REPORT

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Quarterly Ground Water Sampling Event Fall 2001

Sullivan's Ledge Superfund Site
New Bedford, Massachusetts

January 2002

O'BRIEN & GERE ENGINEERS, INC.

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Fall 2001

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Vice President

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O'BRIEN & GERE
ENGINEERS, INC.

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1. Introduction

1.1. Purpose and objective

Consistent with the schedule established in O'Brien & Gere's letter to USEPA dated June 26, 2000, the Fall 2001 round of ground water monitoring was conducted at Operable Unit 1 of the Sullivan's Ledge Superfund Site from September 18, 2001 to September 27, 2001. Assisting O'Brien & Gere Engineers, Inc. (O'Brien & Gere) with this program were Mabbett & Associates, Inc. (M&A) and Alpha Analytical Labs (Alpha). M&A provided field sampling services and related consultation while Alpha provided analytical services. Sampling was conducted in accordance with the Final Field Sampling Plan (FSP) submitted to Metcalf & Eddy (M&E) in January 2000, as amended by M&A letters dated March 14 and March 16, 2001 and a USEPA letter dated June 22, 2001. The M&A letters and the USEPA letter are included in Appendix A.

1.2. Deviations from field sampling plan (FSP)

The following deviations from the FSP were made during the Fall 2001 sampling event:

- Based on an O'Brien & Gere request dated May 18, 2001, groundwater samples were not analyzed for semi-volatile organic compounds (SVOCs), as confirmed in a USEPA letter to O'Brien & Gere dated June 22, 2001 and a conversation on August 22, 2001. The referenced letters are included in Appendix A. Groundwater samples were analyzed for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and TAL metals.

- Monitoring well MW-12 was not sampled due to the relatively high location of the bladder pump in the well. The well is apparently not plumb, and it has not been possible to either push the bladder pump deeper into the well or to remove it.

- During the Fall 2001 sampling event, the sampling ports in Westbay monitoring well ECJ-3 located at 248 and 283 feet below the top of casing were not sampled due to the presence of a coil of rope observed at 160 feet below the top of casing. Further information

concerning the status of the lower ports of ECJ-3 was presented in a letter from the PMC to USEPA dated November 1, 2001, which is included in Appendix A.

- Monitoring wells MW-10AR and MW-17 were sampled with precleaned disposable bailers. Although the riser on MW-10AR was replaced during construction, attempts to re-install a low-flow pump have been unsuccessful due to an apparent obstruction. Likewise, due to the periodic presence of oil in MW-17, and the use of absorbent socks during the Summer of 2000, a low-flow pump has not been re-installed in MW-17. Prior to sample collection, three well volumes of ground water were bailed from each of these wells.

- Low-flow sampling wells exhibiting turbidity levels above the desired 5 NTU were purged for approximately 60 minutes, generally allowing stabilization of all other indicator field parameters, prior to the collection of samples. Past experience with these wells indicated that longer purge times would not reduce the turbidity to 5 NTU. This applied to seven of twenty low-flow wells sampled (MW-2, 250 MW-8, MW-8A, MW-10, MW-10B, MW-22A and MW-24).
  400 400 400 350 400 400

- Consistent with previous sampling events, the quantity of water sampled from each Westbay well sampling port was decreased by one liter to streamline the sampling process. One liter of ground water was submitted to the laboratory for PCB analysis.

- In addition to collecting samples from monitoring wells, groundwater samples were also collected from the six bedrock recovery wells from ports within the groundwater treatment plant. Samples were analyzed for VOCs, PCBs, and TAL metals. The volume of shallow collection trench water was insufficient to collect a sample on the day samples were collected.

2. Summary of field activities

2.1. Well locations

The location of overburden, shallow bedrock, intermediate bedrock, and deep bedrock monitoring wells and Westbay ports are shown on Figures 1, 2, 3, and 4, respectively.

2.2. Quantitative well integrity testing

In accordance with Section 2.3 of the FSP, M&A conducted a series of qualitative well integrity tests in February and March 2001. The purpose of the qualitative well integrity testing was to identify monitoring wells which would require repair prior to monitoring. A letter by M&A dated March 19, 2001 documented the results of the initial well integrity inspections and was included in the Spring 2001 Ground Water Monitoring Report. During the Fall 2001 round, M&A observed individual wells prior to sample collection, and noted no changes since the Spring 2001 groundwater sampling event.

2.3. Water levels

Water levels were collected on September 24 and September 26, 2001. A letter by M&A dated December 7, 2001 reporting the measured depths to ground water is included in Appendix B. Ground water contour maps are included as Figures 5 through 8.

2.4. Conventional ground water monitoring wells

A total of twenty conventional ground water monitoring wells were identified, characterized, and sampled in accordance with the FSP and the QAPP through the use of an EPA-approved low-flow bladder pump system dedicated to each well. Additionally, two wells (MW-10AR, MW-17) were sampled using bailers as described in Section 1.2.

Prior to sampling, purged ground water was characterized and tested in a flow-through cell on-site for the parameters described in Section 2.5 of the FSP. Equipment used to perform the characterization was calibrated

and used in accordance with the standards and protocols provided in Section 3.6 of the QAPP.

Following characterization, sampling of the conventional wells was completed using procedures described in Section 2.6 of the FSP. Sampling logs are provided in Appendix C of this report.

Samples were packed on ice and sent to Alpha Analytical Labs under a chain-of-custody (COC) for VOCs, PCBs, and TAL metals analyses by methods described in Section 2.1 of the FSP, as amended by the M&A letter dated March 14, 2001 and the USEPA letter dated June 22, 2001, included in Appendix A. Temperature and trip blanks were shipped with coolers submitted to the laboratory in accordance with Section 3.5 of the QAPP.

Quality Assurance/Quality Control (QA/QC) samples were also collected in accordance with Section 3.5 of the QAPP, including two duplicate samples, one matrix spike (MS) sample, and one matrix spike duplicate (MSD) sample. Duplicate sample #4 was collected on September 26, 2001 from MW-8A. Duplicate sample #5 was collected on September 27, 2001 from MW-22A. MS/MSD samples were collected from MW-5A.

2.5. Westbay monitoring wells

Four Westbay bedrock wells (ECJ-1, ECJ-2, ECJ-3 and ECJ-4) were sampled during the Fall 2001 ground water sampling event. Westbay field sampling logs are provided in Appendix D.

Consistent with Section 2.6 of the FSP, ground water from the Westbay ports was directly sampled without prior characterization. Samples collected from the Westbay bedrock wells were packed on ice and shipped under a COC to Alpha Analytical Labs for VOCs, PCBs, and TAL metals analyses in accordance with the procedures outlined in Section 2.1 of the FSP, as amended by the M&A letter dated March 14, 2001 and the USEPA letter dated June 22, 2001, included in Appendix A. Temperature and trip blanks were shipped with coolers submitted to the laboratory in accordance with Section 3.5 of the QAPP.

QA/QC samples from the Westbay sampling were also collected, including two duplicate samples and one MS/MSD sample. Duplicate sample #1 was collected from ECJ-1 (62') and duplicate sample #2 was collected from ECJ-2 (82'). The MS/MSD samples were collected from ECJ-2 (47').

2.6. Groundwater recovery samples

Samples were collected on September 24, 2001, from the six bedrock recovery wells using the installed taps in the groundwater treatment plant. Sample duplicate #3 was collected at OBG-3. Samples were

packed on ice and shipped under a COC to Alpha Analytical Labs for VOC, PCB, and TAL metal analyses.

2.7. Validated results

Validated data from the sampling round is included in the data validation report provided in Appendix E. As discussed in Section 4.2 of the data validation report, non-detected PCB results in MW-2, MW-15, MW-24, ECJ-1 (62'), ECJ-1 (122'), and ECJ-1 (146') were rejected based on the presence of "extraneous peaks eluting out in the 1016 / 1242 retention time window" that in the opinion of the laboratory "were possibly cogeners." However, as discussed in the data validation report, the laboratory was unable to quantify the peaks as an altered 1016 / 1242 pattern or re-run the samples. The validated data has been downloaded into a Microsoft FoxPro relational database management system (DBMS) to facilitate future data management and trend analysis.

2.8. Qualitative comparison to historical data

Tables 1 through 3 present the range of detected constituents in the groundwater monitoring wells for VOCs, PCBs, and TAL metals, respectively. A review of the tables suggests the following:

- Consistent with previous investigations, the following VOC constituents were detected most frequently: trichloroethene, 1,2 dichloroethene, vinyl chloride, chlorobenzene, benzene, toluene, ethylbenzene and xylene.

- Consistent with previous investigations, PCBs were detected infrequently during the Fall 2001 sampling event.

- The following metals were not detected in any of the 43 groundwater samples: antimony, beryllium, cadmium, mercury, selenium, silver, and thallium. The following metals were detected in fewer than 10% of the samples: arsenic, chromium, cobalt, lead, and nickel. Only aluminum, barium, calcium, iron, magnesium, manganese, potassium, and sodium were detected in more than 10% of the samples.

Tables 4 through 6 present the range of detected constituents at the six bedrock recovery wells. A review of the tables suggests the following:

- Consistent with previous investigations, constituents with the highest concentrations continue to be trichlorethene, 1,2-dichloroethene, vinyl chloride, benzene, toluene, and ethyl benzene.

- PCBs were detected in OBG-1 at 26.2 ug/l. The average concentration in the other bedrock recovery wells was 4.9 ug/l. These results are generally higher than observed in March 2001, but consistent with results prior to March 2001.

- The following metals were not detected in any of the six samples: antimony, arsenic, beryllium, cadmium, cobalt, lead, mercury, molybdenum, selenium, silver, thallium, and vanadium. Chromium, copper, and nickel were detected in one of the six samples. Only barium, calcium, iron, magnesium, manganese, potassium, sodium, and zinc were detected in more than one of the six samples.

Tables 7 and 8 present historical VOC and PCB groundwater data from certain wells which span the remedial investigations, pre-design investigations, design investigations, and post-construction investigations. Review of these tables suggests that the concentrations of constituents in the identified wells for the Fall 2001 sampling event, while generally higher than those observed during the Summer 2001 sampling event, were generally similar to concentrations observed during the Winter 1999 and Spring 2001 sampling events.

Table 9 presents groundwater recovery point data collected during the Fall 2001 event. Although the results are generally consistent with previous rounds conducted on December 15, 1999, January 27, 2000, June 29, 2000, and March 21, 2001, some observations are as follows:

- As discussed above, the concentrations of PCBs in the recovery wells were higher on September 24, 2001 than on March 21, 2001, but consistent with the three rounds prior to March 21, 2001.

- For BTEX constituents, results appear to be consistent over time for all bedrock recovery wells, with the exception of an overall decline in BEI-2.

- For chlorinated constituents, there appears to be a general decline in bedrock recovery wells OBG-3 and BEI-2. In the other bedrock recovery wells, the concentrations of chlorinated constituents appear to be consistent over time.

- The concentrations of metals in all six bedrock recovery wells have been consistent over time, with the possible exception of a slight increase in iron concentration in some of the bedrock recovery wells (i.e., OBG-1, OBG-2, BEI-1, BEI-3). It should be noted, however, that the concentration of iron observed in the bedrock recovery wells remains below the concentration observed in the shallow collection trench, the largest source of water to the groundwater treatment plant.

A summary of groundwater monitoring data for VOCs and PCBs from the Fall 2001 sampling event is presented on Table 10. For comparative purposes, the results from the Winter 1999, Spring 2001, and Summer 2001 sampling events are also presented. Although the results of the

four sampling events are generally consistent, some observations of the data are as follows:

- In the Set A wells, the concentrations of total VOCs detected during Spring, Summer, and Fall 2001 tended to be lower than those detected during Winter 1999, with the exception of one bedrock well.
- In the Set B wells, the concentrations of total VOCs detected appear consistent over time.
- In the Set C wells, the concentrations of total VOCs detected during the four sampling events tended to be consistent, with the possible exception of the lowermost two ports of ECJ-2, which may be increasing over time.
- In the Set D wells, the concentrations of total VOCs detected were consistent between the four events, and were low.
- During Fall 2001, PCBs were detected in only 4 of 15 on-site wells, and 0 of 22 off-site wells.

3. Summary, conclusions, and recommendations

3.1. Summary

A total of twenty-two conventional wells and twenty-one ports from four Westbay wells were sampled during the Fall 2001 groundwater sampling event. Analysis was conducted for VOCs (43 samples), PCBs (43 samples), and TAL metals (43 samples). Analytical results were validated and downloaded into a Microsoft FoxPro relational database management system to facilitate future data management and trend analysis.

3.2 Conclusions

Some conclusions which can be drawn based on the Fall 2001 data are as follows:

VOCs

The number of specific VOC constituents present appears to be limited. A review of Table 1 indicates that only seven constituents were detected in more than 10% of the samples: trichloroethene, 1,2-dichloroethene, vinyl chloride, chlorobenzene, benzene, toluene, and ethyl benzene.

As discussed in the Spring 2001 Groundwater Sampling Report, VOCs continue to be a broad indication of groundwater contamination, and based on mobility, continue to be a good indicator of potential changes in off-site migration patterns. A review of Table 10 confirms that at no well during either sampling event were PCBs detected without the co-detection of VOCs.

PCBs

A review of Table 2 confirms that PCBs continue to be detected infrequently and in low concentrations. As indicated in Section 2, PCBs were detected in only 4 of 15 on-site wells, and 0 of 22 off-site wells.

Metals

A comprehensive list of TAL metals were analyzed in Fall 2001, and only 8 of 23 metals were detected in more than 10% of the samples. As shown on Table 3, the metals detected in more than 10% of samples were as follows: aluminum, barium, calcium, iron, magnesium, manganese, potassium, and sodium.

3.3 Recommendations

The Fall 2001 data support the recommendation made in the Spring 2001 Groundwater Sampling Report that the results of future monitoring events continue to be evaluated with the intent of identifying potential trends in the data and of focusing the scope of future monitoring events.

TABLES

Table 1
Sullivan's Ledge Superfund Site
Groundwater Data Summary
Fall 2001 Monitoring Event
Volatile Organic Compounds[1]

Constituent	Number of Samples	Number of Detects	Range (µg/L)	
			Low	High
Benzene, 1,2,4-trimethyl	43	3	2.5U	6.1
Benzene 1,3,5-trimethyl	43	1	2.5U	2.8
1,1-Dichloroethane	43	1	0.75U	1.1
1,3-Dichlorobenzene	43	2	2.5U	3.9
1,4-Dichlorobenzene	43	4	2.5U	14
4-Methyl-2-pentanone	43	1	5U	740
Benzene	43	11	0.5U	5400
Chlorobenzene	43	14	0.5U	270
Chloroethane	43	3	1.0 U	14
Chloroform	43	2	0.75U	1.4
Ethylbenzene	43	14	0.5U	1400
Isopropylbenzene	43	3	0.5U	10
Methyl tert butyl ether	43	2	1U	3.9
Naphthalene	43	4	2.5U	110
Styrene	43	1	0.5U	1.5
Tetrahydrofuran	43	2	10U	12
Toluene	43	11	0.75U	1500
Trichloroethene	43	8	0.5U	820
Vinyl chloride	43	22	1U	14000
cis-1,2-Dichloroethene	43	24	0.5U	36000
n-Butylbenzene	43	1	0.5U	0.74
n-Propylbenzene	43	2	0.5U	2.3
0-Xylene	43	4	0.5U	19
p-Isopropyltoluene	43	1	0.5U	2.6
m,p-Xylenes	43	4	0.5U	22

Notes:
1. A total of 74 volatile organic compounds analyzed for using method 8260B. Only detected compounds shown.

Table 2
Sullivan's Ledge Superfund Site
Groundwater Data Summary
Fall 2001.Monitoring Event
PCBs[1]

Constituent	Number of Samples	Number of Detects	Range (µg/L)	
			Low	High
Aroclor 1242/1016	43	3	0.454 U	61.2J
Aroclor 1254	43	2	0.462 U	1.76

Notes:
1. A total of 6 PCB compounds analyzed using method 8082B. Only detected compounds shown.

Table 3
Sullivan's Ledge Superfund Site
Groundwater Data Summary
Fall 2001 Monitoring Event
Metals[1]

Constituent	Number of Samples	Number of Detects	Range (µg/L)	
			Low	High
Aluminum	43	12	100U	4,500
Antimony	43	0	50U	50U
Arsenic	43	2	5U	81
Barium	43	37	10U	1,200
Beryllium	43	0	5U	5U
Cadmium	43	0	5U	5U
Calcium	43	43	24,000	230,000
Chromium (total)	43	1	10U	30
Cobalt	43	1	20U	30
Copper	43	3	10U	20
Iron	43	39	50U	250,000
Lead	43	3	5U	54
Magnesium	43	43	3,400	50,000
Manganese	43	41	10U	13,000
Mercury	43	0	0.5U	0.5U
Molybdenum	0	0	0	0
Nickel	43	1	25U	129
Potassium	43	40	1,000U	29,000
Selenium	43	0	5U	5U
Silver	43	0	7U	7U
Sodium	43	43	14,000	220,000
Thallium	43	0	5U	5U
Vanadium	43	3	10U	40
Zinc	43	3	50U	250

Notes:
1. A total of 23 metals analyzed using method 6010B/7470A. All analytes shown.

Table 4
Sullivan's Ledge Superfund Site
Groundwater Data Summary from Recovery Systems[1]
Fall 2001 Monitoring Event
Volatile Organic Compounds[2]

Constituent	Number of Samples	Number of Detects	Range (µg/L)	
			Low	High
Benzene	6	3	50 U	570
Chlorobenzene	6	2	50U	340
Ethylbenzene	6	5	50 U	1200
Naphthalene	6	1	250 U	270
Tetrachloroethane	6	1	50 U	260
Toluene	6	3	75U	1500
Trichloroethene	6	6	120	20000
Vinyl chloride	6	6	160	900
cis-1,2-Dichloroethene	6	6	2900	23000

Notes:

1. Samples collected from bedrock recovery wells BEI-1, BEI-2, BEI-3, OBG-1, OBG-2 and OBG-3
2. A total of 74 volatile organic compounds analyzed for using method 8260B. Only detected compounds shown.

Table 5
Sullivan's Ledge Superfund Site
Groundwater Data Summary from Recovery Systems[1]
Fall 2001 Monitoring Event
PCBs[2]

Constituent	Number of Samples	Number of Detects	Range (µg/L)	
			Low	High
Aroclor 1232	6	4	0.5U	14.0 J
Aroclor 1254	6	5	0.5U	12.2

Notes:

1. Samples collected from bedrock recovery wells BEI-1, BEI-2, BEI-3, OBG-1, OBG-2 and OBG-3.
2. A total of 6 PCB compounds analyzed using method 8082B. Only detected compounds shown.

Table 6
Sullivan's Ledge Superfund Site
Groundwater Data Summary from Recovery Systems[1]
Fall 2001 Monitoring Event
Metals[2]

Constituent	Number of Samples	Number of Detects	Range (µg/L)	
			Low	High
Aluminum	6	0	100U	100U
Antimony	6	0	50U	50U
Arsenic	6	0	5U	5U
Barium	6	6	90	1,900
Beryllium	6	0	5U	5U
Cadmium	6	0	5U	5U
Calcium	6	6	81,000	120,000
Chromium (total)	6	1	10U	10
Cobalt	6	0	20U	20U
Copper	6	1	10U	60
Iron	6	6	2,400	76,000
Lead	6	0	5U	5U
Magnesium	6	6	12,000	26,000
Manganese	6	6	6,800	11,000
Mercury	6	0	0.5U	0.5U
Molybdenum	6	0	50U	50U
Nickel	6	1	25U	26
Potassium	6	6	4,200	12,000
Selenium	6	0	5U	5U
Silver	6	0	7U	7U
Sodium	6	6	27,000	83,000
Thallium	6	0	5U	5U
Vanadium	6	0	10U	10U
Zinc	6	3	50U	50

Notes:
1. Samples collected from bedrock recovery wells BEI-1, BEI-2, BEI-3, OBG-1, OBG-2 and OBG-3.
2. A total of 24 metal compounds analyzed using method 6010B/7470A. All analysis shown.

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER DEPTH COMPOUND	MW-22A 5 FEB 86	MW-22A 18 MAR 86	MW-22A 24 FEB 88	MW-22A 23 AUG 92	MW-22A 2 DEC 92	MW-22A 11 FEB 93	MW-22A 28 APR 93	MW-22A 21 MAR 95	MW-22A 17 NOV 99	MW-22A 27 MAR 01	MW-22A 18 JUNE 01	MW-22A 27 SEPT 01
1,1,1-Trichloroethane	U	U	U	25 U	25 U	50 U	50 U	10 J	12 U	5.0 U	2.5 U	2.5 U
1,1,2,2-Tetrachloroethane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
1,1,2-Trichloroethane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	7.5 U	3.8 U	3.8 U
1,1-Dichloroethane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	7.5 U	3.8 U	3.8 U
1,1-Dichloroethene	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	7.5 U	2.5 U	2.5 U
1,2-Dichloroethane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
1,2-Dichloroethene (total)	2300	1200	84	16 J	25 U	50 U	3 J	50 U	24 U	5.2	3.8 U	3.8 U
1,2-Dichloropropane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	18 U	8.8 U	8.8 U
2-Butanone	U	U	U	25 U	25 U	50 U	50 U	50 U	250 U	50 U	25 UJ	25 U
2-Hexanone	U	U	U	25 U	25 U	50 U	50 U	50 U	120 U	50 U	25 UJ	25 U
4-Methyl-2-Pentanone	U	U	U	25 U	25 U	50 U	50 U	50 U	120 U	50 U	25 U	25 U
Acetone	U	U	U	25 UJ	25 U	50 U	50 U	50 U	250 U	130	25 UJ	25 UJ
Benzene	120	160	87	190	160	200	230	200	670	120	26	190
Bromodichloromethane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Bromoform	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Bromomethane	U	U	U	25 U	25 U	50 U	50 U	50 U	25 U	10 UJ	5 U	5 U
Carbon Disulfide	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	50 U	25 U	25 U
Carbon Tetrachloride	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Chlorobenzene	140	230	340	460	390	430	410	730	42	140	5.1	12
Chloroethane	U	U	U	25 U	25 U	50 U	50 U	50 U	25 U	10 UJ	5 U	5 U
Chloroform	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	7.5 U	3.8 U	3.8 U
Chloromethane	U	U	U	25 U	25 U	50 U	50 U	50 U	25 UJ	50 U	12 U	12 U
cis-1,3-Dichloropropene	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Dibromochloromethane	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Ethylbezene	3600	3500	3200	310	330	300	140	59	190	11	2.9	23
Methylene Chloride	81 J	U	U	5 J	25 U	50 U	50 U	50 U	50 U	25 U	25 U	25 U
Styrene	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Tetrachloroethene	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Toluene	93 J	42 J	8	25 U	4 J	50 U	50 U	50 U	240	98	7.3	33
trans-1,3-Dichloropropene	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	3.8 U
Trichloroethene	U	U	U	25 U	25 U	50 U	50 U	50 U	12 U	5.0 U	2.5 U	2.5 U
Vinyl Chloride	1800	360	190	23 J	14 J	50 U	50 U	50 U	25 U	10 UJ	5 U	5 U
Xylene (total)	U	U	32	27	25	30 J	30 J	23 J	640	35	32.5	41

Units: ug/L
U = non-detected
J = estimated

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER DEPTH COMPOUND	MW-13A 17 JAN 85	MW-13A 13 MAR 86	MW-13A 25 FEB 88	MW-13A 21 AUG 92	MW-13A 18 NOV 92	MW-13A 12 FEB 93	MW-13A 28 APR 93	MW-13A 22 MAR 95	MW-13A 17 NOV 99	MW-13A 23 MAR 01	MW-13A 18 JUNE 01	MW-13A 21 SEPT 01
1,1,1-Trichloroethane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.75 U	0.5 U	0.5 U
1,2-Dichloroethane	U	U	90	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	U	97 J	U	10 U	17	8 J	25	72	15.22 J	5.2	0.8	4.9
1,2-Dichloropropane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	1.8 U	1.8 U	1.8 U
2-Butanone	U	U	230 J	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5 UJ	5 U
2-Hexanone	U	U	U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5 UJ	5 U
4-Methyl-2-Pentanone	380	U	U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5 U	5 U
Acetone	U	U	U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 UJ	5 UJ	5 U
Benzene	140	120 J	75	10 U	72	67	32	30	0.65	0.5 U	0.5 U	0.81
Bromodichloromethane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Bromoform	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Bromomethane	U	U	U	10 U	10 U	10 U	10 U	10 U	1.0 U	1.0 UJ	1 U	1 U
Carbon Disulfide	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	5.0 U	5 U	5 U
Carbon Tetrachloride	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	110	76 J	54	10 U	47	36	21	16	1.7	1.8 U	0.59	1.7
Chloroethane	U	U	U	10 U	10 U	10 U	10 U	10 U	1.0 UJ	1.0 U	1 U	1 U
Chloroform	80	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.75 U	0.75 U	0.75 U
Chloromethane	U	U	U	10 U	10 U	10 U	10 U	10 U	1.0 U	5.0 U	2.5 U	2.5 U
cis-1,3-Dichloropropene	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Ethylbezene	U	5.1 J	8	10 U	10 U	1 J	0.4 J	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	470	U	U	10 U	10 U	10 U	10 U	10 U	2.0 U	2.5 U	5 U	5 U
Styrene	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Toluene	U	2.7 J	U	10 U	1 J	1 J	10 U	10 U	0.10 J	0.75 U	0.75 U	0.75 U
trans-1,3-Dichloropropene	U	U	U	10 U	10 U	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U
Trichloroethene	U	4.4 J	U	10 U	10 U	8 J	10 U	5 J	0.17 J	0.5 U	0.5 U	0.5 U
Vinyl Chloride	U	64 J	U	10 U	62	23	38	10 U	11	5	1.4	6.9
Xylene (total)	U	U	U	10 U	1 J	10 U	10 U	10 U	0.50 U	0.5 U	0.5 U	0.5 U

Units: ug/L
U = non-detected
J = estimated

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A	MW-6A
DEPTH															
COMPOUND	17 JAN 85	17 JAN 85	21 MAY 85	12 MAR 86	24 FEB 88	24 FEB 88	27 AUG 92	17 NOV 92	17 FEB 93	29 APR 93	24 MAR 95	16 NOV 99	20 MAR 01	19 JUNE 01	20 SEPT 01
1,1,1-Trichloroethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	290	0.50 U	2.5 U	1 U	1 U
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
1,1,2-Trichloroethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	3.8 U	1.5 U	1.5 U
1,1-Dichloroethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.96	3.8 U	1.5 U	1.5 U
1,1-Dichloroethene	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	4.3	3.8 U	1 U	1 U
1,2-Dichloroethane	U	U	U	U	U	U	5 J	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
1,2-Dichloroethene (total)	320	360	26	15	490	470	85	98	270 J	260	730	1216	180 J	59	69
1,2-Dichloropropane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	8.8 U	3.5 U	3.5 U
2-Butanone	U	U	U	U	U	34 J	10 U	10 U	10 UJ	20 U	50 U	10 U	25 U	10 U	10 U
2-Hexanone	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	5.0 U	25 U	10 U	10 U
4-Methyl-2-Pentanone	U	430	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	5.0 U	25 U	10 U	10 U
Acetone	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	10 U	25 U	10 U	10 U
Benzene	U	66 J	26	19	36	36	45	34	21 J	19 J	27 J	30	7.5	9.8	10
Bromodichloromethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Bromoform	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Bromomethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	1.0 U	5.0 UJ	2 UJ	2U
Carbon Disulfide	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	25 U	10 U	10 U
Carbon Tetrachloride	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Chlorobenzene	U	85	30	25	29	28	36	36	24 J	23	30 J	60	27	18	32
Chloroethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	11	5.0 U	2 UJ	2 U
Chloroform	67	90	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	3.8 U	1.5 U	1.5 U
Chloromethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	1.0 U	25 U	5 U	5 U
cis-1,3-Dichloropropene	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Dibromochloromethane	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Ethylbezene	U	U	U	U	U	U	10 U	10 U	10 UJ	1 J	50 U	0.11 J	2.5 U	1 U	1 U
Methylene Chloride	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	2.0 U	12 U	10 U	10 U
Styrene	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Tetrachloroethene	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Toluene	U	U	U	U	U	U	10 U	0.6 J	10 UJ	20 U	50 U	1.6	3.8 U	1.5 U	1.5 U
trans-1,3-Dichloropropene	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	0.50 U	2.5 U	1 U	1 U
Trichloroethene	U	52	8	U	29	32	8 J	10 U	72 J	63	230	30	2.5 U	1 U	1 U
Vinyl Chloride	U	U	7	U	200	87	45	24	61 J	75	200	480	100	59	62
Xylene (total)	U	U	U	U	U	U	10 U	10 U	10 UJ	20 U	50 U	1.1	2.5 U	1U	1U

Units: ug/L
U = non-detected
J = estimated

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER DEPTH COMPOUND	MW-12 17 JAN 85	MW-12 17 JAN 85	MW-12 13 MAR 86	MW-12 25 FEB 88	MW-12 20 AUG 92	MW-12 2 DEC 92	MW-12 11 FEB 93	MW-12 4 MAY 93	MW-12 22 MAR 95	MW-12 18 NOV 99	MW-12 23 MAR 01	MW-12 14 JUNE 01	MW-12 SEPT 01
1,1,1-Trichloroethane	U	U	U	150	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
1,1,2,2-Tetrachloroethane	540	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
1,1,2-Trichloroethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
1,1-Dichloroethane	U	U	U	7	200 UJ	500 U	500 U	500 U	1000 U	0.40 J	NS	NS	NS
1,1-Dichloroethene	U	U	U	87	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
1,2-Dichloroethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
1,2-Dichloroethene (total)	120	130	2900	30000	2300 J	6100	15000 J	8000	13000	2.0 U	NS	NS	NS
1,2-Dichloropropane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
2-Butanone	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	20 U	NS	NS	NS
2-Hexanone	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	10 U	NS	NS	NS
4-Methyl-2-Pentanone	170 J	380	U	U	200 UJ	500 U	500 UJ	500 U	1000 U	10 U	NS	NS	NS
Acetone	U	U	U	U	540 J	500 U	500 U	500 U	1000 U	20 U	NS	NS	NS
Benzene	540	600	300	340 J	150 J	99 J	390 J	270 J	320 J	61	NS	NS	NS
Bromodichloromethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Bromoform	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Bromomethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	2.0 U	NS	NS	NS
Carbon Disulfide	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Carbon Tetrachloride	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Chlorobenzene	230	260	110	220 J	64 J	500 U	200 J	120 J	180 J	37	NS	NS	NS
Chloroethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	2.0 UJ	NS	NS	NS
Chloroform	74 J	190 J	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Chloromethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	2.0 U	NS	NS	NS
cis-1,3-Dichloropropene	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Dibromochloromethane	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Ethylbezene	U	56	53 J	290 J	30 J	20 J	500 U	170 J	170 J	1.0 U	NS	NS	NS
Methylene Chloride	480	550	U	U	200 UJ	500 U	500 U	500 U	1000 U	4.0 U	NS	NS	NS
Styrene	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Tetrachloroethene	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Toluene	U	U	40 J	280 J	200 UJ	9 J	160 J	500 U	130 J	0.26 J	NS	NS	NS
trans-1,3-Dichloropropene	U	U	U	U	200 UJ	500 U	500 U	500 U	1000 U	1.0 U	NS	NS	NS
Trichloroethene	U	U	U	U	200 UJ	430 J	390 J	31 J	1000 U	1.0 U	NS	NS	NS
Vinyl Chloride	U	U	620	6400	300 J	520	1900 J	1400	2100	2.0 U	NS	NS	NS
Xylene (total)	U	U	57 J	67	200 UJ	500 U	89 J	31 J	1000 U	5.4	NS	NS	NS

Units: ug/L
U = non-detected
J = estimated
NS= Not sampled

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1	GCA-1
DEPTH													
COMPOUND	15 JAN 85	15 MAY 85	13 MAR 86	25 FEB 88	25 AUG 92	2 DEC 92	12 FEB 93	28 APR 93	21 MAR 95	18 NOV 99	23 MAR 01	14 JUNE 01	26 SEPT 01
1,1,1-Trichloroethane	U	U	U	U	200 U	200 U	200 UJ	200 U	45 J	50 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene	U	U	U	20	200 U	200 U	200 UJ	18 J	250 U	18 J	0.75 U	0.5 U	0.5 U
1,2-Dichloroethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	2300	8400	3000	4000	2500	3100	3900 J	4800	4500	11052	45	23	50
1,2-Dichloropropane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	2.5 U	1.8 U	1.8U
2-Butanone	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	1000 U	5.0 U	5 UJ	5 U
2-Hexanone	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	500 U	5.0 U	5 UJ	5 U
4-Methyl-2-Pentanone	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	500 U	5.0 U	5 U	5 U
Acetone	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	1000 U	5.0 UJ	5 UJ	5 U
Benzene	210	200	130	100	41 J	31 J	43 J	48 J	77 J	470	56	71	100
Bromodichloromethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Bromoform	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Bromomethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	100 U	1.0 UJ	1 U	1 U
Carbon Disulfide	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	5.0 U	5 U	5 U
Carbon Tetrachloride	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	110	100	69 J	53	25 J	25 J	200 UJ	200 U	36 J	320	40	54	80
Chloroethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	100 UJ	5.3	1 U	9.6
Chloroform	29	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.75 U	0.75 U	0.75 U
Chloromethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	100 U	5.0 U	2.5 U	2.5 U
cis-1,3-Dichloropropene	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Ethylbezene	190	330	72	160	200 U	85 J	98 J	99 J	86 J	93	2.3	2.2	3.6
Methylene Chloride	790	U	U	U	200 U	200 U	200 UJ	200 U	250 U	200 U	2.5 U	5 U	5 U
Styrene	U	U	U	23	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Toluene	110	190	44 J	130	200 U	40 J	32 J	200 U	250 U	74	0.92	1.2	2.2
trans-1,3-Dichloropropene	U	U	U	U	200 U	200 U	200 UJ	200 U	250 U	50 U	0.5 U	0.5 U	0.5 U
Trichloroethene	1900	2400	240 J	1800	56 J	1300	1000 J	750	370	160	0.5 U	0.5 U	0.5 U
Vinyl Chloride	260	430	110 J	92	120 J	150 J	200 J	210	290	1700	19	11	32
Xylene (total)	30	U	U	6	66 J	200 U	200 UJ	200 U	250 U	59	4.4	5.6	7.4

