11/30/99	MW-111B BARK3946 11/22/99
Chloride (mg/L)	280	---	6	---	53	---	1300	---	290
Nitrate (as N) (mg/L)	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U
Nitrite (as N) (mg/L)	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U
Nitrite-nitrate nitrogen (mg/L)	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U
Sulfate (mg/L)	6	---	38	---	13	---	5 U	---	15
Total Sulfides (mg/L)	0.2 U	---	0.2 U	---	0.2 U	---	0.2 U	---	0.2 U
Total Organic Carbon (TOC) (mg/L)	---	21	---	4	---	3	---	700	---
Alkalinity (as CaCO3) (mg/L)	310	---	76	---	65	---	1200	---	160

NOTES: U - Not detected. J - Estimated value. F - Field Filtered.
--- = Not analyzed.

O'BRIEN & GERE ENGINEERS, INC.

Table 6
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Other Data

Analyte	MW-111B, F BARK3946 11/22/99	MW-111I BARK3946 11/22/99	MW-111I, F BARK3946 11/22/99	MW-111S BARK3946 11/22/99	MW-111S, F BARK3946 11/22/99	MW-113B BARK3946 11/17/99	MW-113B, F BARK3946 11/17/99	MW-113D BARK4059 12/07/99	MW-113D, F BARK4000 11/18/99
Chloride (mg/L)	---	370	---	3	---	2	---	2	---
Nitrate (as N) (mg/L)	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---
Nitrite (as N) (mg/L)	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---
Nitrite-nitrate nitrogen (mg/L)	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---
Sulfate (mg/L)	---	19	---	13	---	9	---	10	---
Total Sulfides (mg/L)	---	0.2 U	---	0.2 U	---	0.2 U	---	0.2 U	---
Total Organic Carbon (TOC) (mg/L)	4	---	7	---	7	---	1	---	4
Alkalinity (as CaCO3) (mg/L)	---	280	---	130	---	48	---	54	---

NOTES: U - Not detected. J - Estimated value. F - Field Filtered.
--- = Not analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 6
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Other Data

Analyte	MW-113I BARK4059 12/02/99	MW-113I, F BARK4059 12/02/99	MW-113S BARK4000 12/01/99	MW-113S, F BARK4000 12/01/99	MW-118B BARK3946 11/23/99	MW-118B, F BARK3946 11/23/99	MW-118S BARK3946 11/22/99	MW-118S, F BARK3946 11/22/99	MW-4R BARK4000 11/29/99
Chloride (mg/L)	2	---	2	---	25	---	29	---	280
Nitrate (as N) (mg/L)	0.05 U	---	0.08	---	0.08	---	0.34	---	0.06
Nitrite (as N) (mg/L)	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U	---	0.05 U
Nitrite-nitrate nitrogen (mg/L)	0.05 U	---	0.08	---	0.08	---	0.34	---	0.06
Sulfate (mg/L)	32	---	11	---	140	---	9	---	5 U
Total Sulfides (mg/L)	0.2 U	---	0.2 U	---	0.2 U	---	0.2 U	---	0.2 U
Total Organic Carbon (TOC) (mg/L)	---	3	---	2	---	5	---	4	---
Alkalinity (as CaCO3) (mg/L)	70	---	54	---	40	---	32	---	470

NOTES: U - Not detected. J - Estimated value. F - Field Filtered.
--- = Not analyzed.

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O'BRIEN & GERE ENGINEERS, INC.

Table 6
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Other Data

Analyte	MW-4R, F BARK4000 11/29/99	MW-4R-1 BARK4000 11/29/99	MW-4R-1, F BARK4000 11/29/99	MW-4R-2 BARK4000 11/29/99	MW-4R-2 Dup BARK4000 11/29/99	MW-4R-2 Dup, F BARK4000 11/29/99	MW-4R-2, F BARK4000 11/29/99	MW-4S BARK4000 11/29/99	MW-4S, F BARK4000 11/29/99
Chloride (mg/L)	---	4	---	230	220	---	---	530	---
Nitrate (as N) (mg/L)	---	0.05 U	---	0.05 U	0.05 U	---	---	0.05 U	---
Nitrite (as N) (mg/L)	---	0.05 U	---	0.05 U	0.05 U	---	---	0.05 U	---
Nitrite-nitrate nitrogen (mg/L)	---	0.05 U	---	0.05 U	0.05 U	---	---	0.05 U	---
Sulfate (mg/L)	---	35	---	5 U	5 U	---	---	6	---
Total Sulfides (mg/L)	---	0.2 U	---	0.2 U	0.2 U	---	---	0.2 U	---
Total Organic Carbon (TOC) (mg/L)	40	---	1	---	---	20	25	---	48
Alkalinity (as CaCO3) (mg/L)	---	76	---	400	380	---	---	480	---

NOTES: U - Not detected. J - Estimated value. F - Field Filtered.
--- = Not analyzed.

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FXP File: N:\5268\22708\QUART\NEWOTHER.FXP

File Number 5268 22708

O'BRIEN & GERE ENGINEERS, INC.

Table 6
Barkhamsted/New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event
Other Data

Analyte	MW-5B BARK4000 11/30/99	MW-5B, F BARK4000 11/30/99	MW-5S BARK3946 11/23/99	MW-5S, F BARK3946 11/23/99	Equip. Blank #2 BARK4000 11/30/99
Chloride (mg/L)	290	---	900	---	1 U
Nitrate (as N) (mg/L)	0.05 U	---	0.05 U	---	0.05 U
Nitrite (as N) (mg/L)	0.05 U	---	0.06	---	0.05 U
Nitrite-nitrate nitrogen (mg/L)	0.05 U	---	0.06	---	0.05 U
Sulfate (mg/L)	5 U	---	5 U	---	5 U
Total Sulfides (mg/L)	0.2 U	---	0.2 U	---	0.2 U
Total Organic Carbon (TOC) (mg/L)	---	14	---	130	---
Alkalinity (as CaCO3) (mg/L)	320	---	1000	---	10 U

NOTES: U - Not detected. J - Estimated value. F - Field Filtered.
--- = Not analyzed.

Table 7
Barkhamsted-New Hartford Landfill Superfund Site
Barkhamsted, Connecticut
O'Brien & Gere 1999 Sampling Event

Stabilized Field Parameter Summary

Well	Temp (C)	pH (Note 4)	Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity	Ferrous Iron (mg/L)
MW-1S	12.37	7.04	5.72	-99	0.11	20.01	NA
MW-1R	See Note (1)						NA
S-3	12.12	6.44	2.87	-76	0.00	19.90	NA
MW-4S	14.18	6.57	2.32	-105	0.00	0.90	6.2
MW-4R	See Note (2)						6.0
MW-4R-1	10.85	8.06	0.148	-201	0.00	3.73	0.3
MW-4R-2	11.92	7.22	0.909	-93	0.00	2.57	0.9
MW-5S	13.43	6.76	3.83	-124	0.00	9.07	7.4
MW-5B	8.9	7.3	0.961	-121	0.00	0.60	3.2
MW-101S	10.43	6.71	5.65	-112	0.00	8.44	5.6
MW-101B	10.8	7.25	1.42	-161	0.00	4.20	5.2
MW-101I	10.01	8.05	0.221	-127	0.00	4.20	0.3
MW-101D	7.03	7.06	0.193	-42	0.00	23.00	0.4
MW-102S	10.62	7.29	0.245	114	4.45	4.39	NA
MW-102B	10.7	6.55	0.676	15	0.00	0.28	NA
MW-103S	11.31	5.96	0.22	183	7.37	1.25	NA
MW-103B	11.21	6.10	0.658	103	0.00	3.80	NA
MW-104S	12.27	6.18	0.044	195	8.08	2.09	NA
MW-104B	13.66	7.53	0.122	72	2.18	0.80	NA
MW-105S	12.79	6.04	0.694	173	6.10	1.40	NA
MW-105B	13.56	6.88	0.113	172	5.97	0.00	NA
MW-106S	13.26	6.96	0.187	19	0.56	5.12	NA
MW-110I	12.8	6.82	0.158	-65	0.00	0.90	NA
MW-111S	10.88	6.63	0.584	125	0.13	5.70	0.0
MW-111B	10.79	6.94	0.755	29	0.00	4.10	0.0
MW-111I	11.18	6.99	2.24	40	0.00	0.29	0.0
MW-113S	12.85	8.80	0.105	113	0.70	11.00	0.0
MW-113B	11.73	8.81	0.072	-62	0.23	0.90	0.0
MW-113I	See Note (1)						0.0
MW-113D	6.98	8.50	0.099	124	0.75	12.25	0.0
MW-115S	10.39	5.35	5.1	210	7.59	1.80	NA
MW-115B	8.23	6.60	0.085	166	4.26	15.60	NA
MW-117S	11.38	5.58	0.218	215	3.67	1.32	0.0
MW-117B	10.27	6.02	0.186	167	2.55	42.20	0.0
MW-118S	11.17	6.15	0.1	175	0.20	3.05	0.0
MW-118B	See Note (2)						0.0

Notes: (1) Bend in well casing precluded installation of necessary sampling pump, samples collected using dedicated Waterra tubing and foot-valves subsequent to purging wells dry
(2) Flow could not be maintained at rates less than approximately 1 L/min, abandoned low-flow purging, purged wells dry and sampled after sufficient recovery
(3) After 4 hours of purging, field parameters stabilized but the water level continued to drop at lowest achievable pumping rate, purged wells dry and sampled after sufficient recovery
(4) pH standards 4 and 7 were utilized to bracket the pH measurements.
(5) NA - Not applicable (Ferrous iron values reported only for wells analyzed for natural attenuation)

I/71/5268/22708/4/fldparam.xls

ORDA and IRDA Forms and Data Validation Worksheets

Region I
Inorganic Data Review Worksheets

Region 1

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. ______ SITE Brookhaven Lab

LABORATORY O'Brien & Gere NO OF SAMPLES/MATRIX 52 Water

SDG = Nov/Dec 1999 REVIEWER(IF NOT ESD) O'Brien & Gere

~~SOW~~ = QAPP, Nov 1999 REVIEWER'S NAME Melissa Listman

DPO ACTION ______ FYI ______ COMPLETION DATE 2/28/00

DATA ASSESSMENT SUMMARY

		ICP	Tl ~~AA~~	HG	Wet chemistry ~~CYANIDE~~
1.	HOLDING TIMES	O	O	O	O
2.	CALIBRATIONS	O	O	O	O
3.	BLANKS	O	O	O	O
4.	ICS	O	NA	NA	NA
5.	LCS	O	O	O	O
6.	Field DUPLICATE ANALYSIS	O	O	O	O
7.	MATRIX SPIKE / Matrix Spike Duplicate	O	O	O	O
8.	MSA	NA	NA	NA	NA
9.	SERIAL DILUTION	O	NA	NA	NA
10.	SAMPLE VERIFICATION	O	O	O	O
11.	OTHER QC PE	O	O	O	NA
12.	OVERALL ASSESSMENT	O	O	O	O

O = Data had no problems, or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: None

AREAS OF CONCERN: None

NOTABLE PERFORMANCE: No Qualifiers for thallium, mercury and wet chemistry parameters. PE for metals all w/in warning limits. Minor qualification J(+) Al in 7 leachate samples.

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Region I
Data Review Worksheet

Site Name: Berkhamsted
Reference Number: Nov/Dec 99.

REGION I REVIEW OF INORGANIC CONTRACT LABORATORY DATA PACKAGE

The hardcopied (laboratory name) O'Brien & Gere data package received at Region I has been reviewed and the quality assurance and performance data summarized. The data review included:

Case No.		SAS No.		Sampling Date (s)	11/17 to 12/8/99
SDG No.		Matrix	Water	Shipping Date (s)	11/17 to 12/8/99
No. of Samples	52			Date(s) rec'd by lab	11/18 to 12/8/99.

Traffic Report Numbers

Trip Blank No.

Equipment Blank Number: EQBLK-1, EQBLK-2, EQBLK-SW, ~~SEE~~ EQBLK-SEEP.

Field Duplicate Numbers: BlindDup1(11/24/99) = MW-104B, BlindDup1 (11/29/99) = MW-4R-2, BlindDup-SW = SW-13, BlindDup-SEEP = SEEP-4

QAPP ~~SOW No.~~ __________ requires that specific analytical work be done and that associated reports be provided by the laboratory to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- -Data Completeness
- -Holding Times
- -Calibrations
- -Blanks
- -ICP Interference Check Results
- -Matrix Spike Recoveries
- -Laboratory Duplicates
- -Field Duplicates
- -Lab Control Sample Results
- -Furnace AA results
- -ICP Serial Dilution Results
- -Detection Limit Results
- -Sample Quantitation

Overall Comments: All QA/QC parameters met except the minor exceedance for field duplicate for Aluminum in field duplicate pair BlindDup-SEEP and SEEP 4

Definitions and Qualifiers:

A - Acceptable data
J - Approximate data due to quality control criteria
R - Reject data due to quality control criteria
U - Analyte not detected

Reviewer: Melissa [signature] Date: 3/13/00.

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Region I
Inorganic Data Review Worksheets

I. DATA COMPLETENESS

MISSING INFORMATION	DATE LAB CONTACTED	DATE RECEIVED
None		

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Inorganic Data Review Worksheets

All met

II. HOLDING TIMES

Complete table for all samples and circle the analysis date for samples not within criteria.

SAMPLE ID	DATE SAMPLED	HG ANALYSIS DATE	CYANIDE ANALYSIS DATE	OTHERS ANALYSIS DATE	pH	ACTION

METALS 180 DAYS FROM SAMPLE COLLECTION
MERCURY 28 DAYS FROM SAMPLE COLLECTION
CYANIDE 14 DAYS FROM SAMPLE COLLECTION

ACTION:

1. If holding times are exceeded, and/or pH is >2 for metals and mercury or < 12 for cyanide, all positive results are estimated (J) and all non-detects are estimated (UJ).
2. If holding times are grossly exceeded, the reviewer may determine that non-detects are unusable (R).

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III A. INSTRUMENT CALIBRATION (Section I) — All met

1. Recovery Criteria

List the analytes which did not meet the percent recovery (%R) criteria for Initial and/or Continuing Calibration.

DATE	ICV/CCV#	ANALYTE	%R	ACTION	SAMPLES AFFECTED

ACTIONS: Metals 90-110%.
Wet chem 85-115% per QAPP.

If any analyte does not meet the %R criteria follow the actions stated below:

For positive results:

	Accept	Estimate (J)	Reject (R)
Metals	90%-110%	75%-89% or 111%-125%	< 75% or > 125%
Mercury	80%-120%	65%-79% or 121%-135%	< 65% or > 135%
Cyanide	85%-115%	70%-84% or 116%-130%	< 70% or > 130%

For non-detected results:

	Accept	Estimate (UJ)	Reject (R)
Metals	90%-125%	75%-89%	< 75% or > 125%
Mercury	80%-135%	65%-79%	< 65% or > 135%
Cyanide	85%-130%	70%-84%	< 70% or > 130%

Region I
Inorganic Data Review Worksheets

III A. Instrument Calibration (Section I continued)

MRL
~~CRDL~~ Recovery Criteria (Custom Worksheet) All met

Matrix: Water

Please list below all analytes not meeting percent criteria in the MRL ~~CRDL~~ standard. - spiked at method reporting limit

Analyte	Percent Recovery (%)	Actions/Samples Affected

Actions:

1. If %R < 80%, J (−) results, UJ (ND)
2. If %R > 120%, J (+) only
3. J (+) and (UJ) ND samples < 3xCRDL
4. No actions for those samples > 3xCRDL

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Region I
Inorganic Data Review Worksheets

III B. INSTRUMENT CALIBRATION (Section 2)

2. Analytical Sequence

A. Did the laboratory use the proper number of standards for calibration as described in the ~~SOW~~ QAPP? **Yes** or No

B. Were calibrations performed at the beginning of each analysis? **Yes** or No

C. Were calibration standards analyzed at the beginning of sample analysis and at a minimum frequency of ten percent or every two hours during analysis, whichever is more frequent? **Yes** or No

D Were the correlation coefficients for the calibration curve for AA, Hg, and CN $\geq$ 0.995? **Yes** or No

E. Was a standard at ~~2X CR~~ MRL DL analyzed for all ICP analyses. **Yes** or No

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify the data accordingly. Discuss any actions below and list the samples affected.

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Region I
Inorganic Data Review Worksheets

IV B. BLANK ANALYSIS RESULTS (Section 4) All met

4. Blank Actions

The Action Level for any analyte is equal to 5X the highest concentration of that analyte found in any blank. (Use 5X the absolute value for any negative blank results). The Action Level for samples which have been concentrated or diluted should be multiplied by the concentration/dilution factor. No positive result should be reported unless the concentration of the analyte in the sample exceeds the Action Level (AL) for that analyte. Specific actions are as follows:

1. When the concentration is greater than the IDL, but less than the Action Level, report the sample concentration detected with a U.

2. When the sample concentration is greater than the Action Level, report the sample concentration unqualified.

Matrix: ELEMENT	MAX. CONC. UNITS	AL UNITS	Matrix: ELEMENT	MAX. CONC. UNITS	AL UNIT

NOTE: Blanks analyzed during a soil case must be converted to mg/kg in order to compare them with the sample results.

$$\text{conc. in ug/l} \times \frac{\text{Volume diluted to (200ml)}}{\text{Weight digested (1gram)}} \times \frac{1L}{1000ml} \times \frac{1000g}{1kg} \times \frac{1mg}{1000ug} = \text{mg/kg}$$

Multiplying this result by 5 to arrive at the Action Level gives a final result in mg/kg which can then be compared to sample results

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Region I
Inorganic Data Review Worksheets

V A. ICP INTERFERENCE CHECK SAMPLE (Sections 1 and 2) All met

1. Recovery Criteria

List any elements in the ICS AB solution which did not meet the percent recovery criteria.

DATE	ELEMENT	% R	ACTION	SAMPLES AFFECTED

ACTIONS:

If an element does not meet the %R criteria. follow the actions stated below:

	PERCENT RECOVERY		
	< 50%	50%-79%	> 120%
Positive Sample Results	R	J	J
Non-detected Sample Results	R	UJ	A

2. Frequency Requirements

Were Interference QC samples run at the beginning and end of each sample analysis run or a minimum of twice per 8 hour shift, whichever is more frequent? **Yes or No**

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify the data accordingly. Discuss any actions below and list the samples affected:

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Inorganic Data Review Worksheets

VI. MATRIX SPIKE

TR #: MW-105S Matrix: Water.

1. Recovery Criteria ~~per~~ w/in lab limits

List the percent recoveries for analytes which did not meet the required criteria.

S - amount of spike added
SSR - spiked sample result
SR - sample result

All met
(Na 4x Rule)

ANALYTE	SSR	SR	S	%R	ACTION

Matrix Spike Actions apply to all samples of the same matrix.

ACTIONS:

1. If the sample concentration exceed the spike concentration by a factor of 4 or more, no action is taken.
2. If any analyte does not meet the %R criteria, follow the actions stated below:

	PERCENT RECOVERY		
	< 30%	30%-74%	>125%
Positive Sample Results	J	J	J
Non-detected Results	R	UJ	A

2. Frequency Criteria

A. Was a matrix spike prepared at the required frequency? Yes or No

B. Was a post digestion spike analyzed for elements that did not meet the required criteria for matrix spike recovery? Yes or No NA

A separate worksheet should be filled out for each matrix spike pair.

Region I
Inorganic Data Review Worksheets

VI. MATRIX SPIKE

TR # MW-111B (metals + wet chem) Matrix: Water

1. **Recovery Criteria** w/in lab control limits - All met

List the percent recoveries for analytes which did not meet the required criteria.

S - amount of spike added
SSR - spiked sample result
SR - sample result

ANALYTE	SSR	SR	S	%R	ACTION

Matrix Spike Actions apply to all samples of the same matrix.

ACTIONS:

1. If the sample concentration exceed the spike concentration by a factor of 4 or more, no action is taken.
2. If any analyte does not meet the %R criteria, follow the actions stated below:

PERCENT RECOVERY

	< 30%	30%-74%	>125%
Positive Sample Results	J	J	J
Non-detected Results	R	UJ	A

2. Frequency Criteria

A. Was a matrix spike prepared at the required frequency? Yes or No
B. Was a post digestion spike analyzed for elements that did not meet the required criteria for matrix spike recovery? Yes or No NA

A separate worksheet should be filled out for each matrix spike pair.

VI. MATRIX SPIKE

TR # SW-10 Matrix: Water

1. Recovery Criteria w/in lab limits All met

List the percent recoveries for analytes which did not meet the required criteria.

S - amount of spike added
SSR - spiked sample result
SR - sample result

ANALYTE	SSR	SR	S	%R	ACTION

Matrix Spike Actions apply to all samples of the same matrix.

ACTIONS:

1. If the sample concentration exceed the spike concentration by a factor of 4 or more, no action is taken.
2. If any analyte does not meet the %R criteria, follow the actions stated below:

	PERCENT RECOVERY		
	< 30%	30%-74%	>125%
Positive Sample Results	J	J	J
Non-detected Results	R	UJ	A

2. Frequency Criteria

A. Was a matrix spike prepared at the required frequency? Yes or No

B. Was a post digestion spike analyzed for elements that did not meet the required criteria for matrix spike recovery? Yes or No NA

A separate worksheet should be filled out for each matrix spike pair.

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Region I
Inorganic Data Review Worksheets

VI. MATRIX SPIKE

TR # SEEP 3 Matrix: Water

1. Recovery Criteria w/in lab limits All met

List the percent recoveries for analytes which did not meet the required criteria.

S - amount of spike added (Fe, Mn, Na 4x Rule)
SSR - spiked sample result
SR - sample result

ANALYTE	SSR	SR	S	%R	ACTION

Matrix Spike Actions apply to all samples of the same matrix.

ACTIONS:

1. If the sample concentration exceed the spike concentration by a factor of 4 or more, no action is taken.
2. If any analyte does not meet the %R criteria, follow the actions stated below:

	PERCENT RECOVERY		
	< 30%	30%-74%	>125%
Positive Sample Results	J	J	J
Non-detected Results	R	UJ	A

2. Frequency Criteria

A. Was a matrix spike prepared at the required frequency? Yes or No

B. Was a post digestion spike analyzed for elements that did not meet the required criteria for matrix spike recovery? Yes or No NA

A separate worksheet should be filled out for each matrix spike pair.

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Inorganic Data Review Worksheets

VII. ~~LABORATORY~~ Matrix Spike DUPLICATES - per SW-846 / QAPP

List the concentrations of any analyte not meeting the criteria for duplicate precision. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

MW-105S - All Met

Matrix: Water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE #	DUPLICATE #	RPD	ACTION
Aluminum	200					
Antimony	60					
Arsenic	10					
Barium	200					
Beryllium	5					
Cadmium	5					
Calcium	5000					
Chromium	10					
Cobalt	50					
Copper	25					
Iron	100					
Lead	5					
Magnesium	5000					
Manganese	15					
Mercury	0.2					
Nickel	40					
Potassium	5000					
Selenium	5					
Silver	10					
Sodium	5000					
Thallium	10					
Vanadium	50					
Zinc	20					
Cyanide	10					

Laboratory duplicate actions should be applied to all other samples of the same matrix type. w/in lab limits.

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 20% for waters and > 35% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for elements whose absolute difference is > CRDL (2X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

Region I
Inorganic Data Review Worksheets

VII. Matrix Spike ~~LABORATORY~~ DUPLICATES - per SW-846 / QAPP

List the concentrations of any analyte not meeting the criteria for duplicate precision. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

MW-111B (metals + wet chemistry) All met

Matrix: Water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE #	DUPLICATE #	RPD	ACTION
Aluminum	200					
Antimony	60					
Arsenic	10					
Barium	200					
Beryllium	5					
Cadmium	5					
Calcium	5000					
Chromium	10					
Cobalt	50					
Copper	25					
Iron	100					
Lead	5					
Magnesium	5000					
Manganese	15					
Mercury	0.2					
Nickel	40					
Potassium	5000					
Selenium	5					
Silver	10					
Sodium	5000					
Thallium	10					
Vanadium	50					
Zinc	20					
Cyanide	10					

Laboratory duplicate actions should be applied to all other samples of the same matrix type. W/in lab limits

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 20% for waters and > 35% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for elements whose absolute difference is > CRDL (2X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

Region I
Inorganic Data Review Worksheets

VII. ~~LABORATORY~~ Matrix Spike DUPLICATES - per SW-846 / QAPP

List the concentrations of any analyte not meeting the criteria for duplicate precision. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

Matrix: Water

SW-10 All met

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE #	DUPLICATE #	RPD	ACTION
Aluminum	200					
Antimony	60					
Arsenic	10					
Barium	200					
Beryllium	5					
Cadmium	5					
Calcium	5000					
Chromium	10					
Cobalt	50					
Copper	25					
Iron	100					
Lead	5					
Magnesium	5000					
Manganese	15					
Mercury	0.2					
Nickel	40					
Potassium	5000					
Selenium	5					
Silver	10					
Sodium	5000					
Thallium	10					
Vanadium	50					
Zinc	20					
Cyanide	10					

Laboratory duplicate actions should be applied to all other samples of the same matrix type. W/in lab limits

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 20% for waters and > 35% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for elements whose absolute difference is > CRDL (2X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

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Region I
Inorganic Data Review Worksheets

VII. ~~LABORATORY~~ Matrix Spike DUPLICATES - per SW-846 / QAPP

List the concentrations of any analyte not meeting the criteria for duplicate precision. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

SEEP-3 All met

Matrix: Water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE #	DUPLICATE #	RPD	ACTION
Aluminum	200					
Antimony	60					
Arsenic	10					
Barium	200					
Beryllium	5					
Cadmium	5					
Calcium	5000					
Chromium	10					
Cobalt	50					
Copper	25					
Iron	100					
Lead	5					
Magnesium	5000					
Manganese	15					
Mercury	0.2					
Nickel	40					
Potassium	5000					
Selenium	5					
Silver	10					
Sodium	5000					
Thallium	10					
Vanadium	50					
Zinc	20					
Cyanide	10					

Laboratory duplicate actions should be applied to all other samples of the same matrix type. W/in lab limits

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 20% for waters and > 35% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for elements whose absolute difference is > CRDL (2X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

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Inorganic Data Review Worksheets

VIII. FIELD DUPLICATES

List the concentrations of all analytes in the field duplicate pair. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

Matrix: Water

Blind Dupl (MW-104B) 11/24/99

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE # MW-104B	DUPLICATE # BlindDupl 11/24/99	RPD	ACTION
Aluminum	200		0.1U	0.1U	—	None
Antimony	60		0.006U	0.006U	—	
Arsenic	10		0.005U	0.005U	—	
Barium	200		0.1U	0.1U	—	
Beryllium	5		0.004U	0.004U	—	
Cadmium	5		0.001U	0.001U	—	
Calcium	5000		19	20	5.1	
Chromium	10		0.01U	0.01U	—	
Cobalt	50		0.05U	0.05U	—	
Copper	25		0.01U	0.01U	—	
Iron	100		0.05U	0.05U	—	
Lead	5		0.003U	0.003	—	
Magnesium	5000		3	4	28.6	
Manganese	15		0.05U	0.05U	—	
Mercury	0.2		0.0002U	0.0002U	—	
Nickel	40		0.05U	0.05U	—	
Potassium	5000		5U	5U	—	
Selenium	5		0.005U	0.005U	—	
Silver	10		0.03U	0.03U	—	
Sodium	5000		5	5	0	
Thallium	10		0.002U	0.002U	—	
Vanadium	50		0.05U	0.05U	—	
Zinc	20		0.01U	0.01U	—	
Cyanide	10		NA	NA	NA	NA

Field duplicate actions should be applied to all other samples of the same matrix type. Units mg/L

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 30% for waters and > 50% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for analytes whose absolute difference is > 2X CRDL (4X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

Nov-Dec 99

Region I
Inorganic Data Review Worksheets

VIII. FIELD DUPLICATES

List the concentrations of all analytes in the field duplicate pair. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

Matrix: Water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE # MW-4R-2	DUPLICATE # Blind Dup 1 11/29/99	RPD	ACTION
Aluminum	200		0.1U	0.1U	–	none
Antimony	60		0.006U	0.006U	–	
Arsenic	10		0.005U	0.005U	–	
Barium	200		0.3	0.3	0	
Beryllium	5		0.004U	0.004U	–	
Cadmium	5		0.001U	0.001U	–	
Calcium	5000		160	170	6.1	
Chromium	10		0.01U	0.01U	–	
Cobalt	50		0.05U	0.05U	–	
Copper	25		0.01U	0.01U	–	
Iron	100		0.65	0.74	13.0	
Lead	5		0.007	0.007	0	
Magnesium	5000		53	54	1.9	
Manganese	15		4.3	4.4	2.3	
Mercury	0.2		0.0002U	0.0002U	–	
Nickel	40		0.05U	0.05U	–	
Potassium	5000		5U	5U	–	
Selenium	5		0.005U	0.005U	–	
Silver	10		0.003U	0.003U	–	
Sodium	5000		55	57	3.6	
Thallium	10		0.002U	0.002U	–	
Vanadium	50		0.05U	0.05U	–	
Zinc	20		0.01U	0.01U	–	
Cyanide	10		NA	NA	NA	NA

Field duplicate actions should be applied to all other samples of the same matrix type.

