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Monitoring Event 12 - July 1998
Sites 1 and 3 and Eastern Plume,
Naval Air Station, Brunswick, Maine

Volume 1 of 2
Text through Appendix B

Contract No. N62472-92-D-1296
Contract Task Order No. 0047

U.S. NAVAL AIR STATION
BRUNSWICK, MAINE

Prepared for

Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Mail Stop No. 82
Lester, Pennsylvania 19113-2090

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QUALITY REVIEW STATEMENT

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Monitoring Event 12 - July 1998, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine

EA CTO Manager: Charles E. McLeod, P.E.

In compliance with EA's Quality Procedures for review of deliverables outlined in the Quality Management Plan, this final deliverable has been reviewed for quality by the undersigned Senior Technical Reviewer(s). The information presented in this report/deliverable has been prepared in accordance with the approved Implementation Plan for the Contract Task Order (CTO) and reflects a proper presentation of the data and/or the conclusions drawn and/or the analyses or design completed during the conduct of the work. This statement is based upon the standards identified in the CTO and/or the standard of care existing at the time of preparation.

Senior Technical Reviewer

Michael S. Battle mlp 10/30/98

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1. PROJECT ACTIVITIES AND MONITORING EVENT RESULTS

1.1 INTRODUCTION

Under Contract No. N62472-92-D-1296, Contract Task Order No. 0047, Northern Division, Naval Facilities Engineering Command contracted with EA Engineering, Science, and Technology to perform long-term monitoring at Sites 1 and 3 and Eastern Plume at Naval Air Station (NAS), Brunswick, Maine. NAS Brunswick is located south of the Androscoggin River between Brunswick and Bath, Maine (Figure 1). The locations of Sites 1 and 3 and the Eastern Plume are provided on Figure 2.

At Sites 1 and 3 and the Eastern Plume, the Navy is performing long-term monitoring, maintenance, and corrective measures as part of the long-term remedial actions required by the Record of Decision for a Remedial Action dated June 1992 for Sites 1 and 3 (ABB-ES 1992a) and the Record of Decision Interim Remedial Action dated June 1992 for the Eastern Plume (ABB-ES 1992b). A Long-Term Monitoring Plan (LTMP) was established pursuant to these Records of Decision (ABB-ES 1994). Approval of the LTMP was received from the U.S. Environmental Protection Agency (EPA) and State of Maine Department of Environmental Protection on 23 June 1994. The LTMP document establishes the monitoring and sampling requirements for Sites 1 and 3 and the Eastern Plume. The LTMP will be revised in 1998 based on the data previously collected. A 5-year review evaluation scheduled for the Year 2000 will be conducted to provide proposed refinements/alterations to the monitoring program or remedial activity, if appropriate.

Remedial actions at Sites 1 and 3 included construction of a low permeability slurry wall upgradient and surrounding the landfills to a depth of approximately 90 ft, construction of a low permeability cap atop the landfills, and placement of 2 ground-water extraction wells within the landfill limits. Extraction wells within the landfill limits (EW-6 and EW-7) were deactivated on 19 November 1997 due to continually decreasing yields and stabilized water levels within the confines of the slurry wall. Ground water in the Eastern Plume is being remediated by a treatment system consisting of 5 ground-water extraction wells designed to provide hydraulic control of the aquifer, and a treatment plant to remove volatile organic compounds (VOC) and inorganics from the ground water prior to discharge. The extraction system has been operational since April 1995. Extraction well EW-2A, located within the Eastern Plume in the vicinity of monitoring well MW-311, was activated on 12 June 1998 to provide additional hydraulic control in this area.

This report provides the results for the July 1998 monitoring/sampling event (Monitoring Event 12). Appendix A provides field monitoring and sampling forms, Appendix B provides an analytical data quality review, and Appendix C provides analytical report data tables. Bi-monthly water level gauging data collected during May 1998 are also discussed in this report. With the concurrence of the EPA and MEDEP, the format of the Monitoring Event 12 report and

later monitoring event reports will be simplified, and will focus on presenting the results of the sampling event. A discussion of temporal trends and other observations based on data collected during long-term monitoring will be presented in the Annual Report for 1998.

1.2 MEASUREMENT OF WATER LEVEL ELEVATIONS

1.2.1 Field Activities

Water level measurements were obtained during Monitoring Event 12 on 2 July 1998 at the wells, piezometers, and surface water gauging locations indicated in Tables 1 and 2 for Sites 1 and 3 and Eastern Plume, respectively. Although not required by the LTMP, bi-monthly water level data were collected on 5 May 1998 from Sites 1 and 3 and Eastern Plume monitoring wells, piezometers, and extraction wells. These additional bi-monthly water level data were collected to identify any seasonality or significant variation in ground-water flow direction with time.

Water level measurements were taken at 60 ground-water monitoring wells, 20 EP-series piezometers, 10 P-series piezometers, 8 ground-water extraction wells, and 6 surface water gauging stations. Data were collected from the 6 surface water gauging points (GP-01 through GP-06) to provide additional data for use in interpretation of shallow ground-water flow. Water elevation data were collected at offsite locations during Monitoring Event 12 and the May 1998 bi-monthly gauging event, including MW-312, MW-316A, MW-316B, MW-317A, MW-317B, P-121, and P-123. The offsite data were collected to assess ground-water flow patterns to the east of Merriconeag Stream.

Figure 3 provides the locations of ground-water monitoring wells, piezometers, extraction wells, surface water gauging stations, and other LTMP sampling points at Sites 1 and 3 and Eastern Plume. Sampling and gauging procedures are detailed in the final report for Monitoring Event 4 (EA 1996) and in the LTMP (ABB-ES 1994). An artesian condition was noted in MW-309A during the May and July 1998 well gauging events, and water level was recorded during the May and July 1998 gauging events by placing a pressure transducer on the PVC casing.

A total of 0.33 in. of precipitation was noted before and during the May 1998 gauging period, and no precipitation was noted 1 week before or during the July gauging period.

1.2.2 Results

Calculated ground-water elevation data are provided in Tables 3 and 4 for Sites 1 and 3 and the Eastern Plume, respectively. During the well gauging conducted as part of Monitoring Event 12, the following exceptions to the LTMP were noted:

- Water level measurements were not obtained in the following dry wells/piezometers: MW-202B, P-110, and P-124.

- Water level data were not obtained from MW-216B because it was abandoned in-place in 1995.

- One offsite piezometer (P-123) was blocked and could not be gauged.

Four Eastern Plume extraction wells (EW-1 through EW-4) were in operation at the time water table elevation data were collected on 5 May 1998. Pumping rates at each of the extraction wells at the time of water level gauging on 5 May 1998 were as follows: EW-1 (11 gal per minute [gpm]), EW-2 (27 gpm), EW-3 (18 gpm), and EW-4 (21 gpm). Six of 8 extraction wells (EW-1 through EW-5) were in operation at the time water table elevation data were collected on 2 July 1998. Time-averaged pumping rates at each of the extraction wells at the time of water level gauging on 2 July 1998 were as follows: EW-1 (8 gpm), EW-2 (12 gpm), EW-2A (17 gpm), EW-3 (6 gpm), EW-4 (21 gpm), and EW-5 (9 gpm). Daily pumping rates for each extraction well for the period 1 April through 31 July 1998 are provided in Table 5.

Shallow and deep potentiometric surface contour maps were prepared based on the water level data collected on 5 May and 2 July 1998. The shallow potentiometric surface contour maps contain data for wells and piezometers screened in the upper stratified silt/sand unit, while the deep potentiometric surface contour maps contain data for wells and piezometers screened in the lower coarse sand unit. The shallow interval is unconfined, while the deep interval is considered semi-confined due to the presence of the transition unit above and the Presumscot Clay formation below. The distinction between shallow and deep potentiometric surfaces was made to reflect changes in potentiometric head observed at depth in wells located across Sites 1 and 3 and Eastern Plume. The interpreted ground-water flow direction for the 5 May and 2 July 1998 gauging events is shown on Figures 4 and 5, respectively, for the shallow portions of the aquifer, and Figures 6 and 7, respectively, for the deep portions of the aquifer.

Note that wells MW-210A, MW-210R, and MW-211A, located at Sites 1 and 3, are screened in bedrock at significantly lower depths than deep overburden wells. Consistent with previous monitoring events, the measured water elevations at these bedrock wells were not comparable to nearby wells screened in the deep overburden. Therefore, the data for these bedrock wells were not used in the development of overburden potentiometric surface contour maps.

At Sites 1 and 3, a comparison of water elevation data collected during long-term monitoring indicates water elevations have decreased within the confines of the slurry wall (Figure 8). The bottom of the waste material at Sites 1 and 3 has been reported to be 32.9 ft mean sea level, as noted at well MW-234R. The depth of ground water during May and July 1998 at monitoring well MW-234R was 33.55 ft mean sea level, which is approximately 0.7 ft above the bottom of the waste material.

Observations regarding well condition were made during the well gauging program, and notable observations at Sites 1 and 3 include: repairs required at monitoring well MW-217A (separated extension approximately 10 ft below the top of casing) and monitoring well MW-217B (pump cord shortened). At Eastern Plume, the two artesian wells (MW-207A and MW-309A) and one

monitoring well (MW-309A) require new outer steel casing. These observed conditions at MW-217A are caused by the anomalous water elevations noted at MW-217A during May gauging. Other well repairs are not expected to affect water level gauging or ground-water sample results. Repairs have been scheduled to occur during October 1998. The monitoring locations are secured with locks and monitoring points are labeled.

1.3 GROUND-WATER MONITORING, SAMPLING, AND ANALYSIS

1.3.1 Field Activities

The ground-water sampling program was performed during the period of 7-13 and 27 July 1998 at Sites 1 and 3 and Eastern Plume. Dedicated Grundfos Redi-Flo2 stainless steel and Teflon® submersible pumping systems were utilized at a majority of the wells to permit sampling using the low flow sampling technique. Six wells/piezometers located in the Eastern Plume were sampled using a peristaltic pump, including MW-105A, MW-206B, MW-207B, MW-209, P-105, and P-106.

Ground-water samples were collected from 15 of 16 monitoring wells included in the long-term monitoring program at Sites 1 and 3. Consistent with previous sampling events, Well MW-202B did not yield enough water for sample collection. Well MW-216B has been abandoned, and is not included in the sampling program.

At the Eastern Plume site, ground-water samples were collected from 36 of 36 wells and piezometers, and 6 of 6 extraction wells. Three sampling locations were removed from the long-term monitoring program as of Monitoring Event 7: P-111, P-112, and P-132. These locations were frequently dry or yielded highly turbid samples.

Tables 1 and 2 provide summaries of the wells/piezometers gauged and sampled as part of the long-term monitoring program. A detailed description of sample collection methods is provided in the final report for Monitoring Event 4 (EA 1996).

1.3.2 Water Quality Indicator Parameter Measurements

Water quality indicator parameters, including pH, conductivity, temperature, dissolved oxygen, and turbidity, were monitored to ensure stabilization of water quality prior to sample collection. Stabilization of water quality indicator parameters was considered achieved when measurements agreed to within 10 percent on three successive readings and turbidity was below 10 NTU. Although not required by the LTMP, oxidation-reduction potential (Eh) was recorded for informational purposes.

At the Eastern Plume site, 35 of 36 wells/piezometers reached equilibrium of the water quality indicator parameters during well purging. Monitoring well MW-313 had one water quality parameter (turbidity) which did not stabilize to within 10 percent on three successive readings.

Fourteen of the 35 wells/piezometers sampled reached equilibrium with turbidity measurements in excess of 10 NTU.

1.3.3 Water Quality Results

Results of water quality indicator parameter monitoring at the time samples were collected are summarized in Tables 6 and 7 for ground-water samples collected at Sites 1 and 3 and the Eastern Plume, respectively. Table 8 provides a summary of the water quality indicator parameter measurements taken in surface water and seep samples collected at Sites 1 and 3. Water quality indicator parameters measured in water samples collected from extraction wells and treatment plant combined influent and treated effluent samples are summarized in Table 9. The Field Record of Well Gauging, Purging, and Sampling forms, and Field Record of Surface Water/Sediment Sampling forms are provided in Appendix A.

Notable results of water quality indicator parameter measurements are described below.

1.3.3.1 Sites 1 and 3

- Three of 15 wells reported turbidity in excess of 10 NTU (MW-210B, 46 NTU; MW-217A, 12 NTU; and MW-217B, 308 NTU).

- Elevated levels of conductivity were measured at MW-217A, MW-217B, and MW-210R compared to other wells at Sites 1 and 3. These wells are located within or near the landfill.

- Elevated dissolved oxygen concentrations approaching saturation (>9.0 mg/L) were noted in 3 wells at Sites 1 and 3: MW-203 (11.20 mg/L), MW-204 (13.41 mg/L), and MW-219 (9.60 mg/L).

- Monitoring wells MW-203, MW-204, and MW-234R had one water quality parameter (Eh, turbidity, and temperature, respectively) which did not stabilize to within 10 percent on three successive readings.

1.3.3.2 Eastern Plume

- Turbidity values below 10 NTU were recorded at 20 of 36 monitoring wells and piezometers sampled. Turbidity values stabilized at other locations prior to sample collection, with the exception of MW-313.

- Elevated dissolved oxygen concentrations approaching saturation (>9.0 mg/L) were noted in 12 wells at the Eastern Plume: MW-105A (16.53 mg/L), MW-105B (15.85 mg/L), MW-106 (11.20 mg/L), MW-206B (13.44 mg/L), MW-209 (14.87 mg/L), MW-222 (11.30 mg/L), MW-223 (10.91 mg/L), MW-224 (11.02 mg/L), MW-225B (12.21 mg/L), MW-231A (9.54 mg/L),

MW-231B (10.22 mg/L), and MW-310 (10.35 mg/L). All but 3 of these wells (MW-105A, MW-224, and MW-310) are screened within the unconfined upper stratified sand/silt transition unit; all of the wells are located along the western or southern boundaries of the Eastern Plume.

1.3.3.3 Surface Water and Leachate Seeps

Surface water and leachate seep sample water quality indicator parameter measurements are summarized in Table 8.

Notable results of water quality indicator parameters include:

- Turbidity in surface water showed little variability with distance from the landfill. Surface water sample location SW-5 had a higher turbidity, however, it was noted that there was beaver activity upstream from this location.

- Four leachate seeps (SEEP-02 through SEEP-05) were dry, therefore, water quality parameters could not be recorded.

1.3.3.4 Ground-Water Extraction and Treatment System

Table 9 summarizes the water quality indicator parameter measurements recorded at these locations.

Notable results of water quality indicator parameters measured during Monitoring Event 12 include:

- Elevated dissolved oxygen concentrations were recorded in the combined effluent, which is likely attributable to aeration and mixing, and the addition of hydrogen peroxide in the ultraviolet/peroxidation system, located immediately upstream of the effluent sample port.

1.3.4 Ground-Water Analytical Program

Ground-water samples collected from Sites 1 and 3 and the Eastern Plume were submitted for analysis of Target Compound List (TCL) VOC by EPA Method 8260. Ground-water samples collected from Sites 1 and 3 were further analyzed for Target Analyte List (TAL) elements, including metals by inductively coupled plasma (EPA Method 6010) and graphite furnace (EPA Method 7000 Series), and mercury by cold vapor atomic adsorption (EPA Method 7470). Chromium was analyzed by inductively coupled plasma (EPA Method 6010) rather than graphite furnace atomic adsorption (EPA Method 7191) as specified in LTMP (ABB-ES 1994); the precision and accuracy objectives and reporting requirements identified in the LTMP were met. Effective November 1996, cyanide analyses were removed from the analytical program.

1.3.5 Ground-Water Sampling Results

1.3.5.1 Sites 1 and 3

Table 10 provides a summary of the analytical results for the ground-water samples collected at Sites 1 and 3. Summary tables (Form I documents) for the analyses performed are provided in Appendix C.

VOC reported at concentrations above corresponding State Maximum Exposure Guidelines (MEG) and/or Federal Drinking Water Maximum Contaminant Levels (MCL) in ground-water samples are summarized below:

- 1,2-Dichloroethane was reported in MW-217B and MW-217B Duplicate at concentrations of 8 μg/L which exceeds the State MEG and Federal MCL of 5 μg/L.

- Vinyl chloride was reported in 3 samples at concentrations which exceed the State MEG of 0.15 μg/L and/or the Federal MCL of 2 μg/L: MW-216A (22 μg/L), MW-216A Duplicate (23 μg/L), MW-217B (42D μg/L), MW-217B Duplicate (47D μg/L), and MW-234R (3 μg/L).

- 1,4-Dichlorobenzene was reported in MW-217B at a concentration of 75D μg/L and at 74D μg/L in MW-217B DUP which exceeds the State MEG of 27 μg/L.

Target analytes reported above primary Federal MCL and State MEG in ground water are summarized below:

- Aluminum was reported at concentrations above the State MEG of 1,430 μg/L in 1 ground-water sample: MW-217B (8,930 μg/L) and MW-217B Duplicate (3,060 μg/L).

- Antimony was reported in 2 samples (MW-217B and MW-2101) at concentrations of 3.3 μg/L and 3.0 μg/L, respectively, which exceed the State MEG of 2.8 μg/L. However, antimony was reported in MW-217B and MW-2101 at a concentration between the Instrument Detection Limit and the Contract Required Detection Limit.

- Arsenic was reported at a concentration of 175 μg/L in MW-218, which exceeds the Federal MCL of 50 μg/L.

- Manganese was reported at concentrations above the State MEG of 200 μg/L in 7 ground-water samples: MW-202A (1,570 μg/L), MW-215R (1,130 μg/L), MW-216A (3,830 μg/L), MW-217B (3,800 μg/L), MW-220 (1,750 μg/L), MW-234R (474 μg/L), and MW-218 (911 μg/L).

- Inorganic concentrations were reported above corresponding primary Federal MCL and State MEG and were also elevated compared with reported concentrations at MW-2101, located upgradient of the landfill at Sites 1 and 3.

- Three wells (MW-210B, MW-217A, and MW-217B) reported elevated turbidity (greater than 10 NTU) and also reported elevated concentrations of inorganics.

1.3.5.2 Eastern Plume

Table 11 summarizes the analytical results for the ground-water samples collected at the Eastern Plume. The summary tables (Form Is) for these analyses are provided in Appendix C.

VOC reported in site wells/piezometers at concentrations above Federal MCL and State MEG are summarized below:

- 1,1,1-Trichloroethane was reported above the State MEG (200 μg/L) and Federal MCL (200 μg/L) in samples collected from 4 wells/piezometers: MW-306 (250D μg/L), MW-311 (3,700D μg/L), P-105 (1,100D μg/L), and P-106 (2,000D μg/L).

- 1,1,2-Trichloroethane was reported above the State MEG of 3 μg/L and Federal MCL of 5 μg/L in MW-311 at 11J μg/L.

- Trichloroethene was reported above the State MEG of 5 μg/L and Federal MCL of 5 μg/L in samples collected from 11 wells/piezometers: MW-205 (61D μg/L), MW-207A (30 μg/L), MW-208 (15 μg/L), MW-225A (6 μg/L), MW-229A (32 μg/L), MW-306 (93D μg/L), MW-311 (980D μg/L), MW-319 (16 μg/L), P-105 (230 μg/L), P-106 (390 μg/L), and MW-NASB-212 (17 μg/L).

- Tetrachloroethene was reported above the State MEG of 3 μg/L and/or Federal MCL of 5 μg/L in samples collected from 7 wells/piezometers: MW-205 (11 μg/L), MW-207A (40 μg/L), MW-208 (4 μg/L), MW-229A (4 μg/L), MW-311 (20J μg/L), MW-319 (12 μg/L), and P-106 (6J μg/L).

- 1,1-Dichloroethene was reported above the State MEG of 7 μg/L and Federal MCL of 7 μg/L in samples collected from 5 wells/piezometers: MW-205 (28 μg/L), MW-306 (15 μg/L), MW-311 (580 μg/L), P-105 (120 μg/L), and P-106 (150 μg/L).

- Total 1,2-Dichloroethene was reported above the State MEG of 70 μg/L and Federal MCL of 70 μg/L in the sample collected from MW-306 (79D μg/L).

- 1,1-Dichloroethane was reported above the State MEG of 70 μg/L in the sample collected from MW-311 (130 μg/L).

1.3.5.3 Total Volatile Organic Compound Isoconcentration Maps

A review of total VOC concentration isocontours for wells screened in the unconfined shallow interval (upper transition unit) at Sites 1 and 3 and the Eastern Plume (Figure 9) indicates that VOC concentrations above corresponding State MEG and/or Federal MCL were detected in one area within the Sites 1 and 3 landfill: in the vicinity of MW-217B and MW-234R. No shallow wells or piezometers in the Eastern Plume reported VOC concentrations above corresponding MEG or MCL, or reported total VOC greater than 100 μg/L.

A review of total VOC concentration isocontours for wells screened within the deep interval (semi-confined coarse sand unit) at Sites 1 and 3 and the Eastern Plume (Figure 10) indicates that two areas of the Eastern Plume and one area of Sites 1 and 3 reported VOC concentrations above corresponding State MEG and Federal MCL. The first area in the Eastern Plume extends from MW-NASB-212 in the northeastern portion of the Eastern Plume towards EW-4. The second area in the Eastern Plume extends from EW-3 southeast toward MW-311 and south toward MW-229A. Exceedances of State MEGs and/or Federal MCLs at Sites 1 and 3 were reported in the vicinity of monitoring well MW-216A.

1.3.5.4 Perimeter Monitoring Wells

A network of perimeter monitoring wells is present along the property boundary of NAS Brunswick. Perimeter monitoring wells at Sites 1 and 3 and the Eastern Plume include: MW-231A, MW-231B, MW-318, MW-313, MW-218, MW-311, MW-309A, MW-309B, and MW-305. Sampling results from these wells are included in Table 11.

Notable results of perimeter well sampling include:

- The majority of perimeter monitoring wells (MW-231A, MW-231B, MW-305, MW-309B, MW-313, MW-309A, and MW-318) reported no concentrations of VOC.

- One perimeter monitoring well at Sites 1 and 3 (MW-218) reported elevated concentrations of arsenic and manganese above State MEG or Federal MCL.

- One perimeter monitoring well located in the southeast portion of the Eastern Plume (MW-311) reported concentrations of 6 VOC above corresponding State MEG or Federal MCL.

1.3.5.5 Ground-Water Extraction and Treatment System

Table 12 provides a summary of the VOC and target analytes reported in ground-water extraction well, treatment system influent, and treatment system combined effluent samples collected at the ground-water extraction and treatment system. Laboratory data (Form I documents) are provided in Appendix C.

There were no exceedances of the ground-water treatment plant discharge limits for VOC reported in the combined effluent sample. There were no target analytes reported in the combined effluent sample at concentrations exceeding the ground-water treatment system discharge limits.

1.4 SURFACE WATER, SEDIMENT, AND SEEP SAMPLING AND ANALYSIS

1.4.1 Sampling Activities

The surface water, sediment, leachate seep, and leachate seep sediment samples at Sites 1 and 3 were collected on 16 July 1998, in accordance with the general methodologies established in the LTMP (ABB-ES 1994). Exceptions to sampling activities specified in the LTMP during Monitoring Event 12 included:

- Leachate station seep samples were collected at 1 of 5 planned locations at the toe of the Sites 1 and 3 landfill footprint. Four seep sampling stations (SEEP-2 through SEEP-5) were dry at the time of sampling. Seep location SEEP-2 has been dry since August 1995 (Monitoring Event 3), seep location SEEP-3 has been dry periodically throughout the sampling program (Monitoring Events 3, 4, and 11), seep location SEEP-4 has also been dry periodically throughout the sampling program (Monitoring Events 3, 4, 6, and 11), and SEEP-05 was dry for the first time during Monitoring Event 12.

Table 1 lists the surface water, sediment, and leachate station seep and leachate station sediment locations included in the sampling program.

Surface water, sediment, leachate station seep, and seep sediment samples were collected for analysis of TCL VOC by EPA Method 8260 and TAL elements, including metals by inductively coupled plasma (EPA Method 6010), graphite furnace (EPA Method 7000 series), and mercury by cold vapor atomic adsorption (EPA Method 7470). Chromium was analyzed by inductively coupled plasma (EPA Method 6010) rather than graphite furnace atomic adsorption (EPA Method 7191) as specified in LTMP (ABB-ES 1994); the precision and accuracy objectives and reporting requirements identified in the LTMP were met. Effective November 1996, cyanide analyses were removed from the analytical program.

1.4.2 Results

1.4.2.1 Surface Water

Table 13 provides a summary of the VOC and TAL reported in surface water samples collected at Sites 1 and 3. The reports of laboratory analyses (Form I documents) for the surface water samples are provided in Appendix C.

Notable results of surface water sampling include:

- No VOC was reported in surface water samples collected at Sites 1 and 3. Two VOC (chloroform and methylene chloride) were reported in the associated source water blank and equipment rinsate blank, although these are often common laboratory contaminants.

- Elevated concentrations of iron, calcium, magnesium, manganese, potassium, and sodium were reported in surface water samples SW-1, SW-2, and SW-3 which are located near the toe of the landfill, in comparison with downstream samples SW-4 through SW-7.

1.4.2.2 Sediment

Table 14 provides a summary of the constituents reported in sediment samples collected at Sites 1 and 3. The reports of laboratory analyses (Form I documents) for sediment samples are provided in Appendix C.

Notable results of sediment sampling include:

- VOC were reported in 6 of 7 sediment samples (SED-1, SED-2, SED-3, SED-4, SED-6, and SED-7).

- The only VOC identified as a constituent of concern for sediment (1,1,2,2-tetrachloroethene) was not reported in the 7 sediment samples.

- Acetone was reported in 6 samples, 2-butanone was reported in 3 samples; 4-methyl-2-pentanone was reported in 1 sample and 2-hexanone was reported in 2 samples, however, they are common laboratory artifacts.

1.4.2.3 Leachate Station Seep Samples

Table 15 provides a summary of the constituents reported in leachate station seep samples collected at Sites 1 and 3. Seep samples were not collected at 4 of the 5 planned locations (SEEP-2 through SEEP-5) because these locations were dry and no aqueous samples could be obtained. The analytical reports for leachate analyses (Form Is) are provided in Appendix C.

1.4.2.4 Leachate Station Sediment Samples

Table 16 provides a summary of the constituents reported in the 5 leachate station sediment samples collected at Sites 1 and 3. Reports of laboratory analyses (Form Is) are provided in Appendix C.

1.5 LANDFILL GAS MONITORING AND CAP INSPECTION

1.5.1 Monitoring Activities

Gas probe monitoring was conducted at Sites 1 and 3 on 28 July 1998 to monitor and identify subsurface gas migration, as specified in the LTMP (ABB-ES 1994). Landfill gas monitoring procedures were performed in accordance with the LTMP (ABB-ES 1994) and the final report for Monitoring Event 4 (EA 1996). Gas measurements were taken at each of the 3 gas probes (GP-04 through GP-06) located along the north and west side of the Weapons Compound and at each of the 14 gas vents (GV-01 through GV-14) located along the north and west sides of the landfill. The gas probe casings were observed to be completed and locked, and appeared to be in good condition. Two gas vents (GV-01 and GV-14) were observed to have been completed with plastic impact barriers, although these vents are located in areas away from potential vehicular traffic.

The engineering inspection noted the presence of erosion, and corrective measures have been scheduled to repair the areas of erosion noted in previous sampling events and to prevent further erosion. Corrective actions, including mowing the vegetative cover and visual inspection of the landfill area, have been completed. Completion of necessary repairs to the landfill cap and drainage system will be completed in the Fall of 1998.

1.5.2 Landfill Gas Monitoring Results

Table 17 provides a summary of landfill gas monitoring conducted at the gas probes and gas vents located at Sites 1 and 3. Sample data were noted both in field logbooks and on the field record forms provided in Appendix A.

Notable results of landfill gas monitoring include:

- The gas pressure from gas probes and gas vents was below the detection limit of the differential pressure gauge (<0.01 in. water).
- Depleted oxygen concentrations were observed at 4 of 14 gas vents. The lowest percent oxygen measurement was noted at vent GV-04 (18.3 percent).

- Methane was detected in gas probes at concentrations ranging from non-detect (GP-6) to 0.1 (GP-04 and GP-05). Methane was reported in gas vents ranging in concentration from non-detect (GV-02, GV-03, GV-05, GV-06, GV-08, GV-11, and GV-14) to 0.9 percent (GV-04).

- Carbon dioxide was reported in all gas probes monitored at 0.8 percent (GP-04), 3.6 percent (GP-05), and 1.7 percent (GP-06). Carbon dioxide was reported in the gas vents at concentrations ranging from non-detect (GV-01 through GV-03, GV-05, GV-06, GV-08, GV-09, GV-11, and GV-14) to 3.7 percent (GV-13).

1.6 QUALITY ASSURANCE/QUALITY CONTROL

A rigorous quality assurance/quality control program is required by the LTMP to meet the data quality objectives of the aqueous and sediment sampling program, as outlined in the Quality Assurance Project Plan contained in the LTMP (ABB-ES 1994). The data obtained during the July 1998 sampling event were determined to be of sufficient quality to be used for the objectives specified in the LTMP (ABB-ES 1994). Field record forms for the Monitoring Event 12 sampling effort are provided in Appendix A.

1.7 ANALYTICAL DATA QUALITY REVIEW

As required by the Quality Assurance Project Plan contained in the LTMP (ABB-ES 1994), a review of laboratory data was performed on selected quality control parameters to evaluate precision, accuracy, representativeness, completeness, and comparability and data quality objective requirements. A summary of the analytical data quality review for chemical data is provided in Appendix B. With consideration of the data qualifiers and notes discussed in Appendix B, the data represented in this report were found to meet specified acceptance criteria and, therefore, represent data in compliance with the Quality Assurance Project Plan contained in the LTMP (ABB-ES 1994). Method detection limits for sediment and aqueous media are included in Appendix B.

Notable findings of the analytical data quality review included:

- Mercury holding times were exceeded due to laboratory error for several samples. Therefore, mercury data should be considered unreliable for the following samples: EW-5, EW-4, EW-3, EW-2A, EW-2, EW-1, Eastern Plume Influent, Combined Effluent, the duplicate for Combined Effluent, SW-7, SW-6, SW-5, SW-4, SW-3, SW-2, SW-1, SEEP-1, SD-4, and the duplicates for SW-5 and SEEP-1, source water blank (QD001), and rinsate blanks QS-001 and QS-002. The data user should note that mercury has not been reported above MEG/MCL or cleanup guidance at these sample locations during long-term monitoring sampling.

- The volatile organic concentrations should be considered biased low due to sample matrix issues in the following samples: MW-222, MW-222 DUP, MW-225A, MW-224, MW-206A, MW-230A Duplicate, MW-309A, MW-318, MW-230A , MW-229A, MW-202A, MW-217A, MW-215R, SW-5, trip blank QT-005, source water blank QD001, rinsate blank QS001, and rinsate blank QS002.

- Volatile organic concentrations should be considered estimations and bias slightly low due to holding time exceedances for the following samples: MW-308 and MW-105B; diluted samples EW-2A, EW-2, EW-1, Combined Effluent, Eastern Plume Influent, EW-5, MW-217B, and MW-306; reanalyzed samples SW-5, MW-229A; and trip blanks QT-006 and QT-004.

- The mercury concentrations should be considered estimations and bias slightly low for the following samples: SD-7, SD-6, SD-5, SD-3, SD-2, SD-1, LT-1, LT-2, LT-3, LT-4, LT-5, and the duplicates for SD-5 and LT-1.