Units: ug/L
U = non-detected
J = estimated

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER	ECJ-1	ECJ-1	ECJ-1	ECJ-1	ECJ-1	ECJ-1	ECJ-1	ECJ-1	ECJ-1	ECJ-1
DEPTH	72'	72'	72'	72'	72'	72'	72'	250U	72'	72'
COMPOUND	15 MAR 88	20 AUG 92	9 DEC 92	10 FEB 93	4 MAY 93	23 MAR 95	18 DEC 99	24 MAR 01	22 JUNE 01	19 SEPT 01
1,1,1-Trichloroethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
1,1,2,2-Tetrachloroethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 UJ
1,1,2-Trichloroethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	43	300 U	300 U	380 U
1,1-Dichloroethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	300 U	300 U	380 U
1,1-Dichloroethene	U	530 J	450 J	5000 UJ	10000 U	10000 U	480 J	300 U	200 U	250 U
1,2-Dichloroethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	15	200 U	200 U	250 U
1,2-Dichloroethene (total)	6900	77000	67000 J	59000 J	110000	200000	120620 J	21000	27000	26000
1,2-Dichloropropane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	700 U	700 U	880 U
2-Butanone	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	10 U	2000 U	2000 U	2500 U
2-Hexanone	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	5.0 U	2000 U	2000 U	2500 U
4-Methyl-2-Pentanone	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	5.0 U	2000 U	2000 U	2500 U
Acetone	U	5000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	10 U	2000 UJ	2000 U	2500 U
Benzene	U	5000 U	5000 UJ	5000 UJ	450 J	10000 U	140 J	200 U	200 U	250 U
Bromodichloromethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
Bromoform	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
Bromomethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	1.0 U	400 UJ	400 U	500 U
Carbon Disulfide	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	2000 U	2000 U	2500 U
Carbon Tetrachloride	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
Chlorobenzene	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	2.2	700 U	200 U	250 U
Chloroethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	1.0 UJ	400 U	400 U	500 U
Chloroform	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	300 U	300 U	380 U
Chloromethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	1.0 U	2000 U	1000 U	1200 U
cis-1,3-Dichloropropene	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
Dibromochloromethane	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
Ethylbezene	U	5000 U	670 J	1100 J	5100 J	5100 J	1900	680	790	930
Methylene Chloride	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	2.0 U	1000 U	2000 U	2500 U
Styrene	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	1.8	200 U	200 U	250 U
Tetrachloroethene	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	3.1	200 U	200 U	250 U
Toluene	U	5000 U	440 J	5000 UJ	10000 U	10000 U	360 J	300 U	360	400
trans-1,3-Dichloropropene	U	5000 U	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	200 U	200 U	250 U
Trichloroethene	57000	15000	36000 J	22000 J	100000	10000 U	19000	200 U	200 U	250 U
Vinyl Chloride	U	3700 J	1400 J	1800 J	3000 J	6200 J	2700	5100	8900	11000
Xylene (total)	U	870 J	5000 UJ	5000 UJ	10000 U	10000 U	72	200 U	200 U	250 U

Units: ug/L
U = non-detected
J = estimated

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER DEPTH COMPOUND	ECJ-2 82' 3 MAR 88	ECJ-2 82' 3 MAR 88	ECJ-2 82' 31 AUG 92	ECJ-2 82' 7 DEC 92	ECJ-2 82' 12 FEB 93	ECJ-2 82' 7 MAY 93	ECJ-2 82' 24 MAR 95	ECJ-2 82' 3 JAN 00	ECJ-2 82' 28 MAR 01	ECJ-2 82' 20 JUNE 01	ECJ-2 82' 20 SEPT 01
1,1,1-Trichloroethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
1,1,2,2-Tetrachloroethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
1,1,2-Trichloroethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	150 U	300 U	300 U
1,1-Dichloroethane	U	5	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	150 U	300 U	300 U
1,1-Dichloroethene	42	53	1000 U	71 J	2000 U	49 J	5000 U	120 U	150 U	200 U	200 U
1,2-Dichloroethane	U	8	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
1,2-Dichloroethene (total)	10000 J	13000 J	7900	24000 J	21000	27000	51000	922 J	530	200 U	300 U
1,2-Dichloropropane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	350 U	700 U	700 U
2-Butanone	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	2500 U	1000 U	2000 U	2000 U
2-Hexanone	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	1200 U	1000 U	2000 U	2000 U
4-Methyl-2-Pentanone	1000	3200	1000 U	2100 J	2000 U	2300	5000 U	1200 U	1000 U	2000 U	2000 U
Acetone	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	2500 U	1000 U	2000 U	2000 U
Benzene	60	77	1000 U	85 J	2000 U	190 J	5000 U	80 J	100 U	200 U	200 U
Bromodichloromethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	500 U	200 U	200 U
Bromoform	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
Bromomethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	250 U	200 UJ	400 UJ	400 UJ
Carbon Disulfide	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	1000 U	2000 U	2000 U
Carbon Tetrachloride	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
Chlorobenzene	17	22	1000 U	4 J	2000 U	1200 U	5000 U	120 U	350 U	200 U	200 U
Chloroethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	250 UJ	200 UJ	400 U	400 U
Chloroform	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	150 U	300 U	300 U
Chloromethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	250 U	1000 U	1000 U	1000 U
cis-1,3-Dichloropropene	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
Dibromochloromethane	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
Ethylbezene	270	410	570 J	990 J	960 J	660 J	1300 J	1000 U	710	990	880
Methylene Chloride	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	500 U	500 U	2000 U	2000 U
Styrene	220	320	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
Tetrachloroethene	14	16	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U
Toluene	580	900	1000 U	1400 J	1500 J	1200 U	2100 J	940	740	1000	860
trans-1,3-Dichloropropene	U	U	1000 U	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	20 U	200 U
Trichloroethene	9500	14000	1000 U	12000 J	15000	9000	4500 J	120 U	100 U	200 U	200 U
Vinyl Chloride	560	1000	11000	3600 J	2000 U	5800	13000 J	14000	14000	22000	14000
Xylene (total)	12	14	660 J	1000 UJ	2000 U	1200 U	5000 U	120 U	100 U	200 U	200 U

Units: ug/L
U = non-detected
J = estimated

TABLE 7

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

VOLATILE ORGANIC COMPOUNDS

WELL NUMBER DEPTH COMPOUND	ECJ-1 122' 15 MAR 88	ECJ-1 122' 20 AUG 92	ECJ-1 122' 9 DEC 92	ECJ-1 122' 10 FEB 93	ECJ-1 122' 3 MAY 93	ECJ-1 122' 23 MAR 95	ECJ-1 122' 18 DEC 99	ECJ-1 122' 24 MAR 01	ECJ-1 122' 21 JUNE 01	ECJ-1 122' 19 SEPT 01
1,1,1-Trichloroethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
1,1,2-Trichloroethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	75 U	75 U	75 U
1,1-Dichloroethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	75 U	75 U	75 U
1,1-Dichloroethene	U	2000 UJ	260 J	5000 UJ	10000 U	10000 U	170 J	75 U	50 U	50 U
1,2-Dichloroethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	11	50 U	50 U	50 U
1,2-Dichloroethene (total)	12000	22000 J	110000 J	130000 J	150000 J	140000	62320 J	6500	3500	4800
1,2-Dichloropropane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	180 U	180 U	180 U
2-Butanone	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	10 U	500 U	500 U	500 U
2-Hexanone	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	5.0 U	500 U	500 U	500 U
4-Methyl-2-Pentanone	U	2000 UJ	1700 J	5000 UJ	10000 U	10000 U	5.0 U	500 U	500 U	500 U
Acetone	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	10 U	500 UJ	500 U	500 U
Benzene	U	2000 UJ	5000 UJ	5000 UJ	440 J	10000 U	150 J	290	400	310
Bromodichloromethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	500 U	50 U
Bromoform	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
Bromomethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	1.0 U	100 UJ	100 U	100 U
Carbon Disulfide	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	500 U	500 U	500 U
Carbon Tetrachloride	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
Chlorobenzene	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	2.6	180 U	180	160
Chloroethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	1.0 UJ	100 U	100 U	100 U
Chloroform	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	75 U	75 U	75 U
Chloromethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	1.0 U	500 U	250 U	250 U
cis-1,3-Dichloropropene	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
Dibromochloromethane	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
Ethylbezene	U	2000 UJ	3300 J	4000 J	10000 U	3900 J	2000	450	830	480
Methylene Chloride	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	2.0 U	250 U	500 U	500 U
Styrene	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.91	50 U	50 U	50 U
Tetrachloroethene	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
Toluene	U	2000 UJ	2400 J	2900 J	10000 U	3100 J	1100	92	110	90
trans-1,3-Dichloropropene	U	2000 UJ	5000 UJ	5000 UJ	10000 U	10000 U	0.50 U	50 U	50 U	50 U
Trichloroethene	74000	5300 J	29000 J	5000 UJ	690 J	10000 U	11	50 U	50 U	140
Vinyl Chloride	U	2000 UJ	2100 J	4700 J	6600 J	13000	6100	1200	3200	690
Xylene (total)	U	180 J	96 J	5000 UJ	10000 U	10000 U	46	50 U	50 U	50U

Units: ug/L
U = non-detected
J = estimated

TABLE 8

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

POLYCHLORINATED BIPHENYLS

WELL NUMBER DEPTH COMPOUND	MW-22A 5 FEB 86	MW-22A 18 MAR 86	MW-22A 24 FEB 88	MW-22A 23 AUG 92	MW-22A 2 DEC 92	MW-22A 11 FEB 93	MW-22A 28 APR 93	MW-22A 21 MAR 95	MW-22A 17 NOV 99	MW-22A 27 MAR 01	MW-22A JUN 01	MW-22A
Aroclor-1016	U	U	U	1.0 UJ	500 U	1000 UJ	100.0 U	20 U	2.6 U	-	-	-
Aroclor-1221	U	U	U	2.0 UJ	1000 U	2000 UJ	200.0 U	20 U	2.6 U	4.64 U	NS	12.5 U
Aroclor-1232	U	U	U	1.0 UJ	500 U	1000 UJ	100.0 U	20 U	2.6 U	4.64 U	NS	12.5 U
Aroclor-1242	U	U	U	1.0 UJ	500 U	1000 UJ	100.0 U	20 U	22*	-	-	-
Aroclor-1242 / 1016	-	-	-	-	-	-	-	-	-	4.64 U	NS	61.2 J
Aroclor-1248	U	U	65.0 J	1.0 UJ	500 U	1000 UJ	100.0 U	20 U	2.6 U	4.64 U	NS	12.5 U
Aroclor-1254	150.0 C	U	93.0 J	1.0 UJ	3100 J	5000 J	410 J	37	2.6 U	4.64 U	NS	12.5 U
Aroclor-1260	U	U	U	1.0 UJ	500 U	1000 UJ	100.0 U	20 U	3.2	4.64 U	NS	12.5 U

Units: ug/L
U= non-detected
J= estimated
NT= not tested
*= altered 1242 pattern

Updated by Mabbett & Associates, Inc. for
O'Brien & Gere Engineers

j:\users\admina\2000015\Fall01 Table 8

TABLE 8

SULLIVAN'S LEDGE SUPERFUND SITE FIRST OPERABLE UNIT
HISTORICAL GROUNDWATER DATA

POLYCHLORINATED BIPHENYLS

WELL NUMBER DEPTH COMPOUND	MW-6A 17 JAN 85	MW-6A 17 JAN 85	MW-6A 21 MAY 85	MW-6A 12 MAR 86	MW-6A 24 FEB 88	MW-6A 24 FEB 88	MW-6A 27 AUG 92	MW-6A 17 NOV 92	MW-6A 17 FEB 93	MW-6A 29 APR 93	MW-6A 24 MAR 95	MW-6A 24 MAR 95	MW-6A 16 NOV 99	MW-6A 20 MAR 01	MW-6A JUN 01	MW-6A
Aroclor-1016	U	U	U	U	U	U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.53 U	-	-	-
Aroclor-1221	U	U	U	U	U	U	2.0 U	2.0 U	2.0 UJ	2.0 U	1.0 U	1.0 U	0.53 U	2.5 U	NS	.464 U
Aroclor-1232	U	U	U	U	U	U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.53 U	2.5 U	NS	.464 U
Aroclor-1242	U	U	U	U	U	U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.53 U	-	-	-
Aroclor-1242 / 1016	-	-	-	-	-	-	-	-	-	-	-	61.2 J	-	2.5 U	NS	.464 U
Aroclor-1248	U	U	U	U	U	U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.53 U	2.5 U	NS	.464 U
Aroclor-1254	1.6	1.39	1.0	U	U	U	0.014 J	0.87 J	2.1 J	1.0 U	1.7	1.5	0 12 J	2.5 U	NS	.464 U
Aroclor-1260	U	U	U	U	U	U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.53 U	2.5 U	NS	.464 U

Units: ug/L
U = non-detected
J = estimated
NT = not tested

Updated by Mabbett & Associates, Inc. for
O'Brien & Gere Engineers

j:\users\admina\2000015\Fall01 Table 8

TABLE 9
SULLIVAN'S LEDGE SUPERFUND SITE
SUMMARY OF INFLUENT LABORATORY ANALYTICAL RESULTS[1]

	Discharge Limits	GROUND WATER COLLECTION TRENCH					RECOVERY WELL OBG-1					RECOVERY WELL OBG-2					RECOVERY WELL OBG-3				
		Event #1	Event #2	Event #3	Event #4	Event #5	Event #1	Event #2	Event #3	Event #4	Event #5	Event #1	Event #2	Event #3	Event #4	Event #5	Event #1	Event #2	Event #3	Event #4	Event #5
Sample Date		12/15/99	1/27/00	6/29/00	3/21/2001	9/24/2001	12/29/99	1/27/00	6/29/00	3/21/2001	9/24/2001	12/29/99	1/28/00	6/29/00	3/21/2001	9/24/2001	12/29/99	1/27/00	6/29/00	3/21/2001	9/24/2001
PCBs (ug/l)	5	2.4	3.2	4.5	LT 0.50	(2)	3.7	4.9	10	29.6	26.2	5.9	7.6	5.3	1.01	8.04	LT 0.50	LT 0.50	LT 0.51	LT 0.50	LT 0.50
Benzene (ug/l)	(3)	110	110	140	90	(2)	290	360	LT 500	270	300	LT 500	LT 500	400	390	570	LT 500	86	LT 120	56	59
Toluene (ug/l)	(3)	70	190	53	LT 1.5	(2)	650	620	970	770	1500	LT 500	LT 500	120	140	190	LT 500	36	LT 120	LT 75	LT 75
E-Benzene (ug/l)	(3)	12	12	21	3.8	(2)	750	610	920	720	1200	LT 500	LT 500	86	140	180	LT 500	LT 25	LT 120	LT 50	LT 50
Xylene (ug/l)	(3)	16	16	23	12.1	(2)	LT 50	LT 50	LT 500	LT 100	LT 200	LT 500	LT 500	LT 50	42	LT 50	LT 500	LT 25	LT 120	LT 50	LT 50
TCE (ug/l)	(3)	LT 0.5	LT 5.0	LT 5.0	1.4	(2)	4000	5400	7400	2100	8000	670	540	350	82	420	7100	4300	1800	450	120
1,2 DCE (ug/l)	(3)	1.9	LT 5.0	LT 5.0	3.1	(2)	26000	16000	13000	13000	23000	19000	11000	3200	4800	6100	9200	4900	3500	3800	2900
V Chloride (ug/l)	(3)	LT 1.0	LT 10	LT 10	LT 2.0	(2)	1200	820	LT 1000	550	900	2300	1100	390	430	610	LT 1000	180	LT 250	180	230
Chlorobenzene (ug/l)	(3)	100	120	110	72	(2)	LT 50	LT 50	LT 500	LT 350	LT 200	LT 500	LT 500	220	250	340	LT 500	44	LT 120	LT 180	77
Chloroform (ug/l)	(3)	LT 0.50	LT 5.0	LT 5.0	LT 1.5	(2)	LT 50	LT 50	LT 500	LT 150	LT 300	LT 500	LT 500	LT 50	LT 38	LT 75	LT 500	LT 25	LT 120	LT 75	LT 75
Acetone (ug/l)	(3)	LT 10	LT 100	LT 100	LT 10	(2)	LT 1000	LT 1000	LT 10000	LT 1000	LT 2000	LT 10000	LT 10000	LT 1000	LT 250	LT 500	LT 10000	LT 500	LT 2500	LT 500	LT 500
Acrolein (ug/l)	4000	NA	NA	LT 5.0	LT 25	(2)	NA	NA	LT 500	LT 2500	LT 5000	NA	NA	LT 50	LT 820	LT 1200	NA	NA	LT 120	LT 1200	LT 1200
Arsenic (mg/l)	1.400	LT 0.005	LT 0.005	LT 0.005	LT 0.005	(2)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005
Cadmium (mg/l)	1.200	LT 0.01	LT 0.01	LT 0.01	LT 0.005	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.005
Chromium (mg/l)	5.000	LT 0.01	LT 0.01	LT 0.01	LT 0.01	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.005
Chromium (VI) (mg/l)	4.800	LT 0.02	LT 0.01	NA	NA	(2)	LT 0.01	LT 0.01	NA	NA	NA	LT 0.01	LT 0.01	NA	NA	NA	LT 0.01	LT 0.01	NA	NA	NA
Copper (mg/l)	4.500	LT 0.01	LT 0.01	LT 0.01	LT 0.01	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.03	0.01	(2)
Cyanide (mg/l)	1.900	0.09	0.062	NA	NA	(2)	0.16	0.16	NA	NA	NA	0.18	0.12	NA	NA	NA	0.02	0.028	NA	NA	NA
Iron (mg/l)	-	NA	86	79	83	(2)	NA	41	40	46	54	NA	71	74	73	76	NA	41	53	53	62
Lead (mg/l)	0.600	LT 0.005	LT 0.005	LT 0.005	LT 0.005	(2)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	0.016	LT 0.005
Manganese (mg/l)	-	NA	1.8	1.4	1.6	(2)	NA	9.7	8.6	7.9	8.2	NA	6.9	5.8	6.5	6.9	NA	6.9	9.6	6.3	9.6
Mercury (mg/l)	0.010	LT 0.0002	LT 0.0002	NA	LT 0.0005	(2)	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0005
Molybdenum (mg/l)	-	LT 0.05	LT 0.05	LT 0.05	LT 0.05	(2)	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05
Nickel (mg/l)	2.100	LT 0.05	LT 0.05	LT 0.05	LT 0.025	(2)	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	0.026
Silver (mg/l)	0.500	LT 0.01	LT 0.01	LT 0.01	LT 0.01	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.007	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.007	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.007
Zinc (mg/l)	3.500	LT 0.01	LT 0.01	0.01	0.07	(2)	LT 0.01	0.02	0.02	LT 0.05	LT 0.05	LT 0.01	LT 0.01	LT 0.01	LT 0.05	LT 0.05	LT 0.01	0.01	LT 0.01	0.15	0.05
SVOC S (ug/l)	(3)	63	70	NA	73.1	(2)	79	55	NA	122.5	NA	217	255	NA	371.3	NA	ND	18	NA	16	NA
Pesticides	(4)	NA	NA	ND	NA	(2)	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA

	RECOVERY WELL BEI-1					RECOVERY WELL BEI-2					RECOVERY WELL BEI-3				
	Event #1	Event #2	Event #3	Event #4	Event #5	Event #1	Event #2	Event #3	Event #4	Event #5	Event #1	Event #2	Event #3	Event #4	Event #5
Sample Date	(2)	1/27/00	6/29/00	3/21/2001	9/24/2001	12/29/99	1/27/00	6/29/00	3/21/2001	9/24/2001	12/29/99	1/27/00	6/29/00	3/21/2001	9/24/2001
PCBs (ug/l)	(2)	2.0	5.2	0.953	6.39	8.2	7.8	3.0	LT 0.5	2.586	3.3	3.4	4.5	0.867	4.42
Benzene (ug/l)	(2)	68	LT 500	LT 100	LT 200	230	LT 250	LT 120	120	LT 100		LT 500	LT 250	LT 50	LT 50
Toluene (ug/l)	(2)	360	980	960	1200	2200	940	240	76	LT 150	LT 5.0	LT 500	LT 250	LT 75	LT 75
E-Benzene (ug/l)	(2)	700	1000	1100	1200	4000	1700	430	290	220	6.7	LT 500	LT 250	LT 50	83
Xylene (ug/l)	(2)	LT 50	LT 500	LT 100	LT 200	87	LT 250	LT 120	LT 50	LT 100	LT 5.0	LT 500	LT 250	LT 50	LT 50
TCE (ug/l)	(2)	7500	17000	13000	20000	3800	4200	800	160	300	14000	13000	7200	2600	4800
1,2 DCE (ug/l)	(2)	21000	11000	12000	14000	77000	30000	6400	7400	5900	590	1400	2900	3400	6400
V Chloride (ug/l)	(2)	650	LT 1000	490	800	8200	3900	1000	840	850	17	LT 1000	LT 500	LT 100	180
Chlorobenzene (ug/l)	(2)	LT 50	LT 500	LT 350	LT 200	80	LT 250	LT 120	LT 180	LT 100	LT 5.0	LT 500	LT 250	LT 180	LT 50
Chloroform (ug/l)	(2)	LT 50	LT 500	LT 150	LT 300	LT 50	LT 250	LT 120	LT 75	LT 150	LT 5.0	LT 500	LT 250	LT 75	LT 75
Acetone (ug/l)	(2)	LT 1000	LT 10000	LT 1000	LT 2000	LT 1000	LT 5000	LT 2500	LT 500	LT 1000	LT 100	LT 10000	LT 5000	LT 500	LT 500
Acrolein (ug/l)	(2)	NA	LT 500	LT 2500	LT 5000	NA	NA	LT 120	LT 1200	LT 2500	NA	NA	LT 250	LT 1200	LT 1200
Arsenic (mg/l)	(2)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	0.012	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005
Cadmium (mg/l)	(2)	LT 0.01	LT 0.01	LT 0.005	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.005
Chromium (mg/l)	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.01	LT 0.01	0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01
Chromium (VI) (mg/l)	(2)	LT 0.01	NA	NA	NA	LT 0.01	NA	NA	NA	NA	LT 0.01	LT 0.01	NA	NA	NA
Copper (mg/l)	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.06	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01
Cyanide (mg/l)	(2)	0.019	NA	NA	NA	0.01	0.049	NA	NA	NA	LT 0.01	LT 0.01	NA	NA	NA
Iron (mg/l)	(2)	26	47	45	60	NA	55	202	58	58	NA	1.4	0.86	1.3	2.4
Lead (mg/l)	(2)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	0.022	0.006	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005
Manganese (mg/l)	(2)	4.4	10	10	11	NA	9.2	6.9	7.8	7.6	NA	1.6	3.5	5.3	6.8
Mercury (mg/l)	(2)	LT 0.0002	NA	LT 0.0005	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0005
Molybdenum (mg/l)	(2)	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	0.06	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05
Nickel (mg/l)	(2)	LT 0.05	LT 0.05	LT 0.025	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.025
Silver (mg/l)	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.007	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.007	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.007
Zinc (mg/l)	(2)	LT 0.01	LT 0.01	0.06	LT 0.05	LT 0.01	LT 0.01	LT 0.01	LT 0.05	LT 0.05	0.01	0.02	0.01	0.14	0.05
SVOC S (ug/l)	(2)	68	NA	67.9	NA	101	72	NA	74.2	NA	ND	ND	NA	ND	NA
Pesticides	(2)	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA

Notes
1 Samples for events 1, 2, and 3 collected by OBG Operations and analyzed by OBG Laboratories
Samples for events 4 and 5 collected by Mabbett & Associates, Inc. and analyzed by Alpha Analytical Labs
2 Recovery source inoperative at time of sampling
3 TTO less than 2000 ug/l
4 Constituent specific
5 ND = Not Detected
6 NA = Not Analyzed
7 LT = Less Than

TABLE 10
SULLIVAN'S LEDGE SUPERFUND SITE
GROUNDWATER ANALYSIS
ORGANIC COMPOUND SUMMARY [1]

Monitoring Well	Location		Total Volatile Organic Compounds (ug/l)				Total PCBs (ug/l)				Total Semivolatile Organic Compounds (ug/l)	
	Set[2]	Group	Winter 1999	Spring 2001	Summer 2001	Fall 2001	Winter 1999	Spring 2001	Summer 2001	Fall 2001	Winter 1999	Spring 2001
MW - 16	B	Overburden	5.1	ND	ND	ND	0.90	ND	ND	ND	ND	ND
MW - 15	B	Overburden	14.5	126.9	125.9	48.8	1.50	3.70	ND	R	8.8	6.0
MW - 14	B	Overburden	639.5	965.0	974.0	365.5	0.83	ND	ND	ND	91.6	63.1
MW - 24	B	Shallow Bedrock	3843.3	6530.0	3480.0	6370.0	47.00	36.70	ND	R	66.9	39.8
MW - 2	B	Shallow Bedrock	3440.0	2181.0	905.0	1139.0	17.00	8.61	5.9	R	134.6	47.5
ECJ-3 (51)	B	Shallow Bedrock	NS	15.0	ND	12	NS	ND	ND	ND	NS	ND
ECJ-3 (91)	B	Shallow Bedrock	NS	ND	1.0	ND	NS	ND	ND	ND	NS	ND
ECJ-3 (126)	B	Intermed Bedrock	NS	ND	0.96	0.86	NS	ND	ND	ND	NS	ND
ECJ-3 (146)	B	Intermed Bedrock	NS	NS	NS	ND	NS	NS	NS	ND	NS	Ns
MW - 13A	A	Overburden	28.8	10.2	4.1	14.3	0.31	ND	NS	ND	ND	ND
MW-12AR	A	Overburden	NS	205.5	217.3	132.7	NS	ND	ND	2.26	NS	47.9
MW - 22A	A	Overburden	1782.0	539.2	96.1	408.6	25.20	ND	NS	61.2	2231.3	229.7
MW - 13	A	Shallow Bedrock	991.6	7.1	2.1	13.1	0.26	ND	NS	ND	ND	ND
MW - 17	A	Shallow Bedrock	36.4	1.2	20.2	18.4	ND	ND	NS	ND	15.0	ND
MW - 12	A	Shallow Bedrock	104.1	NS	NS	NS	0.27	NS	NS	NS	25.8	NS
GCA - 1	A	Shallow Bedrock	13946.0	172.9	229.6	321.9	14.00	ND	ND	5.83	247.4	26.6
ECJ 1 (37)	A	Shallow Bedrock	2297.6	109.0	64.0	83.0	1.10	2.85	2.08 J	1.12	36.1	ND
ECJ 1 (62)	A	Shallow Bedrock	72950.1	9410.0	5383.0	3180.0	0.52	0.75	ND	R	118.0	ND
ECJ 1 (72)	A	Shallow Bedrock	145337.1	26780.0	37050.0	38330.0	ND	ND	ND	ND	152.4	21.0
ECJ 1 (122)	A	Intermed Bedrock	71911.5	8532.0	8220.0	6670.0	ND	ND	1.56	R	100.5	188.9
ECJ 1 (148)	A	Intermed Bedrock	36477.2	74600.0	104600.0	16270.0	0.44	ND	ND	R	109.4	182.6
ECJ 1 (267)	A	Deep Bedrock	160.5	52.1	39.8	37.5	ND	ND	ND	ND	5.9	ND
MW - 6A	C	Overburden	1835.1	314.5	158.0	173.0	0.12	ND	NS	ND	4.6	ND
MW - 4A	C	Overburden	1.8	ND	ND	82.6	ND	ND	NS	ND	ND	ND
MW - 5A	C	Overburden	ND	ND	2.0	2.2	ND	ND	NS	ND	ND	ND
MW - 6	C	Shallow Bedrock	4837.2	2950.0	3998.0	2137.0	ND	ND	NS	ND	5.6	ND
MW - 4	C	Shallow Bedrock	1271.9	1034.2	1113.2	1149.0	ND	ND	NS	ND	ND	ND
MW - 5	C	Shallow Bedrock	ND	6.8	3.6	3.9	ND	ND	NS	ND	ND	ND
ECJ 2 (47)	C	Shallow Bedrock	2533.0	1920.0	2468.0	1511.0	ND	ND	ND	ND	3.2	ND
ECJ 2 (82)	C	Intermed Bedrock	15942.0	16080.0	23990.0	15740.0	ND	ND	NS	ND	4.4	ND
ECJ 2 (117)	C	Intermed Bedrock	55380.0	29730.0	51600.0	37600.0	ND	ND	ND	ND	8.8	ND
ECJ 2 (152)	C	Intermed Bedrock	400.4	4594.0	6180.0	11330.0	ND	ND	ND	ND	ND	9.0
ECJ 2 (187)	C	Deep Bedrock	3605.8	4440.0	76.4	43460.0	ND	ND	NS	ND	2.6	9.8
MW-10A	D	Overburden	NS	8.6	17.9	1.5	NS	ND	NS	ND	NS	ND
MW - 8A	D	Overburden	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	D	Shallow Bedrock	NS	12.9	27.6	22.9	NS	ND	NS	ND	NS	ND
MW-10B	D	Shallow Bedrock	NS	13.6	33.8	15.0	NS	ND	NS	ND	NS	ND
MW - 8	D	Shallow Bedrock	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECJ 4 (62)	D	Shallow Bedrock	0.6	ND	13.0	ND	ND	ND	ND	ND	ND	ND
ECJ 4 (87)	D	Intermed Bedrock	0.6	0.7	ND	ND	ND	ND	ND	ND	ND	ND
ECJ 4 (132)	D	Intermed Bedrock	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECJ 4 (162)	D	Intermed Bedrock	16.7	11.8	5.9	7.1	ND	ND	ND	ND	3.5	ND
ECJ 4 (227)	D	Deep Bedrock	7.0	4.3	5.7	4.3	ND	ND	ND	ND	ND	ND
ECJ 4 (245)	D	Deep Bedrock	15.4	5.1	3.7	3.3	ND	ND	ND	ND	ND	ND

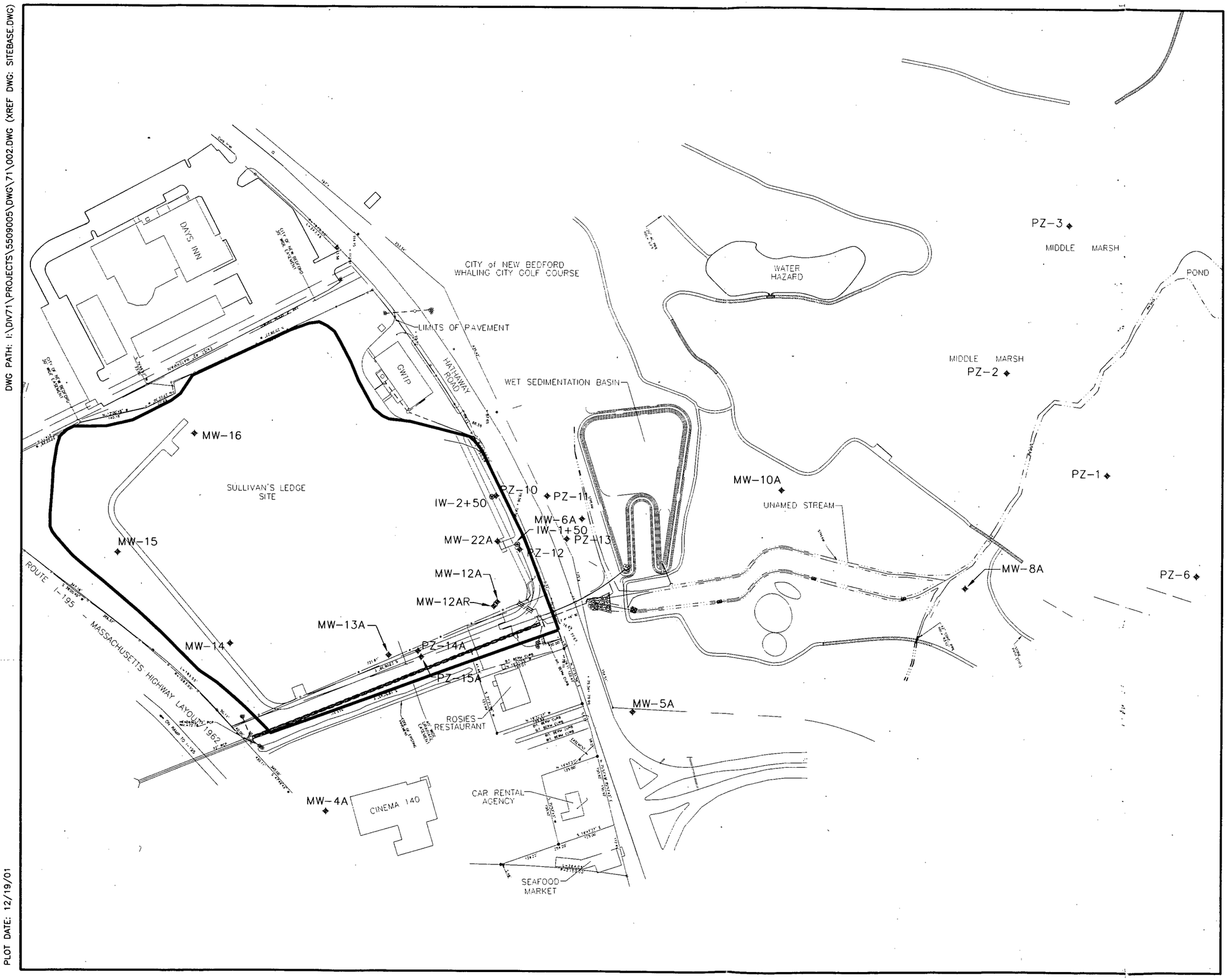
Notes:

1. Winter 1999 samples collected by O'Brien & Gere Engineers, Inc. and analyzed by OBG Laboratories.
   Spring 2001 samples collected by Mabbett & Associates, Inc. and analyzed by Alpha Analytical, Inc.
   Summer 2001 samples collected by Mabbett & Associates, Inc. and analyzed by Alpha Analytical, Inc.
   Fall 2001 samples collected by Mabbett & Associates, Inc. and analyzed by Alpha Analytical, Inc.