Units mg/L

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 30% for waters and > 50% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for analytes whose absolute difference is > 2X CRDL (4X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

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Region I
Inorganic Data Review Worksheets

VIII. FIELD DUPLICATES

List the concentrations of all analytes in the field duplicate pair. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

Matrix: Water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE # SW-13	DUPLICATE # BlindDup-SW	RPD	ACTION
Aluminum	200		0.1U	0.1U	–	none
Antimony	60		0.006U	0.006U	–	
Arsenic	10		0.005U	0.005U	–	
Barium	200		0.1U	0.1U	–	
Beryllium	5		0.004U	0.004U	–	
Cadmium	5		0.001U	0.001U	–	
Calcium	5000		6.1	6.9	12.3	
Chromium	10		0.01U	0.01U	–	
Cobalt	50		0.05U	0.05U	–	
Copper	25		0.01U	0.01U	–	
Iron	100		0.94	1.2	24.3	
Lead	5		0.003U	0.003U	–	
Magnesium	5000		2	2	0	
Manganese	15		0.19	0.22	14.6	
Mercury	0.2		0.0002U	0.0002U	–	
Nickel	40		0.05U	0.05U	–	
Potassium	5000		5U	5U	–	
Selenium	5		0.005U	0.005U	–	
Silver	10		0.003U	0.003U	–	
Sodium	5000		7	8	13.3	
Thallium	10		0.002U	0.002U	–	
Vanadium	50		0.05U	0.05U	–	
Zinc	20		0.01U	0.01U	–	
Cyanide	10		NA	NA	NA	NA

Field duplicate actions should be applied to all other samples of the same matrix type. Units mg/L

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 30% for waters and > 50% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for analytes whose absolute difference is > 2X CRDL (4X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

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VIII. FIELD DUPLICATES

List the concentrations of all analytes in the field duplicate pair. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

Matrix: Water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE # SEEP 4	DUPLICATE # BlindDup-SEEP	RPD	ACTION
Aluminum	200		1.9	3.6	61.8	J(+) 1
Antimony	60		0.006U	0.006U	-	NONE
Arsenic	10		0.005U	0.005U	-	
Barium	200		0.2	0.2	0	
Beryllium	5		0.004U	0.004U	-	
Cadmium	5		0.001U	0.001U	-	
Calcium	5000		~~100~~ 140	150	6.9	
Chromium	10		0.01	0.01	0	
Cobalt	50		0.05U	0.05U	-	
Copper	25		0.01U	0.01U	-	
Iron	100		52	55	5.6	
Lead	5		0.003U	0.003U	-	
Magnesium	5000		54	56	3.6	
Manganese	15		5.0	5.3	5.8	
Mercury	0.2		0.0002U	0.0002U	-	
Nickel	40		0.05U	0.05U	-	
Potassium	5000		61	63	3.2	
Selenium	5		0.005U	0.005U	-	
Silver	10		0.003U	0.003U	-	
Sodium	5000		240	240	0	
Thallium	10		0.002U	0.002U	-	
Vanadium	50		0.05U	0.05U	-	
Zinc	20		0.01U	0.01U	-	
Cyanide	10		NA	NA	NA	

Field duplicate actions should be applied to all other samples of the same matrix type. 1 SEEP 1, SEEP 4, SEEP 5
SEEP 6, SEEP 8,
BlindDup-SEEP.
Units mg/L

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 30% for waters and > 50% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for analytes whose absolute difference is > 2X CRDL (4X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

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Region I
Inorganic Data Review Worksheets

VIII. FIELD DUPLICATES

List the concentrations of all analytes in the field duplicate pair. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

Wet chemistry

Matrix: water

ELEMENT	CRDL WATER ug/L	CRDL SOIL mg/kg	SAMPLE # MW-4R-2	DUPLICATE # BlindDp1 (11/29/99)	RPD	ACTION
~hloride ~~Aluminum~~	200		230	220	4.4	none
_trate-N ~~Antimony~~	60		0.05U	0.05U	–	
Nitrite-N ~~Arsenic~~	10		0.05U	0.05U	–	
lfate ~~Barium~~	200		5U	5U	–	
Sulfide ~~Beryllium~~	5		0.2U	0.2U	–	
..kalinity ~~Cadmium~~	5		400	380	5.1	
OC ~~Calcium~~	5000		20	25	22.2	
Chromium	10	NA	NA	NA	NA	NA
Cobalt	50					
Copper	25					
Iron	100					
Lead	5					
Magnesium	5000					
Manganese	15					
Mercury	0.2					
Nickel	40					
Potassium	5000					
Selenium	5					
Silver	10					
Sodium	5000					
Thallium	10					
Vanadium	50					
Zinc	20					
Cyanide	10					

Field duplicate actions should be applied to all other samples of the same matrix type.

Units mg/L

ACTION:

1. Estimate (J) positive results for elements which have an RPD > 30% for waters and > 50% for soils.
2. If sample results are less than 5X the CRDL, estimate (J) positive results for analytes whose absolute difference is > 2X CRDL (4X CRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

IX. LABORATORY CONTROL SAMPLE All met

1. **Aqueous LCS** w/in lab limits

List any LCS recoveries not within the 80%-120% criteria and the affected samples.

DATE	ELEMENT	%R	ACTION	SAMPLES AFFECTED

2. **Solid LCS**

List any analytes that were not within the control windows set by the EPA for the solid LCS sample. The 80%-120% criteria is not used to evaluate solid LCS results.

ANALYTE	LCS CONC.	CONTROL WINDOWS	ACTION	SAMPLES AFFECTED

ACTION:

		PERCENT RECOVERY	
AQUEOUS LCS	<50%	51%-79%	> 120%
Positive Results	R	J	J
Non-detected Results	R	UJ	A

SOLID LCS	< EPA Control Windows	> EPA Control Windows
Positive Results	J	J
Non-detected Results	UJ	A

3. Frequency Criteria

A. Was an LCS analyzed for each matrix, for every digestion batch, and for every 20 samples? Yes or No

Nov-Dec 99

XI. INDUCTIVELY COUPLED PLASMA (ICP) SERIAL DILUTION ANALYSIS

__✓__ Serial dilutions were performed for each matrix and results of the diluted sample analysis agreed within = 10% of the original undiluted analysis.

____ Serial dilution was not performed for the following:

____

____ Serial dilutions were performed, but analytical results did not agree within = 10% for analyte concentrations greater than 50X the IDL before dilution.

Report all results below that do not meet the required laboratory criteria for ICP serial dilution analysis.

Matrix: Water - same samples as MS/MSDs - All met

ELEMENT	IDL	50X IDL	SAMPLE RESULT	SERIAL DILUTION	% D	ACTION
Aluminum						
Antimony						
Barium						
Beryllium						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Nickel						
Potassium						
Silver						
Sodium						
Vanadium						
Zinc						

Actions apply to all samples of the same matrix

ACTIONS:

1. Estimate (J) all positive results and (UJ) all nondetects if the % D > 15%.

XII. DETECTION LIMIT RESULTS

1. Instrument Detection Limits

__✓__ Instrument detection limit results were present and found to be less than the ~~CRDL~~ MRL.

______ IDLs were not included in the data package on Form X.

______ IDLs were present, but the criteria was not met for the following analytes:

____

Reason: ______________________________

2. Reporting requirements

Were sample results on Form I reported down to the IDL not the CRDL for all analytes? – reported to MRL — Yes or No

Were sample results that were analyzed by ICP for Se, Tl, As, or Pb at least 5x IDL? — Yes, No or NA

Were sample weights, volumes, and dilution factors taken into account when reporting detection limits on Form I? — Yes or No

If no, the reported results may be inaccurate. Make the necessary changes on the data summary tables and request that the laboratory resubmit the corrected data.

Region I
Inorganic Data Review Worksheets

XIII. SAMPLE QUANTITATION

✓ Sample results fall within the linear range for ICP and within the calibrated range for all other parameters.

______ Sample results were beyond the linear range on ICP and/or beyond the calibration range for other parameters for the following samples/analytes:

In the space below, please show a minimum of one sample calculation per method: Direct Read

ICP MW-4R-2 - units mg/L

Ca = 160 mg/L
Pb = 0.007

~~FURNACE~~ Tl not detected 0.002u

MERCURY Not detected 0.0002u

Chloride : 260 mg/L
~~CYANIDE~~ NO_3-N - 0.05u Sulfate 5u
NO_2-N 0.05u TOC 20 mg/L
Sulfide 0.2u

For soil samples, the following equation may be necessary to convert raw data values (usually reported in ug/L) to actual sample concentrations (mg/kg):

The lab is required to use 1 gram of sample (wet weight) to 200mL final volume.

Wet weight concentration =

$$\text{digest conc. in ug/L} \times \frac{200\text{mL}}{1\text{g}} \times \frac{1\text{L}}{1000\text{mL}} \times \frac{1000\text{g}}{1\text{kg}} \times \frac{1\text{mg}}{1000\text{ug}} = \frac{\text{mg}}{\text{kg}}$$

In addition, the sample results are converted to dry weight using the percent solids calculations:

$$\frac{\text{wet weight conc.}}{\text{\% solids}} \times 100 = \text{Final concentration, dry weight (mg/kg)}$$

REGION I, EPA-NE ORGANIC REGIONAL DATA ASSESSMENT (ORDA)*

CASE #: ____________

LAB NAME: O'Brien & Gere

SDG #: Nov-Dec 99

SOW #/CONTRACT #: ____________

EPA-NE DV TIER LEVEL: II

TPO/PO: **ACTION ____ FYI ____

SITE NAME: Backhamsted

OF SAMPLES/MATRIX: 52 W

VALIDATION CONTRACTOR: O'Brien & Gere

VALIDATOR'S NAME: Melissa Listman

DATE DP REC'D BY EPA-NE: ____________

DV COMPLETION DATE: 3/14/00

Total 38 pages.

ANALYTICAL DATA QUALITY SUMMARY

	VOA	SV	Pest/PCB	Nonhalogenated VOCs
1. Preservation and Contractual Holding Times	O	O	O	m①
2. GC/MS / GC/ECD Instrument Performance Check	O	O	O	O
3. Initial Calibration	O	O	O	O
4. Continuing Calibration	O	O	O	O
5. Blanks	m②	O	O	O
6. Surrogate Compounds	O	O	O	NA
7. Internal Standards	O	O	O	NA
8. Matrix Spike/Matrix Spike Duplicate	O	O	NA	NA
9. Sensitivity Check	NA	NA	O	NA
10. PE Samples-Accuracy Check	O	O	NA	NA
11. Target Compound Identification	O	O	O	O
12. Compound Quantitation and Reported QLs	O	O	O	O
13. Tentatively Identified Compounds *	NA	O	O	NA
14. Semivolatile Cleanup/Pesticide/PCB Cleanup	NA	NA	NA	NA
15. Data Completeness	O	O	O	O
16. Overall Evaluation of Data	O	O	O	O

* SVOC: 4 Degradation compounds only

o = Data had no problems or were qualified due to minor contractual problems.
m = Data were qualified due to major contractual problems.
z = Data were rejected as unusable due major contractual problems.

ACTION ITEMS: (z items) None.

AREAS OF CONCERN: (m items) m① 4 samples were collected in unpreserved vials after several attempts to try and get headspace free in pres. vials.

COMMENTS: ____________

*This form assesses the analytical data quality in terms of contractual compliance only. It does not assess sampling errors and/or non-contractual analytical issues that affect data quality.

**Check "ACTION" only if contractual defects resulted in reduced payment/data rejection recommendations.

Validator: Melissa Listman

Date: 3/14/00

INSTRUCTIONS ON REVERSE SIDE

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name Bankhamsted
Reference No. Nov-Dec 99

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name O'Brien & Gere
Case/Project No. ____
SDG No. Nov-Dec 99
No. of Samples/Matrix 52

SOW/Method No. QAPP 11/99
Sampling Date(s) 11/17 to 12/8/99
Shipping Date(s) 11/17 to 12/8/99
Date Rec'd by lab 11/18 to 12/9/99

Traffic Report Sample Nos. ____

Trip Blank No. TB 11/18/99, TB 11/19/99, TB 11/19/99, TB 11/23/99, TB 11/24/99, TB 11/30/99
TB 12/1/99, TB 12/2/99, TB 12/3/99, TB 12/7/99, TB 12/8/99, TB 12/8/99.
Equipment Blank No. EQBLK-1, EQBLK-2, EQBLK-SW, EQBLK-SEEP.
Bottle Blank No. NA
Field Duplicate Nos. BlindDup1(11/24/99) = MW-104B; BlindDup1(11/29/99) = MW-4R-2
PES Nos. ____
BlindDup-SW = SW-13; BlindDup-SEEP = SEEP-4; BlindDup(12/7/99) = MW-113D.

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision ____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation
____.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- TICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name Melissa Lisman Company Name O'Brien & Gere Phone Number 315-637-6100.

Date Validation Started ~~12~~/21/00 Date Validation Completed ~~[illegible]~~ 3/14/00

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to analytical method. Note: there is no standard worksheet for System Performance, however, the validator must document all system performance issues in the Data Validation Memorandum.

VOA/SV worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	X
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	X
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)	X
VOA/SV-III	INITIAL CALIBRATION	X
VOA/SV-IV	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
VOA-VI	VOA SURROGATE SPIKE RECOVERIES	X
SV-VI	SV SURROGATE SPIKE RECOVERIES	
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE	
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION	X
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	X
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS	
VOA/SV-XV	SEMIVOLATILE CLEANUP	NA
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	

Pest/PCB worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	X
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	X
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK-RESOLUTION - checked by raw data review of LCS	X
Pest/PCB-IIB	GC/ECD INSTRUMENT PERFORMANCE CHECK-RETENTION TIMES	X
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK-ACCURACY CHECK OF INITIAL CALIBRATION (LCS)	X
Pest/PCB-IID	GC/ECD INSTRUMENT PERFORMANCE CHECK-PESTICIDE DEGRADATION	X
Pest/PCB-III	INITIAL CALIBRATION	X
Pest/PCB-IV	CONTINUING CALIBRATION	X
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	X
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	X
Pest/PCB-VI	SURROGATE COMPOUNDS: SPIKE RECOVERIES AND RETENTION TIME SHIFT	
Pest/PCB-VII	PESTICIDE CLEANUP	NA
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	X
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	
VOA/SV-Pest/PCB-XI	ACCURACY CHECK PE	
Pest/PCB-XII	COMPOUND IDENTIFICATION	X
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	X
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	X

__ I certify that all criteria were met for the worksheets checked above.

Signature: Melissa Listman   Name: Melissa Listman

Date: 3/14/06

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to analytical method. Note: there is no standard worksheet for System Performance, however, the validator must document all system performance issues in the Data Validation Memorandum.

VOA/SV worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	____
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	____
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)	____
VOA/SV-III	INITIAL CALIBRATION	____
VOA/SV-IV	CONTINUING CALIBRATION	____
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	____
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	____
VOA-VI	VOA SURROGATE SPIKE RECOVERIES	____
SV-VI	SV SURROGATE SPIKE RECOVERIES	____
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE	____
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	____
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	____
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	____
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	____
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION	____
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	____
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS	____
VOA/SV-XV	SEMIVOLATILE CLEANUP	____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	____

~~Pest/PCB~~ Nonhalogenated Volatiles worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	X
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	____
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK-RESOLUTION	NA
Pest/PCB-IIB	GC/ECD INSTRUMENT PERFORMANCE CHECK-RETENTION TIMES	NA
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK-ACCURACY CHECK OF INITIAL CALIBRATION	NA
Pest/PCB-IID	GC/ECD INSTRUMENT PERFORMANCE CHECK-PESTICIDE DEGRADATION	NA
Pest/PCB-III	INITIAL CALIBRATION	X
Pest/PCB-IV	CONTINUING CALIBRATION	X
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	X
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	X
Pest/PCB-VI	SURROGATE COMPOUNDS: SPIKE RECOVERIES AND RETENTION TIME SHIFT	NA
Pest/PCB-VII	PESTICIDE CLEANUP	NA
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	NA
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	X
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	NA
VOA/SV-Pest/PCB-XI	ACCURACY CHECK -LCS	X
Pest/PCB-XII	COMPOUND IDENTIFICATION	X
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	X
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	X

I certify that all criteria were met for the worksheets checked above.

Signature: Melissa Listman   Name: Melissa Listman

Date: 3/10/00

The data validator generates a Data Validation Report, applicable to Data Validation Tiers II and III, that consists of the following components in the order specified below: (Refer to Section 11 for a description of each of the Data Validation Report components).

1. Organic Regional Data Assessment/Inorganic Regional Data Assessment (ORDA/IRDA) Form
2. Data Validation Memorandum
    a. Narrative
    b. Table I-Qualifier Recommendation Summary Table
    c. Table II-Overall Evaluation of Data
    d. Table III-Tentatively Identified Compounds
    e. Data Summary Tables
3. Standard Data Validation Worksheets
    a. Manual
    b. Automated Data Review Reports (i.e., CADRE)
4. Support Documentation
    a. Copy of non-CLP analytical method, e.g., DAS methods, modified EPA methods
    b. Copies of PES Score Reports/Vendor PES QC Acceptance Limits
    c. Copies of Telephone Logs/Communication Forms for:
        - RSCC communications
        - Requests for laboratory data resubmissions/clarifications
        - Communications with samplers resolving sampling problems
        - Communications with TPO/Lead Chemist to report contractually-deficient data for rejection/reduced payment
        - Communications with EPA Site Manager concerning possible data rejection
        - EPA Site Manager authorization for alternate DV tier
    d. Copies of data supporting recommendations for reduced payment resulting from CSF Audit and/or PE sample result evaluation
    e. Original data to support recommendations for data rejection/non-payment identified from Tier II or Tier III data validation
    f. Copies of field sampling notes and/or field report supplied by field sampler
    g. Copies of EPA-approved amendments to QAPjP and/or SAP describing modified criteria to be used for validating site data
5. CSF Completeness Evidence Audit
6. DQO Summary Form

The data validator is responsible for implementing all corrective actions required by the contractor Lead Chemist in response to EPA-NE data validation oversight findings.

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB

COMPLETE SDG FILE (CSF) AUDIT

Organic Fractions: ______________________

Missing Information	Date Lab Contacted	Date Received
None		

Validator: [signature] Date: 3/14/00

12/96

Sampler: Dave Carnevale Company: O'Brien & Gere Contacted: Yes No Date:

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation. List all required preservation codes and circle omitted preservation codes. Circle all exceeded technical holding times. Identify extraction technique after "# of Days"/(*Extraction Code).

14 days.

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	Nonhalogenated VOA			BNA					PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action
MW-10B	GW	1,2	11/29/99	12/10/99	11											
MW-101D		1,2	12/1/99		9											none
MW-101I		1,2	11/30/99		10											
MW-111B		1,2	11/22/99	12/2/99	10											
MW-111I		1,2	11/22/99													
MW-111S		1,2	11/22/99													
MW-113B		1,2	11/17/99	12/1/99	14											
MW-113D		1,2	12/7/99	12/10/99	3											
BlindDup-MW-113D		1,2	12/7/99		3											
MW-113I		1,2	12/2/99	12/10/99	8											
MW-113S		1,2	12/1/99	12/10/99	9											
MW-118B		1,2	11/23/99	12/7/99	14											
MW-118S		1,2	11/22/99	12/2/99	10											
MW-4R		1,2	11/29/99	12/10/99	11											
MW-4R-1		1,2	11/29/99		11											
MW-4R-2		1(2)	11/29/99		11											
MW-4R-2DP		1(2)	11/29/99		11											UJ,J
MW-4S		1,2	11/29/99		11											UJ,J
MW-3B		1(2)	11/30/99		10											none
MW-5S		1,2	11/23/99	12/7/99	14											UJ,J
MW-101S		1(2)	11/30/99	12/10/99	10											none
																UJ,J

Preservation Code:
1. Cool @ 4°C (± 2°) H_2SO_4
2. Preserve with ~~HCl~~ to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: Melissa Kastner

Note: VOC, SVOC, Pest all met

Date: 3/14/00

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II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING) - All met

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments:

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments:

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: Melissa Hartman

Date: 3/14/02

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III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria. - All met

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	RRF	Samples Affected	Action

Comments:

Validator: Melissa Ristman

Date: 3/14/00

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
11/22/99	11/30/99 0814	MS #2	VOC	W	Chloroethane	26.1	met	MW-113B	UJ
	12/1/99 0848				Chloroethane	30.6	met	MW-115S, MW-110I, MW-110S	UJ
	12/2/99 0844				Chloroethane	32.4	met	MW-118S, MW-111B, MW-111I	UJ
								MW-111S, MW-117B	
	12/6/99 0818				Chloroethane	26.4	met	MW-S3, MW-4R, MW-101B,	UJ
					Chloromethane	27.9	met	DW-1, MW-4R-1, MW-4S, MW-5B	UJ
	12/8/99 0804				Chloroethane	28.8	met	SW-15, SW-6, SW-3, DW-3	UJ
								BlindDup-SW, MW-101D,	
								MW-113S	
	12/[illegible]/99 0840				Chloroethane	28.8	met	MW-113I, DW-2, MW-113D	UJ
								SEEP 1	

Comments: ~~Disso~~ Nonhalogenated VOCs - met

Validator: Melissa [signature]

Date: 3/14/00

12/96

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IVA CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
11/22/99	12/11/99 0910	MS 2	VOC	W	chloroethane	26.1	met	MW-1R, MW-1S	UJ
↓		↓	↓	↓					
	12/12/99 0727				bromomethane	25.8	met	MW-115B, SEEP3, SEEP4,	UJ
	↓				chloroethane	26.1	met	SEEP5, SEEP6, SEEP8	
								BlindDup. SEEP	
10/14/99	12/29/99 2315	HP5890	Pest	W	delta-BHC	18	–	BlindDup-SW, SEEP 3,	UJ
	↓ 2358							SEEP4, SEEP5, SEEP6	
								SEEP 8, BlindDup-SEEP	

Comments:

Validator: [signature]

Date: 3/13/00

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV.B CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
11/15/99	11/20/99 1341	MS6	SVOC	W	indeno(1,2,3cd)pyrene	27.8	met	MW-115S	UJ
	11/30/99 1424	MS6	SVOC	W	indeno(1,2,3-cd)pyrene	38.7	met	MW-105S, MW-103B,	UJ
					dibenzo(ah)anthracene	26.2	met	MW-103S, MW-102B,	UJ
					benzo(ghi)perylene	26.9	met	MW-102S, MW-110I, MW-106	UJ
12/13/99	12/15/99 1305	MS6	SVOC	W	4-nitroaniline	29.6	met	MW-104B	UJ
12/20/99	12/23/99 0759	MS6	SVOC	W	2,4-dinitrophenol	31.0	met ~~UJ~~	OW-3, SW-6, MW-113I,	UJ
					2,4-dinitrotoluene	26.0	met	OW-2, MW-115B, SEEP 3	UJ
								SEEP 4, SEEP 6, SEEP 8	

Comments:

Validator: Melissa [signature]

Date: 3/14/00

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PESTICIDE RESOLUTION CHECK

~~(CLP FORM 6C)~~ By review of LCS

List the resolution between adjacent single peak pesticides in the resolution check mix that are less than 60.0% on either chromatographic column. All met

Analysis Date	Column	Compounds	%Resolution	Affected Samples

List the validation actions taken below. If there were no positive results for the poorly resolved peaks no action is required.

PESTICIDE CALIBRATION VERIFICATION

(CONTINUING CALIBRATION CLP FORMS 7D,7E) All met

List the percent difference for the pesticide compounds that exceed ~~25~~ 15% (1). List the percent breakdown for 4,4'-DDT or Endrin that exceed 20.0% or the combined breakdown of these two compounds that exceed 30.0%. per method / QAPP

Analysis Date	Column	Compound	%D/Breakdown	Affected Samples
~~10/??~~ 12/29/99 2315	DB-608	delta-BHC	18	UJ: Blind Dup-SW
2354				SEEP 3
				SEEP 4
				SEEP 5
				SEEP 6
				SEEP 8
				Blind Dup-SEEP

List the validation actions taken below.

PESTICIDE SURROGATE RETENTION TIME CHECK
~~(CLP FORM 8D)~~

All met

List the sample or standard in which one or both surrogates eluted outside their retention time window(s).

Analysis Date	Column	Sample or Standard	Surrogate Compound	RT Window	Surrogate RT

For affected samples, professional judgement should be used to determine if retention times are shifted early or late causing target pesticides to elute outside their established retention time windows. List the validation actions taken below:

PESTICIDE/PCB INITIAL CALIBRATION SEQUENCE

Was the initial calibration sequence followed as ~~outlined in Part 5 Section III~~ in method 8081 and QAPP of the SOW? Yes or No If no state the validation actions taken below:

PESTICIDE INITIAL CALIBRATION FOR SINGLE COMPONENT ANALYTES
~~(CLP FORM 6E)~~

All met

List the single peak pesticide compounds that exceed 20% RSD or the surrogate compounds that exceed 30% RSD for the three point initial calibration.

Initial Calibration Date	Instrument ID	Column	Compound	%RSD	Affected Samples

1). Did more than two target pesticides have RSDs greater than 20%? Yes or No

2). Did any target pesticide or surrogate have an RSD greater than 30%? Yes or No

If yes to 1 or 2, state the validation actions taken below:

When RSD >20% calibration curve used correlation ≥ 0.99.

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V. BLANK ANALYSIS

List the blank contamination below.

Concentration Level: ______

Sampler: Dave Carnevale Company: O'Brien & Gere Contacted: Yes No Date: ______

1. Laboratory: Method, Storage and Instrument Blanks — All met
All met

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units) ug/L
NA	NA	VOC/water	EQBLK-1	ms#2	Acetone	21
					Carbondisulfide	45
			EQblk-SW	ms#2	Carbondisulfide	0.69
					ethylbenzene	0.29
					xylenes	1.4

Validator: Melissa Newman Date: 3/13/00

Note: SVOC, Pesticide, Nonhalogenated VOC: all met t1

3. **Blank Actions** - List the maximum concentrations of blank compounds.

ug/L

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action
Acetone	EQBLK-1	11/24/99-pump.	21	210	10	MW-104B	U
↓	↓	↓	↓	↓	↓	BlindDup1(11/24/99)	U
Carbondisulfide	↓	↓	↓	↓	↓	MW-118S	U
↓	↓	↓	45	225	0.5	MW-104P,	U
			↓	↓	↓	BlindDup1(11/24/99)	U
Carbon disulfide	EQBLK-SW	12/1/99	0.69	3.75	0.5	SW-10	U
↓	↓	↓	↓	↓	↓	SW-9	U
↓	↓	↓	↓	↓	↓	SW-15	U
			↓	↓	↓	SW-13	U

Comments: EQBLK-1 associated w/ MW-104B, MW-118B and BlindDup1 (11/24/99) only.

Validator: Melissa [illegible]

Date: 3/13/00

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VI. VOA SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

All met

Method	Volatile Method QC Acceptance Criteria				
	Toluene-d_8	BFB	DCE-d_4	Other:	
OLM03.2	Water 88-110 / Soil 84-138	Water 86-115 / Soil 59-113	Water 76-114 / Soil 70-121		
OLC02.1	NA	80-120	NA		
Other:					
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	Action

Validator: Melissa Rostman

Date: 3/14/02

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VI. **SV SURROGATE SPIKE RECOVERIES** - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other:						
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action
	All	met				

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130	NA	
OLC02.1	15-115	15-110	15-130	NA		
Other: SW8270C LCCL	60-117	65-103				
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action
MW-103S	48	met	met			none
MW-102S	53	53	met			UJ AE
SW-16	38	met	met			none

* Advisory Surrogates - OLM03.2

Validator: Melissa Ashman

Date: 3/14/00

EPA-NE - Data Validation Worksheet
VOA/SV-VII

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.
IS Area Count method QC acceptance criteria: 50 - 200 %
IS Retention Time method QC acceptance criteria: ± 0.06

All Affected samples reanalyzed w/ similar results

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	IS Area %	RT Shift	Acceptable Range (IS area or RT shift)	Action
MW-110I	11/29/99	MS6	SVOC	perylene-d12	34%	–	50-200%	UJ
MW-101B	12/14/99				41%	–		UJ
MW-4R-2					41%	–		UJ
MW-4S					31%	–		UJ
MW-4R					40%	–		UJ
SEEP3	12/23/99				42%	–		UJ
SEEP4					37%	–		UJ
SEEP5	12/26/99				49%	–		UJ
SEEP6	12/13/99				32%	–		UJ
MW-1R	12/26/99				45%	–		UJ
D120199W1	12/15/99				47%	–		None 1

VOC - all met

1 LCS - all LCS recoveries w/in criteria.

Validator: Melissa [signature]

Date: 3/14/00

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # MW-105S

Matrix water

Concentration Level low

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		
VOC	acetone	35	36	met	46-151	met	NA	NA	NA	NA	UJ
	carbon disulfide	61	56		80-130						UJ
	2-butanone	43	43		77-129						UJ
	2-hexanone	47	49		58-136						UJ
	1,1,2,2-Tetrachloroethane	43	49		86-116						UJ
SVOC	2,4-dinitrotoluene	met	met	11	met	0-9					None ①

Validator: Melissa Rotman

① None: not detected in unspiked. RPD ≤ 20% (lab limits very narrow). Field duplicate precision met.

Date: 3/13/00

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # MW-111B　　Matrix W　　Concentration Level low

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		
VOC	2-butanone	53	57	met	72-129	met	NA	NA	NA	NA	UJ
↓	cis 1,2DCE	120	125	~~[illegible]~~ met	88-118	met	NA	NA	NA	NA	J
SVOC	met										

Validator: Melissa Roitman　　Date: 3/13/00

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # SW-10 Matrix Water Concentration Level low

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		
VOC ~~SW-10~~	carbondisulfide	met	150	39	80-130	0-21 ~~0-20~~	NA	NA	NA	NA	J
VOC	2-butanone	48	51	met	77-129	met	↓	↓	↓	↓	UJ
SVOC	2,4-dinitrotoluene	122	124	met	10-120	met	NA	NA	NA	NA	none ND
PEST	met										

Validator: Melissa Rotman Date: 3/13/00

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # SEEP 3 Matrix Water Concentration Level low

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		
VOC	2-butanone	40	59	~~met~~ 40	77-129	0-25 ~~met~~	NA	NA	NA	NA	UJ
	1,2-Dichloroethane	met	met	17	met	0-14					none ~~Estim~~ already J<RL
	4-methyl-2-pentanone	54	met	33	62-144	0-20					
	Bromodichloromethane	85	met	13	85-117	0-10					
Pest	b-BHC	52	49	met	65-119	met					UJ
	lindane	57	53	met	58-144	met					UJ
	heptachlor epoxide	67	62	met	69-123	met					UJ
	methoxychlor	39	28	33	63-125	0-29					UJ
SVOC	met										

Validator: Melissa Kestman Date: 3/13/00.

hc

IX. FIELD DUPLICATE PRECISION - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number MW-104B Duplicate Sample Number BlindDup 11/24/99 Matrix GW

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
VOC	acetone	330	10	20	480	10	20	37.0	<30%	J
SVOC	met									

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments:

Sampler Name: Dave Carnovale Contractor Name: O'Brien & Gere Date Contacted:

Reason for Contact and resolution obtained:

Validator: Melissa Fretman Date: 3/13/00

SC

IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number MW-4R.2 Duplicate Sample Number Blind Dup 11/20/99 Matrix W

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
VOC	met									
SVOC	met									
Nonchlorinated VOC	met									

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: ______

Sampler Name: Dave Caravale Contractor Name: O'Brien & Gere Date Contacted: ______

Reason for Contact and resolution obtained: ______

Validator: Melissa Kistner Date: 3/14/00

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IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number SW-13 Duplicate Sample Number ~~BlindDp~~ sw Matrix Water

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
VOC	carbondisulfide ~~Met~~	1.1	0.5	1.0	4.3	0.5	1.0	> ± 2xSQL		J
SVOC	Met									
PEST	Met									

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments:

Sampler Name: Dave Carnevale Contractor Name: O'Brien & Gere Date Contacted:

Reason for Contact and resolution obtained:

Validator: Melissa Rustman Date: 3/14/00

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IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number SEEP4 Duplicate Sample Number BlindDp-SEEP Matrix wate

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
VOC	met									
SVOC										
PEST										

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: ______

Sampler Name: Dave Caravale Contractor Name: O'Brien & Gere Date Contacted: ______

Reason for Contact and resolution obtained: ______

Validator: Melissa Kretiner Date: 3/14/00

X. SENSITIVITY CHECK (Method Detection Limit Study)

List all compounds, surrogates, and internal standards that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each compound and matrix of interest? Y N
- Date of Preparation/Analysis: _______ Within 1 year? Y N
- Instrument I.D.: _______ Same as samples? Y N
- Column I.D.: _______ Same as samples? Y N

Matrix	Compound	MDL > QL	Method QC Limits < 80% or > 120%	IS Outside Area Count and/or RT Criteria	RSD > ~~20%~~	Samples Affected	Action
				NA			

If an MDL study has not been submitted, use only the LFB results to evaluate data.

(Laboratory Fortified Blank) - List all ~~LFB~~ LCS compounds, surrogates and internal standards that are outside criteria.

- Has an appropriate and complete ~~LFB~~ LCS been submitted at the proper frequency? Y N
- Does it contain all target compounds~~, at the method-required QLs?~~ Y N
- Was the LFB spiked with a standard from a source (vendor) independent of the calibration standard? Y N

Matrix	Compound	Method QC Limits < 60% or > 140% Other:	IS Outside Area Count and/or RT Criteria	Samples Affected	Action
			see attached forms		

Validator: Melissa Weimer Date: 3/15/00.