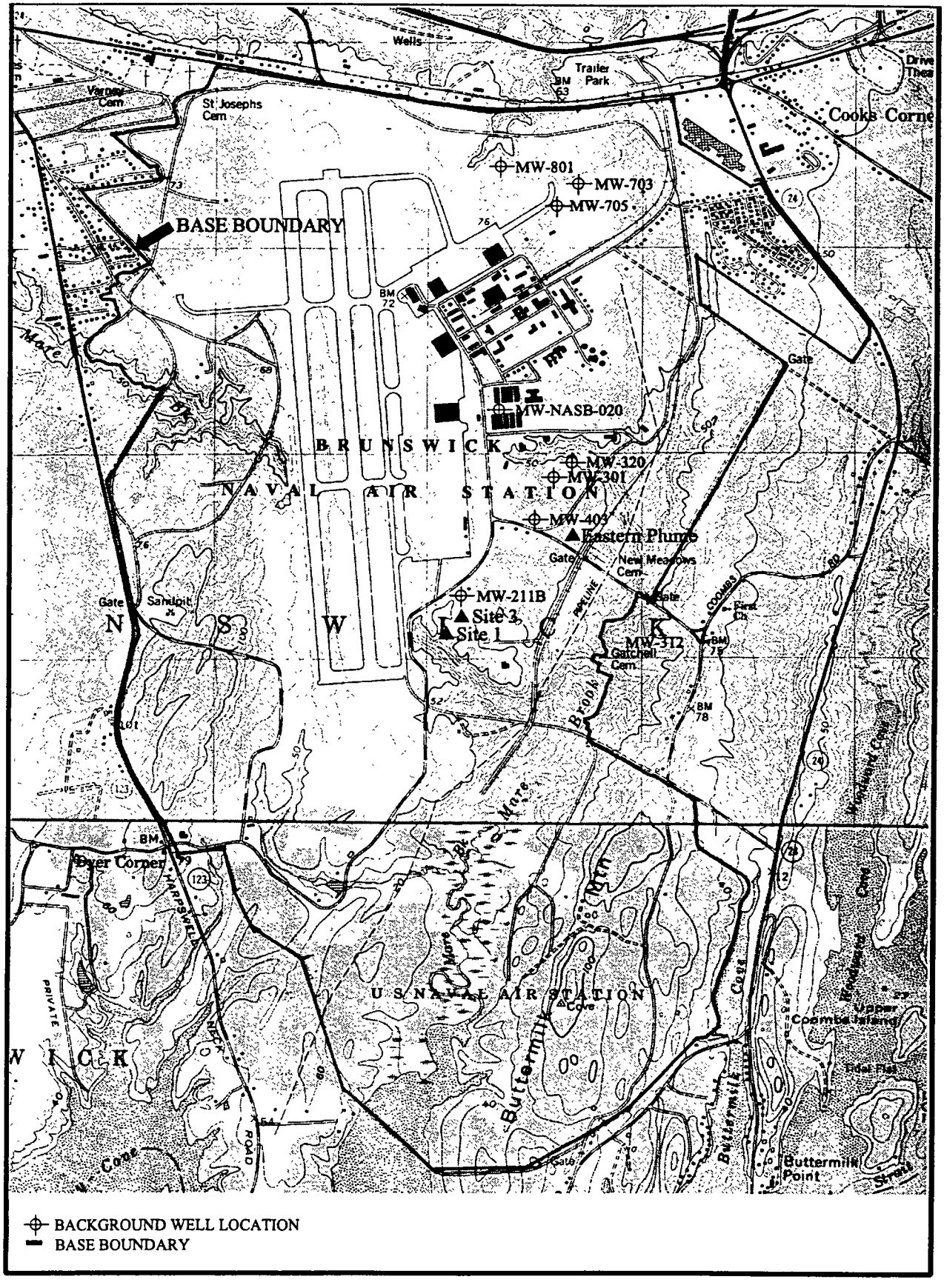
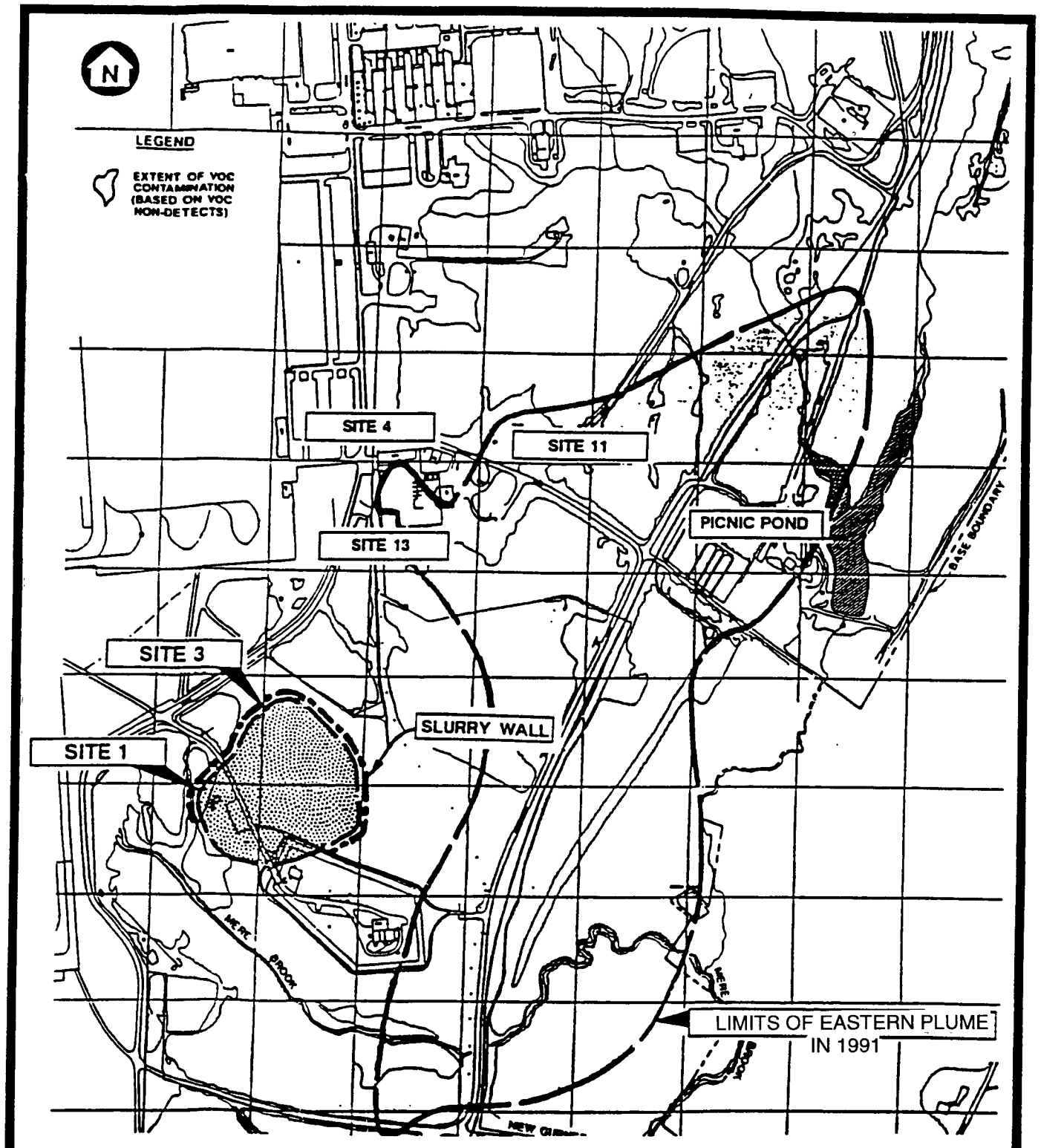
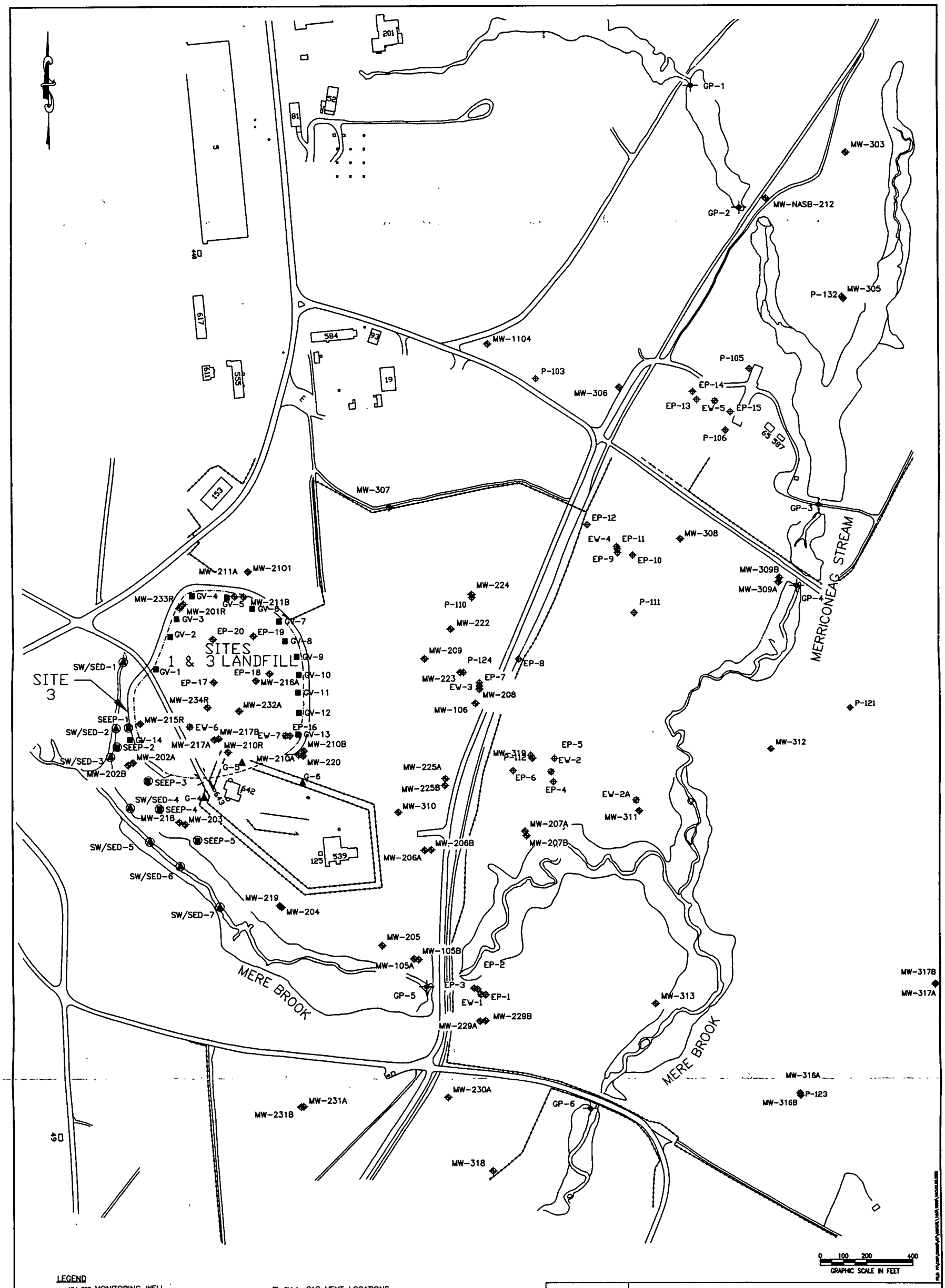


Figure 1. Site location map and background well locations, Naval Air Station Brunswick, Maine.



Source: Figure 1-3 of report titled, "Final Long-Term Monitoring Plan for Building 95, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine," prepared by ABB Environmental Services, Inc. (August 1994).

Figure 2. Site plan for Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Main .



LEGEND

- MW-209 MONITORING WELL
- EW-1 EXTRACTION WELL
- EP-11 PIEZOMETER
- SEEP-1 SEEP LOCATIONS
- SW/SED-1 SURFACE WATER/SEDIMENT
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3
- GV-1 GAS VENT LOCATIONS
- G-4 GAS PROBE LOCATIONS

NOTE:

1. SITE PLAN TAKEN FROM THE INTEGRAPH VERSION 5 BASE-WIDE PLAN PROVIDED BY NAS BRUNSWICK PUBLIC WORKS DEPARTMENT ON 13 OCTOBER 1995.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 3

LONG TERM MONITORING NETWORK

DATE	4 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

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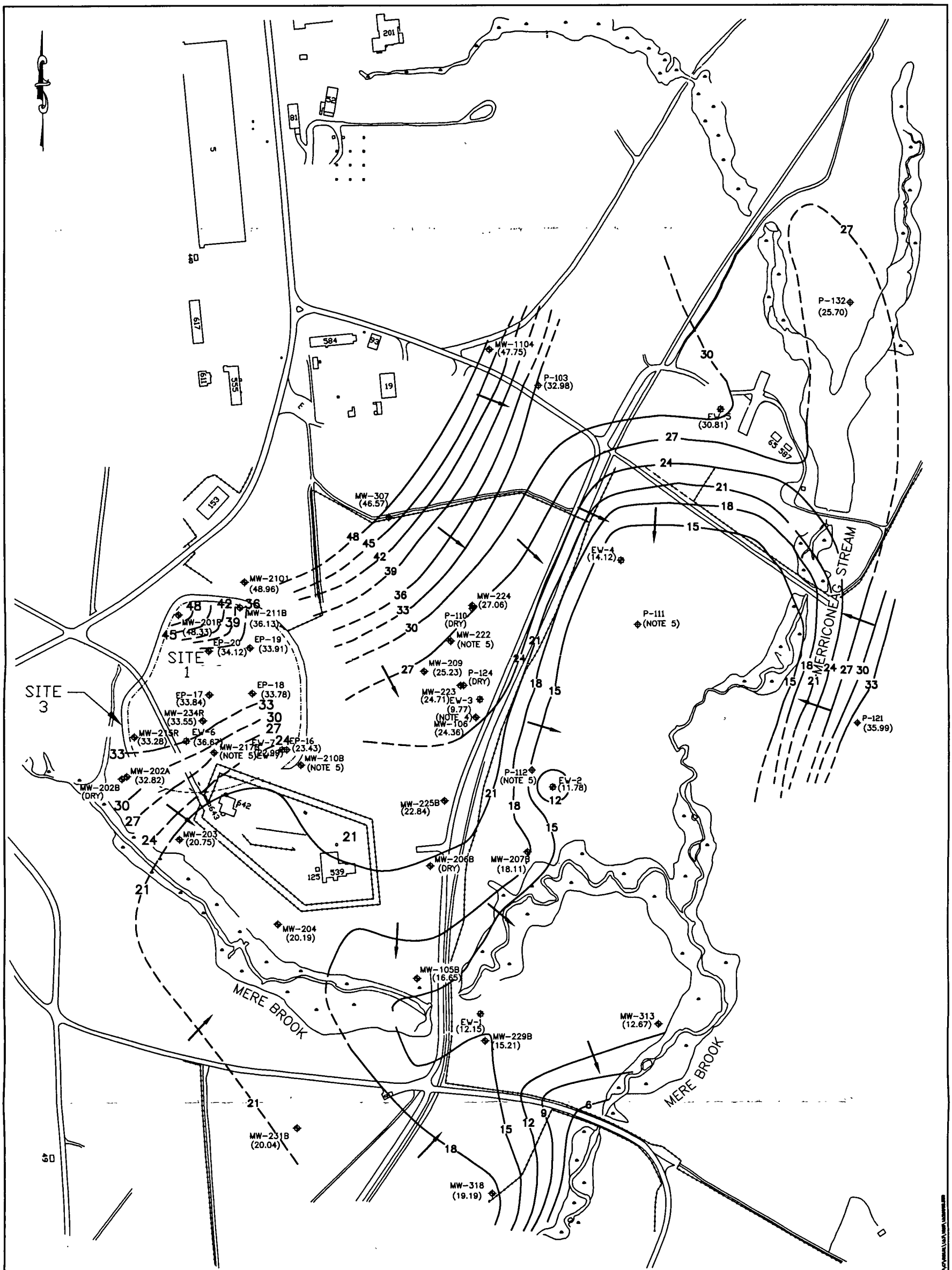
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JUL98
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-209 (25.23) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- EW-1 — EXTRACTION WELL
- P-103 (32.98) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (13.60) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- 24 — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

NOTE:

1. A TOTAL OF 0.33 INCHES OF PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-3, AND EW-4 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. CONTOUR INTERVAL = 3 FT.
4. THE CONTOURS FOR 24, 21, 18, 15, AND 12 FT ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
5. ANOMALOUS WATER ELEVATION, NOT USED DURING CONTOUR MAP GENERATION.
6. STREAM GAUGE POINT WAS INACCESSIBLE, NOT USED DURING CONTOUR MAP GENERATION.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 4
INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5 MAY 1998

DATE	2 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

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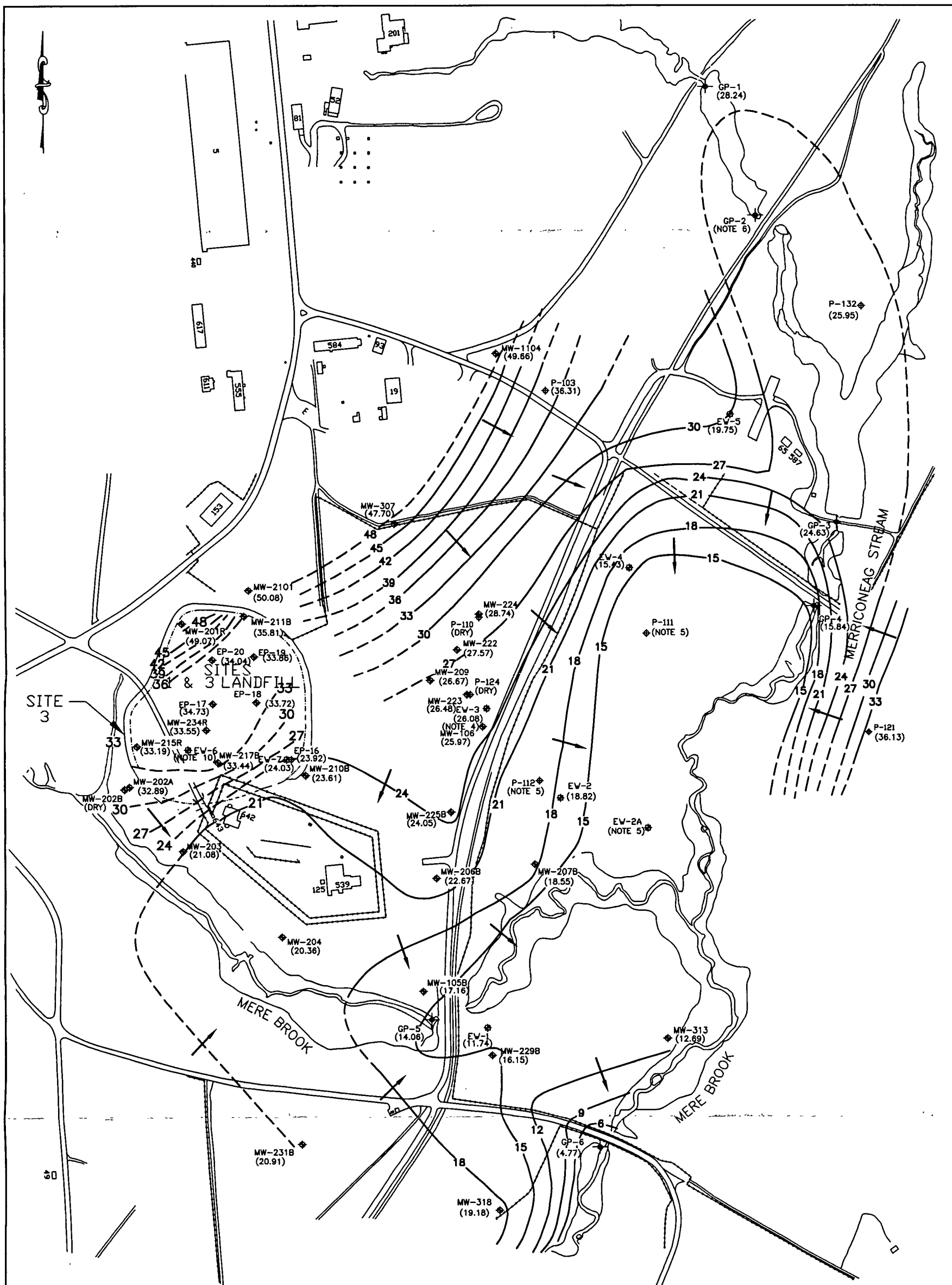
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3MAY98
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-209 (28.67) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- EW-1 — EXTRACTION WELL
- P-103 (36.31) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (14.06) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- 24 — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

NOTE:

1. WATER LEVEL DATA COLLECTED 2 JULY 1998. NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-2A, EW-3, EW-4, AND EW-5 WERE IN OPERATION DURING WELL GAUGING ACTIVITY.
3. CONTOUR INTERVAL = 3 FT.
4. THE CONTOURS FOR 18, 15, 12, 9, 6, 3, AND 0 FT ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
5. ANOMALOUS WATER ELEVATION, NOT USED DURING CONTOUR MAP GENERATION.
6. STREAM GAUGE POINT INACCESSIBLE. NOT USED DURING CONTOUR MAP GENERATION.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 5
INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 2 JULY 1998

DATE	4 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

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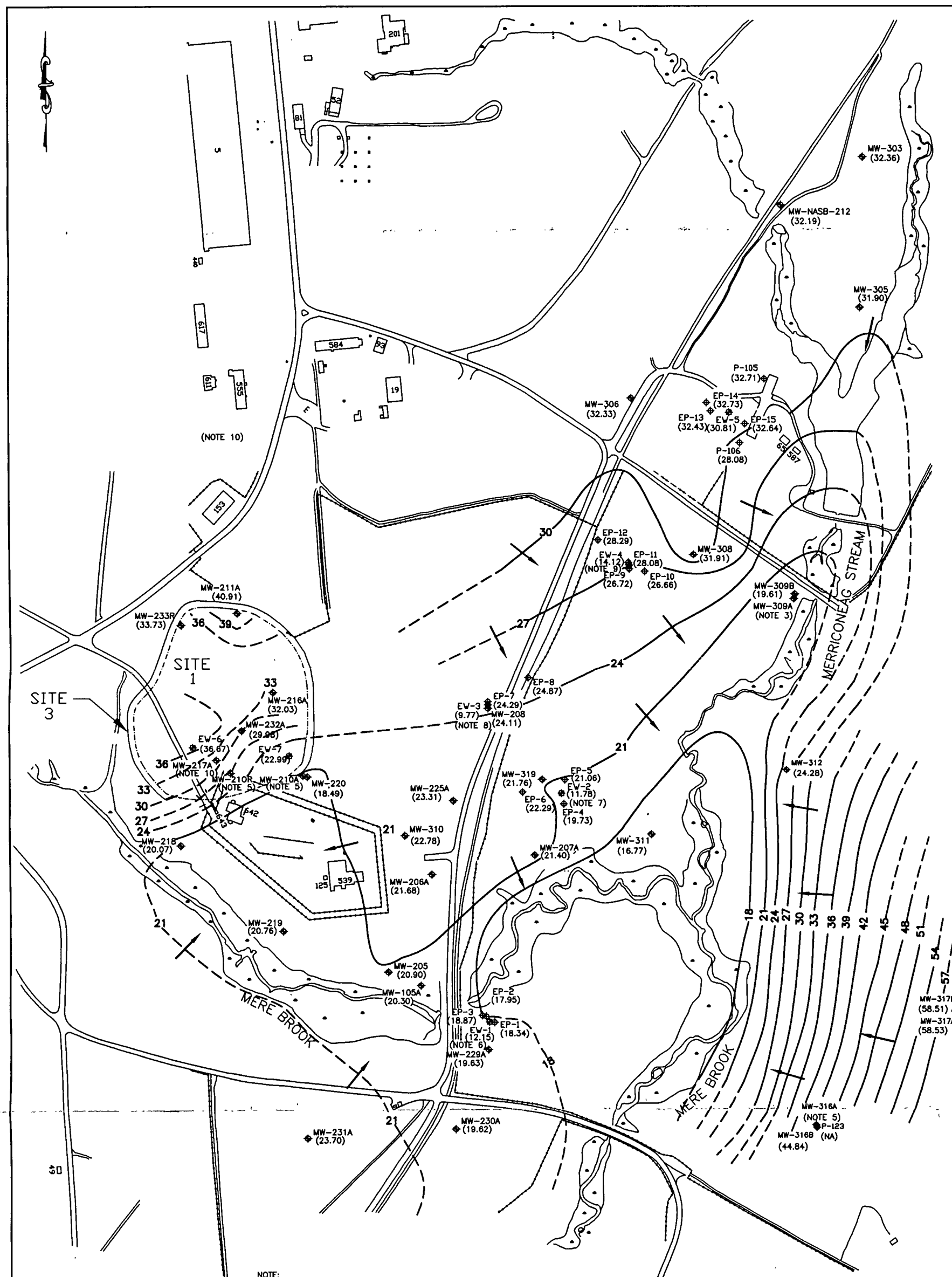
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JUL98
DRAWING NUMBER	–
SHEET NUMBER	–



NOTE:

1. WATER LEVEL DATA COLLECTED 5 MAY 1998. A TOTAL OF 0.33 INCHES OF PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-3, AND EW-4 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. MONITORING WELL MW-309A WAS ARTESIAN DURING WELL GAUGING EVENT.
4. CONTOUR INTERVAL = 3 FT.
5. DEEP BEDROCK WELL. WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.
6. THE 15 AND 18 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
7. THE 18, 15, AND 12 FT CONTOURS ENCOMPASS EW-2 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
8. THE 24, 21, 18, 15, AND 12 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
9. THE 27, 24, 21, 18, AND 15 FT CONTOURS ENCOMPASS EW-4 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
10. ANAMALOUS WATER ELEVATION. NOT USED DURING CONTOUR MAP GENERATION

LEGEND

- MW-209 (24.11) MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 EXTRACTION WELL
- EP-11 (28.08) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- (NA) NOT AVAILABLE, RISER BLOCKED
- —24--- GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 6

INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5 MAY 1998

DATE	2 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

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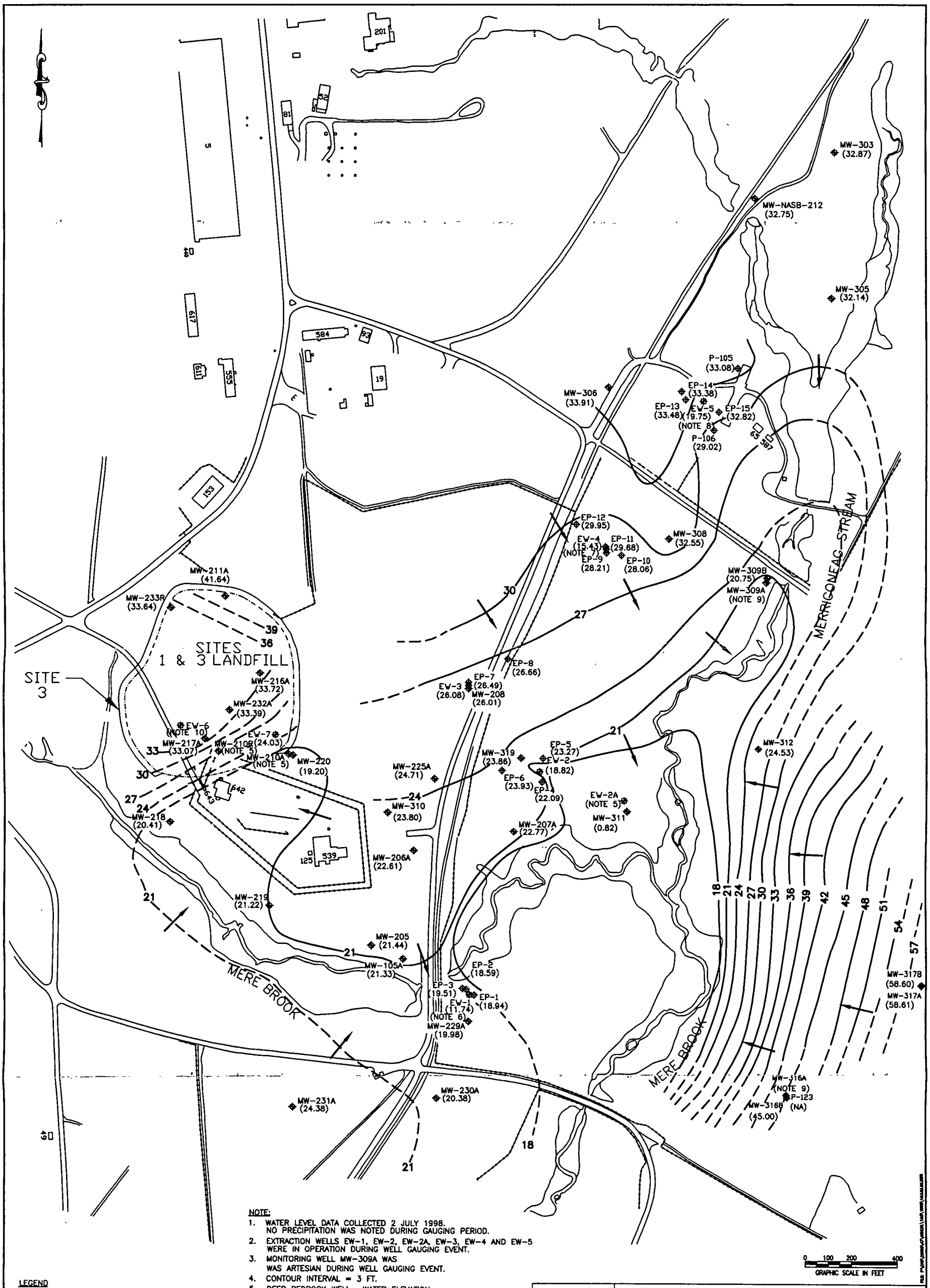
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3MAY98
DRAWING NUMBER	-
SHEET NUMBER	-



NOTE:

1. WATER LEVEL DATA COLLECTED 2 JULY 1998. NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-2A, EW-3, EW-4 AND EW-5 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. MONITORING WELL MW-309A WAS WAS ARTESIAN DURING WELL GAUGING EVENT.
4. CONTOUR INTERVAL = 3 FT.
5. DEEP BEDROCK WELL. WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.
6. THE 18, 15, AND 12 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
7. THE 24, 21, AND 18 FT CONTOURS ENCOMPASS EW-4 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
8. THE 30, 27, 24, AND 21 FT CONTOURS ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
9. ANOMALOUS WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.
10. EXTRACTION WELL VAULT FLOODED. UNABLE TO OBTAIN WATER LEVEL READING.

LEGEND

- MW-208 (26.01) MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 EXTRACTION WELL
- EP-11 (29.68) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- (NA) NOT AVAILABLE, RISER BLOCKED.
- —24--- GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 7

INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 2 JULY 1998

DATE	4 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

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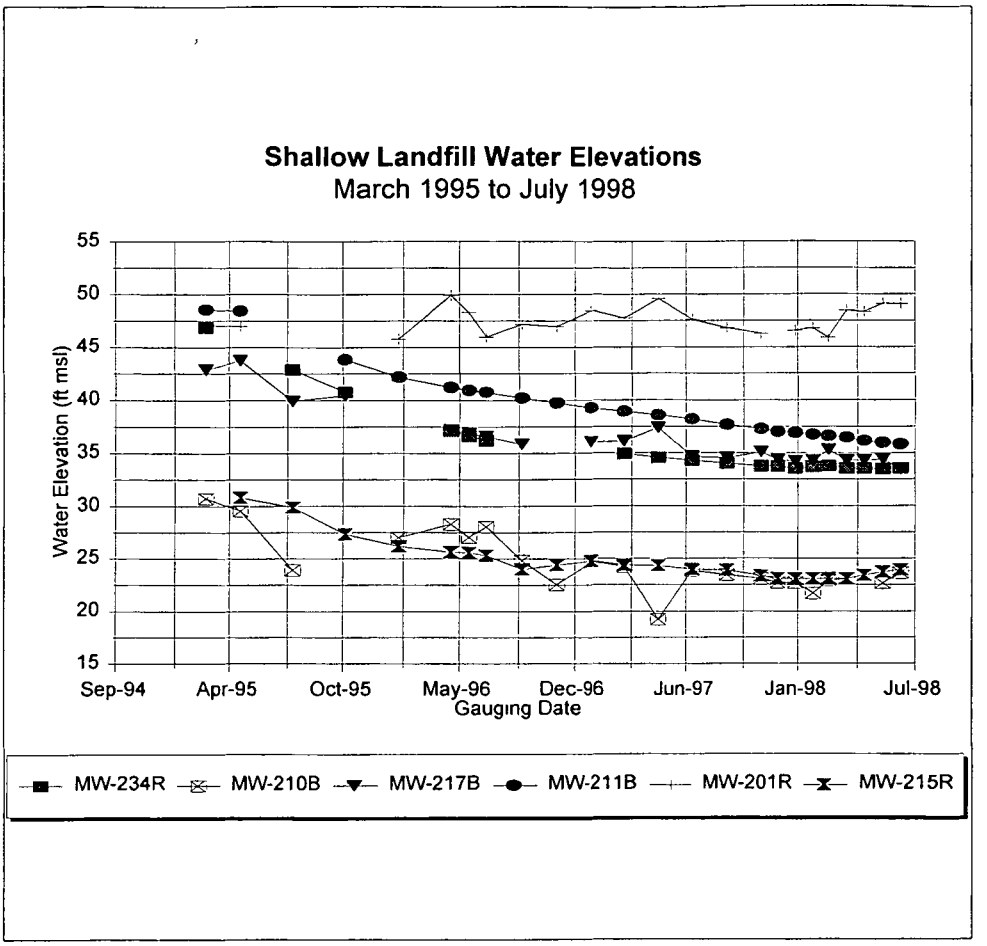
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JUL98
DRAWING NUMBER	–
SHEET NUMBER	–



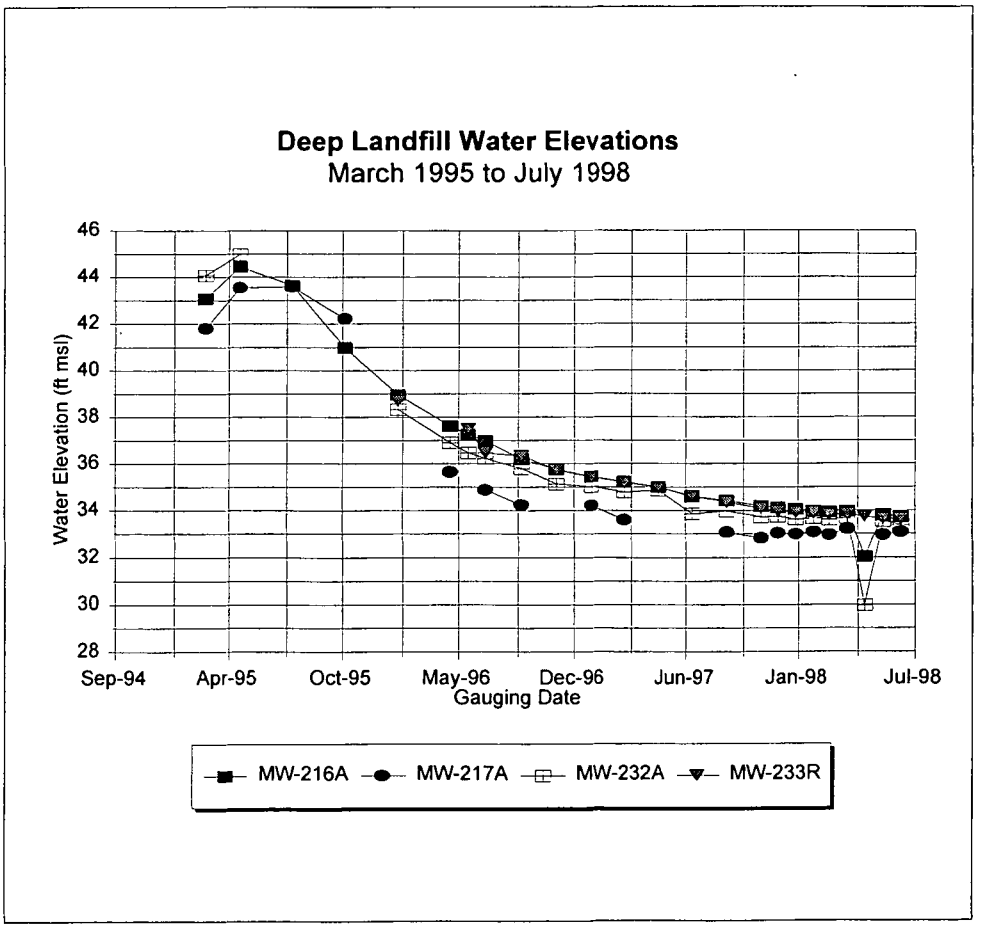
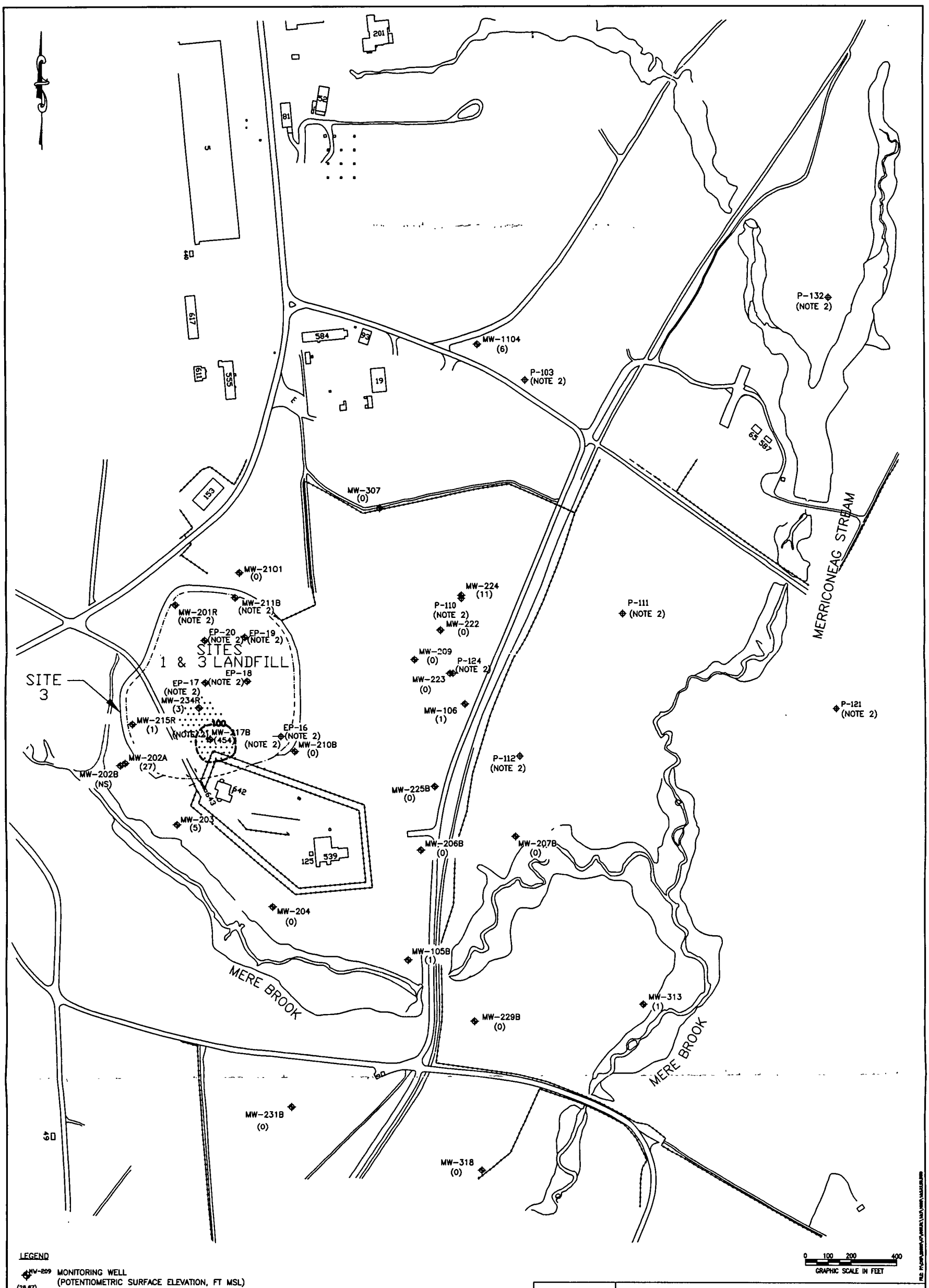


Figure 8: Shallow and deep water elevations within Sites 1 and 3 Landfill.