2. Set A = Inside Disposal Area, immediately downgradient of disposal pit.
   Set B = Inside Disposal Area, immediately upgradient of disposal pit.
   Set C = Outside Disposal Area, within 300 feet of Disposal Area.
   Set D = Outside Disposal Area, greater than 300 feet from Disposal Area (downgradient).

FIGURES

FIGURE–1



LEGEND

- MONITORING WELL LOCATION
- RECOVERY WELL LOCATION

ELEVATIONS IN FEET
RELATIVE TO MEAN SEA
LEVEL

SULLIVAN'S LEDGE
SUPERFUND SITE
NEW BEDFORD, MASS.

OVERBURDEN WELL LOCATION MAP

200 0 200

SCALE IN FEET

FILE NO. 5509.005–002
AUGUST 2001

O'BRIEN & GERE
ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\002.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 12/19/01

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\003.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 12/19/01

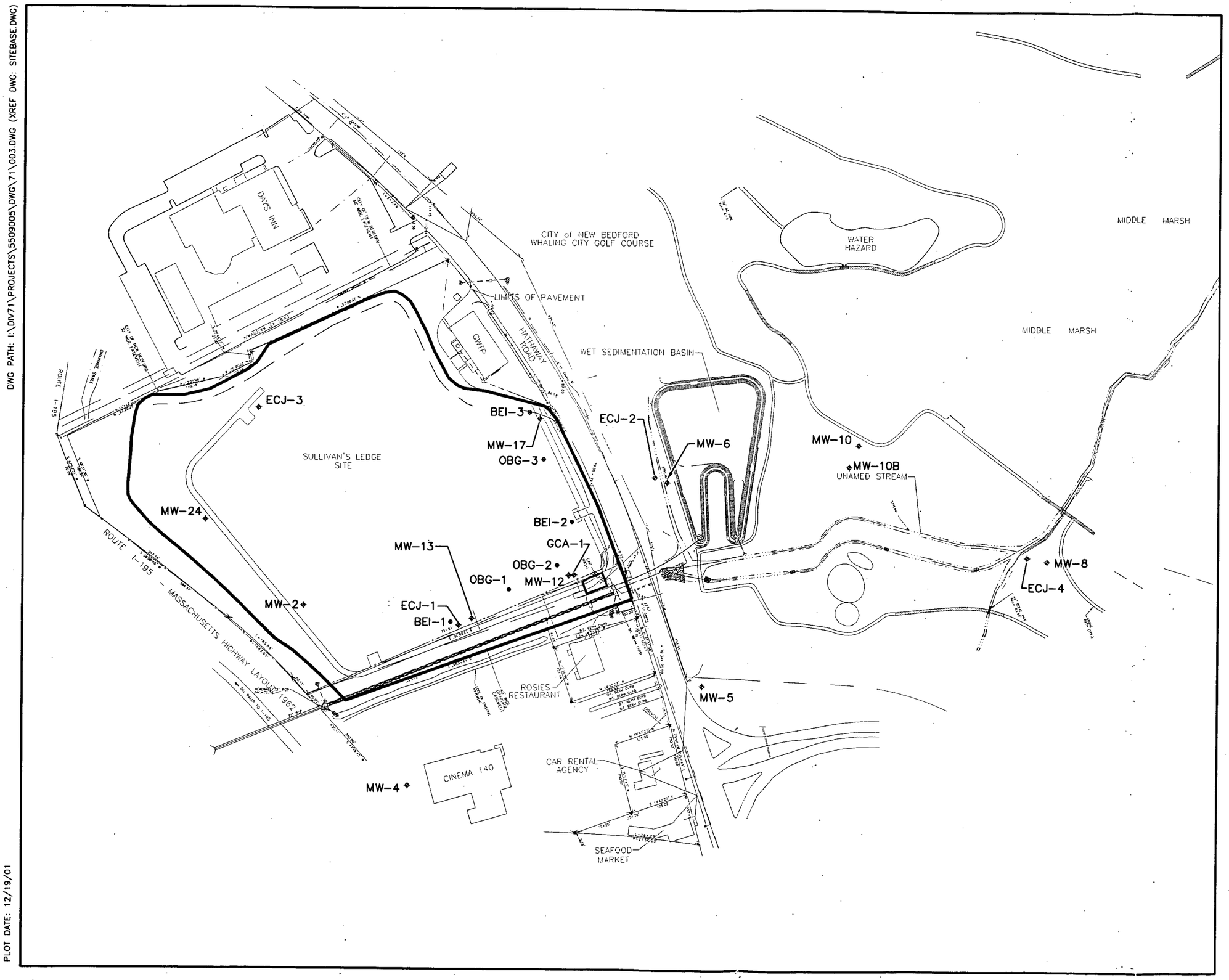


FIGURE-2

LEGEND

MONITORING WELL LOCATION

RECOVERY WELL LOCATION

ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL

SULLIVAN'S LEDGE SUPERFUND SITE NEW BEDFORD, MASS.

SHALLOW BEDROCK WELL LOCATION MAP

200 0 200

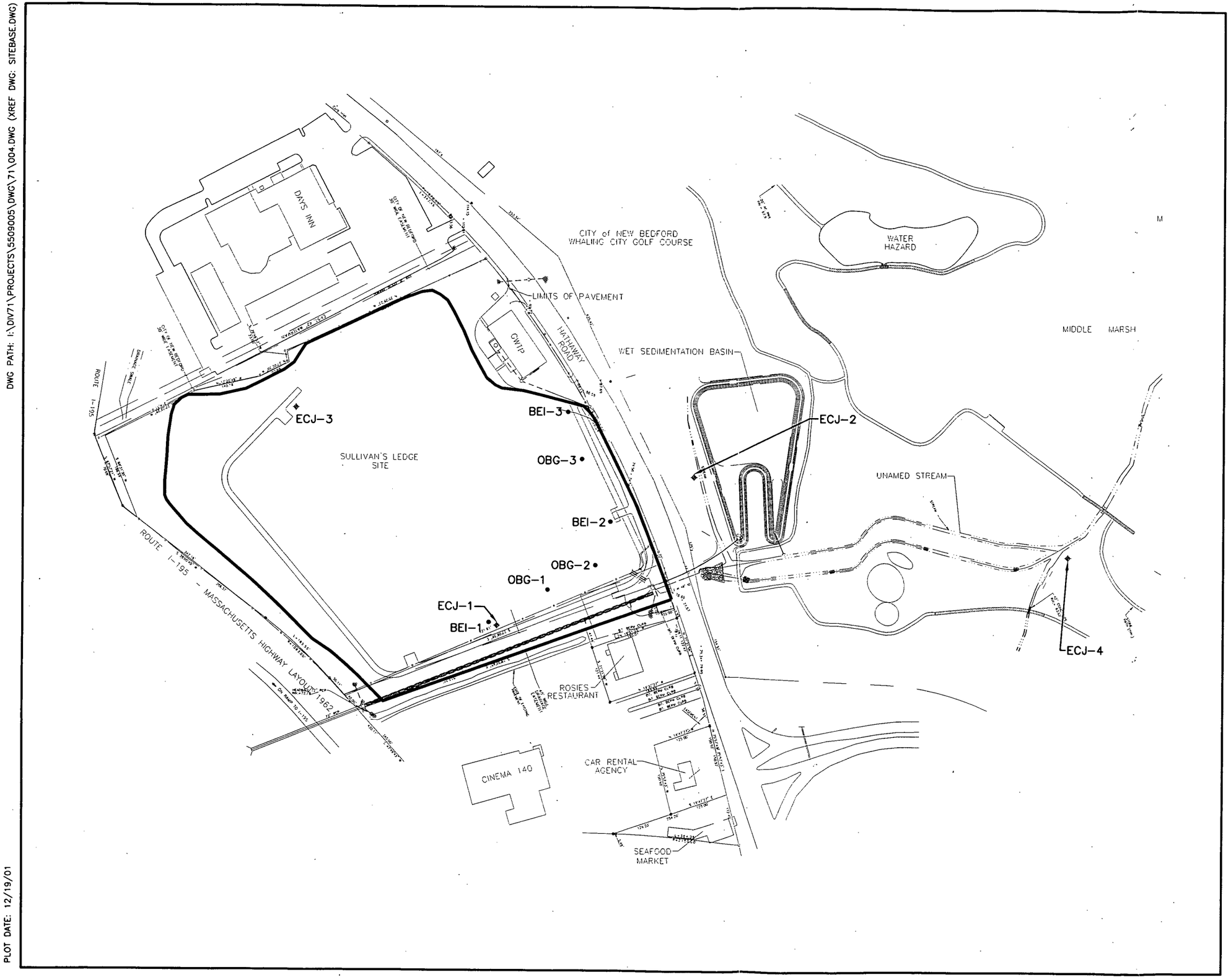
SCALE IN FEET

FILE NO. 5509.005-003

AUGUST 2001

O'BRIEN & GERE ENGINEERS INC.

FIGURE-3



LEGEND

ECJ WELL LOCATION

RECOVERY WELL LOCATION

ELEVATIONS IN FEET
RELATIVE TO MEAN SEA
LEVEL

SULLIVAN'S LEDGE
SUPERFUND SITE
NEW BEDFORD, MASS.

INTERMEDIATE BEDROCK WELL LOCATION MAP

200 0 200

SCALE IN FEET

FILE NO. 5509.005-004
AUGUST 2001

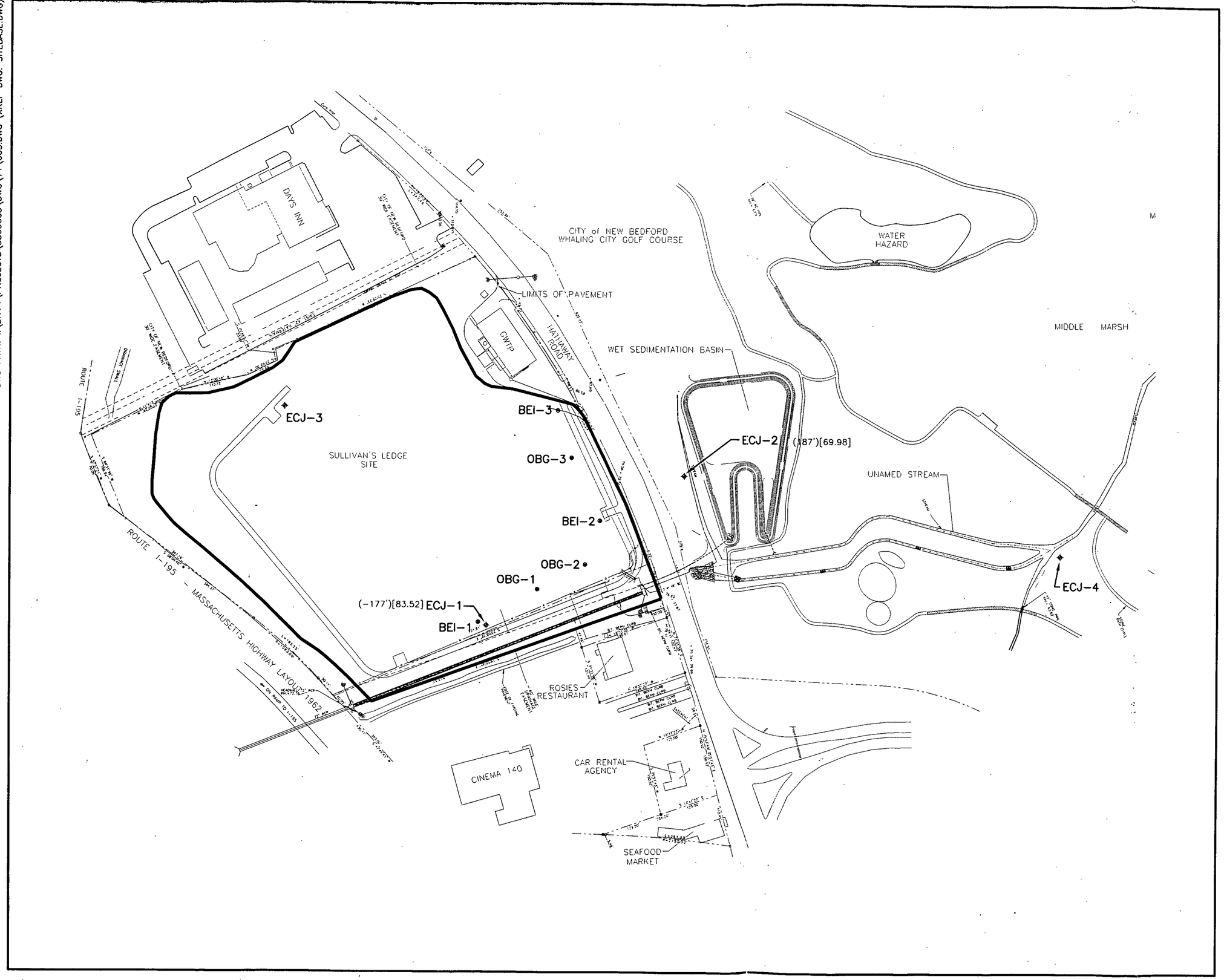
O'BRIEN & GERE
ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\004.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 12/19/01

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\005.DWG (XREF DWG: SITEBASE.DWG)
PLOT DATE: 12/28/01

FIGURE-4



LEGEND

- ECJ WELL LOCATION
- RECOVERY WELL LOCATION
- [61.07] GROUND WATER ELEVATION

ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL

SULLIVAN'S LEDGE
SUPERFUND SITE
NEW BEDFORD, MASS.

DEEP BEDROCK GROUND WATER ELEVATION MAP (SEPTEMBER 2001)

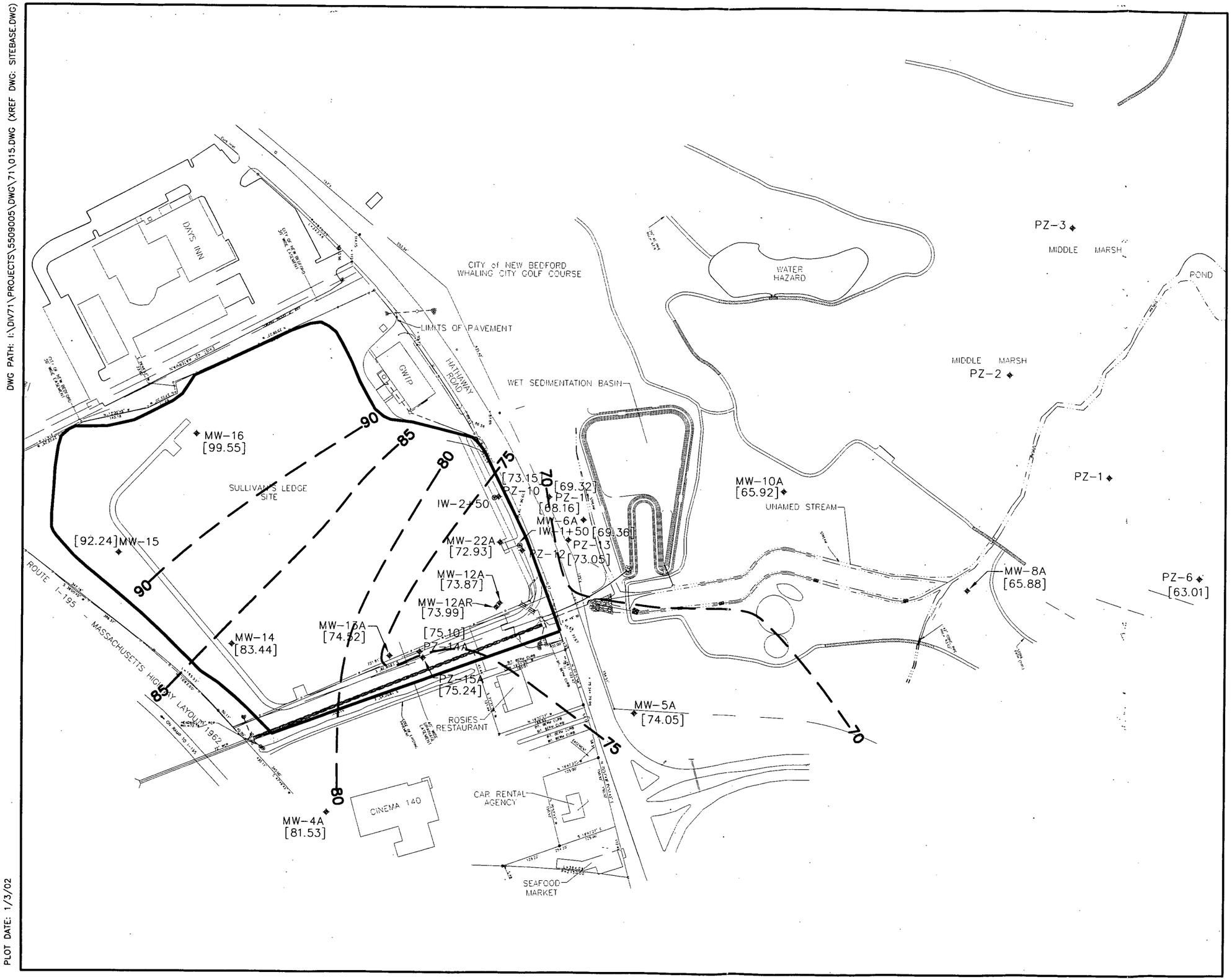
200 0 200

SCALE IN FEET

FILE NO. 5509.005-015
JANUARY 2002

O'BRIEN & GERE
ENGINEERS INC.

FIGURE–5



LEGEND

- MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- [63.48] GROUND WATER ELEVATION
- 70 EQUIPOTENTIAL CONTOUR LINE (DASHED WHERE INFERRED)

ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL

SULLIVAN'S LEDGE SUPERFUND SITE
NEW BEDFORD, MASS.

OVERBURDEN WELL GROUND WATER ELEVATION MAP (SEPTEMBER 2001)

200 0 200

SCALE IN FEET

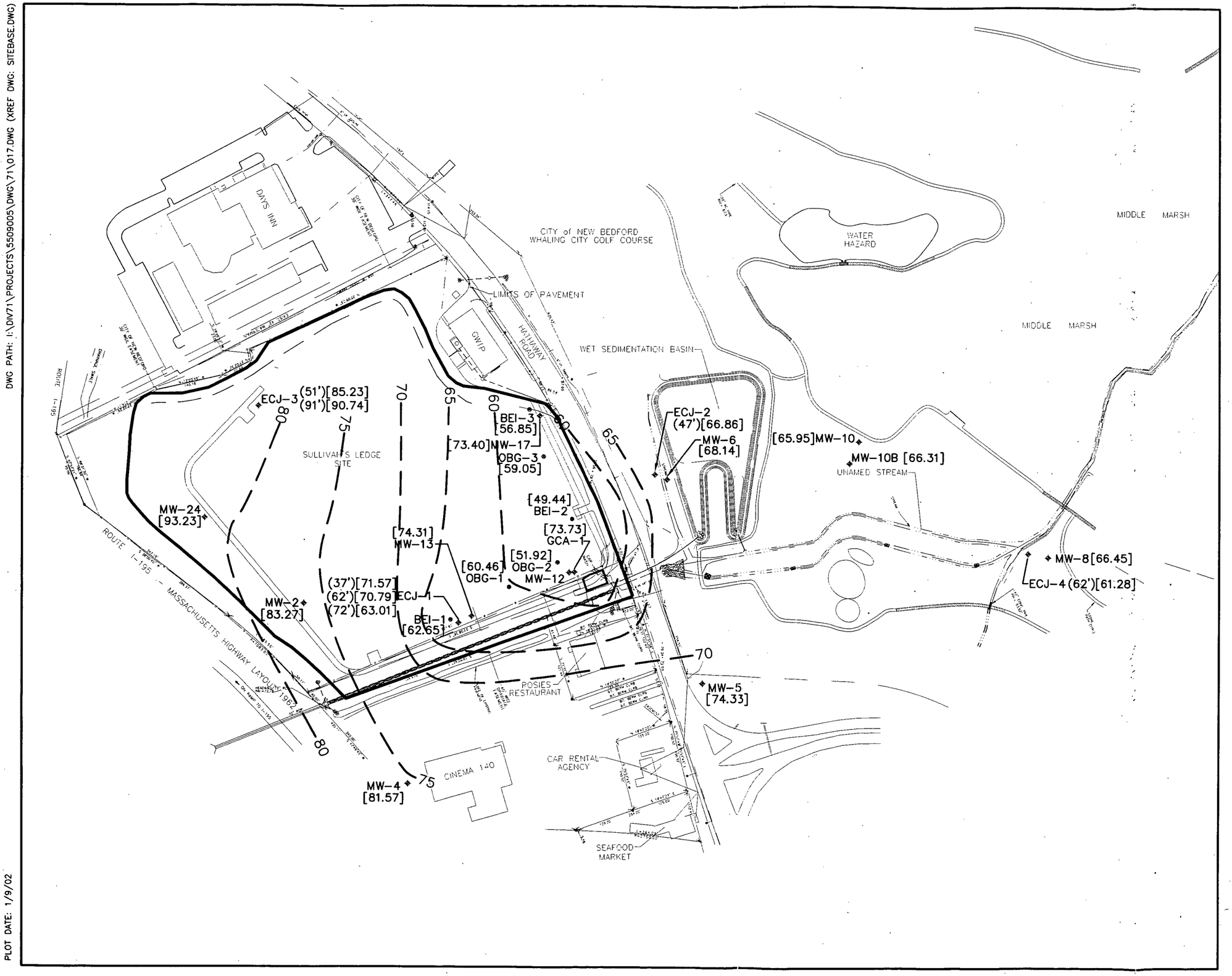
FILE NO. 5509.005–015
JANUARY 2002

O'BRIEN & GERE ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\015.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 1/3/02

FIGURE–6



LEGEND

- MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- [63.48] GROUND WATER ELEVATION
- 70 EQUIPOTENTIAL CONTOUR LINE (DASHED WHERE INFERRED)

ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL

SULLIVAN'S LEDGE SUPERFUND SITE NEW BEDFORD, MASS.

SHALLOW BEDROCK GROUND WATER ELEVATION MAP (SEPTEMBER 2001)

200 0 200

SCALE IN FEET

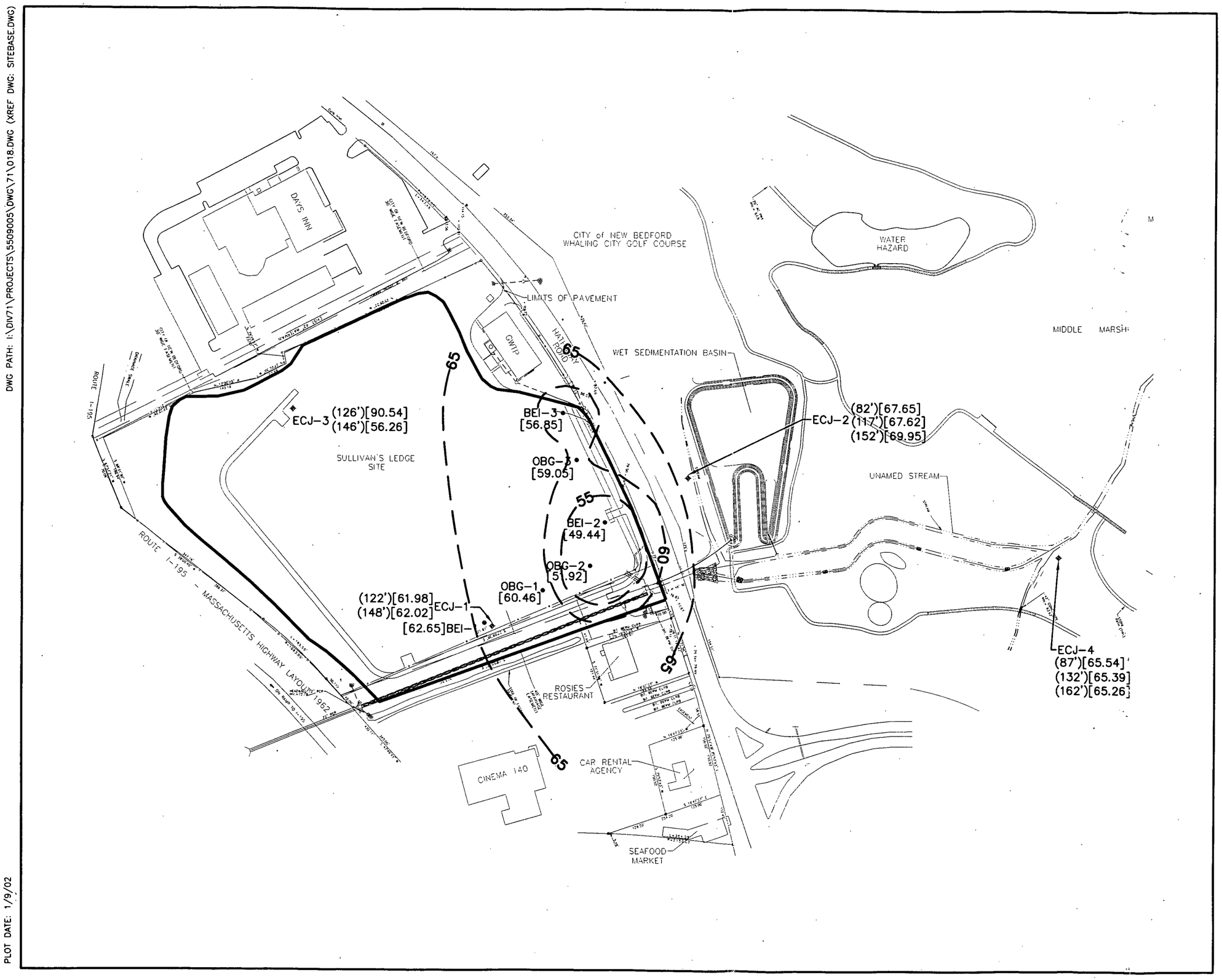
FILE NO. 5509.005–017
JANUARY 2002

O'BRIEN & GERE ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\017.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 1/9/02

FIGURE–7



LEGEND

- ECJ WELL LOCATION
- RECOVERY WELL LOCATION
- [65.54] GROUND WATER ELEVATION
- 65 EQUIPOTENTIAL CONTOUR LINE (DASHED WHERE INFERRED)

ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL

SULLIVAN'S LEDGE SUPERFUND SITE
NEW BEDFORD, MASS.

INTERMEDIATE BEDROCK GROUND WATER ELEVATION MAP (SEPTEMBER 2001)

200 0 200

SCALE IN FEET

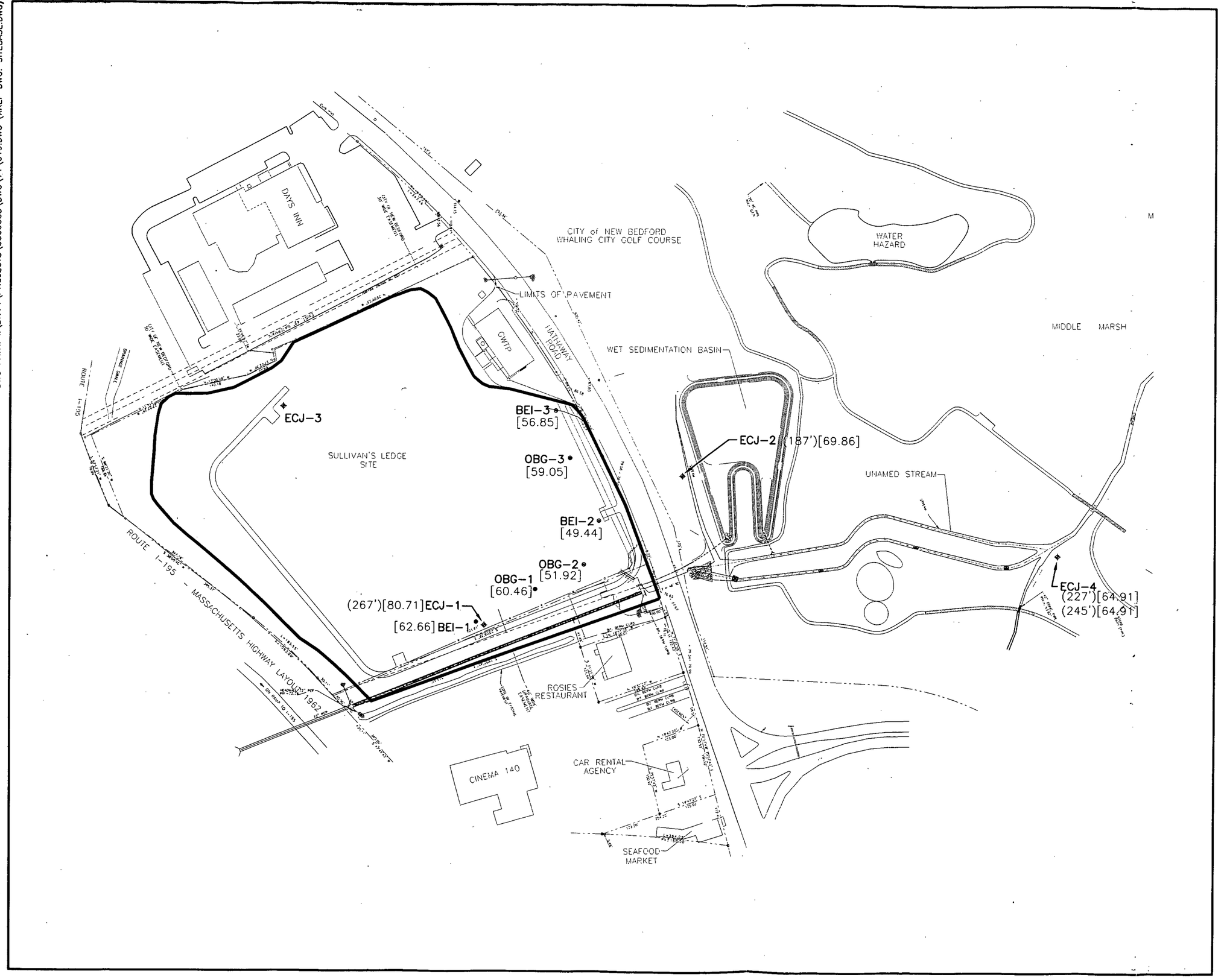
FILE NO. 5509.005–018
JANUARY 2002

O'BRIEN & GERE ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\018.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 1/9/02

FIGURE–8



LEGEND

- ECJ WELL LOCATION
- RECOVERY WELL LOCATION
- [59.05] GROUND WATER ELEVATION

ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL

SULLIVAN'S LEDGE SUPERFUND SITE
NEW BEDFORD, MASS.

DEEP BEDROCK GROUND WATER ELEVATION MAP (SEPTEMBER 2001)

200 0 200

SCALE IN FEET

FILE NO. 5509.005–019
JANUARY 2002

O'BRIEN & GERE ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\5509005\DWG\71\019.DWG (XREF DWG: SITEBASE.DWG)

PLOT DATE: 1/3/02

Appendix A

Correspondence

Mabbett & Associates, Inc.
Environmental Consultants & Engineers

5 Alfred Circle
Bedford, Massachusetts
01730-2346
Tel: (781) 275-6050
Fax: (781) 275-5651
info@mabbett.com
www.mabbett.com

March 14, 2001

Mr. David O. Lederer
Remedial Project Manager
Environmental Protection Agency (HBO)
Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Sullivan's Ledge Superfund Site
Spring 2001 Groundwater Sampling Event
O'Brien & Gere Engineers, Inc.
Syracuse, NY
Project No. 20015.01

Dear Dave:

On behalf of O'Brien & Gere Engineers, Inc., this letter presents clarifications and modifications to the January 2000 Field Sampling Plan for the Spring 2001 groundwater sampling event at the Sullivan's Ledge Superfund Site, and is consistent with my e-mail to you dated February 26, 2001.