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SVOC LCS spiked w/ target at 100ug/L

5.2 List below %Recoveries of compounds which did not meet criteria.

LCS ID	Compound	%Recovery	Action	Samples Affected
L112199W2	1,3DCB	55, 55 (57-105)	UJ	MW-115S, MW-110I, MW-106S, MW-105B, MW-105S, MW-103B
	hexachloro-butadiene	42, 43 (58-103)	UJ	MW-103S, MW-102B, MW-102S
L112399W1	met			
L112799W1	met			
D120199W1	met			
L120399W1	met			
L120799W1	met			
L120899W1	1,3DCB	48, 47 (57-105)	UJ	MW-1S, MW-113D, MW-1R, SEEP1
	hexachloro-butadiene	35, 40 (58-103)	UJ	

5.0 LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

Nonhalogenated VOCs

5.1 Were LCSs extracted for each extraction batch. and every 20 samples of similar matrix whichever is greater?

Targets - same as MS/MSD. spiked at ~10x Reporting Limits.

Actions: If no. contact laboratory for explanation and describe problems/ resolutions in final narrative report. Generally, qualification of sample data is not required when LCSs are not at the correct frequency of concentration. Document in the narrative report that the laboratory was not in compliance.

Actions: Qualification is performed for specific compounds that exceeded criteria in samples within the same extraction batch.

a. If LCS recoveries is greater than control limits, approximate detected results as approximated "K" (sample detection limits are not qualified).

b. If LCS recoveries is less than control limits but >10%, approximate ~~detected results~~ as "L" and detection limits as "UL".

c. If LCS recoveries <10%, reject detection limits "R".

Methane 51-77
Ethane 44-67
Ethene 29-44
Control Limits

5.2 List below %Recoveries of compounds which did not meet criteria.

LCS ID	Compound	%Recovery	Action	Samples Affected
12019961	met			
12029961	met			
12079961	met			
12109961	met			

 LCS VOC spiked w/ targets at 10ug/L

5.2 List below %Recoveries of compounds which did not meet criteria.

LCS ID	Compound	%Recovery	Action	Samples Affected
L113099W1	met			
L113099W2	met			
L120199W2	met			
L120299W2	met			
L120399W2	met			
L120699W2	met			
L120799W2	met			
L120899W2	met			
L121099W2	met			
L121199W2	met			
L121299W2	met			
L121499W4	met			

5.0 LABORATORY CONTROL SAMPLE (LCS) ANALYSIS - Pesticides

5.1 Were LCSs extracted for each extraction batch, and every 20 samples of similar matrix whichever is greater? Yes

- same as MS/MSD

Actions: If no, contact laboratory for explanation and describe problems/ resolutions in final narrative report. Generally, qualification of sample data is not required when LCSs are not at the correct frequency of concentration. Document in the narrative report that the laboratory was not in compliance.

targets at 0.5ug/L

Actions: Qualification is performed for specific compounds that exceeded criteria in samples within the same extraction batch.

a. If LCS recoveries is greater than control limits, approximate detected results as approximated "K" (sample detection limits are not qualified).

b. If LCS recoveries is less than control limits but >10%, approximate detected results as "L" and detection limits as "UL".

c. If LCS recoveries <10%, reject detection limits "R".

5.2 List below %Recoveries of compounds which did not meet criteria.

LCS ID	Compound	%Recovery	Action	Samples Affected
L120699W1	met met	12/21/99 (DB-1701) 12/22/99 (DB-608)		
(2) L121399W2	all met (prepped and analyzed in duplicate): DB-1701 DB-608 both columns.			

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XI

XI. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

SDG No: Nov-Dec 99 CASE: ______

Are more than one-half of the PES analytes within criteria for each parameter. Y N

PE Sample Number	Ampule Number	Parameter	Type of PES	Matrix	Analyte	Conc. ug/L	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action
V00209	-	VOC		W	1,2Dichloroethane	27	Warning Low			None
					1,1,1Trichloroethane	0.36	Contaminant			None
					Tetrachloroethene	0.78				None
S01967		SVOC		W	4,6-dinitro-2-methylphenol	35	Warning Low			
					2,4-dinitrophenol	50U				
					hexachloroethane.	63	Warning high			
P02887		PEST		W	Endrin ketone	0.027	Contaminant			None

* For Region I PESs indicate the Region I PES Score Report Result: Action High; Action Low; TCL MISS; TCL CONTAMINANT; TIC HIT; TIC MISS; TIC CONTAMINANT

** For Non-EPA PESs indicate the Non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUND HIT (% Recovery Limits)

Validator: Melissa Kostman Date: 3/14/00

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EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XII

XII. TARGET COMPOUND IDENTIFICATION - List the analytes that are outside the acceptance criteria.

Sample Number	Compound	MS Ions	RRT	Action
SEEP 8	Carbon Disulfide	—	—	Poor correlation between
				undiluted (54ug/L) and
				2x Diluted (9ug/L) run.
				undiluted run 54ug/L J

Validator: [signature] Date: 3/13/00

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EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XIII

XIII. SAMPLE QUANTITATION

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although Section XIII, C.1.a, requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? NA Y N
If no, list sample numbers ______

Fraction		Calculation
VOA		$\frac{(594260)(10)}{(1333268)(0.344)} = 13$ ug/L ✓
Sample No.:	MW-111B	
Reported Compound:	cis1,2DCE	
Reported Value:	13	
Not Detected Compound:	Chloromethane	
Reported Quantitation Limit:	1.0	— OK Low std.
BNA		$\frac{(225828)(20)(2mL)}{(381352)(0.434)(0.94L)} = 58$ ug/L
Sample No.:	MW-4R	
Reported Compound:	2,4-dimethylphenol	
Reported Value:	58	
Not Detected Compound:	phenol	10/0.94L = 11 ug/L
Reported Quantitation Limit:	11	
Pesticide/PCB		
Sample No.:	SW-10	
Reported Compound:	None	
Reported Value:		0.050/0.99L = 0.051 ug/L
Not Detected Compound:	a-BHC	
Reported Quantitation Limit:	0.051	

Validator: ______ Date: ______

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EPA-NE - Data Validation Worksheet
VOA/SV-XIV

XIV. TENTATIVELY IDENTIFIED COMPOUNDS (TICs). - Looked for 4 Degradation compounds: 3,4-dihydroxybenzoic acid; 4-hydroxybenzyl alcohol; 4-hydroxy benzaldehyde, 4-hydroxybenzoic acid.

List the 5 TICs having the highest concentration for each sample parameter.

These were not found in any groundwater sample.

Sample Number	Parameter	Compound	RRT	Est. Conc.	Action

Validator: Melissa Hartman

Date: 3/14/00

XV. SEMIVOLATILE CLEANUP - List all analytes that are outside method cleanup QC criteria.

Cleanup Procedure	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action
			NA				

Did the GPC column meet; resolution requirements? Y or N
peak shape requirements? Y or N
retention time shift requirements? Y or N
Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? Y or N

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? Y or N

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? Y or N

Comments:____________________

Validator:______________ Date:________

Appendix F

PE Score Reports

VOLATILE
EVALUATION REPORT FOR PES
V00209

EPA/CLP No.

NS508

Report date: 01/26/2000
Method: 8260
Lab name: O'Brien & Gere Laboratories
Labcode: O & G Case: NA DAS No. NA
Matrix: WATER QC Report No.: NA
Sample wt/vol: NA (g/mL) NA
Level: (low/med)
%Moisture not dec.: NA
GC Column: MS#2 ID (mm)
Soil Extract Volume: NA (uL)

Contract: NA
SDG: NA
Lab Sample ID: 120299W2
Lab File ID: 5268.002.517
Date sample received: 11/19/1999
Date analyzed: 12/02/1999
Dilution Factor: NA
Soil Aliquot Volume: NA

Comments:

Concentration Units: ug/L (ppb)

PES Compounds Reported

CAS No.	Compound Name	Concentration	Evaluation	Q
74-87-3	* Chloromethane	17	Within Warning Limits	
75-00-3	* Chloroethane	17	Within Warning Limits	
75-09-2	* Methylene Chloride	28	Within Warning Limits	
67-64-1	* Acetone	24	Within Warning Limits	
75-35-4	1,1-Dichloroethene	15	Within Warning Limits	
75-34-3	* 1,1-Dichloroethane	16	Within Warning Limits	
67-66-3	Chloroform	26	Within Warning Limits	
107-06-2	* 1,2-Dichloroethane	27	Warning Low	
78-93-3	* 2-Butanone	19	Within Warning Limits	J
56-23-5	* Carbon Tetrachloride	14	Within Warning Limits	
78-87-5	1,2-Dichloropropane	19	Within Warning Limits	
79-01-6	Trichloroethene	40	Within Warning Limits	
79-00-5	* 1,1,2-Trichloroethane	17	Within Warning Limits	
71-43-2	Benzene	19	Within Warning Limits	
75-25-2	* Bromoform	15	Within Warning Limits	
108-10-1	* 4-Methyl-2-pentanone	30	Within Warning Limits	
591-78-6	* 2-Hexanone	28	Within Warning Limits	
630-20-6	1,1,2,2-Tetrachloroethane	17	Within Warning Limits	
100-42-5	* Styrene	24	Within Warning Limits	
1330-20-7	Xylene (Total)	47	Within Warning Limits	

* Limits have been widened for this compound. The RSD from HBAL data was used for the limits calculation.

VOLATILE

EVALUATION REPORT FOR PES

V00209

EPA/CLP No.

N5508

Report date: 01/26/2000
Method: 8260
Lab name: O'Brien & Gere Laboratories
Labcode: O & G
Case: NA
DAS No. NA
Contract NA
SDG: NA
Matrix: WATER
QC Report No.: NA
Sample wt/vol: NA (g/mL) NA
Level: (low/med)
%Moisture not dec.: NA
GC Column: MS#2 ID (mm)
Soil Extract Volume: NA (uL)
Lab Sample ID: 120299W2
Lab File ID: 5268.002.517
Date sample received: 11/19/1999
Date analyzed: 12/02/1999
Dilution Factor: NA
Soil Aliquot Volume: NA

Comments:

Continued from page 1

Concentration Units: ug/L (ppb)

PES Compounds Missed

CAS No	Compound Name	Concentration	Evaluation	Q
630-20-6	1,1,1,2-Tetrachloroethane		Spiked TIC Missed	

PES Contaminants

CAS No	Compound Name	Concentration	Evaluation	Q
71-55-6	1,1,1-Trichloroethane	0.36	PES Contaminant	J
127-18-4	Tetrachloroethene	0.78	PES Contaminant	J

PES Compounds Not Evaluated

CAS No	Compound Name	Concentration	Evaluation	Q
95-50-1	1,2-Dichlorobenzene		Not Evaluated	
106-46-7	1,4-Dichlorobenzene	20.2	Not Evaluated	

SEMIVOLATILE

EVALUATION REPORT FOR PES

S01967

EPA/CLP No. N5508

Report date: 01/26/2000

Method: 8270

Lab name. O'Brien & Gere Laboratories

Labcode: O & G Case: NA DAS No. NA

Matrix: WATER QC Report No.: NA

Sample wt/vol: 1 L (g/mL)

Level: (low/med)

%Moisture NA decanted: (Y/N)

Concentrated Extract Volume: NA (uL)

Injection Volume: NA (uL)

GPC Cleanup: (Y/N) pH: NA

Contract: NA

SDG: NA

Lab Sample ID: 112399W1

Lab File ID: 5268.002.517

Date sample received: 11/19/1999

Date extracted: 11/23/1999

Date analyzed: 12/02/1999

Dilution Factor: NA

Comments:

Concentration Units: ug/L (ppb)

PES Compounds Reported

CAS No.	Compound Name	Concentration	Evaluation	Q
111-44-4	bis(2-Chloroethyl)ether	24	Within Warning Limits	
541-73-1	1,3-Dichlorobenzene	39	Within Warning Limits	
108-60-1	2,2'-oxybis(1-Chloropropane)	29	Within Warning Limits	
106-44-5	4-Methylphenol	58	Within Warning Limits	
67-72-1	Hexachloroethane	63	Warning High	
98-95-3	Nitrobenzene	26	Within Warning Limits	
88-75-5	2-Nitrophenol	48	Within Warning Limits	
105-67-9	2,4-Dimethylphenol	36	Within Warning Limits	
111-91-1	bis(2-Chloroethoxy)methane	23	Within Warning Limits	
120-83-2	2,4-Dichlorophenol	32	Within Warning Limits	
120-82-1	1,2,4-Trichlorobenzene	28	Within Warning Limits	
106-47-8	4-Chloroaniline	72	Within Warning Limits	
91-57-6	2-Methylnaphthalene	30	Within Warning Limits	
77-47-4	Hexachlorocyclopentadiene	54	Within Warning Limits	
88-06-2	2,4,6-Trichlorophenol	22	Within Warning Limits	
91-58-7	2-Chloronaphthalene	18	Within Warning Limits	
88-74-4	2-Nitroaniline	64	Within Warning Limits	
131-11-3	Dimethylphthalate	41	Within Warning Limits	
606-20-2	2,6-Dinitrotoluene	19	Within Warning Limits	
99-09-2	3-Nitroaniline	80	Within Warning Limits	
51-28-5	2,4-Dinitrophenol	50	Warning Low	U
100-02-7	4-Nitrophenol	37	Within Warning Limits	J
7005-72-3	4-Chlorophenyl-phenylether	19	Within Warning Limits	
100-01-6	4-Nitroaniline	48	Within Warning Limits	J

SEMIVOLATILE

EVALUATION REPORT FOR PES

S01967

EPA/CLP No.

N6506

Report date: 01/26/2000

Method: 8270

Contract: NA

Lab name: O'Brien & Gere Laboratories

Labcode: O & G Case: NA DAS No. NA SDG: NA

Matrix: WATER QC Report No.: NA Lab Sample ID: 112399W1

Sample wt/vol: 1 L (g/mL) Lab File ID: 5268.002.517

Level: (low/med) Date sample received: 11/19/1999

%Moisture NA decanted: (Y/N) Date extracted: 11/23/1999

Concentrated Extract Volume: NA (uL) Date analyzed: 12/02/1999

Injection Volume: NA (uL) Dilution Factor: NA

GPC Cleanup: (Y/N) pH: NA

Comments: ______

Continued from page 1

Concentration Units: ug/L (ppb)

PES Compounds Reported

CAS No.	Compound Name	Concentration	Evaluation	Q
534-52-1	4,6-Dinitro-2-methylphenol	35	Warning Low	J
101-55-3	4-Bromophenyl-phenylether	78	Within Warning Limits	
91-94-1	3,3'-Dichlorobenzidine	34	Within Warning Limits	

* Limits have been widened for this compound. The RSD from HBAL data was used for the limits calculation.

PES Compounds Missed

CAS No	Compound Name	Concentration	Evaluation	Q
50-29-3	4,4'-DDT		Spiked TIC Missed	
121-75-5	Malathion		Spiked TIC Missed	

INORGANIC EVALUATION REPORT FOR PES
HG2357

EPA/CLP No.: NA

Report date: 01/26/2000
Method: 7470
Lab name: O'Brien & Gere Laboratories, Inc.
Labcode:
Case:
DAS No.:
Contract:
SDG:
Matrix: WATER
QC Report No.:
Level: (low/med):
Lab Sample ID:
%Solids:
Date sample received: 11/19/1999

Color Before:
Clarity Before:
Color After:
Clarity After:
Texture:
Artifacts:

Comments:
Client: Barkhamsted-New Hanford Landfill Samp. Description: HG2357 QC Batch: 121699W1
Proj. Desc: Barkhamsted, CT Collected: 11/18/99 Job No.: 5288.002.517
Sample: N5512 Prepared: 12/16/99 Analyzed: 12/26/99 Certification CT No.: PH0834

Concentration Units: ug/L (ppb)

PES Analytes Reported

CAS No.	Analyte Name	Concentration	Evaluation	C	Q	M
7439-97-6	* Mercury	8.6	Within Warning Limits			

* Limits have been widened for this analyte. The limits have been adjusted to the same requirement as the LCS.

INORGANIC EVALUATION REPORT FOR PES

0024930

EPA/CLP No.

N6611

Report date: 01/31/2000
Method: 6010
Lab name: O'Brien & Gere Laboratories (Resubmittal)
Labcode: O&B
Case: NA
DAB No.: NA
Matrix: WATER
QC Report No.: NA
Level: (low/med):
%Solids:

Contract: NA
SDG: NA
Lab Sample ID: 5288.002.517
Date sample received: 11/19/1999

Color Before:
Color After:
Clarity Before:
Clarity After:
Texture:
Artifacts:
Comments:

Concentration Units: ug/L (ppb)

PES Analytes Reported

CAS No.	Analyte Name	Concentration	Evaluation	C	Q	M
7429-90-5	* Aluminum	99000	Within Warning Limits			
7440-48-4	* Cobalt	768	Within Warning Limits			
7440-50-8	Copper	28.4	Within Warning Limits			
7439-89-6	Iron	823	Within Warning Limits			
7440-02-0	Nickel	82.6	Within Warning Limits			
7782-49-2	Selenium	7.98	Within Warning Limits			
7440-66-6	* Zinc	870	Within Warning Limits			

* Limits have been widened for this analyte. The limits have been adjusted to the same requirement as the LCS.

Appendix G

CSF Audit

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME O'Brien & Gere Laboratories, Inc
CITY/STATE Syracuse, NY

CASE NO. ______ SDG NO. ______ SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______

CONTRACT NO. ______
~~SOW NO~~. SW-846 8260B, 8270C

All documents delivered in the Complete SDG File must be original documents where possible.

November 17, 18, 19, 22 and 23, 1999
Volatiles, Semivolatiles and ICP Metals – 5 volumes
Organics volumes 2-4
Volume 1 is a summary

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK EPA
1. **Inventory Sheet** (Form DC-2) (Do not number)				
2. **SDG Case Narrative**	1	8	✓	
3. **SDG Cover Sheet/Traffic Report** Cross Reference Table	9	10	✓	
4. **Volatiles Data**				
a. QC Summary				
System Monitoring Compound Summary (Form II VOA) Documented on Analytical Result Forms	11	60	✓	
Matrix Spike/Matrix Spike Duplicate Summary (Fo~~rm III VOA~~)	175	178	✓	
Method Blank Summary (~~Form IV VOA~~)	205	209	✓	
GC/MS Instrument Performance Check (F~~orm V VOA~~)	NA	NA	NA	
Internal Standard Area and RT Summary (F~~orm VIII VOA~~)	224	228	✓	
b. Sample Data	296	437	✓	
TCL Results - (Form I VOA)			✓	
Tentatively Identified Compounds (Form I VOA-TIC)			NA	
Reconstructed total ion chromatograms (RIC) for each sample			✓	
For each sample:				
Raw spectra and background-subtracted mass spectra of target compounds identified			✓	
Quantitation reports			✓	
Mass spectra of all reported TICs with three best library matches			NA	
c. Standards Data (All Instruments)	438	539		
Initial Calibration Data (Form VI VOA)			✓	
RICs and Quan Reports for all Standards			✓	
Continuing Calibration Data (Form VII VOA)			✓	
RICs and Quantitation Reports for all Standards			✓	
d. Raw QC Data				
BFB	545	558	✓	
Blank Data	559	573	✓	
Matrix Spike/Matrix Spike Duplicate Data	574	589	✓	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ________ SDG NO. 8270C SDG NOS. TO FOLLOW ________

________ ________ SAS NO. ________

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK EPA
5. **Semivolatiles Data**				
a. QC Summary Documented on Analytical Result Forms				
Surrogate Percent Recovery Summary (Form II SV)	61	177	✓	
MS/MSD Summary (~~Form III SV~~)	179	190	✓	
Method Blank Summary (~~Form IV S~~V)	210	221	✓	
GC/MS Instrument Performance Check (Form V SV)	NA	NA	NA	
Internal Standard Area and RT Summary (~~Form VIII SV~~)	229	237	✓	
b. Sample Data	666	945		
TCL Results (~~Form I SV-1,~~ SV-2)			✓	
Tentatively Identified Compounds (~~Form I SV-TIC~~)			✓	
Reconstructed total ion chromatograms (RIC) for each sample			✓	
For each sample:				
Raw spectra and background-subtracted mass spectra of target compounds			✓	
Quantitation reports			✓	
Mass spectra of TICs with three best library matches			✓	
GPC chromatograms (if GPC performed)			NA	
c. Standards Data (All Instruments)	946	1202		
Initial Calibration Data (Form VI SV-1, SV-2)			✓	
RICs and Quan Reports for all Standards			✓	
Continuing Calibration Data (Form VII SV-1, SV-2)			✓	
RICs and Quantitation Reports for all Standards			✓	
Semivolatile GPC Calibration Data-UV detector traces			NA	
d. Raw QC Data				
DFTPP	1212	1252	✓	
Blank Data	1253	1274	✓	
Matrix Spike/Matrix Spike Duplicate Data	1275	1295	✓	
e. Raw GPC Data	NA	NA	NA	
6. **Pesticides** - NA				
a. QC Summary				
Surrogate Percent Recovery Summary (Form II PEST)				
MS/MSD Duplicate Summary (Form III PEST)				
Method Blank Summary (Form IV PEST)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ____________ SDG NO. ____________ SDG NOS. TO FOLLOW ____________
____________ ____________ SAS NO. ____________

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK EPA
6. **Pesticides** (Cont.) NA				
b. Sample Data	___	___		
TCL Results - Organic Analysis Data Sheet (Form I PEST)			___	___
Chromatograms (Primary Column)			___	___
Chromatograms from second GC column confirmation			___	___
GC Integration report or data system printout			___	___
Manual work sheets			___	___
For pesticides/Aroclors confirmed by GC/MS, copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			___	___
c. Standards Data	___	___		
Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)			___	___
Initial Calibration of Multicomponent Analytes (Form VI PEST-3)			___	___
Analyte Resolution Summary (Form VI PEST-4)			___	___
Performance Evaluation Mixture (Form VI PEST-5)			___	___
Individual Standard Mixture A (Form VI PEST-6)			___	___
Individual Standard Mixture B (Form VI PEST-7)			___	___
Calibration Verification Summary (Form VII PEST-1)			___	___
Calibration Verification Summary (Form VII PEST-2)			___	___
Analytical Sequence (Form VIII PEST)			___	___
Florisil Cartridge Check (Form IX PEST-1)			___	___
Pesticide GPC Calibration (Form IX PEST-2)			___	___
Pesticide Identification Summary for Single Component Analytes (Form X PEST-1)			___	___
Pesticide Identification Summary for Multicomponent Analytes (Form X PEST-2)			___	___
Chromatograms and data system printouts A printout of retention times and corresponding peak areas or peak heights			___	___
Pesticide GPC calibration data - UV detector traces			___	___
d. Raw QC Data				
Blank Data	___	___	___	___
Matrix Spike/Matrix Spike Duplicate Data	___	___	___	___

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ______ SDG NO. ______ SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______ November 17, 18, 19, 22 and 23 1999

	PAGE NOs FROM	PAGE NOs TO	CHECK ~~LAB~~	CHECK EPA
6. **Pesticides** (Cont.) – NA				
e. Raw GPC Data				
~~f. Raw Florisil Data~~				
7. **Miscellaneous Data**				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	1319	1350	✓	
Internal sample and sample extract transfer chain-of-custody records	257	260	✓	
Screening records	NA	NA	NA	
All instrument output, including strip charts from screening activities (describe or list)				
	NA			
Standard Preparation Log	1351	1357	✓	
8. **EPA Shipping/Receiving Documents**				
Airbills (No. of shipments ~~34~~) 8	238	256	✓	
Chain-of-Custody Records			✓	
Sample Tags			NA	
Sample Log-In Sheet (~~Lab & DC1~~) Case File Form			✓	
Miscellaneous Shipping/Receiving Records (describe or list)				
			✓	
			✓	
9. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
Case File Form		✓	✓	
Sample Control Record	✓	✓	✓	
10. **Other Records** (describe or list)				
Telephone Communication Log				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ____________	SDG NO. ____________	SDG NOS. TO FOLLOW ____________
____________ ____________	SAS NO. ____________	Nov. 17, 18, 19, 27 and 23 1999

11. **Comments:** ______________________________

Completed by: (~~CLP Lab~~)	Joseph C. Houser (Signature)	Joseph C Houser / QA/QC Coordinator (Printed Name/Title)	3/27/00 (Date)
Verified by: (CLP Lab)	(Signature)	(Printed Name/Title)	(Date)
Audited by: (EPA)	(Signature)	(Printed Name/Title)	(Date)

COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc City/State: Syracuse / New York

Case No. ____ SDG No. 6010B SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ Nov 17, 18, 19, 22 and 23, 1999. Volatiles, Semivolatiles and ICP Metals

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals volume 5

Volume 1 is a summary

		Page Nos. From	Page Nos. To	(Please Check:) Lab	(Please Check:) Region
1.	Inventory Sheet (DC-2) (Do not number)				
2.	Cover Page - Case Narrative	1	8	✓	
3.	Inorganic Analysis Data Sheet (~~Form I-IN~~) Analytical Results Form	156	174	✓	
4.	Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	1476	1488	✓	
5.	CRDL Standards For AA and ICP (~~Form IIB-IN~~)	1489	1490	✓	
6.	Blanks (~~Form III-IN~~)	1491	1492	✓	
7.	ICP Interference Check Sample (Form IV-IN)	1493	1494		
8.	Spike Sample Recovery (~~Form VA-IN~~)	1495, 1497		✓	
9.	Post Digest Spike Sample Recovery (~~Form VB-IN~~)	-	1496	✓	
10.	Duplicates (~~Form VI-IN~~)	1498	1499	✓	
11.	Laboratory Control Sample (~~Form VII-IN~~)	1500	1501	✓	
12.	Standard Addition Results (~~Form VIII-IN~~)	NA	NA	✓	
13.	ICP Serial Dilutions (~~Form IX-IN~~)	1502	1503	✓	
14.	Instrument Detection Limits (~~Form X-IN~~)	-	1504	✓	
15.	ICP Interelement Correction Factors (~~Form XIA-IN~~)	1505	1507	✓	
16.	ICP Interelement Correction Factors (~~Form XIB-IN~~)	↓	↓	✓	
17.	ICP Linear Ranges (~~Form XII-IN~~)	-	1508	✓	
18.	Preparation Log (~~Form XIII-IN~~)	-	1668	✓	
19.	Analysis Run Log (~~Form XIV-IN~~) part of Raw Data	1509	1667	✓	
20.	ICP Raw Data	↓	↓	✓	
21.	~~Furnace AA Raw Data~~	NA	NA		
22.	~~Mercury Raw Data~~	NA	NA		

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23.	Cyanide Raw Data	NA	NA	NA	
24.	Preparation Logs Raw Data				
25.	Percent Solids Determination Log				
26.	Traffic Report				
27.	EPA Shipping/Receiving Documents				
	Airbill (No. of Shipments 34) (8)	238	256	✓	
	Chain-of-Custody Records			✓	
	Sample Tags	NA	NA	NA	
	Sample Log-In Sheet (~~Lab & DCI~~) case file form	238	256	✓	
	SDG Cover Sheet Cross Reference Table	9	10	✓	
28.	Misc. Shipping/Receiving Records (list all individual records)				
	Telephone Logs	NA	NA	NA	
29.	Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
	Sample Control Record	257	260	✓	
30.	Internal Original Sample Prep & Analysis Records (describe or list)				
	Prep Records	NA	NA	NA	
	Analysis Records				
	Description				
31.	Other Records (describe or list)				
	Telephone Communication Log				

32. Comments:

Completed by (~~CLP Lab~~):

Joseph C. Hone	Joseph C Hone / ~~Office title~~ Coordinator	3/28/00
(Signature)	(Print Name & Title)	(Date)

Audited by (EPA):

(Signature)	(Print Name & Title)	(Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc. City/State: Syracuse/NY

Case No. ____ SDG No. 7470 SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ November 17,18,19,22 and 23, 1999 Hg, TL and wet chemistry

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals volume 2 of 3

Volume 1 is a summary

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1.	Inventory Sheet (DC-2) (Do not number)				
2.	Cover Page · Case Narrative	1	11	✓	
3.	Inorganic Analysis Data Sheet (Form I-IN) . Analytical Result Form	14	32	✓	
4.	Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	177	178	✓	
5.	CRDL Standards For AA and ICP (~~Form IIB-IN~~)	179	180	✓	
6.	Blanks (~~Form III-IN~~)	181	182	✓	
7.	ICP Interference Check Sample (Form IV-IN)	NA	NA	NA	
8.	Spike Sample Recovery (~~Form VA-IN~~)	183	184	✓	
9.	Post Digest Spike Sample Recovery (~~Form VB-IN~~)	NA	NA	NA	
10.	Duplicates (Form VI-IN)	NA	NA	NA	
11.	Laboratory Control Sample (~~Form VII-IN~~)	185	186	✓	
12.	Standard Addition Results (~~Form VIII-IN~~)	NA	NA	NA	
13.	ICP Serial Dilutions (~~Form IX-~~IN)	NA	NA	NA	
14.	Instrument Detection Limits (Form X-IN)	~~187~~	187	✓	
15.	ICP Interelement Correction Factors (Form XIA-IN)	NA	NA	NA	
16.	ICP Interelement Correction Factors (Form XIB-IN)				
17.	ICP Linear Ranges (Form XII-IN)				
18.	Preparation Log (Form XIII-IN)	215	217	✓	
19.	Analysis Run Log (Form XIV-IN) part of Raw Data	188	214	✓	
20.	ICP Raw Data	NA	NA	NA	
21.	Furnace AA Raw Data				
22.	Mercury Raw Data	188	214	✓	

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23.	Cyanide Raw Data	NA	NA	NA	
24.	Preparation Logs Raw Data				
25.	Percent Solids Determination Log				
26.	Traffic Report				
27.	EPA Shipping/Receiving Documents				
	Airbill (No. of Shipments 4)	124	142	✓	
	Chain-of-Custody Records			✓	
	Sample Tags	NA	NA	NA	
	Sample Log-In Sheet (~~Lab & DC1~~) Case file	124	142	✓	
	SDG Cover Sheet Cross Reference Table	12	13	✓	
28.	Misc. Shipping/Receiving Records (list all individual records)				
	Telephone Logs	NA	NA	NA	
29.	Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
	Sample Control Record	NA	NA	NA	
30.	Internal Original Sample Prep & Analysis Records (describe or list)				
	Prep Records	NA	NA	NA	
	Analysis Records				
	Description				
31.	Other Records (describe or list)				
	Telephone Communication Log				

32. Comments:

Completed by (~~GLP Lab~~):

Joseph C. Houser — (Signature)

Joseph C Houser / QA/QC Coordinator — (Print Name & Title)

3/29/00 — (Date)

Audited by (EPA):

(Signature) (Print Name & Title) (Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories, Inc City/State: Syracuse/NY

Case No. ____ SDG No. 7841 SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ November 17, 18, 19, 22 and 23, 1999
Hg, Tl and Wet Chemistry - 3rd

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals Volume 2 of 3

Volume 1 is a summary

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1.	Inventory Sheet (DC-2) (Do not number)				
2.	Cover Page - Case Narrative	1	11	✓	
3.	Inorganic Analysis Data Sheet (~~Form I-IN~~) Analytical Result Form	33	51	✓	
4.	Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	246	247	✓	
5.	CRDL Standards For AA and ICP (~~Form IIB-IN~~)	248	249	✓	
6.	Blanks (~~Form III-IN~~)	250	251	✓	
7.	ICP Interference Check Sample (Form IV-IN)	NA	NA	NA	
8.	Spike Sample Recovery (~~Form VA-IN~~)	252	253	✓	
9.	Post Digest Spike Sample Recovery (Form VB-IN)	NA	NA	NA	
10.	Duplicates (Form VI-IN)	NA	NA	NA	
11.	Laboratory Control Sample (~~Form VII-IN~~)	254	255	✓	
12.	Standard Addition Results (Form VIII-IN)	NA	NA	NA	
13.	ICP Serial Dilutions (Form IX-IN)	NA	NA	NA	
14.	Instrument Detection Limits (~~Form X-IN~~)	~~256~~	256	✓	
15.	ICP Interelement Correction Factors (Form XIA-IN)	NA	NA	NA	
16.	ICP Interelement Correction Factors (Form XIB-IN)				
17.	ICP Linear Ranges (Form XII-IN)				
18.	Preparation Log (Form XIII-IN)	(188) 293A	294	✓	
19.	Analysis Run Log (~~Form XIV-IN~~) Part of Raw Data	257	293	✓	
20.	ICP Raw Data	NA	NA	NA	
21.	Furnace AA Raw Data	257	293	✓	
22.	Mercury Raw Data	NA	NA	NA	

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data				
25. Percent Solids Determination Log				
26. Traffic Report				
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 4)	124	142	✓	
Chain-of-Custody Records			✓	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (Lab & DC1) Casefile	124	142	✓	
SDG Cover Sheet Cross Reference Table	12	13	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA	NA	
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
Sample Control Record	143	144	✓	
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	NA	NA	NA	
Analysis Records				
Description				
31. Other Records (describe or list)				
Telephone Communication Log				

32. Comments:

Completed by (~~CLP Lab~~): Joseph C. Hauser — Joseph C Hauser / QA/QC Coordinator — 3/28/00

(Signature) (Print Name & Title) (Date)

Audited by (EPA):

(Signature) (Print Name & Title) (Date)

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME O'Brien & Gere Laboratories, Inc
CITY/STATE Syracuse' NY

CASE NO. ______ SDG NO. ______ SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______

CONTRACT NO. ______
~~SOW~~ NO. SW-846 8260B, 8270C, 8081

All documents delivered in the Complete SDG File must be original documents where possible. November 24, 29, 30 and December 1, 1999

Volatiles, Semi-volatiles, Pesticides ICP/Furnace Metals and Wet chemistry - 10 vols

Organics Volumes 3-8

Volumes 1 & 2 are a summary.