LEGEND

- MW-209 (28.67) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- EV-1 — EXTRACTION WELL
- P-103 (36.31) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (14.06) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- 24 — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3
- INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- 100 — INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- NS — NOT SAMPLED

NOTES:

1. GROUND-WATER SAMPLES COLLECTED FROM 6 TO 28 JULY 1998.
2. NOT SAMPLED AS PART OF LTMP. ONLY WATER LEVEL DATA COLLECTED.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 9
INTERPRETED SHALLOW GROUND-WATER TOTAL VOC CONTOUR MAP, 2 JULY 1998

DATE	4 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

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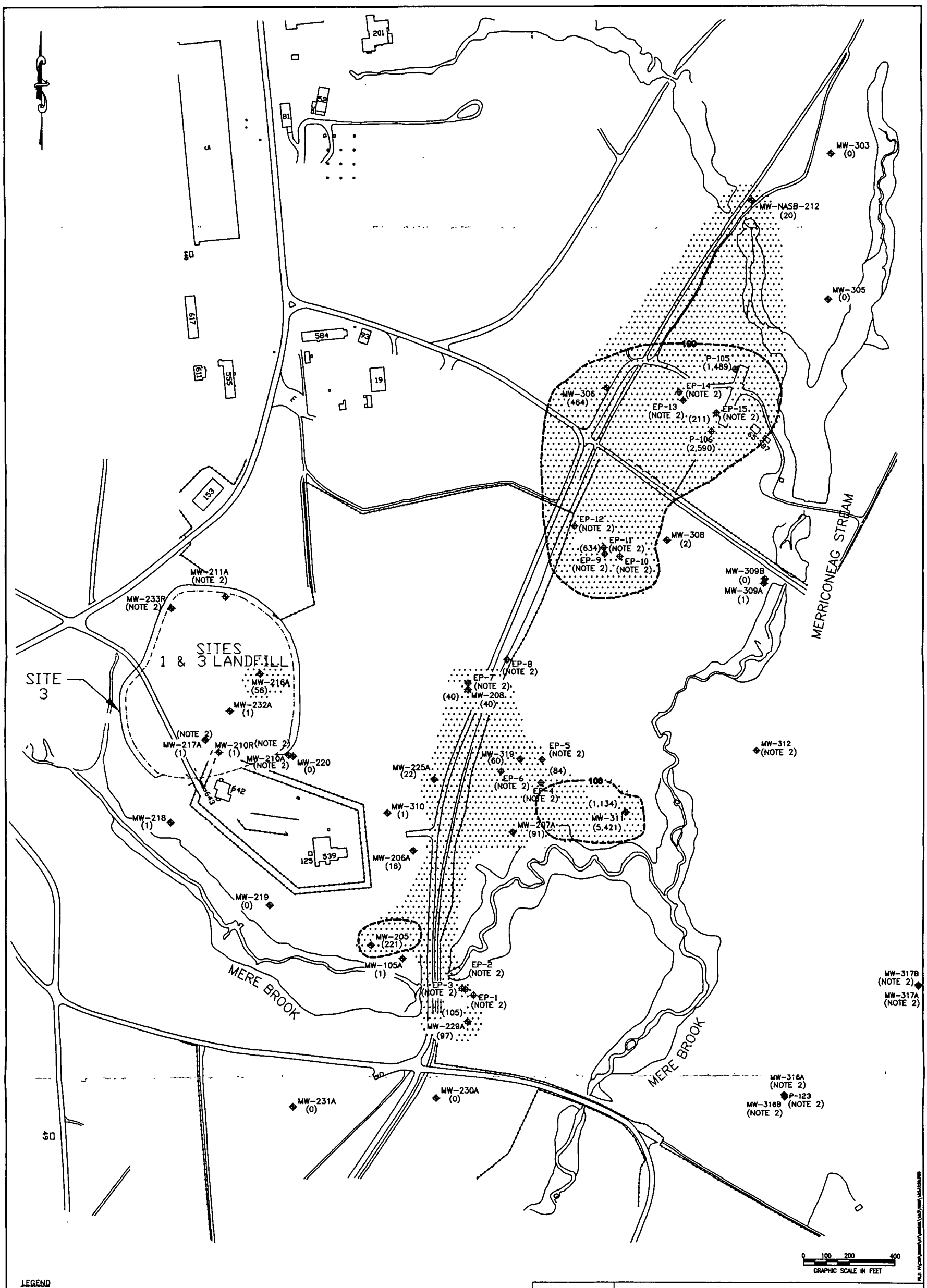
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JUL98
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-206 (26.01) — MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 — EXTRACTION WELL
- EP-11 (29.68) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- (NA) — NOT AVAILABLE, RISER BLOCKED.
- —24— — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3
- INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- 100 — INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- NS — NOT SAMPLED

NOTES:

1. GROUND-WATER SAMPLES COLLECTED FROM 6 TO 28 JULY 1998.
2. NOT SAMPLED AS PART OF LTMP. ONLY WATER LEVEL DATA COLLECTED.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 10
INTERPRETED DEEP GROUND-WATER TOTAL VOC CONTOUR MAP, 2 JULY 1998

DATE	4 OCTOBER 1998
DESIGNED BY	SY
DRAWN BY	SAP
CHECKED BY	PLN
PROJECT MANAGER	CEM

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

THE MAPLE BUILDING
3 WASHINGTON CENTER
NEWBURGH, NY 12550
(914) 565-8100

ALASKA, CALIFORNIA, COLORADO, DELAWARE, FLORIDA, GEORGIA, HAWAII, ILLINOIS, MARYLAND, MASSACHUSETTS, NEBRASKA, NEW JERSEY, NEW YORK, NORTH CAROLINA, TEXAS, WASHINGTON

PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JUL98
DRAWING NUMBER	–
SHEET NUMBER	–

TABLE 1 SUMMARY OF LONG-TERM MONITORING PROGRAM AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Type/Location	Monitoring Frequency	Sample Parameters			Event 12	
		TCL VOC	TAL Elements	Field Parameters[a]	Gauged	Sampled
Monitoring Wells						
MW-202A	Tri-Annual	X	X	X	X	X
MW-202B	Tri-Annual	X	X	X	X	Well dry
MW-203	Tri-Annual	X	X	X	X	X
MW-204	Tri-Annual	X	X	X	X	X
MW-210B	Tri-Annual	X	X	X	X	X
MW-210R	Tri-Annual	X	X	X	X	X
MW-215R	Tri-Annual	X	X	X	X	X
MW-216A	Tri-Annual	X	X	X	X	X
MW-216B	Tri-Annual	X	X	X	Well abandoned	
MW-217A	Tri-Annual	X	X	X	X	X
MW-217B	Tri-Annual	X	X	X	X	X
MW-218	Tri-Annual	X	X	X	X	X
MW-219	Tri-Annual	X	X	X	X	X
MW-220	Tri-Annual	X	X	X	X	X
MW-232A	Tri-Annual	X	X	X	X	X
MW-234R	Tri-Annual	X	X	X	X	X
MW-2101	Tri-Annual	X	X	X	X	X
EW-6	Tri-Annual	NR	NR	X[b]	X[b]	NR
EW-7	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-201R	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-210A	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-211A	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-211B	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-233R	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-16	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-17	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-18	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-19	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-20	Tri-Annual	NR	NR	X[b]	X[b]	NR

(a) Determination of field parameters in accordance with EPA/600/4-79/020 using the following methods: pH (Method 150.1), temperature (Method 170.1), specific conductance (Method 180.1), and dissolved oxygen (Method 360.1). Includes water level measurement and Eh.
(b) Determination of water level only.

NOTE: TCL = Target Compound List; VOC = Volatile organic compounds (EPA SW-846); TAL = Target Analyte List; NR = Not required.

Sample Type/Location	Monitoring Frequency	Sample Parameters			Event 12	
		TCL VOC	TAL Elements	Field Parameters[a]	Gauged	Sampled
Leachate Station Seep						
SEEP-1	Tri-Annual	X	X	X	X[c]	X
SEEP-2	Tri-Annual	X	X	X	Seep dry	
SEEP-3	Tri-Annual	X	X	X	Seep dry	
SEEP-4	Tri-Annual	X	X	X	Seep dry	
SEEP-5	Tri-Annual	X	X	X	Seep dry	
Leachate Station Sediment						
LT-1	Tri-Annual	X	X	NR	NR	X
LT-2	Tri-Annual	X	X	NR	NR	X
LT-3	Tri-Annual	X	X	NR	NR	X
LT-4	Tri-Annual	X	X	NR	NR	X
LT-5	Tri-Annual	X	X	NR	NR	X
Surface Water						
SW-1	Tri-Annual	X	X	X	X[c]	X
SW-2	Tri-Annual	X	X	X	X[c]	X
SW-3	Tri-Annual	X	X	X	X[c]	X
SW-4	Tri-Annual	X	X	X	X[c]	X
SW-5	Tri-Annual	X	X	X	X[c]	X
SW-6	Tri-Annual	X	X	X	X[c]	X
SW-7	Tri-Annual	X	X	X	X[c]	X
Sediment						
SED-1	Tri-Annual	X	X	NR	NR	X
SED-2	Tri-Annual	X	X	NR	NR	X
SED-3	Tri-Annual	X	X	NR	NR	X
SED-4	Tri-Annual	X	X	NR	NR	X
SED-5	Tri-Annual	X	X	NR	NR	X
SED-6	Tri-Annual	X	X	NR	NR	X
SED-7	Tri-Annual	X	X	NR	NR	X

(c) Measurement of water quality indicator parameters only.

TABLE 2 SUMMARY OF LONG-TERM MONITORING PROGRAM AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 12	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Monitoring Wells					
MW-105 A	Tri-Annual	X	X	X	X
MW-105 B	Tri-Annual	X	X	X	X
MW-106	Tri-Annual	X	X	X	X
MW-205	Tri-Annual	X	X	X	X
MW-206 A	Tri-Annual	X	X	X	X
MW-206 B	Tri-Annual	X	X	X	X
MW-207 A	Tri-Annual	X	X	X	X
MW-207 B	Tri-Annual	X	X	X	X
MW-208	Tri-Annual	X	X	X	X
MW-209	Tri-Annual	X	X	X	X
MW-222	Tri-Annual	X	X	X	X
MW-223	Tri-Annual	X	X	X	X
MW-224	Tri-Annual	X	X	X	X
MW-225 A	Tri-Annual	X	X	X	X
MW-225 B	Tri-Annual	X	X	X	X
MW-229 A	Tri-Annual	X	X	X	X
MW-229 B	Tri-Annual	X	X	X	X
MW-230 A	Tri-Annual	X	X	X	X
MW-231A	Tri-Annual	X	X	X	X
MW-231B	Tri-Annual	X	X	X	X
MW-303	Tri-Annual	X	X	X	X
MW-305	Tri-Annual	X	X	X	X
MW-306	Tri-Annual	X	X	X	X
MW-307	Tri-Annual	X	X	X	X
MW-308	Tri-Annual	X	X	X	X

(a) Determination of field parameters in accordance with EPA/600/4-79/020 using the following methods: pH (Method 150.1), temperature (Method 170.1), specific conductance (Method 180.1), and dissolved oxygen (Method 360.1). Includes water level measurement and Eh.

NOTE: TCL = Target Compound List; VOC = Volatile organic compounds (EPA SW-846).

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 12	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Monitoring Wells (Continued)					
MW-309 A	Tri-Annual	X	X	X	X
MW-309 B	Tri-Annual	X	X	X	X
MW-310	Tri-Annual	X	X	X	X
MW-311	Tri-Annual	X	X	X	X
MW-312	Tri-Annual	NR	X[b]	X[b]	NR
MW-313	Tri-Annual	X	X	X	X
MW-316A	Tri-Annual	NR	X[b]	X[b]	NR
MW-316B	Tri-Annual	NR	X[b]	X[b]	NR
MW-317A	Tri-Annual	NR	X[b]	X[b]	NR
MW-317B	Tri-Annual	NR	X[b]	X[b]	NR
MW-318	Tri-Annual	X	X	X	X
MW-319	Tri-Annual	X	X	X	X
MW-1104	Tri-Annual	X	X	X	X
MW-NASB-212	Tri-Annual	X	X	X	X
P-Series Piezometers					
P-103	Tri-Annual	NR	X[b]	X[b]	NR
P-105	Tri-Annual	X	X	X	X
P-106	Tri-Annual	X	X	X	X
P-110	Tri-Annual	NR	X[b]	X[b]	NR
P-111	Tri-Annual	NR	X[b]	X[b]	NR
P-112	Tri-Annual	NR	X[b]	X[b]	NR
P-121	Tri-Annual	NR	X[b]	X[b]	NR
P-123	Tri-Annual	NR	X[b]	Gauging port obstructed	
P-124	Tri-Annual	NR	X[b]	X[b]	NR
P-132	Tri-Annual	NR	X[b]	X[b]	NR

(b) Determination of water level only.

NOTE: NR = Not required.
Piezometers P-104 and P-107 were removed from the Long-Term Monitoring Program effective July 1995.
Piezometers P-110, P-111, and P-132 were removed effective November 1996.

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 12	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Extraction Wells					
EW-1	Tri-Annual	X	X	X	X
EW-2	Tri-Annual	X	X	X	X
EW-2A	Tri-Annual	X	X	X	X
EW-3	Tri-Annual	X	X	X	X
EW-4	Tri-Annual	X	X	X	X
EW-5	Tri-Annual	X	X	X	X
EP-Series Piezometers					
EP-1	Tri-Annual	NR	X[b]	X[b]	NR
EP-2	Tri-Annual	NR	X[b]	X[b]	NR
EP-3	Tri-Annual	NR	X[b]	X[b]	NR
EP-4	Tri-Annual	NR	X[b]	X[b]	NR
EP-5	Tri-Annual	NR	X[b]	X[b]	NR
EP-6	Tri-Annual	NR	X[b]	X[b]	NR
EP-7	Tri-Annual	NR	X[b]	X[b]	NR
EP-8	Tri-Annual	NR	X[b]	X[b]	NR
EP-9	Tri-Annual	NR	X[b]	X[b]	NR
EP-10	Tri-Annual	NR	X[b]	X[b]	NR
EP-11	Tri-Annual	NR	X[b]	X[b]	NR
EP-12	Tri-Annual	NR	X[b]	X[b]	NR
EP-13	Tri-Annual	NR	X[b]	X[b]	NR
EP-14	Tri-Annual	NR	X[b]	X[b]	NR
EP-15	Tri-Annual	NR	X[b]	X[b]	NR
Surface Water					
GP-1	Tri-Annual	NR	X[b]	X[b]	NR
GP-2	Tri-Annual	NR	X[b]	X[b]	NR
GP-3	Tri-Annual	NR	X[b]	X[b]	NR
GP-4	Tri-Annual	NR	X[b]	X[b]	NR
GP-5	Tri-Annual	NR	X[b]	X[b]	NR
GP-6	Tri-Annual	NR	X[b]	X[b]	NR

TABLE 3 MONITORING WELL GAUGING SUMMARY, SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (5 May 1998)		Event 12 Gauging Data (2 July 1998)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
Monitoring Wells						
MW-201R	58.88	39.51	10.55	48.33	9.81	49.07
MW-202A	52.40	31.09	19.58	32.82	19.51	32.89
MW-202B	53.04	17.93	Well dry	---	Well dry	---
MW-203	52.75	42.04	32.00	20.75	31.67	21.08
MW-204	50.50	37.18	30.31	20.19	30.14	20.36
MW-210A	52.17	105.60	19.51	32.66	18.73	33.44
MW-210B	54.72	26.40	38.92	15.80	31.11	23.61
MW-210R	55.90	112.00	22.28	33.62	21.79	34.11
MW-211A	65.59	137.02	24.68	40.91	23.95	41.64
MW-211B	65.44	36.50	29.31	36.13	29.63	35.81
MW-215R	62.26	49.95	28.98	33.28	29.07	33.19
MW-216A	71.17	46.96	39.14	32.03	37.45	33.72
MW-217A	61.78	44.56	9.29	52.49	28.71	33.07
MW-217B	61.25	34.60	26.95	34.30	27.81	33.44
MW-218	54.16	53.54	34.09	20.07	33.75	20.41
MW-219	51.87	71.82	31.11	20.76	30.65	21.22
MW-220	47.20	49.87	28.71	18.49	28.00	19.20
MW-232A	71.18	54.76	41.20	29.98	37.79	33.39
MW-233R	63.94	50.49	30.21	33.73	30.30	33.64
MW-234R	68.55	59.52	35.00	33.55	35.00	33.55
MW-2101	61.05	30.00	12.09	48.96	10.97	50.08
Extraction Wells						
EW-6	57.74	39.05	21.07	36.67	No data[a]	No data
EW-7	51.13	50.55	28.14	22.99	27.10	24.03
EP Series Piezometers						
EP-16	58.92	49.90	35.49	23.43	35.00	23.92
EP-17	69.73	43.00	35.89	33.84	35.00	34.73
EP-18	68.58	38.00	34.80	33.78	34.86	33.72
EP-19	68.22	47.00	34.31	33.91	34.36	33.86
EP-20	69.55	47.00	35.43	34.12	35.51	34.04

(a) Unable to gauge EW-6 during the 2 July 1998 gauging event due to excess water in the vault.

NOTE: MSL = Mean sea level.
Dashes (---) indicate data cannot be calculated because well was dry.

TABLE 4 MONITORING WELL GAUGING SUMMARY EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (5 May 1998)		Event 12 Gauging Data (2 July 1998)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
Monitoring Wells						
MW-105A	24.19	46.87	3.89	20.30	2.86	21.33
MW-105B	24.55	22.91	7.90	16.65	7.39	17.16
MW-106	51.26	37.27	26.90	24.36	25.29	25.97
MW-205	45.99	25.15	25.09	20.90	24.55	21.44
MW-206A	43.02	74.36	21.34	21.68	20.40	22.61
MW-206B	42.77	27.17	Dry	---	20.10	22.67
MW-207A	24.06	73.22	2.66	21.40	1.29	22.77
MW-207B	22.90	9.57	4.79	18.11	4.35	18.55
MW-208	49.40	103.33	25.29	24.11	23.39	26.01
MW-209	54.84	32.38	29.61	25.23	28.17	26.67
MW-222	57.43	45.34	21.41	36.02	29.86	27.57
MW-223	53.71	42.61	29.00	24.71	27.22	26.49
MW-224	57.63	46.95	30.57	27.06	28.89	28.74
MW-225A	45.95	76.03	22.64	23.31	21.24	24.71
MW-225B	46.25	42.00	23.41	22.84	22.20	24.05
MW-229A	33.83	64.97	14.40	19.43	13.85	19.98
MW-229B	30.08	32.70	14.87	15.21	13.93	16.15
MW-230A	36.32	82.08	16.70	19.62	15.94	20.38
MW-231A	45.41	62.42	21.71	23.70	21.03	24.38
MW-231B	46.31	57.86	26.27	20.04	25.40	20.91
MW-303	44.28	71.62	11.92	32.36	11.41	32.87
MW-305	43.09	54.12	11.19	31.90	10.95	32.14
MW-306	52.12	56.98	19.79	32.33	18.21	33.91
MW-307	62.70	22.21	16.13	46.57	15.00	47.70
MW-308	37.70	72.85	5.79	31.91	5.15	32.55
MW-309A	22.84	72.71	Artesian	>22.84	+4.61	27.45
MW-309B	22.32	59.43	2.71	19.61	1.57	20.75

NOTE: MSL = Mean sea level.
Dashes (---) indicate data cannot be calculated because well blocked, or dry.

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (5 May 1998)		Event 12 Gauging Data (2 July 1998)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
Monitoring Wells (Continued)						
MW-310	53.39	72.83	30.61	22.78	29.59	23.80
MW-311	21.48	55.78	4.71	16.77	20.66	0.82
MW-312	35.97	71.15	11.69	24.28	11.44	24.53
MW-313	21.39	37.14	8.72	12.67	8.70	12.69
MW-316A	53.71	103.10	20.18	33.53	19.97	33.74
MW-316B	54.40	57.85	9.56	44.84	9.40	45.00
MW-317A	71.35	120.79	12.82	58.53	12.74	58.61
MW-317B	70.10	96.95	11.59	58.51	11.50	58.60
MW-318	24.28	25.14	5.09	19.19	5.10	19.18
MW-319	40.16	72.44	18.40	21.76	16.30	23.86
MW-1104	60.09	27.55	12.34	47.75	10.43	49.66
MW-NASB-212	41.64	67.34	9.45	32.19	8.89	32.75
P-Series Piezometers						
P-103	60.35	29.05	27.37	32.98	24.04	36.31
P-105	42.08	70.35	9.37	32.71	9.00	33.08
P-106	38.83	71.06	10.75	28.08	9.81	29.02
P-110	56.70	24.14	Dry	---	Dry	---
P-111	31.48	9.99	3.86	27.62	3.91	27.57
P-112	41.12	16.41	11.18	29.94	10.93	30.19
P-121	50.78	17.35	14.79	35.99	14.65	36.13
P-123	54.19	Blocked	Blocked	---	Blocked	---
P-124	51.12	23.25	Dry	---	Dry	---
P-132	42.95	32.46	17.25	25.70	17.00	25.95
Extraction Wells						
EW-1	25.34	99.66	13.19	12.15	13.60	11.74
EW-2	31.63	90.86	19.85	11.78	12.81	18.82
EW-2A	22.27	66.00	No Data	No Data	45.44	-23.17
EW-3	41.18	67.04	31.41	9.77	15.10	26.08
EW-4	37.13	69.37	23.01	14.12	21.70	15.43
EW-5	36.25	84.99	5.44	30.81	16.50	19.75

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (5 May 1998)		Event 12 Gauging Data (2 July 1998)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
EP-Series Piezometers						
EP-1	31.67	100.51	13.33	18.34	12.73	18.94
EP-2	29.74	99.00	11.79	17.95	11.15	18.59
EP-3	27.91	89.21	9.04	18.87	8.40	19.51
EP-4	32.59	91.11	12.86	19.73	10.50	22.09
EP-5	34.61	79.85	13.55	21.06	11.34	23.27
EP-6	40.14	83.51	17.85	22.29	16.21	23.93
EP-7	48.49	70.20	24.20	24.29	22.00	26.49
EP-8	47.31	80.38	22.44	24.87	20.65	26.66
EP-9	37.84	62.46	11.12	26.72	9.63	28.21
EP-10	37.78	58.00	11.12	26.66	9.72	28.06
EP-11	41.59	65.03	13.51	28.08	11.91	29.68
EP-12	49.38	69.61	21.09	28.29	19.43	29.95
EP-13	38.96	71.03	6.53	32.43	5.48	33.48
EP-14	43.46	80.05	10.73	32.73	10.08	33.38
EP-15	45.37	82.68	12.73	32.64	12.55	32.82

Surface Water Gauging Stations

Well Designation	Gauging Point Elevation (ft MSL)	Bi-Monthly Gauging Data (5 May 1998)		Event 12 Gauging Data (2 July 1998)	
		Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)	Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)
GP-1	31.10	2.45	28.65	2.86	28.24
GP-2	28.95	Inaccessible[a]	---	Inaccessible[a]	---
GP-3	27.33	2.54	24.79	2.70	24.63
GP-4	18.39	2.30	16.09	2.55	15.84
GP-5	23.38	9.78	13.60	9.32	14.06
GP-6	15.22	10.60	4.62	10.45	4.77

(a) Gauging point temporarily inaccessible due to construction.

TABLE 5 GROUND-WATER EXTRACTION FLOW RATE AND RUN TIME SUMMARY GROUND-WATER EXTRACTION AND TREATMENT SYSTEM (BUILDING 50) NAVAL AIR STATION, BRUNSWICK, MAINE

	Date														
	4/01	4/02	4/03	4/04[a]	4/05[a]	4/06	4/07	4/08	4/09	4/10	4/11[a]	4/12[a]	4/13	4/14	4/15
EW-1															
Flow rate (gpm)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Run time (hours)	24.0	20.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	23.0
EW-2															
Flow rate (gpm)	27.0	27.0	27.0	27.0	27.0	27.0	26.0	26.0	25.0	26.0	25.0	25.0	26.0	26.0	26.0
Run time (hours)	24.0	20.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	23.0
EW-3[b]															
Flow rate (gpm)	20.0	20.0	20.0	20.0	20.0	20.0	21.0	21.0	22.0	22.0	22.0	22.0	21.0	21.0	21.0
Run time (hours)	24.0	20.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	23.0
EW-4															
Flow rate (gpm)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	21.0	21.0	21.0
Run time (hours)	24.0	20.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	23.0
EW-5[c]															
Flow rate (gpm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run time (hours)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(a) No data collected; value is estimated based upon flow history.
(b) Values obtained by subtracting the flow of EW-1, EW-2, and EW-4 from the Eastern Plume influent totalized flow.
(c) EW-5 out of service pending redevelopment and return to service.

	Date														
	4/16	4/17[a]	4/18[a]	4/19	4/20	4/21	4/22	4/23	4/24	4/25[a]	4/26[a]	4/27	4/28	4/29	4/30
EW-1															
Flow rate (gpm)	12.0	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	13.0
Run time (hours)	24.0	24.0	24.0	24.0	8.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	24.0
EW-2															
Flow rate (gpm)	26.0	26.0	26.0	26.0	26.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	26.0	26.0
Run time (hours)	24.0	24.0	24.0	24.0	22.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-3[b]															
Flow rate (gpm)	21.0	21.0	21.0	21.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Run time (hours)	24.0	24.0	24.0	24.0	22.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-4															
Flow rate (gpm)	21.0	21.0	21.0	21.0	21.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	21.0	21.0
Run time (hours)	24.0	24.0	24.0	24.0	22.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-5[c]															
Flow rate (gpm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run time (hours)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	Date														
	5/01	5/02[a]	5/03[a]	5/04	5/05	5/06	5/07	5/08	5/9[a]	5/10[a]	5/11	5/12	5/13	5/14	5/15
EW-1															
Flow rate (gpm)	13.0	13.0	13.0	11.0	11.0	11.0	18.0	11.0	11.0	11.0	13.0	13.0	13.0	13.0	13.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2															
Flow rate (gpm)	26.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-3[b]															
Flow rate (gpm)	17.0	17.0	17.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-4															
Flow rate (gpm)	21.0	21	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-5[c]															
Flow rate (gpm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run time (hours)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	Date															
	5/16[a]	5/17[a]	5/18	5/19	5/20	5/21	5/22	5/23[a]	5/24[a]	5/25	5/26	5/27	5/28	5/29	5/30[a]	5/31
EW-1																
Flow rate (gpm)	13.0	13.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Run time (hours)	24.0	24.0	14.7	12.5	19.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2																
Flow rate (gpm)	27.0	27.0	26.0	26.0	26.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	26.0	26.0	26.0	26.0
Run time (hours)	24.0	24.0	24.0	21.0	19.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-3[b]																
Flow rate (gpm)	18.0	18.0	19.0	19.0	19.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	19.0	19.0	19.0	19.0
Run time (hours)	24.0	24.0	24.0	21.0	19.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-4																
Flow rate (gpm)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Run time (hours)	24.0	24.0	24.0	21.0	19.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-5[c]																
Flow rate (gpm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run time (hours)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	Date														
	6/01	6/02	6/03	6/04	6/05	6/06[a]	6/07[a]	6/08	6/09	6/10	6/11	6/12	6/13[a]	6/14[a]	6/15
EW-1															
Flow rate (gpm)	11.0	11.0	13.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.0	10.0	10.0	10.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	16.0	17.5	24.0	24.0	24.0	24.0
EW-2															
Flow rate (gpm)	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	12.0	12.0	12.0	12.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	16.0	17.5	24.0	24.0	24.0	24.0
EW-2A															
Flow rate (gpm)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.0	14.0	14.0	17.0
Run time (hours)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.0	24.0	24.0	24.0
EW-3[b]															
Flow rate (gpm)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	17.0	17.0	17.0	17.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	16.0	17.5	24.0	24.0	24.0	24.0
EW-4															
Flow rate (gpm)	21.0	21	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	20.0	20.0	20.0	20.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	16.0	17.5	24.0	24.0	24.0	24.0
EW-5															
Flow rate (gpm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run time (hours)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOTE: NA = Data not available. Extraction well EW-2A flow rate and run times absent prior to startup on 12 June 1998.

	Date														
	6/16	6/17	6/18	6/19	6/20[a]	6/21[a]	6/22	6/23	6/24	6/25	6/26	6/27[a]	6/28[a]	6/29	6/30
EW-1															
Flow rate (gpm)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	12.0	12.0	12.0
Run time (hours)	24.0	24.0	24.0	12.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2															
Flow rate (gpm)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	13.0	13.0	14.0	14.0	14.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2A															
Flow rate (gpm)	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.0	16.0	19.0	19.0	19.0	19.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-3[b]															
Flow rate (gpm)	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0	19.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	11.0	24.0	24.0	24.0
EW-4															
Flow rate (gpm)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-5															
Flow rate (gpm)	0.0	0.0	3.0	3.0	3.0	3.0	3.0	5.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Run time (hours)	0.0	0.0	15.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0

	Date														
	7/01	7/02	7/03	7/04	7/05	7/06	7/07	7/08	7/09	7/10	7/11	7/12	7/13	7/14	7/15
EW-1															
Flow rate (gpm)	8.0	8.0	8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	(a)	9.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2															
Flow rate (gpm)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	(a)	12.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2A															
Flow rate (gpm)	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	(a)	17.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-3[b]															
Flow rate (gpm)	(a)	6.0	6.0	6.0	6.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	(a)	15.0
Run time (hours)	9.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-4															
Flow rate (gpm)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	(a)	21.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-5															
Flow rate (gpm)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	(a)	8.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0

	Date															
	7/16	7/17	7/18	7/19	7/20	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30	7/31
EW-1																
Flow rate (gpm)	9.0	9.0	9.0	9.0	(d)	(d)	(d)	(d)	(d)	(d)	(d)	9.0	9.0	11.0	11.0	11.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2																
Flow rate (gpm)	12.0	12.0	12.0	12.0	(d)	(d)	(d)	(d)	(d)	(d)	(d)	12.0	12.0	13.0	13.0	13.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-2A																
Flow rate (gpm)	17.0	17.0	17.0	17.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	17.0	17.0	17.0	17.0	17.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-3[b]																
Flow rate (gpm)	15.0	15.0	15.0	15.0	(d)	(d)	(d)	(d)	(d)	(d)	(d)	15.0	6.0	6.0	6.0	6.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-4																
Flow rate (gpm)	21.0	21.0	21.0	21.0	(d)	(d)	(d)	(d)	(d)	(d)	(d)	20.0	21.0	21.0	21.0	21.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-5																
Flow rate (gpm)	8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	9.0	9.0	9.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0

(d) Access denied to weapons area.

TABLE 6 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUND-WATER SAMPLES COLLECTED ON 14-15 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Monitoring Wells						
MW-202A	6.13	12.76	528	2.21	3	86
MW-202B			Well dry; no data			
MW-203	6.80	14.39	932	11.20	3	96
MW-204	6.53	11.42	41	13.41	0	168
MW-210B	6.44	15.64	479	3.63	46	117
MW-210R	7.87	12.74	1,174	0.24	5	-122
MW-215R	5.74	12.96	127	0.22	1	229
MW-216A	5.95	16.58	374	0.78	4	82
MW-217A	6.30	17.02	1,127	0.72	12	74
MW-217B	6.38	19.61	1,612	0.63	308	-141
MW-218	7.54	16.42	803	1.45	8	-93
MW-219	6.33	11.69	99	9.60	5	180
MW-220	5.97	17.38	102	0.30	9	18
MW-232A	5.98	15.60	685	0.93	2	153
MW-234R	5.59	15.81	620	0.53	2	146
MW-2101	5.53	16.04	383	8.05	2	224

NOTE: NTU = Nephelometric turbidity unit.