Schedule: The Spring 2001 sampling event is scheduled for the weeks of March 19 and March 26, 2001, consistent with O'Brien & Gere's letter to EPA dated June 26, 2000.

Analytical Scope: The analytical scope for the Spring 2001 round will consist of an annual round. Samples from conventional wells and Westbay well ports will be analyzed for VOCs, PCBs, SVOCs, and metals. The scope of the metals analysis will be increased from RCRA 8 metals to TAL metals. The modifications to the program recommended in O'Brien & Gere's June 26, 2000 letter will not be implemented.

Filtering of Samples for Metals: Samples will be collected for total metals analysis only. As we discussed, this approach is consistent with Massachusetts Contingency Plan Guidance. (See MCP Master Q&A 1993-1997 #Q164 "Water to be collected from a tap should not be filtered, nor should water collected with a low flow sampling pump that is designed to minimize turbidity...").

Laboratory: Laboratory analysis for the project will be completed by Alpha Analytical, Inc. (Alpha). On March 12, 2001, O'Brien & Gere forwarded to EPA Alpha's Laboratory Quality Assurance Manual, and a letter from Alpha dated March 7, 2001 which summarizes laboratory reporting limits and standard laboratory control limits.

ECJ-3: ECJ-3 is the upgradient Westbay well. This well was found plugged during the 1999/2000 sampling event. HLA has indicated that it has removed the blockages, but was unable to remove a 50-ft rod which had been used for clearing from the lower portion of the well (approximately 210 ft from top of casing). At a minimum, the rod will preclude sampling the lower two ports of the well. HLA has been requested to videotape the well, to evaluate well integrity and the potential for getting Westbay sampling equipment hung up in the well. Based on the above, ECJ-3 will not be sampled until the well is videotaped and found to be suitable for sampling. We will keep you apprised of the situation.

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Serving the Environmental Health and Safety Needs of Industry, Commercial Enterprise and Public Agencies

Project Organization: Samples will be collected by Mabbett & Associates, Inc. The overall project organization will be as follows:

Title	Name	Firm
Project Coordinator:	James R. Heckathorne, PE	OBG
Project Manager:	James M. O'Loughlin, PE, LSP	M&A
Project Hydrogeologist:	Guy A. Swenson, CPG	OBG
Data Validator:	Melissa S. Listman	OBG
Site Manager:	Melissa A. Smith	M&A
Health & Safety Officer:	Gregory C. Guimond	M&A
Sampling Personnel:	Melissa A. Smith	M&A
	Gregory C. Guimond	M&A
	Darren J. Andrews	M&A
	Ryan E. Hill	M&A
	Theodore A. Nawn	M&A

We appreciated the opportunity to discuss the program with you on March 1, 2001, and look forward to completing it. Please contact Jim Heckathorne or me if we can provide any additional information.

Very truly yours,

MABBETT & ASSOCIATES, INC.

BY:

James M O'Loughlin

James M. O'Loughlin, P.E., LSP
Senior Project Manager

JMO/tw

cc: S. Wood, E. Bertaut, R. Connors, D. Allen, D. Buckley, D. Dwight, R. Carey, J. Johnson, M. Wade, J. Heckathorne, M. Listman, G. Swenson

DJA, GCG, REH , JMO, TAN, MAS, (MF/RF)

df: JEB, DAC, ANM, PDS

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J:\USERS\ADMINA\20015\LEDERER-07.DOC

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March 16, 2001

Mr. David O. Lederer
Remedial Project Manager
Environmental Protection Agency (HBO)
Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Sullivan's Ledge Superfund Site
Health and Safety Plan
O'Brien & Gere Engineers, Inc.
Syracuse, NY
Project No. 20015.01

Dear Dave:

To complete the groundwater, landfill gas, and surface water/sediment sampling at Sullivan's Ledge, Mabbett & Associates, Inc. will be adopting the Health & Safety Plan developed by O'Brien & Gere for that purpose (provided to EPA on July 30, 1999). This plan was reviewed by M&A and found to be acceptable, subject to the following updates and clarifications:

Project Organization (Update to Section 1.4 and Table 1.1)

Title	Name	Telephone
Project Management Committee	Steven B. Wood	401-421-0398
Project Coordinator	James R. Heckathorne, PE	315-437-6100
Project Manager	James M. O'Loughlin, PE	781-275-6050
Technical Director of Environmental Health*	Ronald S. Ratney, Ph.D, CIH	781-275-6050
Site Health and Safety Coordinator	Gregory C. Guimond	781-275-6050
Field Team Leader	Melissa A. Smith	781-275-6050
Field Team Member	Darren J. Andrews	781-275-6050
Field Team Leader	Ryan E. Hill	781-275-6050
Field Team Member	Theodore A. Nawn	781-275-6050

* Will assume duties delineated for Associate for Health and Safety

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Protective Equipment (Modification to Sections 2.2 and 4.2)

Gloves: Nitrile inner gloves will be used in place of latex inner gloves.

Boots: For Level D, Modified Level D, and Modified Level C, footwear will consist of leather steel toe boots with rubber overboots. Because site soils have been remediated, and due to the slip hazard associated with mud and snow, disposable outerboots (i.e., tyvek booties) will not be worn.

Respirators: If the during groundwater sampling the concentration of VOCs in the breathing zone is 25 parts per million (ppm) above background, as measured by a PID, the well will be capped and the Project Manager will be contacted before upgrading to full face air purifying respirators with organic vapor cartridges.

Emergency Telephone Numbers (Update to Table 9-1)

Agency	Phone
Ambulance	911
St Lukes Hospital (General)	(508) 997-1515
St Lukes Hospital (Emergency Room)	(508) 961-5388
New Bedford Fire Department	(508) 991-6100
New Bedford Police Department	(508) 991-6340
New Bedford Public Works Department (Robert Carey, City Project Coordinator)	(508) 979-1527
Sullivan's Ledge Groundwater Treatment Plant	(508) 961-3160
U.S. Environmental Protection Agency (David Lederer, USEPA Project Manager)	(617) 918-1325
Massachusetts Department of Environmental Protection (Dorothy Allen, MADEP Project Manager)	(617) 292-5795
State Poison Center	(800) 682-9211
State Police	(617) 523-1212
State Emergency Response	(888) 304-1133
National Emergency Response	(800) 424-8802
Mabbett & Associates, Inc.	(800) 877-6050

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Map to Hospital (Update to Figure 9-1)

An updated map to St Luke's hospital is attached.

Personal Training (Modification to Section 3.2)

Replace text in Section 3.2 with the following:

On-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations must have completed 40 hours of initial training, three days of supervised field experience, and at least 8 additional hours of specialized training.

Medical Surveillance Program (Modification to Section 5.1)

Replace text in Section 5.1 with the following:

All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year; who wear a respirator for 30 days or more a year; or are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation are subject to the medical surveillance requirements outlined herein.

Medical examinations and consultations shall be made available by the employer to each employee prior to assignment; at least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate; at termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months; as soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits or published exposure levels in an emergency situation; or at more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.

For employees who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used, medical examinations and consultations shall be made available as soon as possible following the emergency incident or development of signs or symptoms and at additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.

Please contact the undersigned if you have any comments or if we can provide any further information.

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Very truly yours,

MABBETT & ASSOCIATES, INC.

BY:

James M O'Loughlin

James M. O'Loughlin, P.E., LSP
Senior Project Manager

JMO/tw

cc: S. Wood, E. Bertaut, R. Connors, D. Allen, D. Buckley, D. Dwight, R. Carey, J. Heckathorne

DJA, GCG, REH , JMO, TAN, RSR, MAS, (MF/RF)

df: JEB, DAC, ANM, PDS

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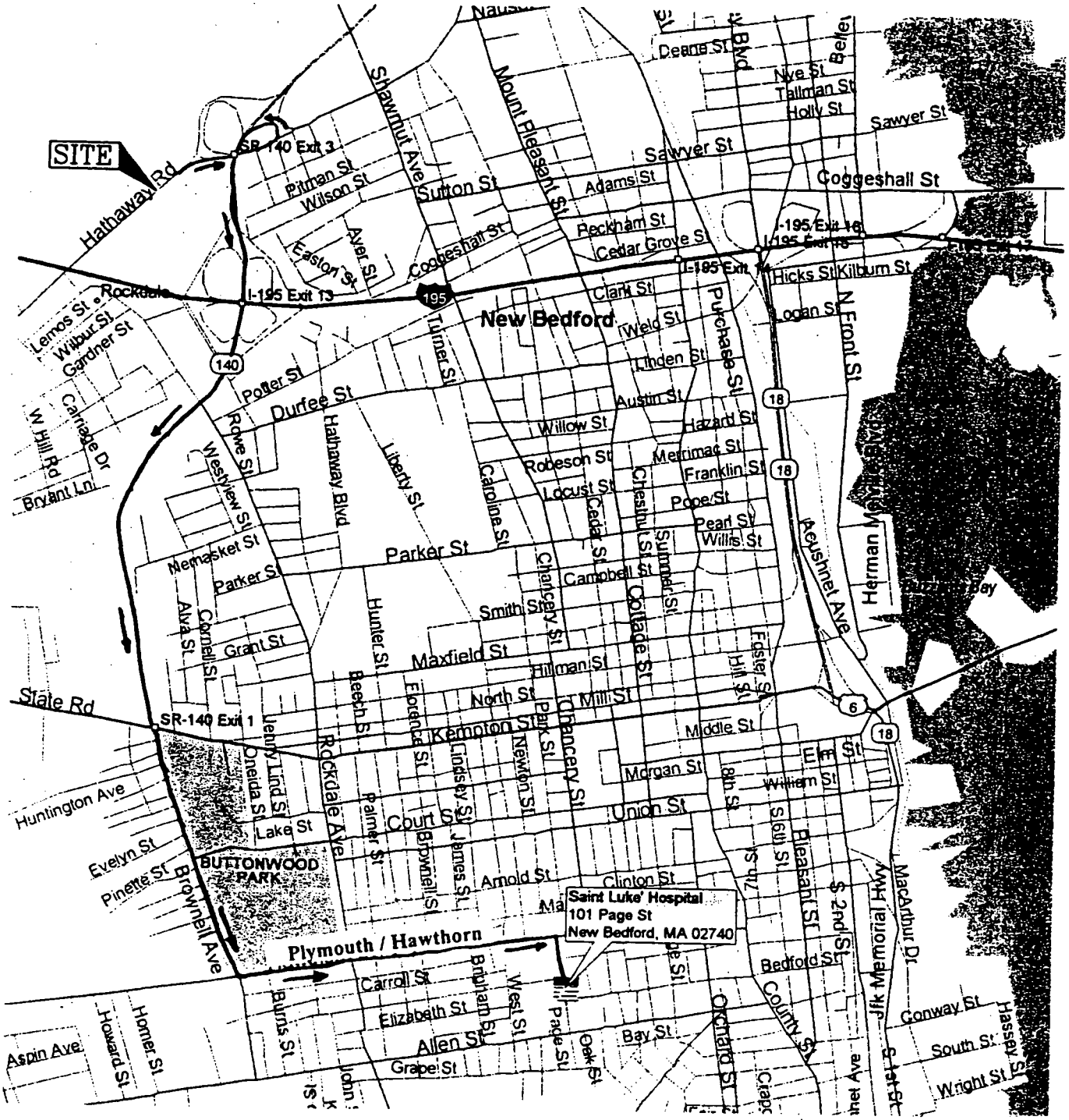

Directions to Saint Luke's Hospital, 101 Page Street, New Bedford, Ma.

Take Route 140 south. Continue straight onto Brownall Avenue, at the 140/Route 6 intersection. Turn left after Buttonwood Park, onto Plymouth. Follow Plymouth for approximately 0.9 miles to Page Street. Turn right onto Page St., and travel 1 1/2 blocks to Saint Luke's Hospital (on your right). The route described also has signs to assist in locating Saint Luke's Hospital.

SULLIVAN'S LEDGE NEW BEDFORD, MASSACHUSETTS	SAINT LUKE'S HOSPITAL DIRECTION MAP	DWG NO. M-1
Mabbett & Associates, Inc. Environmental Consultants & Engineers	SCALE: AS NOTED / DR BY: DJA DATE: 3/15/01 / AP BY: JMO	PROJ NO. 20015.07

O'BRIEN & GERE
ENGINEERS, INC.

May 18, 2001

Mr. David O. Lederer
Remedial Project Manager
Environmental Protection Agency (HBO)
Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Sullivan's Ledge Superfund Site
Groundwater Monitoring
File: 5509.005 #2

Dear Dave:

In March 2001, Mabbett & Associates, Inc. (M&A) collected groundwater samples at the Sullivan's Ledge Superfund Site (i.e., Spring 2001 Round). The results of the analysis, performed by Alpha Analytical Labs, were received on May 4, 2001, and will be validated during the last two weeks of May. The purpose of this letter is to provide you with an initial summary of the results, and to recommend the analytical program for the upcoming Summer 2001 Round, which is scheduled for June 2001.

Summary of Results

Collection Trench and Bedrock Recovery Wells

On March 21, 2001, the shallow collection trench and the six bedrock recovery wells were sampled from the groundwater treatment plant taps. The results are summarized on Table 1. Although the results are generally consistent with previous rounds conducted on December 15, 2000, January 27, 2001, and June 29, 2001, some observations of the data are as follows:

- The concentrations of organic constituents appear to be declining in bedrock recovery well BEI-2;
- The concentration of PCBs in the collection trench and four of the recovery wells (i.e., OBG-2, BEI-1, BEI-2, BEI-3) were lower for the March 2001 round than the June 2000 round. There appears, however, to be a gradual increase in PCB concentration in recovery well OBG-1.
- The concentration of TCE appears to be declining in four bedrock recovery wells (i.e., OBG-2, OBG-3, BEI-2, BEI-3).

These observations are primarily provided as points of interest. None of these observations are significant enough to warrant a revision to the recovery strategy, or modification to groundwater treatment plant operation.

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and offices in major U.S. cities

Groundwater Monitoring Wells

A summary of groundwater monitoring data from the Spring 2001 round is presented on Table 2. For comparative purposes, the results from the Winter 1999 round are also presented. Although the results of the two rounds are generally consistent, some observations of the data are as follows:

- In the Set A and C wells, the concentrations of total VOCs detected during Spring 2001 tended to be lower than those detected during Winter 1999, with the exception of two intermediate bedrock wells.
- In the Set B wells, the concentrations of total VOCs detected in some wells during Spring 2001 tended to be slightly higher than those detected during Winter 1999. The change, however, if present, is slight, and may be due to variability (seasonal or temporal) in the data.
- In the Set D wells, the concentrations of total VOCs detected were consistent between the two events, and were low.
- During Spring 2001, PCBs were detected in only 5 of 20 on-site wells, and 0 of 22 off-site wells. The highest concentrations of PCBs detected continue to be in MW-24.
- Consistent with previous sampling events, SVOCs in Spring 2001 were generally not detected or were detected in very low concentrations relative to VOCs.

As with the recovery data, these observations are primarily provided as points of interest. None of these observations are significant enough to warrant a revision to the recovery strategy, or modification to groundwater treatment plant operation.

Recommended Summer 2001 Program

O'Brien & Gere first proposed modifications to the groundwater monitoring program on June 26, 2000, based on the Winter 1999 baseline round. A copy of this letter is attached for your convenience.

Some of the issues presented in this letter were as follows:

Groundwater Treatment Plant Operability:

Site groundwater quality has bearing on treatment plant operability (i.e., consistency of groundwater quality with the basis of design, and capability of the groundwater treatment plant to meet discharge limitations).

A review of groundwater treatment plant operational logs indicates that between the Winter 1999 Baseline Round and the Spring 2001 Annual Round, the groundwater treatment plant has treated over 18 million gallons of groundwater. Moreover, the

treatment plant has operated relatively continuously since March 2000. Data concerning groundwater treatment plant operation was provided to EPA on August 25, 2000 and in greater detail on April 30, 2001. The conclusions of these evaluations have been that influent groundwater quality is consistent with the basis of design, and that the groundwater treatment plant is capable of meeting discharge limitations. Moreover, no trends in the data have been observed that would change these conclusions.

VOCs as a Broad Indication of Ground Water Contamination

VOCs continue to be broad indication of groundwater contamination, and based on mobility, continue to be a good indicator of potential changes in off-site migration patterns. A review of Table 2 confirms that at no well during either sampling event were PCBs or SVOCs detected without the co-detection of VOCs.

Infrequent Detection of PCBs and SVOCs

A review of Table 2 confirms that PCBs and SVOCs continue to be detected infrequently and in low concentrations relative to VOCs. As indicated above, during the Spring 2001 Round, PCBs were detected in only 5 of 20 on-site wells, and 0 of 22 off-site wells. Similarly, during the Spring 2001 Round, SVOCs were only detected in 12 of 42 wells. Analysis for these constituents on a quarterly basis in every groundwater monitoring well continues to be overly conservative and resultant in data of little pragmatic use.

Metals

A comprehensive list of TAL metals were analyzed in Spring 2001. The results are still being evaluated. None-the-less, metals will continue to factor into remedial decisions only for overburden wells, as they pertain to surface water quality.

In summary, the data collected over the past year corroborates the evaluation and conclusions of the June 26, 2000 letter.

O'Brien & Gere's proposal to modify the groundwater sampling program was discussed during the November 30, 2000 project meeting. At that meeting, USEPA expressed concern that site constituents may become re-distributed as a result of groundwater recovery efforts. A comparative review of the Winter 1999 data to the Spring 2001 data indicates no significant changes in groundwater quality, other than a general potential decline in total VOC concentrations in Sets A and C, and a potential increase in VOC concentration in some Set B wells, despite the fact that over 18 million gallons of groundwater had been extracted over that period.

Based on these observations, O'Brien & Gere proposes that the Summer 2001 round of groundwater sampling be consistent with that proposed in the June 26, 2000 letter, as summarized on Table 2. However, in recognition of the potential increases occurring in some of the Set B wells, as well as the fact that wells 10, 10A, and 10B were not sampled during Winter 1999, O'Brien & Gere proposes augmenting the list, as also shown on Table 2. The proposed program will result in the sampling of 32 wells and Westbay ports, which remains a significant effort.

We appreciate your consideration of this proposal. In order that we may undertake the Summer 2001 Round on or close to schedule, we would also appreciate your prompt review of this letter. Please call me or Jim O'Loughlin of Mabbett & Associates, Inc., if you have any comments on this letter, or if we can provide any additional information.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC

James R. Heckathorne, PE
Vice President

cc:

S. Wood	D. Allen	R. Carey	G. Swenson
E. Bertaut	D. Dwight	M. Wade	J. O'Loughlin
R. Connors			

TABLE 2
SULLIVAN'S LEDGE SUPERFUND SITE
GROUNDWATER ANALYSIS
ORGANIC COMPOUND SUMMARY[1]
PROPOSED ANALYTICAL PROGRAM FOR SUMMER 2001 ROUND[2]

Monitoring Well	Location		Total Volatile Organic Compounds (ug/l)			Total PCBs (ug/l)			Total Semivolatile Organic Compounds (ug/l)			TAL Metals	
	Set[3]	Group	Winter 1999	Spring 2001	Summer 2001	Winter 1999	Spring 2001	Summer 2001	Winter 1999	Spring 2001	Summer 2001	Spring 2001	Summer 2001
MW - 16	B	Overburden	5.1	ND	XX	0.90	ND	XX	ND	ND		Yes	XX
MW - 15	B	Overburden	14.5	126.9	XX	1.50	3.70	XX	8.8	6.0		Yes	XX
MW - 14	B	Overburden	639.5	965.0	XX	0.83	ND	XX	91.6	63.1		Yes	XX
ECJ-3 (51)	B	Shallow Bedrock	NS	15.0		NS	ND		NS	ND		Yes	
ECJ-3 (91)	B	Shallow Bedrock	NS	ND		NS	ND		NS	ND		Yes	
MW - 24	B	Shallow Bedrock	3843.3	6530.0	X	47.00	36.70	X	66.9	39.8		Yes	
MW - 2	B	Shallow Bedrock	3440.0	2181.0	XX	17.00	8.61	XX	134.6	47.5		Yes	
ECJ-3 (126)	B	Intermed Bedrock	NS	ND		NS	ND		NS	ND		Yes	
MW - 13A	A	Overburden	28.8	10.2	X	0.31	ND		ND	ND		Yes	X
MW-12AR	A	Overburden	NS	205.5	X	NS	ND		NS	47.9		Yes	X
MW - 22A	A	Overburden	1782.0	539.2	X	25.20	ND	X	2231.3	229.7		Yes	X
MW - 13	A	Shallow Bedrock	991.6	7.1	XX	0.26	ND		ND	ND		Yes	
MW - 17	A	Shallow Bedrock	36.4	1.2	X	ND	ND		15.0	ND		Yes	
MW - 12	A	Shallow Bedrock	104.1	NS	X	0.27	NS		25.8	NS		NS	
GCA - 1	A	Shallow Bedrock	13946.0	172.9	X	14.00	ND	X	247.4	26.6		Yes	
ECJ 1 (37)	A	Shallow Bedrock	2297.6	109.0	X	1.10	2.85	XX	36.1	ND		Yes	
ECJ 1 (62)	A	Shallow Bedrock	72950.1	9410.0	X	0.52	0.75	XX	118.0	ND		Yes	
ECJ 1 (72)	A	Shallow Bedrock	145337.1	26780.0	X	ND	ND		152.4	21.0		Yes	
ECJ 1 (122)	A	Intermed Bedrock	71911.5	8532.0	X	ND	ND		100.5	188.9		Yes	
ECJ 1 (148)	A	Intermed Bedrock	36477.2	74600.0	X	0.44	ND		109.4	182.6		Yes	
ECJ 1 (267)	A	Deep Bedrock	160.5	52.1	X	ND	ND		5.9	ND		Yes	
MW - 6A	C	Overburden	1835.1	314.5	X	0.12	ND	X	4.6	ND		Yes	X
MW - 4A	C	Overburden	1.8	ND	X	ND	ND		ND	ND		Yes	X
MW - 5A	C	Overburden	ND	ND	X	ND	ND		ND	ND		Yes	X
MW - 6	C	Shallow Bedrock	4837.2	2950.0	X	ND	ND		5.6	ND		Yes	
ECJ 2 (47)	C	Shallow Bedrock	2533.0	1920.0	X	ND	ND		3.2	ND		Yes	
MW - 4	C	Shallow Bedrock	1271.9	1034.2	X	ND	ND		ND	ND		Yes	
MW - 5	C	Shallow Bedrock	ND	6.8	X	ND	ND		ND	ND		Yes	
ECJ 2 (82)	C	Intermed Bedrock	15942.0	16080.0	X	ND	ND		4.4	ND		Yes	
ECJ 2 (117)	C	Intermed Bedrock	55380.0	29730.0	X	ND	ND		8.8	ND		Yes	
ECJ 2 (152)	C	Intermed Bedrock	400.4	4594.0	X	ND	ND		ND	9.0		Yes	
ECJ 2 (187)	C	Deep Bedrock	3605.8	4440.0	X	ND	ND		2.6	9.8		Yes	
MW-10A	D	Overburden	NS	8.6	XX	NS	ND		NS	ND		Yes	X
MW - 8A	D	Overburden	ND	ND		ND	ND		ND	ND		Yes	
MW-10	D	Shallow Bedrock	NS	12.9	XX	NS	ND		NS	ND		Yes	
MW-10B	D	Shallow Bedrock	NS	13.6	XX	NS	ND		NS	ND		Yes	
MW - 8	D	Shallow Bedrock	ND	ND		ND	ND		ND	ND		Yes	
ECJ 4 (62)	D	Shallow Bedrock	0.6	ND		ND	ND		ND	ND		Yes	
ECJ 4 (87)	D	Intermed Bedrock	0.6	0.7		ND	ND		ND	ND		Yes	
ECJ 4 (132)	D	Intermed Bedrock	1.5	ND		ND	ND		ND	ND		Yes	
ECJ 4 (162)	D	Intermed Bedrock	16.7	11.8		ND	ND		3.5	ND		Yes	
ECJ 4 (227)	D	Deep Bedrock	7.0	4.3		ND	ND		ND	ND		Yes	
ECJ 4 (245)	D	Deep Bedrock	15.4	5.1		ND	ND		ND	ND		Yes	

Notes:

1. Winter 1999 samples collected by O'Brien & Gere Engineers, Inc. and analyzed by OBG Laboratories.
   Spring 2001 samples collected by Mabbett & Associates, Inc. and analyzed by Alpha Analytical, Inc.
2. "X" indicates analysis originally proposed in O'Brien & Gere Engineers, Inc. letter dated June 26, 2000 based on results of Winter 1999 Round.
   "XX" indicates additional proposed analysis.
3. Set A = Inside Disposal Area, immediately downgradient of disposal pit.
   Set B = Inside Disposal Area, immediately upgradient of disposal pit
   Set C = Outside Disposal Area, within 300 feet of Disposal Area.
   Set D = Outside Disposal Area, greater than 300 feet from Disposal Area (downgradient).

Prepared by Mabbett & Associates, Inc. for
O'Brien & Gere Engineers, Inc.
E:71\5509.005\2\table 28.xls

5/18/01

TABLE 1
SULLIVAN'S LEDGE SUPERFUND SITE
SUMMARY OF INFLUENT LABORATORY ANALYTICAL RESULTS[1]

	GROUND WATER COLLECTION TRENCH				RECOVERY WELL OBG-1				RECOVERY WELL OBG-2				RECOVERY WELL OBG-3				RECOVERY WELL BEI-1				RECOVERY WELL BEI-2				RECOVERY WELL BEI-3			
	Event #1	Event #2	Event #3	Event #4	Event #1	Event #2	Event #3	Event #4	Event #1	Event #2	Event #3	Event #4	Event #1	Event #2	Event #3	Event #4	Event #1	Event #2	Event #3	Event #4	Event #1	Event #2	Event #3	Event #4	Event #1	Event #2	Event #3	Event #4
Sample Date	12/15/99	1/27/00	6/29/00	03/21/01	12/29/99	1/27/00	6/29/00	3/21/01	12/29/99	1/28/00	6/29/00	3/21/01	12/29/99	1/27/00	6/29/00	3/21/01	(2)	1/27/00	6/29/00	3/21/01	12/29/99	1/27/00	6/29/00	3/21/01	12/29/99	1/27/00	6/29/00	3/21/01
PCBs (ug/l)	2.4	3.2	4.5	LT 0.50	3.7	4.9	10	29.6	5.9	7.6	5.3	1.01	LT 0.50	LT 0.50	LT 0.51	LT 0.50	(2)	2.0	5.2	0.953	8.2	7.8	3.0	LT 0.5	3.3	3.4	4.5	0.867
Benzene (ug/l)	110	110	140	90	290	380	LT 500	270	LT 500	LT 500	400	390	LT 500	66	LT 120	56	(2)	68	LT 500	LT 100	230	LT 250	LT 120	120	LT 5	LT 500	LT 250	LT 50
Toluene (ug/l)	70	190	53	LT 1.5	650	620	970	770	LT 500	LT 500	120	140	LT 500	36	LT 120	LT 75	(2)	360	990	960	2200	940	240	76	LT 5.0	LT 500	LT 250	LT 75
E-Benzene (ug/l)	12	12	21	3.8	750	610	920	720	LT 500	LT 500	86	140	LT 500	LT 25	LT 120	LT 50	(2)	700	1000	1100	4000	1700	430	290	6.7	LT 500	LT 250	LT 50
Xylene (ug/l)	16	16	23	12.1	LT 50	LT 50	LT 500	LT 100	LT 500	LT 500	LT 50	42	LT 500	LT 25	LT 120	LT 50	(2)	LT 50	LT 500	LT 100	87	LT 250	LT 120	LT 50	LT 5.0	LT 500	LT 250	LT 50
TCE (ug/l)	LT 0.5	LT 5.0	LT 5.0	1.4	4000	5400	7400	2100	670	540	350	82	7100	4300	1800	450	(2)	7500	17000	13000	3800	4200	800	160	14000	13000	7200	2600
1,2 DCE (ug/l)	1.9	LT 5.0	LT 5.0	3.1	26000	16000	13000	13000	19000	11000	3200	4800	9200	4900	3500	3600	(2)	21000	11000	12000	77000	30000	8400	7400	590	1400	2900	3400
V Chloride (ug/l)	LT 1.0	LT 10	LT 10	LT 2.0	1200	820	LT 1000	550	2300	1100	390	430	LT 1000	180	LT 250	180	(2)	850	LT 1000	490	8200	3900	1000	840	17	LT 1000	LT 500	LT 100
Chlorobenzene (ug/l)	100	120	110	72	LT 50	LT 50	LT 500	LT 350	LT 500	LT 500	220	250	LT 500	44	LT 120	LT 180	(2)	LT 50	LT 500	LT 350	80	LT 250	LT 120	LT 180	LT 5.0	LT 500	LT 250	LT 180
Chloroform (ug/l)	LT 0.50	LT 5.0	LT 5.0	LT 1.5	LT 50	LT 50	LT 500	LT 150	LT 500	LT 500	LT 50	LT 38	LT 500	LT 25	LT 120	LT 75	(2)	LT 50	LT 500	LT 150	LT 50	LT 250	LT 120	LT 75	LT 5.0	LT 500	LT 250	LT 75
Acetone (ug/l)	LT 10	LT 100	LT 100	LT 10	LT 1000	LT 1000	LT 10000	LT 1000	LT 10000	LT 10000	LT 1000	LT 250	LT 10000	LT 500	LT 2500	LT 500	(2)	LT 1000	LT 10000	LT 1000	LT 1000	LT 5000	LT 2500	LT 500	LT 100	LT 10000	LT 5000	LT 500
Acrolein (ug/l)	NA	NA	LT 5.0	LT 25	NA	NA	LT 500	LT 2500	NA	NA	LT 50	LT 620	NA	NA	LT 120	LT 1200	(2)	NA	LT 500	LT 2500	NA	NA	LT 120	LT 1200	NA	NA	LT 250	LT 1200
Arsenic (mg/l)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	(2)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	0.012	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005
Cadmium (mg/l)	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	(2)	LT 0.01	LT 0.01	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005	LT 0.01	LT 0.01	LT 0.01	LT 0.005
Chromium (mg/l)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01
Chromium (VI) (mg/l)	LT 0.02	LT 0.01	NA	NA	LT 0.01	LT 0.01	NA	NA	LT 0.01	LT 0.01	NA	NA	LT 0.01	LT 0.01	NA	NA	(2)	LT 0.01	NA	NA	LT 0.01	LT 0.01	NA	NA	LT 0.01	LT 0.01	NA	NA
Copper (mg/l)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	0.03	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01
Cyanide (mg/l)	0.09	0.062	NA	NA	0.16	0.16	NA	NA	0.18	0.12	NA	NA	0.02	0.028	NA	NA	(2)	0.019	NA	NA	0.01	0.049	NA	NA	LT 0.01	LT 0.01	NA	NA
Iron (mg/l)	NA	86	79	83	NA	41	40	46	NA	71	74	73	NA	41	53	53	(2)	26	47	45	NA	55	210	58	NA	1.4	0.86	1.3
Lead (mg/l)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005	0.016	(2)	LT 0.005	LT 0.005	LT 0.005	LT 0.005	0.022	0.006	LT 0.005	LT 0.005	LT 0.005	LT 0.005	LT 0.005
Manganese (mg/l)	NA	1.8	1.4	1.8	NA	9.7	8.6	7.9	NA	6.9	5.8	6.5	NA	8.9	9.8	8.3	(2)	4.4	10	10	NA	9.2	7.9	7.8	NA	1.6	3.5	5.3
Mercury (mg/l)	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	(2)	LT 0.0002	NA	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005	LT 0.0002	LT 0.0002	NA	LT 0.0005
Molybdenum (mg/l)	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	(2)	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05	0.06	LT 0.05	LT 0.05	LT 0.05	LT 0.05	LT 0.05
Nickel (mg/l)	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	(2)	LT 0.05	LT 0.05	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025	LT 0.05	LT 0.05	LT 0.05	LT 0.025
Silver (mg/l)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	(2)	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01	LT 0.01
Zinc (mg/l)	LT 0.01	LT 0.01	0.01	0.07	LT 0.01	0.02	0.02	LT 0.05	LT 0.01	LT 0.01	LT 0.01	LT 0.05	LT 0.01	0.01	LT 0.01	0.15	(2)	LT 0.01	LT 0.01	0.06	LT 0.01	LT 0.01	LT 0.01	LT 0.05	0.01	0.02	0.01	0.14
SVOC'S (ug/l)	63	70	NA	73.1	79	55	NA	122.5	217	255	NA	371.3	ND	18	NA	16	(2)	68	NA	67.9	101	72	NA	74.2	ND	ND	NA	ND
Pesticides	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	(2)	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA

Notes
1. Samples for events 1, 2, and 3 collected by OBG Operations and analyzed by OBG Laboratories.
   Samples for event 4 collected by Mabbett & Associates, Inc and analyzed by Alpha Analytical Labs
2. Well inoperative on day of sampling
3. TTO less than 2000 ug/l
4. Constituent specific
5. ND = Not Detected
6. NA = Not Analyzed
7. LT = Less Than

Compiled by Mabbett & Associates, Inc for
O'Brien & Gere Engineers, Inc
20015Table 1

6/15/2001

REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

June 22, 2001

RECEIVED
JUN 2 9 2001
MABBETT & ASSOCIATES

Mr Jim Heckathorne
O'Brien and Gere Engineers
OU 1 Project Coordinator
Sullivan's Ledge Superfund Site
PO Box 4873
5000 Brittonfield Parkway
Syracuse, NY 13221

Re: Response to May 18, 2001 request to modify Sullivan's Ledge GW Monitoring Program

Dear Jim:

Thank you for your letter dated May 18,2001 in which you requested modification of the groundwater monitoring program for the Sullivan's Ledge Site on behalf of the Sullivan's Ledge group.