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK EPA
1. **Inventory Sheet** (Form DC-2) (Do not number)				
2. **SDG Case Narrative**	1	19	✓	
3. **SDG Cover Sheet/Traffic Report** Cross Reference Table	20	21	✓	
4. **Volatiles Data**				
a. QC Summary				
System Monitoring Compound Summary (Form II VOA) Documented on Analytical Result Forms	22	95	✓	
Matrix Spike/Matrix Spike Duplicate Summary ~~(Form III VOA)~~	334	335	✓	
Method Blank Summary (~~Form IV VOA~~)	379	383	✓	
GC/MS Instrument Performance Check (Form V VOA)	NA	NA	NA	
Internal Standard Area and RT Summary ~~(Form VIII VOA)~~	416	420	✓	
b. Sample Data	493 ~~22~~	734 ~~95~~	✓	
TCL Results - (Form I VOA)			✓	
Tentatively Identified Compounds (Form I VOA-TIC)			NA	
Reconstructed total ion chromatograms (RIC) for each sample			✓	
For each sample:				
Raw spectra and background-subtracted mass spectra of target compounds identified			✓	
Quantitation reports			✓	
Mass spectra of all reported TICs with three best library matches			NA	
c. Standards Data (All Instruments)	735	801		
Initial Calibration Data (Form VI VOA)			✓	
RICs and Quan Reports for all Standards			✓	
Continuing Calibration Data (Form VII VOA)			✓	
RICs and Quantitation Reports for all Standards			✓	
d. Raw QC Data				
BFB	802	818	✓	
Blank Data	819	833	✓	
Matrix Spike/Matrix Spike Duplicate Data	834	841	✓	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ______ SDG NO. 8270C, 408 SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK EPA
5. **Semivolatiles Data**				
a. QC Summary				
Surrogate Percent Recovery Summary (~~Form II SV~~) Documented on Analytical Result Forms	96	222	✓	
MS/MSD Summary ~~(Form III SV)~~	336	338	✓	
Method Blank Summary ~~(Form IV SV)~~	387	391	✓	
GC/MS Instrument Performance Check (Form V SV)	NA	NA	NA	
Internal Standard Area and RT Summary ~~(Form VIII SV)~~	421	426	✓	
b. Sample Data	906	1561		
TCL Results (~~Form I SV-1, SV-2~~)				
Tentatively Identified Compounds (~~Form I SV-TIC~~)			✓	
Reconstructed total ion chromatograms (RIC) for each sample			✓	
For each sample:				
Raw spectra and background-subtracted mass spectra of target compounds			✓	
Quantitation reports			✓	
Mass spectra of TICs with three best library matches			✓	
GPC chromatograms (if GPC performed)			NA	
c. Standards Data (All Instruments)	1562	1748		
Initial Calibration Data (Fo~~rm VI SV-1, S~~V-2)			✓	
RICs and Quan Reports for all Standards			✓	
Continuing Calibration Data (F~~orm VII SV-1, SV-~~2)			✓	
RICs and Quantitation Reports for all Standards			✓	
Semivolatile GPC Calibration Data-UV detector traces			NA	
d. Raw QC Data				
DFTPP	1755	1784	✓	
Blank Data	1785	1805	✓	
Matrix Spike/Matrix Spike Duplicate Data	1806	1812	✓	
e. Raw GPC Data	NA	NA	NA	
6. **Pesticides**				
a. QC Summary				
Surrogate Percent Recovery Summary ~~(Form II PEST)~~ Documented on Analytical Result Forms	223	230	✓	
MS/MSD Duplicate Summary ~~(Form III PEST)~~	337	338	✓	
Method Blank Summary (~~Form IV PEST)~~	388	391	✓	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ______	SDG NO. 8081	SDG NOS. TO FOLLOW ______	
______ ______	SAS NO. ______	Nov 24, 29 30 and Dec 1, 1999	

	PAGE NOs FROM	TO	CHECK LAB	EPA
6. **Pesticides** (Cont.)				
b. Sample Data	1864	1887		
TCL Results - Organic Analysis Data Sheet (F~~orm I PEST~~)			✓	
Chromatograms (Primary Column)			✓	
Chromatograms from second GC column confirmation			✓	
GC Integration report or data system printout			NA	
Manual work sheets			NA	
For pesticides/Aroclors confirmed by GC/MS, copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)				
c. Standards Data	1890	2095		
Initial Calibration of Single Component Analytes (F~~orm VI PEST-1 and PEST-2)~~			✓	
Initial Calibration of Multicomponent Analytes ~~(Form VI PEST-3)~~			NA	
Analyte Resolution Summary (~~Form VI PEST-4~~)			NA	
Performance Evaluation Mixture ~~(Form VI PEST-5)~~			✓	
Individual Standard Mixture A ~~(Form VI PEST-6)~~			✓	
Individual Standard Mixture B ~~(Form VI PEST-7)~~			✓	
Calibration Verification Summary (~~Form VII PEST-1)~~			✓	
Calibration Verification Summary (For~~m VII PEST-2)~~			✓	
Analytical Sequence (F~~orm VIII PEST)~~			✓	
Florisil Cartridge Check (Form IX PEST-1)			NA	
Pesticide GPC Calibration (Form IX PEST-2)			NA	
Pesticide Identification Summary for Single Component Analytes (Form X PEST-1)			NA	
Pesticide Identification Summary for Multicomponent Analytes (Form X PEST-2)			NA	
Chromatograms and data system printouts A printout of retention times and corresponding peak areas or peak heights			✓	
Pesticide GPC calibration data - UV detector traces			NA ~~✓~~ ~~NA~~	
d. Raw QC Data				
Blank Data	2096	2101	✓	
Matrix Spike/Matrix Spike Duplicate Data	2102	2107	✓	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ______ SDG NO. 8081 SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______

	PAGE NOs FROM	TO	CHECK LAB	EPA
6. **Pesticides** (Cont.)				
e. Raw GPC Data	NA	-	NA	
f. Raw Florisil Data	NA	-	NA	
7. **Miscellaneous Data**				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	2117	2129	✓	
Internal sample and sample extract transfer chain-of-custody records	439	451	✓	
Screening records	NA	NA	NA	
All instrument output, including strip charts from screening activities (describe or list)				
______	NA	NA	NA	
Standard Preparation Log	2130	2247	✓	
8. **EPA Shipping/Receiving Documents**				
Airbills (No. of shipments 3)	439	451	✓	
Chain-of-Custody Records			✓ ~~NA~~	
Sample Tags			NA	
Sample Log-In Sheet (~~Lab & DC1~~) Case File Form			✓	
Miscellaneous Shipping/Receiving Records (describe or list)				
______				
______				
9. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
Case File Form			✓	
Sample Control Record			✓	
10. **Other Records** (describe or list)				
Telephone Communication Log				
______				
______				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ______	SDG NO. ______	SDG NOS. TO FOLLOW ______
______ ______	SAS NO. ______	Nov 24, 29, 30 and December 1, 1999

11. **Comments:** ______

Completed by: ~~(CLP Lab)~~	Joseph C. Hauser (Signature)	Joseph C Hauser / QA/QC Coordinator (Printed Name/Title)	3/27/00 (Date)
Verified by: (CLP Lab)	(Signature)	(Printed Name/Title)	(Date)
Audited by: (EPA)	(Signature)	(Printed Name/Title)	(Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc. City/State: Syracuse / New York

Case No. _____ SDG No. 6010B SDG Nos. to Follow: _____ _____ _____

SAS No. _____ Contract No. _____ SOW No. _____ November 24, 29, 30 and December 1, 1999
Volatiles, Semi-volatiles, Pesticides ICP/Furnace Metals and Wet Chem.

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals volumes 9 and 10 of 10
volumes 1 & 2 are a summary

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1. Inventory Sheet (DC-2) (Do not number)				
2. Cover Page - Case Narrative	1	19	✓	
3. Inorganic Analysis Data Sheet (Form I-IN) Analytical Results	243	323	✓	
4. Initial & Continuing Calibration Verification ~~(Form IIA-IN)~~	2353	2379	✓	
5. CRDL Standards For AA and ICP ~~(Form IIB-IN)~~	2380	2383	✓	
6. Blanks ~~(Form III-IN)~~	2384	2387	✓	
7. ICP Interference Check Sample ~~(Form IV-IN)~~	2388	2391	✓	
8. Spike Sample Recovery (~~Form VA-~~IN)	–	2392	✓	
9. Post Digest Spike Sample Recovery (F~~orm VB-IN)~~	NA		NA	
10. Duplicates (F~~orm VI-IN)~~	–	2393		
11. Laboratory Control Sample ~~(Form VII-IN)~~	2394	2397		
12. Standard Addition Results (~~Form VIII-IN~~)	NA		NA	
13. ICP Serial Dilutions (~~Form IX-IN~~)	–	2398		
14. Instrument Detection Limits (~~Form X-I~~N)		2399		
15. ICP Interelement Correction Factors (~~Form XIA-IN~~)	2400	2402		
16. ICP Interelement Correction Factors (~~Form XIB-IN~~)	↓	↓		
17. ICP Linear Ranges (Form XII-IN)	–	2403		
18. Preparation Log (Form XIII-IN)	2644	2645		
19. Analysis Run Log (~~Form XIV-IN~~) Part of Raw Data	2404	2643		
20. ICP Raw Data	↓	↓		
21. Furnace AA Raw Data	NA		NA	
22. Mercury Raw Data	NA		NA	

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data	↓	↓	↓	
25. Percent Solids Determination Log	↓	↓	↓	
26. Traffic Report	↓	↓	↓	
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	427	-444	✓	
Chain-of-Custody Records	↓ ~~NA~~	↓ ~~NA~~	~~NA~~ / ⊗	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (Lab & DC1) Case File	427	-444	✓	
SDG Cover Sheet Cross Reference Table	-	20	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA	NA	
	↓	↓	↓	
	↓	↓	↓	
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
Sample Control Record	445	451	✓	
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	NA	NA	NA	
Analysis Records	↓	↓	↓	
Description	↓	↓	↓	
31. Other Records (describe or list)				
Telephone Communication Log	↓	↓	↓	
	↓	↓	↓	
	↓	↓	↓	

32. Comments:

Completed by (~~CLP Lab~~):

Joseph C Houser (Signature) | Joseph C Houser / QA/QC Coordinator (Print Name & Title) | 3/24/00 (Date)

Audited by (EPA):

(Signature) | (Print Name & Title) | (Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc.   City/State: Syracuse/New York

Case No. ____ SDG No. 7470 SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ November 24, 29, 30 and December 1, 1999

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals volumes 10 of 10

volumes 1 & 2 are a summary

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1.	Inventory Sheet (DC-2) (Do not number)				
2.	Cover Page – case Narrative	1	19	✓	
3.	Inorganic Analysis Data Sheet (Form I-IN) Analytical Results	270	276	✓	
4.	Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	2778	2781	✓	
5.	CRDL Standards For AA and ICP (~~Form IIB-IN~~)	2782	2785	✓	
6.	Blanks (~~Form III-IN~~)	2786	2789	✓	
7.	ICP Interference Check Sample (~~Form IV-IN~~)	NA	NA	NA	
8.	Spike Sample Recovery (~~Form VA-IN~~)	2790	–	✓	
9.	Post Digest Spike Sample Recovery (~~Form VB-IN~~)	NA ~~2791~~	NA	NA	
10.	Duplicates (~~Form VI-IN~~)	NA	NA	NA	
11.	Laboratory Control Sample (Form VII-IN)	2791	2794	✓	
12.	Standard Addition Results (~~Form VIII-IN~~)	NA	NA	✓	
13.	ICP Serial Dilutions (~~Form IX-IN~~)	NA	NA	NA	
14.	Instrument Detection Limits (~~Form X-IN~~)	2795	–	✓	
15.	ICP Interelement Correction Factors (~~Form XIA-IN~~)	NA	NA	NA	
16.	ICP Interelement Correction Factors (~~Form XIB-IN~~)	↓	↓	↓	
17.	ICP Linear Ranges (~~Form XII-IN~~)	NA	NA	NA	
18.	Preparation Log (~~Form XIII-IN~~)	2847	2852	✓	
19.	Analysis Run Log (~~Form XIV-IN~~) Part of RAW Data	2796	2846	✓	
20.	ICP Raw Data	NA	NA	NA	
21.	Furnace AA Raw Data	↓	↓	↓	
22.	Mercury Raw Data	2796	2846	✓	

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data				
25. Percent Solids Determination Log				
26. Traffic Report				
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	427	444	✓	
Chain-of-Custody Records	✓ ~~NA~~	✓ ~~NA~~	~~NA~~ ✓	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (~~Lab & DC1~~) case ck	427	444	✓	
SDG Cover Sheet Cross Ref. Table	-	20	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA	NA	
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
Sample Control Record	NA ~~445~~	NA ~~451~~	~~✓~~ NA	
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	NA	NA		
Analysis Records				
Description				
31. Other Records (describe or list)				
Telephone Communication Log				

32. Comments:

Completed by (CLP Lab):

Joseph C. Hauser (Signature) — Joseph C Hauser / QA/QC Coordinator (Print Name & Title) — 3/24/00 (Date)

Audited by (EPA):

(Signature) (Print Name & Title) (Date)

COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc City/State: Syracuse/New York

Case No. ____ SDG No. 7841 SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ November 24, 29, 30 and December 1, 1999

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals volume 10 of 10

volumes 1 & 2 are a summary

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1.	Inventory Sheet (DC-2) (Do not number)				
2.	Cover Page - case narrative	1	19	✓	
3.	Inorganic Analysis Data Sheet ~~(Form I-IN)~~	297	323	✓	
4.	Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	2889	2890	✓	
5.	CRDL Standards For AA and ICP (~~Form IIB-IN~~)	2891	2892	✓	
6.	Blanks (~~Form III-IN~~)	2893	2894	✓	
7.	ICP Interference Check Sample (~~Form IV-IN~~)	NA		NA	
8.	Spike Sample Recovery (~~Form VA-IN~~)	-	2895	✓	
9.	Post Digest Spike Sample Recovery (~~Form VB-IN~~)	NA		NA	
10.	Duplicates (~~Form VI-IN~~)		2896	✓	
11.	Laboratory Control Sample (~~Form VII-IN~~)	2897	2898	✓	
12.	Standard Addition Results (Form VIII-IN)	NA	/	NA	
13.	ICP Serial Dilutions (~~Form IX-IN~~)	NA		NA	
14.	Instrument Detection Limits (Form X-IN)	-	2899	✓	
15.	ICP Interelement Correction Factors (Form XIA-IN)	NA	NA	NA	
16.	ICP Interelement Correction Factors (Form XIB-IN)				
17.	ICP Linear Ranges (Form XII-IN)				
18.	Preparation Log (~~Form XIII-IN~~)	2946	2947	✓	
19.	Analysis Run Log (~~Form XIV-IN~~) part of Raw Data	2900	2945	✓	
20.	ICP Raw Data	NA	NA	NA	
21.	Furnace AA Raw Data	2900	2945	✓	
22.	Mercury Raw Data	NA	NA	NA	

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data				
25. Percent Solids Determination Log				
26. Traffic Report				
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	427	444	✓	
Chain-of-Custody Records	~~NA~~	~~NA~~	~~NA~~ ✓	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (~~Lab & DC1~~) case file	427	444	✓	
SDG Cover Sheet Cross Ref. Table	–	20	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA	NA	
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
Sample Control Record	445	451	✓	
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	NA	NA		
Analysis Records				
Description				
31. Other Records (describe or list)				
Telephone Communication Log				

32. Comments:

Completed by (CLP Lab):

Joseph C. Hawser (Signature) — Joseph C. Houser / QA/QC coordinator (Print Name & Title) — 3/24/00 (Date)

Audited by (EPA):

(Signature) — (Print Name & Title) — (Date)

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME O'Brien & Gere Laboratories, Inc.
CITY/STATE Syracuse/NY

CASE NO. ______ SDG NO. ______ SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______

CONTRACT NO. ______
SOW NO. SW-846 8260B, 8270C, 8081

All documents delivered in the Complete SDG File must be original documents where possible. December 2,3,6,7 and 8, 1999
Volatiles, Semi-volatiles, Pesticides, ICP/Furnace Metals and Wet Chemistry - 8 Vol.
Organic volumes 2-6
Volume 1 is a Summary

	PAGE NOs FROM	TO	CHECK LAB	EPA
1. **Inventory Sheet** (Form DC-2) (Do not number)				
2. **SDG Case Narrative**	1	19	✓	
3. **SDG Cover Sheet/Traffic Report** Cross Ref. table	—	20	✓	
4. **Volatiles Data**				
a. QC Summary				
System Monitoring Compound Summary ~~(Form II VOA)~~ documented on Analytical Result Forms	21	60	✓	
Matrix Spike/Matrix Spike Duplicate Summary ~~(Form III VOA)~~	188	189	✓	
Method Blank Summary (~~Form IV~~ VOA)	232	235	✓	
GC/MS Instrument Performance Check (Form V VOA)	NA	NA	NA	
Internal Standard Area and RT Summary ~~(Form VIII VOA)~~	266	269	✓	
b. Sample Data	339	454	✓	
TCL Results - (Form I VOA)			✓	
Tentatively Identified Compounds (Form I VOA-TIC)			NA	
Reconstructed total ion chromatograms (RIC) for each sample			✓	
For each sample:				
Raw spectra and background-subtracted mass spectra of target compounds identified			✓	
Quantitation reports			✓	
Mass spectra of all reported TICs with three best library matches			NA	
c. Standards Data (All Instruments)	455	514		
Initial Calibration Data (~~Form VI~~ VOA)			✓	
RICs and Quan Reports for all Standards			✓	
Continuing Calibration Data (~~Form VII~~ VOA)			✓	
RICs and Quantitation Reports for all Standards			✓	
d. Raw QC Data				
BFB	519	528	✓	
Blank Data	529	540	✓	
Matrix Spike/Matrix Spike Duplicate Data	541	548	✓	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ______ SDG NO. 8270C, 8081 SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK EPA
5. **Semivolatiles Data**				
a. QC Summary — Documented on Analytical Result Form				
Surrogate Percent Recovery Summary (~~Form II SV~~)	61	129	✓	
MS/MSD Summary (~~Form III SV~~)	190	197	✓	
Method Blank Summary (~~Form IV~~ SV)	236	241	✓	
GC/MS Instrument Performance Check (~~Form V SV~~)	NA	NA	NA	
Internal Standard Area and RT Summary (~~Form VIII SV~~)	270	274	✓	
b. Sample Data	609	966		
TCL Results (~~Form~~ I SV-1, SV-2)				
Tentatively Identified Compounds (~~Form I SV-TIC~~)			✓	
Reconstructed total ion chromatograms (RIC) for each sample			✓	
For each sample:				
Raw spectra and background-subtracted mass spectra of target compounds			✓	
Quantitation reports			✓	
Mass spectra of TICs with three best library matches			✓	
GPC chromatograms (if GPC performed)			NA	
c. Standards Data (All Instruments)	967	1143		
Initial Calibration Data (~~Form VI SV-1, SV-2~~)			✓	
RICs and Quan Reports for all Standards			✓	
Continuing Calibration Data (~~Form VII~~ SV-1, SV-2)			✓	
RICs and Quantitation Reports for all Standards			✓	
Semivolatile GPC Calibration Data-UV detector traces			NA	
d. Raw QC Data				
DFTPP	1149	1174	✓	
Blank Data	1175	1186	✓	
Matrix Spike/Matrix Spike Duplicate Data	1187	1195	✓	
e. Raw GPC Data	NA	NA	NA	
6. **Pesticides**				
a. QC Summary — Documented on Analytical Result Form				
Surrogate Percent Recovery Summary (~~Form II PEST~~)	130	137	✓	
MS/MSD Duplicate Summary (~~Form III PEST~~)	191	192	✓	
Method Blank Summary (~~Form IV PES~~T)	242	243	✓	

CASE NO. ______ SDG NO. 8081 SDG NOS. TO FOLLOW ______
______ ______ SAS NO. ______ Dec 2,3,6,7 and 8, 1999

	PAGE NOs FROM	TO	CHECK LAB	EPA
6. **Pesticides** (Cont.)				
b. Sample Data	1252	1289		
TCL Results - Organic Analysis Data Sheet ~~(Form I PEST)~~			✓	
Chromatograms (Primary Column)			✓	
Chromatograms from second GC column confirmation			✓	
GC Integration report or data system printout			NA	
Manual work sheets			NA	
For pesticides/Aroclors confirmed by GC/MS, copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)				
c. Standards Data	1290	1498		
Initial Calibration of Single Component Analytes ~~(Form VI PEST-1 and PEST-2)~~			✓	
Initial Calibration of Multicomponent Analytes (Form VI PEST-3)			NA	
Analyte Resolution Summary ~~(Form VI PEST-4)~~			NA	
Performance Evaluation Mixture ~~(Form VI PEST-5)~~			✓	
Individual Standard Mixture A ~~(Form VI PEST-6)~~			✓	
Individual Standard Mixture B ~~(Form VI PEST-7)~~			✓	
Calibration Verification Summary ~~(Form VII PEST-1)~~			✓	
Calibration Verification Summary ~~(Form VII PEST-2)~~			✓	
Analytical Sequence ~~(Form VIII PEST)~~			✓	
Florisil Cartridge Check (Form IX PEST-1)			NA	
Pesticide GPC Calibration (Form IX PEST-2)			NA	
Pesticide Identification Summary for Single Component Analytes (Form X PEST-1)			NA	
Pesticide Identification Summary for Multicomponent Analytes (Form X PEST-2)			NA	
Chromatograms and data system printouts A printout of retention times and corresponding peak areas or peak heights			✓	
Pesticide GPC calibration data - UV detector traces			NA	
d. Raw QC Data				
Blank Data	1499	1508	✓	
Matrix Spike/Matrix Spike Duplicate Data	1509	1514	✓	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ________ SDG NO. 8081 SDG NOS. TO FOLLOW ________
________ ________ SAS NO. ________

	PAGE NOs FROM	TO	CHECK LAB	EPA
6. **Pesticides** (Cont.)				
e. Raw GPC Data	NA		NA	
f. Raw Florisil Data	NA		NA	
7. **Miscellaneous Data**				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	1533	1536	✓	
Internal sample and sample extract transfer chain-of-custody records	293	301	✓	
Screening records	NA	NA	NA	
All instrument output, including strip charts from screening activities (describe or list)				
________				
________				
8. **EPA Shipping/Receiving Documents**				
Airbills (No. of shipments 3)	275	301	✓	
Chain-of-Custody Records	↓	↓	✓	
Sample Tags	↓	↓	NA	
Sample Log-In Sheet (Lab & DC1)	↓	↓	✓	
Miscellaneous Shipping/Receiving Records (describe or list)				
________	↓	↓		
________	↓	↓		
9. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
Case File Form	↓	↓	✓	
Sample control Record	↓	↓	✓	
10. **Other Records** (describe or list)				
Telephone Communication Log				
________				
________				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (Cont.)

CASE NO. ________	SDG NO. ________	SDG NOS. TO FOLLOW ________
________ ________	SAS NO. ________	

11. **Comments:** ____________________

Completed by: ~~(CLP Lab)~~	Joseph C. Houser (Signature)	Joseph C Houser /QA/QC Coordinator (Printed Name/Title)	3/28/00 (Date)
Verified by: (CLP Lab)	(Signature)	(Printed Name/Title)	(Date)
Audited by: (EPA)	(Signature)	(Printed Name/Title)	(Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories, Inc   City/State: Syracuse/NY

Case No. ____ SDG No. 6010B SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ December 2,3,6,7 and 8, 1999 volatiles, Semivolatiles, Pest, ICP/furnace metals and Wet Chemistry - 8 vols

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

ICP Metals Volume 8 7

Volume 1 is a summary

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1. Inventory Sheet (DC-2) (Do not number)				
2. Cover Page - Case Narrative	1	19	✓	
3. Inorganic Analysis Data Sheet (Form I-IN) Analytical Results	142	155	✓	
4. Initial & Continuing Calibration Verification ~~(Form IIA-IN)~~	1735	1748	✓	
5. CRDL Standards For AA and ICP (~~Form~~ IIB-IN)	1749	1750	✓	
6. Blanks (Form III-IN)	1751	1754	✓	
7. ICP Interference Check Sample ~~(Form IV-IN)~~	1754A	1755	✓	
8. Spike Sample Recovery (~~Form VA-IN~~)	1756	-	✓	
9. Post Digest Spike Sample Recovery ~~(Form VB-IN)~~	1757	-	✓	
10. Duplicates (Form VI-IN)	NA	NA	NA	
11. Laboratory Control Sample (~~Form VII~~-IN)	1758	1761	✓	
12. Standard Addition Results (Form VIII-IN)	NA	NA	NA	
13. ICP Serial Dilutions ~~(Form IX-IN)~~	1762	-	✓	
14. Instrument Detection Limits ~~(Form X-IN)~~	1763	-	✓	
15. ICP Interelement Correction Factors (Form XIA-IN)	1764	1766	✓	
16. ICP Interelement Correction Factors (Form XIB-IN)	↓	↓	✓	
17. ICP Linear Ranges (~~Form XII-IN~~)	1767	-	✓	
18. Preparation Log (~~Form XIII-IN~~)	1903	1904	✓	
19. Analysis Run Log (~~Form XIV-IN~~) part of Raw Data	1768	1902	✓	
20. ICP Raw Data	↓	↓	✓	
21. Furnace AA Raw Data	NA	NA	NA	
22. Mercury Raw Data	NA	NA	NA	

Form DC-2   ILM02.0

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data				
25. Percent Solids Determination Log				
26. Traffic Report				
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	275	292	✓	
Chain-of-Custody Records			✓	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (~~Lab & DCl~~) Case File	275	292	✓	
SDG Cover Sheet Cross Reference Table	-	20	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA	NA	
________________				
________________				
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
Sample Control ~~Sample Control~~ Record	293	301	✓	
________________				
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records ________	NA	NA	NA	
Analysis Records ________				
Description ________				
31. Other Records (describe or list)				
Telephone Communication Log				
~~Sample~~ ________	~~293~~	~~301~~		
________________				

32. Comments:

____

____

Completed by (~~CLP Lab~~): Joseph C Hoser | Joseph C Hoser / QA/QC Coordinator | 3/28/00

(Signature) (Print Name & Title) (Date)

Audited by (EPA): ________________ ________________ ________________

(Signature) (Print Name & Title) (Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc. City/State: Syracuse/NY

Case No. _____ SDG No. 7470 SDG Nos. to Follow: _____ _____ _____

SAS No. _____ Contract No. _____ SOW No. _____ December 2,3,6,7 and 8, 1999 Volatiles, Semi-volatiles, Pesticides ICP/Furnace metals and Wet chemistry - 8Vols

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals (Hg) Volume 8
Volume 1 is a summary

	Page Nos. From	Page Nos. To	(Please Check:) Lab	(Please Check:) Region
1. Inventory Sheet (DC-2) (Do not number)				
2. Cover Page - Case Narrative	1	19	✓	
3. Inorganic Analysis Data Sheet (~~Form I-IN~~) Analytical results	156	169	✓	
4. Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	2031	2032	✓	
5. CRDL Standards For AA and ICP (~~Form IIB-IN~~)	2033	2034	✓	
6. Blanks (~~Form III-IN~~)	2035	2036	✓	
7. ICP Interference Check Sample (Form IV-IN)	NA	NA	NA	
8. Spike Sample Recovery (~~Form VA-IN~~)	—	2037	✓	
9. Post Digest Spike Sample Recovery (Form VB-IN)	NA	NA	NA	
10. Duplicates (Form VI-IN)	NA	NA	NA	
11. Laboratory Control Sample (~~Form VII-IN~~)	2038	2039	✓	
12. Standard Addition Results (Form VIII-IN)	NA	NA	NA	
13. ICP Serial Dilutions (Form IX-IN)	NA	NA	NA	
14. Instrument Detection Limits (~~Form X-IN~~)	—	2040	✓	
15. ICP Interelement Correction Factors (Form XIA-IN)	NA	NA		
16. ICP Interelement Correction Factors (Form XIB-IN)				
17. ICP Linear Ranges (Form XII-IN)				
18. Preparation Log (Form XIII-IN)	2067	2070	✓	
19. Analysis Run Log (Form XIV-IN) Part of Raw Data	2041	2066	✓	
20. ICP Raw Data	NA	NA	NA	
21. Furnace AA Raw Data	NA	NA	NA	
22. Mercury Raw Data	2041	2066	✓	

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data				
25. Percent Solids Determination Log				
26. Traffic Report				
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	275	292	✓	
Chain-of-Custody Records			✓	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (~~Lab & DC1~~) Case File	275	292	✓	
SDG Cover Sheet Cross Reference Table	-	70	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA	NA	
______				
______				
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)	NA	NA		
~~SS~~				
______				
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records ______	NA	NA		
Analysis Records ______				
Description ______				
31. Other Records (describe or list)				
Telephone Communication Log				
______				
______				