TABLE 7 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUND-WATER SAMPLES COLLECTED ON 7-13 AND 27 JULY 1998 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Monitoring Wells						
MW-105A	6.85	8.71	34	16.53	15	168
MW-105B	6.38	16.12	35	15.85	4	183
MW-106	5.99	12.36	38	11.20	1	239
MW-205	8.43	12.06	95	2.60	14	73
MW-206A	6.28	10.97	76	8.40	5	228
MW-206B	6.01	7.55	70	13.44	12	210
MW-207A	6.61	10.23	146	0.25	4	99
MW-207B	6.50	21.48	336	6.17	4	130
MW-208	7.86	10.00	105	0.34	25	145
MW-209	6.14	11.29	41	14.87	29	234
MW-222	6.03	14.31	55	11.30	2	225
MW-223	5.97	14.41	50	10.91	0	203
MW-224	5.86	10.87	33	11.02	0	227
MW-225A	6.22	10.34	87	6.84	10	197
MW-225B	5.67	14.04	48	12.21	7	248
MW-229A	7.32	10.82	83	7.90	6	142
MW-229B	6.63	15.12	43	8.70	8	153
MW-230A	7.89	10.16	38	0.28	31	-177
MW-231A	6.64	10.95	44	9.54	217	228
MW-231B	6.38	12.63	54	10.22	20	203
MW-303	7.92	8.99	225	0.30	0	-144
MW-305	8.81	11.47	143	4.15	7	-78
MW-306	6.22	11.39	69	7.04	12	198
MW-307	6.01	19.41	106	7.32	27	196
MW-308	8.50	11.58	634	0.13	0	-243
MW-309A	7.94	9.33	252	0.06	0	-247
MW-309B	8.67	12.21	192	0.11	78	-158
MW-310	6.44	11.59	109	10.35	0	183
MW-311	6.92	11.41	101	2.00	8	28
MW-313	7.35	14.85	186	0.60	12	53
MW-318	6.55	11.83	50	6.14	6	68
MW-319	6.42	10.31	122	6.31	4	194
MW-1104	5.89	16.18	72	2.29	7	138
MW-NASB-212	6.73	11.61	135	0.44	3	58
P-Series Piezometers						
P-105	7.40	8.08	78	7.26	15	182
P-106	7.38	9.90	99	3.59	13	192

NOTE: NTU = Nephelometric turbidity unit.

TABLE 8 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN SURFACE WATER AND SEEP SAMPLES COLLECTED ON 16 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Surface Water						
SW- 01	6.51	16.29	520	3.57	34	-51
SW-02	6.65	15.68	357	6.12	13	-20
SW-03	6.81	15.85	365	7.79	8	-11
SW-04	6.95	18.72	124	8.60	5	37
SW-05	6.72	18.69	126	7.32	67	19
SW-06	6.66	18.50	123	8.11	5	38
SW-07	6.66	18.65	123	8.27	5	40
Seeps						
SEEP-01	5.91	14.32	731	3.08	217	84
SEEP-02	No sample; location dry					
SEEP-03	No sample; location dry					
SEEP-04	No sample; location dry					
SEEP-05	No sample; location dry					

NOTE: NTU = Nephelometric turbidity unit.

TABLE 9 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN WATER SAMPLES COLLECTED FROM EXTRACTION WELLS AND THE TREATMENT PLANT COLLECTED ON 17 JULY 1998 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Extraction Wells						
EW-1	7.37	11.63	139	6.06	5	99
EW-2	6.76	10.85	212	14.46	12	210
EW-2A	7.17	10.74	105	13.32	5	91
EW-3	6.18	9.95	105	12.15	0	199
EW-4	6.45	9.77	99	12.11	0	192
EW-5	7.02	10.22	93	9.33	1	98
Ground-Water Treatment Plant						
Eastern Plume Raw Influent	6.60	11.49	121	8.74	0	223
Combined Effluent	6.48	13.51	128	22.73	11	363

NOTE: NTU = Nephelometric turbidity unit.

TABLE 10 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 14-15 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	MW-202A[a]	MW-203	MW-204	MW-210B	MW-210R	MW-215R[a]	MW-216A	MW-216A DUP	MW-217A[a]	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
1,1-Dichloroethane	3	4	(<1U)	(<1U)	(<1U)	0.4J	(<1U)	(<1U)	(<1U)	70	---
Total 1,2-Dichloroethene	(<1U)	0.6J	(<1U)	(<1U)	(<1U)	0.3J	4	5	(<1U)	70	70
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	2	2	(<1U)	5	5
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	20	22	(<1U)	47	100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.7J	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**22**	**23**	(<1U)	0.15	2.0
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.6J	0.8J	(<1U)	600	10,000
1,1,2,2-Tetrachloroethane	5	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	0.8J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	5	5
1,1,1-Trichloroethane	16	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,3-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	8	(<1U)	27	75
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.4J	(<1U)	---	---
Tetrachloroethene	0.8J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,1,2-Trichloroethane	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

(a) Reanalysis conducted on samples due to low surrogate recoveries.
(b) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Revised Maximum Exposure Guidelines, memorandum dated 23 October 1992. Dashes (---) indicate no MEG applicable.
(c) MCL (Maximum Contamination Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1994). Dashes (---) indicate no MCL applicable.

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Results in bold indicate concentrations above primary Federal MCL and/or State MEG.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	MW-202A[a]	MW-203	MW-204	MW-210B	MW-210R	MW-215R[a]	MW-216A	MW-216A DUP	MW-217A[a]	MEG[b]	MCL[c]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)											
Aluminum	134B*	181B*	764	774	275	(<56.0U)	88.0B*	77.2B*	132B*	1,430	50-200[c]
Antimony	1.5B*	1.7B*	1.0B*	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	1.1B*	2.8	6
Arsenic	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	7.4B*	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	---	50
Barium	56.3B*	28.3B*	(<4.0U)	(<4.0U)	24.5B*	7.1B*	12.9B*	12.3B*	51.5B*	1,500	2,000
Cadmium	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	5	5
Calcium	80,600	152,000	3,420	9,470	11,000	7,750	39,600	37,900	47,900	---	---
Chromium	(<4.0U)	91.7	13.5	6.9B*	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	100	100
Cobalt	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	---	---
Copper	(<2.0U)	3.0B*	2.1B*	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	2.1B*	---	1,300[d]
Iron	14,000	377	1,140	1,240	228	(<52.0U)	562	552	195	---	300[c]
Lead	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	---	15[d]
Magnesium	10,800	36,100	1,280	4,560	4,080	1,610	10,700	10,300	19,300	---	---
Manganese	**1,570**	8.9B*	24.0	22.0	16.1	**1,130**	**3,830**	**3,710**	8.5B*	200	50[c]
Mercury	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	2	2
Nickel	20.5B*	52.9	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	100	100
Potassium	6,260	2,910	624B*	1,620	9,140	912B*	2,390	2,330	2,790	---	---
Selenium	(<2.0U)	3.2B*	(<2.0U)	(<2.0U)	(<2.0U)	2.1B*	(<2.0U)	(<2.0U)	(<2.0U)	10	50
Silver	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	50	100[c]
Sodium	17,800	15,700	4,540	17,100	303,000	15,700	20,700	19,700	129,000	---	---
Vanadium	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	---	---
Zinc	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	---	5,000[c]

(c) Secondary MCL, based on taste, odor, or color.
(d) Action level.

NOTE: B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

Analyte	MW-217B	MW-217B DUP	MW-218	MW-219	MW-220	MW-232A	MW-234R	MW-2101	QT-004	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
1,1-Dichloroethane	0.7J	0.8J	0.7J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total 1,2-Dichloroethene	5	6	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	(<1U)	(<1U)	70	70
Benzene	4	5	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chlorobenzene	2	3	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	47	100
Ethylbenzene	1	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Methylene chloride	(<1U)	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	**42D**	**47D**	(<1U)	(<1U)	(<1U)	(<1U)	**3**	(<1U)	(<1U)	0.15	2
Total xylenes	0.5J	0.4J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	10,000
1,1,2,2-Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	0.4J	0.5J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	140D	140D	(<1U)	(<1U)	(<1U)	0.4J	(<1U)	(<1U)	(<1U)	600	600
1,3-Dichlorobenzene	75D	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,4-Dichlorobenzene	**75D**	**74D**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	27	75
Chloroethane	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	**7**	**8**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

NOTE: QT = Trip blank.
D = Analysis at a secondary dilution factor.

Analyte	MW-217B	MW-217B DUP	MW-218	MW-219	MW-220	MW-232A	MW-234R	MW-2101	QT-004	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)											
Aluminum	**8,930**	**3,060**	108B*	162B*	89.8B*	66.8B*	98.9B*	149B*	NR	1,430	50-200[c]
Antimony	**3.3B***	1.5B*	1.2B*	(<1.0U)	1.3B*	(<1.0U)	(<1.0U)	**3.0B***	NR	2.8	6
Arsenic	6.2B*	5.2B*	**175**	(<2.0U)	3.9B*	(<2.0U)	(<2.0U)	(<2.0U)	NR	---	50
Barium	158B*	113B*	(<4.0U)	(<4.0U)	7.0B*	18.9B*	35.1B*	37.4B*	NR	1,500	2,000
Cadmium	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	NR	5	5
Calcium	150,000	127,000	14,200	8,730	10,500	37,800	32,000	56,600	NR	---	---
Chromium	56.1	39.9	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	NR	100	100
Cobalt	17.3B*	10.3B*	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	NR	---	---
Copper	12.8	4.2B*	(<2.0U)	(<2.0U)	(<2.0U)	2.6B*	24.4	(<2.0U)	NR	---	1,300[d]
Iron	3,850	3,100	3,990	300	6,540	140	65.3B*	(<52.0U)	NR	---	300[c]
Lead	3.8	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	NR	---	15[d]
Magnesium	53,500	42,700	7,400	3,060	1,820	17,400	9,880	6,650	NR	---	---
Manganese	**3,800**	**3,210**	**911**	(<8.0U)	**1,750**	12.2B*	**474**	15.7	NR	200	50[c]
Mercury	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	(<0.10U)	NR	2	2
Nickel	51.9	39.5B*	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	NR	100	100
Potassium	9,440	7,370	6,480	1,050	1,710	2,960	2,220	4,660	NR	---	---
Selenium	(<2.0U)	(<2.0U)	(<2.0U)	3.5B*	(<2.0U)	(<2.0U)	(<2.0U)	5.3	NR	10	50
Silver	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	NR	50	100[c]
Sodium	246,000	200,000	147,000	7,010	5,830	48,400	96,600	6,250	NR	---	---
Vanadium	14.5B*	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	NR	---	---
Zinc	30.3	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	NR	---	5,000[c]

(d) Action level.

NOTE: NR = Analysis not required.

TABLE 11 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 7-13 AND 27 JULY 1998 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	MW-105A	MW-105B	MW-106	MW-205	MW-206A[a]	MW-206B	MW-206B DUP	MW-207A	MW-207B	MW-208	MW-209	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
1,1,1-Trichloroethane	0.9J	(<1U)	(<1U)	95D	9	(<1U)	(<1U)	11	(<1U)	10	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	23	1	(<1U)	(<1U)	10	(<1U)	8	(<1U)	70	70
Methylene chloride	(<1U)	1B	(<1U)	0.4J	(<1U)	(<1U)	(<1U)	(<5U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	(<1U)	(<1U)	0.4J	**61D**	4	(<1U)	(<1U)	**30**	(<1U)	**15**	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	**11**	1	(<1U)	(<1U)	**40**	(<1U)	**4**	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	**28**	0.5J	(<1U)	(<1U)	(<5U)	(<1U)	2	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	1	(<1U)	(<1U)	(<1U)	(<5U)	(<1U)	0.9J	(<1U)	70	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<5U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	(<1U)	(<1U)	(<5U)	(<1U)	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<5U)	(<1U)	(<1U)	(<1U)	700	700
Chloroform	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	(<1U)	(<1U)	(<5U)	(<1U)	(<1U)	(<1U)	---	100
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<25U)	(<5U)	(<5U)	(<5U)	---	---

(a) Reanalysis conducted on samples due to low surrogate recoveries.
(b) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Revised Maximum Exposure Guidelines, memorandum dated 23 October 1992. Dashes (---) indicate no MEG applicable.
(c) MCL (Maximum Contamination Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1994). Dashes (---) indicate no MCL applicable.

NOTE: J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
D = Analysis at a secondary dilution factor.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Results in bold indicate concentrations above Federal MCL and/or State MEG.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Compound	MW-209 DUP	MW-222[a]	MW-222 DUP[a]	MW-223	MW-224[a]	MW-225A[a]	MW-225B	MW-229A	MW-229B	MW-230A[a]	MW-230A DUP[a]	MW-231A	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)														
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	(<1U)	49D	(<1U)	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	7	10	(<1U)	9	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	3	**6**	(<1U)	**32**	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	(<1U)	1	0.8J	(<1U)	**4**	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---

Compound	MW-231B	MW-303	MW-305	MW-305 DUP	MW-306	MW-307	MW-308	MW-309A[a]	MW-309B	MW-310[a]	MW-311	MW-311 DUP	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)														
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	**250D**	(<1U)	(<1U)	(<1U)	(<1U)	0.4J	**3,700D**	**3,700D**	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	**79D**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<25U)	(<25U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	2B	0.7JB	(<1U)	(<1U)	(<25U)	(<25U)	---	5
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	**93D**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**980D**	**960**	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	(<1U)	1J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**20J**	**15J**	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	**15**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**580**	**520**	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	25	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**130**	**120**	70	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<25U)	(<25U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**11J**	(<25U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<25U)	(<25U)	700	700
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<25U)	(<25U)	---	100
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<130U)	(<130	---	---

NOTE: B = Compound detected in associated method blank.

Compound	MW-313	MW-318[a]	MW-319	MW-1104	P-105	P-106	MW-NASB-212	QT-001	QT-002	QT-003	QT-008	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
1,1,1-Trichloroethane	(<1U)	(<1U)	4	4	**1,100D**	**2,000D**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	27	(<1U)	8J	10J	2	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	0.6JB	(<1U)	(<10U)	(<20U)	(<1U)	1	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	(<1U)	(<1U)	**16**	(<1U)	**230**	**390**	**17**	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	**12**	(<1U)	3J	**6J**	0.6J	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	**120**	**150**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	0.8J	(<1U)	(<1U)	0.8J	28	34	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total xylenes	(<1U)	(<1U)	(<1U)	0.6J	(<10U)	(<20U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<10U)	(<20U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	0.4J	(<10U)	(<20U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<10U)	(<20U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<50U)	(<100U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---

NOTE: QT = Trip blank.

TABLE 12 SUMMARY OF ANALYTICAL RESULTS FOR WATER SAMPLES COLLECTED ON 17 JULY 1998 FROM THE GROUND-WATER EXTRACTION WELLS AND TREATMENT SYSTEM NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	EW-01	EW-02	EW-02A	EW-03	EW-04	EW-05	QT-006
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)							
Benzene	(<1U)	(<1U)	2	(<1U)	0.5J	0.4J	(<1U)
1,1-Dichloroethane	1	2	24JD	(<1U)	30	13	(<1U)
1,1-Dichloroethene	4	4	60D	(<1U)	32	4	(<1U)
Total 1,2-Dichloroethene	15	8	10	23	94D	10	(<1U)
Tetrachloroethene	7	15	17	8	3	0.6J	(<1U)
1,1,1-Trichloroethane	37D	34D	750D	2	340D	130D	(<1U)
Trichloroethene	40	21	240D	9	130D	50D	(<1U)
Methylene chloride	0.7JB	0.4JB	18B	(<1U)	2B	3B	(<1U)
1,2-Dichloroethane	(<1U)	(<1U)	7	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	(<1U)	(<1U)	4	(<1U)	0.6J	0.4J	(<1U)
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Chloroform	(<1U)	(<1U)	2	(<1U)	2	(<1U)	(<1U)

NOTE: QT = Trip blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
D = Analysis at a secondary dilution factor.
B = Analyte detected in associated method blank.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	Eastern Plume Influent	Combined Effluent	Combined Effluent DUP	Discharge Limit[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)				
Benzene	(<1U)	(<1U)	(<1U)	---
1,1-Dichloroethane	22	2	2	94
1,1-Dichloroethene	47JD	(<1U)	(<1U)	7
Total 1,2-Dichloroethene	37JD	(<1U)	(<1U)	70
Tetrachloroethene	11	(<1U)	(<1U)	5
1,1,1-Trichloroethane	500D	300D	350D	750
Trichloroethene	140D	(<1U)	(<1U)	5
Methylene chloride	4B	(<1U)	(<1U)	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	---
1,1,2-Trichloroethane	1	(<1U)	(<1U)	5
Acetone	(<5)	3J	(<5U)	---
Chloroform	0.9J	0.6J	0.5J	---
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)				
Arsenic	2.3B*	2.2B*	(<2.0U)	50
Antimony	4.0B*	(<1.0U)	(<1.0U)	---
Calcium	10,500	12,200	10,900	---
Lead	1.1B*	(<1.0U)	(<1.0U)	15
Magnesium	3,760	4,340	3,880	---
Manganese	35.4	42.0	37.0	750
Mercury	(<0.10U)	(<0.10U)	0.14B*	---
Potassium	1,200	1,370	1,350	---
Selenium	3.0B*	3.4B*	(<2.0U)	---
Sodium	8,910	10,400	9,090	---

(a) Ground-water treatment plant discharge limits taken from *Agreement to Accept Treated Ground Water,* dated December 1994 and prepared by the Brunswick Municipal Sewer District.

NOTE: B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
Dashes (---) indicate no discharge limit applicable to this compound/analyte.

TABLE 13 SUMMARY OF ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED ON 16 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SW-1	SW-2	SW-3	SW-3 DUP[a]	SW-4	SW-5	SW-6	SW-7	QT-005	QS-001[a]	QD-001[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	4
Methylene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	0.4J
TARGET ANALYTE LIST ELEMENTS BY EPA 6000/7000/9000 SERIES METHODS (μg/L)											
Aluminum	127B*	76.2B*	138B*	214	76.7B*	84.5B*	80.8B*	74.9B*	NR	(<56.0U)	(<56.0U)
Antimony	2.7B*	(<1.0U)	(<1.0U)	1.3B*	1.4B*	1.5B*	(<1.0U)	1.2B*	NR	1.1B*	3.2B*
Barium	47.1B*	28.5B*	28.5B*	27.3B*	13.4B*	12.5B*	11.2B*	12.2B*	NR	(<4.0U)	(<4.0U)
Calcium	98,700	54,000	53,000	49,700	8,550	8,490	7,950	8,430	NR	114B*	55.4B*
Copper	(<2.0U)	(<2.0U)	(<2.0U)	2.9B*	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	NR	(<2.0U)	(<2.0U)
Iron	2,500	2,400	2,200	4,070	1,090	1,260	1,080	1,240	NR	(<52.0U)	(<52.0U)
Lead	1.6B*	1.0B*	1.0B*	1.3B*	1.5B*	2.6B*	2.0B*	1.9B*	NR	1.4B*	4.3
Magnesium	8,690	6,060	6,030	5,620	1,720	1,750	1,620	1,730	NR	(<35.0U)	(<35.0U)
Manganese	951	562	549	606	232	300	214	257	NR	(<8.0U)	(<8.0U)
Mercury	(<0.10	(<0.10U	(<0.10U)	(<0.10U)	0.15B*	(<0.10U	(<0.10U	(<0.10U	NR	(<0.10U)	(<0.10U)
Potassium	6,080	3,400	3,340	2,970	1,700	1,640	1,540	1,610	NR	75.8B*	(<71.0U)
Selenium	(<2.0U)	(<2.0U)	2.6B*	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	NR	(<2.0U)	4.1B*
Sodium	17,000	14,500	13,500	12,900	12,700	1,300	12,100	12,700	NR	856B*	633B*
Thallium	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	NR	1.0B*	(<1.0U)
Zinc	28.8	(<12.0U	(<12.0U)	(<12.0U)	(<12.0U	(<12.0U	(<12.0U	(<12.0U	NR	(<12.0U)	(<12.0U)

(a) Reanalysis conducted on samples due to low surrogate recoveries.

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
NR = Analysis not required.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

TABLE 14 SUMMARY OF ANALYTICAL RESULTS FOR SEDIMENT SAMPLES COLLECTED ON 16 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SED-1	SED-2	SED -3	SED-3 DUP	SED-4	SED-5	SED-6	SED-7	QT-005 (μg/L)	QS-002[a] (μg/L)	QD-001[a] (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)											
Methylene chloride	(<6U)	(<7U)	(<10U)	(<17U)	(<13U)	(<6U)	(<6U)	(<9U)	(<1U)	0.3J	0.4J
1,1,2,2-Tetrachloroethane	(<6U)	(<7U)	(<10U)	(<17U)	(<13U)	(<6U)	(<6U)	(<9U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<6U)	(<7U)	(<10U)	(<17U)	(<13U)	(<6U)	3J	(<9U)	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<6U)	(<7U)	(<10U)	(<17U)	(<13U)	(<6U)	3J	(<9U)	(<1U)	(<1U)	(<1U)
2-Butanone	(<11U)	4J	(<20U)	9J	(<25U)	(<13U)	6J	(<18U)	(<5U)	(<5U)	(<5U)
4-Methyl-2-Pentanone	(<11U)	3J	(<20U)	(<34U)	(<25U)	(<13U)	(<12U)	(<18U)	(<5U)	(<5U)	(<5U)
2-Hexanone	(<11U)	4J	(<20U)	(<34U)	(<25U)	(<13U)	(<12U)	3J	(<5U)	(<5U)	(<5U)
Total xylenes	(<6U)	(<7U)	(<10U)	(<17U)	(<13U)	(<6U)	2J	(<9U)	(<1U)	(<1U)	(<1U)
Chloroform	(<6U)	(<7U)	(<10U)	(<17U)	(<13U)	(<6U)	(<6U)	(<9U)	(<1U)	4	4
Acetone	4J	13J	28	34J	39	(<13U)	13	12J	(<5U)	(<5U)	(<5U)

(a) Reanalysis conducted on samples due to low surrogate recoveries.

NOTE: QT = Trip blank. Samples associated with QT-005 were analyzed under a separate sample delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-002 were analyzed under a separate sample delivery group shipped on the same day.
QD = Source water blank. Samples associated with QD-001 were analyzed under a separate sample delivery group shipped on the same day.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	SED-1	SED-2	SED -3	SED-3 DUP	SED-4	SED-5	SED-6	SED-7	QT-005 (μg/L)	QS-002[a] (μg/L)	QD-001[a] (μg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (mg/kg)											
Aluminum	4,740	14,000	6,160	14,000	6,200	2,480	3,120	5,740	NR	(<56.0U)	(<56.0U)
Antimony	0.55B*	1.0	0.98B*	2.3	1.1B*	0.41B*	0.51B*	0.85B*	NR	1.5B*	3.2B*
Arsenic	2.6	8.2	1.7B*	3.2B*	6.0	2.4	4.5	12.6	NR	(<2.0U)	(<2.0U)
Barium	23.3	56.6	41.8	129	69.5	17.0B*	22.1B*	53.0	NR	(<4.0U)	(<4.0U)
Beryllium	0.09B*	0.44B*	(<0.11U)	0.29B*	0.31B*	0.07B*	0.12B*	0.36B*	NR	(<0.60U)	(<0.60U)
Cadmium	(<0.06U	(<0.08U)	(<0.11U)	(<0.41U)	(<0.15U)	(<0.07U)	(<0.07U)	(<0.10U)	NR	(<0.60U)	(<0.60U)
Calcium	689	1,880	1,410	5,170	1,510	532	590	940	NR	150B*	55.4B*
Chromium	15.1	28.4	16.0	36.6	10.8	4.2	5.4	11.6	NR	(<4.0U)	(<4.0U)
Cobalt	2.8B*	9.8	3.6B*	10.6B*	4.2B*	1.4B*	2.8B*	5.5B*	NR	(<7.0U)	(<7.0U)
Copper	5.7	20.8	5.3	14.5	9.5	3.6	3.8	9.5	NR	(<5.0U)	(<5.0U)
Iron	9,460	25,200	28,200	107,000	18,400	7,520	9,600	23,700	NR	(<52.0U)	(<52.0U)
Lead	5.8	8.2	4.8	14.6	18.6	5.3	6.4	17.0	NR	2.4B*	4.3
Magnesium	2,410	5,810	2,270	5,670	2,080	925	1,180	2,060	NR	(<35.0U)	(<35.0U)
Manganese	107	371	425	1690	420	209	271	355	NR	(<8.0U)	(<8.0U)
Mercury	(<0.06U	0.09B*	0.15B*	(<0.17U)	0.11B*	0.07B*	0.06B*	0.19B*	NR	(<0.10U)	(<0.10U)
Nickel	10.3	25.5	9.0	23.7	11.3	5.2	6.0	12.5	NR	(<5.0U)	(<5.0U)
Potassium	1,570	2,910	1,220	32.9B*	999	367	449	956	NR	98.7B*	(<71.0U)
Selenium	(<0.21U	(<0.26U)	(<0.37U)	(<0.68U)	(<0.49U)	(<0.24U)	0.33B*	(<0.33U)	NR	(<2.0U)	4.1B*
Sodium	101B*	175	183	349	282	128	103B*	196	NR	677B*	633B*
Thallium	0.38B*	0.28B*	0.21B*	0.42B*	0.32B*	(<0.12U)	(<0.12U)	(<0.18U)	NR	(<1.0U)	(<1.0U)
Vanadium	13.2	33.9	14.0	34.9	17.6	5.9B*	8.4	17.8	NR	(<3.0U)	(<3.0U)
Zinc	23.7	51.7	29.6	85.2	66.6	20.6	27.1	77.3	NR	(<12.0U)	(<12.0U)

NOTE: NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

TABLE 15 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEEP SAMPLES COLLECTED ON 16 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SEEP-1	SEEP-1 DUP	QT-005	QS-001[a]	QD-001[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
1,1-Dichloroethane	3	2	(<1U)	(<1U)	(<1U)
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	2	3	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Methylene chloride	(<1U)	(<1U)	(<1U)	0.3J	0.4J
1,1,1-Trichloroethane	2	1	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	(<1U)	0.4J	(<1U)	(<1U)	(<1U)
Total 1,2-Dichloroethene	0.5J	(<1U)	(<1U)	(<1U)	(<1U)
Chloroform	(<1U)	(<1U)	(<1U)	3	4
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)					
Aluminum	1,460	1,630	NR	(<56.0U)	(<56.0U)
Antimony	2.0B*	2.5B*	NR	1.5B*	3.2B*
Arsenic	(<2.0U)	3.3B*	NR	(<2.0U)	(<2.0U)
Barium	201	144B*	NR	(<4.0U)	(<4.0U)
Beryllium	(<0.60U)	(<0.60U)	NR	(<0.20U)	(<0.20U)
Cadmium	(<0.60U)	(<0.60U)	NR	(<0.60U)	(<0.60U)
Calcium	147,000	141,000	NR	150B*	55.4B*
Chromium	(<4.0U)	(<4.0U)	NR	(<4.0U)	(<4.0U)
Cobalt	75.8	38.7B*	NR	(<7.0U)	(<7.0U)
Copper	6.1B*	5.2B*	NR	(<2.0U)	(<5.0U)
Iron	110,000	58,400	NR	(<52.0U)	(<52.0U)
Lead	12.7	14.2	NR	2.4B*	4.3
Magnesium	14,400	13,900	NR	(<35.0U)	(<35.0U)
Manganese	1,880	1,050	NR	(<8.0U)	(<8.0U)
Mercury	0.18B*	0.36B*	NR	(<0.10U)	(<0.10U)
Nickel	27.0B*	13.9B*	NR	(<5.0U)	(<5.0U)
Potassium	3,730	3,420	NR	98.7B*	(<71.0U)
Selenium	(<2.0U)	(<2.0U)	NR	(<2.0U)	4.1B*
Sodium	18,800	17,700	NR	677B*	633B*
Vanadium	(<3.0U)	(<3.0U)	NR	(<3.0U)	(<3.0U)
Zinc	43.5	26	NR	(<12.0U)	(<12.0U)

(a) Reanalysis conducted on samples due to low surrogate recoveries.

NOTE:
QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
NR = Analysis not required.
SEEP-2 through SEEP-5 were dry, therefore, no aqueous samples were collected.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

TABLE 16 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 16 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	LT-1	LT-1 DUP	LT-2	LT-3	LT-4	LT-5	QT-005 (μg/L)	QS-002[a] (μg/L)	QD-001[a] (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)									
Methylene chloride	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	0.3J	0.4J
1,1-Dichloroethane	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
Total 1,2-dichloroethene	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	130	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	110	2J	9J	(<6U)	5J	(<20U)	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
Trichloroethene	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
Acetone	96	17J	(<40U)	(<13U)	24J	18J	(<5U)	(<5U)	(<5U)
Vinyl chloride	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	4	4
Chloroform	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
1,1,1-Trichloroethane	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	(<36U)	(<9U)	(<20U)	(<6U)	(<20U)	(<20U)	(<1U)	(<1U)	(<1U)
2-Butanone	(<71U)	(<17U)	(<40U)	(<13U)	(<40U)	5J	(<5U)	(<5U)	(<5U)

(a) Reanalysis conducted on samples due to low surrogate recoveries.

NOTE: QT = Trip blank. Samples associated with QT-005 were analyzed under a separate sample delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-002 were analyzed under a separate sample delivery group shipped on the same day.
QD = Source water blank. Samples asociated with QD-001 were analyzed under a separate sample delivery group shipped on the same day.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.

Analyte	LT-1	LT-1 DUP	LT-2	LT-3	LT-4	LT-5	QT-005 (μg/L)	QS-002[a] (μg/L)	QD-001[a] (μg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (mg/kg)									
Aluminum	4,210	4,820	1,750	4,870	1,110	4,890	NR	(<56.0U)	(<56.0U)
Antimony	6.2	0.63B*	5.1	0.7	4.8	0.73B*	NR	1.5B*	3.2B*
Arsenic	2,210	1.9	1.9B*	2.5	(<0.79U)	1.9B*	NR	(<2.0U)	(<2.0U)
Barium	171	336	166	30.2	99.6	25.8B*	NR	(<4.0U)	(<4.0U)
Beryllium	(<0.42U)	0.38B*	(<0.24U)	0.14B*	(<0.24U)	0.28B*	NR	(<0.60U)	(<0.60U)
Cadmium	(<4.2U)	0.14B*	(<2.4U)	(<0.07U)	(<2.4U)	0.16B*	NR	(<0.60U)	(<0.60U)
Calcium	6,820	2,080	10,100	1,400	1,210	1,780	NR	150B*	55.4B*
Chromium	8.3	8.6	2.4B*	11.7	1.6B*	8.3	NR	(<4.0U)	(<4.0U)
Cobalt	24.4B*	24.1	62.7	4.3B*	8.8B*	20.0	NR	(<7.0U)	(<7.0U)
Copper	10.9	7.1	4.8	6.4	6.3	7.6	NR	(<5.0U)	(<5.0U)
Iron	504,000	12,900	456,000	16,900	415,000	12,000	NR	(<52.0U)	(<52.0U)
Lead	25.1	11.3	17.8	4.0	6.6	11.2	NR	2.4B*	4
Magnesium	2,980	1,690	1,440	2,370	1,080	1,750	NR	(<35.0U)	(<35.0U)
Manganese	1170	211	2,410	736	780	159	NR	(<8.0U)	(<8.0U)
Mercury	(<0.31U)	0.52B*	0.62B*	(<0.06U)	(<0.20U)	0.72B*	NR	(<0.10U)	(<0.10U)
Nickel	20.9B*	20.1	26.1	9.6	12.0B*	17.3	NR	(<5.0U)	(<5.0U)
Potassium	553B*	759	210B*	1,120	50.8B*	847	NR	98.7B*	(<71.0U)
Selenium	(<13.9U)	0.60B*	(<8.0U)	(<0.23U)	(<7.9U)	(<0.41U)	NR	(<2.0U)	4.1B*
Silver	(<0.70U)	(<0.41U)	(<4.0U)	(<0.12U)	(<3.9U)	(<0.21U)	NR	(<3.0U)	(<3.0U)
Sodium	846	148B*	318B*	124	313B*	183B*	NR	677B*	633B*
Thallium	(<0.66U)	(<0.16U)	(<0.39U)	0.20B*	(<0.37U)	0.20B*	NR	(<1.0U)	(<1.0U)
Vanadium	3.0B*	15.2	(<1.2U)	13.3	(<1.2U)	14.9	NR	(<3.0U)	(<3.0U)
Zinc	66.2	40.8	50.4	18.7	44.6	31.2	NR	(<12.0U)	(<12.0U)

NOTE: NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

TABLE 17 SUMMARY OF LANDFILL GAS MONITORING CONDUCTED ON 28 JULY 1998 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Gas Vent Designation	Depth to Bottom (ft)	Pressure (in. H_2)	Percent Methane	Percent Oxygen	Percent Carbon Dioxide
Gas Probes					
GP-04	7.26	(<1.0U)	0.1	20.6	0.8
GP-05	7.21	(<1.0U)	0.1	18.0	3.6
GP-06	7.22	(<1.0U)	0.0	18.8	1.7
Gas Vents					
GV-01	6.72	(<1.0U)	0.1	21.1	0.0
GV-02	4.76	(<1.0U)	0.0	21.1	0.0
GV-03	4.52	(<1.0U)	0.0	21.1	0.0
GV-04	4.47	(<1.0U)	0.9	18.3	1.7
GV-05	4.52	(<1.0U)	.0.	21.1	0.0
GV-06	4.59	(<1.0U)	0.0	21.1	0.0
GV-07	4.63	(<1.0U)	0.2	19.5	0.3
GV-08	4.57	(<1.0U)	0.0	21.1	0.0
GV-09	4.59	(<1.0U)	0.1	21.1	0.0
GV-10	4.60	(<1.0U)	0.1	19.6	2.5
GV-11	4.54	(<1.0U)	0.0	21.2	0.0
GV-12	4.56	(<1.0U)	0.1	21.1	0.1
GV-13	4.56	(<1.0U)	0.1	19.0	3.7
GV-14	4.56	(<1.0U)	0.0	21.0	0.0

NOTE: U = Not detected. Sample quantitation limits are shown as (<___U).
Depth to bottom measured from top of polyvinyl chloride coupling.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1992a. Record of Decision for a Remedial Action, Sites 1 and 3. June.

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ABB-ES. 1994. Final Long-Term Monitoring Plan for Building 95, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine. August.

EA Engineering, Science, and Technology. 1996. Final Report, Quarterly Monitoring Event 4 - November 1995, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine.

State of Maine Department of Human Services. 1992. Summary of State and Federal Drinking Water Guidelines. Revised September. Bureau of Health - Environmental Toxicology Program. 23 October.

U.S. Environmental Protection Agency (U.S. EPA). 1994. National Primary Drinking Water Standards. Office of Water, Washington, D.C. EPA 610-P-94-001. February. (Revised 1 July 1997.)