I have discussed this matter with both Steve Wood and Jim O'Loughlin and agreed that the semi-volatile constituents can be deleted from this round of sampling (Summer 2001) because they are less mobile than other constituents, have not been found in very high concentrations, and the resulting data are not related to performance standards for operation of the groundwater treatment plant. I have discussed this modification with Bob Carey of the City of New Bedford and he has no objections to this change. EPA, after consultation with the MA DEP has determined that the SVOC sampling for the summer 2001 round is not required per Section V.C.2(h) of the OU I Statement of Work.

However, at this time EPA can not approve the remainder of the proposal to scale back the monitoring protocol as specified in the SOW.

In addition, EPA and DEP would like to discuss the identification of the OU1 and O&M CD points of compliance for groundwater with the Sullivan's Ledge Site Group and the City of New Bedford. Any future plan for modifying the monitoring program should take into consideration these compliance points and the need for determination of eventual compliance with the groundwater performance standards.

Please let me know if you wish to discuss this matter by calling me at 617-918-1325.

Sincerely,

David O. Lederer
Remedial Project Manager

cc: Jim O'Loughlin, Mabbett and Associates
Bob Carey, CNB
Steve Wood, OU I PMC
Dorothy M. Allen, MA DEP
Edgard Bertaut, OU I PMC Chairman
Don Dwight, M&E
Leann Jensen, EPA

Mabbett & Associates, Inc.
Environmental Consultants & Engineers

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July 20, 2001

Mr. David O. Lederer
Remedial Project Manager
Environmental Protection Agency (HBO)
Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Sullivan's Ledge Superfund Site
Summer 2001 Groundwater Sampling Event
O'Brien & Gere Engineers, Inc.
Syracuse, NY
Project No. 20015.01

Dear Dave:

On behalf of O'Brien & Gere Engineers, Inc., the purpose of this letter is to confirm our conversations on July 10, 11 and 12 concerning the analysis of certain Sullivan's Ledge groundwater samples for PCBs.

In order to maintain the long-term seasonal schedule, the Summer 2001 round of groundwater sampling was initiated on June 13, 2001, prior to meeting with USEPA regarding O'Brien & Gere's letter dated May 18, 2001, which had requested revisions to the scope of the program. Wells for which no program revisions were proposed were sampled first. Samples from the remaining wells were collected for PCB and metals analysis and were placed on hold pending USEPA's final decision concerning the scope of the analytical program.

The scope of the analytical program was discussed with USEPA, MADEP, and Metcalf & Eddy on June 18, 2001 and again on June 20, 2001. During the June 20 conference call, USEPA made a final decision concerning the scope of the analytical program, and indicated that although SVOCs could be deleted from the Summer 2001 sampling event, PCBs and metals could not. This decision was summarized in a USEPA letter dated June 22, 2001. Mabbett & Associates, Inc. (M&A) contacted the laboratory (Alpha Analytical Labs) on June 19 requesting extraction of PCB samples to avoid missing the seven day holding time, and again on June 21 to indicate that the samples should be analyzed.

Laboratory data packages became available for review during the week of July 2, 2001. On July 6, data received to date was reviewed by M&A, and it was discovered that certain samples had not been analyzed for metals and PCBs. On July 10, the laboratory confirmed that PCB and metal samples collected on June 18 had not been analyzed; on July 11, the laboratory confirmed that PCB and metal samples collected on June 15 had not been analyzed. It became apparent as a result of the discussions that the laboratory was tracking the work on a batch basis versus a site-wide basis, and that the laboratory understood the instructions to extract and analyze to only apply to samples collected on June 13 and 14 (which were provided to the lab in one batch), and not to samples collected on June 15 and June 18. As a result of the mis-understanding, samples from the following wells had not been analyzed for metals or PCBs: MW-4, MW-4A, MW-5, MW-5A, MW-6, MW-6A, MW-13, MW-13A, MW-10, MW-10A, MW-10B, MW-17, MW-22A, and ECJ-2 (187').

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On July 10, the laboratory was instructed to analyze all held samples for metals. However, the seven day holding time for PCBs had been exceeded. The situation was discussed with USEPA on July 10, and an offer was made to run the samples despite the lapsed holding time. On July 11, USEPA indicated by e-mail not to run the PCB samples with the lapsed holding time. On July 12, USEPA was informed of the final list of samples with lapsed holding times (i.e., 14 wells total as listed in the previous paragraph). As shown on the attached summary, 20 PCB samples have been collected and analyzed to date. Eight more samples will be collected from MW-8, MW-8A, and ECJ-4, which are the wells on the golf course between the 6th and 17th fairways, for a total of 28. With respect to these later wells, we have had discussions with the City of New Bedford concerning providing safe access to sample these locations and provided a proposal to temporarily relocate the tees on July 5, 2001. We are waiting for a response from the City and the golf course management. Our hope is to sample these wells as soon as possible.

A conference call was held with the laboratory on July 12 concerning the mis-understanding. It was agreed that additional measures would be taken in the future to coordinate sample tracking and analysis, including the provision of site-wide work lists, tracking analytical progress on a site-wide basis, and the use of written instructions (e.g., e-mail). Based on these corrective measures, we do not anticipate a re-occurrence of this problem.

We appreciate your attention to this matter. Please contact me or Jim Heckathorne at O'Brien & Gere if we can provide any further information.

Very truly yours,

MABBETT & ASSOCIATES, INC.

BY:

James M. O'Loughlin, P.E., LSP
Senior Project Manager

JMO/tw

cc: S. Wood, E. Bertaut, R. Connors, D. Allen, D. Buckley, D. Dwight, J. Occhialini, K. O'Brien, R. Carey, J. Heckathorne

JMO, MAS, (MF/RF)

df: ANM, DAC, PDS

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Sullivan's Ledge Site Group
Project Management Committee

Stephen Wood
272 West Exchange Street, Suite 101
Providence, RI 02903
Telephone (401) 421-0398 Ext. 130
Fax (401) 421-5731
swood@essgroup.com

November 1, 2001

Mr. David O. Lederer
Remedial Project Manager
Environmental Protection Agency
Region 1
1 Congress Street, Suite 1100, (HBO)
Boston, MA 02114-2023

RE: Westbay Monitoring Well ECJ-3

Dear Mr. Lederer:

As you are aware, during the Baseline Groundwater Monitoring sampling conducted in the winter of 1999, monitoring well ECJ-3 was found to be blocked by an obstruction. Harding ESE, at the PMC's request, attempted to ascertain the nature of the blockage and to remove it. As described in the attached memo from Harding ESE dated October 17, 2001, they were able to clear the well to a depth of approximately 221 feet. During the September 2001 sampling event, Mabbett & Associates was able to sound the well to a depth of 235 feet and sample the upper four ports.

O'Brien & Gere, at the request of the PMC, reviewed the information available regarding ECJ-3 and provided the attached letter dated October 18, 2001. Based on their review, O'Brien & Gere has recommended for a number of reasons outlined in their letter, no further action be taken to clear the well and that replacement is not warranted or justified.

After review of the above correspondence from Harding ESE and O'Brien & Gere, the PMC is in agreement with O'Brien & Gere's recommendation and therefore plans no further action to clear monitoring well ECJ-3 or to replace the well.

Please feel free to call me at (401) 421-0398 extension 130 if you have any questions.

Sincerely:

Stephen Wood
Project Management Committee

Attachment

cc: R. Connors - PMC
J. O'Loughlin – M&A
E. Bertaut - PMC
J. Heckathorne - OBG Syracuse
E. Vaughan, DEP
G. Olson, Esq.- P&D

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O'BRIEN & GERE
ENGINEERS, INC.

October 18, 2001

Mr. Stephen B. Wood
Sullivan's Ledge Site Group
c/o ESS
272 West Exchange Street, Suite 101
Providence, RI 02903

Re: Sullivan's Ledge Superfund Site
Westbay Monitoring Well ECJ-3
File: 5509.005 #2

Dear Steve:

We are writing concerning the attached recommendation from Harding-ESE concerning Westbay monitoring well ECJ-3.

As you are aware, ECJ-3 is located in the southwest corner of the Disposal Area, and is an upgradient well. The upper casing of this well was extended by approximately 12 ft during construction of the Disposal Area cap. Historically, six ports in ECJ-3 have been monitored. Approximate port depths, both before and after casing extension, are as follows:

Port Depth (ft)	
Prior to Extension	Current Depth
51	63
91	103
126	138
146	158
236	248
271	283

As discussed in the report entitled "Post-Construction Baseline Ground Water Sampling Event" (O'Brien & Gere, April 2000), it became apparent during the winter of 1999 that ECJ-3 had been blocked by an obstruction. As described in the attached memorandum dated October 17, 2001, Harding-ESE has made multiple attempts to clear the obstruction, with the result that on July 18, 2001, Harding-ESE indicated that ECJ-3 was clear to depth of approximately 221 ft, but that a 50-ft rod with a length of rope remained lodged in the well.

Mabbett & Associates, Inc. (M&A) sounded the well on September 18, 2001, and was able to sound to a depth of approximately 235 ft. Although M&A was able to sample the upper four ports during the Fall 2001 sampling event, the lower two ports of ECJ-3 were not clear for sampling. Note that because a string of Westbay sample bottles can vary in length from 3 to 6 ft, it would be necessary for ECJ-3 to be cleared to a depth of approximately 251 ft to be able to sample the next port.

O'Brien & Gere Engineers, Inc., an O'Brien & Gere company
5000 Brittonfield Parkway / P.O. Box 4873, Syracuse, New York 13221-4873
(315) 437-6100 / FAX (315) 463-7554 • http:// www.obg.com
. . . and offices in major U.S. cities

As discussed in Harding-ESE's memorandum, further efforts to clear the well do not appear feasible. Moreover, further efforts to clear the well could result in damage to the well, or in upper ports being blocked if the rod becomes re-lodged higher in the well during removal attempts. As indicated in past correspondence to EPA, because ECJ-3 is an upgradient well, and contains relatively low concentrations of site contaminants, it is unlikely that the data from ECJ-3 will be used to make remedial decisions. Based on these factors, O'Brien & Gere recommends that no further action be taken to clear ECJ-3. Further efforts, even if successful, would result in the generation of data of little, if any value. Likewise, replacement of the well is not warranted or justified.

Please contact me or Jim O'Loughlin (781-275-6050) if we can provide any additional information concerning this issue. Otherwise, please forward this recommendation to EPA.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

James R. Heckathorne, PE
Vice President

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Attachment

cc: E. Bertaut J. O'Loughlin
R. Connors G. Swenson

Harding ESE

Sullivan's Ledge #C47968
New Bedford MA

October 17, 2001

Memo

To: Jim Heckathorne
O'Brien & Gere

From: R. Travis Canon
Project Engineer R. Travis Canon

Subject: ECJ-3: Unknown Object, Pipe, and Rope in Well

On three different occasions, October 4, 2000, Feb-March 2001, and July 16-17, 2001, Harding ESE attempted to discover and remove an unknown object stuck in well ECJ-3 at 48-49 ft. Below is a bulleted list of these three attempts:

- On the first attempt, Harding mostly poked and prodded on the object with no noticeable effect in moving it. This attempt was mostly exploratory in nature.

- On the second attempt, Harding was successful in dislodging the object and pushing it to the bottom of the well. Techniques and tools used in combination to dislodge this object were down-hole video camera, flushing the well, banging on it, and finally using a ceramic bit welded onto 50 ft of ½-inch, threaded steel pipe used as a drill. Initially the object broke up, sank 20-30 ft, and jammed. With the 50 ft of pipe attached to nylon rope, the field crew chased the object to the bottom of the well. Unfortunately the ½-inch pipe stuck in the well at about 200 ft and again at 250 ft.

  Harding was unsuccessful in moving the pipe up or down and eventually snapped the rope with a backhoe, leaving the 50 ft of pipe and about 100 ft of rope at the bottom of the well. Afterwards, Harding was able to remove about 25 ft of rope in two days before ceasing work. Top of rope was estimated to be at 190-200 ft deep. ECJ-3 was video taped, transmittal T-190, to check for damage and blockages; none were observed.

- On the third attempt, Harding's main objective was to remove more rope in an effort to unblock a sampling port. The crew removed about 25-35 ft of rope, leaving top of rope at about 221 ft down the well. The 50 ft of pipe and about 45 ft of rope remain in the well.

In early October 2001, a Mabbett field crew sounded the well to a depth of approximately 235 ft.

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Harding does not believe it is feasible or productive to try to remove the steel pipe. The overlying rope is not strong enough to move it (even an inch), and the rope breaks into 5-8 ft pieces when pulled on by a backhoe. Even if the length of rope were removed, it would be difficult to latch onto the top of the eye bolt at the top of the pipe, due to the knots for the rope. Harding ESE is also concerned about the potential to damage the well by continuing to attempt to physically remove the pipe.

CC: Jim O'Loughlin, Mabbett
Jerry Johnson, Harding
ECJ-3 File

RTC: WinWord\Letter\ECJ3-EPA.doc 10/17/01

Appendix B

Ground Water Elevation Data

Mabbett & Associates, Inc.
Environmental Consultants & Engineers

5 Alfred Circle
Bedford, Massachusetts
01730-2346
Tel: (781) 275-6050
Fax: (781) 275-5651
info@mabbett.com
www.mabbett.com

December 7, 2001

Mr. James Heckathorne, P.E.
Vice President
O'Brien & Gere Engineers, Inc.
P.O. Box 4873
Syracuse, NY 13221

Re: Sullivan's Ledge Superfund Site
Groundwater Elevation Data **(Revised)**
O'Brien & Gere Engineers, Inc.
Syracuse, NY
Project No. 2000015.008

Dear Jim:

Mabbett & Associates, Inc. (M&A) collected groundwater elevation data at the Sullivan's Ledge Superfund Site at the conventional wells, Westbay wells, and recovery points on September 24, 2001 and September 26, 2001. This letter is a revision of our letter dated September 28, 2001, to reflect revised top of casing elevations for MW-5 and MW-5A, which apparently had been transcribed by SITEC, based on field observations by M&A on December 6, 2001.

Measured depths to groundwater for the conventional wells and the corresponding calculated groundwater elevations are shown on Table 1. Measurements and calculations for the Westbay wells are provided on Table 2. Groundwater elevations for recovery points are provided on Table 3. All groundwater elevations were calculated using survey information provided by HLA on August 10, 2001. Note that due to access issues, elevation data was not collected at PZ-1, PZ-2, and PZ-3, which are in the middle marsh.

Please call me if I can provide any further information, or if you have any questions concerning the collected data.

Very truly yours,

MABBETT & ASSOCIATES, INC.

BY:

James M. O'Loughlin, P.E., LSP
Senior Project Manager

JMO/tw

Enclosures: Table 1 – Groundwater Elevations – Conventional Wells
Table 2 - Westbay Well Groundwater Elevations
Table 3 – Groundwater Elevations – Recovery Points

cc: S. Wood G. Swenson R. Connors E. Bertaut
JMO, MAS (MF/RF)
df: DAC, PDS

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Table 1
Sullivan's Ledge Superfund Site
Groundwater Elevations - Conventional Wells

Well	Top of Casing Elevation	Reference Point	Source	Depth to Water	Date	Groundwater Elevation	Notes
GCA-1	84.06	Plastic Cap	SITEC 08/10/01	10.33	9/24/2001	73.73	(1)
MW-2	101.81	Plastic Cap	SITEC 08/10/01	18.54	9/24/2001	83.27	(1)
MW-4	90.17	Top pipe	SITEC 08/10/01	8.60	9/24/2001	81.57	
MW-4A	90.10	Top of PVC	SITEC 08/10/01	8.57	9/24/2001	81.53	
MW-5	82.79	Top pipe	SITEC 08/10/01	8.46	9/24/2001	74.33	
MW-5A	82.30	Top of PVC	SITEC 08/10/01	8.25	9/24/2001	74.05	
MW-6	73.81	Top pipe	SITEC 08/10/01	5.67	9/24/2001	68.14	
MW-6A	73.54	Top of PVC	SITEC 08/10/01	5.38	9/24/2001	68.16	
MW-7A	66.91	Top of PVC	SITEC 08/10/01				(5)
MW-8	69.97	Top pipe	SITEC 08/10/01	3.52	9/24/2001	66.45	
MW-8A	70.00	Top of PVC	SITEC 08/10/01	4.12	9/24/2001	65.88	
MW-9A	66.53	Top of PVC	SITEC 08/10/01				(5)
MW-10	68.20	Top pipe	SITEC 08/10/01	2.25	9/24/2001	65.95	
MW-10A	70.54	Top of PVC	SITEC 08/10/01	4.62	9/24/2001	65.92	
MW-10B	68.35	Top pipe	SITEC 08/10/01	2.04	9/24/2001	66.31	
MW-12	83.91	Top of PVC	SITEC 08/10/01	NA			(2)
MW-12A	84.15	Top of PVC	SITEC 08/10/01	10.28	9/24/2001	73.87	
MW-12AR	85.04	Top of PVC	SITEC 08/10/01	11.05	9/24/2001	73.99	
MW-13	89.49	Plastic Cap	SITEC 08/10/01	15.18	9/24/2001	74.31	(1)
MW-13A	89.48	Top of PVC	SITEC 08/10/01	14.96	9/24/2001	74.52	
MW-14	101.46	Top of PVC	SITEC 08/10/01	18.02	9/24/2001	83.44	
MW-15	112.31	Top of PVC	SITEC 08/10/01	20.07	9/24/2001	92.24	
MW-16	120.55	Top of PVC	SITEC 08/10/01	21.02	9/24/2001	99.53	
MW-17	92.56	Top of PVC	SITEC 08/10/01	18.76	9/24/2001	73.80	
MW-22A	85.00	Top of PVC	SITEC 08/10/01	12.07	9/24/2001	72.93	
MW-24	112.23	Plastic Cap	SITEC 08/10/01	19.00	9/24/2001	93.23	(1)
PZ-1	66.73	Top of PVC	SITEC 08/10/01				(4)
PZ-2	65.91	Top of PVC	SITEC 08/10/01				(4)
PZ-3	65.91	Top of PVC	SITEC 08/10/01				(4)
PZ-5/WP-5	67.01	Top of PVC	SITEC 08/10/01				(5)
PZ-6	68.06	Top of PVC	SITEC 08/10/01	5.05	9/24/2001	63.01	
PZ-10	85.72	Top of PVC	SITEC 08/10/01	12.57	9/24/2001	73.15	
PZ-11	73.79	Top of PVC	SITEC 08/10/01	4.47	9/24/2001	69.32	
PZ-12	82.46	Top of PVC	SITEC 08/10/01	9.41	9/24/2001	73.05	
PZ-13	73.28	Top of PVC	SITEC 08/10/01	3.92	9/24/2001	69.36	
PZ-West (14A)	86.73	Top of PVC	SITEC 08/10/01	11.63	9/24/2001	75.10	
PZ-East (15A)	85.98	Top of PVC	SITEC 08/10/01	10.74	9/24/2001	75.24	
ECJ-1		Top of PVC	SITEC 08/10/01	-			(3)
ECJ-2		Top of PVC	SITEC 08/10/01	-			(3)
ECJ-3		Top of PVC	SITEC 08/10/01	-			(3)
ECJ-4		Top of PVC	SITEC 08/10/01	-			(3)

Notes:
1. Survey elevation is top of PVC cap associated with low flow equipment; depth to groundwater is from top of casing. As a result, actual groundwater elevation is 0.05 to 0.01 ft lower than shown.
2. No DTW measurement taken. Installed tubing prevents measurement.
3. See Table 2 for information on Westbay wells.
4. No measurement taken. Wells were not visible due to high vegetation
5. No measurement taken.

Table 2
Sullivan's Ledge Superfund Site
Westbay Well Groundwater Elevations

Well	Depth Log (ft)	Depth Cable (ft)	P_i (psi)(1)	P_o (psi)(1)	ΔH (ft)	D_{MP} (ft)(1)	D_z (ft)	E_{MP} (ft)(2)	PL (ft)(3)
ECJ-1	37	41	17.32	25.15	18.06	36.30	18.24	89.81	71.57
ECJ-1	62	66	28.23	35.72	17.28	36.30	19.02	89.81	70.79
ECJ-1	72	76	32.58	36.70	9.50	36.30	26.80	89.81	63.01
ECJ-1	122	126	54.35	58.02	8.47	36.30	27.83	89.81	61.98
ECJ-1	148	151	65.29	68.98	8.51	36.30	27.79	89.81	62.02
ECJ-1	267	271	117.52	129.31	27.20	36.30	9.10	89.81	80.71
ECJ-2	47	47	29.22	33.37	9.57	15.02	5.45	72.31	66.86
ECJ-2	82	82	44.45	48.94	10.36	15.02	4.66	72.31	67.65
ECJ-2	117	117	59.36	63.84	10.33	15.02	4.69	72.31	67.62
ECJ-2	152	152	73.87	79.36	12.66	15.02	2.36	72.31	69.95
ECJ-2	187	187	87.76	93.21	12.57	15.02	2.45	72.31	69.86
ECJ-3	51	63	14.75	29.94	35.04	70.55	35.51	120.74	85.23
ECJ-3	91	103	29.64	47.22	40.55	70.55	30.00	120.74	90.74
ECJ-3	126	138	44.89	62.38	40.35	70.55	30.20	120.74	90.54
ECJ-3	146	158	53.51	56.14	6.07	70.55	64.48	120.74	56.26
ECJ-4	62	62	32.14	40.12	18.41	23.72	5.31	70.59	65.28
ECJ-4	87	87	42.98	50.64	17.67	23.72	6.05	70.59	64.54
ECJ-4	132	133	62.65	70.68	18.52	23.72	5.20	70.59	65.39
ECJ-4	162	162	75.70	83.67	18.39	23.72	5.33	70.59	65.26
ECJ-4	227	225	103.75	111.57	18.04	23.72	5.68	70.59	64.91
ECJ-4	245	247	112.31	120.13	18.04	23.72	5.68	70.59	64.91

Notes:

1. Wells ECJ-1, ECJ-2, and ECJ-3 measured on September 24, 2001.
   Well ECJ-4 measured on September 26, 2001.
2. Top of casing provided by HLA on August 10, 2001.
3. Calculated by Mabbett & Associates, Inc. based on procedure provided by Westbay.

P_i = Pressure reading inside measuring port casing
P_o = Pressure reading outside measuring port casing
$\Delta H = (P_o - P_i)/w$ w=0.4335 psi/ft
D_{MP} = Depth to water inside monitoring port casing (below top of monitoring port)
D_z = Depth to static level for monitoring zone = $D_{MP} - \Delta H$
E_{MP} = Elevation of measuring port casing
PL = piezometric level = $E_{MP} - D_z$

Table 3
Sullivan's Ledge Superfund Site
Groundwater Elevations - Recovery Points

Recovery Point	Top of Casing Elevation	Reference Point	Source	Depth to Water	Date	Groundwater Elevation	Notes
BEI-1	91.40	Top Cover	SITEC 08/10/01	28.75	9/24/2001	62.65	(1)
OBG-1	88.96	Top Cover	SITEC 08/10/01	28.50	9/24/2001	60.46	(1)
OBG-2	85.65	Top Cover	SITEC 08/10/01	33.73	9/24/2001	51.92	(1)
BEI-2	88.06	Top Cover	SITEC 08/10/01	38.62	9/24/2001	49.44	(1)
OBG-3	90.56	Top Cover	SITEC 08/10/01	31.51	9/24/2001	59.05	(1)
BEI-3	92.71	Top Cover	SITEC 08/10/01	35.86	9/24/2001	56.85	(1)
SCTPS	86.02	Top, East Side	SITEC 05/10/99	12.45	9/24/2001	73.57	(2)
IW-E	84.32	Top of Casing	SITEC 08/10/01	17.84	9/24/2001	66.48	
IW-W	88.79	Top of Casing	SITEC 08/10/01	16.03	9/24/2001	72.76	

Notes:
1. Survey elevation is top of cover; depth to groundwater is from top of casing. As a result, actual groundwater elevation is 0.05 to 0.01 ft lower than shown.
2. SCTPS = Shallow Collection Trench Pump Station

Appendix C

Conventional Low-flow Ground Water Sampling

Low Flow Ground Water Sampling Log

Date	9/26/01	Personnel	TAD	Weather	
Site Name	Sullivans	Evacuation Method		Well #	GCA - 1
Site Location	New Bedford	Sampling Method		Project #	20015-09

Well information:

Depth of Well * _____ ft.

Depth to Water * 11.24 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	11.32	14.27	6.38	958	-76.7	-0.17	19.0	800
5	11.46	14.80	6.55	940	-75.6	-0.15	20.3	900
10	11.50	13.77	6.36	936	-87.2	-0.88	8.8	600
15	11.50	13.98	6.37	936	-88.3	-0.80	4.5	600
20	11.50	13.97	6.37	948	-88.4	-0.74	4.7	600
25	11.48	13.96	6.36	949	-88.2	-0.76	4.2	550
30	11.48	13.97	6.36	938	-87.7	-0.75	4.6	550
35	11.48	13.98	6.40	942	-88.6	-0.77	4.1	550
40	11.48	13.98	6.38	939	-88.2	-0.76	4.0	550

ater sample:

me collected: 13.30

Total volume of purged water removed: 7 gallons

Physical appearance at start
Color clear
Odor none
Sheen/Free Product none

Physical appearance at sampling
Color clear
Odor none
Sheen/Free Product none

mples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
1 Litre	Amber	2	N	None	PCB
500 ml	Plastic	1	N	HNO_3	TAL Metals
100 ml	Vial	2	N	HCl	VOCs

es:

April 25, 1997
Form developed by
O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	9/19/01	Personnel	MAS/JAD	Weather	Sunny
Site Name	Sullivan's	Evacuation Method	bladder pump	Well #	MW-2
Site Location	New Bedford	Sampling Method	Low Flow	Project #	2015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 18.66 ft. (Top of casing)

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	18.72	17.12	6.92	997	-115.6	4.44	20	200
5	18.72	14.97	6.70	905	-121.7	4.60	13	250
10	18.74	14.47	6.63	879	-117.8	3.89	12	250
15	18.74	14.23	6.60	871	-116.6	4.48	11	200
20	18.74	14.11	6.59	866	-118.5	4.25	11	250
25	18.74	14.00	6.58	865	-116.4	3.95	8.9	250
30	18.74	13.91	6.59	863	-116.2	4.40	9.2	250
35	18.74	14.11	6.61	866	-117.7	4.21	10	250

Water sample:

Time collected: 1530

Total volume of purged water removed: 4 gallons

Physical appearance at start
- Color: Slight orange
- Odor: Slight organic
- Sheen/Free Product: none

Physical appearance at sampling
- Color: clear
- Odor: Slight organic
- Sheen/Free Product: None

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 mL	(VOC) VIAL	2	N	HCL	
1 L	(BNA) AMBER	2	N	None	
0.5 L	(Metals) PLASTIC	1	N	HNO_3	

Notes:

April 25, 1997
Form developed by
O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	9-20-01	Personnel	JHD MKS	Weather	
Site Name	Sullivan's Ledge	Evacuation Method	Bladder Pump	Well #	MW-4
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20015-09

Well information:

Depth of Well * _____ ft.

Depth to Water * 9.46 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	9.48	14.67	6.66	418	-2.1	6.89	4.72	250
10	9.50	13.69	6.57	529	-38.5	3.34	1.87	275
15	9.50	13.64	6.60	505	-54.2	5.35	1.68	250
20	[illegible]	13.55	6.64	443	-57.9	7.12	1.36	250

Water sample:

Time collected: 9.30

Total volume of purged water removed: 2 gallons

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
100ml	VOA	2	N	HCL	
1 L	Amber	2	N	None	
0.5 L	Plastic	1	N	HNO_3	

Notes:

April 25, 1997
Form developed by
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Low Flow Ground Water Sampling Log

Date	9/20/01	Personnel	MAS/JAD	Weather	Dull
Site Name	Sullivans	Evacuation Method	Bladder Pump	Well #	MW-4A
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20015-07

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	NA	15.04	6.16	913	-40.3	4.19	2.19	375
5		15.00	6.11	878	-39.8	2.26	1.67	375
10		15.00	6.10	882	-39.6	2.46	1.53	300
15		15.03	6.09	875	-38.9	1.77	1.77	300
20		15.05	6.05	865	-38.1	2.00	1.99	200

Water sample:

Time collected: 845

Total volume of purged water removed: 2.5

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
1L	Glass Amber	2	n	n	PCB's
0.5L	Plastic	1	n	HNO3	metals
40 mL	Amber vial	2	n	HCl	VOC's

Notes:

Water level cannot be taken due to obstruction at 9 feet

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Form developed by
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Low Flow Ground Water Sampling Log

Date	9/20/01	Personnel	MAS/JAD	Weather	
Site Name	Sullivan's	Evacuation Method	Bladder Pump	Well #	MW-5
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20215.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 9.04 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0.	9.04	17.00	6.49	1120	2887	1.95	1.89	300
5	9.36	14.14	7.00	1057	264.3	1.85	1.60	300
10	9.36	13.94	7.07	1051	249.3	0.88	1.18	300
15	9.92	13.90	7.12	1050	239.6	1.38	1.01	300
20	10.26	13.94	7.14	1050	[illegible]	1.73	1.21	300

Water sample:

Time collected: 12:00

Total volume of purged water removed: 2.5 gallons

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
100 mL	[illegible]	2	[illegible]	[illegible]	
0.5L	[illegible]	1	[illegible]	[illegible]	
1 L	[illegible]	2	[illegible]	[illegible]	

Notes:

April 25, 1997
Form developed by
O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	9-20-01	Personnel	TAD/MAS	Weather	
Site Name	Sullivan's Ledge	Evacuation Method	Bladder Pump	Well #	MW-5A
Site Location	New Bedford	Sampling Method	Low Flow	Project #	2E015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 8.92 ft. PVC

Length of Water Column _____ ft. 9.36 Steel casing

* 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	9.58	16.84	5.94	1067	178.6	2.63	3.39	300
5	9.60	16.15	5.63	1072	209.1	2.03	1.88	400
10	9.62	16.12	5.61	1083	217.8	4.27	1.27	400
15	9.64	16.11	5.61	1088	225.6	2.12	1.17	400
20	9.62	16.11	5.60	1088	231.2	1.58	0.92	400

Water sample:

Time collected: 11.00

Total volume of purged water removed: 3 Gallons.

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
1L	Amber Glass	6	N	N	RCB
0.5L	Plastic	3	N	HNO3	Metal
100 ml	Amber vial	6	N	HCl	VOC

Notes:

MS and MSD collected

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Low Flow Ground Water Sampling Log

Date	9/20/01	Personnel	MAS/TAD	Weather	
Site Name	Sullivans	Evacuation Method	Bladder Pump	Well #	MW-6
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 6.04 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	6.12	13.86	6.64	797	-3[illegible].2	2.89	1.97	500
5	6.16	13.09	6.48	911	-35.6	7[illegible]	1.03	400
10	6.16	13.07	6.48	903	-36.6	3.70	1.20	400
15	[illegible]	13.01	6.48	[illegible]	[illegible]	5.[illegible]	1.32	400
20	6.18	13.01	6.48	902	-41.2	1.30	1.03	400

Water sample:

Time collected: 1445

Total volume of purged water removed: 3.5 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
100 ml	VIAL	2	N	HCL	VOC's
0.5 Litre	PLASTIC	1	N	HNO_3	TAL Metals
1 Litre	AMBER	2	N	None	PCB's

Notes:

Air [illegible]

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Low Flow Ground Water Sampling Log

Date	1-20-09	Personnel	MAS TAD	Weather	Light Rain
Site Name	Sullivan's Ledge	Evacuation Method	Bladder Pump	Well #	MW-6A
Site Location	Near Bedford	Sampling Method	Low Flow	Project #	2015

Well information:

Depth of Well * _____ ft.

Depth to Water * 6.48 ft. Top of casing

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	6.58	15.78	6.34	1143	9.1	3.56	4.56	450
5	6.58	15.24	6.28	1143	-7.3	2.02	2.27	450
10	6.58	15.25	6.28	1146	-11.4	4.64	[illegible]	400
[illegible]	6.58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.70	[illegible]
20	6.58	15.29	6.28	1145	-16.1	4.40	1.37	350
25	6.58	15.29	6.28	1146	-17.2	3.46	1.17	400
30	6.58	15.29	6.28	1149	-18.1	3.10	1.05	450

Water sample:

Time collected: 1530

Total volume of purged water removed: _____

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
100ml	VOA	2	N	HCl	VOCs
500ml	Amber	2	N	None	PCBs
1 Liter	Plastic	1	N	HNO_3	Total Metals

Notes:

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Form developed by
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Low Flow Ground Water Sampling Log

Date	9/25/01	Personnel	JAD	Weather	
Site Name	Sullivans Ledge	Evacuation Method		Well #	MW-8
Site Location	New Bedford	Sampling Method		Project #	20015.09.