32. Comments:

Completed by (~~GLP Lab~~): Joseph C. Homer (Signature) — Joseph C. Hover / DM/DC Coordinator (Print Name & Title) — 3/28/00 (Date)

Audited by (EPA):

______ (Signature) ______ (Print Name & Title) ______ (Date)

FULL INORGANICS
COMPLETE SDG FILE (CSF)
INVENTORY SHEET

Lab Name: O'Brien & Gere Laboratories Inc City/State: Syracuse/NY

Case No. ____ SDG No. 7841 SDG Nos. to Follow: ____ ____ ____

SAS No. ____ Contract No. ____ SOW No. ____ December 2, 3, 6, 7 and 8, 1999 Volatiles, Semi-Volatiles, Pesticides, ICP/Furnace Metals and Wet Chemistry - 8V015

All documents delivered in the Complete SDG File must be original documents where possible. (Reference Exhibit B, Section II D and Section III V)

Metals (TL) Volume 8

Volume 1 is a Summary

		Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
1.	Inventory Sheet (DC-2) (Do not number)				
2.	Cover Page Case Narrative	1	17	✓	
3.	Inorganic Analysis Data Sheet (~~Form I-IN~~)	170	193	✓	
4.	Initial & Continuing Calibration Verification (~~Form IIA-IN~~)	2094	2095	✓	
5.	CRDL Standards For AA and ICP (~~Form IIB-IN~~)	2096	2097	✓	
6.	Blanks (~~Form III-IN~~)	2098	2100	✓	
7.	ICP Interference Check Sample (Form IV-IN)	NA	NA		
8.	Spike Sample Recovery (Form VA-IN)	2101	–	✓	
9.	Post Digest Spike Sample Recovery (Form VB-IN)	NA	NA	NA	
10.	Duplicates (Form VI-IN)	NA	NA	NA	
11.	Laboratory Control Sample (Form VII-IN)	2102	2104	✓	
12.	Standard Addition Results (Form VIII-IN)	NA	NA	NA	
13.	ICP Serial Dilutions (Form IX-IN)	NA	NA	NA	
14.	Instrument Detection Limits (Form X-IN)	–	2105	✓	
15.	ICP Interelement Correction Factors (Form XIA-IN)	NA	NA	NA	
16.	ICP Interelement Correction Factors (Form XIB-IN)	NA	NA		
17.	ICP Linear Ranges (Form XII-IN)				
18.	Preparation Log (Form XIII-IN)	2156	2159	✓	
19.	Analysis Run Log (Form XIV-IN) Part of Raw Data	2106	2155	✓	
20.	ICP Raw Data	NA	NA	NA	
21.	Furnace AA Raw Data	2106	2155	✓	
22.	Mercury Raw Data	NA	NA	NA	

	Page Nos. From	Page Nos. To	(Please Check:) Lab	Region
23. Cyanide Raw Data	NA	NA	NA	
24. Preparation Logs Raw Data				
25. Percent Solids Determination Log				
26. Traffic Report				
27. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	275	292	✓	
Chain-of-Custody Records			✓	
Sample Tags	NA	NA	NA	
Sample Log-In Sheet (~~Lab & DC1~~) Case file	275	293	✓	
SDG Cover Sheet Gess Ref. Table	—	20	✓	
28. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	NA	NA		
29. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
Sample Control Record	293	301	✓	
30. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	NA	NA	NA	
Analysis Records				
Description				
31. Other Records (describe or list)				
Telephone Communication Log				

32. Comments:

Completed by ~~(CLP Lab)~~:

Joseph C. Houser (Signature) | Joseph C Houser / QA/QC Coordinator (Print Name & Title) | 3/28/00 (Date)

Audited by (EPA):

(Signature) | (Print Name & Title) | (Date)

DQO Summary Form

EPA-NE - DQO SUMMARY FORM

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form. Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1. EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other:
Projected Date(s) of Sampling November 1999
EPA Site Manager
EPA Case Team Members

Site Name Barkhamsted-New Hartford Landfill Superfund Site
Site Location Barkhamsted, CT
Assigned Site Latitude/Longitude
CERCLA Site/Spill Identifier No. 01 (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other:

2. QAPjP Title and Revision Date Quality Assurance Project Plan - Barkhamsted New Hartford Landfill Superfund Site
Approved by: Date of Approval: November 1999
Title of Approving Official: Organization*:
*If other than EPA, record date approval authority was delegated:

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N

Type of EPA Oversight (circle one) PRP or FF Other:
If EPA Oversight or Confirmatory: % splits

3.								
a.	Matrix Code[1]	GW	GW	GW	GW	GW	GW	GW
b.	Parameter Code[2]	376.1	310.1	375.4	325.2	415.1	353.2	
c.	Preservation Code[3]	ZnAc/6	N	N	N	4	4	
d.	Analytical Services Mechanism	Other	Federal	Agency	- NON	CLP		
e.	No. of Sample Locations	19	19	19	19	19	19	
	Field QC:							
f.	Field Duplicate Pairs	0	0	0	0	0	0	
g.	Equipment Blanks	1	1	1	1	1	1	
h.	VOA Trip Blanks	0	0	0	0	0	0	
i.	Cooler Temperature Blanks	0	0	0	0	0	0	
j.	Bottle Blanks	0	0	0	0	0	0	
k.	Other:							
l.	PES sent to Laboratory	0	0	0	0	0	0	
	Laboratory QC:							
m.	Reagent Blank	2	3	2	2	2	3	
n.	Duplicate	1	1	1	1	1	1	
o.	Matrix Spike	1	1	1	1	1	1	
p.	Matrix Spike Duplicate	1	1	1	1	1	1	
q.	Other: LCS	2	3	2	2	2	3	

4. Site Information
Site Dimensions ~97.8 acres
List all potentially contaminated matrices
Range of Depth to Groundwater 3 ft - 35 ft
Soil Types: Surface Subsurface Other:
Sediment Types: Stream Pond Estuary Wetland Other: Expected Soil/Sediment Moisture Content: High Low

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix. Matrix Code[1]

5. Data Use (circle all that apply)
Site Investigation/Assessment
Nature and Extent of Contamination
Engineering Design
Post-Remedial Action (quarterly monitoring)
PRP Determination
Human and/or Ecological Risk Assessment
Remedial Action
Removal Actions
Remediation Alternatives
Other:

6. Summarize DQOs: As defined in Quality Assurance Project Plan - Barkhamsted New Hartford Superfund Site (Nov. 1999)
The data will be used in EPA's revised risk assessment, and to evaluate whether natural attenuation is occurring at the site
Data completeness of 95% was established

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
To be defined by USEPA		
based on Risk Assessment		

7. Sampling Method (circle technique) Bailer Low flow pump (Region I method: Yes No) Peristaltic Pump
Positive Displacement Pump Faucet or Spigot Other:
Split Spoon Dredge Trowel Other:

Sampling Procedures (SOP name, No., Rev. #, and date) Sampling and Analysis Plan Nov. 1999
List Background Sample Locations MW-113S, MW-113B, MW-113I, MW-113D
Circle: Grab or Composite
"Hot spots" sampled: Yes No

8. Field Data (circle) ORP pH Specific Conductance Dissolved O_2 Temperature Turbidity
Other: Ferrous Iron

9. Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
Kampbell & Vandegrift	Laboratory SOP		Nonhalogenated VOCs

10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part II, III or IV
2. Other Approved Validation Criteria:
Validation Tier (circle one) I II III Partial Tier III:
Company/Organization Performing Data Validation O'Brien & Gere Engineers Inc. Prime or Subcontractor (circle one)

11. Company Name O'Brien & Gere Engineers Inc. Contract Number
Contract Name (e.g. START, RACS, etc.) Work Assignment No.
Person Completing Form/Title David J Carnevale / Hydrogeologist Date of DQO Summary Form Completion 3/29/00

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1. HCl to pH ≤ 2
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Cool @ 4°C (± 2°)
6. NaOH
7. $K_2Cr_2O_7$
8. Freeze
9. Room Temperature (avoid excessive heat)
10. Other (Specify)
N. Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

EPA-NE - DQO SUMMARY FORM

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1.

EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other: ____
Projected Date(s) of Sampling ____
EPA Site Manager ____
EPA Case Team Members ____

Site Name ____
Site Location ____
Assigned Site Latitude/Longitude ____
CERCLA Site/Spill Identifier No. 01 ____ (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other: ____

2.

QAPjP Title and Revision Date ____

Approved by: ____ Date of Approval: ____
Title of Approving Official: ____ Organization*: ____
*If other than EPA, record date approval authority was delegated: ____

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N

Type of EPA Oversight (circle one) PRP or FF Other: ____
If EPA Oversight or Confirmatory: % splits ____

3.

a.	Matrix Code[1]	GW	GW	GW	GW					
b.	Parameter Code[2]	8260B	8270C	6010B	7470A					
c.	Preservation Code[3]	1	N	2	2					
d.	Analytical Services Mechanism	Other	Federal	Agency	NON-	CLP				
e.	No. of Sample Locations	36	36	36	36					
	Field QC:									
f.	Field Duplicate Pairs	0	0	0	0					
g.	Equipment Blanks	2	2	2	2					
h.	VOA Trip Blanks	14	0	0	0					
i.	Cooler Temperature Blanks	0	0	0	0					
j.	Bottle Blanks	0	0	0	0					
k.	Other: ____									
l.	PES sent to Laboratory	1	1	1	1					
	Laboratory QC:									
m.	Reagent Blank	9	5	3-5						
n.	Duplicate	2	2	2	2					
o.	Matrix Spike	2	2	2	2					
p.	Matrix Spike Duplicate	2	2	2	2					
q.	Other: LCS	9.	5	3-5						

4.

Site Information
Site Dimensions ____
List all potentially contaminated matrices ____
Range of Depth to Groundwater ____
Soil Types: Surface Subsurface Other: ____
Sediment Types: Stream Pond Estuary Wetland Other: ____ Expected Soil/Sediment Moisture Content: High Low

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix. Matrix Code[1] ____

5. Data Use (circle all that apply) Site Investigation/Assessment; Nature and Extent of Contamination; Engineering Design; Post-Remedial Action (quarterly monitoring); PRP Determination; Human and/or Ecological Risk Assessment; Remedial Action; Removal Actions; Remediation Alternatives; Other: ____

6. Summarize DQOs: See page 2 of 10

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
See page 2 of 10		

7. Sampling Method (circle technique) Bailer Low flow pump (Region I method: Yes No) Peristaltic Pump Positive Displacement Pump Faucet or Spigot Other:_____ Split Spoon Dredge Trowel Other:_____

Sampling Procedures (SOP name, No., Rev. #, and date)_____
List Background Sample Locations_____
Circle: Grab or Composite
"Hot spots" sampled: Yes No

8. Field Data (circle) ORP pH Specific Conductance Dissolved O_2 Temperature Turbidity
Other:_____

9. Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
SW846	8260 B		VOA
SW846	8270 C		SV
SW846	6010 B		Metals
SW846	7470 A		Mercury

10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part II, III or IV
2. Other Approved Validation Criteria:_____
Validation Tier (circle one) I II III Partial Tier III:_____
Company/Organization Performing Data Validation See page 2 of 10 Prime or Subcontractor (circle one)

11. Company Name_____ Contract Number_____
Contract Name (e.g. START, RACS, etc.)_____ Work Assignment No._____
Person Completing Form/Title_____ Date of DQO Summary Form Completion_____

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1. HCl to pH ≤ 2
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Cool @ 4°C (± 2°)
6. NaOH
7. $K_2Cr_2O_7$
8. Freeze
9. Room Temperature (avoid excessive heat)
10. Other (Specify)
N. Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

EPA-NE - DQO SUMMARY FORM

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1. EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other: ____
Projected Date(s) of Sampling ____
EPA Site Manager ____
EPA Case Team Members ____

Site Name ____
Site Location ____
Assigned Site Latitude/Longitude ____
CERCLA Site/Spill Identifier No. 01 ____ (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other: ____

2. QAPjP Title and Revision Date ____

Approved by: ____ Date of Approval: ____
Title of Approving Official: ____ Organization*: ____
*If other than EPA, record date approval authority was delegated: ____

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N

Type of EPA Oversight (circle one) PRP or FF Other: ____
If EPA Oversight or Confirmatory: % splits ____

3.									
a.	Matrix Code[1]	DW	DW	DW	DW				
b.	Parameter Code[2]	8260B	8270C	6010B	7470A				
c.	Preservation Code[3]	1	N	2	2				
d.	Analytical Services Mechanism	Other	Federal	Agency	NON-	CLP			
e.	No. of Sample Locations	3	3	3	3				
	Field QC:								
f.	Field Duplicate Pairs	0	0	0	0				
g.	Equipment Blanks	0	0	0	0				
h.	VOA Trip Blanks	1	0	0	0				
i.	Cooler Temperature Blanks	0	0	0	0				
j.	Bottle Blanks	0	0	0	0				
k.	Other: ____								
l.	PES sent to Laboratory	0	0	0	0				
	Laboratory QC:								
m.	Reagent Blank	0	0	0	0				
n.	Duplicate	0	0	0	0				
o.	Matrix Spike	0	0	0	0				
p.	Matrix Spike Duplicate	0	0	0	0				
q.	Other: LCS	0	0	0	0				

4. Site Information
Site Dimensions ____
List all potentially contaminated matrices ____
Range of Depth to Groundwater ____
Soil Types: Surface Subsurface Other: ____
Sediment Types: Stream Pond Estuary Wetland Other: ____ Expected Soil/Sediment Moisture Content: High Low

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix. Matrix Code[1] ____

5. Data Use (circle all that apply) Site Investigation/Assessment
Nature and Extent of Contamination
Engineering Design
Post-Remedial Action (quarterly monitoring)
PRP Determination
Human and/or Ecological Risk Assessment
Remedial Action
Removal Actions
Remediation Alternatives
Other: ____

6. Summarize DQOs: See page 2 of 10

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
See Page 2 of 10		

7. Sampling Method (circle technique) Bailer Low flow pump (Region I method: Yes No) Peristaltic Pump
Positive Displacement Pump Faucet or Spigot Other:
Split Spoon Dredge Trowel Other:

Sampling Procedures (SOP name, No., Rev. #, and date) See page 2 of 10
List Background Sample Locations
Circle: Grab or Composite
"Hot spots" sampled: Yes No

8. Field Data (circle) ORP pH Specific Conductance Dissolved O_2 Temperature Turbidity
Other:

9. Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
SW846	8260B		VOA
SW846	8270C		SV
SW846	6010B		Metals
SW846	7470A		Mercury

10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part II, III or IV
2. Other Approved Validation Criteria:
Validation Tier (circle one) I II III Partial Tier III:
Company/Organization Performing Data Validation ______ Prime or Subcontractor (circle one)

11. Company Name ______ Contract Number ______
Contract Name (e.g. START, RACS, etc.) ______ Work Assignment No. ______
Person Completing Form/Title ______ Date of DQO Summary Form Completion ______

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1. HCl to pH ≤ 2
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Cool @ 4°C (± 2°)
6. NaOH
7. $K_2Cr_2O_7$
8. Freeze
9. Room Temperature (avoid excessive heat)
10. Other (Specify)
N. Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

EPA-NE - DQO SUMMARY FORM

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1. EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other: ____
Projected Date(s) of Sampling ____
EPA Site Manager ____
EPA Case Team Members ____

Site Name ____
Site Location ____
Assigned Site Latitude/Longitude ____
CERCLA Site/Spill Identifier No. 01 ____ (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other: ____

2. QAPjP Title and Revision Date ____
Approved by: ____ Date of Approval: ____
Title of Approving Official: ____ Organization*: ____
*If other than EPA, record date approval authority was delegated: ____

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N
Type of EPA Oversight (circle one) PRP or FF Other: ____
If EPA Oversight or Confirmatory: % splits ____

3.									
a.	Matrix Code[1]	SW	SW	SW	SW	SW			
b.	Parameter Code[2]	8260B	8270C	6010B	7470A	8081			
c.	Preservation Code[3]	1	N	2	2	N			
d.	Analytical Services Mechanism	Other	Federal	Agency	NON-	CLP			
e.	No. of Sample Locations	7	9	7	7	7			
	Field QC:								
f.	Field Duplicate Pairs	0	0	0	0	0			
g.	Equipment Blanks	1	1	1	1	1			
h.	VOA Trip Blanks	3	0	0	0	0			
i.	Cooler Temperature Blanks	0	0	0	0	0			
j.	Bottle Blanks	0	0	0	0	0			
k.	Other: ____								
l.	PES sent to Laboratory	0	0	0	0	1			
	Laboratory QC:								
m.	Reagent Blank	0	0	0	0	3			
n.	Duplicate	1	1	1	1	1			
o.	Matrix Spike	1	1	1	1	1			
p.	Matrix Spike Duplicate	1	1	1	1	1			
q.	Other: ____	0	0	0	0	3			

4. Site Information
Site Dimensions ____
List all potentially contaminated matrices ____
Range of Depth to Groundwater ____
Soil Types: Surface Subsurface Other: ____
Sediment Types: Stream Pond Estuary Wetland Other: ____ Expected Soil/Sediment Moisture Content: High Low

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix. Matrix Code[1] ____

5. Data Use (circle all that apply) ~~Site Investigation/Assessment~~ ~~PRP Determination~~ ~~Removal Actions~~
Nature and Extent of Contamination Human and/or Ecological Risk Assessment Remediation Alternatives
~~Engineering Design~~ Remedial Action
Post-Remedial Action (quarterly monitoring) Other: ____

6. Summarize DQOs: See page 2 of 10

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
See page 2 of 10		

7. Sampling Method (circle technique) Bailer Low flow pump (Region I method: Yes No) Peristaltic Pump
Positive Displacement Pump Faucet or Spigot Other: Sample bottle
Split Spoon Dredge Trowel Other:

Sampling Procedures (SOP name, No., Rev. #, and date) See page 2 of 10
List Background Sample Locations SW-3
Circle: Grab or Composite
"Hot spots" sampled: Yes No

8. Field Data (circle) ORP pH Specific Conductance Dissolved O_2 Temperature Turbidity
Other:

9. Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
SW846	8260B		VOA
SW846	8270C		SV
SW846	6010B		Metals
SW846	7470A		Mercury
SW846	8081		Pesticides

10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part II, III or IV
2. Other Approved Validation Criteria:
Validation Tier (circle one) I II III Partial Tier III:
Company/Organization Performing Data Validation Prime or Subcontractor (circle one)

11. Company Name Contract Number
Contract Name (e.g. START, RACS, etc.) Work Assignment No.
Person Completing Form/Title Date of DQO Summary Form Completion

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1. HCl to pH ≤ 2
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Cool @ 4°C (± 2°)
6. NaOH
7. $K_2Cr_2O_7$
8. Freeze
9. Room Temperature (avoid excessive heat)
10. Other (Specify)
N. Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

EPA-NE - DQO SUMMARY FORM

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1.

EPA Program: TSCA CERCLA RCRA DW NPDES CAA
Other: ___
Projected Date(s) of Sampling ___
EPA Site Manager ___
EPA Case Team Members ___

Site Name ___
Site Location ___
Assigned Site Latitude/Longitude ___
CERCLA Site/Spill Identifier No. 01 ___ (Include Operable Unit)
Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA
(circle one) Other: ___

2.

QAPjP Title and Revision Date ___

Approved by: ___ Date of Approval: ___
Title of Approving Official: ___ Organization*: ___
*If other than EPA, record date approval authority was delegated: ___

EPA Oversight Project (circle one) Y N
Confirmatory Analysis for Field Screening Y N
Are comparability criteria documented? Y N

Type of EPA Oversight (circle one) PRP or FF Other: ___
If EPA Oversight or Confirmatory: % splits ___

3.

a.	Matrix Code[1]	LE	LE	LE	LE	LE			
b.	Parameter Code[2]	8260B	8270C	6010B	7470A	8081			
c.	Preservation Code[3]	1	N	2	2	N			
d.	Analytical Services Mechanism	Other	Federal	Agency	NON-	CLP			
e.	No. of Sample Locations	6	6	6	6	6			
	Field QC:								
f.	Field Duplicate Pairs	0	0	0	0	0			
g.	Equipment Blanks	1	1	1	1	1			
h.	VOA Trip Blanks	3	0	0	0	0			
i.	Cooler Temperature Blanks	0	0	0	0	0			
j.	Bottle Blanks	0	0	0	0	0			
k.	Other: ___								
l.	PES sent to Laboratory	0	0	0	0	0			
	Laboratory QC:								
m.	Reagent Blank	0	0	0	0	0			
n.	Duplicate	1	1	1	1	1			
o.	Matrix Spike	1	1	1	1	1			
p.	Matrix Spike Duplicate	1	1	1	1	1			
q.	Other: ___								

4.

Site Information
Site Dimensions ___
List all potentially contaminated matrices ___
Range of Depth to Groundwater ___
Soil Types: Surface Subsurface Other: ___
Sediment Types: Stream Pond Estuary Wetland Other: ___ Expected Soil/Sediment Moisture Content: High Low

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix. Matrix Code[1] ___

5. Data Use (circle all that apply) ~~Site Investigation/Assessment~~
Nature and Extent of Contamination
~~Engineering Design~~
Post-Remedial Action (quarterly monitoring)
~~PRP Determination~~
Human and/or Ecological Risk Assessment
~~Remedial Action~~
~~Removal Actions~~
Remediation Alternatives
Other: ___

6. Summarize DQOs: See page 2 of 10

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
See page 2 of 10		

7. Sampling Method (circle technique) Bailer Low flow pump (Region I method: Yes No) Peristaltic Pump Positive Displacement Pump Faucet or Spigot Other: Split Spoon Dredge Trowel Other:

Sampling Procedures (SOP name, No., Rev. #, and date) See page 2 of 10
List Background Sample Locations
Circle: Grab or Composite
"Hot spots" sampled: Yes No

8. Field Data (circle) ORP pH Specific Conductance Dissolved O_2 Temperature Turbidity
Other:

9. Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
SW846	8260B		VOA
SW846	8270C		SV
SW846	6010B		Metals
SW846	7470A		Mercury
SW846	8081		Pesticides

10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part II, III or IV
2. Other Approved Validation Criteria:
Validation Tier (circle one) I II III Partial Tier III:
Company/Organization Performing Data Validation Prime or Subcontractor (circle one)

11. Company Name Contract Number
Contract Name (e.g. START, RACS, etc.) Work Assignment No.
Person Completing Form/Title Date of DQO Summary Form Completion

Matrix Codes[1] - Refer to Attachment B, Part I
Parameter Codes[2] - Refer to Attachment B, Part II

Preservation Codes[3]

1. HCl to pH ≤ 2
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Cool @ 4°C (± 2°)
6. NaOH
7. $K_2Cr_2O_7$
8. Freeze
9. Room Temperature (avoid excessive heat)
10. Other (Specify)
N. Not preserved

* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit

Field Sampling Notes

17.80 36.21

17.90

4.49 45.97

Barkhamsted Landfill 11/16/99

Personnel: djp / kwb

Site activity - water levels, site walk over

	Depth H2O	Depth of well		Depth H2O	Depth of well
MW-1S	25.38	50.27	MW-106S	12.20	42.81
1R	29.72	41.16	107S	4.04	19.37
* 53	3.93	10.43	107B	4.27	38.11
43	17.85	31.21	108S	16.38	18.29
4R	17.55	46.18	108B	27.35	32.14
4R-1	14.20	253.98	109B	17.75	81.91
4R-2	19.49	104.27	* 110I	7.34	106.66
5S	6.31	16.13	111S	10.90	53.26
5B	1.22	31.06	111B	9.27	65.96
101S	5.00	32.76	111I	9.43	89.08
101B	4.49	45.97	* 112S	18.03	40.96
101I	9.03	149.71	* 112B	26.75	65.33
101D	10.72	257.81	* 113S	8.79	42.25
102S	9.95	14.70	113B	10.06	66.81
102B	15.95	38.49	* 113I	10.82	100.10
* 103S	8.11	15.36	* 113D	2.26	235.91
* 103B	7.21	32.28	* 114S	3.52	17.85
104S	11.58	36.71	114B	4.70	139.30
104B	10.19	58.97	115S	5.53	17.24
104I	8.08	108.39	* 115B	47.43	92.46
105S	19.48	40.77	116S	11.40	20.26
105D	18.41	59.86	116B	24.49	100.3

117S	10.13	13.10
117B	7.80	64.18
118S	9.41	17.61
118B	8.69	108.01

11/17/99

Horiba U-22 Calibration (Manual - 2 point)
as per instruction manual.

		#00760	#00756
Temp	19.97°c	(NIST Thermometer)	
		19.74°c → 19.97°c	19.72°c → 19.97°c
pH 7	@ 20°c	6.71 → 7.02	7.17 → 7.02
pH 4	@ 20°c	4.09 → 4.00	4.08 → 4.00
Cond	(air)	0.000 mS/cm	0.000 mS/cm
0.084 mS/cm	@ 20°c	0.081 mS/cm 0.076 mS/cm	0.087 mS/cm 0.076 mS/cm
1413 μS/cm	@ 20°c	0.134 S/m 0.128 S/m	0.132 S/m 0.128 S/m
DO	(zero soln)	0.00	0.00
Air Sat H_2O	@ 20°c	8.43 → 8.84	8.68 → 8.84
ORP	@ 19.9°c	218 mV	218 mV
std	@ 20°c	237.5	237.5

11/17/99

0730 KuB & DJC arrive on site.
Begin setup at wells MW-113B
& MW-113S. Water from MW-113S
is degassing causing release
of air bubbles into flow through
cell. Flow is discontinued.

1030 Charlie Profert, Carolyn Pim Springs,
& Sheila Gleason arrive on site &
observe process at MW-113B.
Parameters stabilized & begin
sampling. pH paper used to test
pH of preserved samples.

1230 KuB sets up pumps from MW-113B
on well MW-113S. Degasing problem
continues. Charlie suggests that
the peristaltic pump be discontinued
in favor of Grundfos pump
method to eliminate degassing.
Charlie also observes DJC perform
calibration of Uriba unit & raises
the following issues:

- performed calib. on unit used at well MW-113B
- pH check OK @ 7.0 & 4.0
- Cond check read low @ 1413 & 84.

DJC recalibrated w/ both.

- DO check @ Ø OK.
- Requested % air saturation be
used rather than use air
saturated water as per Uriba
Manual. Ran % air satur-
ation at standard pressure &
it checked OK. Question of
unit of "h PA".
- ORP read low.
- Temp check OK

1500 Charlie, Carolyn, & Sheila off site.
KuB & DJC go to store to get
couplings to reduce water tubing
to LDPE for use w/ Grundfos
per Charlie's request.

1530 KuB & DJC deliver samples to
FedEx @ airport.

Barkhamsted Landfill 11/18/99

Horiba U-22 Calibration (S/N 00760)

pH 7 @ 21°C Reading 7.08, zero to 7.02

pH 4 @ 21°C Reading 4.09, span to 4.00

Conductivity zeroed in air to 0.00 mS/m

@ 20°C 8.4 mS/m std reads 7.3 mS/m,
span to 7.6 mS/m
0.1413 S/m std reads 0.118 @ 20°C,
span to 0.128 S/m

DO unit reads 0.00 mg/L using
zero do soln.
% air sat. = 99.6 %
@ std pressure (1013 hPa) @ 21°C
reads 8.72, span to 8.68 mg/L

ORP @ 21°C reads 207 mV

11/18/99

Horiba Calibration (S/N 00756)

pH 7 @ 21°C Reading 7.00, zero to 7.02

pH 4 @ 21°C Reading 3.98, span to 4.00

Conductivity zeroed in air to 0.00 mS/cm
@ 20°C 0.084 mS/cm std reads 0.087 mS/cm,
span to 0.076 mS/cm

DO unit reads 0.00 mg/L using zero soln.
% air sat = 99.8 %
@ std pressure (1013 hPa) @ 19°C reads
9.09 mg/L ≈ 9.01 mg/L (Theoretical)

ORP @ 21°C reads 214 mV.

Low flow sampling 11/18/99

0730 On site. kwb/djc

John Verban (Metcalf & Eddy) on site. He has PE samples for OBG Labs.

Ask John if he has chain of custody indicating where he received samples but he does not. John indicates he will initiate chain.

Pull 1/2-in ID Waterra tubing from MW-113D and Grundfos pump to install 3/16-in ID tubing on pumps. Tubing reduction as follows:
~4-in of 1/2-in ID tubing with 1/2 x 1/4 reducing fitting in 1/2-in ID tubing,
~2-in PharMed tubing attached to 1/4 end of reducer, 3/16 x 1/8 Kynar fitting attached to upper end of PharMed, 3/16 ID LDPE attached to upper end of 3/16 x 1/8 fitting to top of well.

11/18/99

Start Grundfos pump at lowest setting. No water flow. Tubing assembly detached from pumps in well. Removed tubing, 3/16 x 1/8 fitting broke off.
Try to pull pump but hangs up on coupling in PVC well.
Secure safety cable and electric lead to well casing with duct tape.

Move to purge and sample MW-115S using low flow methods
Collect VOC, SVOC and TAL Metals at MW-115S. Check pH of metals bottle and VOC (extra sample), both 2 or less.
Ferrous Iron = 0.0 ppm

KWB sets up at MW-110I
DJC sets up at MW-106S

Collect sample at MW-110I. pH check of VOC and Metals bottles 2 or less. MW-110I sampled for TCL VOC, TCL SVOC, TAL metals

11/18/99

Collect sample at MW-106S, pH check of VOC and Metals bottles 2 or less. MW-106S sampled for TCL VOC TCL SVOC, TAL Metals.

Attempt to remove Grundfos pump at MW-113D. While pulling on safety cable, cable broke off - the electric lead is only attached to pump. Pump still stuck in well.

~~Rec'd~~ John Verban relinquishes PE samples to djc.

Relinquish MW-115S, MW-110I and MW-106S, and PE samples to Fed Ex for overnight delivery to DBG Labs in Syracuse.