Appendix A

Field Monitoring and Sampling Forms

A.1 Field Record of Well Gauging Forms
A.2 Field Record of Well Gauging, Purging, and Sampling Forms for Sites 1 and 3 and Eastern Plume
A.3 Field Record of Surface Water and Sediment Sampling Forms
A.4 Field Record of Seep Sampling Forms
A.5 Field Record of Landfill Gas Monitoring

Appendix A.1

Field Record of Well Gauging Forms

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Sites 1+3 | Project No: 29600.47 | Date: 5 May 1998

Weather/Temperature: Rain

EA Personnel: RH, BA | Equipment: Slope indicator, TVA-1000

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
EP-16	Y/Y	Y	*	*	Good		58.92	35.49	49.90	23.43
MW-216A	Y/Y	Y	*	*	Good		71.17	39.14	46.96	32.03
MW-211A	Y/Y	Y	*	*	Good		65.59	24.68	137.02	40.91
MW-211B	Y/Y	Y	*	*	Good		65.44	29.31	36.50	36.13
MW-210I	Y/Y	Y	*	*	Good		61.05	12.09	30.00	48.96
MW-201R	Y/Y	Y	*	*	Good		58.88	10.55	39.51	48.33
MW-233R	Y/Y	Y	*	*	Good		63.94	30.21	50.49	33.73
MW-215R	Y/Y	Y	*	*	Good		62.26	28.98	49.95	33.28
MW-202A	Y/Y	Y	*	*	Good		52.40	19.58	31.09	32.82
MW-202B	Y/Y	Y	*	*	Good		53.04	DRY	17.93	—
MW-203	Y/Y	Y	*	*	Good		52.75	32.00	42.04	20.75
MW-218	Y/Y	Y	*	*	Good		54.16	34.09	53.54	20.07
MW-204	Y/Y	Y	*	*	Good		50.50	30.31	37.18	20.19
MW-219	Y/Y	Y	*	*	Good		51.87	31.11	71.82	20.76
EW-6	Y/Y	Y	*	*	Good		57.74	21.07	39.05	36.67
EW-7	Y/Y	Y	*	*	Good		51.13	~~28.90~~ 28.14	50.55	22.99
MW-234R	Y/Y	Y	*	*	Good		68.55	35.00	59.52	33.55

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* Unable to use TVA due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Sites 143	Project No: 29600.47	Date: 5 May 1998
Weather/Temperature: Rain		
EA Personnel: RH / BA	Equipment: Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
MW-232A	Y/Y	Y	*	*	Good		71.18	41.20	54.76	29.98
MW217B	Y/Y	Y	*	*	Good		61.25	26.95	34.60	34.30
MW-217A	Y/Y	Y	*	*	Good		61.78	9.29	44.56	52.49
MW-220	Y/Y	Y	*	*	Good		47.20	28.71	49.87	18.49
MW-210A	Y/Y	Y	*	*	Good		52.17	19.51	105.60	32.66
MW-210B	Y/Y	Y	*	*	Good		54.72	38.92	26.40	15.80
EP-20	Y/Y	Y	*	*	Good		69.55	35.43	47.25	34.12
EP-19	Y/Y	Y	*	*	Good		68.22	34.31	47.30	33.91
EP-18	Y/Y	Y	*	*	Good		68.58	34.80	38.10	33.78
EP-17	Y/Y	Y	*	*	Good		69.73	35.89	42.85	33.84
MW-210R	Y/Y	Y	*	*	Good		55.90	22.28	112.00	33.62

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

*Unable to use TUA due to Rain.

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Eastern Plume	Project No: 29600.47	Date: 5 May 1998
Weather/Temperature: Rain / intermitent Heavy Rain		
EA Personnel: RH / BA	Equipment: Slope indicator, TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
MW-310	Y/Y	Y	*	*	Good		53.39	30.61	72.83	22.78
MW-206A	Y/Y	Y	*	*	Good		43.02	21.34	74.36	21.68
MW-206B	Y/Y	Y	*	*	Good		42.77	DRY	27.17	—
MW-225A	Y/Y	Y	*	*	Good		45.95	22.64	76.03	23.31
MW-225B	Y/Y	Y	*	*	Good		46.25	23.41	42.00	22.84
MW-105A	Y/Y	Y	*	*	Good		24.19	3.89	46.87	20.30
MW-105B	Y/Y	Y	*	*	Good		24.55	7.90	22.91	16.65
MW-231A	Y/Y	Y	*	*	Good		45.41	21.71	62.42	23.70
MW-231B	Y/Y	Y	*	*	Good		46.31	26.27	57.86	20.04
MW-230A	Y/Y	Y	*	*	Good		36.32	16.70	82.08	19.62
MW-318	Y/Y	Y	*	*	Good		24.28	5.09	75.14	19.19
MW-229A	Y/Y	Y	*	*	Good		33.83	14.40	64.97	19.43
MW-229B	Y/Y	Y	*	*	Good		30.08	14.87	32.70	15.21
MW-313	Y/Y	Y	*	*	Good		21.39	8.72	37.14	12.67
EP-1	Y/Y	Y	*	*	Good		31.67	13.33	100.51	18.34
EP-2	Y/Y	Y	*	*	Good		29.74	11.79	99.00	17.95
EP-3	Y/Y	Y	*	*	Good		27.91	9.04	89.21	18.87

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* unable to use TVA due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Eastern Plume	Project No: 29600.47	Date: 5 May 1998
Weather/Temperature: Rain / intermittent heavy Rain		
EA Personnel: RH, BA	Equipment: Slope indicator, TUA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
EW-1	Y/Y	Y	*	*	Good		25.34	13.19	99.66	12.15
MW-205	Y/Y	Y	*	*	Good		45.99	25.09	25.15	20.90
EW-2	Y/Y	Y	*	*	Good		31.63	19.85	90.86	11.78
EP-4	Y/Y	Y	*	*	Good		32.59	12.86	91.11	19.73
EP-5	Y/Y	Y	*	*	Good		34.61	13.55	79.85	21.06
EP-6	Y/Y	Y	*	*	Good		40.14	17.85	83.51	22.29
MW-207A	Y/Y	Y	*	*	Good		24.06	2.66	73.22	21.40
MW-207B	Y/Y	Y	*	*	Good		22.90	4.79	9.57	18.11
MW-311	Y/Y	Y	*	*	Good		21.48	4.71	55.78	16.77
P-112	Y/Y	Y	*	*	Good		41.12	11.18	16.41	29.94
MW-319	Y/Y	Y	*	*	Good		40.16	18.40	72.44	21.76
MW-106	Y/Y	Y	*	*	Good		51.26	26.90	37.27	24.36
MW-208	Y/Y	Y	*	*	Good		49.40	25.29	103.33	24.11
EW-3	Y/Y	Y	*	*	Good		41.18	31.41	67.04	9.77
MW-223	Y/Y	Y	*	*	Good		53.71	29.00	42.61	24.71
P-124	Y/Y	Y	*	*	Good		51.12	DRY	23.25	—
MW-209	Y/Y	Y	*	*	Good		54.84	29.61	32.38	25.23

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* unable to use TUA due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Eastern Plume	Project No: 29600.47	Date: 5 May 1998
Weather/Temperature: Rain / intermitent Heavy Rain		
EA Personnel: RH / BA	Equipment: slope indicator, TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
MW-222	Y/Y	Y	*	*	Good		57.43	21.41	45.34	36.02
P-110	Y/Y	Y	*	*	Good		56.70	DRY	24.14	—
MW-224	Y/Y	Y	*	*	Good		57.63	30.57	46.95	27.06
EP-7	Y/Y	Y	*	*	Good		48.49	24.20	70.20	24.29
EP-8	Y/Y	Y	*	*	Good		47.31	22.44	80.38	24.87
EW-4	Y/Y	Y	*	*	Good		37.13	23.01	69.37	14.12
EP-9	Y/Y	Y	*	*	Good		37.84	11.12	62.46	26.72
EP-10	Y/Y	Y	*	*	Good		37.78	11.12	58.00	26.66
EP-11	Y/Y	Y	*	*	Good		341.59	13.51	65.03	28.08
EP-12	Y/Y	Y	*	*	Good		49.38	21.09	69.61	28.29
MW-307	Y/Y	Y	*	*	Good		62.70	16.13	22.21	46.57
EW-5	Y/Y	Y	*	*	Good		36.25	5.44	84.99	30.81
P-105	Y/Y	Y	*	*	Good		42.08	9.37	70.35	32.71
P-106	Y/Y	Y	*	*	Good		38.83	10.75	71.06	28.08
EP-13	Y/Y	Y	*	*	Good		38.96	6.53	71.03	22.43
EP-14	Y/Y	Y	*	*	Good		43.46	10.73	80.05	32.73
EP-15	Y/Y	Y	*	*	Good		45.37	12.73	82.68	32.64

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* unable to use TVA due to Rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Eastern Plume	Project No: 29600.47	Date: 5 May 1998
Weather/Temperature: Rain / intermitent Heavy Rain		
EA Personnel: RH / BA	Equipment: slope indicator TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
P-132	Y/Y	Y	*	*	Good		42.95	17.25	32.46	25.70
MW-303	Y/Y	Y	*	*	Good		44.28	11.92	71.62	32.36
MW-305	Y/Y	Y	*	*	Good		43.09	11.19	54.12	31.90
MW-NASB 212	Y/Y	Y	*	*	Good		41.64	9.45	67.34	32.19
MW-306	Y/Y	Y	*	*	Good		52.12	19.79	56.98	32.33
P-103	Y/Y	Y	*	*	Good		60.35	27.37	29.05	32.98
MW-1104	Y/Y	Y	*	*	Good		60.09	12.34	27.55	47.75
P-111	Y/Y	Y	*	*	Good		31.48	3.86	9.99	27.62
MW-308	Y/Y	Y	*	*	Good		37.70	5.79	72.85	31.91
MW-309A	Y/Y	Y	*	*	Good		22.84	Artesian	72.71	>22.84
MW-309B	Y/Y	Y	*	*	Good		22.32	2.71	59.43	19.61
MW-312	Y/Y	Y	*	*	Good		35.97	11.69	71.15	24.28
MW-316A	Y/Y	Y	*	*	Good		53.71	20.18	103.10	33.53
MW-316B	Y/Y	Y	*	*	Good		54.40	9.56	57.85	44.84
MW-317A	Y/Y	Y	*	*	Good		71.35	12.82	120.79	58.53
MW-317B	Y/Y	Y	*	*	Good		70.10	11.59	96.95	58.51
P-121	Y/Y	Y	*	*	Good		50.78	14.79	17.35	35.99

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* unable to use TVA due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging May 1998 Eastern Plume	Project No: 29600.47	Date: 5 May 1998
Weather/Temperature: Rain		
EA Personnel: RH / BA	Equipment: Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
P-123	Y/Y	Y	*	*	Good		54.19	blocked	Blocked	—
GP-1							31.10	2.45		28.65
GP-2							28.95	A		—
GP-3							27.33	2.54		24.79
GP-4							18.39	2.30		16.09
GP-5							23.38	9.78		13.60
GP-6							15.22	10.60		4.62

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* unable to use TVA due to Rain

A - gauge point not gauged due to inaccessibility

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Sites 1+3 | Project No: 29600.47 | Date: 7/2/98

Weather/Temperature: Overcast, rainy

EA Personnel: RH, SC | Equipment: slope indicator, TVA-1000

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
EP-16	Y Y	Y			Good		58.92	35.00	49.90	23.92
MW-216A	Y Y	Y			Good		71.17	37.45	46.96	33.72
MW-211A	Y Y	Y			Good		65.59	23.95	137.02	41.64
MW-211B	Y Y	Y			Good		65.44	29.63	36.50	35.81
MW-210I	Y Y	Y			Good		61.05	10.97	30.00	50.08
MW-201R	Y Y	Y			Good		58.88	9.81	39.51	49.07
MW-233R	Y Y	Y			Good		63.94	30.30	50.49	33.64
MW-215R	Y Y	Y			Good		62.26	29.07	49.95	33.19
MW-202A	Y Y	Y			Good		52.40	19.51	31.09	32.89
MW-202B	Y Y	Y			Good		53.04	DRY	17.93	—
MW-203	Y Y	Y			Good		52.75	31.67	42.04	21.08
MW-218	Y Y	Y			Good		54.16	33.75	53.54	20.41
MW-204	Y Y	Y			Good		50.50	30.14	37.18	20.36
MW-219	Y Y	Y			Good		51.87	30.65	71.82	21.22
EW-6	Y Y	Y			Good		57.74	*	39.05	—
EW-7	Y Y	Y			Good		51.13	27.10	50.55	24.03
MW-234R	Y Y	Y			Good		68.55	35.00	59.52	33.55

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* unable to gauge well due to water in well vault.
unable to record VOC concentrations due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Sites 1+3 | Project No: 29600.47.7502 | Date: 7/2/98

Weather/Temperature: Overcast, rainy

EA Personnel: RH, SC | Equipment: Slope indicator, TVA-1000

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
MW-232A	Y Y	Y			Good		71.18	37.79	54.76	33.39
MW-217B	Y Y	Y			Good		61.25	27.81	34.60	33.44
MW-217A	Y Y	Y			Good		61.78	28.71	44.56	33.07
MW-220	Y Y	Y			Good		47.20	28.00	49.87	19.20
MW-210A	Y Y	Y			Good		52.17	18.73	105.60	33.44
MW-210B	Y Y	Y			Good		54.72	31.11	26.40	23.61
EP-20	Y Y	Y			Good		69.55	35.51	47.25	34.04
EP-19	Y Y	Y			Good		68.22	34.36	47.30	33.86
EP-18	Y Y	Y			Good		68.58	34.86	38.10	33.72
EP-17	Y Y	Y			Good		69.73	35.00	42.85	34.73
MW-210R	Y Y	Y			Good		55.90	21.79	112.00	34.11

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

Unable to record VOC concentrations due to rain.

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Eastern Plume	Project No: 29600.47.7502	Date: 7/2/98
Weather/Temperature: overcast, rainy		
EA Personnel: RH, SC	Equipment: slope indicator TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
MW-310	Y Y	Y			Good		53.39	29.59	72.83	23.80
MW-206A	Y Y	Y			Good		43.02	20.41	74.36	22.61
MW-206B	Y Y	Y			Good		42.77	20.10	27.17	22.67
MW-225A	Y Y	Y			Good		45.95	21.24	76.03	24.71
MW-225B	Y Y	Y			Good		46.25	22.20	42.00	24.05
MW-105A	Y Y	Y			Good		24.19	2.86	46.87	21.33
MW-105B	Y Y	Y			Good		24.55	7.39	22.91	17.16
MW-231A	Y Y	Y			Good		45.41	21.03	62.42	24.38
MW-231B	Y Y	Y			Good		46.31	25.40	57.86	20.91
MW-280A	Y Y	Y			Good		36.32	15.94	82.08	20.38
MW-318	Y Y	Y			Good		24.28	5.10	25.14	19.18
MW-229A	Y Y	Y			Good		33.83	13.85	64.97	19.98
MW-229B	Y Y	Y			Good		30.08	13.93	32.70	16.15
MW-313	Y Y	Y			Good		21.39	8.70	37.14	12.69
EP-1	Y Y	Y			Good		31.67	12.73	100.51	18.94
EP-2	Y Y	Y			Good		29.74	11.15	99.00	18.59
EP-3	Y Y	Y			Good		27.91	8.40	89.21	19.51

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

Unable to record VOC concentrations due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Eastern Plume	Project No: 29600.47.7502	Date: 7/2/98
Weather/Temperature: overcast, rainy		
EA Personnel: ~~[illegible]~~ RH, SC	Equipment: Slope indicator, TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
EW-1	Y Y	Y			Good		25.34	13.60	99.66	11.74
MW-205	Y Y	Y			Good		45.99	24.55	25.15	21.44
EW-2	Y Y	Y			Good		31.63	12.81	90.86	18.82
EP-4	Y Y	Y			Good		32.59	10.50	91.11	22.09
EP-5	Y Y	Y			Good		34.61	11.34	79.85	23.27
EP-6	Y Y	Y			Good		40.14	16.21	83.51	23.93
MW-207A	Y Y	Y			Good		24.06	1.29	73.22	22.77
MW-207B	Y Y	Y			Good		22.90	4.35	27.17	18.55
MW-311	Y Y	Y			Good		21.48	20.66	55.78	0.82
EW-2A	Y Y	Y			Good			45.44		
P-112	Y Y	Y			Good		41.12	10.93	16.41	30.19
MW-319	Y Y	Y			Good		40.16	16.30	72.44	23.86
MW-106	Y Y	Y			Good		51.26	25.29	37.27	25.97
MW-208	Y Y	Y			Good		49.40	23.39	103.33	26.01
EW-3	Y Y	Y			Good		41.18	15.10	67.04	26.08
MW 223	Y Y	Y			Good		53.71	27.22	42.61	26.49
P-124	Y Y	Y			Good		51.12	DRY	23.25	—

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

EW-1 - 12gpm
EW-2 - 14gpm
EW-3 - 13gpm
EW-2A - 20gpm

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Eastern Plume | Project No: 29600.47.7502 | Date: 7/2/98

Weather/Temperature: Overcast, rainy

EA Personnel: RH, SC | Equipment: Slope indicator, TVA-1000

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
MW-209	Y Y	Y			Good		54.84	28.17	32.38	26.67
MW-222	Y Y	Y			Good		57.43	29.86	45.34	27.57
P-110	Y Y	Y			Good		56.70	DRY	24.14	—
MW-224	Y Y	Y			Good		57.63	28.89	46.95	28.74
EP-7	Y Y	Y			Good		48.49	22.00	70.20	26.49
EP-8	Y Y	Y			Good		47.31	20.65	80.38	26.66
EW-4	Y Y	Y			Good		37.13	21.70	69.37	15.43
EP-9	Y Y	Y			Good		37.84	9.63	62.46	28.21
EP-10	Y Y	Y			Good		37.78	9.72	58.00	28.06
EP-11	Y Y	Y			Good		41.59	11.91	65.03	29.68
EP-12	Y Y	Y			Good		49.38	19.43	69.61	29.95
MW-307	Y Y	Y			Good		62.70	15.00	22.21	47.70
EW-5	Y Y	Y			Good		36.25	16.50	84.99	19.75
P-105	Y Y	Y			Good		42.08	9.00	70.35	33.08
P-106	Y Y	Y			Good		38.83	9.81	71.06	29.02
EP-13	Y Y	Y			Good		38.96	5.48	71.03	33.48
EP-14	Y Y	Y			Good		43.46	10.08	80.05	33.38

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

unable to record VOC concentrations due to rain.

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EW-4 - 22gpm
EW-5 9gpm

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Eastern Plume	Project No: 29600.47.7502	Date: 7/2/98
Weather/Temperature: Overcast, rainy		
EA Personnel: RH, SC	Equipment: Slope indicator TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
EP-15	Y Y	Y			Good		45.37	12.55	82.68	32.82
P-132	Y Y	Y			Good		42.95	17.00	32.46	25.95
MW-303	Y Y	Y			Good		44.28	11.41	71.62	32.87
MW-305	Y Y	Y			Good		43.09	10.95	54.12	32.14
MW-NASB 212	Y Y	Y			Good		41.64	8.89	67.34	32.75
MW-306	Y Y	Y			Good		52.12	18.21	56.98	33.91
P-103	Y Y	Y			Good		60.35	24.04	29.05	36.31
MW-1104	Y Y	Y			Good		60.09	10.43	27.53	49.66
P-111	Y Y	Y			Good		31.48	3.91	9.99	27.57
MW-308	Y Y	Y			Good		37.70	5.15	72.85	32.55
MW-309A	Y Y	Y			Good		22.84	+4.61	72.71	27.45
MW-309B	Y Y	Y			Good		22.32	1.57	59.43	20.75
MW-312	Y Y	Y			Good		35.97	11.44	71.15	24.53
MW-316A	Y Y	Y			Good		53.71	19.97	103.10	33.74
MW-316B	Y Y	Y			Good		54.40	9.40	57.85	45.00
MW-317A	Y Y	Y			Good		71.35	12.74	120.77	58.61
MW-317B	Y Y	Y			Good		70.10	11.50	96.95	58.60

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

Unable to record VOC concentrations due to rain

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 12 July 1998 Eastern Plume	Project No: 29600.47.7502	Date: 7/2/98
Weather/Temperature: Overcast, rainy		
EA Personnel: RH, SC	Equipment: Slope indicator, TVA-1000	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft MSL)	PVC Casing Elevation (ft MSL)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft MSL)
			Air Ambient	Well Mouth						
P-121	Y Y	Y			Good		50.78	14.65	17.35	36.13
P-123	Y Y	Y			Good		54.19	—	Blocked	—
GP-1							31.10	2.86		28.24
GP-2							28.95	inaccessible		—
GP-3							27.33	2.70		24.63
GP-4							18.39	2.55		15.84
GP-5 *							23.38	9.32		14.06
GP-6							15.22	10.45		4.77

NOTE: MSL = Mean sea level; PVC = Polyvinyl chloride; VOC = Volatile organic compounds.

* area blocked by debris
unable to record VOC concentrations due to rain

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Appendix A.2

Field Record of Well Gauging, Purging, and Sampling Forms for Sites 1 and 3 and Eastern Plume

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-202A	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 80° Hot!

Gauge Date:	7/15/98	Gauge Time:	842
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.11	Well Diameter (in.):	2"

Purge Date:	7/15/98	Purge Time:	~~0605~~ 845
Purge Method:	Low Flow	Field Personnel:	SAP
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	

WELL VOLUME

A. Well Depth (ft):	31.09	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	20.24	C. Well Volume (L)	6.56
E. Liquid Depth (ft) (A-B)	10.85	E. Three Well Volumes	19.68

Parameter	Beginning	1	2	3	4	5
Time (min.)	847	852	857	902	905	908
Depth to Water (ft)	22.00	21.98	21.98	21.99	21.99	21.99
Purge Rate (~~gpm~~) (Lpm)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.4	1.4	2.4	3.4	4.4	5.4
pH	5.60	5.95	6.07	6.10	6.11	6.13
Temperature (°C)	10.23	11.09	11.75	11.98	12.12	12.19
Conductivity (μmhos/cm)	248	323	410	489	501	512
Dissolved Oxygen (mg/L)	5.64	3.42	2.52	2.34	2.31	2.30
Turbidity (NTU)	81	17	10.9	8	12	7
eH (mV)	177	119	103	96	93	92

Total Quantity of Water Removed (L):	8.4		
Samplers:	SAP/KS	Sampling Time (Start/End):	920
Sampling Date:	7/15/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL/HNO_3
Sample Bottle IDs:	DN-12-51-MW011		
Sample Parameters:	VOC / TAL ELEMENTS		

Comments and Observations: Purged water was contained/disposed of at treatment plant.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	SHES 1+3	Project Number:	29600.47.7502	Date:	7/15/98
Well ID:	MW-202A	Field Personnel:	SAP/KS		

Parameter	6	7	8	9	10	11
Time (min.)	911	914	917			
Depth to Water (ft)	21.99	21.99	21.99			
Purge Rate ~~(gpm)~~ (Lpm)	0.2	0.2	0.2			
Volume Purged ~~(gal)~~ (L)	6.4	7.4	8.4			
pH	6.13	6.13	6.13			
Temperature (°C)	12.36	12.65	12.76			
Conductivity (μmhos/cm)	518	525	528			
Dissolved Oxygen (mg/L)	2.26	2.21	2.21			
Turbidity (NTU)	3	3	3			
eH (mV)	90	88	86			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW202B	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 80°

Gauge Date:	7/14/98	Gauge Time:	
Sounding Method:	slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.75	Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	NA
Purge Method:	Low Flow	Field Personnel:	SC, BA
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 , 0

WELL VOLUME

A. Well Depth (ft):	17.93	D. Well Volume/ft (L):	
B. Depth to Water (ft):	DRY	C. Well Volume (L)	
E. Liquid Depth (ft) (A-B)		E. Three Well Volumes	

Parameter	Beginning	1	2	3	4	5
Time (min.)						
Depth to Water (ft)	Unable	to	Sample			
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)	Well		Dry			
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Total Quantity of Water Removed (L):			
Samplers:		Sampling Time (Start/End):	
Sampling Date:		Decontamination Fluids Used:	
Sample Type:		Sample Preservatives:	
Sample Bottle IDs:			
Sample Parameters:			
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-203	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 85°

Gauge Date:	7/14/98	Gauge Time:	1132
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.12	Well Diameter (in.):	2"

Purge Date:	7/14/98	Purge Time:	
Purge Method:	Low Flow	Field Personnel:	SAP KS
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	42.04	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	31.62	C. Well Volume (L)	6.30
E. Liquid Depth (ft) (A-B)	10.42	E. Three Well Volumes	18.9

Parameter	Beginning	1	2	3	4	5
Time (min.)	1136	1141	1146	1149	1152	1155
Depth to Water (ft)	31.63	31.63	31.62	31.62	31.62	31.62
Purge Rate ~~(gpm)~~ (Lpm)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged ~~(gal)~~ (L)	1.2	2.2	3.2	3.8	4.4	5.0
pH	5.73	6.42	6.55	6.64	6.70	6.73
Temperature (°C)	12.60	12.08	12.15	12.67	13.34	13.82
Conductivity (μmhos/cm)	892	871	876	886	902	914
Dissolved Oxygen (mg/L)	11.17	11.25	11.34	11.38	11.29	11.25
Turbidity (NTU)	21.8	7.9	6.2	3.6	3.0	2.8
eH (mV)	172.5	163.2	161.8	158.6	149.0	135.1

Total Quantity of Water Removed (L):	6.8		
Samplers:	SAP/KS	Sampling Time (Start/End):	1200
Sampling Date:	7/14/98	Decontamination Fluids Used:	~~HCL~~ DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-81-MW005		
Sample Parameters:	VOC TAL METALS		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Sites 1 & 3	Project Number:	29600.47 7502	Date:	7/14/98
Well ID:	MW-203	Field Personnel:	KS/SAP		

Parameter	6	7	8	9	10	11
Time (min.)	1158	1201	1204			
Depth to Water (ft)	31.62	31.62	31.62			
Purge Rate (~~gpm~~) (Lpm)	0.2	0.2	0.2			
Volume Purged (~~gal~~) (L)	5.6	6.2	6.8			
pH	6.77	6.78	6.80			
Temperature (°C)	14.09	14.27	14.39			
Conductivity (μmhos/cm)	924	928	932			
Dissolved Oxygen (mg/L)	11.22	11.24	11.20			
Turbidity (NTU)	2.7	2.5	2.5			
eH (mV)	108.5	99.0	95.8			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47
Well ID:	MW204	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 85°

Gauge Date:	7/14/98	Gauge Time:	1011
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.74	Well Diameter (in.):	2"

Purge Date:	7/14/98	Purge Time:	1017
Purge Method:	Low ~~Flow~~ Flow	Field Personnel:	KS/SAP
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	37.18	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	30.01	C. Well Volume (L)	4.34
E. Liquid Depth (ft) (A-B)	7.17	E. Three Well Volumes	13.02

Parameter	Beginning	1	2	3	4	5
Time (min.) 1025	~~30.10~~	1030	1037	1040	1043	1046
Depth to Water (ft)	30.10	30.10	30.18	30.18	30.18	30.18
Purge Rate ~~(gpm)~~ (Lpm)	.4	.4	0.4	0.4	0.4	0.4
Volume Purged ~~(gal)~~ (L)	3.2	5.2	8.0	9.2	10.4	12.0
pH	6.50	6.52	6.52	6.53	6.53	6.53
Temperature (°C)	11.20	11.15	11.94	11.38	11.33	11.42
Conductivity (μmhos/cm)	41	40	40	40	40	41
Dissolved Oxygen (mg/L)	13.43	13.49	13.34	13.41	13.41	13.41
Turbidity (NTU)	6	0	38	16	4	0
eH (mV)	172	170	168	168	169	168

Total Quantity of Water Removed (L):	12.0		
Samplers:	SAP/KS	Sampling Time (Start/End):	1050
Sampling Date:	7/14/98	Decontamination Fluids Used:	DI H_2O
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-S1-MW003		
Sample Parameters:	VOC, TAL Metals		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.77.7502
Well ID:	MW-21DA	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 80

Gauge Date:	7/14/98	Gauge Time:	900
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	NA
Purge Method:	Low Flow	Field Personnel:	SC, BA
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0, 0

WELL VOLUME

A. Well Depth (ft):		D. Well Volume/ft (L):	
B. Depth to Water (ft):	well bent	C. Well Volume (L)	
E. Liquid Depth (ft) (A-B)		E. Three Well Volumes	

Parameter	Beginning	1	2	3	4	5
Time (min.)						
Depth to Water (ft)	Unable		to	Sample		
Purge Rate (gpm)						
Volume Purged (gal)						
pH	Casing		bent			
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Total Quantity of Water Removed (L):			
Samplers:		Sampling Time (Start/End):	
Sampling Date:		Decontamination Fluids Used:	
Sample Type:		Sample Preservatives:	
Sample Bottle IDs:			
Sample Parameters:			
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-210B	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/14/98	Gauge Time:	1301
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.50	Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	1306
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	380 / 10

WELL VOLUME

A. Well Depth (ft):	41.35	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	27.88	C. Well Volume (L)	8.15
E. Liquid Depth (ft) (A-B)	13.47	E. Three Well Volumes	24.45

Parameter	Beginning	1	2	3	4	5
Time (min.)	1309	1314	1319	1324	1329	1334
Depth to Water (ft)	28.03	28.04	28.04	28.04	28.04	28.04
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) (L)	0.9	2.4	3.9	5.4	6.9	8.4
pH	6.57	6.59	6.59	6.59	6.59	6.59
Temperature (°C)	11.95	11.43	13.08	14.21	14.49	14.85
Conductivity (μmhos/cm)	62	440	439	419	527	525
Dissolved Oxygen (mg/L)	4.05	4.13	3.99	3.86	3.83	3.74
Turbidity (NTU)	273	460	277	99	104	105
eH (mV)	214	176	157	141	134	130

Total Quantity of Water Removed (L):	24		
Samplers:	BA, SC	Sampling Time (Start/End):	1426 / 1428
Sampling Date:	7/14/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	BN-12-51-MW008		
Sample Parameters:	VOC, TAL Elements		

Comments and Observations: Containerized water and ran through treatment plant

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Sites 1+3	Project Number:	29600.47	Date:	7/14/98
Well ID:	MW-21BB	Field Personnel:	BA-SC		

Parameter	6	7	8	9	10	11
Time (min.)	1339	1344	1349	1354	1359	1404
Depth to Water (ft)	28.04	28.04	28.04	28.04	28.04	28.04
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) (L)	9.9	11.4	12.9	14.4	15.9	17.4
pH	6.58	6.58	6.57	6.57	6.57	6.57
Temperature (°C)	15.22	15.33	15.29	15.38	15.47	15.49
Conductivity (μmhos/cm)	449	474	497	486	453	475
Dissolved Oxygen (mg/L)	3.73	3.74	3.64	3.74	3.68	3.62
Turbidity (NTU)	108 ~~85~~	85	74	66	64	49
eH (mV)	132	118	115	113	111	121

Parameter	12	13	14	15	16	17
Time (min.)	1409	1414				
Depth to Water (ft)	28.04	28.04				
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3				
Volume Purged (~~gal~~) (L)	18.9	20.4				
pH	6.48	6.44				
Temperature (°C)	15.63	15.64				
Conductivity (μmhos/cm)	466	479				
Dissolved Oxygen (mg/L)	3.57	3.63				
Turbidity (NTU)	47	46				
eH (mV)	122	117				

Comments and Observations: Cleaned up at 1340

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600 47.7502
Well ID:	MW-210R	Well Lock Status:	Locked
Well Condition:	GOOD	Weather:	Sunny 90° Hot

Gauge Date:	7/15/98	Gauge Time:	1125
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	3.77	Well Diameter (in.):	2"

Purge Date:	7/15/98	Purge Time:	1126
Purge Method:	Low Flow	Field Personnel:	SAP KS
Ambient Air VOCs (ppm):		Well Mouth VOCs (ppm):	

WELL VOLUME

A. Well Depth (ft):	107.50	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	21.43	C. Well Volume (L)	52.07
E. Liquid Depth (ft) (A-B)	86.07	E. Three Well Volumes	156.21

Parameter	Beginning	1	2	3	4	5
Time (min.)	1136 ~~24.54~~	1141	1146	1151	1156	1201
Depth to Water (ft)	~~21.43~~	24.60	24.60	24.58	24.58	24.58
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) (L)	3.0	4.5	6.0	7.5	9.0	10.5
pH	5.22	6.84	7.31	7.53	7.65	7.76
Temperature (°C)	~~7.43~~ 12.31	12.33	12.35	12.59	12.61	12.57
Conductivity (μmhos/cm)	1197	1203	1190	1182	1175	1184
Dissolved Oxygen (mg/L)	3.57	0.25	0.26	0.26	0.25	0.26
Turbidity (NTU)	6	28	~~23.3~~ 24	10	9	6
eH (mV)	-58	-90.7	-102	-111	-115	-119

Total Quantity of Water Removed (L):	14		
Samplers:	SAP KS	Sampling Time (Start/End):	1215
Sampling Date:	7/15/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL / HNO3
Sample Bottle IDs:	BN-12-S1-MW015		
Sample Parameters:	VOC / TAL Elements		

Comments and Observations: Purged water was contained / disposed of at treatment plant

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	~~MW-210R~~ Sites 1&3	Project Number:	29600.47.7502	Date:	7/15/98
Well ID:	MW-210R	Field Personnel:	STP/KS		

Parameter	6	7	8	9	10	11
Time (min.)	1206	1209	1212			
Depth to Water (ft)	24.53	24.58	24.58			
Purge Rate (gpm)	0.3	0.3	0.3			
Volume Purged (gal)	11.0	12.5	13.0			
pH	7.81	7.85	7.87			
Temperature (°C)	12.66	12.69	12.74			
Conductivity (μmhos/cm)	1177	1177	1174			
Dissolved Oxygen (mg/L)	0.24	0.24	0.24			
Turbidity (NTU)	5	5	5			
eH (mV)	-120	-121	-122			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1 & 3	Project Number:	29600 47
Well ID:	MW215R	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Hot/humid ± 85

Gauge Date:	7/15/98	Gauge Time:	0950 CS
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	3.20	Well Diameter (in.):	2"

Purge Date:	7/15/98	Purge Time:	0950 CS
Purge Method:	Low Flow	Field Personnel:	SAP CS
Ambient Air VOCs (ppm):	Ø	Well Mouth VOCs (ppm):	Ø

WELL VOLUME

A. Well Depth (ft):	49.95	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	29.06	C. Well Volume (L)	12.64
E. Liquid Depth (ft) (A-B)	20.89	E. Three Well Volumes	37.92

Parameter	Beginning	1	2	3	4	5
Time (min.)	0955	1000	1005	1010	1015	1020
Depth to Water (ft)	29.35	29.35	29.35	29.35	29.35	29.35
Purge Rate (~~gpm~~) (lpm)	.3	.3	.3	.3	.3	.3
Volume Purged (~~gal~~) (L)	1.5	3.0	4.5	6.0	7.5	9.0
pH	5.85	5.82	5.77	5.75	5.75	5.75
Temperature (°C)	11.61	11.57	12.20	12.55	12.72	12.84
Conductivity (μmhos/cm)	127	126	125	126	126	127
Dissolved Oxygen (mg/L)	.61	.60	.37	.23	.20	.20
Turbidity (NTU)	.8	1.1	.9	1.0	.9	.9
eH (mV)	173.0	188.0	201.6	210.1	217.2	222

Total Quantity of Water Removed (L):	13.5		
Samplers:	SAP/CS	Sampling Time (Start/End):	1040
Sampling Date:	7/15/95	Decontamination Fluids Used:	DI H_2O
Sample Type:	Grab	Sample Preservatives:	HCL / HNO_3
Sample Bottle IDs:	BN-12-S1-MW013		
Sample Parameters:	VOC, TAL Metals		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Sites 1 & 3	Project Number:	29600.47	Date:	~~29600.47~~ CS
Well ID:	MW215R	Field Personnel:	SAP CS		7/15/98