Well information:

Depth of Well * _____ ft.

Depth to Water * 3.49 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	3.50	13.46	6.89	998	94.0	0.23	61.9	350
5	3.50	13.52	6.75	999	38.5	0.02	30.7	350
10	3.51	13.46	6.70	991	53.4	0.01	43.2	350
15	3.51	13.48	6.67	980	62.3	-0.02	88.8	350
20	3.51	13.08	6.66	974	66.4	-0.01	153	375
25	3.51	13.01	6.66	967	79.7	-0.01	160	375
30	3.51	13.10	5.54	954	98.7	-0.01	115	400
35	3.53	13.90	6.63	938	115.6	-0.01	83.7	375
40	3.53	13.04	6.62	956	123.5	0.00	58.9	375
45	3.53	12.85	6.60	94[illegible]	136.0	0.00	37.3	375
50	3.53	13.04	6.59	947	146.1	0.00	27.9	400
55	3.53	12.94	6.50	944	155.0	0.00	23.8	400
60	3.53	12.00	6.67	944	167.0	0.00	21.1	400

Water sample:

Time collected: 9:23

Total volume of purged water removed: 8 gallons.

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
500ml	Plastic	1	N	HNO3	Metals
1 ltr	Amber	2	N	None	PCB's
100ml	Vial	2	N	HCl	VOC's

Notes:

April 25, 1997
Form developed by
O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	9/26/01	Personnel	JAD / MAS	Weather	
Site Name	Sullivans'	Evacuation Method		Well #	MW-8A.
Site Location	New Bedford	Sampling Method		Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 6.06 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	6.25	15.32	6.27	729	176.2	-0.01	265	550
5	7.08	15.08	6.16	816	162.0	0.06	190	[illegible]
10	7.72	14.93	6.10	861	172.2	0.01	135	500
15	7.81	14.78	6.04	895	190.2	0.00	142	450
20	7.60	14.67	6.01	903	209.4	0.00	156	500
25	7.82	14.55	6.00	872	222.3	0.01	170	500
30	7.65	14.89	5.99	948	235.0	0.07	139	500
35	7.66	14.39	5.97	917	242.9	0.10	88	500
40	7.96	14.39	6.00	894	250.5	0.01	53.3	500
45	7.40	14.63	5.96	939	265.0	0.01	50.2	550
50	7.57	14.52	5.97	904	268.3	0.01	61.1	400
55	7.41	14.52	5.96	925	273.3	0.01	51.7	400
60	7.39	14.50	5.94	924	278.9	0.01	54.5	400

ater sample:

me collected: 11:00

Total volume of purged water removed: 9 gallons

Physical appearance at start

Color: clear

Odor: none

Sheen/Free Product: none

Physical appearance at sampling

Color: clear

Odor: none

Sheen/Free Product: none

mples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
500ml	PLASTIC	~~3~~ 2	N	HNO_3	TAL Metals
1 Litre	AMBER	~~3~~ 4	N	None	PCB's
100ml	VIAL	~~3~~ 4	N	HCL	VOC's

es:

Duplicate #4 collected here

April 25, 1997
Form developed by
O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	9-27-01	Personnel	MAS, JAD	Weather	70°F Sunny
Site Name	Sullivan's Ledge	Evacuation Method	Bladder Pump	Well #	MW-10
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 1.99 ft. top of PVC cap

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	1.99	14.20	6.61	693	120.9	3.53	75	550
5	2.00	12.14	6.43	703	65.9	0.82	36	450
10	2.00	12.01	6.21	708	70.9	2.92	23	400
15	2.00	11.93	6.16	707	75.3	1.60	20	400
20	2.01	11.95	6.16	709	76.8	0.89	19	400
25	2.01	11.85	6.16	704	77.4	2.26	18	400
30	2.01	11.86	6.17	706	77.6	1.69	18	400
35	2.01	11.81	6.18	707	76.7	2.06	18	450
40	2.01	11.83	6.19	707	75.2	2.65	16	400
45	2.01	11.79	6.20	702	76.9	3.16	28	450
50	2.01	11.75	6.20	702	76.6	1.28	50	400
55	1.99	11.74	6.21	701	77.3	4.58	33	400
60	2.00	11.72	6.21	698	78.1	1.21	27	400

Water sample:

Time collected: 1045

Total volume of purged water removed: 8 gallons

Physical appearance at start
- Color: Slight orange
- Odor: none
- Sheen/Free Product: none

Physical appearance at sampling
- Color: slight orange
- Odor: none
- Sheen/Free Product: none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
1L	Glass Amber	2	n	n	PCBs
0.5L	plastic	1	n	HNO_3	metals
40mL	glass vial	2	n	HCl	VOCs

Notes:

April 25, 1997
Form developed by
O'Brien & Gere Engineers, Inc.

Low Flow Ground Water Sampling Log

Date	9/27/01	Personnel	MAS/JAD.	Weather	
Site Name	Sullivans	Evacuation Method		Well #	MW 10B
Site Location	New Bedford.	Sampling Method		Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 2.05 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	2.08	11.75	7.02	794	-72.9	1.45	off Scale	500
5	2.08	11.92	6.90	796	-74.9	0.84	29	350
10	2.08	11.97	6.78	791	-69.0	0.74	32	350
15	2.08	12.04	6.65	787	-56.4	1.13	25	350
20	1.99	12.19	6.56	756	-44.7	0.84	28	350
25	1.99	12.24	6.48	781	-32.6	0.72	30	325
30	1.99	12.27	6.39	780	-19.3	0.55	27	350
35	2.04	12.36	6.33	776	-7.7	3.20	26	350
40	2.07	12.33	6.27	779	3.0	0.50	25	350
45	2.07	12.38	6.25	774	7.1	0.93	29	350
50	2.07	12.37	6.23	779	10.9	0.65	23	350
55	2.07	12.33	6.18	775	16.5	0.59	26	350
60	2.07	12.39	6.17	769	18.4	1.63	24	350

Water sample:

Time collected: 9:20

Total volume of purged water removed: 7 gallons.

Physical appearance at start
- Color: brown
- 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.
1 Litre	Amber	2	N	None	PCB's
500ml	Plastic	1	N	HNO_3	~~TAL~~ Metals
100ml	Vial	2	N	HCl	VOC's

Notes:

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Low Flow Ground Water Sampling Log

Date	9/26/01	Personnel	JAD	Weather	
Site Name	Sullivans	Evacuation Method		Well #	MW-12AR
Site Location	New Bedford	Sampling Method		Project #	20015.08

Well information:

Depth of Well * _____ ft.

Depth to Water * 11.23 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	11.23	15.86	6.64	1030	-88.4	-0.53	5.3	600
5	11.23	15.55	6.60	1040	-94.9	-0.85	5.3	600
10	11.23	15.95	6.57	1023	-93.6	-0.88	4.7	400
15	11.23	16.09	6.56	1043	-91.0	-0.87	4.7	400
20	11.23	16.14	6.56	1043	-89.5	-0.85	4.6	400
25	11.23	16.13	6.53	1036	-88.2	-0.84	4.9	400
30	11.23	16.16	6.53	1040	-87.1	-0.83	4.8	400

Water sample:

Time collected: 1430

Total volume of purged water removed: 5 gallons

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
1 liter	Amber	2	N	None	PCB
500ml	Plastic	1	N	HNO_3	TAL Metals
100ml	Vial	2	N	HCl	VOCs

Notes:

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Low Flow Ground Water Sampling Log

Date	9/26/01	Personnel	JAD	Weather	
Site Name	Sullivans	Evacuation Method		Well #	MW-13
Site Location	New Bedford	Sampling Method		Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 15.11 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	15.12	16.39	6.62	677	-22.1	-0.13	3.1	900
5	15.13	13.51	6.11	673	-14.5	-0.31	2.4	450
10	15.15	13.91	6.07	676	-18.5	-0.36	3.11	450
15	15.14	13.88	6.06	674	-20	-0.34	2.7	500
20	15.14	13.83	6.06	674	-22.4	-0.31	2.9	500
25	15.14	13.88	6.05	679	-23.6	-0.29	2.8	500

Water sample:

Time collected: 1530

Total volume of purged water removed: 7 gallon

Physical appearance at start

Color: slight orange

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
100ml	Vial	2	N	HCl	VOC's
500ml	Amber	2	N	None	PCB's
1 Litre	Plastic	1	N	HNO3	Tot. Metals

Notes:

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Form developed by
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Low Flow Ground Water Sampling Log

Date	9/27/01	Personnel	MAS/TAD	Weather	
Site Name	Sullivans	Evacuation Method		Well #	MW-22A
Site Location	New Bedford	Sampling Method		Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 12.89 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	13.30	15.54	6.54	1292	-52.3	3.01	90	200
5	14.18	16.02	6.52	1382	-79.2	1.94	55	500
10	13.97	15.97	6.56	1411	-101.8	0.52	33	250
15	14.15	15.99	6.50	1377	-96.1	2.35	27	300
20	14.19	15.98	6.48	1419	-94.5	1.11	31	300
25	~~15.83~~ 14.37	15.83	6.47	1458	-97.0	1.31	18	350
30	14.40	15.70	6.49	1537	-105.8	0.99	23	350
35	14.50	15.71	6.49	1576	-111.7	0.96	19	400
40	14.54	15.65	6.47	1628	-116.4	0.81	18	400
45	14.54	15.67	6.47	1657	-121.5	0.93	17	400
50	14.65	15.60	6.46	1687	-126.4	0.53	20	400
55	14.65	15.58	6.46	1760	-130.9	0.85	18	400
60	14.65	15.56	6.45	1809	-131.1	0.66	17	

Water sample:

Time collected: 1245

Total volume of purged water removed: 8 gallons

Physical appearance at start
Color: clear/slightly brown
Odor: none
Sheen/Free Product: ~~none~~ sheen on collected water

Physical appearance at sampling
Color: clear/slightly brown
Odor: none
Sheen/Free Product: sheen

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	Vial	~~3~~ 4	N	HCL	VOCs
40ml	Amber	~~2~~ 4	N	None	PCBs
1 Litre	Plastic	~~1~~ 2	N	HNO3	TAL Metals

Notes:

Dup #5 collected here

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Low Flow Ground Water Sampling Log

Date	9/19/01	Personnel	MAS/TAD	Weather	Sunny
Site Name	Sullivan's	Evacuation Method		Well #	MW-24
Site Location	New Bedford	Sampling Method		Project #	205015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 19.10 ft. top of PVC cap

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	19.10	14.6	6.63	771	-69.5	14.37	100	600
5	19.30	12.88	6.34	781	-92.7	1.92		600
6								500
10	~~19.4~~ 19.4	13.72	6.30	798	-100.2	5.94	40	250
15	19.40	14.43	6.31	813	-99.5	5.16	24	400
20	19.42	14.17	6.29	807	-97.0	5.64	21	350
25	19.44	14.12	6.28	802	-95.2	5.25	28	400
30	19.45	14.17	6.29	799	-93.6	6.01	27	350
35	19.52	14.12	6.28	799	-94.5	7.54	25	400
40	19.52	14.08	6.29	795	-93.2	7.02	23	350
45	19.52	13.89	6.29	790	-92.2	5.49	45	400
50	19.54	13.98	6.29	790	-90.7	12.35	36	350
55	19.54	13.91	6.31	791	-90.7	3.59	45	400
60	19.54	14.02	6.32	796	-89.2	9.51	59	400

Water sample:

Time collected: 2:25 (labelled 13:30)

Total volume of purged water removed: 7 gallons

Physical appearance at start
- Color: light orange
- Odor: Organic Odor
- Sheen/Free Product: none

Physical appearance at sampling
- Color: slight orange
- Odor: organic
- Sheen/Free Product: none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
	(VOC) VIAL	2	N	HCL	
	(PCB) AMBER	2	N	None	
	(METALS) PLASTIC	1	N	HNO3	

Notes: Air bubbles in flow through cell — DO not stable

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Low Flow Ground Water Sampling Log

Date	9-21-01	Personnel	MAS/JAD	Weather	Cloudy 70°
Site Name	Sullivan's Lodge	Evacuation Method	Bladder Pump	Well #	13A
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 15.14 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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	15.40	15.56	6.20	692	-1.6	0.57	9.87	300
5	15.40	14.79	6.20	694	-6.2	0.41	3.35	450
10	15.38	14.64	6.20	690	-10.9	0.30	2.49	450
15	15.38	14.64	6.23	694	-14.3	0.35	3.36	400
20	15.40	14.60	6.22	693	-15.4	0.35	1.79	350
25	15.40	14.61	6.22	691	-16.5	0.29	2.19	350
30	15.40	14.59	6.23	694	-17.5	0.44	1.97	350

ater sample:

me collected: 1215

Total volume of purged water removed: 2.5 gallons

Physical appearance at start

Color: Clear

Odor: none

Sheen/Free Product: none

Physical appearance at sampling

Color: Clear

Odor: none

Sheen/Free Product: none

mples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
1 L	Glass Amber	2	n	n	PCB's
0.5 L	Plastic	1	n	HNO_3	Metals
100 mL	Vial	2	n	HCl	VOC's

es:

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Low Flow Ground Water Sampling Log

Date	9-21-01	Personnel	MAS, JAD	Weather	Cloudy, humid
Site Name	Sullivan's Ledge	Evacuation Method	Bladder Pump	Well #	MW-14
Site Location	New Bedford	Sampling Method	Low Flow	Project #	20095.09

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	NA	14.56	6.54	877	-59.7	4.88	2.54	400
5		14.39	6.39	874	-59.8	2.43	1.48	400
10		14.29	6.39	872	-61.4	1.23	1.64	300
15		14.25	6.39	870	-62.1	1.33	1.46	300
20		14.19	6.39	869	-63.1	1.00	1.43	300
25		14.17	6.39	868	-63.8	0.76	5.25	300
30		14.13	6.40	868	-64.7	0.57	4.64	300
35		14.13	6.40	868	-65.3	0.53	2.33	300
40		14.10	6.41	868	-65.5	0.69	3.01	300
45		14.08	6.42	868	-65.9	0.38	2.76	300

Water sample:

Time collected: 9:20

Total volume of purged water removed: 4.5 gallons

Physical appearance at start

Color: Clear

Odor: slight organic

Sheen/Free Product: None

Physical appearance at sampling

Color: Clear

Odor: Slight organic

Sheen/Free Product: None

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	~~Container pH~~
1L	glass Amber	2	n	n	PCB's
0.5L	Plastic	1	n	HNO_3	Metals
100mL	Vial	2	n	HCl	VOC's

Notes:

Water level could not be taken with available probe due to tubing connections in the well

April 25, 1997
Form developed by
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Low Flow Ground Water Sampling Log

Date	09/18/01	Personnel	MAS/JAD	Weather	
Site Name	Sullivan's	Evacuation Method		Well #	MW-15
Site Location	~~[illegible]~~ New Bedford.	Sampling Method		Project #	20015

Well information:

Depth of Well * _____ ft.

Depth to Water * 19.95 ft. (from PVC)

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	19.95	23.3	6.75	996	201.3	9.18	0.31	250
5	19.77	15.89	6.35	845	174.3	12.50	0.00	250
10	19.77	15.46	6.30	835	174.0	14.64	0.74	250
15	19.79	15.34	6.27	829	173.1	14.08	0.69	250
20	19.79	15.39	6.26	837	172.2	10.63	0.00	250

Water sample:

Time collected: 1400

Total volume of purged water removed: 2 gal

Physical appearance at start
Color: clear
Odor: slight organic
Sheen/Free Product: none

Physical appearance at sampling
Color: clear
Odor: slight organic
Sheen/Free Product: none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
1L	Plastic	1	n	HNO_3	Metals
1L	Glass Amber	2	n	~~HCl~~ none	PCB's
100mL	Vial	2	n	HCl	VOC's

Notes:

D.O. unsteady - bubbles in line

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Low Flow Ground Water Sampling Log

Date	9-18-01	Personnel	MAS, JAD	Weather	
Site Name	Sullivan's Ledge	Evacuation Method		Well #	MW-16
Site Location	New Bedford	Sampling Method		Project #	20015.09

Well information:

Depth of Well * _____ ft.

Depth to Water * 20.92 ft. PVC

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	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	20.94	16.85	6.02	914	366.0	3.40	1.13	~~350~~ 400
5	20.97	15.53	5.86	871	305.1	2.60	0.90	450
10	20.96	15.70	5.84	874	298.6	2.10	0.13	350
15	21.06	15.43	5.81	868	296.1	5.83	0.12	350
20	21.04	15.44	5.81	869	294.6	6.20	0.00	350

Water sample:

Time collected: 11:00

Total volume of purged water removed: 2.5 gal

Physical appearance at start
Color: clear
Odor: Slight Organic
Sheen/Free Product: none

Physical appearance at sampling
Color: clear
Odor: Slight organic
Sheen/Free Product: none

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
1L	Glass Amber	2	n	none	
1L	Plastic	1	n	~~HCl~~ HNO_3	
100ml Vial	Vial	2	n	HCl	

Notes:

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Form developed by
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Appendix D

Westbay Well Sampling Logs

Westbay Instruments Inc.

Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Ledge Date 09/1a/01
Monitoring Well No. ECT-1 Sampling Zone No. 37 Start Time ✓ End Time
Water Level In MP Casing: (start) (end) Technicians ~~NAAS/JAD~~ TAN/TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Position Sampler: Locate port release arm land probe	Sample Collection Checks: Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	Comments
1	✓	✓	✓	✓	✓	✓	✓	19.39	✓	24.60	✓	24.60	✓	✓	19.40	1L	
2	✓	✓	✓	✓	✓	✓	✓	~~19.39~~	✓	~~24.60~~	✓						
								(19.31)		(24.62)	✓	24.62	✓	✓	19.43	1L	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

Current Depth 41'
Sample Time 15:35

1 L PCB's
0.5L Metals
(2) 100mL VOCS

MXSAMPLE2.sam
Oct. 96

Westbay Instruments Inc.

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Ledge Date 09/19/01

Monitoring Well No. ECT-1 Sampling Zone No. 62 Start Time 13:50 End Time

Water Level In MP Casing: (start) (end) Technicians ~~MAS/FAD~~ TAN/LS

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Position Sampler: Locate port release arm land probe	Sample Collection Checks: Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	Comments
1	✓	✓	✓	✓	✓	✓	✓	30.41	✓	34.76	✓	34.68	✓	✓	30.41	1L	
2	✓	✓	✓	✓	✓	✓	✓	30.41	✓	34.76	✓	34.65	✓	✓	30.41	1L	
3	✓	✓	✓	✓	✓	✓	✓	30.38	✓	34.75	✓	34.67	✓	✓	30.39	1L	
4	✓	✓	✓	✓	✓	✓	✓	28.67	✓	34.75	✓	34.65	✓	✓	29.37	1/2L	
																	Total Volume 3.5L

Field Determinations (Appearance, pH,S.C.,etc.)

Current Depth 66'
Sample Time: 14:10

Duplicate #1 collected here
(2) 1L PCB's
(2) 0.5L metals
(4) 100mL VOC's

MXSAMPLE2.sam
Oct. 96

Westbay Instruments Inc.

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location Sullivans' Ledge Date 09/19/01
Monitoring Well No. EC5-1 Sampling Zone No. 72 Start Time 12:50 End Time 13:50
Water Level In MP Casing: (start)_____ (end)_____ Technicians ~~MAS/JAD~~ TAN/ES
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
	✓	✓	✓	✓	✓	✓	✓	34.85	✓	31.46	✓	31.42	✓	✓	34.86	1L	
	✓	✓	✓	✓	✓	✓	✓	34.32	✓	31.46	✓	31.43	✓	✓	34.33	1L	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

Current Depth 76'
Sample Time: 13:15

1 L PCB's
0.5L Metals
(2) 100mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivans Ledge Date 09/19/01
Monitoring Well No. ECJ-1 Sampling Zone No. 122 Start Time 11:15 End Time 12:40
Water Level In MP Casing: (start)_____ (end)_____ Technicians ~~[illegible]~~ TAN / TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	56.77	✓	51.74	✓	51.79	✓	✓	56.77	1L	
2	✓	✓	✓	✓	✓	✓	✓	56.75	✓	51.78	✓	51.76	✓	✓	56.75	1L	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

Current Depth 126'
Sample Time : 12:00 pm

1L PCB's
0.5L Metals
2(100mL) VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivans Ledge Date 09/19/01

Monitoring Well No. EC1-1 Sampling Zone No. 1 Start Time 10:00 End Time 11:30

Water Level In MP Casing: (start)_____ (end)_____ Technicians MAS/JAD

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Position Sampler: Locate port release arm land probe	Sample Collection Checks: Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	Comments
1	✓	✓	✓	✓	✓	✓	✓	67.94	✓	62.49	✓	59.31	✓	✓	67.95	0.25	
2	✓	✓	✓	✓	✓	✓	✓	67.88	✓	62.53	✓	62.45	✓	✓	67.86	1L	
3	✓	✓	✓	✓	✓	✓	✓	67.31	✓	62.53	✓	62.55	✓	✓	N/A	N/A	→ RERUN: VALVES ON SAMPLE CONTAINER NOT OPEN
4	✓	✓	✓	✓	✓	✓	✓	~~62.55~~	✓	62.55	✓	62.51	✓	✓	67.24	1L	
																	Total Volume 2.25L

Field Determinations (Appearance, pH,S.C.,etc.)

Current Depth 151'
Sample Time: 10:00

1 L PCB's
0.5 L Metals
2 (100 mL) VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Hedge Date 09/19/01
Monitoring Well No. CCJ-1 Sampling Zone No. 267 Start Time 8:30 End Time 9:30
Water Level In MP Casing: (start) — (end) 34.71 Technicians MAS/JAD
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Position Sampler: Locate port release arm land probe	Sample Collection Checks: Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (litre)	Comments
1	✓	✓	✓	✓	✓	✓	✓	120.28	✓	127.96	✓	127.33	✓	✓	120.30	1	
2	✓	✓	✓	✓	✓	✓	✓	120.24	✓	125.05	✓	127.18	✓	✓	120.27	1L	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

Current Depth 271
Sample Time: 08:45

1 L PCB's
0.5 L Metals
2 (100mL) VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location SULLIVAN'S LEDGE Date 9/21/01
Monitoring Well No. ECJ-2 Sampling Zone No. 47 Start Time 8:30 End Time
Water Level In MP Casing: (start) (end) Technicians TAN/TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	31.26	✓	33.25	✓	33.23	✓	✓	31.27	1L	
2	✓	✓	✓	✓	✓	✓	✓	30.60	✓	33.25	✓	33.23	✓	✓	31.27	1L	
3	✓	✓	✓	✓	✓	✓	✓	31.26	✓	33.26	✓	33.22	✓	✓	31.26	1L	
4	✓	✓	✓	✓	✓	✓	✓	31.25	✓	33.24	✓	33.22	✓	✓	31.24	1L	
5	✓	✓	✓	✓	✓	✓	✓	31.23	✓	33.23	✓	33.22	✓	✓	31.21	1L	
6	✓	✓	✓	✓	✓	✓	✓	30.21		33.81	✓	33.80	✓	✓	30.24	1/2L	
																	Total Volume 5.5L

Field Determinations (Appearance, pH,S.C.,etc.)

SAMPLE TIME: 08:45

(1)* MS - ECJ-2/47-MS
(1)* MS DUP - ECJ-2/47-MS DUP

(3) 1 L PCB's
(3) 0.5 L Metals
(6) 100 mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location SULLIVANS LEDGE Date 9/20/01
Monitoring Well No. EO-2 Sampling Zone No. 8a Start Time 14:20 End Time 15:15
Water Level In MP Casing: (start)_____ (end)_____ Technicians_____
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	46.68	✓	48.74	✓	48.33	✓	✓	46.67	1L	
2	✓	✓	✓	✓	✓	✓	✓	46.56	✓	46.63	✓	48.11	✓	✓	46.63	1L	
3	✓	✓	✓	✓	✓	✓	✓	46.60	✓	48.72	✓	48.20	✓	✓	46.63	1L	
4	✓	✓	✓	✓	✓	✓	✓	45.04	✓	48.69	✓	48.26	✓	✓	45.05	0.25L	
																	Total Volume 3.25L

Field Determinations (Appearance, pH,S.C.,etc.)

Collect Dup #2 Here
SAMPLE TIME: 15:00

(2) 1 L PCB's
(2) 0.5 L Metals
(4) 100 mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location SULLIVAN'S LEDGE Date 9/20/01

Monitoring Well No. EC-2 Sampling Zone No. 1 Start Time 13:30 End Time ~~15:00~~ 14:15

Water Level In MP Casing: (start)_____ (end)_____ Technicians TAN/TLS

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Position Sampler: Locate port release arm land probe	Sample Collection Checks: Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	Comments
1	✓	✓	✓	✓	✓	✓	✓	63.56	✓	63.57	✓	63.21	✓	✓	61.74	1L	
2	✓	✓	✓	✓	✓	✓	✓	63.54		63.54	✓	63.18	✓	✓	63.55	2/3L	
																	Total Volume 1 2/3 L

Field Determinations (Appearance, pH,S.C.,etc.)

Sample Time : 14:15

1L PCB's
0.5L Metals
(2) 100mL VOC's

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~~187~~
152
117
82
47

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location 152 SULLIVAN'S LEDGE Date 9/20/01
Monitoring Well No. ECI-2/152 Sampling Zone No. ~~ECI-2~~ Start Time 10:40 End Time 11:40
Water Level In MP Casing: (start)_____ (end)_____ Technicians TAN/TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	76.46	✓	77.31	✓	75.81	✓	✓	76.48	1L	
2	✓	✓	✓	✓	✓	✓	✓	77.45	✓	77.45	✓	76.45	✓	✓	76.47	1/2L	
																	Total Volume 1.5L

Field Determinations (Appearance, pH,S.C.,etc.)

Sampling Time :11:00

1 L PCB's
0.5 L metals
(2) 100 mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Ledge Date 9-20-01

Monitoring Well No. ECT-2 Sampling Zone No. 187' Start Time 900 End Time 1000

Water Level In MP Casing: (start)_____ (end)_____ Technicians TAN/JLS

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	91.64	✓	91.65	✓	90.37	✓	✓	90.65	1L	
2	✓	✓	✓	✓	✓	✓	✓	89.94	✓	91.27	✓	90.33	✓	✓	90.63	½L	
																	Total Volume 1.5L

Field Determinations (Appearance, pH,S.C.,etc.)

Sample time 10:00A

1L PCB's
0.5L metals
(2) 100mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location SULLIVAN'S LEDGE Date 9/18/01
Monitoring Well No. ECJ-3 Sampling Zone No. 51' Start Time 14:30 End Time 15:10
Water Level In MP Casing: (start)_____ (end)_____ Technicians TAN/TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
	✓	✓	✓	✓	✓	✓	✓	14.62	✓	29.87	✓	29.77	✓	✓	14.66	1	
	✓	✓	✓	✓	✓	✓	✓	14.57	✓	29.86	✓	29.77	✓	✓	14.66	1	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

SAMPLE TIME : 14:50

1 L PCB's
1.0 – 0.5 L metals
(2) 100mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location SULLIVAN'S LEDGE Date 9/18/01
Monitoring Well No. ECT-3 Sampling Zone No. 91' Start Time 13:20 End Time 14:00
Water Level In MP Casing: (start)_____ (end)_____ Technicians TAN / TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
	✓	✓	✓	✓	✓	✓	✓	31.40	✓	47.10	✓	47.07	✓	✓	31.44	1	
	✓	✓	✓	✓	✓	✓	✓	31.38	✓	47.10	✓	47.07	✓	✓	31.44	1	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

SAMPLE TIME: 13:30

1 L PCB's
6.0 – 0.5 L Metals
(2) 100 mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location SULLIVANS LEDGE Date 9/18/01
Monitoring Well No. ECJ-3 Sampling Zone No. 126' Start Time 11:40 End Time 12:00
Water Level In MP Casing: (start)_____ (end)_____ Technicians TAN/TLS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP ( )	Activate Shoe	Pressure in Zone ( )	Open Valve	Final Zone Pressure ( )	Close Valve	Retract Shoe	Pressure in MP ( )	Volume Retrieved ( )	
	✓	✓	✓	✓	✓	✓	✓	46.72	✓	62.29	✓	62.27	✓	✓	46.75	1 l	
	✓	✓	✓	✓	✓	✓	✓	46.69	✓	62.29	✓	62.25	✓	✓	46.78	1 l	
																	Total Volume 2 L

Field Determinations (Appearance, pH,S.C.,etc.)

SAMPLE TIME: 12:00

1 L PCB's
1.0-0.5 L metals
(2) 100 mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location ~~[illegible]~~ Sullivans Ledge Date 09/18/01

Monitoring Well No. ECJ-3 Sampling Zone No. 146' Start Time 09·45 End Time 10:40

Water Level In MP Casing: (start) 70.35 (end) _____ Technicians TAN/TLS

70.35
235

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP ( )	Activate Shoe	Pressure in Zone ( )	Open Valve	Final Zone Pressure ( )	Close Valve	Retract Shoe	Pressure in MP ( )	Volume Retrieved ( )	
	✓	✓	✓	✓	✓	✓	✓	55.48	✓	71.00	✓	70.92	✓	✓	55.55	1L	
	✓	✓	✓	✓	✓	✓	✓	55.48	✓	71.00	✓	70.93	✓	✓	55.52	1L	
																	Total Volume 2L

Field Determinations (Appearance, pH,S.C.,etc.)

SAMPLE TIME: 10:40

1 L PCB's
10-0.5L Metals
2(100) mL VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Ledge Date 9-26-01
Monitoring Well No. FW-4 Sampling Zone No. 10 Start Time 1345 End Time
Water Level In MP Casing: (start) 23.65 (end) Technicians TAN, MAS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Position Sampler: Locate port release arm land probe	Sample Collection Checks: Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	Comments
1	—	✓	—	—	—	—	—	34.18	✓	40.10	✓	40.04	✓	✓	34.20	1.0	
2	✓	—	—	—	—	—	—	33.64	✓	40.09	✓	39.99	✓	✓	33.66	0.75	
																	Total Volume 1.75

Field Determinations (Appearance, pH,S.C.,etc.)

cable 62 Sample Time 1400

1 x L PCBs
1 x 0.5L Metals
2 x 100ml VOCs

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Ledge Date 9·26·01
Monitoring Well No. LCI-4 Sampling Zone No. 85 Start Time 1300 End Time 1330
Water Level In MP Casing: (start) 23.58 steel (end) 23.65 steel Technicians MKS TAM
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	—	—	—	—	—	—	—	45.15	✓	51.00	—	51.00	—	—	45.17	1	
2	—	—	—	—	—	—	—	44.61	—	51.00	—	51.00	✓	✓	44.64	0.75	
																	Total Volume 1.75

Field Determinations (Appearance, pH,S.C.,etc.)

Cable 87

Sample time 1330

1x 1 PCB's
1x 0.5 Metals
2x 100ml VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location Sullivan's Ledge Date 9-29-01

Monitoring Well No. ECT-4 Sampling Zone No. 130' Start Time 1130 End Time _____

Water Level In MP Casing: (start) 23.29' steel (end) 23.58' steel Technicians TAM, MAS

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	64.87	✓	70.67	✓	70.64	✓	✓	64.92	1L	
2	✓	✓	✓	✓	✓	✓	✓	64.33	✓	70.69	✓	70.66	✓	✓	64.34	.75L	
																	Total Volume 1.75 L

Field Determinations (Appearance, pH,S.C.,etc.)

Cable 133'

1x 1L PCB's
1x 0.5 Metals
2x 100ml VOCs

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Groundwater Sampling

Field Data Sheet

Project 20015·09 Location Sullivan's Ledge Date 9-26-01
Monitoring Well No. EJS-4 Sampling Zone No. 110 Start Time 1000 End Time 1115
Water Level In MP Casing: (start) 23.04' steel (end) 23.29' steel Technicians DAN, MAS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	78.05	✓	83.67	✓	83.54	✓	✓	78.07	1 l	
2	✓	✓	✓	✓	✓	✓	✓	76.98	✓	83.64	✓	83.64	✓	✓	77.02	.50 l	
																	Total Volume 1.5 L

Field Determinations (Appearance, pH,S.C.,etc.)

Cable 162'

Sample time ~~1000~~ 1030

1 x 1 L PCB's
1 x 0.5 Metals
2 x 100ml VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location Sullivan's Ledge Date 9-26-01
Monitoring Well No. ECT-4 Sampling Zone No. 223 Start Time 900 End Time
Water Level In MP Casing: (start) 22.80' TC (end) 23.04-Steel Technicians TAN, MAS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP ( )	Activate Shoe	Pressure in Zone ( )	Open Valve	Final Zone Pressure ( )	Close Valve	Retract Shoe	Pressure in MP ( )	Volume Retrieved ( )	
1	✓	✓	✓	✓	✓	✓	✓	106.20	✓	111.42	✓	110.90	✓	✓	106.24	1 l	
2	✓	✓	✓	✓	✓	✓	✓	105.65	✓	111.50	✓	110.55	✓	✓	105.68	.75 l	
																	Total Volume 1.75 L

Field Determinations (Appearance, pH,S.C.,etc.)