11/19/99

Horiba Calibration (S/N 00760)

pH 7 at 21°C reads 7.05, zero to 7.02
pH 4 at 21°C reads ~~3~~.97, span to 4.00

Conductivity zeroed in air to 0.0 mS/m
84 uS (8.4 mS/m) reads 9.4 mS/m, span to 7.8 mS/m
at 21°C

DO % air saturation reading 111.9%
Reading 9.65 mg/L at 21°C at
1013 hPa
using zero do soln reads 0.0 mg/L

ORP Reading ~~199~~ 209 mV at 19.5°C

11/19/99

Horiba Calibration (S/N 00756)

pH 7 at 21°C reads 7.01, zero to 7.02
pH 4 at 21°C reads 4.02, span to 4.00

Conductivity zeroed in air to 0.0 mS/cm
84 uS (0.084 mS/cm) reads 0.102 mS/cm,
span to 0.078 mS/cm

DO % air sat reading 113.5%
Reading 9.87 mg/L at ~21°C at
1013 hPa
using zero do soln, read 0.0 mg/L

ORP Reading 216 mV at ~20 °C

Turb (LaMotte 2020 S/N 0970-4598)
10 NTu std reads 11 NTu cal to
10 NTu
1 NTu std reads 0.85 NTu

Turb (Hanna HI93703 S/N NA)
10 FTu std reads 10.1 FTu
0 FTu std reads 0.00 FTu

11/19/99

0700 kwb/djc on site
0730 John Verban on site from Metcalf
and Eddy

Set up low flow equipment at
MW-102 nest. Kwb working
on MW-102B, djc on MW-102S

0900 Sample MW-102B for TCL
VOC, SVOC and TAL Metals

0905 Sample MW-102S for TCL
VOC, SVOC, and TAL metals

Move equipment to MW-103
nest. kwb working on MW-103S
djc working on MW-103B

1115 Sample MW-103B for TCL VOCs
SVOCs and TAL Metals

1130 Sample MW-103S for TCL VOCs,
SVOCs, TAL metals

11/19/99

Move to MW-105 nest,
Kurb working on MW-105B,
dz working on MW-105S

1345 Sample MW-105S for TCL VOCs, SVOCs, TAL Metals. Collect MS/MSD

1430 Sample MW-105B for TCL VOCs SVOCs, TAL Metals

Discharge purgewaters to manhole 4

Depart site for Syracuse

1845 Relinquish samples to OBG Labs

11/22/99

Horiba Calibration (S/N 00760)

pH 7 std at 20°C reading 7.02 no adjustment necessary
pH 4 std at 20°C reading 4.00, no adjustment necessary

Cond. 84 μS (0.084 mS/cm) std reading 0.092 span to 0.076

DO Unit reads 0.00 mg/L using zero do soln
% air sat = 101.2 %
at 1013 hPa and 20°C reading 9.18 mg/L

ORP at 20°C reading 219 mV

Turb LaMotte 2020 10 NTU std reading 6.82, cal to 10 NTU, 1 NTU std reading 3.32 NTU. We will use Hanna HI93705 meter instead

11/22/99

Horiba Calibration (S/N 00756)

pH 7 std at 20°C reading 7.02, no adjustment necessary.

pH 4 std at 20°C reading 4.00, no adjustment necessary

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std at 20°C reading 0.087 mS/cm
span to 0.076 mS/cm

DO Zero'd unit needs zero using zero DO soln.
% air sat = 101.4 %
at 1013 hPa and 20°C reading 9.22 mg/L

ORP at 20°C reading 224 mV

Turb Cal using 0 FTU and 10 FTU Stds in accordance with manual

11/22/99

0730 Arrive on site kwb/djc

Mob equipment for low flow sampling to MW-117 well nest

0845 Collect TCL VOC, SVOC, and TAL Metals from MW-117S. pH of preserved samples < 2.
Ferrous Iron = 0.0 ppm

0915 Collect TCL VOC, SVOC, and TAL Metals from MW-117B. pH of preserved samples < 2, Ferrous Iron = 0.0 ppm

Rinse flow through cells using distilled H_2O.
Move to MW-111 nest djc at MW-111S
Kwb at MW-111B

1030 Collect TCL VOC, SVOC, TAL Metals and natural attenuation samples at MW-111S
pH < 2 and > 11, Ferrous Iron = 0.0 ppm

1040 Collect TCL VOC, SVOC, TAL Metals and MS/MSD on all at MW-111B
pH < 2 and > 11, Ferrous Iron = 0.0 ppm

11/22/99

Set up at MW-111I (djc/kwb)

1345 Collect TCL VOC, SVOC, TAL Metals and Natural Attenuation parameters at MW-111I pH < 2 & > 11. Ferrous Iron = 0.0 ppm

Move to MW-118 nest. Kwb at MW-118S djc at MW-118B.

1530 Collect TCL VOC, SVOC, TAL Metals, and Natural Attenuation samples at MW-118S pH < 2 & > 11; Ferrous Iron = 0.0 ppm

After 1 hour of purging MW-118B, water level continued to drop. Past experience indicates that MW-118B cannot be lowflow sampled. Decide to purge MW-118B dry at end of day (1630) and will let well recover and collect samples on 11/23/99.

11/23/99

Horiba U-22 Calibration (S/N 00760)

pH 7 std at 20°C reading 7.02, no adjustment
pH 4 std at 20°C reading 4.00, no adjustment

Conductivity
Zero to 0.00 mS/cm in air
0.084 mS/cm std reads 0.068 mS/cm, span to 0.076 mS/cm at 20°C
1.413 mS/cm std reads 1.18 mS/cm, span to 1.28 mS/cm at 20°C

DO % air sat. = 106%
Reading 9.11 mg/L at 20°C at 1013 hPa
Reading 0.00 mg/L using Zero DO soln

ORP Reading 218 mV at 21°C

Turb LaMotte 2020
10 NTu std reads 10.64 NTu
calibrate to 10.00 NTu
1 NTu std reading 2.63 NTu

11/23/99

Horiba U-22 Calibration

pH 7 std at 20°C reads 7.02, no adjustment
pH 4 std at 20°C reads 4.00, no adjustment

Conductivity
0.084 mS/cm std reads 0.072 mS/cm, span to
0.076 mS/cm at 20°C
1.413 mS/cm std reads, 1.21 mS/cm, span to
1.28 mS/cm at 20°C

DO % air sat = 108%
Reading 9.18 mg/L at 20°C & 1013 kPa
Reading 0.00 mg/L using Zero DO soln.

ORP Reading 218 mV at 21°C

Turb Hanna H193703
0 FTU std reads 0.00 FTU
10 FTU std reads 9.59 FTU
Calibrate to 0 & 10 FTU stds per Manufact. Manual.

11/23/99

0700 On site kwb/djc
Set up to sample MW-118B which was purged dry 11/22/99 at 1630.

0800 Collect TCL VOC, SVOC, TAL Metals, and Natural Attenuation samples from MW-118B
pH <2 & >11 on preserved samples, Ferrous iron = 0.0 ppm

Decon Grundfos pump using non phosphate detergent wash, potable water flush, distilled water flush/rinse, rinse with methanol and distilled water rinse on pump and cable

Move to MW-104 nest, kwb at MW-104S djc at MW-104B.

1130 Collect TCL VOC, SVOC, TAL Metals, and natural attenuation samples at MW-104S
pH <2 & >11 on preserved samples
Ferrous iron = 0.0 ppm

11/23/99

kwb moves to MW-5S to low flow purge/sample. djz still purging MW-104B.

1415 kwb collects TCL VOC, SVOC, TAL Metals, and Natural Attenuation samples at MW-5S. djz still purging MW-104B.

1405 After 4 hours of purging MW-104B at lowest achievable pumping rate (100 ml/min) water level continued to decline (~1 ft/10min). Purged well dry and will sample after sufficient recovery to fill all sample bottles.

MW-5S add 2 ml NaOH to 5ox poly pint, add 7 ml HNO_3 to metals bottle; VOC, filtered TOC, nonhalogenated VOC and NO_2/NO_3 pH <2

Ferrous iron = 7.4 ppm

11/23/99

Recovery rate of MW-104B too slow to provide sufficient volume to sample today.

We will pack coolers and relinquish samples to Fed Ex.

11/24/99

Horiba U-22 Calibration (S/N 00760)

pH 7 std reads 7.02 at 22°C, no adjustment
pH 4 std reads 4.00 at 22°C, no adjustment

Cond zero in air, reading 0.000 mS/cm
0.084 mS/cm std reads 0.105 mS/cm at 22°C,
Span to 0.079 mS/cm
1.41 mS/cm std reads 1.21 mS/cm at 22°C
Span to 1.33 mS/cm

DO % air saturation = 101.4 %
Reading 8.94 mg/L at 21°C and 1013 hPa
Reading 0.00 mg/L using Zero DO soln

ORP Reading 219 mV at 22°C

Turb LaMotte 2020 10 std reads 9.62 NTU
Calibrate to 10 NTU
Check 1 NTU std, reading 1.42 NTU

11/24/99

Horiba U-22 Calibration (S/N 00756)

pH 7 std reads 7.04 at 22°C, zero to 7.02
pH 4 std reads 4.00 at 22°C, no adjustment

Cond. Zero in air, reading 0.000 mS/cm
0.084 mS/cm std reads 0.094 mS/cm at 22°C,
Span to 0.079 mS/cm
1.41 mS/cm std reads 0.900 mS/cm at 22°C,
Span to 1.33 mS/cm

DO % air saturation = 102.1 %
Reading 8.99 mg/L at 21°C and 1013 hPa
Reading 0.00 mg/L using Zero DO soln

ORP Reading 221 mV at 22°C

Turb Hanna HI93703
0 FTU std reads 0.00 FTU
10 FTU std reads 9.96 FTU

11/24/99

0700 On site djc/kwb

Move to MW-104B to collect TCL VOC, SVOC and TAL Metals

0740 MW-104B WL @ 22.75

0800 Collect samples from MW-104B and BLIND DUPLICATE
pH of VOC and Metals bottle < 2
Ferrous Iron = 0.0 ppm

Move to S-3 kwb/djc

1045 Collect TCL VOC, SVOC, and TAL Metals at S-3. pH of VOC and Metals sample < 2.
Ferrous Iron = 6 ppm

1030 kwb moves to MW-1S to begin low flow purging/sampling.

11/24/99

1140 Collect EQBLK #1 using lab deionized water and organic free water. Lab waters were run over Grundfos pump body and screen intake and collected in a precleaned stainless steel bowl. Order of collection was TCL VOC, TCL SVOC, and TAL Metals

1145 Made QA/QC trip blank using lab demonstrated organic free deionized water, to be included in sample delivery to OBG Labs in Syracuse.

Abandon low flow purging at MW-1S as peristaltic pump is causing excessive off gasing. We will sample MW-1S next week using Grundfos pump.

11/29/99

Horiba Calibration (S/N 00760)

pH 7 std reads 7.04 at 16°C, no adjustment
pH 4 std reads 4.04 at 16°C, span to 4.00

Cond Zero in air to 0.00 mS/cm
1.084 mS/cm soln at 16°C reads 0.078, span to 0.070 mS/cm
1.413 mS/cm stan at 16°C reads 1.28 mS/cm span to 1.17 mS/cm

DO % air saturation = 98.9%
Reading 9.53 mg/L at 16°C at 1022 hPa
Reading 0.00 mg/L using Ø DO soln

ORP Reading 220 mV at 16°C

Turb LaMotte 2020 10 NTu std reads 10.19 NTu calibrate to 10 NTu, 1 NTu std reads 1.28 NTu

11/29/99

Horiba Calibration (S/N 00256)

pH 7 std reads 7.09 at 16°C, adjust to 7.04
pH 4 std reads 4.04 at 16°C, span to 4.00

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std at 16°C reads 0.081 mS/cm
Span to 0.070 mS/cm
1.413 mS/cm std at 16°C reads 1.24 mS/cm
Span to 1.17 mS/cm

DO % air saturation = 98.3%
Reading 9.41 mg/L at 16°C at 1022 hPa

ORP Reading 228 mV at 16°C

Turb Hanna HI 93703

11/29/99

0730 Pick up generator at BreMor Rental
0800 On site, loading sample coolers for MW-4 nests

KWb at MW-4R-1
djc at MW-4R

After ~60 min of low flow purging at MW-4R excessive off gassing when using Grundfos submersible pump. Historic sampling data indicate that pumping level in MW-4R exceeds capacity of a peristaltic. Appears to be excessive back pressure when pump discharge is attached to cell causing pump to quit. Detach cell, pump is having difficulty lifting water. Reattach cell and attempt again. Same problem. Detach cell and pump MW-4R dry. Will allow to recover and then collect samples.

11/29/99

1045 KWB collects TCL VOC, SVOC, TAL metals and natural attenuation samples at MW-4R-1. pH of preserved samples <2 & >11. Ferrous Iron = 0.3 ppm

djc sets up at MW-4S

1230 Collect samples at MW-4S for TCL VOC, SVOC, TAL Metals and natural attenuation. pH of VOC, metals, dissolved TOC, NO_2/NO_3 <2
Had to add 1-ml extra of NaOH to sulfide sample to bring pH up to > 11.

Ferrous Iron = 6.2 ppm

KWB at MW-4R-2

1330 Collect TCL VOC, SVOC, TAL metals and natural attenuation samples and BLIND DUPLICATE for all parameters at MW-4R-2.
pH of preserved samples <2 & >11
Ferrous Iron = 0.9

11/29/99

1400 Collect TCL VOC, SVOC, TAL metals and natural attenuation samples from MW-4R.
Added 1-ml NaOH extra to sulfide sample to bring pH to >11. All other preserved samples <2.
Ferrous Iron = 6 ppm

KWB at MW-101B

djc goes to DMR Landscaping / Accurate Welding to sample tap DW-1
Facility has ~30 gal pressure tank. No taps between well and pressure tank to knowledge of employees. Will use tap on exterior of bldg. Tap running at ~5 gal/min and will let run for 30 min prior to collecting samples

1530 Collect DW-1 for TCL VOC, SVOC, and TAL metals

11/~~29~~/99

DW-1

pH 6.72

Temp 11.3 °C

Cond 0.089 mS/cm

1630 KWB collects TCL VOC, SVOC, TAL metals and natural attenuation samples from MW-101B.

pH of preserved samples <2 & >11

Ferrous Iron = 5.2 ppm

Pack coolers for shipment

Drop off coolers at FedEx in Watertown.

11/30/99

Horiba Calibration (S/N 00760)

pH 7 std at 21°C reading 7.02, no adjustment

pH 4 std at 21°C reading 4.00, no adjustment

Cond. Zero unit in air to 0.00 mS/cm

0.084 mS/cm std at 21°C reading 0.086 mS/cm

Span to 0.076 mS/cm

1.143 std at 21°C reads 1.19 mS/cm, span to 1.28 mS/cm

DO % air saturation = 99.4%

Reading 9.12 mg/L at 21°C and 1013 hPa

Reading 0.00 mg/L using zero DO soln

ORP Reading 224 mV at 21°C

Turb La Motte 2020

10 NTU std reading 9.6, cal to 10.0

1 NTU std reading 1.2 NTU

11/30/99

Horiba Calibration (S/N 00756)

pH 7 std at 21°C reading 7.02, no adjustment
pH 4 std at 21°C reading 4.00, no adjustment

Cond. zero in air to 0.00 mS/cm
0.084 mS/cm std at 21°C reading 0.089 mS/cm
span to 0.076 mS/cm
1.413 mS/cm std at 21°C reading 1.34 mS/cm
span to 1.28 mS/cm

DO % air saturation = 99.8%
Reading 9.08 mg/L at 21°C and 1013 hPa
Reading 0.00 mg/L using zero DO soln

ORP Reading 228 mV at 21°C

Turb Hanna HI 93703
10 FTU std reads 8.1 FTU
0 FTU std reads 0.00 FTU
Calibrate to 0 & 10 FTU in accordance with manufactures instructions
10 FTU std reads 9.95 FTU
0 FTU std reads 0.04 FTU

11/30/99

Kwb set up on MW-101I
djc set up on MW-5B

Pumped MW-5B for 4 hours at 80 ml/min. Parameters stable but water level continues to drop. 80 ml/min is as low as peristaltic will pump.

1300 After 4 hours of low flow purging, pump well dry and will sample once sufficient recovery occurs.

1030 Kwb samples MW-101I for TCL VOC, SVOC, and TAL metals and natural attenuation. pH of preserved samples <2 and >11.
Ferrous Iron = 0.25 ppm

djc decons Grundfos pump and installs in MW-101D.

11/30/99

1500 Collect EQBLK#2 using representative piece of polyethylene tubing and PharMed pump head tubing. Allow polyethylene tubing to rest in lab organic free and deionized water for minutes prior to collecting samples. Samples collected for TCL VOC, SVOC, TAL Metals, sulfide, chloride, sulfate, nitrate, pH, alkalinity, and nonhalogenated VOCs

1530 KWB collects TCL VOCs, SVOCs, TAL Metals and natural attenuation samples at MW-10SS. ~~pH of VOC~~ ~~to~~
Due to excessive reaction of water with preservative, VOC and nonhal VOC will be sent unpreserved, lab will be notified. Add ~10ml NaOH to sulfide sample to bring pH to > 11.
Ferrous Iron = 5.6 ppm

1600 Water level at MW-5B at 16.45.
dje collects TCL VOC, SVOC, TAL metals and natural attenuation samples.

11/30/99

VOC and nonhalo VOC samples will be submitted unpreserved due to excessive reaction with preservative. pH of remaining preserved samples <2 + >11
Ferrous Iron = 3.2 ppm

Pack coolers for shipment.

1745 Relinquish samples to Fed Ex in Watertown Airbill #814843434815

12/1/99

Horiba U-22 Calibration (S/N 00760)

pH 7 std at 18°C reads 7.04, adjust to 7.03
pH 4 std at 18°C reads 4.00, no adjustment

Cond. Zero in air to 0.00 mS/cm
0.084 mS/cm std at 18°C reads 0.084 mS/cm,
span to 0.073 mS/cm
1.413 mS/cm std at 18°C reads 1.34 mS/cm,
span to 1.23 mS/cm

DO % air saturation = 93.6 %
Reading 8.58 mg/L at 18°C + 1013 hPa
Reading 0.00 mg/L using 0 DO soln

ORP Reading 224 mV at 18°C

Turb LaMotte 2020
10 NTU std reads 9.8 NTU
1 NTU std reads 0.9 NTU

12/1/99

Horiba U-22 Calibration (S/N 00756)

pH 7 std at 18°C reads 7.03, no adjustment
pH 4 std at 18°C reads 4.00, no adjustment

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std at 18°C reads 0.069 mS/cm,
span to 0.073 mS/cm
1.413 mS/cm std at 18°C reads 1.28 mS/cm,
span to 1.23 mS/cm

DO % air saturation = 94.8%
Reading 8.63 mg/L at 18°C + 1013 hPa
Reading 0.00 mg/L using zero DO soln

ORP Reading 226 mV at 18°C

Turb Hanna HI93703
10 FTU std reads 9.98 FTU
0 FTU std reads 0.00 FTU.

12/1/99

0715 On site kwb/djc

kwb sets up to low flow purge and sample MW-101D

djc sets up to collect surface water samples

0900 Collect SW-10, MS, and MSD for TCL VOC, SVOC, TAL Metals, and ~~PEBD~~ pesticides

pH 7.46
Temp 2.1°C
Cond 0.115 mS/cm
DO 10.47 mg/L

1000 Collect SW-9 for TCL VOC, SVOC TAL Metals and Pesticides

pH 7.05
Temp 2.4°C
Cond 0.097 mS/cm
DO 10.78 mg/L

12/1/99

1030 Collect SW-13 and Blind Duplicate SW for TCL VOC, SVOC, TAL Metals, and Pesticides

pH 6.81
Temp 2.7°C
Cond 0.075 mS/cm
DO 10.73 mg/L

1130 Collect SW-16 for TCL VOC, SVOC, TAL Metals and Pesticides

pH 6.78
Temp 4.7°C
Cond 0.046 mS/cm
DO 10.79 mg/L

1145 Collect SW-15 for TCL VOC, SVOC TAL Metals and Pesticides

pH 6.83
Temp 4.7°C
Cond 0.036 mS/cm
DO 10.96 mg/L

12/1/99

1200 Collect SW-6 for TCL VOC, SVOC TAL metals and Pesticides

pH 6.91
Temp 4.6 °C
Cond 0.027 mS/cm
DO 10.86 mg/L

1230 Collect SW-3 for TCL VOC, SVOC TAL Metals, and Pesticides

pH 7.05
Temp 3.4°C
Cond 0.048 mS/cm
DO 11.15 mg/L

1230 kwb collects TCL VOC, SVOC, TAL Metals, and natural attenuation MW-1(D)
Ferrous Iron = 0.4 ppm
pH of preserved samples <2 & >11

12/1/99

1300 dz collects TCL VOC, SVOC, and TAL Metals from Jones/Murray DW-3

pH 5.87
Temp 10.6°C
Cond 0.034 mS/cm

Sample collected from Kitchen tap, allowed to run for 10 minutes prior to sampling.

Kwb sets up on MW-113S

1500 Collect EQBLK-SW by pouring lab organic free water and deionized water in glass container used to collect the VOC and metals samples for surface water. SVOC and Pesticide samples were collected by submerging bottles as they are not preserved

12/1/99

1645 Collect TCL VOC, SVOC, TAL Metals and natural attenuation samples at MW-113S using Grunfos pump. pH of preserved samples are <2 and >11.

Ferrous Iron = 0.0 ppm

Pack 6 coolers containing SW'S and MW-101D and MW-113S for shipment to OBG Lab in Syracuse

1745 Relinquish samples to FedEx near Bradley Airport.

12/2/99

Horiba U-22 Calibration (S/N 00756)

pH 7 std at 18°C reads 7.03, no adjustment
pH 4 std at 18°C reads 4.00, no adjustment

Cond. Zero in air to 0.00 mS/cm
0.084 mS/cm std at 18°C reads 0.065 mS/cm,
span to 0.073 mS/cm
1.413 mS/cm std at 18°C reads 1.19 mS/cm
span to 1.23 mS/cm

DO % air saturation = 96.4%
Reading 8.72 mg/L at 18°C and 1013 hPa
Reading 0.00 mg/L using Zero DO soln.

ORP Reading 231 mV at 18°C

Turb LaMotte 2020
10 NTU std reads 9.8 NTU
1 NTU std reads 1.1 NTU

12/2/99

Horiba U-22 Calibration (S/N 00760)

pH 7 std at 18°C reads 7.03, no adjustment
pH 4 std at 18°C reads 4.00, no adjustment

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std reads 0.079 mS/cm at 18°C,
span to 0.073 mS/cm
1.413 mS/cm std at 18°C reads 1.31 mS/cm,
span to 1.23 mS/cm

DO % air saturation = 95.9%
Reading 8.63 mg/L at 18°C + 1013 hPa
Reading 0.00 mg/L using Zero DO soln

ORP Reading 228 mV at 18°C

Turb Hanna HI93703
10 FTU std reads 9.99 FTU
0 FTU std reads 0.00 FTU

12/2/99

0730 On site kwb/djc

Attempt to install Grundfos submersible pump in MW-113I. However kink in upper portion of PVC well casing precludes installation. Previous sampling events indicate that pumping water levels drop below the lift capacity of a peristaltic pump, even at flow rates less than 50 ml/min. Waterra tubing with a foot valve had been dedicated during the 12/98 sampling event. This will be used to collect samples.

kwb purges MW-113I after removing ~13 gallons. We will allow MW-113I to recover sufficiently prior to sampling.

djc surveying seep locations. kwb at MW-115B to begin low flow purging and sampling.

12/2/99

Seeps 1 and 2 have been graded over with sand and gravel behind town garage by town

Seeps 5 and 6: Unable to successfully install stainless steel bowls. These seeps

12/2/99

1045 djz collects TCL VOC, SVOC, and TAL Metals from Yahne Lowce DW-2, sample collected from outside tap. Water allowed to run for 10 minutes at 5 gal/min.

pH	6.53
Temp	10.1 °C
Cond	0.054 mS/cm

After 4 hours of low flow purging at 30-40 ml/min water level continues to decline. Pump well dry. Will collect samples tomorrow am.

1600 Collect TCL VOC, SVOC, TAL Metals, and natural attenuation samples from MW-113I. Water level at start of sampling at 71.25 ft BTOC. pH of preserved samples <2 + >11. Ferrous Iron = 0.0 ppm

1630 Relinquish samples to FedEx courier

12/3/99

Horiba U-22 Calibration (S/N 00756)

pH 7 std reading 6.98 at 17°C, zero to 7.03
pH 4 std reading 4.01 at 17°C, span to 4.00

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std reads 0.073 mS/cm at 17°C
Span to 0.071 mS/cm
0.413 mS/cm std at 17°C reads 1.20 mS/cm,
span to 1.20 mS/cm

DO % air saturation = 98.6%
Reading 9.64 mg/L at 17°C and 1013 hPa
Reading 0.00 mg/L using Zero DO soln

ORP Reading 222 mV at 17°C

Turb Hanna HI93703
0 FTU std reads 0.00 FTU
10 FTU std reads 9.97 FTU

12/3/99

0800 Collect TCL VOC, SVOC, TAL Metals from MW-115B
pH of preserved samples <2.
Ferrous Iron = 0.0 ppm

0930 Kwb/djc sample SEEP 3 for TCL VOC, SVOC, TAL Metals and pesticides, collect MS & MSD

pH 6.53
Temp 7.2°C
Cond 1.66 mS/cm
DO 3.27 mg/L

pH of VOCs and Metals <2

0955 Collect SEEP 4 and Blind Duplicate for TCL VOC, SVOC, TAL Metals and pest. SEEP 4 has weathered sheen.

pH 6.60 Cond 2.12 mS/cm
Temp 4.8°C DO 1.01 mg/L
pH of VOCs & Metals BD <2
↳ <2 Add HNO_3 to sample

12/3/99

1030 Collect SEEP #5 for TCL VOC, SVOC, TAL Metals, and Pesticides

pH 6.65 Cond 1.91 mS/cm

Temp 5.6°C DO 2.04 mg/L

Weathered Sheen

pH of VOC < 2, Need to add HNO_3 to metals

1100 Collect SEEP #6 for TCL VOC, SVOC, TAL Metals, and Pesticides

pH 6.67 Cond 1.79 mS/cm

Temp 6 °C DO 0.58 mg/L

pH of VOC < 2, Need to add HNO_3 to metals. Weathered sheen

1130 Collect SEEP #8 for TCL VOC, SVOC, TAL Metals, and pesticides

SEEP #7 is too close to stream and is receiving stream water in bowl.

pH 6.58 Cond 0.673 mS/cm

Temp 5.8°C DO 0.89 mg/L

Weathered sheen

pH of VOCs & Metals < 2

12/3/99

Add 6 ml HNO_3 to SEEP #4 and #6 Metals samples, and 10 ml to SEEP #5 to bring pH < 2.

1230 Collect EQB-SEEP

12/6/99

0730 Pick up generator at BriMar
0800 On site kwb/djc

Horiba U-22 Calibration (S/N 00756)

pH 7 std at 10°C reads 7.00, adjust to 7.06
pH 4 std at 10°C reads 4.04, adjust to 4.00
check pH 7 std, reads 7.05

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std at 10°C reads 0.074 mS/cm
span to 0.067 mS/cm
1.413 mS/cm std at 10°C reads, 1.12 mS/cm,
span to 1.02 mS/cm

DO % air saturation reads 98.7%
Reading 10.26 mg/L at 10°C
Reading 0.00 mg/L using zero DO soln.
ORP Reading 252 mV at 10°C

Turb LaMotte 2020
10 NTU Std reads 9.13
Hanna H193703
0 FTU std reads 0.00 FTU
10 FTU std reads 9.97 FTU

12/6/99

Set up at MW-1S using Grundfos pump.

djc attempting to pull Grundfos from MW-113D using a slug with hook in bottom. Unsuccessful

djc replaces locks on MW-118S, 118B, 115S, 115B, 108S, 108B

kwb/djc sample MW-1S for TCL VOCs, SVOCs, and TAL Metals, VOCs sent to lab unpreserved (noted on Chain). pH of metals <2. Ferrous Iron = 6.2 ppm

Decon Grundfos pump. Attempt to install pump in MW-1R. Well head is at an angle in manhole. Pump cannot be lowered below 20 ft, possibly due to bend. Water level is at 30.41 ft, too deep for peristaltic.

Relinquish sample to FedEx in Watertown

12/7/99

Horiba U-22 Calibration (S/N 00786)

pH 7 std at 18°c reads 7.02, no adjustment
pH 4 std at 18°c reads 4.00, no adjustment

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std at 18°c reads 0.068 mS/cm,
Span to 0.073 mS/cm
1.413 mS/cm std at 18°c reads 1.21 mS/cm,
Span to 1.23 mS/cm

DO % air saturation = 99.1%
Reading 8.74 mg/L at 18°c and 1013 hPa
Reading 0.00 mg/L using Zero DO soln

ORP Reading 238 mV at 18°c

Turb Hanna HI 93703
0 FTU std reads 0.00 FTU
10 FTU std reads 9.98 FTU

12/7/99

0700 d/c / kwb on site

At MW 113D attempting to pull pump which is stuck in well. Cannot push pump to bottom of well either.

Replace remaining well locks.
Install rented Grundfos pump in MW-113D to a depth of 165 ft BTOC, which is near the top of stuck pump. Kwb low flow purging MW 113D.

1215 d/c at SEEPS 1 + 2, install stainless steel bowl at SEEP 1, dug shallow hole at SEEP 2. Rain during evening of 12/6 prevents SEEP collection today. Will collect tomorrow (12/8).

d/c back at MW 113D to help kwb collect samples for TCL VOC, SVOC, TAL Metals and natural attenuation. pH of VOC < 2 metals < 2, non hal VOC sent unpreserved, sulfide 7 11, diss TOC + NO_2NO_3 < 2, ferrous iron = 0.0 ppm
Relinquish sample to FedEx in Watertown.

12/8/99

Horiba U-22 Calibration (S/N 07756)

pH 7 std at 17°C reading 7.01, adjust to 7.03
pH 4 std at 17°C reading 4.00, no adjustment

Cond Zero in air to 0.00 mS/cm
0.084 mS/cm std at 17°C reads 0.076 mS/cm, span to 0.072 mS/cm
1.413 mS/cm std at 17°C reads 1.24 mS/cm, span to 1.20 mS/cm

DO % air saturation = 98.8%
Reading 9.72 mg/L at 17°C & 1017 hPa
Reading 0.00 mg/L using DO soln

ORP Reading 241 mV at 17°C

Turb Hanna HI 93703
10 FTU std reads 9.98 FTU
0 FTU std reads 0.00 FTU

12/8/99

0730 Drop off generator at Brewer Rental.

0800 dje collects TCL VOC SVOC TAL Metals and Pesticides from SEEP #1

pH	6.87	Cond	0.793 mS/cm
Temp	5.3°C	DO	0.85 mg/L

SEEP #2 has been covered with soil by Town Garage personnel. Stake is missing.

0900 Collect Equipment Blank for non-halo. VOC using representative piece of polyethylene tubing and PharMed Tubing, let tubing sit in organic-free lab water for 5 minutes prior to collecting sample

0930 Make up trip blank using organic free water.

12/8/99

MW-1R
DTW @ 30.41 BTOC
TD @ 96.16 BTOC

6.6 gal/well volume

Initial Parameters (strong leachate odor)
pH = 6.77
Cond. = 2.25
DO = ~~2~~1.50
Temp = 10.21
ORP = -16

	pH	Temp	Cond mS/cm	ORP	DO
@ 7 gal	6.85	11.1°C	2.37	-63	1.08
@					

DRY at 11 gal removed.

1200 Collect TCL VOC, SVOC, TAL Metals at MW-1R, pH of Metals < 2, VOCs sent unpreserved, Ferrous Iron = 5.7 ppm

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	11/24/99	Personnel	[illegible] / kwb	Weather	Cloudy ~35 F
Site Name	Barkhamsted Landfill	Evacuation Method	peristaltic	Well #	S-3
Site Location	Barkhamsted, CT	Sampling Method	peristaltic	Project #	

Well information:

Depth of Well * 10.43 ft.

Depth to Water * 4.02 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	4.96	11.85	6.41	2.96	-88	1.58	19.9	100
10	4.98	11.70	6.42	2.96	-88	0.04	17.8	65
20	4.96	11.82	6.42	2.95	-86	0.00	11.1	80
30	5.03	11.80	6.42	2.94	-85	0.00	26.1	80
40	4.79	11.89	6.43	2.92	-83	0.00	28.6	55
50	4.70	12.08	6.43	2.90	-81	0.00	20.0	55
60	4.69	12.15	6.44	2.88	-78	0.00	17.9	55
70	4.72	12.12	6.44	2.87	-76	0.00	19.9	60
80								

Water sample:

Time collected: 1045

Total volume of purged water removed: ~2 gal

Physical appearance at start
Color: clear, some floating particulates
Odor: slight acid odor
Sheen/Free Product: none

Physical appearance at sampling
Color: clear few particulates
Odor: slight acrid odor
Sheen/Free Product: none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. | **Low Flow Ground Water Sampling Log**

Date 12/-/99 | Personnel KWB, DTC | Weather rain 50°
Site Name Barkhamsted LF | Evacuation Method Grundfus | Well # mw-1S
Site Location Barkhamsted, CT | Sampling Method | Project #

Well information:

Depth of Well * 50.27 ft.
Depth to Water * 25.78 ft.
Length of Water Column ft.