Parameter	6	7	8	9	10	11
Time (min.)	1025	1030	1035			
Depth to Water (ft)	29.35	29.35	29.35			
Purge Rate (~~gpm~~) (Lpm)	.3	.3	.3			
Volume Purged (~~gal~~)(L)	10.5	12.0	13.5			
pH	5.74	5.74	5.74			
Temperature (°C)	12.84	12.97	12.96			
Conductivity (μmhos/cm)	127	128	127			
Dissolved Oxygen (mg/L)	.23	.21	.22			
Turbidity (NTU)	1.0	1.0	1.2			
eH (mV)	224.0	226.9	229.4			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-216A	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/14/98	Gauge Time:	938
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.10	Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	942
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0 ~~960~~ / 0	Well Mouth VOCs (ppm):	960 / 1020

WELL VOLUME

A. Well Depth (ft):	46.96	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	37.37	C. Well Volume (L)	5.80
E. Liquid Depth (ft) (A-B)	9.59	E. Three Well Volumes	17.40

Parameter	Beginning	1	2	3	4	5
Time (min.)	945	948	951	954	957	1000
Depth to Water (ft)	37.60	37.57	37.57	37.57	37.57	37.57
Purge Rate (~~gpm~~) (gpm)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) (L)	0.6	1.2	1.8	2.4	3.0	3.6
pH	6.03	6.02	6.02	6.00	5.98	5.97
Temperature (°C)	12.73	12.38	12.29	13.47	14.47	15.40
Conductivity (μmhos/cm)	349	376	383	360	379	374
Dissolved Oxygen (mg/L)	0.93	0.76	0.81	0.91	0.89	0.90
Turbidity (NTU)	2	2	2	2	2	2
eH (mV)	86	78	78	76	76	77

Total Quantity of Water Removed (L):	7		
Samplers:	BA, SC	Sampling Time (Start/End):	1012 / ~~1013~~ 1016
Sampling Date:	7/14/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric
Sample Bottle IDs:	BN-12-S1-MW004	BN-12-S1-MWXD1	
Sample Parameters:	VOC, TAL Elements		

Comments and Observations: containerized water and ran through plant
duplicate sample

pH check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Sites 1+3	Project Number:	29600.47.7502	Date:	7/14/98
Well ID:	MW-216A	Field Personnel:	BA, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1003	1006	1009			
Depth to Water (ft)	37.57	37.57	37.57			
Purge Rate (~~gpm~~) (lpm)	0.2	0.2	0.2			
Volume Purged (~~gal~~) (L)	4.2	4.8	5.4			
pH	5.95	5.94	5.95			
Temperature (°C)	16.22	16.48	16.58			
Conductivity (μmhos/cm)	364	367	374			
Dissolved Oxygen (mg/L)	0.83	0.79	0.78			
Turbidity (NTU)	4	4	4			
eH (mV)	80	81	82			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-217A	Well Lock Status:	locked
Well Condition:	good	Weather:	sunny, 85

Gauge Date:	7/15/98	Gauge Time:	938
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.00	Well Diameter (in.):	2

Purge Date:	7/15/98	Purge Time:	945
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	~~17~~ 82 / 68

WELL VOLUME

A. Well Depth (ft):	44.56	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	28.80	C. Well Volume (L)	9.53
E. Liquid Depth (ft) (A-B)	15.76	E. Three Well Volumes	26.59

Parameter	Beginning	1	2	3	4	5
Time (min.)	948	953	958	1003	1008	13
Depth to Water (ft)	31.27	31.27	31.27	31.27	31.27	31.27
Purge Rate ~~(gpm)~~ (lpm)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged ~~(gal)~~ (L)	0.9	2.4	3.9	5.4	6.9	8.4
pH	5.25	6.05	6.20	6.29	6.30	6.31
Temperature (°C)	11.94	13.10	14.93	15.60	15.88	16.37
Conductivity (μmhos/cm)	1290	1562	1522	1227	1238	1196
Dissolved Oxygen (mg/L)	2.63	1.50	1.13	0.97	0.90	0.77
Turbidity (NTU)	175	99	54	35	38	53
eH (mV)	9	63	72	74	74	73

Total Quantity of Water Removed (L):	16.8		
Samplers:	BA, SC	Sampling Time (Start/End):	1040/1042
Sampling Date:	7/15/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	BN-12-S1-MW012		
Sample Parameters:	VOC, TAL Elements		

Comments and Observations:

cleaned cup at 1014

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Site 41 3	Project Number:	29600.47	Date:	7/15/98
Well ID:	MW-217 A	Field Personnel:	BA, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1018	1023	1028	1033	1038	
Depth to Water (ft)	31.27	31.27	31.27	31.27	31.27	
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3	0.3	0.3	0.3	
Volume Purged (~~gal~~) (L)	9.9	11.4	12.9	14.4	15.9	
pH	6.08	6.16	6.27	6.29	6.30	
Temperature (°C)	16.45	16.55	16.87	16.97	17.02	
Conductivity (μmhos/cm)	1190	1172	1156	1136	1127	
Dissolved Oxygen (mg/L)	1.36	0.87	0.76	0.74	0.72	
Turbidity (NTU)	15	11	12	11	12	
eH (mV)	83	75	73	73	74	

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Site 51+3	Project Number:	29600.47.7502
Well ID:	MW-217B	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/15/98	Gauge Time:	852
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.30	Well Diameter (in.):	2

Purge Date:	7/15/98	Purge Time:	855
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	~~82~~ 1.7% / 2000

WELL VOLUME

A. Well Depth (ft):	34.60	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	27.15	C. Well Volume (L)	4.56
E. Liquid Depth (ft) (A-B)	7.45	E. Three Well Volumes	13.53

Parameter	Beginning	1	2	3	4	5
Time (min.)	858	903	908	913	918	923
Depth to Water (ft)	28.26	28.27	28.30	28.30	28.30	28.30
Purge Rate (~~gpm~~) (Lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) (L)	1.2	3.2	5.2	7.2	9.2	11.2
pH	5.97	6.33	6.37	6.39	6.39	6.38
Temperature (°C)	13.04	12.17	14.60	18.24	18.72	19.61
Conductivity (μmhos/cm)	1093	1130	1234	1539	1594	1612
Dissolved Oxygen (mg/L)	1.39	0.77	0.67	0.64	0.66	0.63
Turbidity (NTU)	85	105	218	291	283	308
eH (mV)	-88	-106	-116	-137	-139	-141

Total Quantity of Water Removed (L):	14		
Samplers:	BA, SC	Sampling Time (Start/End):	9261 2930
Sampling Date:	7/15/98	Decontamination Fluids Used:	none, H
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	BN-12-51-MW009	BN-12-51-MWXDQ	
Sample Parameters:	VOC, TAL Elements		

Comments and Observations: containerized water + ran through treatment plant
had to adjust pump rate
on check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1 + 3	Project Number:	29600.47
Well ID:	mw218	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 88°

Gauge Date:	7/14/98	Gauge Time:	1345
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.61	Well Diameter (in.):	2"

Purge Date:	7/14/98	Purge Time:	1345
Purge Method:	Low Flow	Field Personnel:	KS SAP
Ambient Air VOCs (ppm):	Ø	Well Mouth VOCs (ppm):	Ø

WELL VOLUME

A. Well Depth (ft):	53.54	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	38.0	C. Well Volume (L)	9.40
E. Liquid Depth (ft) (A-B)	15.54	E. Three Well Volumes	28.2

Parameter	Beginning	1	2	3	4	5
Time (min.)	13.50	1555	1400	1405	1410	1415
Depth to Water (ft)	38.16	38.16	38.16	39.02	39.02	42.29
Purge Rate ~~(gpm)~~ (Lpm)	0.3	0.3	0.3	0.3	0.3	0.2
Volume Purged ~~(gal)~~ (L)	1.5	3.0	4.5	6.0	7.5	8.5
pH	7.10	7.16	7.15	7.29	7.39	7.45
Temperature (°C)	12.97	13.04	12.48	13.60	14.81	14.76
Conductivity (μmhos/cm)	953	915	819	743	738	739
Dissolved Oxygen (mg/L)	.89	.66	.75	1.0	1.44	207
Turbidity (NTU)	25.4	28.9	37.0	28.4	15.2	13.0
eH (mV)	-89.7	-100.7	-106.9	-102.0	-86	-67.6

Total Quantity of Water Removed (L):	15		
Samplers:	KS/SAP	Sampling Time (Start/End):	1440
Sampling Date:	7/14/98	Decontamination Fluids Used:	DI H_2O
Sample Type:	Grab	Sample Preservatives:	
Sample Bottle IDs:	BN-12-S1-mw007		
Sample Parameters:	VOC, Tal metals		

Comments and Observations: purge water was contained and disposed at atl treatment plant

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Sites 1+3	Project Number:	29600.47	Date:	7/14/98
Well ID:	MW218	Field Personnel:	SAP KS		

Parameter	6	7	8	9	10	11
Time (min.)	1420	1425	1428	1431	1434	1438
Depth to Water (ft)	42.63	42.94	43.00	43.00	43.00	43.00
Purge Rate (~~gpm~~) (Lpm)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) (L)	9.5	10.5	11.5	12.5	13.5	14.5
pH	7.50	7.52	7.53	7.54	7.54	7.54
Temperature (°C)	14.79	15.42	15.76	16.07	16.28	16.42
Conductivity (μmhos/cm)	747	768	775	783	796	803
Dissolved Oxygen (mg/L)	1.86	1.73	1.60	1.50	1.45	1.45
Turbidity (NTU)	11.2	9.4	9.1	9.0	8.3	8.1
eH (mV)	-75.8	-81.0	-81.4	-85.1	-92.5	-93.4

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1 + 3	Project Number:	29600.47.7502
Well ID:	MW-219	Well Lock Status:	Locked
Well Condition:	GOOD	Weather:	Sunny 80°

Gauge Date:	7/14/98	Gauge Time:	855
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.56	Well Diameter (in.):	2"

Purge Date:	7/14/98	Purge Time:	857
Purge Method:	Low Flow	Field Personnel:	SAP KS
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	

WELL VOLUME

A. Well Depth (ft):	71.82	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	30.58	C. Well Volume (L)	24.95
E. Liquid Depth (ft) (A-B)	41.24	E. Three Well Volumes	74.85

Parameter	Beginning	1	2	3	4	5
Time (min.)	0903	0908	0913	0918	0923	0928
Depth to Water (ft)	30.60	30.62	30.62	30.62	30.62	30.62
Purge Rate (~~gpm~~) (Lpm)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) (L)	1.2	2.2	3.2	4.2	5.2	6.2
pH	5.10	6.05	6.22	6.30	6.31	6.31
Temperature (°C)	11.03	10.62	10.77	11.24	11.45	11.53
Conductivity (μmhos/cm)	98	101	101	101	100	100
Dissolved Oxygen (mg/L)	9.52	9.75	9.76	9.71	9.64	9.60
Turbidity (NTU)	35	44.0	36.1	18.7	9.70	6.2
eH (mV)	198	184.0	180.0	177.7	177.9	178.8

Total Quantity of Water Removed (L):	8.0 L		
Samplers:	KS/SAP	Sampling Time (Start/End):	0940
Sampling Date:	7/14/98	Decontamination Fluids Used:	DI H_2O
Sample Type:	Grab	Sample Preservatives:	HCL, HNO_3
Sample Bottle IDs:	BN-12-S1-MW001MS/MSD		
Sample Parameters:	VOC, TAL metals		

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Sites 1+3	Project Number:	29600.47	Date:	7/14/98
Well ID:	MW-219	Field Personnel:	CJ/SAP 7502		

Parameter	6	7	8	9	10	11
Time (min.)	0931	0934	0937			
Depth to Water (ft)	30.62	30.62	30.62			
Purge Rate ~~(gpm)~~ (Lpm)	0.2	0.2	0.2			
Volume Purged ~~(gal)~~ (L)	6.8	7.4	8.0			
pH	6.31	6.33	6.33			
Temperature (°C)	11.60	11.67	11.69			
Conductivity (μmhos/cm)	100	99	99			
Dissolved Oxygen (mg/L)	9.58	9.60	9.60			
Turbidity (NTU)	6.4	4.7	4.7			
eH (mV)	179.2	179.7	180.1			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-220	Well Lock Status:	locked
Well Condition:	good	Weather:	sunny,

Gauge Date:	7/14/98	Gauge Time:	1029
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick/Up/Down (ft):	1.81	Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	1032
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0 / 10	Well Mouth VOCs (ppm):	186 / 35

WELL VOLUME

A. Well Depth (ft):	49.87	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	30.63	C. Well Volume (L)	11.64
E. Liquid Depth (ft) (A-B)	19.24	E. Three Well Volumes	34.92

Parameter	Beginning	1	2	3	4	5
Time (min.)	1035	1040	1045	1050	1055	1100
Depth to Water (ft)	30.87	30.87	30.87	30.87	30.87	30.87
Purge Rate (~~gpm~~) (Lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) (L)	1.2	3.2	5.2	7.2	9.2	11.2
pH	4.51	5.63	5.82	5.90	5.93	5.93
Temperature (°C)	11.34	13.03	14.51	14.91	15.13	15.25
Conductivity (μmhos/cm)	91	105	102	102	102	107
Dissolved Oxygen (mg/L)	1.65	0.53	0.42	0.33	0.37	0.68
Turbidity (NTU)	166	75	59	34	39	27
eH (mV)	36	29	25	24	22	24

Total Quantity of Water Removed (L):	23.2		
Samplers:	BA, SC	Sampling Time (Start/End):	1128 / 1130
Sampling Date:	7/14/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	RN-12-S1-MW006		
Sample Parameters:	VOC, TAL Elements		
Comments and Observations:	cleaned up at 1056		

ph check ok

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Site 113	Project Number:	2960047	Date:	7/14/98
Well ID:	MW-220	Field Personnel:	BA, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1105	1110	1115	1118	1121	1124
Depth to Water (ft)	30.87	30.87	30.87	30.87	30.87	30.87
Purge Rate (~~gpm~~) (Lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) (L)	13.2	15.2	17.2	18.4	19.6	20.8
pH	5.96	5.97	5.97	5.97	5.98	5.97
Temperature (°C)	15.32	15.95	16.20	16.42	17.10	17.38
Conductivity (μmhos/cm)	99	97	101	103	101	102
Dissolved Oxygen (mg/L)	0.31	0.29	0.27	0.27	0.30	0.30
Turbidity (NTU)	20	12	12	9	9	9
eH (mV)	20	20	20	20	18	18

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-232A	Well Lock Status:	locked
Well Condition:	good	Weather:	sunny, 85°

Gauge Date:	7/14/98	Gauge Time:	1429
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.30	Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	1455
Purge Method:	Slope indicator	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	2700 / 911

WELL VOLUME

A. Well Depth (ft):	54.76	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	38.28	C. Well Volume (L)	9.97
E. Liquid Depth (ft) (A-B)	16.48	E. Three Well Volumes	29.91

Parameter	Beginning	1	2	3	4	5
Time (min.)	1458	1501	1504	1507	1510	1513
Depth to Water (ft)	40.18	40.18	40.18	40.18	40.18	40.18
Purge Rate (~~gpm~~) (lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) (L)	1.2	2.4	3.6	4.8	6.0	7.2
pH	3.28	5.28	5.64	5.86	5.95	5.98
Temperature (°C)	14.17	14.49	14.80	15.10	15.44	15.60
Conductivity (μmhos/cm)	399	477	518	636	677	685
Dissolved Oxygen (mg/L)	2.11	1.28	1.10	0.95	0.91	0.93
Turbidity (NTU)	6	4	4	3	2	2
eH (mV)	161	153	153	154	153	153

Total Quantity of Water Removed (L):	8.4L		
Samplers:	BA, SC	Sampling Time (Start/End):	1515 / 1516
Sampling Date:	7/14/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	BN-12-S1-MW010		
Sample Parameters:	VOC, TAL Elements		

Comments and Observations:

phcheck OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-234R	Well Lock Status:	locked
Well Condition:	Good	Weather:	Sunny, 85°

Gauge Date:	7/15/98	Gauge Time:	1103
Sounding Method:	SI Geoindicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.78	Well Diameter (in.):	2

Purge Date:	7/15/98	Purge Time:	1106
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	1.9% / 2400

WELL VOLUME

A. Well Depth (ft):	59.52	D. Well Volume/ft (L):	~~14.77~~ 0.605
B. Depth to Water (ft):	35.10	C. Well Volume (L)	14.77
E. Liquid Depth (ft) (A-B)	24.42	E. Three Well Volumes	44.31

Parameter	Beginning	1	2	3	4	5
Time (min.)	1109	1112	1115	1118	1121	1124
Depth to Water (ft)	35.31	35.31	35.31	35.31	35.31	35.31
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) (L)	0.9	~~0.9~~ 1.8	2.7	3.6	4.5	5.4
pH	5.43	5.53	5.58	5.59	5.59	5.59
Temperature (°C)	12.73	12.57	13.16	14.22	15.12	15.81
Conductivity (μmhos/cm)	349	338	344	398	571	620
Dissolved Oxygen (mg/L)	0.69	0.72	0.62	0.47	0.51	0.53
Turbidity (NTU)	2	2	3	3	2	2
eH (mV)	149	146	144	145	146	146

Total Quantity of Water Removed (L):	6.9		
Samplers:	BA, SC	Sampling Time (Start/End):	1128 / 1129
Sampling Date:	7/15/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL nitric acid
Sample Bottle IDs:	BN-12.51-MW014		
Sample Parameters:	VOC, TAL Elements		

Comments and Observations: Contaminated water and ran through treatment plant

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Sites 1+3	Project Number:	29600.47.7502
Well ID:	MW-2101	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/14/98	Gauge Time:	900
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	5.24	Well Diameter (in.):	2

Purge Date:	7/14/98	Purge Time:	902
Purge Method:	Low Flow	Field Personnel:	BA, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	30.00	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	11.15	C. Well Volume (L)	11.40
E. Liquid Depth (ft) (A-B)	18.85	E. Three Well Volumes	34.20

Parameter	Beginning	1	2	3	4	5
Time (min.)	905	908	911	914	917	920
Depth to Water (ft)	11.20	11.20	11.20	11.20	11.20	11.20
Purge Rate (~~gpm~~) (Lpm)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) (L)	0.9	1.8	2.7	3.6	4.5	5.4
pH	5.57	5.59	5.57	5.45	5.49	5.53
Temperature (°C)	13.59	13.31	14.69	15.14	15.85	16.04
Conductivity (μmhos/cm)	337	351	375	372	377	383
Dissolved Oxygen (mg/L)	8.33	8.13	8.05	8.54	8.13	8.05
Turbidity (NTU)	9	13	20	2	2	2
eH (mV)	241	229	217	226	222	224

Total Quantity of Water Removed (L):	7.2		
Samplers:	BA, SC	Sampling Time (Start/End):	925 1926
Sampling Date:	7/14/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	BN-12-S1-MW002		
Sample Parameters:	VOC, TAL Elements		

Comments and Observations:

cleaned up out at 912

ph Check ok

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-105A	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 80°

Gauge Date:	7/13/98	Gauge Time:	905
Sounding Method:	~~Slope Indicator~~	Measurement Ref:	TOC
Stick Up/Down (ft):	3.17	Well Diameter (in.):	2"

Purge Date:	7/13/98	Purge Time:	922
Purge Method:	Peristaltic ~~Low Flow~~ SAP	Field Personnel:	SAP BB
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	46.87	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	~~2.85~~ 2.65	C. Well Volume (L)	26.75
E. Liquid Depth (ft) (A-B)	44.22	E. Three Well Volumes	80.25

Parameter	Beginning	1	2	3	4	5
Time (min.)	922	927 *	932	937	940	943
Depth to Water (ft)	2.85	2.85	3.44	3.52	3.40	3.26
Purge Rate (~~gpm~~) (Lpm)	3	.25	3	3	3	3
Volume Purged (~~gal~~) (L)	3	4.25	19.25	34.25	49.25	64.25
pH	7.11	7.11	6.94	6.87	6.84	6.86
Temperature (°C)	11.61	11.12	9.68	8.42	8.60	8.84
Conductivity (μmhos/cm)	39	33	32	33	33	34
Dissolved Oxygen (mg/L)	16.71	16.46	17.33	17.77	17.62	17.44
Turbidity (NTU)	479	338	274	14	55	28
eH (mV)	167	165	158	162	165	168

Total Quantity of Water Removed (L):	139.25		
Samplers:	SAP BB	Sampling Time (Start/End):	1005
Sampling Date:	7/13/98	Decontamination Fluids Used:	DF
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW031		
Sample Parameters:	VOC		

Comments and Observations: Water is orange in color
*Cleaned flow cell
** DO affected by air bubbles in flow cel

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume Project Number: 29600.47.7502 Date: 7/13/98
Well ID: MW-105A Field Personnel:

Parameter	6	7	8	9	10	11
Time (min.)	852	853	856	859	902	
Depth to Water (ft)	3.20	3.20	3.20	3.20	3.20	
Purge Rate ~~(gpm)~~ (lpm)	3	3	3	3	3	
Volume Purged ~~(gal)~~ (L)	79.25	94.25	109.25	124.25	139.25	
pH	6.87	6.86	6.86	6.86	6.85	
Temperature (°C)	8.68	8.68	8.70	8.70	8.71	
Conductivity (μmhos/cm)	33	33	34	34	34	
Dissolved Oxygen (mg/L)	17.51	17.60	17.61	17.54	16.53	
Turbidity (NTU)	98	103	16	15	15	
eH (mV)	166	166	168	168	168	

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-105B	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/10/98	Gauge Time:	928
Sounding Method:	Slope/water	Measurement Ref:	TOC
Stick Up/Down (ft):	3.20	Well Diameter (in.):	2

Purge Date:	7/10/98	Purge Time:	930
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	22.91	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	7.63	C. Well Volume (L)	9.24
E. Liquid Depth (ft) (A-B)	15.28	E. Three Well Volumes	27.72

Parameter	Beginning	1	2	3	4	5
Time (min.)	933	936	939	943	946	949
Depth to Water (ft)	7.70	7.68	7.66	7.66	7.65	7.65
Purge Rate (~~gpm~~) (Lpm)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (~~gal~~) L	0.3	0.6	0.9	1.2	1.5	1.8
pH	6.48	6.45	6.42	6.42	6.41	6.42
Temperature (°C)	11.94	11.74	12.29	13.25	14.60	15.12
Conductivity (μmhos/cm)	36	35	34	34	33	33
Dissolved Oxygen (mg/L)	16.40	16.41	16.24	15.92	15.76	16.23
Turbidity (NTU)	39	21	6	5	4	4
eH (mV)	191	193	193	193	192	182

Total Quantity of Water Removed (L):	3		
Samplers:	BBSC	Sampling Time (Start/End):	1000 / 1001
Sampling Date:	7/10/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW030		
Sample Parameters:	VOC		

Comments and Observations:

pH check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume Project Number: 25600.47.7508 Date: 7/10/98
Well ID: MW-105B Field Personnel: BB, SC

Parameter	6	7	8	9	10	11
Time (min.)	952	955				
Depth to Water (ft)	7.65	7.65				
Purge Rate (~~gpm~~) (Lpm)	0.1	0.1				
Volume Purged (~~gal~~) L	2.1	2.4				
pH	6.39	6.38				
Temperature (°C)	16.07	16.12				
Conductivity (μmhos/cm)	35	35				
Dissolved Oxygen (mg/L)	16.08	15.85				
Turbidity (NTU)	3	4				
eH (mV)	181	183				

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	EASTERN Plume	Project Number:	29600.47 7502
Well ID:	MW-106	Well Lock Status:	good
Well Condition:	GOOD	Weather:	clear, sun, slight breeze

Gauge Date:	7/9/98	Gauge Time:	0837
Sounding Method:	slope indicator	Measurement Ref:	TOP of PVC
Stick Up/Down (ft):	3.70	Well Diameter (in.):	2"

Purge Date:	7/9/98	Purge Time:	0838
Purge Method:	Low Flow	Field Personnel:	SAP, BDA
Ambient Air VOCs (ppm):	0.0	Well Mouth VOCs (ppm):	0.0

WELL VOLUME

A. Well Depth (ft):	37.27	D. Well Volume/ft (L):	.605
B. Depth to Water (ft):	25.24	C. Well Volume (L)	7.28
E. Liquid Depth (ft) (A-B)	12.03	E. Three Well Volumes	21.84

Parameter	Beginning	1	2	3	4	5
Time (min.)	0840	0845	0850	0853	0856	0859
Depth to Water (ft)	25.27	25.27	25.27	25.27	25.27	25.27
Purge Rate (~~gpm~~)(Lpm)	.4	.4	.4	.4	.4	.4
Volume Purged (~~gal~~)(L)	.8	2.8	4.8	6.0	7.2	8.4
pH	5.92	5.96	5.98	5.99	5.99	5.99
Temperature (°C)	10.40	10.26	11.69	11.22	12.38	12.36
Conductivity (μmhos/cm)	45	41	38	39	38	38
Dissolved Oxygen (mg/L)	11.00	11.26	11.23	11.20	11.20	11.20
Turbidity (NTU)	23	12	8	4	2	1
eH (mV)	236	236	237	238	238	239

Total Quantity of Water Removed (L):	9.0		
Samplers:	SAP, BDA	Sampling Time (Start/End):	0900 /
Sampling Date:	7/9/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW015		
Sample Parameters:	VOCs		

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600477502
Well ID:	MW-205	Well Lock Status:	locked
Well Condition:	good	Weather:	sunny

Gauge Date:	7/8/98	Gauge Time:	1317
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.94	Well Diameter (in.):	2

Purge Date:	7/8/98	Purge Time:	1318
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	78.77	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	24.34	C. Well Volume (L)	32.93
E. Liquid Depth (ft) (A-B)	54.43	E. Three Well Volumes	98.79

Parameter	Beginning	1	2	3	4	5
Time (min.)	1321	1324	1327	1330	1333	1338
Depth to Water (ft)	24.51	24.51	24.51	24.51	24.51	24.60
Purge Rate (~~gpm~~) (lpm)	0.2	0.2	0.2	0.2	0.2	0.4
Volume Purged (~~gal~~) (L)	0.6	1.2	1.8	2.4	3.0	5.0
pH	8.97	7.70	6.90	6.87	6.95	7.15
Temperature (°C)	~~12~~ 11.64	11.88	10.45	10.32	10.35	10.58
Conductivity (μmhos/cm)	62	69	75	74	73	88
Dissolved Oxygen (mg/L)	5.27	3.48	2.11	1.95	1.89	2.05
Turbidity (NTU)	2	72	68	64	80	107
eH (mV)	69	127	130	123	115	105

Total Quantity of Water Removed (L):	26		
Samplers:	BB SC	Sampling Time (Start/End):	1430 / 1431
Sampling Date:	7/8/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW014		
Sample Parameters:	VOC		

Comments and Observations: Containerized water and ran through treatment plant.

pH checked ok.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/8/98
Well ID:	MW-203	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1343	1348	1353	1358	1403	1408
Depth to Water (ft)	24.60	24.60	24.60	24.60	24.60	24.60
Purge Rate (~~gpm~~) (Lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) (L)	7.0	9.0	11.0	13.0	15.0	17.0
pH	8.25	8.54	8.52	8.57	8.56	8.46
Temperature (°C)	11.64	11.66	11.68	11.80	11.87	11.92
Conductivity (μmhos/cm)	94	95	93	97	165	103
Dissolved Oxygen (mg/L)	2.23	2.30	2.24	2.18	2.25	2.25
Turbidity (NTU)	64	48	35	26	23	22
eH (mV)	69	59	60	60	62	66

Parameter	12	13	14	15	16	17
Time (min.)	1413	1418	1423	1428		
Depth to Water (ft)	24.60	24.60	24.60	24.60		
Purge Rate (~~gpm~~) (Lpm)	0.4	0.4	0.4	0.4		
Volume Purged (~~gal~~) (L)	19.0	21.0	23.0	25.0		
pH	8.41	8.47	8.43	8.43		
Temperature (°C)	11.99	12.02	12.05	12.06		
Conductivity (μmhos/cm)	94	95	92	95		
Dissolved Oxygen (mg/L)	2.29	2.41	2.45	2.60		
Turbidity (NTU)	18	14	14	14		
eH (mV)	70	70	72	73		

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-206A	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/9/98	Gauge Time:	1153
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.40	Well Diameter (in.):	2

Purge Date:	7/9/98	Purge Time:	1154
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	74.36	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	20.15	C. Well Volume (L)	32.80
E. Liquid Depth (ft) (A-B)	54.21	E. Three Well Volumes	98.40

Parameter	Beginning	1	2	3	4	5
Time (min.)	1157	1200	1203	1206	1209	
Depth to Water (ft)	20.23	20.23	20.23	20.23	20.23	
Purge Rate (~~gpm~~) (Lpm)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (~~gal~~) L	0.6	1.2	1.8	2.4	3.0	
pH	6.11	6.22	6.25	6.26	6.28	
Temperature (°C)	11.07	10.76	10.75	10.83	10.97	
Conductivity (μmhos/cm)	79	81	76	76	76	
Dissolved Oxygen (mg/L)	10.40	9.10	8.56	8.51	8.40	
Turbidity (NTU)	1	4	8	8	5	
eH (mV)	239	247	240	235	228	

Total Quantity of Water Removed (L):	4.2		
Samplers:	BB SC	Sampling Time (Start/End):	1215
Sampling Date:	7/9/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW022		
Sample Parameters:	VOC		

Comments and Observations: Containerized water and ran through treatment plant

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-206B	Well Lock Status:	locked
Well Condition:	good	Weather:	sunny, 850

Gauge Date:	7/27/98	Gauge Time:	850
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	2

Purge Date:	7/27/98	Purge Time:	855
Purge Method:	Low Flow peristaltic	Field Personnel:	MC, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):		D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	19.81	C. Well Volume (L)	
E. Liquid Depth (ft) (A-B)		E. Three Well Volumes	

Parameter	Beginning	1	2	3	4	5
Time (min.)	858	901	904	907	910	913
Depth to Water (ft)	19.90	19.90	19.90	19.90	19.90	19.90
Purge Rate (gpm)	2	2	2	2	2	2
Volume Purged (gal)	6	12	18	24	30	36
pH	6.15	6.09	4.05	6.05	6.03	6.05
Temperature (°C)	7.70	7.53	7.52	7.53	7.52	7.54
Conductivity (μmhos/cm)	72	72	72	71	71	70
Dissolved Oxygen (mg/L)	13.51	13.57	13.55	13.53	13.51	13.49
Turbidity (NTU)	16	17	26	19	12	12
eH (mV)	176	197	199	202	206	206

Total Quantity of Water Removed (L):	66		
Samplers:	MC, SC	Sampling Time (Start/End):	1251/928
Sampling Date:	7/27/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW036	BN12EPMWX06	
Sample Parameters:	VOC		
Comments and Observations:			

pH check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600477502	Date:	7/27/98
Well ID:	MW-206B	Field Personnel:	MC, SC		

Parameter	6	7	8	9	10	11
Time (min.)	916	919	922			
Depth to Water (ft)	19.90	19.90	19.90			
Purge Rate (gpm)	2	2	2			
Volume Purged (gal)	42	48	54			
pH	6.03	6.03	6.01			
Temperature (°C)	7.53	7.55	7.55			
Conductivity (μmhos/cm)	71	71	70			
Dissolved Oxygen (mg/L)	13.49	13.45	13.44			
Turbidity (NTU)	11	12	12			
eH (mV)	208	209	210			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600477502
Well ID:	MW-207A	Well Lock Status:	locked
Well Condition:	good	Weather:	sunny

Gauge Date:	7/9/98	Gauge Time:	1339
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.50	Well Diameter (in.):	2

Purge Date:	7/9/98	Purge Time:	1442
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	73.22	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	0.75	C. Well Volume (L)	43.84
E. Liquid Depth (ft) (A-B)	72.47	E. Three Well Volumes	131.52

Parameter	Beginning	1	2	3	4	5
Time (min.)	1445	1448	1453	1458	1503	1508
Depth to Water (ft)	0.92	1.18	1.46	1.83	1.89	1.94
Purge Rate (~~gpm~~) (Lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	1.2	2.4	4.4	6.4	8.4	10.4
pH	8.30	8.06	7.92	6.76	6.91	5.22
Temperature (°C)	10.49	11.81	11.33	9.97	10.27	10.11
Conductivity (μmhos/cm)	170	173	177	166	156	154
Dissolved Oxygen (mg/L)	1.70	1.22	0.84	0.65	0.52	1.03
Turbidity (NTU)	2	22	215	88	92	29
eH (mV)	117	122	120	124	124	130

Total Quantity of Water Removed (L):	21.6		
Samplers:	BB, SC	Sampling Time (Start/End):	1535 / 1556
Sampling Date:	7/9/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-62-EP-MW026		
Sample Parameters:	VOC		

Comments and Observations: containerized and ran through treatment plant
cleaned up at 1454, 1504, 1514

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47 7504	Date:	7/9/98
Well ID:	MW-207A	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1513	1518	1521	1524	1527	1530
Depth to Water (ft)	1.98	1.97	1.97	1.97	1.97	1.97
Purge Rate (~~gpm~~)(Lpm)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	12.4	14.4	15.6	16.8	18.0	19.2
pH	6.35	5.82	6.23	6.44	6.54	6.56
Temperature (°C)	10.25	10.64	10.22	10.23	10.20	10.21
Conductivity (μmhos/cm)	160	147	148	147	146	146
Dissolved Oxygen (mg/L)	0.37	2.78	0.58	0.30	0.28	0.26
Turbidity (NTU)	64	11	9	7	5	3
eH (mV)	121	118	113	110	106	101

Parameter	12	13	14	15	16	17
Time (min.)	1533					
Depth to Water (ft)	1.97					
Purge Rate (~~gpm~~) (Lpm)	0.4					
Volume Purged (~~gal~~) L	20.4					
pH	6.61					
Temperature (°C)	10.23					
Conductivity (μmhos/cm)	146					
Dissolved Oxygen (mg/L)	0.25					
Turbidity (NTU)	4					
eH (mV)	99					

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600 47.7502
Well ID:	MW-203B	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 80°

Gauge Date:	7/13/98	Gauge Time:	1044
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.00	Well Diameter (in.):	2"

Purge Date:	7/13/98	Purge Time:	1045
Purge Method: Peristaltic	~~Low Flow~~	Field Personnel:	SAP BB
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	27.17	D. Well Volume/ft (L):	~~12.85~~ 0.605
B. Depth to Water (ft):	5.93	C. Well Volume (L)	12.85
E. Liquid Depth (ft) (A-B)	21.24	E. Three Well Volumes	38.55