Cable 225'

1 x 1 L PCB's
1 x 500ml Metals
2 x 100ml VOC's

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Groundwater Sampling

Field Data Sheet

Project 20015.09 Location Sullivan's Ledge - New Bedford Date 9-26-01
Monitoring Well No. ECI-4 Sampling Zone No. 245 Start Time 800 End Time 9:00
Water Level In MP Casing: (start) _____ (end) 22.80 Technicians Van MAS
Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks						Position Sampler	Sample Collection Checks									Comments
	Activate Shoe	Close Valve	Check Vacuum	Open Valve	Evacuate Container	Close Valve	Locate port release arm land probe	Pressure in MP (psi)	Activate Shoe	Pressure in Zone (psi)	Open Valve	Final Zone Pressure (psi)	Close Valve	Retract Shoe	Pressure in MP (psi)	Volume Retrieved (L)	
1	✓	✓	✓	✓	✓	✓	✓	114.74	✓	120.14	✓	119.32	✓	✓	114.76	1	
2	✓	✓	✓	✓	✓	✓	✓	113.70	✓	119.92	✓	119.47	✓	✓	113.73	0.5	
																	Total Volume 1.5L

Field Determinations (Appearance, pH,S.C.,etc.)

Cable 247'

Sample time 800
Strong sulfur odor

1 L PCB's
0.5L Metals
(2) 100mL VOC's

MXSAMPLE2.sam
Oct. 96

Appendix E

Data Validation Report

REPORT

SULLIVAN'S LEDGE SUPERFUND SITE GROUND WATER DATA VALIDATION FALL 2001 ROUND

SULLIVAN'S LEDGE PROJECT MANAGEMENT COMMITTEE

DECEMBER 2001

5509/28602

REPORT

SULLIVAN'S LEDGE SUPERFUND SITE GROUND WATER DATA VALIDATION FALL 2001 ROUND

SULLIVAN'S LEDGE PROJECT MANAGEMENT COMMITTEE

JAMES R. HECKATHORNE, P.E.
VICE PRESIDENT

December 2001

O'BRIEN & GERE ENGINEERS, INC.

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A Validated results

1. Introduction

Data validation was performed for the ground water samples and ground water plant treatment influent samples collected from the Sullivan's Ledge Site in New Bedford, Massachusetts between September 18 and 27, 2001. Mabbett & Associates (M&A) performed sample collection activities. Samples were validated for volatile organic compounds, polychlorinated biphenyls (PCBs), and metals. Data validation was performed in accordance with Section 3 of the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) First Operable Unit (O'Brien & Gere Engineers, January 2000), and M&A's letter dated March 14, 2001, presenting modifications and clarifications to the FSP, and Alpha Analytical Laboratory's (Alpha) Quality Manual (QM).

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:

- Field Sampling Plan (FSP) and Quality Assurance Project and Quality Assurance Project Plan (QAPP) First Operable Unit, Sullivan's Ledge Site, New Bedford, Massachusetts (O'Brien & Gere, January 2000) as modified by M&A's letter dated March 14, 2001 and Alpha Analytical Laboratory Quality Manual (Alpha Analytical, October 2000).

- 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 Alpha Analytical Laboratories for selected target compounds utilizing the USEPA methods presented in Test Methods for Evaluating Solid Waste (USEPA, December 1996) shown in Table 2.1.

Table 2.1 Analytical methods.

Parameter	Analytical Method
Volatile organic compounds (74 target)	8260B
PCBs	8082
Metals (23 target)	6010B
Molybendum	6010B
Mercury	7470A

Source: O'Brien & Gere Engineers, Inc.

It should be noted that molybendum analyses were only required for the six ground water treatment samples and Duplicate 3 collected on September 27, 2001.

Analytical results are presented in Appendix A. 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.

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 limits 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.

3. Data validation protocols

Quality control data were evaluated based on accuracy and precision criteria specified in Section 3.3 of the site specific FSP and QAPP and Alpha's QM. The following are method specific QA/QC parameters used in the validation of sample data generated for this investigation:

Volatile and PCB analyses

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

Metals analyses

- Holding times and sample preservation
- Initial and continuing calibration
- Interference check standard analysis
- Blank analysis
- Matrix spike (MS) analysis
- Laboratory duplicate analysis
- Serial dilution analysis
- Field duplicate analysis
- LCS analysis
- Analyte quantitation and reporting limits
- Documentation completeness
- Overall data assessment

In accordance with the QAPP, laboratory control limits were used to assess MS/MSD, LCS, surrogate, and laboratory duplicate data. Field duplicate data were assessed based

requirements specified in 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 qualified as approximate (UJ, J).
- If percent recoveries were greater than laboratory control limits, detected results were qualified as approximate (J).
- If percent recoveries were less than ten percent, detected results were qualified as approximate (J) and non-detected results were qualified as rejected (R).
- If relative percent differences (RPDs) for MSDs and laboratory duplicates were outside of laboratory control limits, detected results greater than the laboratory reporting limit were qualified as approximate (J).
- If RPDs were >50% (>± 2xMRL for results <5xMRL) for field duplicates, detected results greater than the MRL were qualified as approximate (J).

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. Additionally, for MS/MSD and field duplicate excursions for organic analyses qualifications of data was limited for the unspiked sample or the field duplicate pair unless otherwise stated.

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. Cooler temperatures met requirements.

A total of forty-three ground water locations were sampled. In addition, six ground water treatment influent samples were collected. Field duplicate (ten percent), MS/MSD (five percent), equipment blanks (EB) and trip blanks (TB) were collected at the frequency specified in Section 2.6.6 of the site specific FSP and QAPP. Dedicated sampling equipment was used to collect the ground water samples with the exception of the Westbay wells. An equipment blank was collected from the Westbay sampling equipment as required. Table 4.1 summarizes the field QC samples that were collected.

Table 4.1 Field QC sample Collection

Field Duplicate IDs	MS/MSD ID	Equipment Blank	Trip Blanks
DUP1 = ECJ-1-62'	MW-5A	9/21/01	9/19/01
DUP2 = ECJ-2-82'	ECJ-2-47'		9/20/01
DUP3 = OBG-3	MW-16		9/21/01
DUP4 = MW-8A	ECJ-4-130', BEI-3 (Matrix spikes for metals)		9/25/01
DUP5 = MW-22A	ECJ-4-85', OBG-3 (Lab duplicates for metals)		9/27/01
	MW-8A (MS/MSD for volatiles)		

Table Notes:
1. Trip blanks were identified by date received. A trip blank was present in each sample cooler containing volatile organic samples as required.
2. Additional MS/MSD samples were analyzed by the laboratory to meet internal QA/QC batch requirements.

Source: O'Brien & Gere Engineers, Inc.

4.1. Volatile organic analyses

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 and continuing calibration
- Blank analysis
- Surrogate recovery
- Internal standard performance
- LCS analysis
- System performance
- Target compound identification, quantitation, and reporting limits
- Documentation completeness

Continuing calibration/LCS analysis. It should be noted that the LCS and continuing calibration standards are the same analytical run. Since continuing calibration standards were prepared from a source independent from the initial calibration standards, additional LCS analyses were not required. Continuing calibration percent differences (%Ds) were evaluated in place of LCS recoveries. %D criterion (<25%) was exceeded in several instances. Table 4.2 is a summary of the data qualified. Laboratory corrective actions were not required since method-specified requirements were met for system performance check compounds (SPCCs) and calibration check compounds (CCCs).

Table 4.2 Qualification of volatile data: continuing calibration criteria

Analysis Date	Compound	%D	Action	Samples Affected
9/22/01 16:10	methyl iodine	39.0	UJ	ECJ-1-146', ECJ-3-146', ECJ-1-267', ECJ-1-72', ECJ-1-62', Duplicate 1(ECJ-1-62')
	1,1,2,2-tetrachloroethane	26.9	UJ	
10/1/01 09:10	bromomethane	25.9	UJ	MW-4A, ECJ-1-37', ECJ-2-152', MW-4, MW-5A, MW-5
	methyl iodine	32.9	UJ	
10/2/01 09:43	methyl iodine	48.1	UJ	ECJ-2-187'
10/5/01 09:52	acetone	28.2	UJ	MW-12AR, MW-10, MW-10B, MW-22A, Duplicate 5(MW-22A), ECJ-4-85', ECJ-4-130', ECJ-4-223', ECJ-4-245', ECJ-4-60', ECJ-4-160'

Source: O'Brien & Gere Engineers, Inc.

MS/MSD analyses. Percent recoveries were outside of laboratory control limits in several instances. Table 4.3 is a summary of the data that required qualification.

Table 4.3 Qualification of volatile data: MS/MSD criteria

MS/MSD ID	Compound	%Recovery	Action	Samples Affected
MW-16	acetone	42, 33	UJ	MW-16
MW-5A	acetone	32, 27	UJ	MW-5A
	dichlorodiflouormethane	43, 39	UJ	
	2-butanone	44, 39	UJ	
	2-hexanone	48, 43	UJ	
ECJ-2-47'	2-hexanone	56, 57	UJ	ECJ-2-47'

Source: O'Brien & Gere Engineers, Inc.

Field duplicate analysis. Field duplicate requirements were met with one exception. The RPD for cis-1,2-dichloroethene (RPD 63%) was above the QAPP requirement of 50% in field duplicate pairs collected from location ECJ-1-62'. Therefore, detected results for this compounds were qualified as approximate (J) in samples ECJ-1-62' and its field duplicate.

Target compound identification, quantitation, and reporting limits. Elevated reporting limits were reported for several ground water samples based on sample dilutions performed prior to analysis. Dilutions were performed by the laboratory based on historical data and are documented on the data validation summary tables. Overall, sample dilutions were performed at the appropriate levels.

Overall data assessment. Volatile analyses and QA/QC procedures were performed in accordance with analytical method and QAPP requirements. Volatile data are useable for qualitative and quantitative purposes. Nondetected results were qualified as approximate (UJ) for several compounds and samples based on minor excursions from continuing calibration and MS/MSD recovery and field duplicate RPD requirements.

4.2. PCB analyses

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

- Holding times and sample preservation
- Initial and continuing calibration
- Blank analysis
- MS/MSD analysis
- Field duplicate analysis
- LCS analysis
- System performance
- Documentation completeness

Surrogate recovery. Surrogate recoveries were not within laboratory control limits in several instances. Qualification of data was not required since one of the two surrogates met criteria and percent recoveries were greater than ten percent.

Target compound identification, quantitation, and reporting limits. Alpha Analytical stated in their case narrative, that samples MW-15, ECJ-1-146', MW-24, MW-2, ECJ-1-122', ECJ-1-62', and DUP1(ECJ-1-62') "have extraneous peaks eluting out in the 1016/1242 retention time range that are possible congeners. Aroclor identification could not be determined. The ratios in comparison to the standards analyzed were not comparable." Based on a review of the raw data for these samples and in keeping with the conservative identification requirements for EPA method 8082, the laboratory was requested to go back and quantify the identified peaks as an altered 1016/1242 pattern in the affected samples. On December 6, 2001, the laboratory notified the data validator, that the electronic data and the sample extracts for the affected samples had been lost, so the samples could not be re-quantified or reanalyzed. Therefore, nondetected results for PCB Aroclor 1016/1242 were rejected in these samples.

For the majority of samples in which PCBs were detected, the laboratory documented that the PCB Aroclors that were identified exhibited an altered pattern. Samples that exhibited altered PCB patterns have been identified in data validation summary tables, included as Appendix A. Based on review of the raw data, peaks were present within retention time windows established for the identified PCB Arcolors on both primary and confirmation columns utilized by the laboratory. The pattern did not match with respect to peak ratios. The Aroclors that were identified by the laboratory represent the closest match. Therefore, with the exception of the seven samples previously rejected, additional qualification of data with respect to PCB Aroclor identification was not required. However, due to altered patten of the PCB Aroclor pattern and weathering affects, quantitation of the identified PCB Aroclors was in several instances performed utilizing only three peaks instead of the required five peaks. This method of quantitation is a conservative approach by the laboratory and may have resulted in PCB Aroclor concentrations that are biased high. Therefore, detected PCB results were qualified as approximate in the samples in which the laboratory did not utilize five peaks for quantitation. Detected results were also qualified as approximate if the percent difference (%D) was greater than 40% between the reported result and the confirmation result. Table 4.4 is a summary of the data qualified.

Table 4.4. Qualification of PCB data: quantitation

Sample ID	PCB Aroclor	Comments	Action
ECJ-1-37'	1254	Result close to reporting limit; confirmation result greater than reported value by more than reporting limit (0.5 mg/kg)	J
OBG-1	1232	Altered pattern and only 3 peaks used for quantitation	J
BEI-1	1232	%D between columns 48% and altered pattern and only 3 peaks used for quantitation.	J
OBG-2	1232	Altered pattern and only 3 peaks used for quantitation.	J
BEI-2	1232	Altered pattern and only 3 peaks used for quantitation.	J
MW-22A	1016/1242	Altered pattern and only 3 peaks used for quantitation.	J

Table 4.4. Qualification of PCB data: quantitation			
Sample ID	PCB Aroclor	Comments	Action
GCA-1	1252	%D 44	J
Source: O'Brien & Gere Engineers, Inc.			

Overall data assessment. PCB analyses and QA/QC procedures were performed in accordance with analytical method and QAPP requirements. The majority of PCB data are usable for qualitative and quantitative purposes. Nondetected results for PCB Aroclor 1016/1242 were rejected in the following samples based on errors in compound identification: MW-15, ECJ-1-146', MW-24, MW-2, ECJ-1-122', ECJ-1-62', and DUP1(ECJ-1-62'). In several instances, detected results were qualified based on minor excursions from compound quantitation requirements.

4.3. Metal analyses

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

- Holding times and sample preservation
- Initial and continuing calibration
- Blank analysis
- Interference check standard analysis
- MS analysis
- Laboratory duplicate analysis
- Serial dilution analysis
- LCS analysis
- Field duplicate analysis
- Analyte quantitation and reporting limits
- Documentation completeness

Overall data assessment. The laboratory performed metal analyses and QA/QC procedures in accordance with analytical method and QAPP requirements. Metals data are usable for qualitative and quantitative purposes without further qualification.

5. Data usability

Analytical data were validated for samples collected from the Sullivan's Ledge Site in New Bedford, Massachusetts. Ground water samples and ground water treatment plant influent samples were validated for volatile organic compounds, PCBs, and metals based on accuracy and precision criteria specified in documents referenced in Section 1. 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).

Rejected data resulted from a major excursion from QA/QC criteria and should not be used for either qualitative or quantitative purposes. Minor deficiencies in the data generation process resulted in approximation of sample data. 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, December 1992).

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 Appendix A of this report.

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%. Detected results were qualified as approximate for cis-1,2-dichloroethene in field duplicate pairs collected from location ECJ-1-62' based on a minor excursions from field duplicate criteria.

Accuracy was assessed from GC/MS tuning, calibration, surrogate recovery, internal standard performance MS/MSD, and LCS data. Data usability with respect to accuracy was calculated as 100%. Minor excursions from continuing calibration, matrix spike recovery requirements resulted in approximation of sample data as follows:

- acetone in thirteen samples.
- methyl iodine in thirteen samples.
- 1,1,2,2-tetrachloroethane in six samples.
- dichlorodifluoromethane, 2-butanone,and 2-hexanone in one to two samples.

Representativeness was assessed from holding times, sample preservation, blank analysis, target compound identification and quantitation, and sampling and analytical methodologies used. Data usability with respect to representativeness was 100% for volatile organic and metal analyses, and 98% for PCB analyses. Nondetected results were rejected for PCB-1016/1242 in the following samples based on identification errors that could not be corrected by the laboratory because laboratory data and extracts were lost: MW-15, ECJ-1-146', MW-24, MW-2, ECJ-1-122', ECJ-1-62', and DUP1(ECJ-1-62'). Minor excursions from compound identification requirements resulted in approximation of detected PCB results in seven samples.

Comparability is a qualitative measure, therefore, usability calculations were not performed. Comparability requirements were met since standard analytical methods, reporting units, reference materials, and data deliverables were utilized by the laboratory.

Sensitivity requirements were met for metal and PCB analyses. Laboratory reporting limits were elevated for volatile organic compounds in twenty-one samples based on the laboratory dilutions performed to obtain concentrations within the linear calibration range. Overall, sample dilutions were performed in accordance with method requirements and were based on historical data.

Data completeness was calculated as 100% for volatiles and metals, and as 98% for PCBs, exceeding the 95% requirement established in the QAPP.

Appendix A

Validated results

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	BEI-1	BEI-2	BEI-3	ECJ-1-122	ECJ-1-146	ECJ-1-267	ECJ-1-37'	ECJ-1-62	ECJ-1-62 Dup	ECJ-1-72
	SDG ID	L0108901	L0108901	L0108901	L0108729	L0108729	L0108729	L0108767	L0108729	L0108729	L0108729
	Dilution Factor	400	200	100	100	400	1	5	40	40	500
	Sample Date	09/24/01	09/24/01	09/24/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
1,1,1,2-Tetrachloroethane		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
1,1,1-Trichloroethane		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
1,1,2,2-Tetrachloroethane		200 U	100 U	50 U	50 U	200 UJ	0.5 UJ	2.5 U	20 UJ	20 UJ	250 UJ
1,1,2-Trichloroethane		300 U	150 U	75 U	75 U	300 U	0.75 U	3.8 U	30 U	30 U	380 U
1,1-Dichloroethane		300 U	150 U	75 U	75 U	300 U	0.75 U	3.8 U	30 U	30 U	380 U
1,1-Dichloroethene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
1,1-Dichloropropene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,2,3-Trichlorobenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,2,3-Trichloropropane		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
1,2,4-Trichlorobenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Benzene, 1,2,4-trimethyl		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Dibromochloropropane		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,2-Dibromoethane (EDB)		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,2-Dichlorobenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,2-Dichloroethane		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
1,2-Dichloropropane		700 U	350 U	180 U	180 U	700 U	1.8 U	8.8 U	70 U	70 U	880 U
Benzene, 1,3,5-trimethyl-		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,3-Dichlorobenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,3-Dichloropropane		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,4-Dichlorobenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
1,4-Dichlorobutane		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
2,2-Dichloropropane		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
2-Butanone (MEK)		2000 U	1000 U	500 U	500 U	2000 U	5 U.	25 U	200 U	200 U	2500 U
2-Hexanone		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
4-Methyl-2-pentanone (MIBK)		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Acetone		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Acrolein		5000 U	2500 U	1200 U	1200 U	5000 U	12 U	62 U	500 U	500 U	6200 U
Acrylonitrile		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Benzene		200 U	100 U	50 U	310	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Bromobenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Bromochloromethane		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Bromodichloromethane		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Bromoform		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Bromomethane		400 U	200 U	100 U	100 U	400 U	1 U	5 UJ	40 U	40 U	500 U
Carbon disulfide		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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FXP File: N:\5509\28602\TABLEPR.FXP

File Number: 5509.28602

O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	BEI-1	BEI-2	BEI-3	ECJ-1-122	ECJ-1-146	ECJ-1-267	ECJ-1-37'	ECJ-1-62	ECJ-1-62 Dup	ECJ-1-72
	SDG ID	L0108901	L0108901	L0108901	L0108729	L0108729	L0108729	L0108767	L0108729	L0108729	L0108729
	Dilution Factor	400	200	100	100	400	1	5	40	40	500
	Sample Date	09/24/01	09/24/01	09/24/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Carbon tetrachloride		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Chlorobenzene		200 U	100 U	50 U	160	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Chloroethane		400 U	200 U	100 U	100 U	400 U	1 U	5 U	40 U	40 U	500 U
Chloroform		300 U	150 U	75 U	75 U	300 U	0.75 U	3.8 U	30 U	30 U	380 U
Chloromethane		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Dibromochloromethane		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Dibromomethane		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Dichlorodifluoromethane		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Diethyl ether		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Ethyl methacrylate		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Ethylbenzene		1200	220	83	480	400	0.78	2.5 U	20 U	20 U	930
Hexachlorobutadiene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Methyl iodide		2000 U	1000 U	500 U	500 U	2000 UJ	5 UJ	25 UJ	200 UJ	200 UJ	2500 UJ
Isopropylbenzene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Methyl tert butyl ether		400 U	200 U	100 U	100 U	400 U	1 U	5 U	40 U	40 U	500 U
Methylene chloride		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Naphthalene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Styrene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Tetrachloroethene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
Tetrahydrofuran		4000 U	2000 U	1000 U	1000 U	4000 U	10 U	50 U	400 U	400 U	5000 U
Toluene		1200	150 U	75 U	90	430	1.1	3.8 U	30 U	30 U	400
Trichloroethene		20000	300	4600	140	820	29	2.5 U	20 U	20 U	250 U
Trichlorofluoromethane		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
Vinyl acetate		2000 U	1000 U	500 U	500 U	2000 U	5 U	25 U	200 U	200 U	2500 U
Vinyl chloride		600	850	160	690	620	1 U	20	880	960	11000
cis-1,2-Dichloroethene		14000	5900	6400	4800	14000	6.6	63	2300 J	1200 J	26000
cis-1,3-Dichloropropylene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
n-Butylbenzene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
n-Propylbenzene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
2-Chlorotoluene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
o-Xylene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
4-Chlorotoluene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
p-Isopropyltoluene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
m,p-Xylenes		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
sec-Butylbenzene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	BEI-1	BEI-2	BEI-3	ECJ-1-122	ECJ-1-146	ECJ-1-267	ECJ-1-37'	ECJ-1-62	ECJ-1-62 Dup	ECJ-1-72
	SDG ID	L0108901	L0108901	L0108901	L0108729	L0108729	L0108729	L0108767	L0108729	L0108729	L0108729
	Dilution Factor	400	200	100	100	400	1	5	40	40	500
	Sample Date	09/24/01	09/24/01	09/24/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
tert-Butylbenzene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U
trans-1,2-Dichloroethene		300 U	150 U	75 U	75 U	300 U	0.75 U	3.8 U	30 U	30 U	380 U
trans-1,3-Dichloropropene		200 U	100 U	50 U	50 U	200 U	0.5 U	2.5 U	20 U	20 U	250 U
trans-1,4-Dichloro-2-butene		1000 U	500 U	250 U	250 U	1000 U	2.5 U	12 U	100 U	100 U	1200 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	ECJ-2-117	ECJ-2-152'	ECJ-2-187'	ECJ-2-47	ECJ-2-82	ECJ-2-82' Dup	ECJ-3-126	ECJ-3-146	ECJ-3-51	ECJ-3-91
	SDG ID	L0108838	L0108767	L0108767	L0108838	L0108838	L0108838	L0108729	L0108729	L0108729	L0108729
	Dilution Factor	400	100	1000	40	400	400	1	1	1	1
	Sample Date	09/20/01	09/20/01	09/20/01	09/21/01	09/20/01	09/20/01	09/18/01	09/18/01	09/18/01	09/18/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
1,1,1,2-Tetrachloroethane		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,2-Trichloroethane		300 U	75 U	750 U	30 U	300 U	300 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane		300 U	75 U	750 U	30 U	300 U	300 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichlorobenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichloropropane		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene, 1,2,4-trimethyl		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloropropane		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromoethane (EDB)		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichlorobenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethane		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		700 U	180 U	1800 U	70 U	700 U	700 U	1.8 U	1.8 U	1.8 U	1.8 U
Benzene, 1,3,5-trimethyl-		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichlorobenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichloropropane		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobutane		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
2,2-Dichloropropane		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Butanone (MEK)		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
2-Hexanone		2000 U	500 U	5000 U	200 UJ	2000 U	2000 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)		2000 U	740	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Acetone		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Acrolein		5000 U	1200 U	12000 U	500 U	5000 U	5000 U	12 U	12 U	12 U	12 U
Acrylonitrile		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Benzene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromochloromethane		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromodichloromethane		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		400 U	100 UJ	1000 U	40 U	400 U	400 U	1 U	1 U	1 U	1 U
Carbon disulfide		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	ECJ-2-117	ECJ-2-152'	ECJ-2-187'	ECJ-2-47	ECJ-2-82	ECJ-2-82' Dup	ECJ-3-126	ECJ-3-146	ECJ-3-51	ECJ-3-91
	SDG ID	L0108838	L0108767	L0108767	L0108838	L0108838	L0108838	L0108729	L0108729	L0108729	L0108729
	Dilution Factor	400	100	1000	40	400	400	1	1	1	1
	Sample Date	09/20/01	09/20/01	09/20/01	09/21/01	09/20/01	09/20/01	09/18/01	09/18/01	09/18/01	09/18/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Carbon tetrachloride		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		200 U	50 U	500 U	21	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		400 U	100 U	1000 U	40 U	400 U	400 U	1 U	1 U	1 U	1 U
Chloroform		300 U	75 U	750 U	30 U	300 U	300 U	0.86	0.75 U	0.75 U	0.75 U
Chloromethane		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloromethane		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Diethyl ether		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethyl methacrylate		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Ethylbenzene		1400	110	1300	20 U	880	780	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl iodide		2000 U	500 UJ	5000 UJ	200 U	2000 U	2000 U	5 U	5 UJ	5 U	5 U
Isopropylbenzene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert butyl ether		400 U	100 U	1000 U	40 U	400 U	400 U	1 U	1 U	1 U	1 U
Methylene chloride		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Naphthalene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Styrene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran		4000 U	1000 U	10000 U	400 U	4000 U	4000 U	10 U	10 U	12	10 U
Toluene		1200	380	1500	30 U	860	780	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene		200 U	50 U	560	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
Vinyl acetate		2000 U	500 U	5000 U	200 U	2000 U	2000 U	5 U	5 U	5 U	5 U
Vinyl chloride		11000	5100	4100	390	14000	11000	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene		24000	5000	36000	1100	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropylene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
o-Xylene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
p-Isopropyltoluene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	ECJ-2-117	ECJ-2-152'	ECJ-2-187'	ECJ-2-47	ECJ-2-82	ECJ-2-82' Dup	ECJ-3-126	ECJ-3-146	ECJ-3-51	ECJ-3-91
	SDG ID	L0108838	L0108767	L0108767	L0108838	L0108838	L0108838	L0108729	L0108729	L0108729	L0108729
	Dilution Factor	400	100	1000	40	400	400	1	1	1	1
	Sample Date	09/20/01	09/20/01	09/20/01	09/21/01	09/20/01	09/20/01	09/18/01	09/18/01	09/18/01	09/18/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
tert-Butylbenzene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,2-Dichloroethene		300 U	75 U	750 U	30 U	300 U	300 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,3-Dichloropropene		200 U	50 U	500 U	20 U	200 U	200 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,4-Dichloro-2-butene		1000 U	250 U	2500 U	100 U	1000 U	1000 U	2.5 U	2.5 U	2.5 U	2.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	ECJ-4-130'	ECJ-4-160'	ECJ-4-223'	ECJ-4-245'	ECJ-4-60'	ECJ-4-85'	EQUIPMENT BLANK	GCA-1	MW-10	MW-10AR
	SDG ID	L0109029	L0109029	L0109029	L0109029	L0109029	L0109029	L0108838	L0109029	L0109029	L0108901
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/21/01	09/26/01	09/27/01	09/24/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
1,1,1,2-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	0.5 U
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	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	0.5 U
1,1,2-Trichloroethane		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 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	0.5 U
1,1-Dichloropropene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichlorobenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichloropropane		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene, 1,2,4-trimethyl		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	3.7	2.5 U	2.5 U
Dibromochloropropane		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromoethane (EDB)		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichlorobenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 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	0.5 U
1,2-Dichloropropane		1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Benzene, 1,3,5-trimethyl-		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichlorobenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	3.9	2.5 U	2.5 U
1,3-Dichloropropane		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	14	2.5 U	2.5 U
1,4-Dichlorobutane		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2-Dichloropropane		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Butanone (MEK)		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone		5 U	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	5 U
Acetone		5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U	5 UJ	5 U
Acrolein		12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
Acrylonitrile		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	100	0.5 U	0.5 U
Bromobenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromochloromethane		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 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	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	0.5 U
Bromomethane		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	ECJ-4-130'	ECJ-4-160'	ECJ-4-223'	ECJ-4-245'	ECJ-4-60'	ECJ-4-85'	EQUIPMENT BLANK	GCA-1	MW-10	MW-10AR
	SDG ID	L0109029	L0109029	L0109029	L0109029	L0109029	L0109029	L0108838	L0109029	L0109029	L0108901
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/21/01	09/26/01	09/27/01	09/24/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
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	0.5 U
Chlorobenzene		0.5 U	0.51	1.4	0.61	0.5 U	0.5 U	0.5 U	80	0.5 U	0.5 U
Chloroethane		1 U	1 U	1 U	1 U	1 U	1 U	1 U	9.6	1 U	1 U
Chloroform		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Chloromethane		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 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	0.5 U
Dibromomethane		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethyl ether		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethyl methacrylate		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene		0.5 U	3.9	1.7	2.2	0.5 U	0.5 U	0.5 U	3.6	0.5 U	0.5 U
Hexachlorobutadiene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl iodide		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	9.6	0.5 U	0.5 U
Methyl tert butyl ether		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	4.5	2.5 U	2.5 U
Styrene		0.5 U	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
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	0.5 U
Tetrahydrofuran		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.2	0.75 U	0.75 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	6.9	0.5 U
Trichlorofluoromethane		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vinyl acetate		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl chloride		1 U	1.2	1.2	1.1	1 U	1 U	1 U	32	1 U	1 U
cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.59	50	16	1.5
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	0.5 U
n-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.74	0.5 U	0.5 U
n-Propylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.5 U	0.5 U
2-Chlorotoluene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
o-Xylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2	0.5 U	0.5 U
4-Chlorotoluene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
p-Isopropyltoluene		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	0.5 U
m,p-Xylenes		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.4	0.5 U	0.5 U
sec-Butylbenzene		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	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's.Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	ECJ-4-130'	ECJ-4-160'	ECJ-4-223'	ECJ-4-245'	ECJ-4-60'	ECJ-4-85'	EQUIPMENT BLANK	GCA-1	MW-10	MW-10AR
	SDG ID	L0109029	L0109029	L0109029	L0109029	L0109029	L0109029	L0108838	L0109029	L0109029	L0108901
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/21/01	09/26/01	09/27/01	09/24/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
tert-Butylbenzene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,2-Dichloroethene		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 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	0.5 U
trans-1,4-Dichloro-2-butene		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	MW-10B	MW-12AR	MW-13	MW-13A	MW-14	MW-14 (VOA VIAL-B)	MW-15	MW-16	MW-17	MW-2
	SDG ID	L0109029	L0109029	L0109029	L0108838	L0108838	L0108838	L0108729	L0108729	L0108838	L0108729
	Dilution Factor	1	2	1	1	20	20	2	1	1	20
	Sample Date	09/27/01	09/26/01	09/26/01	09/21/01	09/21/01	09/20/01	09/18/01	09/18/01	09/21/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
1,1,1,2-Tetrachloroethane		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
1,1,1-Trichloroethane		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
1,1,2,2-Tetrachloroethane		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
1,1,2-Trichloroethane		0.75 U	1.5 U	0.75 U	0.75 U	0.75 U	0.75 U	1.5 U	0.75 U	0.75 U	15 U
1,1-Dichloroethane		0.75 U	1.5 U	0.75 U	0.75 U	1.1	1.1	1.5 U	0.75 U	0.75 U	15 U
1,1-Dichloroethene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
1,1-Dichloropropene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
1,2,3-Trichlorobenzene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
1,2,3-Trichloropropane		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
1,2,4-Trichlorobenzene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Benzene, 1,2,4-trimethyl		2.5 U	5.3	2.5 U	2.5 U	2.5 U	4	6.1	2.5 U	2.5 U	50 U
Dibromochloropropane		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
1,2-Dibromoethane (EDB)		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
1,2-Dichlorobenzene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
1,2-Dichloroethane		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
1,2-Dichloropropane		1.8 U	3.5 U	1.8 U	1.8 U	1.8 U	1.8 U	3.5 U	1.8 U	1.8 U	35 U
Benzene, 1,3,5-trimethyl-		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.8	5 U	2.5 U	2.5 U	50 U
1,3-Dichlorobenzene		2.5 U	5 U	2.5 U	2.5 U	2.6	3.2	5 U	2.5 U	2.5 U	50 U
1,3-Dichloropropane		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
1,4-Dichlorobenzene		2.5 U	9.6	2.5 U	2.5 U	10	11	6.9	2.5 U	2.5 U	50 U
1,4-Dichlorobutane		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
2,2-Dichloropropane		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
2-Butanone (MEK)		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
2-Hexanone		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
4-Methyl-2-pentanone (MIBK)		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Acetone		5 UJ	10 UJ	5 U	5 U	5 U	5 U	10 U	5 UJ	5 U	100 U
Acrolein		12 U	25 U	12 U	12 U	12 U	12 U	25 U	12 U	12 U	250 U
Acrylonitrile		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Benzene		0.5 U	57	0.76	0.81	0.5 U	200	110	0.5 U	0.5 U	650
Bromobenzene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Bromochloromethane		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Bromodichloromethane		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
Bromoform		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
Bromomethane		1 U	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	20 U
Carbon disulfide		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	MW-10B	MW-12AR	MW-13	MW-13A	MW-14	MW-14 (VOA VIAL-B)	MW-15	MW-16	MW-17	MW-2
	SDG ID	L0109029	L0109029	L0109029	L0108838	L0108838	L0108838	L0108729	L0108729	L0108838	L0108729
	Dilution Factor	1	2	1	1	20	20	2	1	1	20
	Sample Date	09/27/01	09/26/01	09/26/01	09/21/01	09/21/01	09/20/01	09/18/01	09/18/01	09/21/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Carbon tetrachloride		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
Chlorobenzene		0.5 U	41	1.1	1.7	0.5 U	51	3.4	0.5 U	0.5 U	84
Chloroethane		1 U	2 U	1 U	1 U	9.4	10	14	1 U	1 U	20 U
Chloroform		0.75 U	1.5 U	0.75 U	0.75 U	0.75 U	0.75 U	1.5 U	0.75 U	1.4	15 U
Chloromethane		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Dibromochloromethane		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
Dibromomethane		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Dichlorodifluoromethane		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Diethyl ether		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Ethyl methacrylate		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Ethylbenzene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	11	1 U	0.5 U	0.5 U	10 U
Hexachlorobutadiene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Methyl iodide		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Isopropylbenzene		0.5 U	10	0.5 U	0.5 U	0.5 U	3	2.3	0.5 U	0.5 U	10 U
Methyl tert butyl ether		1 U	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	20 U
Methylene chloride		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Naphthalene		2.5 U	14	2.5 U	2.5 U	2.5 U	37	6.5	2.5 U	2.5 U	50 U
Styrene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
Tetrachloroethene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
Tetrahydrofuran		10 U	20 U	10 U	10 U	10 U	12	20 U	10 U	10 U	200 U
Toluene		0.75 U	1.5 U	0.75 U	0.75 U	0.75 U	1.1	1.5 U	0.75 U	0.75 U	15 U
Trichloroethene		5.6	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	8.9	140
Trichlorofluoromethane		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
Vinyl acetate		5 U	10 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	100 U
Vinyl chloride		1 U	2 U	7.6	6.9	1 U	1 U	2 U	1 U	1 U	75
cis-1,2-Dichloroethene		15	1 U	3.6	4.9	0.5 U	0.5 U	1 U	0.5 U	8.1	190
cis-1,3-Dichloropropylene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
n-Butylbenzene		0.5 U	1.4	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
n-Propylbenzene		0.5 U	2.6	0.5 U	0.5 U	0.5 U	2.3	2.2	0.5 U	0.5 U	10 U
2-Chlorotoluene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
o-Xylene		0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.96	1.6	0.5 U	0.5 U	10 U
4-Chlorotoluene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
p-Isopropyltoluene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
m,p-Xylenes		0.5 U	1 U	0.5 U	0.5 U	1.5	15	5.8	0.5 U	0.5 U	10 U
sec-Butylbenzene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.52	1 U	0.5 U	0.5 U	10 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	MW-10B	MW-12AR	MW-13	MW-13A	MW-14	MW-14 (VOA VIAL-B	MW-15	MW-16	MW-17	MW-2
	SDG ID	L0109029	L0109029	L0109029	L0108838	L0108838	L0108838	L0108729	L0108729	L0108838	L0108729
	Dilution Factor	1	2	1	1	20	20	2	1	1	20
	Sample Date	09/27/01	09/26/01	09/26/01	09/21/01	09/21/01	09/20/01	09/18/01	09/18/01	09/21/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
tert-Butylbenzene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U
trans-1,2-Dichloroethene		0.75 U	1.5 U	0.75 U	0.75 U	0.75 U	0.75 U	1.5 U	0.75 U	0.75 U	15 U
trans-1,3-Dichloropropene		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	10 U
trans-1,4-Dichloro-2-butene		2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	50 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	MW-22A	MW-22A Dup	MW-24	MW-4	MW-4A	MW-5	MW-5A	MW-6	MW-6A	MW-8
	SDG ID	L0109029	L0109029	L0108729	L0108767	L0108767	L0108767	L0108767	L0108838	L0108838	L0109029
	Dilution Factor	5	5	100	10	1	1	1	50	2	1
	Sample Date	09/27/01	09/27/01	09/19/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/26/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
1,1,1,2-Tetrachloroethane		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
1,1,1-Trichloroethane		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
1,1,2,2-Tetrachloroethane		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
1,1,2-Trichloroethane		3.8 U	3.8 U	75 U	7.5 U	0.75 U	0.75 U	0.75 U	38 U	1.5 U	0.75 U
1,1-Dichloroethane		3.8 U	3.8 U	75 U	7.5 U	0.75 U	0.75 U	0.75 U	38 U	1.5 U	0.75 U
1,1-Dichloroethene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
1,1-Dichloropropene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,2,3-Trichlorobenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,2,3-Trichloropropane		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
1,2,4-Trichlorobenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Benzene, 1,2,4-trimethyl		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Dibromochloropropane		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,2-Dibromoethane (EDB)		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,2-Dichlorobenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,2-Dichloroethane		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
1,2-Dichloropropane		8.8 U	8.8 U	180 U	18 U	1.8 U	1.8 U	1.8 U	88 U	3.5 U	1.8 U
Benzene, 1,3,5-trimethyl-		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,3-Dichlorobenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,3-Dichloropropane		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,4-Dichlorobenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
1,4-Dichlorobutane		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
2,2-Dichloropropane		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
2-Butanone (MEK)		25 U	25 U	500 U	50 U	5 U	5 U	5 UJ	250 U	10 U	5 U
2-Hexanone		25 U	25 U	500 U	50 U	5 U	5 U	5 UJ	250 U	10 U	5 U
4-Methyl-2-pentanone (MIBK)		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
Acetone		25 UJ	25 UJ	500 U	50 U	5 U	5 U	5 UJ	250 U	10 U	5 U
Acrolein		62 U	62 U	1200 U	120 U	12 U	12 U	12 U	620 U	25 U	12 U
Acrylonitrile		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
Benzene		190	190	5400	9	0.84	0.5 U	0.5 U	25 U	10	0.5 U
Bromobenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Bromochloromethane		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Bromodichloromethane		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Bromoform		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Bromomethane		5 U	5 U	100 U	10 UJ	1 UJ	1 UJ	1 UJ	50 U	2 U	1 U
Carbon disulfide		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	MW-22A	MW-22A Dup	MW-24	MW-4	MW-4A	MW-5	MW-5A	MW-6	MW-6A	MW-8
	SDG ID	L0109029	L0109029	L0108729	L0108767	L0108767	L0108767	L0108767	L0108838	L0108838	L0109029
	Dilution Factor	5	5	100	10	1	1	1	50	2	1
	Sample Date	09/27/01	09/27/01	09/19/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/26/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Carbon tetrachloride		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Chlorobenzene		12	12	270	5 U	0.5 U	0.5 U	0.5 U	27	32	0.5 U
Chloroethane		5 U	5 U	100 U	10 U	1 U	1 U	1 U	50 U	2 U	1 U
Chloroform		3.8 U	3.8 U	75 U	7.5 U	0.75 U	0.75 U	0.75 U	38 U	1.5 U	0.75 U
Chloromethane		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Dibromochloromethane		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Dibromomethane		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
Dichlorodifluoromethane		25 U	25 U	500 U	50 U	5 U	5 U	5 UJ	250 U	10 U	5 U
Diethyl ether		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Ethyl methacrylate		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
Ethylbenzene		23	23	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Hexachlorobutadiene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Methyl iodide		25 U	25 U	500 U	50 UJ	5 UJ	5 UJ	5 UJ	250 U	10 U	5 U
Isopropylbenzene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Methyl tert butyl ether		5 U	5 U	100 U	10 U	1 U	3.9	2.2	50 U	2 U	1 U
Methylene chloride		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
Naphthalene		110	100	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Styrene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Tetrachloroethene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
Tetrahydrofuran		50 U	50 U	1000 U	100 U	10 U	10 U	10 U	500 U	20 U	10 U
Toluene		33	33	75 U	7.5 U	0.75 U	0.75 U	0.75 U	38 U	1.5 U	0.75 U
Trichloroethene		2.5 U	2.5 U	220	670	1.2	0.5 U	0.5 U	25 U	1 U	0.5 U
Trichlorofluoromethane		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
Vinyl acetate		25 U	25 U	500 U	50 U	5 U	5 U	5 U	250 U	10 U	5 U
Vinyl chloride		5 U	5 U	210	40	5.6	1 U	1 U	410	62	1 U
cis-1,2-Dichloroethene		2.5 U	2.5 U	490	430	75	0.5 U	0.5 U	1700	69	0.5 U
cis-1,3-Dichloropropylene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
n-Butylbenzene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
n-Propylbenzene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
2-Chlorotoluene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
o-Xylene		18	19	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
4-Chlorotoluene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
p-Isopropyltoluene		2.6	2.6	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
m,p-Xylenes		20	22	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
sec-Butylbenzene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	MW-22A	MW-22A Dup	MW-24	MW-4	MW-4A	MW-5	MW-5A	MW-6	MW-6A	MW-8
	SDG ID	L0109029	L0109029	L0108729	L0108767	L0108767	L0108767	L0108767	L0108838	L0108838	L0109029
	Dilution Factor	5	5	100	10	1	1	1	50	2	1
	Sample Date	09/27/01	09/27/01	09/19/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/26/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
tert-Butylbenzene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U
trans-1,2-Dichloroethene		3.8 U	3.8 U	75 U	7.5 U	0.75 U	0.75 U	0.75 U	38 U	1.5 U	0.75 U
trans-1,3-Dichloropropene		2.5 U	2.5 U	50 U	5 U	0.5 U	0.5 U	0.5 U	25 U	1 U	0.5 U
trans-1,4-Dichloro-2-butene		12 U	12 U	250 U	25 U	2.5 U	2.5 U	2.5 U	120 U	5 U	2.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	MW-8A	MW-8A Dup	OBG-1	OBG-2	OBG-3	OBG-3 Dup	TRIP BLANK	TRIP BLANK
	SDG ID	L0109029	L0109029	L0108901	L0108901	L0108901	L0108901	L0108729	L0108767
	Dilution Factor	1	1	400	100	100	100	1	1
	Sample Date	09/26/01	09/26/01	09/24/01	09/24/01	09/24/01	09/24/01	09/17/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
1,1,1,2-Tetrachloroethane		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
1,1,1-Trichloroethane		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.75 U	0.75 U	300 U	75 U	75 U	75 U	0.75 U	0.75 U
1,1-Dichloroethane		0.75 U	0.75 U	300 U	75 U	75 U	75 U	0.75 U	0.75 U
1,1-Dichloroethene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
1,1-Dichloropropene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,2,3-Trichlorobenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,2,3-Trichloropropane		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
1,2,4-Trichlorobenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Benzene, 1,2,4-trimethyl		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Dibromochloropropane		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,2-Dibromoethane (EDB)		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,2-Dichlorobenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,2-Dichloroethane		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
1,2-Dichloropropane		1.8 U	1.8 U	700 U	180 U	180 U	180 U	1.8 U	1.8 U
Benzene, 1,3,5-trimethyl-		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,3-Dichlorobenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,3-Dichloropropane		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,4-Dichlorobenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
1,4-Dichlorobutane		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
2,2-Dichloropropane		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
2-Butanone (MEK)		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
2-Hexanone		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Acetone		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Acrolein		12 U	12 U	5000 U	1200 U	1200 U	1200 U	12 U	12 U
Acrylonitrile		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Benzene		0.5 U	0.5 U	300	570	59	63	0.5 U	0.5 U
Bromobenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Bromochloromethane		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Bromodichloromethane		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
Bromomethane		1 U	1 U	400 U	100 U	100 U	100 U	1 U	1 U
Carbon disulfide		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