* Measurements taken from
[X] Top of Well Casing
[ ] Top of Protective Casing
[ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (1045)	2734	11.83	7.03	577	-88	1.90	14.58	50
10	28.02	12.20	7.04	5.78	-96	0.18	16.30	90
20	28.15	12.55	7.04	5.77	-98	0.43	21.45	40
30	28.06	12.49	7.04	5.78	-100	0.00	22.48	35
40	2792	12.16	7.04	5.79	-100	0.08	24.19	40
50	28.14	12.51	7.04	5.75	-101	0.00	19.69	60
60	27.88	12.46	7.05	5.75	-101	0.29	26.66	30
70	27.76	12.36	7.04	5.75	-98	0.00	19.09	30
80	27.69	12.30	7.04	5.73	-99	0.05	19.61	30
90	27.70	12.37	7.04	5.72	-99	0.11	20.01	30

Water sample:

Time collected: 1315 | Total volume of purged water removed:

Physical appearance at start
Color clear
Odor st. leachate
Sheen/Free Product

Physical appearance at sampling
Color clear
Odor st. leachate
Sheen/Free Product

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. — **Low Flow Ground Water Sampling Log**

Date: 11/29/99
Personnel: dc / kwb
Weather: Sunny ~30 F
Site Name: Barkhamsted Landfill
Evacuation Method: peristaltic
Well #: MW-4S
Site Location: Barkhamsted, CT
Sampling Method: peristaltic
Project #:

Well information:

Depth of Well *: 31.21 ft.
Depth to Water *: 18.19 ft.
Length of Water Column: ______ ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen ~~(mg/l)~~	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	19.09	13.91	6.58	2.33	-96	0.57	2.2	110
10	19.29	14.05	6.57	2.34	-99	0.03	0.7	110
20	19.18	14.18	6.56	2.34	-102	0.00	0.8	80
30	19.11	14.18	6.57	2.32	-105	0.00	0.9	80
40								
50								
60								

Water sample:

Time collected: 1400
Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/29/99 Personnel sc/ewb Weather Sunny ~30F

Site Name Barkhamsted Landfill Evacuation Method Grundfos Well # MW-4R

Site Location Barkhamsted, CT Sampling Method Grundfos Project #

Well information:

Depth of Well * 46.18 ft.

Depth to Water * 18.05 ft.

Length of Water Column ______ ft.

* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	19.72	11.15	6.90	1.75	-110	2.85	60	300
10	20.60	11.02	6.74	1.76	-123	6.19	16.2	60
20	21.25	11.35	6.75	1.77	-124	0.00	6.0	70
30	21.68	11.94	6.75	1.73	-125	0.00	2.6	50
40	22.37	12.52	6.76	1.70	-126	0.00	1.2	~80
50	22.57	12.16	6.77	1.69	-126	0.00	0.8	~80
60	Pump problem appeared to be excessive back pressure							
70	27.95	15.17	6.81	1.69	-124	0.00		~80
80	29.12	15.24	6.80	1.68	-115	0.00		~80
90	30.16	15.23	6.80	1.67	-109	0.00		~80
100								
110	33.35							

Water sample:

Time collected: 1230 Total volume of purged water removed: ______

Physical appearance at start: Color clear; Odor —; Sheen/Free Product —

Physical appearance at sampling: Color clear; Odor —; Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. — **Low Flow Ground Water Sampling Log**

Date: 11/29/99
Site Name: Barkhamsted L.F.
Site Location: Barkhamsted, CT
Personnel: Kues, DJC
Evacuation Method: Peristaltic Pump
Sampling Method: Peristaltic
Weather: sunny 30°
Well #: MW-4R-1
Project #:

Well information:

Depth of Well *: 253.98 ft.
Depth to Water *: 19.50 ft.
Length of Water Column: ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(0835)	19.85	10.77	7.52	0.196	-119	0.00	173	100
10	19.87	10.54	7.84	0.166	-175	0.00	55.3	100
20	19.89	10.51	7.88	0.160	-182	0.00	39.4	90
30	19.87	10.84	7.91	0.157	-186	0.00	24.0	95
40	19.89	11.13	7.95	0.154	-189	0.00	17.2	95
50	19.89	11.34	7.95	0.152	-192	0.00	16.1	90
60	19.90	11.27	7.97	0.151	-195	0.00	9.80	90
70	19.90	11.29	7.99	0.150	-198	0.00	6.74	90
80	19.93	11.38	8.02	0.149	-198	0.00	5.78	80
90	19.90	11.21	8.03	0.149	-200	0.00	5.24	80
100	19.90	11.02	8.07	0.149	-202	0.00	4.15	80
110	19.90	10.85	8.06	0.148	-201	0.00	3.73	80

Water sample:

Time collected: 1045
Total volume of purged water removed:

Physical appearance at start
Color: cloudy, milky
Odor: –
Sheen/Free Product:

Physical appearance at sampling
Color: clear
Odor: –
Sheen/Free Product: –

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Temp. varies due to cloud/sun changes

Ferrous Iron ~~Fe~~ = 0.25

O'Brien & Gere Engineers, Inc. | **Low Flow Ground Water Sampling Log**

Date	11/29/99	Personnel	KWB DJC	Weather	cloudy 35°
Site Name	Barkhamsted LF	Evacuation Method	Peristaltic Pump	Well #	MW-4R-2
Site Location	Barkhamsted, CT	Sampling Method	Peristaltic	Project #	

Well information:

Depth of Well * 104.27 ft.

Depth to Water * 19.98 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(1210)	20.12	11.97	7.28	0.869	-71	3.00	5.71	160
5	20.17	11.88	7.23	0.899	-84	0.46	3.39	160
10	20.18	11.81	7.22	0.908	-88	0.00	2.89	160
15	20.19	11.69	7.21	0.913	-90	0.00	2.94	160
20	20.19	11.79	7.21	0.912	-92	0.00	2.82	160
25	20.19	11.92	7.22	0.909	-93	0.00	2.57	160

Water sample:

Time collected: 1330

Total volume of purged water removed: ______

Physical appearance at start
Color clear
Odor Pet
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor Pet.
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Blind Dup collected. Acid rinsed from VOAs due to bubbling

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date: 11/23/99 Personnel: Kurs, DJC Weather: sunny 60°
Site Name: Barkhamsted L.F. Evacuation Method: Peristaltic Pump Well #: MW-5S
Site Location: Barkhamsted, CT Sampling Method: Project #:

Well information:

Depth of Well *: 16.13 ft.
Depth to Water *: 6.49 ft.
Length of Water Column: ft.

* Measurements taken from
- X Top of Well Casing
- Top of Protective Casing
- (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(1240)	7.49	13.63	6.79	3.84	-135	2.01	8.49	125
10	7.61	13.49	6.78	3.83	-129	0.42	10.55	100
20	7.69	13.41	6.78	3.82	-126	0.07	11.3	110
30	7.68	13.33	6.78	3.81	-125	0.00	9.74	90
40	7.68	13.38	6.77	3.81	-125	0.00	8.92	90
50	7.68	13.43	6.76	3.83	-124	0.00	9.07	90

Water sample:

Time collected: 1415 Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: strong pet/decomposing
Sheen/Free Product:

Physical appearance at sampling
Color: clear
Odor: strong pet/decom.
Sheen/Free Product:

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date 11/30/99 | Personnel djc / kwb | Weather Overcast, heavy snow

Site Name Barkhamsted Landfill | Evacuation Method Peristaltic Pump | Well # MW-5B

Site Location Barkhamsted, Conn | Sampling Method Peristaltic Pump | Project # 5268/22708

Well information:

Depth of Well * 31.06 ft.

Depth to Water * 0.77 ft.

Length of Water Column 30.29 ft.

* Measurements taken from

- [X] Top of Well Casing
- [\] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	2.17	8.78	7.23	0.942	-100	3.59	1.6	70
10	3.29	8.72	7.23	0.945	-111	1.42	1.1	80
20	4.41	8.71	7.23	0.947	-116	0.05	0.8	85
30	5.53	8.80	7.24	0.950	-120	0.00	0.9	80
40	6.61	8.92	7.25	0.953	-123	0.00	0.7	80
50	7.46	8.98	7.25	0.954	-125	0.00	0.9	80
60	8.24	8.93	7.26	0.955	-127	0.00	1.0	80
70	9.02	8.79	7.27	0.958	-128	0.00	0.8	80
80	9.74	8.72	7.27	0.958	-129	0.00	0.6	80
90	10.38	8.60	7.27	0.959	-130	0.00	0.7	80
100	—	—	—	—	—	—	—	—
110	—	—	—	—	—	—	—	—
120	12.44	9.02	7.29	0.958	-132	0.00	1.0	80
130	12.99	9.07	7.29	0.958	-132	0.00	0.8	80
140	13.53	9.08	7.29	0.959	-131	0.00	1.1	80
150	14.04	9.02	7.30	0.959	-128	0.00	0.6	80
160	14.50	8.87	7.30	0.959	-125	0.00	0.5	80
170	14.96	8.86	7.30	0.958	-123	0.00	0.5	80
180	15.47	8.94	7.30	0.959	-122	0.00	0.4	80
190	15.84	8.96	7.30	0.959	-122	0.00	0.4	80

Water sample:

Time collected: 1600

Total volume of purged water removed:

Physical appearance at start
Color clear
Odor leachate
Sheen/Free Product none

Physical appearance at sampling
Color clear
Odor leachate
Sheen/Free Product none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

CONT.

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date 11/30/99 | Personnel djc/kwb | Weather Overcast, heavy snow

Site Name Barkhamsted Landfill | Evacuation Method Peristaltic | Well # MW-5B

Site Location Barkhamsted, Conn | Sampling Method Peristaltic | Project # 5268/22708

Well information:

Depth of Well * 31.06 ft.

Depth to Water * 0.77 ft.

Length of Water Column 30.29 ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
200	15.96	8.78	7.30	0.961	-121	0.00	0.7	80
210	16.39	8.81	7.30	0.960	-121	0.00	0.6	80
220	16.75	8.85	7.30	0.961	-121	0.00	0.9	80
230	17.22	8.89	7.30	0.961	-121	0.00	0.8	80
240	17.63	8.90	7.30	0.961	-121	0.00	0.6	80

Water sample:

Time collected: 1600

Total volume of purged water removed:

Physical appearance at start
Color clear
Odor leachate
Sheen/Free Product none

Physical appearance at sampling
Color clear
Odor leachate
Sheen/Free Product none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/30/99 Personnel KWB, DJC Weather Sunny 50°

Site Name Barkhamsted LF Evacuation Method Peristaltic Well # MW-1015

Site Location Barkhamsted, CT Sampling Method Peristaltic Project # ______

Well information:

Depth of Well * 32.76 ft.

Depth to Water * 4.53 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
(1505)	11.62	11.08	6.75	5.65	-115	0.00	14	80
10	11.75	11.12	6.76	5.70	-115	0.00	11.2	80
20	11.88	10.93	6.75	5.70	-115	0.00	10.42	80
30	11.97	10.79	6.70	5.72	-113	0.00	10.46	80
40	12.04	10.67	6.73	5.72	-114	0.00	9.50	80
50	12.11	10.70	6.73	5.69	-114	0.00	9.43	80
60	11.93	10.66	6.68	5.67	-111	0.00	8.85	60
70	11.85	10.50	6.70	5.64	-112	0.00	8.77	70
80	11.82	10.43	6.71	5.65	-112	0.00	8.44	70

Water sample:

Time collected: 1530 Total volume of purged water removed: ______

Physical appearance at start
Color Clear
Odor str. Leachate
Sheen/Free Product slight

Physical appearance at sampling
Color clear
Odor str. leachate
Sheen/Free Product slight

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Acid taken out of VOAs & Non halog. bottles due to bubbling
Flow rate was increased to try & eliminate air but to no avail

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date: 11/29/99
Personnel: Kirts, OJC
Weather: snow 30°
Site Name: Barkhamsted LF
Evacuation Method: Peristaltic Pump
Well #: MW-101B
Site Location: Barkhamsted, CT
Sampling Method: Peristaltic
Project #:

Well information:

Depth of Well *: 45.97 ft.
Depth to Water *: 4.38 ft.
Length of Water Column: ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters:
Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(1510)	5.22	11.08	7.15	1.60	-143	0.00	12.7	300
5	5.26	11.17	7.18	1.55	-149	0.00	9.92	280
10	5.27	11.15	7.21	1.48	-154	0.00	6.12	290
15	5.28	11.16	7.23	1.45	-157	0.00	5.00	280
20	5.27	11.08	7.24	1.43	-159	0.00	4.56	280
25	5.29	10.88	7.25	1.44	-160	0.00	4.0	270
30	5.27	10.80	7.25	1.42	-161	0.00	4.2	270

Water sample:

Time collected: 1630

Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: Pet.
Sheen/Free Product: ~~No~~ slight sheen

Physical appearance at sampling
Color: clear
Odor: Pet
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.		Low Flow Ground Water Sampling Log	
Date	11/30/99	Personnel	RWB, DJC
Weather	snow, 30°	Site Name	Barkhamsted LF
Evacuation Method	Peristaltic	Well #	MW-101I
Site Location	Barkhamsted, CT	Sampling Method	Peristaltic
Project #			

Well information:

Depth of Well * 149.71 ft.

Depth to Water * 9.26 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (0855)	13.79	10.75	8.14	0.245	-113	0.00	24	140
5	13.79	10.69	7.99	0.238	-116	0.00	15	140
10	13.82	10.61	8.01	0.234	-118	0.00	15	140
15	13.82	10.59	8.02	0.230	-120	0.00	60 *	130
20	13.81	10.60	8.02	0.231	-122	0.00	900	140
25	13.81	10.62	7.99	0.228	-128	0.00	150	140
30	13.79	10.47	8.02	0.227	-133	0.00	22	140
35	13.78	10.39	8.03	0.224	-135	0.00	9.2	140
40	13.77	[illegible]	8.04	0.223	[illegible]	0.00	6.4	140
45	13.77	10.15	8.04	0.222	-132	0.00	5.[illegible]	140
50	13.73	10.03	8.05	0.221	-128	0.00	4.[illegible]	140
60	13.73	[illegible]	8.05	0.221	-127	0.00	[illegible]	140
~~[illegible]~~	~~[illegible]~~		[illegible]	[illegible]	-126	0.00		

Water sample:

Time collected: 1230

Total volume of purged water removed: ______

Physical appearance at start
Color: slightly milky
Odor: ~~[illegible]~~ str. leachate
Sheen/Free Product: slight

Physical appearance at sampling
Color: clear
Odor: str. leachate
Sheen/Free Product: slight

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: * Tubing slipped to bottom of well briefly.
[illegible] snow.

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	12/1/99	Personnel	KuB, DJC	Weather	sunny, 25° wind
Site Name	Barkhamsted LF	Evacuation Method	Grundfos	Well #	MW-401 D
Site Location	Barkhamsted, CT	Sampling Method	Grundfos	Project #	

Well information:

Depth of Well * 251.81 ft.

Depth to Water * 10.82 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(815)	10.82	9.35	6.82	0.193	47	2.48	339	100
15	14.92	9.08	6.95	0.195	14	1.19	184	50
30	15.81	8.46	7.08	0.196	-22	0.66	69.0	50
45	16.63	7.69	7.13	0.197	-38	1.06	54.0	30
60	17.42	7.77	7.16	0.195	-43	0.76	39.9	30
75	17.62	6.98	7.13	0.195	-42	0.15	34.1	30
90	18.07	7.39	7.12	0.193	-40	0.00	30.0	30
105	18.07	6.59	7.09	0.194	-38	0.00	27.7	30
120	18.14	6.94	7.07	0.193	-38	0.00	25.1	40
135	18.26	7.20	7.07	0.194	-40	0.00	23.7	30
150	18.03	6.96	7.06	0.193	-41	0.00	22.3	30
165	17.84	6.73	7.07	0.193	-40	0.00	21.1	30
180	17.74	7.03	7.06	0.193	-42	0.00	23.0	30

Water sample:

Time collected: 1230

Total volume of purged water removed: ______

Physical appearance at start
Color: cloudy, brown
Odor: leachate
Sheen/Free Product: ______

Physical appearance at sampling
Color: slight cloudy
Odor: slight leachate
Sheen/Free Product: ______

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Ferrous Iron = 0.

O'Brien & Gere Engineers, Inc. — Low Flow Ground Water Sampling Log

Date	11/19/99	Personnel	dr / Kwb	Weather	cloudy ~40F
Site Name	Barkhamsted Landfill	Evacuation Method	Peristaltic	Well #	MW-102S
Site Location	Barkhamsted, CT	Sampling Method	Peristaltic	Project #	

Well information:

Depth of Well * 14.70 ft.

Depth to Water * 10.05 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals +/- 3% +/- 10mV +/- 10% +/- 10%

Elapsed Time	Depth To Water	+/- 3% Temperature	± 0.1 pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	10.84	10.73	6.84	0.285	+180	6.30	52	165
10	10.87	10.65	7.15	0.272	+144	5.10	28.3	120
20	10.86	10.56	7.24	0.256	+129	4.82	12.0	120
30	10.81	10.60	7.27	0.252	+122	4.72	7.7	110
40	10.81	10.52	7.28	0.246	+118	4.52	5.2	110
50	10.81	10.62	7.29	0.245	+114	4.45	4.39	110

Water sample:

Time collected: 0905

Total volume of purged water removed: ~2 gal

Physical appearance at start
Color clear
Odor none
Sheen/Free Product none

Physical appearance at sampling
Color clear
Odor none
Sheen/Free Product none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Ferrous IRON = 0.0 ppm

O'Brien & Gere Engineers, Inc. | **Low Flow Ground Water Sampling Log**

Date: 11/19/99 | Personnel: KWB, OIC | Weather: cloudy 40°

Site Name: Barkhamsted L.F. | Evacuation Method: Peristaltic Pump | Well #: MW-102B

Site Location: Barkhamsted, CT | Sampling Method: Peristaltic | Project #:

Well information:

Depth of Well *: 38.49 ft.

Depth to Water *: 16.07 ft.

Length of Water Column: ____ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	± 3% Temperature	± 0.1 pH	± 3% Conductivity	± 10 mV Oxidation Reduction Potential	± 10% Dissolved Oxygen (mg/l)	± 10% Turbidity (NTU)	Flow Rate (ml/min).
0 (0800)	16.62	10.57	7.02	0.651	29	1.40	2.3	130
10	16.64	10.63	6.54	0.648	20	0.15	1.2	120
20	16.65	10.61	6.55	0.655	12	0	0.56	120
30	16.64	10.67	6.55	0.662	12	0	0.36	120
40	16.64	10.70	6.55	0.676	15	0	0.28	120

Water sample:

Time collected: 0900

Total volume of purged water removed:

Physical appearance at start
- Color: clear
- Odor: —
- Sheen/Free Product: —

Physical appearance at sampling
- Color: clear
- Odor: —
- Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/19/99 Personnel KWS, DJC Weather sunny 50°

Site Name Barkhamsted L.F. Evacuation Method Peristaltic Pump Well # MW-103S

Site Location Barkhamsted, CT Sampling Method ______ Project # ______

Well information:

Depth of Well * 15.36 ft.

Depth to Water * 8.34 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	± 3% Temperature	± 0.1 pH	± 3% mS/cm Conductivity	± 10mV Oxidation Reduction Potential	± 10% Dissolved Oxygen (mg/l)	± 10% Turbidity (NTU)	Flow Rate (ml/min).
0 (1015)	9.14	11.00	6.45	0.212	149	8.22	9.73	130
10	9.18	11.13	6.03	0.213	160	7.79	6.81	120
20	9.15	11.17	5.98	0.216	167	7.50	4.77	140
30	9.14	11.23	5.97	0.218	173	7.39	2.34	120
40	9.10	11.27	5.97	0.219	180	7.38	1.53	120
50	9.10	11.31	5.96	0.220	183	7.37	1.25	120

Water sample:

Time collected: 1130 Total volume of purged water removed: ______

Physical appearance at start
Color cloudy white
Odor —
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor —
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/19/99 Personnel dc lkwb Weather Sunny ~50F

Site Name Barkhamsted L.F. Evacuation Method Peristaltic Well # MW-103B

Site Location Barkhamsted, CT Sampling Method Peristaltic Project # ______

Well information:

Depth of Well * 32.28 ft.

Depth to Water * 7.28 ft.

Length of Water Column ______ ft.

* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	7.64	10.97	6.18	0.629	+120	3.26	8.0	130
10	7.75	11.14	6.13	0.638	+115	1.92	4.5	100
20	7.79	11.11	6.09	0.653	+104	0.15	2.7	100
30	7.78	11.18	6.10	0.656	+104	0.12	3.3	90
40	7.78	11.21	6.10	0.658	+103	0.00	3.8	90
50								

Water sample:

Time collected: 1115 Total volume of purged water removed: ______

Physical appearance at start
Color clear
Odor —
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor —
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Ferrous Iron = 0.0 ppm

O'Brien & Gere Engineers, Inc. — **Low Flow Ground Water Sampling Log**

Date: 11/23/99
Personnel: KWB, DJC
Weather: cloudy 50°
Site Name: Barkhamsted L.F.
Evacuation Method: Peristaltic Pump
Well #: MW-104S
Site Location: Barkhamsted, CT
Sampling Method: Peristaltic
Project #:

Well information:

Depth of Well *: 36.71 ft.
Depth to Water *: 11.72 ft.
Length of Water Column: ______ ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (1010)	14.07	11.59	6.23	0.051	182	9.01	2.72	125
10	14.14	11.81	6.23	0.048	180	8.46	3.11	130
20	14.14	11.63	6.21	0.047	188	8.20	2.96	115
30	14.10	11.80	6.20	0.046	191	8.17	2.08	100
40	14.10	12.27*	6.18	0.044	195	8.08	2.09	115

Water sample:

Time collected: 1130
Total volume of purged water removed: ______

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: * Temperature jump due to sun coming through & ambient temps. increase

O'Brien & Gere Engineers, Inc. — Low Flow Ground Water Sampling Log

Date	11/23/99	Personnel	dc / kwh	Weather	Sunny ~50F
Site Name	Barkhamsted LF	Evacuation Method	Grundfos MicroPurge	Well #	MW-104B
Site Location	Barkhamsted, CT	Sampling Method	Grundfos	Project #	

Well information:

Depth of Well * 58.97 ft.

Depth to Water * 10.22 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	12.14	11.62	7.05	0.137	+41	5.30	5.1	420
5	14.25	11.40	7.22	0.128	-6	8.45	3.6	185
10	16.42	11.68	7.29	0.128	-32	8.12	2.3	
15								
20	18.53	12.04	7.39	0.126	-48	7.50	1.7	~100
25								
30	19.61	12.37	7.43	0.126	-62	7.30	1.2	~100
~~35~~ 40	20.88	12.44	7.46	0.126	-62	4.68	0.6	~100
~~40~~								
50	21.79	12.63	7.45	0.124	-47	5.31	0.2	~100
60	22.68	12.71	7.45	0.124	-31	4.51	0.14	~100
70	23.62	12.99	7.45	0.124	-18	4.51	0.14	~100
80	24.22	13.51	7.46	0.123	-8	4.36	0.18	~100
90	25.21	12.24	7.48	0.125	+6	3.92	0.24	~100
100	26.37	12.24	7.48	0.123	+12	3.40	0.36	~100
110	27.47	12.87	7.50	0.123	+44	3.23	0.88	~100
120	28.15	13.83	7.51	0.122	+25	1.86	0.60	~100
130	29.02	13.03	7.50	0.124	+32	1.55	0.85	~100
140	30.91	12.93	7.49	0.122	+39	1.52	1.81	~100
150	32.33	13.07	7.51	0.122	+44	1.52	1.1	~100

Water sample:

Time collected: 0800 11/24/99

Total volume of purged water removed: ______

Physical appearance at start: Color clear; Odor —; Sheen/Free Product ______

Physical appearance at sampling: Color clear; Odor —; Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: ~100 ml/min slowest achievable rate on this well using Grundfos Rediflo 2
Generator out of gas at 105 min, cell drained while filling gas tank
110 min resume purging.

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/23/99 Personnel ______ Weather ______

Site Name ______ Evacuation Method ______ Well # MW-104B Cont

Site Location ______ Sampling Method ______ Project # ______

Well information:

Depth of Well * ______ ft.

Depth to Water * ______ ft.

Length of Water Column ______ ft.

* Measurements taken from

☐ Top of Well Casing
☐ Top of Protective Casing
☐ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
160	33.34	13.29	7.51	0.122	+45	1.71	0.77	~100
170	34.38	13.11	7.51	0.122	+54	1.80	0.88	~100
180	35.30	13.24	7.52	0.123	+61	1.90	1.2	~100
190	36.55	13.33	7.52	0.122	+62	1.97	1.7	~100
200	37.49	13.15	7.54	0.122	+65	2.02	1.3	~100
210	38.64	13.35	7.52	0.122	+70	2.05	1.2	~100
220	39.75	13.43	7.54	0.122	+74	2.07	1.2	~100
230	41.23	13.69	7.53	0.122	+71	2.23	1.1	~100
240	42.31	13.66	7.53	0.122	+72	2.18	0.8	~100
Sample	22.75@0740	13.40	7.48	0.129	+87	1.64		—
	Ferrous iron = 0.0 ppm							

Water sample:

Time collected: 0800 11/24/99 Collect BD TCL/TAL

Total volume of purged water removed: ~6 during 4 hour purge ~3 more to purge dry

Physical appearance at start
Color ______
Odor ______
Sheen/Free Product ______

Physical appearance at sampling
Color ______
Odor ______
Sheen/Free Product ______

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: After purging for 4 hours at lowest rate possible, water level continues to decline. Pump well dry and collect sample after sufficient recovery to fill all bottles. Dry at ~1400

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date	11/19/99	Personnel	KWB, DJC	Weather	Sunny 55°
Site Name	Barkhamsted L.F.	Evacuation Method	Peristaltic Pump	Well #	MW-105S
Site Location	Barkhamsted, CT	Sampling Method	Peristaltic	Project #	

Well information:

Depth of Well * 40.77 ft.

Depth to Water * 19.54 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	19.86	13.26	6.12	0.697	+151	6.86	2.9	80
10	19.81	13.30	6.10	0.709	+152	6.30	2.2	80
20	20.16	13.21	6.06	0.699	+161	5.93	1.8	210
~~30~~25	20.22	13.00	6.05	0.697	+166	6.09	1.4	220
~~40~~30	20.24	12.87	6.05	0.696	+169	6.08	1.3	220
~~50~~35	20.24	12.79	6.04	0.694	+173	6.10	1.4	220
40								

Water sample:

Time collected: 1345

Total volume of purged water removed: ~2 gal

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: MS/MSD collected

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/19/99 Personnel KWB, DJC Weather sunny 55°

Site Name Barkhamsted L.F. Evacuation Method Peristaltic Pump Well # MW-105B

Site Location Barkhamsted, CT Sampling Method Peristaltic Project #

Well information:

Depth of Well * 59.86 ft.

Depth to Water * 18.51 ft.

Length of Water Column ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (1300)	20.25	13.78	6.83	0.114	168	6.20	0.06	90
10	20.30	13.75	6.85	0.114	166	6.28	0.00	90
20	20.35	13.68	6.86	0.114	167	6.18	0.00	90
30	20.42	13.75	6.88	0.113	169	6.24	0.00	100
40	20.50	13.54	6.88	0.114	169	6.08	0.00	100
50	20.50	13.65	6.88	0.113	171	6.04	0.00	100
60	20.49	13.56	6.88	0.113	172	5.97	0.00	100

Water sample:

Time collected: 1430 Total volume of purged water removed:

Physical appearance at start
Color clear
Odor —
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor —
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. **Low Flow Ground Water Sampling Log**

Date 11/18/99 Personnel dc / kwb Weather Sunny ~40F

Site Name Barkhamsted CF Evacuation Method Peristaltic Well # MW-106S

Site Location Barkhamsted, CT Sampling Method Peristaltic Project #

Well information:

Depth of Well * 42.81 ft.

Depth to Water * 12.38 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals +/- 3% +/- 10 mV ± 10% +/- 10%

Elapsed Time	Depth To Water	± 3% Temperature	± 0.1 pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	13.07	13.68	6.88	0.207	+50	3.02	7.80	135
10	13.24	13.29	6.96	0.194	+17	0.92	6.86	140
20	13.20	13.25	6.97	0.188	+17	0.65	6.05	130
30	13.19	13.26	6.96	0.187	+19	0.56	5.12	130

Water sample:

Time collected: 1415 Total volume of purged water removed: ~1.5 gal

Physical appearance at start
Color clear
Odor none
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor none
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Time Ø after filling cell.

O'Brien & Gere Engineers, Inc. — Low Flow Ground Water Sampling Log

Date: 11/18/99
Personnel: KWB, DJC
Weather: sunny 45°
Site Name: Barkhamsted L.F.
Evacuation Method: Peristaltic Pump
Well #: MW-110I
Site Location: Barkhamsted, CT
Sampling Method:
Project #:

Well information:

Depth of Well *: 106.66 ft.
Depth to Water *: 7.63 ft.
Length of Water Column: ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	±3% Temperature	±0.1 pH	+/- 3% Conductivity	±10mv Oxidation Reduction Potential	±10% Dissolved Oxygen (mg/l)	±10% Turbidity (NTU)	Flow Rate (ml/min).
0(1307)	8.69	12.87	6.79	0.144	-58	1.03	0.50	120
10	8.69	12.79	6.79	0.152	-66	0.03	0.45	130
20	8.61	12.76	6.81	0.155	-67	0.00	0.55	120
30	8.61	12.76	6.81	0.157	-66	0.00	0.80	110
40	8.61	12.80	6.82	0.158	-65	0.00	0.90	110

Water sample:

Time collected: 1400
Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. — **Low Flow Ground Water Sampling Log**

Date: 11/22/99 | Personnel: dc/kwb | Weather: cloudy ~40F
Site Name: Barkhamsted LF | Evacuation Method: Peristaltic | Well #: MW-111S
Site Location: Barkhamsted, CT | Sampling Method: Peristaltic | Project #:

Well information:

Depth of Well *: 53.26 ft.
Depth to Water *: 10.29 ft.
Length of Water Column: ______ ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	10'.32	10.93	6.57	0.536	+182	4.07	23.2	210
5	10.32	10.83	6.63	0.562	+148	1.94	8.7	200
10	10.32	10.80	6.63	0.580	+133	0.48	7.8	200
15	10.32	10.84	6.63	0.582	+128	0.05	6.4	200
20	10.32	10.86	6.64	0.584	+126	0.15	5.9	200
25	10.32	10.88	6.63	0.584	+125	0.13	5.7	200
30								
35								
40								

Water sample:

Time collected: 1030 | Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product:

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date: 11/22/99
Personnel: Kwb, DJC
Weather: cloudy 40°
Site Name: Barkhamsted L.F.
Evacuation Method: Peristaltic Pump
Well #: MW-111B
Site Location: Barkhamsted, CT
Sampling Method: Peristaltic
Project #:

Well information:

Depth of Well *: 65.96 ft.
Depth to Water *: 9.64 ft.
Length of Water Column: ______ ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (0955)	9.69	10.72	6.76	0.875	35	1.01	4.47	320
5	9.69	10.73	6.95	0.789	23	0	3.71	320
10	9.69	10.74	6.95	0.756	27	0	4.06	320
15	9.69	10.79	6.94	0.755	29	0	4.10	320

Water sample:

Time collected: [illegible]
Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: MS/MSD collected

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date 11/22/99 | Personnel dc/kwb | Weather cloudy ~40F

Site Name Barkhamsted LF | Evacuation Method Peristaltic | Well # MW-111 I

Site Location Barkhamsted, CT | Sampling Method Peristaltic | Project # ____

Well information:

Depth of Well * 89.08 ft.