Parameter	Beginning	1	2	3	4	5
Time (min.)	1049	1054	1059	1104	1109	1114
Depth to Water (ft)	6.00	6.00	6.00	6.00	6.00	6.00
Purge Rate (~~gpm~~) (Lpm)	0.05	0.05	0.05	0.05	0.05	0.05
Volume Purged (~~gal~~) L	0.25	0.50	0.75	1	1.25	1.5
pH	6.64	7.20	6.70	6.57	6.44	6.57
Temperature (°C)	14.78	16.94	18.28	19.20	20.08	20.60
Conductivity (μmhos/cm)	259	277	294	310	321	328
Dissolved Oxygen (mg/L)	4.78	6.42	6.71	6.71	6.53	6.35
Turbidity (NTU)	67	9.7	7.8	6.	13	4
eH (mV)	181	139.3	122.0	119	120	124

Total Quantity of Water Removed (L):	2		
Samplers:	SAP BB	Sampling Time (Start/End):	1126
Sampling Date:	7/13/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW032		
Sample Parameters:	VOC		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	EASTERN PLUME	Project Number:	29600 47.7502	Date:	7/8/98
Well ID:	MW-207B	Field Personnel:	BB SAP		

Parameter	6	7	8	9	10	11
Time (min.)	1119	1124				
Depth to Water (ft)	6.00	6.00				
Purge Rate (~~gpm~~) (Lpm)	0.05	0.05				
Volume Purged (~~gal~~) (L)	1.75	2				
pH	6.57	6.50				
Temperature (°C)	20.96	21.48				
Conductivity (μmhos/cm)	332	336				
Dissolved Oxygen (mg/L)	6.26	6.17				
Turbidity (NTU)	4	4				
eH (mV)	127	130				

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	EASTERN Plume	Project Number:	29600.47.7502
Well ID:	MW-208	Well Lock Status:	LOCKED
Well Condition:	Good	Weather:	Clear Sun, slight Breeze

Gauge Date:	7/9/98	Gauge Time:	916
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.75	Well Diameter (in.):	2"

Purge Date:	7/9/98	Purge Time:	918
Purge Method:	Low Flow	Field Personnel:	BDA / SAP
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	5

WELL VOLUME

A. Well Depth (ft):	103.33	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	23.26	C. Well Volume (L)	48.44
E. Liquid Depth (ft) (A-B)	80.07	E. Three Well Volumes	145.32

Parameter	Beginning	1	2	3	4	5
Time (min.)	919	922	925	930	935	940
Depth to Water (ft)	24.16	24.12	24.12	24.11	24.11	24.11
Purge Rate ~~(gpm)~~ Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged ~~(gal)~~ L	0.3	~~0.9~~ 1.2	~~1.8~~ 2.1	~~2.8~~ 3.6	~~3.8~~ 5.1	~~4.8~~ 6.6
pH	4.45	6.64	7.39	7.36	7.40	7.44
Temperature (°C)	9.87	9.31	8.92	8.80	8.97	9.32
Conductivity (μmhos/cm)	96	93	97	100	106	107
Dissolved Oxygen (mg/L)	7.23	4.21	1.89	0.92	0.71	0.61
Turbidity (NTU)	3 ~~26~~ SAP	5	16	23	28	37
eH (mV)	242	223	213	210	208	201

Total Quantity of Water Removed (L):	19.6		
Samplers:	SAP BDA	Sampling Time (Start/End):	1025
Sampling Date:	7/9/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW017 MS/MSD		
Sample Parameters:	VOC		

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume	Project Number: 29600.47.7802	Date: 7-9-98	
Well ID: MW-208	Field Personnel: SAP / BDA		

Parameter	6	7	8	9	10	11
Time (min.)	945 *	950	955	1000	1005	1010
Depth to Water (ft)	24.11	24.11	24.11	24.11	24.11	24.11
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	~~5.8~~ 8.1	9.6	11.1	12.6	14.1	15.6
pH	5.95	7.12	7.44	7.60	7.65	7.76
Temperature (°C)	9.45	9.70	9.80	9.87	9.93	10.02
Conductivity (μmhos/cm)	107	105	106	107	108	105
Dissolved Oxygen (mg/L)	1.46	0.59	0.48	0.45	0.39	0.36
Turbidity (NTU)	21	22	23	24	23	28
eH (mV)	193	184	173	165	161	155

Parameter	12	13	14	15	16	17
Time (min.)	1015	1020	~~1025~~	~~1030~~	~~1035~~	
Depth to Water (ft)	24.11	24.11				
Purge Rate (~~gpm~~) Lpm	0.3	0.3				
Volume Purged (~~gal~~) L	17.1	19.6				
pH	7.80	7.86				
Temperature (°C)	10.05	10.00				
Conductivity (μmhos/cm)	104	105				
Dissolved Oxygen (mg/L)	0.34	0.34				
Turbidity (NTU)	25	25				
eH (mV)	150	145				

Comments and Observations: * cleaned flow cell

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600 47 7502
Well ID:	MW-209	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 80°

Gauge Date:	7/13/98	Gauge Time:	1251
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.90	Well Diameter (in.):	2"

Purge Date:	7/13/98	Purge Time:	1254
Purge Method:	Low Parastaltic	Field Personnel:	SAP BB
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	32.38	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	27.65	C. Well Volume (L)	2.86
E. Liquid Depth (ft) (A-B)	4.73	E. Three Well Volumes	8.58

Parameter	Beginning	1	2	3	4	5
Time (min.)	1255	1300	1305	*1310	1315	1320
Depth to Water (ft)	27.69	27.69	27.70	27.70	27.70	27.70
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.2	1.2	2.2	3.2	4.2	5.2
pH	8.35	6.50	6.45	5.72	6.15	6.31
Temperature (°C)	12.20	12.97	11.61	11.39	11.00	10.84
Conductivity (μmhos/cm)	57	44	41	41	41	40
Dissolved Oxygen (mg/L)	14.39	14.70	14.61	14.76	14.58	14.60
Turbidity (NTU)	220	1817	1238	160	136	90
eH (mV)	186	196	203	205	212	217

Total Quantity of Water Removed (L):	13		
Samplers:	SAP BB	Sampling Time (Start/End):	1400
Sampling Date:	7/13/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW033/MWXDL		
Sample Parameters:	VOC		

Comments and Observations: ~~Cha~~ *Cleaned flow cell
Purged water contained and disposed of at treatment plant.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: ~~MW-209~~ Eastern Plume 2	Project Number: 29600.42.1302	Date: 7/13/98	
Well ID: MW-209	Field Personnel: SAP, BB		

Parameter	6	7	8	9	10	11
Time (min.)	1325	1330	1335	1340	1345	*1350
Depth to Water (ft)	27.70	27.70	27.70	27.70	27.70	27.70
Purge Rate (~~gpm~~) (lpm)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) (L)	6.2	7.2	8.2	9.2	10.2	11.2
pH	6.33	6.07	6.13	6.31	6.18	6.20
Temperature (°C)	10.72	10.66	10.75	10.81	10.91	11.61
Conductivity (μmhos/cm)	40	40	40	40	40	41
Dissolved Oxygen (mg/L)	15.80	16.67	16.76	16.56	16.62	15.10
Turbidity (NTU)	57	45	39	31	26	~~2~~ 34
eH (mV)	220	223	227	229	231	~~228~~ 228

Parameter	12	13	14	15	16	17
Time (min.)	1353	1356	1359			
Depth to Water (ft)	27.70	27.70	27.70			
Purge Rate (~~gpm~~) (lpm)	0.2	0.2	0.2			
Volume Purged (~~gal~~) L	11.8	12.4	13.0			
pH	6.16	6.10	6.14			
Temperature (°C)	11.52	11.36	11.29			
Conductivity (μmhos/cm)	40	41	41			
Dissolved Oxygen (mg/L)	15.02	14.92	14.87			
Turbidity (NTU)	29	29	29			
eH (mV)	231	233	234			

Comments and Observations: * cleaned flow cell

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600 47 7502
Well ID:	MW-222	Well Lock Status:	Locked
Well Condition:	GOOD	Weather:	Clear, Sunny 80°

Gauge Date:	7/9/98	Gauge Time:	1150
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	3.00	Well Diameter (in.):	2"

Purge Date:	7/9/98	Purge Time:	1152
Purge Method:	Low Flow	Field Personnel:	STP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	45.34	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	29.51	C. Well Volume (L)	9.58
E. Liquid Depth (ft) (A-B)	15.83	E. Three Well Volumes	28.74

Parameter	Beginning	1	2	3	4	5
Time (min.)	1156	1201	1206	1209	1212	1215
Depth to Water (ft)	29.52	29.52	29.52	29.52	29.52	29.52
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	1.8	3.3	4.8	6.3	7.8	9.3
pH	4.96	5.61	5.86	5.94	5.99	6.03
Temperature (°C)	9.98	9.99	12.46	13.29	13.87	14.31
Conductivity (μmhos/cm)	50	50	53	54	55	55
Dissolved Oxygen (mg/L)	11.48	11.38	11.28	11.26	11.21	11.30
Turbidity (NTU)	2	2	2	2	2	2
eH (mV)	232	228	228	228	228	225

Total Quantity of Water Removed (L):	9.3		
Samplers:	STP BDA	Sampling Time (Start/End):	1218
Sampling Date:	7/9/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW019 / MWXD3		
Sample Parameters:	VOC		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	EASTERN PLUME	Project Number:	29600.47 7502
Well ID:	MW-223	Well Lock Status:	good locked
Well Condition:	good	Weather:	clear hot

Gauge Date:	7/9/98	Gauge Time:	1057 ~~1135~~
Sounding Method:	slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.20	Well Diameter (in.):	2"

Purge Date:	7/9/98	Purge Time:	1058 - 1135
Purge Method:	LOW FLOW	Field Personnel:	SAP, BDA
Ambient Air VOCs (ppm):	0.0	Well Mouth VOCs (ppm):	0.0

WELL VOLUME

A. Well Depth (ft):	42.61	D. Well Volume/ft (L):	.605
B. Depth to Water (ft):	27.17	C. Well Volume (L)	~~.605~~ 9.34
E. Liquid Depth (ft) (A-B)	15.44	E. Three Well Volumes	28.02

Parameter	Beginning	1	2	3	4	5
Time (min.)	1100	1105	1110	1115	1120	1123
Depth to Water (ft)	27.17	27.18	27.18	27.18	27.18	27.18
Purge Rate (~~gpm~~) Lpm	.2	.2	.2	.2	.2	.2
Volume Purged (~~gal~~) L	.4	1.4	2.4	3.4	4.4	5.0
pH	4.86	5.64	5.82	5.91	5.96	5.97
Temperature (°C)	10.39	9.22	10.89	~~10.99~~ 13.04	14.01	14.29
Conductivity (μmhos/cm)	49	47	48	49	50	51
Dissolved Oxygen (mg/L)	10.84	11.12	11.19	10.98	10.94	10.93
Turbidity (NTU)	0	0	0	0	0	0
eH (mV)	191	188	190	199	201	202

Total Quantity of Water Removed (L):	5.9		
Samplers:	SAP, BDA	Sampling Time (Start/End):	1130 / 1135
Sampling Date:	7/9/98	Decontamination Fluids Used:	DI
Sample Type:	GRAB	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW016		
Sample Parameters:	VOC		

Comments and Observations:

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FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	EASTEEN Plume	Project Number:	29600.47 7502	Date:	7/9/98
Well ID:	MW-223	Field Personnel:	SAP BDM		

Parameter	6	7	8	9	10	11
Time (min.)	1126					
Depth to Water (ft)	27.18					
Purge Rate (~~gpm~~) Lpm	.2					
Volume Purged (~~gal~~) L	5.6					
pH	5.97					
Temperature (°C)	14.41					
Conductivity (μmhos/cm)	50					
Dissolved Oxygen (mg/L)	10.91					
Turbidity (NTU)	0					
eH (mV)	203					

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29400.47.7502
Well ID:	MW-224	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Clear, 80° Light Breeze

Gauge Date:	7/9/98	Gauge Time:	1356
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.55	Well Diameter (in.):	2"

Purge Date:	7/9/98	Purge Time:	1358
Purge Method:	Low Flow	Field Personnel:	SAP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	46.95	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	28.58	C. Well Volume (L)	11.11
E. Liquid Depth (ft) (A-B)	18.37	E. Three Well Volumes	33.33

Parameter	Beginning	1	2	3	4	5
Time (min.)	1400	1403	1406	1409	1412	1415
Depth to Water (ft)	28.59	28.57	28.57	28.57	28.57	28.57
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.4	1.0	1.6	2.2	2.8	3.4
pH	5.40	5.78	5.82	5.82	5.87	5.86
Temperature (°C)	10.84	9.72	9.77	9.97	10.77	10.87
Conductivity (μmhos/cm)	12.00	34	34	32	30	33
Dissolved Oxygen (mg/L)	11.06	11.10	11.07	11.08	11.06	11.02
Turbidity (NTU)	0	0	0	0	0	0
eH (mV)	221	222	024	223	225	227

Total Quantity of Water Removed (L):	3.4		
Samplers:	SAP BDA	Sampling Time (Start/End):	1415
Sampling Date:	7/9/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW021		
Sample Parameters:	VOC		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-225A	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/9/98	Gauge Time:	1106
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.81	Well Diameter (in.):	2

Purge Date:	7/9/98	Purge Time:	1108
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	76.03	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	21.00	C. Well Volume (L)	33.29
E. Liquid Depth (ft) (A-B)	55.03	E. Three Well Volumes	99.87

Parameter	Beginning	1	2	3	4	5
Time (min.)	1111	1114	1117	1120	1123	1128
Depth to Water (ft)	21.05	21.05	21.00	21.00	21.00	20.92
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.6	1.2	1.8	2.4	3.0	4.0
pH	8.58	6.15	6.18	6.20	6.19	6.20
Temperature (°C)	10.16	9.34	9.16	9.48	9.90	10.12
Conductivity (μmhos/cm)	80	85	81	87	91	83
Dissolved Oxygen (mg/L)	6.12	7.61	6.97	6.85	6.77	6.74
Turbidity (NTU)	2	97	55	48	29	19
eH (mV)	260	255	216	200	193	193

Total Quantity of Water Removed (L):	8.4		
Samplers:	BB, SC	Sampling Time (Start/End):	1145/1146
Sampling Date:	7/9/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW020		
Sample Parameters:	VOC		

Comments and Observations: containerized water and ran through plant

pH check ok

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FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/9/98
Well ID:	MW-225A	Field Personnel:	BBSC		

Parameter	6	7	8	9	10	11
Time (min.)	1133	1136	1139			
Depth to Water (ft)	21.05	21.05	21.05			
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2			
Volume Purged (~~gal~~) L	5.0	6.0	7.0			
pH	6.21	6.22	6.22			
Temperature (°C)	10.22	10.31	10.34			
Conductivity (μmhos/cm)	83	87	87			
Dissolved Oxygen (mg/L)	6.88	6.90	6.84			
Turbidity (NTU)	10	10	10			
eH (mV)	196	197	197			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (~~gal~~) L						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-225B	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/9/98	Gauge Time:	914
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.35	Well Diameter (in.):	2

Purge Date:	7/9/98	Purge Time:	1019
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	42.00	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	21.96	C. Well Volume (L)	12.12
E. Liquid Depth (ft) (A-B)	20.04	E. Three Well Volumes	36.36

Parameter	Beginning	1	2	3	4	5
Time (min.)	1022	1025	1028	1031	1034	1039
Depth to Water (ft)	21.97	21.97	21.97	21.97	21.97	21.97
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.6	1.2	1.8	2.4	3.0	4.0
pH	5.79	5.80	5.83	5.84	5.85	5.86
Temperature (°C)	11.12	10.35	10.68	10.54	11.30	12.15
Conductivity (μmhos/cm)	40	40	38	34	42	45
Dissolved Oxygen (mg/L)	12.16	12.70	12.48	12.28	12.13	11.95
Turbidity (NTU)	36	32	22	23	27	38
eH (mV)	263	257	250	238	231	233

Total Quantity of Water Removed (L):	11.8		
Samplers:	BB, SC	Sampling Time (Start/End):	1105 / 1106
Sampling Date:	7/9/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW018 1105		
Sample Parameters:	VOC		

Comments and Observations:

pH Check

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/9/98
Well ID:	MW-225B	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1044	1049	1054	1097	1100	1103
Depth to Water (ft)	21.97	21.97	21.97	21.97	21.97	21.97
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	5.5	7.0	8.5	9.4	10.3	11.2
pH	5.86	5.85	5.13	5.53	5.56	5.67
Temperature (°C)	12.81	13.55	13.40	13.75	13.96	14.04
Conductivity (μmhos/cm)	43	43	47	46	50	48
Dissolved Oxygen (mg/L)	11.68	11.55	12.65	12.35	12.31	12.21
Turbidity (NTU)	73	146	3	5	7	7
eH (mV)	232	239	242	246	248	248

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (~~gal~~) L						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations: Emptied cup at 1050.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	EASTERN PLUME	Project Number:	29600.47.7502
Well ID:	MW-3~~09A~~ 229A	Well Lock Status:	Locked
Well Condition:	Good	Weather:	overcast

Gauge Date:	7/8/98	Gauge Time:	1316
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.55	Well Diameter (in.):	2"

Purge Date:	7/8/98	Purge Time:	1318
Purge Method:	Low Flow	Field Personnel:	BDA SAP
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	5

WELL VOLUME

A. Well Depth (ft):	32.70	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	13.55	C. Well Volume (L)	11.59
E. Liquid Depth (ft) (A-B)	19.15	E. Three Well Volumes	34.77

Parameter	Beginning	1	2	3	4	5
Time (min.)	1318	1323	1328	1333	1338	1343
Depth to Water (ft)	13.75	13.62	13.62	13.62	13.62	13.62
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.4	1.4	2.4	3.4	4.4	5.4
pH	6.28	6.87	7.05	7.19	7.26	7.29
Temperature (°C)	9.42	9.30	9.43	10.08	10.33	10.51
Conductivity (μmhos/cm)	77	79	80	77	80	79
Dissolved Oxygen (mg/L)	8.67	8.25	7.99	7.84	7.87	7.92
Turbidity (NTU)	187	82	81	41	29	15
eH (mV)	159	154	150	151	145	143

Total Quantity of Water Removed (L):	7.2		
Samplers:	BDA/SAP	Sampling Time (Start/End):	1355
Sampling Date:	7/8/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BU-12-EP-MW001B		
Sample Parameters:	VOC		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: EASTERN PLUME Project Number: 29600.47.7502 Date: 7/8/98
Well ID: MW-~~3040318~~ 229A Field Personnel: BDA / SAP

Parameter	6	7	8	9	10	11
Time (min.)	1348	1351	1354			
Depth to Water (ft)	13.62	13.62	13.62			
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2			
Volume Purged (~~gal~~) L	6.0	6.6	7.2			
pH	7.31	7.31	7.32			
Temperature (°C)	10.66	10.73	10.82			
Conductivity (μmhos/cm)	84	84	83			
Dissolved Oxygen (mg/L)	7.91	7.88	7.90			
Turbidity (NTU)	9	8	6			
eH (mV)	142	142	142			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.2502
Well ID:	MW-~~309~~ ~~A~~ ~~B~~ 229B	Well Lock Status:	Locked
Well Condition:	GOOD	Weather:	OVERCAST 80°

Gauge Date:	7/8/98	Gauge Time:	~~HTC~~ 1107 BA
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.76	Well Diameter (in.):	2"

Purge Date:	7/8/98	Purge Time:	~~HTC~~ 1107 BA
Purge Method:	Low Flow	Field Personnel:	SAP / BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	64.97	D. Well Volume/ft (L):	~~.16~~ pt 0.605
B. Depth to Water (ft):	14.21	C. Well Volume (L)	~~0.605~~ pt 30.71
E. Liquid Depth (ft) (A-B)	50.76	E. Three Well Volumes	92.13

Parameter	Beginning	1	2	3	4	5
Time (min.)	1110	1115	1120	1125	1130	1135
Depth to Water (ft)	14.87	14.66	14.66	14.66	14.66	14.66
Purge Rate (~~gpm~~) Lpm	.3	.2	.2	.2	.2	.2
Volume Purged (~~gal~~) L	.9	1.9	2.9	3.9	4.9	5.9
pH	6.54	6.56	6.63	6.63	6.64	6.64
Temperature (°C)	9.22	9.57	11.09	12.97	14.14	14.58
Conductivity (μmhos/cm)	41	39	40	41	42	43
Dissolved Oxygen (mg/L)	9.01	8.79	8.66	8.52	8.67	8.76
Turbidity (NTU)	69	49	49	41	26	18
eH (mV)	105	117	123	130	138	144

Total Quantity of Water Removed (L):	9.1		
Samplers:	SAP / BDA	Sampling Time (Start/End):	1154 -
Sampling Date:	7/8/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	VOC		
Sample Parameters:	BN-12-EP-MW009		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume Project Number: 29600.47 7502 Date: 7/8/98
Well ID: MW-~~309B~~ 229B Field Personnel: SAP, BDA

Parameter	6	7	8	9	10	11
Time (min.)	1140	1145	1148	1151		
Depth to Water (ft)	14.66	14.66	14.66	14.66		
Purge Rate (~~gpm~~) Lpm	.2	.2	.2	.2		
Volume Purged (~~gal~~) L	6.9	7.9	8.5	9.1		
pH	6.64	6.63	6.63	6.63		
Temperature (°C)	14.79	15.00	15.09	15.12		
Conductivity (μmhos/cm)	43	43	43	43		
Dissolved Oxygen (mg/L)	8.80	8.73	8.72	8.70		
Turbidity (NTU)	11	9	9	8		
eH (mV)	145	149	150	153		

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7302
Well ID:	MW-230A	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/8/98	Gauge Time:	1029
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.21	Well Diameter (in.):	2

Purge Date:	7/8/98	Purge Time:	1030
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	82.08	D. Well Volume/ft (L):	0.609
B. Depth to Water (ft):	15.75	C. Well Volume (L)	40.13
E. Liquid Depth (ft) (A-B)	66.33	E. Three Well Volumes	120.39

Parameter	Beginning	1	2	3	4	5
Time (min.)	1033	1036	1039	1042	1045	1050
Depth to Water (ft)	15.90	15.90	15.90	15.90	15.90	15.90
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	0.9	1.8	2.7	3.6	4.5	6.0
pH	7.67	7.75	7.83	7.85	7.87	7.88
Temperature (°C)	8.84	8.62	8.72	8.80	9.07	9.43
Conductivity (μmhos/cm)	81	75	78	89	86	46
Dissolved Oxygen (mg/L)	2.86	1.41	0.66	0.54	0.44	0.38
Turbidity (NTU)	16	45	53	69	37	40
eH (mV)	199	92	-28	-30	-46	-87

Total Quantity of Water Removed (L):	21.6		
Samplers:	BB, SC	Sampling Time (Start/End):	1140 / 1142
Sampling Date:	7/8/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW012	BN-12-EP-MWXD2	
Sample Parameters:	VOC		
Comments and Observations:	Duplicate sample collected		

pH check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/8/98
Well ID:	MW-230A	Field Personnel:	BB, SE		

Parameter	6	7	8	9	10	11
Time (min.)	1055	1100	1105	1110	1115	1120
Depth to Water (ft)	15.90	15.90	15.90	15.90	15.90	15.90
Purge Rate ~~(gpm)~~ Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged ~~(gal)~~ L	7.5	9.0	10.5	12.0	13.5	15.0
pH	7.89	7.89	7.89	7.89	7.89	7.89
Temperature (°C)	9.68	9.75	9.82	9.90	9.92	10.00
Conductivity (μmhos/cm)	88	85	65	86	88	92
Dissolved Oxygen (mg/L)	0.36	0.31	0.30	0.24	0.26	0.25
Turbidity (NTU)	40	33	31	37	31	33
eH (mV)	-112	-130	-143	-156	-165	-168

Parameter	12	13	14	15	16	17
Time (min.)	1125	1130	1135			
Depth to Water (ft)	15.88	15.88	15.88			
Purge Rate ~~(gpm)~~ Lpm	0.3	0.3	0.3			
Volume Purged ~~(gal)~~ L	16.5	18.0	19.5			
pH	7.89	7.89	7.89			
Temperature (°C)	9.97	10.14	10.16			
Conductivity (μmhos/cm)	39	38	38			
Dissolved Oxygen (mg/L)	0.28	0.27	0.28			
Turbidity (NTU)	29	31	31			
eH (mV)	-171	-176	-177			

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-231A	Well Lock Status:	Locked
Well Condition:	good	Weather:	overcast

Gauge Date:	7/8/98	Gauge Time:	820
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.65	Well Diameter (in.):	2

Purge Date:	7/8/98	Purge Time:	822
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0 /0

WELL VOLUME

A. Well Depth (ft):	62.42	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	20.89	C. Well Volume (L)	25.13
E. Liquid Depth (ft) (A-B)	41.53	E. Three Well Volumes	75.39

Parameter	Beginning	1	2	3	4	5
Time (min.)	0825	0828	0831	0835	0838	0843
Depth to Water (ft)	21.07	21.09	21.11	21.12	21.12	21.12
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	0.9	1.8	2.7	3.6	4.5	6.0
pH	6.81	6.78	6.71	6.72	6.70	6.67
Temperature (°C)	8.93	8.55	9.11	9.85	10.11	10.39
Conductivity (μmhos/cm)	49	44	43	41	43	45
Dissolved Oxygen (mg/L)	9.63	9.14	9.55	9.65	9.64	9.58
Turbidity (NTU)	241	308	321	372	370	350
eH (mV)	248	237	248	231	227	223

Total Quantity of Water Removed (L):	22.0		
Samplers:	BB SC	Sampling Time (Start/End):	935 / 936
Sampling Date:	7/8/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW008		
Sample Parameters:	VOC		

Comments and Observations:

pH check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/8/98
Well ID:	MW-23H	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	848	853	858	903	908	913
Depth to Water (ft)	21.12	21.12	21.12	21.12	21.12	21.12
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	7.5	9.0	10.5	12.0	13.5	15.0
pH	6.67	6.64	6.67	6.67	6.67	6.64
Temperature (°C)	10.57	10.58	10.64	10.54	10.69	10.74
Conductivity (μmhos/cm)	44	43	47	47	42	42
Dissolved Oxygen (mg/L)	9.64	9.60	9.58	9.63	9.63	9.68
Turbidity (NTU)	288	272	204	193	205	185
eH (mV)	222	224	235	233	230	227

Parameter	12	13	14	15	16	17
Time (min.)	918	923	928			
Depth to Water (ft)	21.12	21.12	21.12			
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3			
Volume Purged (~~gal~~) L	16.5	18.0	19.5			
pH	6.64	6.64	6.64			
Temperature (°C)	10.85	10.87	10.95			
Conductivity (μmhos/cm)	43	45	44			
Dissolved Oxygen (mg/L)	9.62	9.64	9.54			
Turbidity (NTU)	207	208	217			
eH (mV)	229	228	228			

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-231B	Well Lock Status:	locked
Well Condition:	good	Weather:	Overcast

Gauge Date:	7/8/98	Gauge Time:	935
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	3.00	Well Diameter (in.):	2

Purge Date:	7/8/98	Purge Time:	939
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	57.86	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	25.29	C. Well Volume (L)	19.70
E. Liquid Depth (ft) (A-B)	32.57	E. Three Well Volumes	59.10

Parameter	Beginning	1	2	3	4	5
Time (min.)	942	945	948	951	954	959
Depth to Water (ft)	25.94	25.94	25.94	25.94	25.94	25.94
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	0.9	0.8	2.7	3.6	4.5	6.0
pH	6.35	6.32	6.33	6.33	6.32	6.34
Temperature (°C)	8.72	9.62	10.99	11.62	11.91	12.15
Conductivity (μmhos/cm)	52	48	55	55	55	59
Dissolved Oxygen (mg/L)	10.13	9.97	9.94	9.94	9.96	9.99
Turbidity (NTU)	72	72	48	41	31	27
eH (mV)	242	211	201	202	202	202

Total Quantity of Water Removed (L):	14		
Samplers:	BB SC	Sampling Time (Start/End):	1025 / 1026
Sampling Date:	7/8/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW010		
Sample Parameters:	VOC		

Comments and Observations:

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/8/98
Well ID:	MW-231B	Field Personnel:	BB SC		

Parameter	6	7	8	9	10	11
Time (min.)	1004	1009	1014	1019		
Depth to Water (ft)	25.94	25.94	25.94	25.94		
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3		
Volume Purged (~~gal~~) L	7.5	9.0	10.5	12.0		
pH	6.36	6.36	6.37	6.38		
Temperature (°C)	12.35	12.45	12.60	12.63		
Conductivity (μmhos/cm)	58	56	52	54		
Dissolved Oxygen (mg/L)	10.10	10.15	10.15	10.22		
Turbidity (NTU)	20	19	19	20		
eH (mV)	202	201	203	203		

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern plume	Project Number:	29400.47.7502
Well ID:	MW-303	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 80°

Gauge Date:	7/7/98	Gauge Time:	1311
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	1.81	Well Diameter (in.):	2"

Purge Date:	7/7/98	Purge Time:	1311
Purge Method:	Low Flow	Field Personnel:	SHP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	71.62	D. Well Volume/ft (L):	~~0.16~~ 0.605
B. Depth to Water (ft):	11.36	C. Well Volume (L)	36.46
E. Liquid Depth (ft) (A-B)	60.26	E. Three Well Volumes	109.38

Parameter	Beginning	1	2	3	4	5
Time (min.)	1313	1318	1323	1328	1333	1338
Depth to Water (ft)	11.37	11.40	11.37	11.37	11.37	11.37
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.4	1.9	2.9	3.9	4.9	5.9
pH	6.06	7.47	7.62	7.77	7.83	7.88
Temperature (°C)	9.73	9.09	8.86	8.97	8.77	8.83
Conductivity (μmhos/cm)	189	73	220	217	229	232
Dissolved Oxygen (mg/L)	6.0	1.1	0.63	1.15	0.68	0.35
Turbidity (NTU)	1.3	1.4	4	7	1	0
eH (mV)	88	-25	-48	-91	-107	-129

Total Quantity of Water Removed (L):	7.7		
Samplers:	SHP BDA	Sampling Time (Start/End):	1350
Sampling Date:	7/7/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW003		
Sample Parameters:	VOC		
Comments and Observations:	H_2S odor to water		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600-47 7502	Date:	7/7/98
Well ID:	MW-303	Field Personnel:	SP, BDA		

Parameter	6	7	8	9	10	11
Time (min.)	1341	1344	1347			
Depth to Water (ft)	11.37	11.40	11.40			
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2			
Volume Purged (~~gal~~) L	6.5	7.1	7.7			
pH	7.91	7.92	7.92			
Temperature (°C)	8.93	8.97	8.99			
Conductivity (μmhos/cm)	227	229	225			
Dissolved Oxygen (mg/L)	0.33	0.31	0.30			
Turbidity (NTU)	0	0	0			
eH (mV)	-137	-141	-144			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-305	Well Lock Status:	Locked
Well Condition:	GOOD	Weather:	Sunny, 80°

Gauge Date:	7/7/98	Gauge Time:	1057
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.70	Well Diameter (in.):	2"

Purge Date:	7/7/98	Purge Time:	1059
Purge Method:	Low Flow	Field Personnel:	SAP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	54.12	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	10.98	C. Well Volume (L)	26.10
E. Liquid Depth (ft) (A-B)	43.14	E. Three Well Volumes	78.3

Parameter	Beginning	1	2	3	4	5
Time (min.)	1102	1107	1112	1115	1118	1121
Depth to Water (ft)	12.97	12.98	13.00	13.00	13.00	13.00
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	0.9	2.4	3.9	4.8	5.7	6.6
pH	7.64	8.22	8.47	8.61	8.68	8.71
Temperature (°C)	10.51	9.08	9.06	9.31	9.61	9.89
Conductivity (μmhos/cm)	148	142	142	110	135	142
Dissolved Oxygen (mg/L)	11.2	10.7	9.7	9.2	8.9	8.2
Turbidity (NTU)	10.9	157	90	60	42	39
eH (mV)	133	59	24	8	7	0.9

Total Quantity of Water Removed (L):	20.9		
Samplers:	SAP/BDA	Sampling Time (Start/End):	1211
Sampling Date:	7/7/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW001 / BN-12-EP-MWX01		
Sample Parameters:	VOC		

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: MW-305 Project Number: 29600.47.7502 Date: 7/7/98
Well ID: EASTERN PLUME Field Personnel: SAP/BDA

Parameter	6	7	8	9	10	11
Time (min.)	1124	1127	1130	1133	1136	1139
Depth to Water (ft)	12.99	13.00	13.00	13.00	13.00	13.00
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	7.5	8.4	9.3	10.1	11	11.9
pH	8.73	8.77	8.77	8.79	8.79	8.80
Temperature (°C)	10.04	10.18	10.33	10.46	10.53	10.68
Conductivity (μmhos/cm)	141	142	142	142	142	142
Dissolved Oxygen (mg/L)	7.71	7.25	6.84	6.52	6.36	6.09
Turbidity (NTU)	35	25	17	16	15	11
eH (mV)	-6.7	-11.9	-23.5	-39	-34	-41

Parameter	12	13	14	15	16	17
Time (min.)	1142	1145	1148	1151	1154	1157
Depth to Water (ft)	13.00	13.00	13.00	13.00	13.00	13.00
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (~~gal~~) L	12.8	13.7	14.6	15.5	16.4	17.3
pH	8.81	8.81	8.82	8.82	8.82	8.81
Temperature (°C)	10.80	10.92	10.96	11.02	11.07	11.16
Conductivity (μmhos/cm)	142	142	142	141	141	141
Dissolved Oxygen (mg/L)	5.86	5.65	5.43	5.41	4.97	4.79
Turbidity (NTU)	10	10	8	8	8	8
eH (mV)	-44	-49	-53	-56	-63	-62

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: MW-305	Project Number: 29600.47.7502	Date: 7/7/98	
Well ID: Eastern Plume	Field Personnel: SAP / BDA		

Parameter	6	7	8	9	10	11
Time (min.)	1200	1203	1206	1209		
Depth to Water (ft)	13.00	13.00	13.00	13.00		
Purge Rate (~~gpm~~) Lpm	0.3	0.3	0.3	0.3		
Volume Purged (~~gal~~) L	18.2	19.1	20.0	20.9		
pH	8.81	8.81	8.81	8.81		
Temperature (°C)	11.30	11.43	11.47	11.47		
Conductivity (μmhos/cm)	143	143	142	143		
Dissolved Oxygen (mg/L)	4.55	4.27	4.25	4.15		
Turbidity (NTU)	8	6	7	7		
eH (mV)	-71	-76	-72	-78		

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600477502
Well ID:	MW-306	Well Lock Status:	locked
Well Condition:	good	Weather:	overcast

Gauge Date:	7/7/98	Gauge Time:	1226
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.35	Well Diameter (in.):	2

Purge Date:	7/7/98	Purge Time:	1229
Purge Method:	Low Flow	Field Personnel:	SC, BB
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	56.98	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	17.93	C. Well Volume (L)	23.63
E. Liquid Depth (ft) (A-B)	39.05	E. Three Well Volumes	70.89