Compound	Sample ID	MW-8A	MW-8A Dup	OBG-1	OBG-2	OBG-3	OBG-3 Dup	TRIP BLANK	TRIP BLANK
	SDG ID	L0109029	L0109029	L0108901	L0108901	L0108901	L0108901	L0108729	L0108767
	Dilution Factor	1	1	400	100	100	100	1	1
	Sample Date	09/26/01	09/26/01	09/24/01	09/24/01	09/24/01	09/24/01	09/17/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Carbon tetrachloride		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
Chlorobenzene		0.5 U	0.5 U	200 U	340	77	88	0.5 U	0.5 U
Chloroethane		1 U	1 U	400 U	100 U	100 U	100 U	1 U	1 U
Chloroform		0.75 U	0.75 U	300 U	75 U	75 U	75 U	0.75 U	0.75 U
Chloromethane		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Dibromochloromethane		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
Dibromomethane		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Dichlorodifluoromethane		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Diethyl ether		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Ethyl methacrylate		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Ethylbenzene		0.5 U	0.5 U	1200	180	50 U	50 U	0.5 U	0.5 U
Hexachlorobutadiene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Methyl iodide		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Isopropylbenzene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
Methyl tert butyl ether		1 U	1 U	400 U	100 U	100 U	100 U	1 U	1 U
Methylene chloride		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Naphthalene		2.5 U	2.5 U	1000 U	270	250 U	250 U	2.5 U	2.5 U
Styrene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
Tetrachloroethene		0.5 U	0.5 U	260	50 U	50 U	50 U	0.5 U	0.5 U
Tetrahydrofuran		10 U	10 U	4000 U	1000 U	1000 U	1000 U	10 U	10 U
Toluene		0.75 U	0.75 U	1500	190	75 U	75 U	0.75 U	0.75 U
Trichloroethene		0.5 U	0.5 U	8000	420	120	170	0.5 U	0.5 U
Trichlorofluoromethane		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
Vinyl acetate		5 U	5 U	2000 U	500 U	500 U	500 U	5 U	5 U
Vinyl chloride		1 U	1 U	900	610	230	220	1 U	1 U
cis-1,2-Dichloroethene		0.5 U	0.5 U	23000	6100	2900	3000	0.5 U	0.54
cis-1,3-Dichloropropylene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
n-Butylbenzene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
n-Propylbenzene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
2-Chlorotoluene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
o-Xylene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
4-Chlorotoluene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
p-Isopropyltoluene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
m,p-Xylenes		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
sec-Butylbenzene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8260B Volatile Organic Compound Data

	Sample ID	MW-8A	MW-8A Dup	OBG-1	OBG-2	OBG-3	OBG-3 Dup	TRIP BLANK	TRIP BLANK
	SDG ID	L0109029	L0109029	L0108901	L0108901	L0108901	L0108901	L0108729	L0108767
	Dilution Factor	1	1	400	100	100	100	1	1
	Sample Date	09/26/01	09/26/01	09/24/01	09/24/01	09/24/01	09/24/01	09/17/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
tert-Butylbenzene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U
trans-1,2-Dichloroethene		0.75 U	0.75 U	300 U	75 U	75 U	75 U	0.75 U	0.75 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	200 U	50 U	50 U	50 U	0.5 U	0.5 U
trans-1,4-Dichloro-2-butene		2.5 U	2.5 U	1000 U	250 U	250 U	250 U	2.5 U	2.5 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8082 PCB Data

Compound	Sample ID	BEI-1	BEI-2	BEI-3	ECJ-1-122	ECJ-1-146	ECJ-1-267	ECJ-1-37'	ECJ-1-62	ECJ-1-62 Dup	ECJ-1-72
	SDG ID	L0108901	L0108901	L0108901	L0108729	L0108729	L0108729	L0108767	L0108729	L0108729	L0108729
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/24/01	09/24/01	09/24/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aroclor 1221		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.454 U	0.474 U	0.474 U	0.474 U	0.5 U
Aroclor 1232		5.16 J*	2.04 J*	0.5 U	0.5 U	0.5 U	0.454 U	0.474 U	0.474 U	0.474 U	0.5 U
Aroclor 1242/1016		0.5 U	0.5 U	0.5 U	R	R	0.454 U	0.474 U	R	R	0.5 U
Aroclor 1248		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.454 U	0.474 U	0.474 U	0.474 U	0.5 U
Aroclor 1254		1.23 *	0.546 *	4.42	0.5 U	0.5 U	0.454 U	1.12 J	0.474 U	0.474 U	0.5 U
Aroclor 1260		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.454 U	0.474 U	0.474 U	0.474 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.
* - Altered PCB Aroclor.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8082 PCB Data

	Sample ID	ECJ-2-117	ECJ-2-152'	ECJ-2-187'	ECJ-2-47	ECJ-2-82	ECJ-2-82' Dup	ECJ-3-126	ECJ-3-146	ECJ-3-51	ECJ-3-91
	SDG ID	L0108838	L0108767	L0108767	L0108838	L0108838	L0108838	L0108729	L0108729	L0108729	L0108729
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/20/01	09/20/01	09/20/01	09/21/01	09/20/01	09/20/01	09/18/01	09/18/01	09/18/01	09/18/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aroclor 1221		0.454 U	0.494 U	0.5 U	0.464 U	0.47 U	0.462 U	0.474 U	0.5 U	0.476 U	0.46 U
Aroclor 1232		0.454 U	0.494 U	0.5 U	0.464 U	0.47 U	0.462 U	0.474 U	0.5 U	0.476 U	0.46 U
Aroclor 1242/1016		0.454 U	0.494 U	0.5 U	0.464 U	0.47 U	0.462 U	0.474 U	0.5 U	0.476 U	0.46 U
Aroclor 1248		0.454 U	0.494 U	0.5 U	0.464 U	0.47 U	0.462 U	0.474 U	0.5 U	0.476 U	0.46 U
Aroclor 1254		0.454 U	0.494 U	0.5 U	0.464 U	0.47 U	0.462 U	0.474 U	0.5 U	0.476 U	0.46 U
Aroclor 1260		0.454 U	0.494 U	0.5 U	0.464 U	0.47 U	0.462 U	0.474 U	0.5 U	0.476 U	0.46 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.
* - Altered PCB Aroclor.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8082 PCB Data

	Sample ID	ECJ-4-130'	ECJ-4-160'	ECJ-4-223'	ECJ-4-245'	ECJ-4-60'	ECJ-4-85'	EQUIPMENT BLANK	GCA-1	MW-10	MW-10AR
	SDG ID	L0109029	L0109029	L0109029	L0109029	L0109029	L0109029	L0108838	L0109029	L0109029	L0108901
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/21/01	09/26/01	09/27/01	09/24/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aroclor 1221		0.469 U	0.481 U	0.481 U	0.466 U	0.464 U	0.476 U	0.464 U	0.5 U	0.5 U	0.5 U
Aroclor 1232		0.469 U	0.481 U	0.481 U	0.466 U	0.464 U	0.476 U	0.464 U	0.5 U	0.5 U	0.5 U
Aroclor 1242/1016		0.469 U	0.481 U	0.481 U	0.466 U	0.464 U	0.476 U	0.464 U	4.07	0.5 U	0.5 U
Aroclor 1248		0.469 U	0.481 U	0.481 U	0.466 U	0.464 U	0.476 U	0.464 U	0.5 U	0.5 U	0.5 U
Aroclor 1254		0.469 U	0.481 U	0.481 U	0.466 U	0.464 U	0.476 U	0.464 U	1.76	0.5 U	0.5 U
Aroclor 1260		0.469 U	0.481 U	0.481 U	0.466 U	0.464 U	0.476 U	0.464 U	0.5 U	0.5 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.
* - Altered PCB Aroclor.

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O'BRIEN & GERE ENGINEERS, INC.

Table 3
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8082 PCB Data

	Sample ID	MW-10B	MW-12AR	MW-13	MW-13A	MW-14	MW-15	MW-16	MW-17	MW-2	MW-22A
	SDG ID	L0109029	L0109029	L0109029	L0108838	L0108838	L0108729	L0108729	L0108838	L0108729	L0109029
	Dilution Factor	1	1	1	1	1	1	1	1	1	25
	Sample Date	09/27/01	09/26/01	09/26/01	09/21/01	09/21/01	09/18/01	09/18/01	09/21/01	09/19/01	09/27/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aroclor 1221		0.5 U	0.5 U	0.5 U	0.5 U	0.459 U	0.5 U	0.464 U	0.5 U	0.5 U	12.5 U
Aroclor 1232		0.5 U	0.5 U	0.5 U	0.5 U	0.459 U	0.5 U	0.464 U	0.5 U	0.5 U	12.5 U
Aroclor 1242/1016		0.5 U	2.26 *	0.5 U	0.5 U	0.459 U	R	0.464 U	0.5 U	R	61.2 J*
Aroclor 1248		0.5 U	0.5 U	0.5 U	0.5 U	0.459 U	0.5 U	0.464 U	0.5 U	0.5 U	12.5 U
Aroclor 1254		0.5 U	0.5 U	0.5 U	0.5 U	0.459 U	0.5 U	0.464 U	0.5 U	0.5 U	12.5 U
Aroclor 1260		0.5 U	0.5 U	0.5 U	0.5 U	0.459 U	0.5 U	0.464 U	0.5 U	0.5 U	12.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.
* - Altered PCB Aroclor.

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Table 3
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8082 PCB Data

	Sample ID	MW-22A Dup	MW-24	MW-4	MW-4A	MW-5	MW-5A	MW-6	MW-6A	MW-8	MW-8A
	SDG ID	L0109029	L0108729	L0108767	L0108767	L0108767	L0108767	L0108838	L0108838	L0109029	L0109029
	Dilution Factor	25	1	1	1	1	1	1	1	1	1
	Sample Date	09/27/01	09/19/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/26/01	09/26/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aroclor 1221		12.5 U	0.5 U	0.469 U	0.462 U	0.481 U	0.476 U	0.489 U	0.464 U	0.5 U	0.5 U
Aroclor 1232		12.5 U	0.5 U	0.469 U	0.462 U	0.481 U	0.476 U	0.489 U	0.464 U	0.5 U	0.5 U
Aroclor 1242/1016		49.7 *	R	0.469 U	0.462 U	0.481 U	0.476 U	0.489 U	0.464 U	0.5 U	0.5 U
Aroclor 1248		12.5 U	0.5 U	0.469 U	0.462 U	0.481 U	0.476 U	0.489 U	0.464 U	0.5 U	0.5 U
Aroclor 1254		12.5 U	0.5 U	0.469 U	0.462 U	0.481 U	0.476 U	0.489 U	0.464 U	0.5 U	0.5 U
Aroclor 1260		12.5 U	0.5 U	0.469 U	0.462 U	0.481 U	0.476 U	0.489 U	0.464 U	0.5 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.
* - Altered PCB Aroclor.

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Table 3
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 8082 PCB Data

	Sample ID	MW-8A Dup	OBG-1	OBG-2	OBG-3	OBG-3 Dup
	SDG ID	L0109029	L0108901	L0108901	L0108901	L0108901
	Dilution Factor	1	10	1	1	1
	Sample Date	09/26/01	09/24/01	09/24/01	09/24/01	09/24/01
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER
Aroclor 1221		0.5 U	5 U	0.5 U	0.5 U	0.5 U
Aroclor 1232		0.5 U	14 J*	4.9 J*	0.5 U	0.5 U
Aroclor 1242/1016		0.5 U	5 U	0.5 U	0.5 U	0.5 U
Aroclor 1248		0.5 U	5 U	0.5 U	0.5 U	0.5 U
Aroclor 1254		0.5 U	12.2	1.14 *	0.5 U	0.5 U
Aroclor 1260		0.5 U	5 U	0.5 U	0.5 U	0.5 U

NOTES: U - not detected, J - estimated value, R - unusable, --- - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.
* - Altered PCB Aroclor.

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Table 4
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 6010B/7470A Inorganic Data

Compound	Sample ID	BEI-1	BEI-2	BEI-3	ECJ-1-122	ECJ-1-146	ECJ-1-267	ECJ-1-37'	ECJ-1-62	ECJ-1-62 Dup	ECJ-1-72
	SDG ID	L0108901	L0108901	L0108901	L0108729	L0108729	L0108729	L0108767	L0108729	L0108729	L0108729
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/24/01	09/24/01	09/24/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
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	0.11
Antimony		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	0.05 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	0.005 U
Barium		0.76	0.66	0.09	1.2	0.87	0.03	0.42	0.35	0.32	0.29
Beryllium		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	0.005 U
Cadmium		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	0.005 U
Calcium		81	90	88	120	110	24	53	68	65	67
Chromium		0.01 U	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
Cobalt		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper		0.01 U	0.06	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		60	58	2.4	67	48	0.11	58	37	34	29
Lead		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	0.005 U
Magnesium		19	17	12	27	23	3.4	14	18	17	16
Manganese		1.1	7.6	6.8	4.7	4.2	0.22	8	7.2	6.7	6.8
Mercury		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Molybdenum		0.05 U	0.05 U	0.05 U	—	—	—	—	—	—	—
Nickel		0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Potassium		7.9	7.7	4.2	11	8.1	1 U	7.6	6.2	6	4.7
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	0.005 U
Silver		0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Sodium		58	83	27	71	58	14	64	64	61	50
Thallium		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	0.005 U
Vanadium		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	0.01 U
Zinc		0.05 U	0.05 U	0.05	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, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 4
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 6010B/7470A Inorganic Data

Compound	Sample ID	ECJ-2-117	ECJ-2-152'	ECJ-2-187'	ECJ-2-47	ECJ-2-82	ECJ-2-82' Dup	ECJ-3-126	ECJ-3-146	ECJ-3-51	ECJ-3-91
	SDG ID	L0108838	L0108767	L0108767	L0108838	L0108838	L0108838	L0108729	L0108729	L0108729	L0108729
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/20/01	09/20/01	09/20/01	09/21/01	09/20/01	09/20/01	09/18/01	09/18/01	09/18/01	09/18/01
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aluminum		0.1 U	0.28	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		0.05 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	0.05 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	0.005 U
Barium		0.02	0.26	0.09	0.05	0.01	0.01	0.03	0.09	0.07	0.02
Beryllium		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	0.005 U
Cadmium		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	0.005 U
Calcium		85	150	48	110	84	86	35	51	37	35
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	0.01 U
Cobalt		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 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	0.01 U
Iron		1.8	6.9	0.43	6.8	1.1	1.3	0.2	4.1	20	0.09
Lead		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	0.005 U
Magnesium		10	12	6.4	34	13	13	16	14	9.8	16
Manganese		0.66	2.5	0.85	7	0.35	0.36	0.02	4.5	0.95	0.01
Mercury		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Molybdenum		—	—	—	—	—	—	—	—	—	—
Nickel		0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Potassium		2	4.4	1.2	6.3	2.3	2.3	5.4	1.7	6.4	5.5
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	0.005 U
Silver		0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Sodium		40	49	45	63	40	42	110	33	140	120
Thallium		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	0.005 U
Vanadium		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	0.01 U
Zinc		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	0.05 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 4
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 6010B/7470A Inorganic Data

	Sample ID	ECJ-4-130'	ECJ-4-160'	ECJ-4-223'	ECJ-4-245'	ECJ-4-60'	ECJ-4-85'	EQUIPMENT BLANK	GCA-1	MW-10	MW-10AR
	SDG ID	L0109029	L0109029	L0109029	L0109029	L0109029	L0109029	L0108838	L0109029	L0109029	L0108901
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/26/01	09/21/01	09/26/01	09/27/01	09/24/01
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Compound	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aluminum		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.15	0.23	4.5
Antimony		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	0.05 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	0.005 U
Barium		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.98	0.02	0.09
Beryllium		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	0.005 U
Cadmium		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	0.005 U
Calcium		140	58	46	41	120	120	0.16	84	84	51
Chromium		0.01 U	0.01 U	0.01 U	0.03	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 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	0.02	0.01 U
Iron		0.08	0.08	0.12	0.24	0.05 U	0.05 U	0.05 U	68	46	19
Lead		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	0.008
Magnesium		41	12	4.1	4.2	47	45	0.1 U	14	48	17
Manganese		0.17	0.11	0.11	0.09	0.01 U	0.01	0.01 U	2.2	0.1	2
Mercury		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Molybdenum		—	—	—	—	—	—	—	—	—	—
Nickel		0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Potassium		3.6	2.1	1 U	1 U	3.4	3.7	1 U	9.6	3.7	4.7
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	0.005 U
Silver		0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Sodium		43	24	23	23	48	50	1 U	97	27	21
Thallium		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	0.005 U
Vanadium		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.04	0.01
Zinc		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.19	0.05 U	0.05 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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O'BRIEN & GERE ENGINEERS, INC.

Table 4
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 6010B/7470A Inorganic Data

Compound	Sample ID	MW-10B	MW-12AR	MW-13	MW-13A	MW-14	MW-15	MW-16	MW-17	MW-2	MW-22A
	SDG ID	L0109029	L0109029	L0109029	L0108838	L0108838	L0108729	L0108729	L0108838	L0108729	L0109029
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/27/01	09/26/01	09/26/01	09/21/01	09/21/01	09/18/01	09/18/01	09/21/01	09/19/01	09/27/01
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aluminum		0.1 U	0.1 U	0.13	0.12	0.11	0.1 U	0.1 U	0.33	0.1 U	0.11
Antimony		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	0.05 U
Arsenic		0.005 U	0.007	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.081
Barium		0.03	0.97	0.32	0.32	0.1	0.09	0.08	0.05	0.09	0.26
Beryllium		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	0.005 U
Cadmium		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	0.005 U
Calcium		87	99	43	50	85	60	38	46	81	230
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	0.01 U
Cobalt		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03
Copper		0.01 U	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
Iron		9.2	63	45	41	28	39	2.8	4.3	58	250
Lead		0.005 U	0.054	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.026
Magnesium		50	13	10	12	19	9.3	6.8	7.7	22	43
Manganese		0.09	1.4	10	13	3.8	1.5	1.3	2.4	5	5.9
Mercury		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Molybdenum		—	—	—	—	—	—	—	—	—	—
Nickel		0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.129
Potassium		3.9	8.8	7.6	7.8	12	11	6.5	5.9	9.4	29
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	0.005 U
Silver		0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Sodium		34	100	69	70	92	110	160	30	80	110
Thallium		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	0.005 U
Vanadium		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	0.03
Zinc		0.05 U	0.25	0.05 U	0.05 U	0.05 U	0.05 U	0.06	0.05 U	0.05 U	0.05 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
Dup - references blind field duplicate sample that was collected. Lab Dup - laboratory duplicate analyses conducted.

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Table 4
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 6010B/7470A Inorganic Data

Compound	Sample ID	MW-22A Dup	MW-24	MW-4	MW-4A	MW-5	MW-5A	MW-6	MW-6A	MW-8	MW-8A
	SDG ID	L0109029	L0108729	L0108767	L0108767	L0108767	L0108767	L0108838	L0108838	L0109029	L0109029
	Dilution Factor	1	1	1	1	1	1	1	1	1	1
	Sample Date	09/27/01	09/19/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/20/01	09/26/01	09/26/01
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Aluminum		0.1 U	0.1 U	0.1 U	0.17	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2.6
Antimony		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	0.05 U
Arsenic		0.076	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		0.27	0.4	0.13	0.06	0.08	0.13	0.04	0.09	0.01	0.04
Beryllium		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	0.005 U
Cadmium		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	0.005 U
Calcium		230	59	46	34	120	28	100	87	120	95
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	0.01 U
Cobalt		0.03	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 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	0.01 U
Iron		240	45	7.8	30	0.05 U	0.05 U	8.3	12	2.7	2.9
Lead		0.027	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
Magnesium		42	16	9	7.9	23	6	32	25	48	49
Manganese		5.8	5.5	1.8	3.2	0.07	0.01	9.1	9.2	0.01 U	0.04
Mercury		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Molybdenum		—	—	—	—	—	—	—	—	—	—
Nickel		0.128	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Potassium		28	8.2	1.8	3	6.5	5.9	5.8	12	3.5	4.8
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	0.005 U
Silver		0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Sodium		110	82	32	150	110	220	80	150	46	51
Thallium		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	0.005 U
Vanadium		0.03	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
Zinc		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	0.05 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
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Table 4
Sullivan's Ledge Superfund Site
Ground Water Samples
Method 6010B/7470A Inorganic Data

Compound	Sample ID	MW-8A Dup	OBG-1	OBG-2	OBG-3	OBG-3 Dup
	SDG ID	L0109029	L0108901	L0108901	L0108901	L0108901
	Dilution Factor	1	1	1	1	1
	Sample Date	09/26/01	09/24/01	09/24/01	09/24/01	09/24/01
	Units	mg/L	mg/L	mg/L	mg/L	mg/L
	Matrix	WATER	WATER	WATER	WATER	WATER
Aluminum		2.6	0.1 U	0.1 U	0.1 U	0.1 U
Antimony		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Arsenic		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium		0.04	1.5	1.9	0.67	0.69
Beryllium		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cadmium		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium		95	100	110	120	120
Chromium		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron		2.9	54	76	62	63
Lead		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium		49	25	26	22	22
Manganese		0.04	8.2	6.9	9.6	9.8
Mercury		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Molybdenum		—	0.05 U	0.05 U	0.05 U	0.05 U
Nickel		0.025 U	0.025 U	0.025 U	0.026	0.025 U
Potassium		4.9	10	12	8.1	8
Selenium		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver		0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Sodium		51	66	83	73	75
Thallium		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Vanadium		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc		0.05 U	0.05 U	0.05	0.05	0.05 U

NOTES: U - not detected, J - estimated value, R - unusable, — - not analyzed.
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O'BRIEN & GERE
ENGINEERS, INC.

January 10, 2002

Mr. David O. Lederer
Remedial Project Manager
Environmental Protection Agency (HBO)
Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Sullivan's Ledge Superfund Site
Quarterly Ground Water
Sampling Event – Fall 2001

File: 5509/28602 #2

Dear Dave:

Please find enclosed for your review the Quarterly Ground Water Sampling Event – Fall 2001. Please contact me if you have any questions concerning this document.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC

James R. Heckathorne, PE
Vice President

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Attachment

cc: S. Wood, E. Vaughn, S. Alfonse, J. O'Loughlin, E. Bertaut, D. Dwight, M. Wade, G. Swenson, R. Connors