Depth to Water * 9.79 ft.

Length of Water Column ____ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTU	Flow Rate (ml/min).
0	10.11	11.96	6.90	2.24	+18	2.05	2.06	440
5	10.09	11.68	6.93	2.24	-6	0.00	0.90	380
10	10.10	11.41	6.96	2.24	+8	0.00	0.94	400
15	10.10	11.31	6.97	2.24	+22	0.00	0.41	390
20	10.10	11.24	6.98	2.24	+31	0.00	0.33	400
25	10.10	11.22	6.99	2.24	+36	0.00	0.44	390
30	10.10	11.18	6.99	2.24	+40	0.00	0.29	400

Water sample:

Time collected: 1345

Total volume of purged water removed: ____

Physical appearance at start
Color clear
Odor —
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor —
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	12/1/99	Personnel	DJC, RWB	Weather	sunny, 20°
Site Name	Barkhamsted LF	Evacuation Method	Grundfos	Well #	MW-113S
Site Location	Barkhamsted, CT	Sampling Method	Grundfos	Project #	

Well information:

Depth of Well * 42.25 ft.

Depth to Water * 7.92 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(1510)	10.46	9.86	8.55	0.106	154	1.79	118	160
5	10.71	11.21	8.66	0.106	144	1.35	86.0	220
10	11.10	12.27	8.72	0.105	137	0.92	88.5	180
15	11.36	12.71	8.75	0.106	131	0.79	65.7	200
20	11.55	12.73	8.78	0.105	126	0.75	46.3	210
25	11.62	12.77	8.78	0.106	122	0.73	32.5	200
30	11.58	12.69	8.79	0.105	119	0.79	30.1	160
35	11.57	12.59	8.79	0.106	117	0.71	20.5	240
40	11.57	12.58	8.81	0.105	116	0.76	46.1	240
45	11.57	12.48	8.80	0.105	115	0.69	18.8	240
50	11.52	12.46	8.80	0.105	114	0.82	15.4	240
55	11.55	12.63	8.80	0.105	113	0.77	13.6	220
60	11.57	12.75	8.81	0.105	113	0.72	11.9	220
65	11.57	12.81	8.80	0.105	113	0.66	11.6	220
70	11.57	12.85	8.80	0.105	113	0.70	11.0	220

Water sample:

Time collected: 1645

Total volume of purged water removed: ______

Physical appearance at start

Color cloudy white

Odor –

Sheen/Free Product –

Physical appearance at sampling

Color clear

Odor –

Sheen/Free Product –

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date: 11/17/99
Personnel: KWB, DJC
Weather: sunny 30°
Site Name: Barkhamsted Landfill
Evacuation Method: Peristaltic pump
Well #: 113B
Site Location: Barkhamsted, CT
Sampling Method: Peristaltic
Project #:

Well information:

Depth of Well *: 66.81 ft.
Depth to Water *: 10.10 ft.
Length of Water Column: ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (1045)	10.84							
5	11.53	10.89	8.67	0.077	-48	1.13	2.2	170
10	11.80	11.41	8.71	0.075	-59	0.71	1.6	150
15	11.87	11.35	8.75	0.075	-70	0.39	2.1	130
20	11.87	11.75	8.78	0.074	-75	0.32	1.3	130
25	11.89	11.89	8.80	0.074	-76	0.33	1.3	130
30	11.86	11.73	8.82	0.074	-77	0.28	1.1	110
35	11.90	12.03	8.81	0.073	-76	0.26	1.0	110
40	11.87	12.04	8.81	0.073	-71	0.35	1.1	110
45	11.88	12.18	8.81	0.073	-69	0.37	1.0	110
50	11.89	12.12	8.82	0.073	-69	0.30	1.0	110
55	11.90	12.12	8.82	0.072	-68	0.29	0.95	110
60	11.92	12.20	8.81	0.072	-66	0.26	1.5	110
65	11.93	11.86	8.81	0.072	-63	0.26	1.0	110
70	11.93	11.73	8.81	0.072	-62	0.23	0.90	110

Water sample:

Time collected: 1145
Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date: 12/7/99 | Personnel: KWB, DJC | Weather: PC, 40° ↓30°
Site Name: Barkhamsted LF | Evacuation Method: Grundfos | Well #: MW-113D
Site Location: Barkhamsted, CT | Sampling Method: Grundfos | Project #:

Well information:

Depth of Well *: 135.91 ft.
Depth to Water *: 8.83 ft.
Length of Water Column: ft.

* Measurements taken from
- X Top of Well Casing
- Top of Protective Casing
- (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0(1100)	11.35	10.09	8.14	0.105	136	2.75	12.99	50
10	11.74	9.64	8.22	0.103	131	2.43	13.67	30
20	12.21	9.51	8.28	0.102	129	1.72	13.29	100
30	13.28	9.71	8.31	0.102	132	1.17	14.17	90
40	14.09	9.72	8.34	0.101	132	0.89	12.34	30
50	14.14	8.92	8.40	0.102	130	1.04	12.83	30
60	14.16	8.29	8.44	0.103	128	1.28	12.38	30
70	14.16	7.76	8.47	0.102	128	1.22	11.99	30
80	14.16	7.40	8.50	0.101	121	1.05	12.05	30
90	14.16	7.16	8.49	0.101	125	0.94	12.39	30
100	14.16	7.02	8.49	0.100	123	0.78	12.04	30
110	14.12	6.98	8.50	0.099	124	0.75	12.25	30

Water sample:

Time collected: 1400 | Total volume of purged water removed:

Physical appearance at start — Color: clear; Odor: –; Sheen/Free Product: –
Physical appearance at sampling — Color: clear; Odor: –; Sheen/Free Product: –

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc. — **Low Flow Ground Water Sampling Log**

Date	11/18/99	Personnel	djc / kwb	Weather	Sunny ~ 40-45 F
Site Name	Barkhamsted Landfill	Evacuation Method	Micropurge	Well #	MW-115S
Site Location	Barkhamsted, CT	Sampling Method	Micropurge	Project #	22708.005

Well information:

Depth of Well * 17.24 ft.

Depth to Water * 5.84 ft.

Length of Water Column ______ ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column

Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute

Collect readings at every three minute intervals +/- 3% ±10 mV ±10% ±10%

	Elapsed Time	Depth To Water	± 3% Temperature	± 0.1 pH	mS/m Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
	0	6.09	8.17	5.62	8.3	+167	8.78	11	100
	10	6.09	8.80	5.50	7.1	+183	8.20	7.5	85
	20	6.12	9.16	5.43	6.3	+185	7.94	8.0	100
	30	6.12	9.43	5.39	5.9	+191	7.75	8.6	90
#	40	6.12	9.61	5.36	5.6	+197	7.74	6.2	90
1024	50	6.13	9.87	5.35	5.4	+202	7.59	4.3	100
34	60	6.14	10.15	5.34	5.4	+206	7.57	3.9	90
44	70	6.15	10.29	5.36	5.2	+210	7.50	2.8	90
1054	80	6.16	10.39	5.35	5.1	+210	7.59	1.8	90.
#		6.16	after sampling						

Water sample:

Time collected: 1120

Total volume of purged water removed: ~2 gal

Physical appearance at start

Color: slight cloudy white

Odor: –

Sheen/Free Product: –

Physical appearance at sampling

Color: clear

Odor: —

Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	Glass	3	No	HCl	<2
1L	Glass	2	No	None	
1L	Poly	1	No	HNO_3	

Notes: Ferrous IRON = 0.0 ppm

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date: 12/2/99
Personnel: KWB, OJC
Weather: sunny 35°
Site Name: Barkhamsted LF
Evacuation Method: Grundfos
Well #: MW 115B
Site Location: Barkhamsted, CT
Sampling Method: Grundfos
Project #:

Well information:

Depth of Well *: 92.46 ft.
Depth to Water *: 33.60 ft.
Length of Water Column: ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (1030)	36.20	8.70	7.54	0.089	175	6.77	40.9	160
10	38.33	8.72	7.07	0.089	162	6.18	34.1	80
20	39.93	8.85	6.84	0.088	156	5.60	24.7	40
30	41.10	8.86	6.74	0.088	155	5.29	21.2	70
45	42.08	8.35	6.71	0.087	165	5.04	22.9	40
60	42.77	8.18	6.65	0.087	161	4.90	20.2	40
75	43.74	8.21	6.63	0.087	157	4.65	17.9	40
90	44.50	8.34	6.60	0.087	160	4.61	19.5	40
105	44.95	8.10	6.62	0.087	160	4.41	16.6	30
120	45.31	8.01	6.60	0.086	161	4.48	14.7	30
135	45.87	8.04	6.59	0.086	160	4.34	12.9	30
150	46.23	7.94	6.58	0.086	162	4.34	12.9	30
165	46.92	8.78	6.59	0.084	163	4.08	11.5	30
180	47.37	8.22	6.59	0.085	166	4.25	10.65	30
195	47.62	8.29	6.59	0.085	163	4.14	12.3	30
210 *	47.97	8.16	6.58	0.085	169	4.19	24.3	30
225	48.20	8.10	6.59	0.085	168	4.21	19.4	30
240	48.65	8.23	6.60	0.085	166	4.26	15.6	30
✗								
Sample	53.11	8.23	6.61	0.084	431	6.42	—	—

Water sample:

Time collected: 0800 12/3/99
Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: * Pump was restarted w/ breaker. Lock flow [illegible] to [illegible] turbidity
✗ Pumped well dry

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date 11/22/99 | Personnel dc/kwb | Weather cloudy ~40F

Site Name Barkhamsted LF | Evacuation Method Peristaltic | Well # 117S

Site Location Barkhamsted, CT | Sampling Method Peristaltic | Project #

Well information:

Depth of Well * 13.10 ft.

Depth to Water * 10.24 ft.

Length of Water Column ft.

* Measurements taken from

- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity ~~(NTU)~~ FTu	Flow Rate (ml/min).
0	10.45	11.36	5.81	0.243	+148	4.87	6.41	200
5	10.46	11.49	5.65	0.229	+174	3.64	7.08	200
10	10.48	11.46	5.62	0.231	+189	3.54	4.70	200
15	10.48	11.40	5.59	0.223	+202	3.61	2.26	200
20	10.48	11.36	5.59	0.220	+210	3.65	1.74	200
25	10.48	11.38	5.58	0.218	+215	3.67	1.32	200
30								
35								
40								

Water sample:

Time collected: 0845

Total volume of purged water removed: ~2 gal

Physical appearance at start
Color clear
Odor none
Sheen/Free Product none

Physical appearance at sampling
Color clear
Odor none
Sheen/Free Product none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	Glass	3	No	HCl	<2
1L	Amber Glass	2	No	None	NA
1L	Poly	1	No	HNO_3	<2

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date 11/22/99
Site Name Barkhamsted L.F.
Site Location Barkhamsted, CT
Personnel KWB DJC
Evacuation Method Peristaltic Pump
Sampling Method
Weather cloudy 40°
Well # MW-117B
Project #

Well information:

Depth of Well * 64.18 ft.
Depth to Water * 7.85 ft.
Length of Water Column ft.

* Measurements taken from
[X] Top of Well Casing
[ ] Top of Protective Casing
[ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (0820)	8.44	10.84	6.39	0.219	114	0.75	6.29	260
5	8.44	10.47	6.31	0.195	122	2.23	5.85	230
10	8.44	10.46	6.17	0.187	131	2.19	13.7	230
15	8.44	10.40	6.13	0.188	137	2.18	37.6	230
20	8.46	10.35	6.07	0.187	145	2.43	44.4	230
25	8.46	10.33	6.04	0.186	152	2.56	42.5	230
30	8.46	10.30	6.03	0.186	158	2.54	37.3	230
35	8.46	10.27	6.03	0.186	162	2.55	38.6	230
40	8.46	10.27	6.02	0.186	167	2.55	42.2	230

Water sample:

Time collected: 0915

Total volume of purged water removed:

Physical appearance at start
Color cloudy white
Odor —
Sheen/Free Product —

Physical appearance at sampling
Color cloudy brown
Odor —
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Ø iron

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date: 11/22/99
Personnel: KWB, DJC
Weather: cloudy 50°
Site Name: Barkhamsted L.F.
Evacuation Method: Peristaltic Pump
Well #: MW-118S
Site Location: Barkhamsted, CT
Sampling Method: Peristaltic
Project #:

Well information:

Depth of Well *: 17.61 ft.
Depth to Water *: 9.44 ft.
Length of Water Column: ft.

* Measurements taken from
- [X] Top of Well Casing
- [ ] Top of Protective Casing
- [ ] (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0 (1425)	9.47	11.58	7.18	0.115	191	2.21	3.51	440
5	9.49	11.38	6.68	0.109	182	0.89	4.14	440
10	9.48	11.15	6.42	0.105	178	0.39	5.68	440
15	9.48	11.04	6.27	0.103	175	0.28	3.86	440
20	9.48	11.10	6.21	0.102	174	0.31	3.31	440
25	9.48	11.03	6.19	0.101	175	0.22	3.15	440
30	9.48	11.27	6.16	0.100	174	0.23	2.93	440
35	9.48	11.17	6.15	0.100	175	0.20	3.05	440

Water sample:

Time collected: 1530

Total volume of purged water removed:

Physical appearance at start
Color: clear
Odor: —
Sheen/Free Product: —

Physical appearance at sampling
Color: clear
Odor: —
Sheen/Free Product: —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date 11/22/99
Site Name Barkhamsted LF
Site Location Barkhamsted, CT
Personnel dc / kwb
Evacuation Method Grundfos
Sampling Method Grundfos
Weather Cloudy ~40F
Well # MW-118B
Project #

Well Information:
Depth of Well * 106.01 ft.
Depth to Water * 9.31 ft.
Length of Water Column ft.

* Measurements taken from
X Top of Well Casing
Top of Protective Casing
(Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute
Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	mS/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	10.90	11.35	7.10	0.376	+156	8.24	38.4	300
10	14.05	10.49	7.63	0.394	+62	3.10	29.2	80
20	18.71	10.60	7.74	0.388	+11	2.71	8.69	410
30	24.50	10.85	7.65	0.384	+23	2.85	4.92	300
40	31.75	11.05	7.62	0.383	+32	3.26	3.49	400
~~50~~ 0	32.01	11.44	7.64	0.387	+45	5.91	11.3	330
~~60~~ 10	37.34	11.32	7.67	0.387	-2	3.91	6.3	400
20	42.08	11.59	7.65	0.384	+3	3.47	3.7	450
30								
40								
50								
60								
Sample	(11/23/99)	12.06	6.82	0.461	+140	3.55	12.4	

Water sample:
Time collected: 0800 11/23/99
Total volume of purged water removed:

Physical appearance at start
Color cloudy/gray
Odor —
Sheen/Free Product —

Physical appearance at sampling
Color clear
Odor —
Sheen/Free Product —

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Control box shut down ~ 46 min. after start

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted Landfill
Sampled by: Kyle Bulow
Client Contact: Judy Shanahan
Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals & SW7470A Hg	TCL VOAs	TCL SVOCs	Cl, SO4, NO2, ph	TALK	Sulfide	NO2 NO3	Dissolved TOC	Non Halog. VOCs	Comments
MW-113B	11/17/99	1145	GW	G	13	X	X	X	X	X	X	X	X	X	
Trip Blank	11/17/99	—	W	—	1									X	
Trip Blank	11/17/99	—	W	—	1	X	X	X	X	X	X	X	X		

Relinquished by: Kyle Bulow	Date: 11/17/99	Time: 1600	Received by:		Date:	Time:
Relinquished by:	Date:	Time:	Received by:		Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:		Date:	Time:
Shipment Method:			Airbill Number:			

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:

Cooler Temperature:

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers

Project: Barkhamsted Landfill

Sampled by: Kyle Zurlow

Client Contact: Judy Shanahan   Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals + SW7470A Hg	TCL VOAs	TCL SVOCs					Comments
MW-115S	11/13/99	1120	GW	G	6	X	X	X					
MW-110I	↓	1400	↓	↓	↓	X	X	X					
MW-106S	↓	1445	↓	↓	↓	X	X	X					
Trip Blank	↓	–	W	–	1	X	X	X					

Relinquished by: Kyle Zurlow	Date: 11/13/99	Time: 1640	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method: FedEx			Airbill Number: 814843434826		

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:

Cooler Temperature:

Original-Laboratory   Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted Landfill
Sampled by: Kyle Bunlow
Client Contact: Judy Shanahan **Phone #**

Sample Description / **Analysis/Method**

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals by SW 7470A Hg	TCL Vols	TCL SVOCs					Comments
MW-105B	11/19/99	1430	GW	G	6	X	X	X					
MW-105S	↓	1345	↓	↓	↓	X	X	X					
MW-105MS	↓	1345	↓	↓	↓	X	X	X					
MW-105MSD	↓	1345	↓	↓	↓	X	X	X					
MW-103B	↓	1115	↓	↓	↓	X	X	X					
MW-103S	↓	1130	↓	↓	↓	X	X	X					
MW-102B	↓	0900	↓	↓	↓	X	X	X					
MW-102S	↓	0905	↓	↓	↓	X	X	X					
Trip Blank	↓	–	W	–	1	~~X~~	~~X~~	X					

Relinquished by: David J Carnevale	Date: 11/19/99	Time: [illegible]	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method:			Airbill Number:		

Turnaround Time Required:
Routine X
Rush (Specify)

Comments: Hand delivered

Cooler Temperature:

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted Landfill GW Sampling
Sampled by: Kyle Burlow
Client Contact: Judy Shanahan Phone #

Sample Description / **Analysis/Method**

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals & SW7470A Hg	TCL VOAs	TCL SVOCs	Cl, SO4, NO2, pH	TALK	Sulfide	NO2 NO3	Dissolved TOC	Non Halog. VOCs	Comments
MW-118S	11/22/99	1530	GW	G	13	X	X	X	X	X	X	X	X	X	
MW-117B	↓	0915	↓	↓	6	X	X	X							
MW-111BM	↓	1040	↓	↓	13	X	X	X	X	X	X	X	X		
MW-111B MS	↓	1040	↓	↓	13	X	X	X	X	X	X	X	X		
MW-111B MSD	↓	1040	↓	↓	13	X	X	X	X	X	X	X	X		
MW-117S	↓	0845	↓	↓	6	X	X	X							
MW-111I	↓	1345	↓	↓	13	X	X	X	X	X	X	X	X		
MW-111S	↓	1030	↓	↓	13	X	X	X	X	X	X	X	X		
Trip Blank	↓	—	W	—	1									X	
Trip Blank	↓	—	W	—	1	X	X	X	X	X	X	X	X		

Relinquished by: Kyle Burlow	Date: 11/22/99	Time: 1735	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method: FedEx			Airbill Number: 814 843 752 797		

Turnaround Time Required:
Routine X
Rush (Specify)____

Comments:

Cooler Temperature:____

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers

Project: Barkhamsted Landfill GW Sampling

Sampled by: Kyle Burlow

Client Contact: Judy Shanahan Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals SW7470A Hg	TCL VOAs	TCL SVOCs	Cl, SO4, NO2, pH	TALK Sulfide	NO2 NO3	Dissolved TOC	Non-Halog. VOCs	Comments
MW-118B	11/23/99	0800	GW	G	13	X	X	X	X	X	X	X	X	
MW-5S	↓	1415	↓	↓	13	X	X	X	X	X	X	X	X	
MW-104S	↓	0800	↓	↓	6	X	X	X	X	X	X	X	X	
Trip Blank	↓	—	W	—	1									Xws
Trip Blank	↓	—	W	—	1									

Relinquished by: Kyle Burlow	Date: 11/23/99	Time: 1630	Received by:		Date:		Time:
Relinquished by:	Date:	Time:	Received by:		Date:		Time:
Relinquished by:	Date:	Time:	Received by Lab:		Date:		Time:
Shipment Method: Fed Ex			Airbill Number: 814 843 752 8341				

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:

Cooler Temperature:

Original-Laboratory Copy-Client

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5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted Landfill GW Sampling
Sampled by: Kyle Sudow
Client Contact: Judy Shanahan Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals + SW 7470A Hg	TCL VOAs	TCL SVOCs					Comments
MW-104B	11/24/99	0800	GW	G	6	X	X	X	X	X	X	X	
S-3	↓	1045	↓	↓	6	X	X	X	X	X	X	X	
Blind Dup 1	↓	~~—~~	↓	↓	6	X	X	X	X	X	X	X	
Equip. Blank 1	↓	1140	W	—	1	X	X	X	X	X	X	X	
Trip Blank	↓	1145	W	—	1	X	X	X				X	

Relinquished by: Kyle Sudow	Date: 11/24/99	Time: 1630	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time.
Shipment Method:			Airbill Number:		

Turnaround Time Required:
Routine X
Rush (Specify)____

Comments:

Cooler Temperature:____

Original-Laboratory Copy-Client

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(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Burkhamsted Landfill GW Sampling
Sampled by: Kyle Barlow
Client Contact: Judy Shanahan Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals + SW7470A Hg	TCL VOAs	TCL SVOCs	Cl, SO4, NO2, pH	TALK, sulfide	NO2 NO3	Dissolved TOC, Nonhalog. VOCs	Comments
DW 1011D	11/29/99	1530	W	G	6	X	X	X					
MW-101B	↓	1630	GW	↓	13								
MW-4R-1		1045	↓										
MW-4R-2		1330											X
MW-4S		1400	↓										
MW-4R		1230											
Blind Dup1		—	↓	↓	↓								X
Trip Blank		—	W	—	1							X	
Trip Blank	↓	—	W	—	1	X	X	X	X	X	X	X	

Relinquished by: Kyle Barlow	Date: 11/29/99	Time: 1730	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method: Fed EX			Airbill Number: 814843752823		

Turnaround Time Required:
Routine X X
Rush (Specify)

Comments: X VOA bottles unpreserved

Cooler Temperature:

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Bartlett Landfill GW Sampling
Sampled by: K. G. Bigelow
Client Contact: Judy Shanahan **Phone #**

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals & SW7470A Hg	TCL VOAs	TCL SVOCs	Cl, SO4, NH3, pH	TALK, Sulfide	NO2, NO3	Dissolved ... / Nonhalog. VOAs	Comments
MW-1015	11/30/99	1530	GW	G	13	X	X	X					*
MW-1011	↓	1030	W	↓	13								
MW-5B	↓	1600	↓	↓	13								*
Equip. Blank	↓	1500	W	G	1	X	X	X	X	X		X	*
Trip Blank	↓	—	↓	F	1							X	
Trip Blank	↓	—	↓	F	1	X	X	X	X	X	X	X	
[illegible]		—	↓	↓	↓								*
[illegible]					1							X	
[illegible]					1	X	X	X	X	X	X		

Relinquished by: K. G. Bigelow	**Date:** 11/30/99 **Time:** 1745	**Received by:**	**Date:** **Time:**
Relinquished by:	**Date:** **Time:**	**Received by:**	**Date:** **Time:**
Relinquished by:	**Date:** **Time:**	**Received by Lab:**	**Date:** **Time:**
Shipment Method: Fed Ex		**Airbill Number:** 8148434348155	

Turnaround Time Required: X
Routine____
Rush (Specify)____

Comments: * VOAs & Nonhalogenated VOCs unpreserved

Cooler Temperature:____

Original-Laboratory Copy-Client

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East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers

Project: Barkhamsted Landfill

Sampled by: David Carnevale / Kyle Buelow

Client Contact: Judy Shanahan **Phone #** 2230

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TCL VOCs	TCL SVOCs	TAL Metals/SW7470 Hg	Pesticides	Cl, SO_4, NO_2, pH	TALK	Sulfide	NO_2 NO_3	Dissolved TOC	Non-halog VOCs	Comments
SW-10	12/1/99	0900	Water	Grab	8	X	X	X	X							
SW-10 MS		0900			8	X	X	X	X							
SW-10 MSD		0900			8	X	X	X	X							
SW-9		1000			8	X	X	X	X							
SW-13		1030			8	X	X	X	X							
SW-16		1130			8	X	X	X	X							
SW-15		1145			8	X	X	X	X							
SW-6		1200			8	X	X	X	X							
SW-3		1230			8	X	X	X	X							
MW-101D		1230			13	X	X	X		X	X	X	X	X	X	
DW-3		1300			6	X	X	X								
EQBLK-SW	↓	1500	↓	↓	4	X		X								

Relinquished by: David J Carnevale	Date: 12/1/99	Time: 1735	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method:			Airbill Number: 814843752812		

Turnaround Time Required:
Routine ________
Rush (Specify) ________

Comments:

Cooler Temperature: ________

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted Landfill
Sampled by: David Carnevale / Kyle Buelow
Client Contact: Judy Shanahan   Phone # 2230

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TCL VOCs	TCL SVOCs	TAL Metals + SW7470 Hg	Pesticides	Cl, SO4, NO2, pH	TALK	Sulfide	NO2 NO3	Dissolved TOC	Non-Halog. VOC	Comments
Blind Duplicate SW	12/1/99	—	Water	Grab	8	X	X	X	X							
MW-1135	12/1/99	1645	Water	Grab	13	X	X	X	X	X	X	X	X		X	
Trip Blank		—	Water	Grab	2	X									X	

Relinquished by: David J Carnevale	Date: 12/1/99	Time: 1735	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method:			Airbill Number: 814843752812		

Turnaround Time Required:
Routine________
Rush (Specify)________

Comments:

Cooler Temperature:________

Original-Laboratory   Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted LF. GW Sampling
Sampled by: Kyle Zeuler
Client Contact: Judy Shanahan Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals, SW7470A Hg	TCL VOCs	TCL SVOCs	Cl, SO4, NO2, pH	TALK / Sulfide	NO2NO3	Dissolved TOC / Nonhalog. VOCs	Comments
MW-113I	12/2/99	1600	GW	G	13	X	X	X	X	X/X	X	X/X	
DW-2	↓	1045	W	G	6	X	X	X					
Trip Blank	↓	—	W	—	1							X	
Trip Blank	↓	—	W	—	1	X	X	X	X	XX	X	X	

Relinquished by: Kyle Zeuler	Date: 12/2/99 Time: 1630	Received by:	Date: Time:
Relinquished by:	Date: Time:	Received by:	Date: Time:
Relinquished by:	Date: Time:	Received by Lab:	Date: Time.
Shipment Method: Fed Ex		Airbill Number: 814 843 752 889	

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:

Cooler Temperature:

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Barkhamsted/New Hartford GW Sampling
Sampled by: Kyle Zeulke
Client Contact: Judy Shanahan Phone #

Sample Description / **Analysis/Method**

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TCL VOC	TCL SVOC	TAL Metals + SW7470 Hg	Pesticides				Comments
MW-115B	12/3/99	0800	GW	G	6	X	X	X					
Seep 3	↓	0930	Water	↓	8	X	X	X	X				
Seep 4	↓	0955	↓	↓	8	X	X	X	X				
Seep 5	↓	1030	↓	↓	8	X	X	X	X				
Seep 6	↓	1100	↓	↓	8	X	X	X	X				
Seep 8	↓	1130	↓	↓	8	X	X	X	X				
EQB-Seep	↓	1230	↓	↓	8	X	X	X	X				
Blind Dup-Seep	↓	—	↓	↓	8	X	X	X	X				
Seep 3 MS	↓	0930	↓	↓	8	X	X	X	X				
Seep 3 MSD	↓	0930	↓	↓	8	X	X	X	X				
Trip Blank	↓	—	↓	↓	1	X							

Relinquished by: Kyle Zeulke	Date: 12/3/99	Time: 1640	Received by: William H. Hayes	Date: 12/3/99	Time: 1640
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method:			Airbill Number:		

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:

Cooler Temperature:

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers

Project: Bashlaunsted LF GW Sampling

Sampled by: K. Bucelow

Client Contact: Judy Shanahan Phone #

Sample Description

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals SW7470A Hg	TCL VOAs	TCL SVOCs					Comments
MW-15	12/6/99	13:50	GW	G	6	X	X	X					*
Trip Blank	12/6/99	—	W	—	1		X						✩

Relinquished by: K. Bucelow Date: 12/6/99 Time: 1520 Received by: Date: Time:

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received by Lab: Date: Time.

Shipment Method: Airbill Number: 814843434756

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:
* VOAs unpreserved
✩ Trip Blank made in field

Cooler Temperature:

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Burkhamsted LF GW sampling
Sampled by: [illegible signature]
Client Contact: Judy Shanahan Phone #

Sample Description / **Analysis/Method**

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals + SW7470 Hg*	TCL VOAs	TCL SVOCs	Cl, SO4, NO2, pH	TALK	Sulfide	NO2 NO3	Dissolved TOC	Non Halog. VOCs	Comments
MW-113D	12/7/99	1400	GW	G	13	X	X	X	X	X	X	X	X	X	*
Blind Dup	12/7/99	—	GW	G	2									X	*
Trip Blank	12/7/99	—	W	—	1									X	*
Trip Blank	12/7/99	—	W	—	1	X	X	X	X	X	X	X	X		*

Relinquished by: [illegible signature] Date: 12/7/99 Time: 1700	Received by:	Date:	Time:
Relinquished by: Date: Time:	Received by:	Date:	Time:
Relinquished by: Date: Time:	Received by Lab:	Date:	Time:
Shipment Method: FedEX	Airbill Number: 814843434804		

Turnaround Time Required:
Routine X
Rush (Specify)______

Comments: * Non Halogenated VOCs unpreserved
* ~~Blind Dups~~ Trip Blanks made in field

Cooler Temperature:______

Original-Laboratory Copy-Client

O'Brien & Gere Laboratories, Inc.

5000 Brittonfield Parkway
East Syracuse, New York 13057
(315) 437-0200

Chain of Custody

Client: OBG Engineers
Project: Borkhamsted LF GW sampling
Sampled by: Kyle Burlow
Client Contact: Judy Shanahan   Phone #

Sample Description / **Analysis/Method**

Sample Location	Date Collected	Time Collected	Sample Matrix	Comp. or Grab	No. of Containers	TAL Metals + SW7470A Hg	TCL VOCs	TCL SVOCs	Pesticides	Non Halog VOCs			Comments
MW-1R	12/8/99	1100	GW	G	6	X	X	X					*
Seep 1	↓	0800	GW	G	8	X	X	X	X				
Equipment Blank		0900	W	G	2					X			
Trip Blank	↓	—	W	—	1		X						✡

Relinquished by: Kyle Burlow	Date: 12/8/99	Time: 1530	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by Lab:	Date:	Time:
Shipment Method:			Airbill Number:		

Turnaround Time Required:
Routine X
Rush (Specify)

Comments:
* VOCs unpreserved
✡ Trip Blank made in field

Cooler Temperature:

Original-Laboratory Copy-Client