Parameter	Beginning	1	2	3	4	5
Time (min.)	1232	1235	1238	1241	1244	1247
Depth to Water (ft)	18.04	18.02	18.02	18.02	18.02	18.02
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.6	1.2	1.8	2.4	3.0	3.6
pH	6.25	6.21	6.20	6.21	6.22	6.22
Temperature (°C)	10.37	9.90	9.84	10.05	10.30	10.62
Conductivity (μmhos/cm)	74	71	79	79	77	77
Dissolved Oxygen (mg/L)	7.76	6.25	6.26	6.49	6.79	6.84
Turbidity (NTU)	38	44	48	35	25	24
eH (mV)	241	195	185	184	185	186

Total Quantity of Water Removed (L):	11.4		
Samplers:	BB SC	Sampling Time (Start/End):	1325 / 1326
Sampling Date:	7/7/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW004		
Sample Parameters:	~~B~~ VOC		
Comments and Observations:	containerized water		

pn check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume	Project Number: 29600.47.7502	Date: 7/7/98	
Well ID: MW-306	Field Personnel: SC, BB		

Parameter	6	7	8	9	10	11
Time (min.)	1250	1255	1300	1305	1310	1315
Depth to Water (ft)	18.03	18.03	18.03	18.03	18.03	18.03
Purge Rate (~~gpm~~) lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	4.2	5.2	6.2	7.2	8.2	9.2
pH	6.23	6.22	6.23	6.20	6.22	6.21
Temperature (°C)	10.92	11.00	11.09	11.17	11.21	11.33
Conductivity (μmhos/cm)	74	71	67	67	66	69
Dissolved Oxygen (mg/L)	6.93	6.98	6.98	6.99	7.07	7.06
Turbidity (NTU)	19	17	16	13	12	12
eH (mV)	188	189	191	193	195	195

Parameter	12	13	14	15	16	17
Time (min.)	1320					
Depth to Water (ft)	18.03					
Purge Rate (~~gpm~~) L pm	0.2					
Volume Purged (~~gal~~) L	10.2					
pH	6.22					
Temperature (°C)	11.39					
Conductivity (μmhos/cm)	69					
Dissolved Oxygen (mg/L)	7.04					
Turbidity (NTU)	12					
eH (mV)	198					

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600477502
Well ID:	MW-307	Well Lock Status:	Locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/7/98	Gauge Time:	1042
Sounding Method:	slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.00	Well Diameter (in.):	2

Purge Date:	7/7/98	Purge Time:	1044
Purge Method:	Low Flow	Field Personnel:	SC, BB
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	22.21	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	15.02	C. Well Volume (L)	4.35
E. Liquid Depth (ft) (A-B)	7.19	E. Three Well Volumes	13.05

Parameter	Beginning	1	2	3	4	5
Time (min.)	1047	1050	1053	1056	1059	1102
Depth to Water (ft)	15.10	15.02	15.03	15.03	15.03	15.03
Purge Rate (~~gpm~~) lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.6	1.2	1.8	2.4	3.0	3.6
pH	5.98	6.00	6.01	6.02	6.02	6.02
Temperature (°C)	10.68	10.96	12.32	13.22	13.97	14.47
Conductivity (μmhos/cm)	109	107	113	~~5~~ 7/105	114	104
Dissolved Oxygen (mg/L)	6.37	6.73	7.11	7.07	7.17	7.18
Turbidity (NTU)	116	95	72	57	48	54
eH (mV)	259	239	219	214	215	218

Total Quantity of Water Removed (L):	10.6		
Samplers:	BB, SC	Sampling Time (Start/End):	1135/1137
Sampling Date:	7/7/98	Decontamination Fluids Used:	none
Sample Type:	grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW002		MS/MSD
Sample Parameters:	VOC		
Comments and Observations:			

pH check OK.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.750	Date:	7/7/98
Well ID:	MW-307	Field Personnel:	BB SC		

Parameter	6	7	8	9	10	11
Time (min.)	1105	1108	1111	1114	1117	1120
Depth to Water (ft)	15.02	15.02	15.02	15.02	15.02	15.02
Purge Rate (~~gpm~~) lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	4.2	4.8	5.4	6.0	6.6	7.2
pH	6.03	6.02	6.03	6.03	6.03	5.98
Temperature (°C)	15.07	15.41	15.60	16.25	16.78	17.97
Conductivity (μmhos/cm)	105	104	107	101	111	104
Dissolved Oxygen (mg/L)	7.22	7.24	7.50	7.37	7.30	7.57
Turbidity (NTU)	44	40	41	35	34	36
eH (mV)	215	213	193	186	183	187

Parameter	12	13	14	15	16	17
Time (min.)	1123	1126	1129	1132		
Depth to Water (ft)	15.05	15.02	15.02	15.02		
Purge Rate (~~gpm~~) lpm	0.2	0.2	0.2	0.2		
Volume Purged (~~gal~~) L	7.8	8.4	9.0	9.6		
pH	5.99	6.01	6.01	6.01		
Temperature (°C)	18.10	18.59	19.07	19.41		
Conductivity (μmhos/cm)	102	105	106	106		
Dissolved Oxygen (mg/L)	7.54	7.40	7.39	7.32		
Turbidity (NTU)	30	25	26	27		
eH (mV)	191	195	197	196		

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47 7502
Well ID:	MW-308	Well Lock Status:	good
Well Condition:	good	Weather:	partly cloudy, hot, humid

Gauge Date:	7/10/98	Gauge Time:	1128
Sounding Method:	slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.44	Well Diameter (in.):	2"

Purge Date:	7/10/98	Purge Time:	1129 - 1210
Purge Method:	Low Flow	Field Personnel:	SAP, BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	72.85	D. Well Volume/ft (L):	.605
B. Depth to Water (ft):	5.20	C. Well Volume (L)	40.93
E. Liquid Depth (ft) (A-B)	67.65	E. Three Well Volumes	122.79

Parameter	Beginning	1	2	3	4	5
Time (min.)	1140	1145	1150	1155	1158	1201
Depth to Water (ft)	5.45	5.45	5.56	5.60	5.60	5.60
Purge Rate (~~gpm~~) Lpm	.2	.2	.2	.2	.2	.2
Volume Purged (~~gal~~) L	2.2	3.2	4.2	5.2	5.8	6.4
pH	8.33	8.41	8.47	8.47	8.48	8.50
Temperature (°C)	12.23	12.33	11.72	11.32	11.59	11.58
Conductivity (μmhos/cm)	655	658	652	647	635	634
Dissolved Oxygen (mg/L)	.35	.27	.22	.15	.13	.13
Turbidity (NTU)	3	3	1	0	0	0
eH (mV)	-185	-207	-222	-234	-240	-243

Total Quantity of Water Removed (L):	7.0		
Samplers:	SAP BDA	Sampling Time (Start/End):	1205/1210
Sampling Date:	7/10/98	Decontamination Fluids Used:	DI
Sample Type:	grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW029		
Sample Parameters:	VOCs		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-309A	Well Lock Status:	Locked
Well Condition:	Casting rusted	Weather:	Sunny 80° muggy

Gauge Date:	7/10/98	Gauge Time:	1028
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.49	Well Diameter (in.):	2"

Purge Date:	7/10/98	Purge Time:	1028
Purge Method:	Low Flow	Field Personnel:	SAP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	72.71	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	* Artesian +4.61 Ft	C. Well Volume (L)	46.78
E. Liquid Depth (ft) (A-B)	77.82	E. Three Well Volumes	140.34

Parameter	Beginning	1	2	3	4	5
Time (min.)	10.31	10.36	10.41	10.46	10.51	*10.56
Depth to Water (ft)	0	0	0	0	0	0
Purge Rate (~~gpm~~) Lpm	1.7	1.7	1.7	1.7	1.7	1.7
Volume Purged (~~gal~~) L	5.1	14.6	23.1	31.6	40.1	48.6
pH	1.17	3.68	5.49	6.48	7.08	7.52
Temperature (°C)	8.82	9.10	9.21	9.22	9.25	9.27
Conductivity (μmhos/cm)	250	250	250	250	250	252
Dissolved Oxygen (mg/L)	0.20	0.11	0.08	0.05	0.05	0.05
Turbidity (NTU)	165	180	214	256	298	-2285
eH (mV)	-135	-192	-219	-231	-239	0.6

Total Quantity of Water Removed (L):	63.9		
Samplers:	SAP BDA	Sampling Time (Start/End):	1110
Sampling Date:	7/10/98	Decontamination Fluids Used:	DE
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW027		
Sample Parameters:	VOC		

Comments and Observations: * Artesian = 2 psi = 4.61 Ft
* Cleaned the flow cell

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FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: MW-309A Project Number: 29600.47 7502 Date: 7/10/98
Well ID: Eastern Plume Field Personnel: SPP/BJA

Parameter	6	7	8	9	10	11
Time (min.)	1059	1102	1105			
Depth to Water (ft)	0	0	0			
Purge Rate (~~gpm~~) lpm	1.7	1.7	1.7			
Volume Purged (~~gal~~) L	53.7	58.8	63.9			
pH	7.67	7.85	7.94			
Temperature (°C)	9.30	9.32	9.33			
Conductivity (μmhos/cm)	252	252	252			
Dissolved Oxygen (mg/L)	0.08	0.08	0.06			
Turbidity (NTU)	0	0	0			
eH (mV)	-237	-244	-247			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

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FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-309B	Well Lock Status:	LOCKED
Well Condition:		Weather:	Clear, 80°, muggy

Gauge Date:	7/10/98	Gauge Time:	923
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.42	Well Diameter (in.):	2"

Purge Date:	7/10/98	Purge Time:	927
Purge Method:	Low Flow	Field Personnel:	SAP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	59.43	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	2.34	C. Well Volume (L)	34.54
E. Liquid Depth (ft) (A-B)	57.09	E. Three Well Volumes	103.62

Parameter	Beginning	1	2	3	4	5
Time (min.)	928	933	938	943	948	953
Depth to Water (ft)	4.82	5.12	6.02	7.61	8.82	8.95
Purge Rate (~~gpm~~) Lpm	0.4	0.2	0.2	0.2	0.1	0.05
Volume Purged (~~gal~~) L	0.4	1.4	2.4	3.4	3.9	~~4~~ 4.15
pH	8.72	8.70	8.70	SAP ~~7.8~~ 8.70	8.70	8.68
Temperature (°C)	10.40	10.32	10.06	10.45	10.55	11.33
Conductivity (μmhos/cm)	197	193	191	197	191	200
Dissolved Oxygen (mg/L)	0.72	0.40	0.36	0.22	0.21	0.21
Turbidity (NTU)	2.0	105.0	95	SAP ~~74~~ 74	65	54
eH (mV)	180.8	115	19	-39	-83	-105

Total Quantity of Water Removed (L):	9.45		
Samplers:	SAP BDA	Sampling Time (Start/End):	1020
Sampling Date:	7/10/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW025		
Sample Parameters:	VOC		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume Project Number: 29600.47.7502 Date: 7/10/98
Well ID: MW-309B Field Personnel: SRP / BDA

Parameter	6	7	8	9	10	11
Time (min.)	958	1003	1008	1011	1014	1017
Depth to Water (ft)	~~10.15~~ 9.15	10.21	13.85	13.85	13.85	13.85
Purge Rate (~~gpm~~) lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	5.15	6.15	7.15	7.65	8.25	8.85
pH	8.7	8.7	8.68	8.68	8.67	8.67
Temperature (°C)	10.51	10.21	10.95	11.51	11.60	11.87
Conductivity (μmhos/cm)	203	191	174	189	184	197
Dissolved Oxygen (mg/L)	0.18	0.11	0.09	0.06	0.10	0.11
Turbidity (NTU)	79	66	66	75	77	79
eH (mV)	-147	-161	-165	-169	-163	-159

Parameter	12	13	14	15	16	17
Time (min.)	1020					
Depth to Water (ft)	13.85					
Purge Rate (~~gpm~~) Lpm	0.2					
Volume Purged (~~gal~~) L	9.45					
pH	8.67					
Temperature (°C)	12.21					
Conductivity (μmhos/cm)	192					
Dissolved Oxygen (mg/L)	0.11					
Turbidity (NTU)	78					
eH (mV)	-158					

Comments and Observations:

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FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	20600.47 7502
Well ID:	MW 310	Well Lock Status:	good
Well Condition:	good	Weather:	clear, 80°, sun.

Gauge Date:	7/9/98	Gauge Time:	1430
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.57	Well Diameter (in.):	2"

Purge Date:	7/9/98	Purge Time:	1433
Purge Method:	Low flow	Field Personnel:	SAP, BDA
Ambient Air VOCs (ppm):	0.0	Well Mouth VOCs (ppm):	0.0

WELL VOLUME

A. Well Depth (ft):	72.83	D. Well Volume/ft (L):	.605
B. Depth to Water (ft):	29.32	C. Well Volume (L)	26.32
E. Liquid Depth (ft) (A-B)	43.51	E. Three Well Volumes	78.96

Parameter	Beginning	1	2	3	4	5
Time (min.)	1435	1440	1445	1450	1455	1458
Depth to Water (ft)	29.32	29.35	29.35	29.35	29.35	29.35
Purge Rate (~~gpm~~) Lpm	.3	.3	.3	.3	.3	.3
Volume Purged (~~gal~~) L	.6	2.1	3.6	5.1	6.6	8.1
pH	6.27	6.40	6.42	6.44	6.42	6.44
Temperature (°C)	13.42	10.31	10.40	11.10	11.51	11.59
Conductivity (μmhos/cm)	80	92	109	110	109	109
Dissolved Oxygen (mg/L)	10.04	10.38	10.48	10.39	10.36	10.35
Turbidity (NTU)	0	8	2	1	0	0
eH (mV)	210	194	188	184	182	183

Total Quantity of Water Removed (L):	8.6		
Samplers:	SAP, BDA	Sampling Time (Start/End):	1500 / 1503
Sampling Date:	7/9/98	Decontamination Fluids Used:	DI
Sample Type:	grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW023		
Sample Parameters:	VOCs		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47
Well ID:	MW-311	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny

Gauge Date:	7/9/98	Gauge Time:	1310
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.30	Well Diameter (in.):	2

Purge Date:	7/9/98	Purge Time:	1313
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0/0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	55.78	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	18.16	C. Well Volume (L)	22.76
E. Liquid Depth (ft) (A-B)	~~50~~ 37.62	E. Three Well Volumes	68.28

Parameter	Beginning	1	2	3	4	5
Time (min.)	1316	1321	1326	1331	1336	1341
Depth to Water (ft)	19.65	19.70	19.72	19.75	19.78	19.34
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	1.2	3.2	5.2	7.2	9.2	11.2
pH	6.62	6.83	6.92	6.92	6.71	6.88
Temperature (°C)	9.57	9.73	10.18	10.28	10.39	10.45
Conductivity (μmhos/cm)	94	104	102	101	101	98
Dissolved Oxygen (mg/L)	7.70	6.05	5.52	5.06	1.96	1.94
Turbidity (NTU)	118	18.1	105	77	60	46
eH (mV)	235	95	61	49	47	44

Total Quantity of Water Removed (L):	33.4 liters		
Samplers:	BB, SC	Sampling Time (Start/End):	1435 / 1437
Sampling Date:	7/9/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW024 BN-12-EP-MWXD4		
Sample Parameters:	VOC		

Comments and Observations: containerized water and ran through treatment plant
cleaned out cup at 1332

ph check ok

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/9/98
Well ID:	MW311	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1346	1351	1356	1401	1406	1411
Depth to Water (ft)	19.34	19.30	19.26	19.13	19.12	19.11
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	13.2	15.2	17.2	19.2	21.2	23.2
pH	6.90	6.92	6.95	6.94	6.96	6.95
Temperature (°C)	10.79	10.96	11.03	11.18	11.25	11.30
Conductivity (μmhos/cm)	95	97	102	103	103	101
Dissolved Oxygen (mg/L)	1.99	1.95	2.07	2.04	2.03	2.02
Turbidity (NTU)	36	28	23	18	15	12
eH (mV)	48	44	40	38	36	34

Parameter	12	13	14	15	16	17
Time (min.)	1416	1421	1424	1427	1430	
Depth to Water (ft)	19.10	19.10	19.10	19.10	19.10	
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.4	0.4	
Volume Purged (~~gal~~) L	25.2	27.2	28.4	29.6	30.8	
pH	6.92	6.94	6.93	6.94	6.92	
Temperature (°C)	11.31	11.34	11.36	11.39	11.41	
Conductivity (μmhos/cm)	99	100	101	100	101	
Dissolved Oxygen (mg/L)	1.99	2.01	1.99	2.00	2.00	
Turbidity (NTU)	10	10	9	9	8	
eH (mV)	31	30	29	29	28	

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	~~MW-313~~ Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-313	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Overcast 75

Gauge Date:	7/8/98	Gauge Time:	8:39
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	3.35	Well Diameter (in.):	2"

Purge Date:	7/8/98	Purge Time:	840
Purge Method:	Low Flow	Field Personnel:	SKP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	37.14	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	8.89	C. Well Volume (L)	17.09
E. Liquid Depth (ft) (A-B)	28.25	E. Three Well Volumes	51.27

Parameter	Beginning	1	2	3	4	5 *
Time (min.)	842	847	852	857	902	907
Depth to Water (ft)	9.52	9.57	9.57	9.59	9.61	9.65
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	0.4	1.4	2.4	3.4	4.4	5.4
pH	6.89	7.20	7.25	7.28	7.30	7.37
Temperature (°C)	8.73	9.18	9.29	9.71	10.32	11.09
Conductivity (μmhos/cm)	91	126	135	148	158	169
Dissolved Oxygen (mg/L)	2.08	1.15	1.21	1.14	1.16	1.56
Turbidity (NTU)	265	146	131	98	94	48
eH (mV)	138	137	135	133	128	114

Total Quantity of Water Removed (L):	24.4		
Samplers:	SKP/BDA	Sampling Time (Start/End):	1045
Sampling Date:	7/8/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCl
Sample Bottle IDs:	BN-12-EP-MW007		
Sample Parameters:	VOC		

Comments and Observations: * Cleared flow cell

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: Eastern Plume Project Number: 29600-47.2502 Date: 7/8/98
Well ID: MW-313 Field Personnel: SLP/BDA

Parameter	6	7	8	9	10	11
Time (min.)	912	917	922	927	932	937
Depth to Water (ft)	9.65	9.65	9.65	9.65	9.65	9.65
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	6.4	7.4	8.4	9.4	10.4	11.4
pH	7.38	7.40	7.41	7.40	7.38	7.38
Temperature (°C)	11.64	12.19	12.11	12.33	12.52	12.79
Conductivity (μmhos/cm)	179	179	183	185	183	184
Dissolved Oxygen (mg/L)	1.48	1.19	0.94	0.95	0.96	0.96
Turbidity (NTU)	72	94	83	64	42	57
eH (mV)	112	108	99	94	91	86

Parameter	12	13	14	15	16	17
Time (min.)	942	947	952	957	1002	1007
Depth to Water (ft)	9.65	9.65	9.65	9.65	9.65	9.65
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	12.4	13.4	14.4	15.4	16.4	17.4
pH	7.38	7.37	7.38	7.36	7.36	7.35
Temperature (°C)	12.97	13.16	13.37	13.47	13.59	13.79
Conductivity (μmhos/cm)	185	185	186	186	187	187
Dissolved Oxygen (mg/L)	0.85	0.86	0.81	0.78	0.81	0.82
Turbidity (NTU)	35	37	33	31	31	28
eH (mV)	82	81	76	72	70	70

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	27600.47.7502	Date:	7/8/98
Well ID:	MW-313	Field Personnel:	SAP/BDA		

Parameter	6	7	8	9	10	11
Time (min.)	1012	1017	1022	1027	1032	1037
Depth to Water (ft)	9.65	9.65	9.65	9.65	9.65	9.65
Purge Rate (~~gpm~~) Lpm	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	18.4	19.4	20.4	21.4	22.4	23.4
pH	7.35	7.35	7.34	7.34	7.34	7.34
Temperature (°C)	13.90	14.00	13.99	14.07	14.43	14.99
Conductivity (μmhos/cm)	190	190	185	189	182	185
Dissolved Oxygen (mg/L)	0.79	0.73	0.73	0.70	0.72	0.74
Turbidity (NTU)	23	23	20	22	17	14
eH (mV)	66	63	63	60	60	60

Parameter	12	13	14	15	16	17
Time (min.)	1042					
Depth to Water (ft)	9.65					
Purge Rate (~~gpm~~) Lpm	0.2					
Volume Purged (~~gal~~) L	24.4					
pH	7.35					
Temperature (°C)	14.85					
Conductivity (μmhos/cm)	186					
Dissolved Oxygen (mg/L)	0.60					
Turbidity (NTU)	12					
eH (mV)	53					

Comments and Observations: * Readjusted flow

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600477 750.2
Well ID:	MW-318	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, humid

Gauge Date:	7/8/98	Gauge Time:	1236
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.57	Well Diameter (in.):	2

Purge Date:	7/8/98	Purge Time:	1238
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0, 0

WELL VOLUME

A. Well Depth (ft):	25.14	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	5.32	C. Well Volume (L)	11.99
E. Liquid Depth (ft) (A-B)	19.82	E. Three Well Volumes	35.97

Parameter	Beginning	1	2	3	4	5
Time (min.)	1241	1244	1247	1250	1253	1258
Depth to Water (ft)	6.00	6.00	6.00	6.00	6.00	6.00
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	1.2	2.4	3.6	4.8	6.0	8.0
pH	5.95	6.40	6.44	6.51	6.50	6.58
Temperature (°C)	9.80	10.81	11.23	11.52	11.66	11.68
Conductivity (μmhos/cm)	12	89	54	55	54	52
Dissolved Oxygen (mg/L)	1.63	2.86	4.12	5.09	5.59	5.90
Turbidity (NTU)	28	22	17	13	11	6
eH (mV)	-76	-45	4	33	56	66

Total Quantity of Water Removed (L):	12.4		
Samplers:	BB, SC	Sampling Time (Start/End):	1310 / 1311
Sampling Date:	7/8/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW011		
Sample Parameters:	VOC		

Comments and Observations:

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7502	Date:	7/8/98
Well ID:	MW-318	Field Personnel:	BB SC		

Parameter	6	7	8	9	10	11
Time (min.)	1201	1304	1307			
Depth to Water (ft)	6.00	5.99	5.99			
Purge Rate ~~(gpm)~~ Lpm	0.4	0.4	0.4			
Volume Purged ~~(gal)~~ L	9.2	10.4	11.6			
pH	6.57	6.55	6.55			
Temperature (°C)	11.71	11.74	11.83			
Conductivity (μmhos/cm)	51	50	50			
Dissolved Oxygen (mg/L)	6.01	6.08	6.14			
Turbidity (NTU)	8	7	6			
eH (mV)	66	70	68			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate ~~(gpm)~~ Lpm						
Volume Purged ~~(gal)~~ L						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-319	Well Lock Status:	locked
Well Condition:	Good	Weather:	overcast

Gauge Date:	7/10/98	Gauge Time:	838
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.30	Well Diameter (in.):	2

Purge Date:	7/10/98	Purge Time:	840
Purge Method:	Low Flow	Field Personnel:	BB, SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0/0

WELL VOLUME

A. Well Depth (ft):	72.44	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	15.96	C. Well Volume (L)	34.17
E. Liquid Depth (ft) (A-B)	56.48	E. Three Well Volumes	102.51

Parameter	Beginning	1	2	3	4	5
Time (min.)	843	846	849	852	855	858
Depth to Water (ft)	15.97	15.97	15.97	15.97	15.97	15.97
Purge Rate (~~gpm~~) Lpm	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (~~gal~~) L	0.3	0.6	0.9	1.2	1.5	1.8
pH	7.41	6.90	6.57	6.50	6.47	6.46
Temperature (°C)	10.51	10.08	9.92	9.84	9.83	9.84
Conductivity (μmhos/cm)	143	133	126	125	124	124
Dissolved Oxygen (mg/L)	14.80	13.07	9.30	7.68	7.04	6.73
Turbidity (NTU)	4	20	22	17	13	11
eH (mV)	198	202	208	207	207	204

Total Quantity of Water Removed (L):	3		
Samplers:	BB, SC	Sampling Time (Start/End):	910/911
Sampling Date:	7/10/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW028		
Sample Parameters:	VOC		

Comments and Observations: Containerized water and ran through treatment plant

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.47.7500	Date:	7/10/98
Well ID:	MW-319	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	901	904	907			
Depth to Water (ft)	15.97	15.97	15.97			
Purge Rate (~~gpm~~) lpm	0.1	0.1	0.1			
Volume Purged (~~gal~~) L	2.1	2.4	2.7			
pH	6.45	6.44	6.42			
Temperature (°C)	10.05	10.15	10.31			
Conductivity (μmhos/cm)	123	123	122			
Dissolved Oxygen (mg/L)	6.20	6.18	6.31			
Turbidity (NTU)	8	6	4			
eH (mV)	199	197	194			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (~~gpm~~) lpm						
Volume Purged (~~gal~~) L						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	MW-1104	Well Lock Status:	locked
Well Condition:	good	Weather:	overcast

Gauge Date:	7/7/98	Gauge Time:	1338
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick/Up/Down (ft):	2.25	Well Diameter (in.):	2

Purge Date:	7/7/98	Purge Time:	1340
Purge Method:	Low Flow	Field Personnel:	BB SC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	27.55	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	10.75	C. Well Volume (L)	16.16
E. Liquid Depth (ft) (A-B)	16.80	E. Three Well Volumes	30.48

Parameter	Beginning	1	2	3	4	5
Time (min.)	1345	1350	1355	1300	1405	1410
Depth to Water (ft)	10.77	10.77	10.77	10.77	10.77	10.77
Purge Rate (~~gpm~~) Lpm	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (~~gal~~) L	0.5	1.0	1.5	2.0	2.5	3.0
pH	4.36	5.39	5.45	5.72	5.80	5.82
Temperature (°C)	13.90	14.64	15.97	16.85	17.11	17.50
Conductivity (μmhos/cm)	99	84	84	85	82	72
Dissolved Oxygen (mg/L)	5.20	4.73	5.64	4.70	3.96	3.77
Turbidity (NTU)	205	153	173	128	75	53
eH (mV)	326	229	217	214	207	200

Total Quantity of Water Removed (L):	9.2 liters		
Samplers:	BB SC	Sampling Time (Start/End):	1445/1446
Sampling Date:	7/7/98	Decontamination Fluids Used:	None
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-MW0010		
Sample Parameters:	VOC		

Comments and Observations:

ph check OK

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	Eastern Plume	Project Number:	29600.477502	Date:	7/7/98
Well ID:	MW2-1104	Field Personnel:	BB, SC		

Parameter	6	7	8	9	10	11
Time (min.)	1415	1420	1425	1430	1435	1438
Depth to Water (ft)	10.77	10.77	10.77	10.80	10.80	10.80
Purge Rate (~~gpm~~) lpm	0.1	0.1	0.2	0.2	0.2	0.2
Volume Purged (~~gal~~) L	3.5	4.0	5.0	6.0	7.0	7.6
pH	5.60	5.79	5.81	5.85	5.87	5.88
Temperature (°C)	18.22	18.66	18.54	16.94	16.44	16.26
Conductivity (μmhos/cm)	78	75	77	71	72	73
Dissolved Oxygen (mg/L)	3.78	3.53	3.19	2.73	2.45	2.37
Turbidity (NTU)	47	45	23	13	9	8
eH (mV)	198	186	170	153	145	141

Parameter	12	13	14	15	16	17
Time (min.)	1441					
Depth to Water (ft)	10.80					
Purge Rate (~~gpm~~) Lpm	0.2					
Volume Purged (~~gal~~) L	8.4					
pH	5.89					
Temperature (°C)	16.18					
Conductivity (μmhos/cm)	72					
Dissolved Oxygen (mg/L)	2.29					
Turbidity (NTU)	7					
eH (mV)	138					

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	MW-NASB-212	Project Number:	29600.47.7502
Well ID:	GOOD	Well Lock Status:	Locked
Well Condition:	Eastern Plume	Weather:	~~Sunny~~, overcast 80

Gauge Date:	7/7/98	Gauge Time:	1413
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.96	Well Diameter (in.):	2"

Purge Date:	7/7/98	Purge Time:	1413
Purge Method:	Low Flow	Field Personnel:	SAP BDA
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	67.34	D. Well Volume/ft (L):	0.605
B. Depth to Water (ft):	8.84	C. Well Volume (L)	35.39
E. Liquid Depth (ft) (A-B)	58.50	E. Three Well Volumes	106.17

Parameter	Beginning	1	2	3	4	5
Time (min.)	1416	1421	1426	1429	1432	1435
Depth to Water (ft)	8.92	8.92	8.92	8.87	8.87	8.87
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.2	0.2	0.2
Volume Purged (~~gal~~) L	1.2	3.2	5.2	6.2	7.2	8.2
pH	5.05	6.16	6.54	6.63	6.67	6.69
Temperature (°C)	10.33	10.11	10.55	11.24	11.65	11.77
Conductivity (μmhos/cm)	124	128	128	131	134	134
Dissolved Oxygen (mg/L)	0.90	0.41	0.26	0.35	0.44	0.45
Turbidity (NTU)	4	4	3	4	4	4
eH (mV)	52	63	68	60	66	62

Total Quantity of Water Removed (L):	11.2		
Samplers:	SAP BDA	Sampling Time (Start/End):	1445
Sampling Date:	7/7/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	~~MW~~- BN-12-EP-MW005		
Sample Parameters:	VOC		
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	EASTERN PLUME	Project Number:	29600.47.7502	Date:	7/7/98
Well ID:	MW-NASB-217	Field Personnel:	SAD / BDA		

Parameter	6	7	8	9	10	11
Time (min.)	1438	1441	1444			
Depth to Water (ft)	8.87	8.87	8.87			
Purge Rate (~~gpm~~) lpm	0.2	0.2	0.2			
Volume Purged (~~gal~~) L	9.2	10.2	11.2			
pH	6.73	6.73	6.73			
Temperature (°C)	11.78	11.76	11.61			
Conductivity (μmhos/cm)	136	138	135			
Dissolved Oxygen (mg/L)	0.43	0.46	0.44			
Turbidity (NTU)	3	3	3			
eH (mV)	56	57	58			

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600 47 7502
Well ID:	P-105	Well Lock Status:	Locked
Well Condition:	Good	Weather:	Sunny 80°

Gauge Date:	7/13/98	Gauge Time:	1536
Sounding Method:	Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.24	Well Diameter (in.):	3/4"

Purge Date:	7/13/98	Purge Time:	1539
Purge Method:	Peristaltic	Field Personnel:	SAP BB
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	70.35	D. Well Volume/ft (L):	0.085
B. Depth to Water (ft):	8.66	C. Well Volume (L)	5.24
E. Liquid Depth (ft) (A-B)	61.69	E. Three Well Volumes	15.72

Parameter	Beginning	1	2	3	4	5
Time (min.)	1543	1548	1553	1558	1603	1608
Depth to Water (ft)	–	–				
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	1.6	3.6	5.6	7.6	9.6	11.6
pH	7.37	~~9.57~~ 7.45	7.44	7.44	7.41	7.45
Temperature (°C)	9.98	9.21	8.93	8.68	8.60	8.51
Conductivity (μmhos/cm)	89	84	84	83	82	81
Dissolved Oxygen (mg/L)	9.26	9.57	9.35	9.22	8.77	8.51
Turbidity (NTU)	515	250	74	37	31	47
eH (mV)	194	190	189	188	185	185

Total Quantity of Water Removed (L):	22.0		
Samplers:	SAP BB	Sampling Time (Start/End):	1636
Sampling Date:	7/13/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-I2-EP-MW035		
Sample Parameters:	VOC		

Comments and Observations: Purged water contained and disposed of at treatment plant.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name:	MW Eastern Plume	Project Number:	20600 47 7502	Date:	7/13/98
Well ID:	B-105	Field Personnel:	SMP BD		

Parameter	6	7	8	9	10	11
Time (min.)	1613	1618	1623	1628	1631	1634
Depth to Water (ft)	–	–	–	–	–	–
Purge Rate (~~gpm~~) Lpm	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (~~gal~~) L	13.6	15.6	17.6	19.6	20.8	22.0
pH	7.42	7.44	7.44	7.41 ~~8.08~~	7.41	7.40
Temperature (°C)	8.10	8.10	8.10	8.08	8.10	8.08
Conductivity (μmhos/cm)	80	80	79	78	78	78
Dissolved Oxygen (mg/L)	7.99	7.68	7.44	7.30	7.26	7.26
Turbidity (NTU)	74	125	22	15	15	15
eH (mV)	184	183	183	182	182	182

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	P-106	Well Lock Status:	Locked
Well Condition:	GOOD	Weather:	Sunny 80°

Gauge Date:	7/13/98	Gauge Time:	1420
Sounding Method:	~~Peristaltic~~ SLP Slope Indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	2.53	Well Diameter (in.):	3/4"

Purge Date:	7/13/98	Purge Time:	1421
Purge Method:	Peristaltic	Field Personnel:	SLP BB
Ambient Air VOCs (ppm):	0	Well Mouth VOCs (ppm):	0

WELL VOLUME

A. Well Depth (ft):	71.06	D. Well Volume/ft (L):	0.085
B. Depth to Water (ft):	9.59	C. Well Volume (L)	5.22
E. Liquid Depth (ft) (A-B)	61.47	E. Three Well Volumes	15.66

Parameter	Beginning	1	2	3	4	5
Time (min.)	1428	1433	1438	1443	1448	1453
Depth to Water (ft)	CANNOT GAUGE	—	—	—	—	—
Purge Rate (gpm) L/m	0.7	0.7	0.7	0.7	0.7	0.7
Volume Purged (~~gal~~) L	4.9	8.4	11.9	15.4	18.9	22.4
pH	7.36	7.33	7.38	7.38	7.38	7.39
Temperature (°C)	9.95	9.93	9.90	10.22	9.92	9.89
Conductivity (μmhos/cm)	95	94	95	95	94	94
Dissolved Oxygen (mg/L)	3.47	3.42	3.72	4.55	3.82	3.80
Turbidity (NTU)	462	154	104	73	43.	20
eH (mV)	210	206	203	202	201	199

Total Quantity of Water Removed (L):	38.5		
Samplers:	SLP BB	Sampling Time (Start/End):	1520
Sampling Date:	7/13/98	Decontamination Fluids Used:	DI
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BU-12-FP MW034 MS/MSD		
Sample Parameters:	VOC		

Comments and Observations: Purged water contained and disposed of at treatment plant.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING (OVERFLOW PAGE)

Site Name: EASTERN PLUME Project Number: 29600477502 Date: 7/13/98
Well ID: P-106 Field Personnel: BCB SAP

Parameter	6	7	8	9	10	11
Time (min.)	1458	1503	1508	1513	1516	
Depth to Water (ft)	–	–	–	–	–	
Purge Rate (~~gpm~~) L/M	0.7	0.7	0.7	0.7	0.7	
Volume Purged (~~gal~~) L	25.9	28.4	32.9	36.4	38.5	
pH	7.37	7.36	7.35	7.38	7.38	
Temperature (°C)	9.92	9.87	9.85	9.88	9.90	
Conductivity (μmhos/cm)	95	94	100	100	99	
Dissolved Oxygen (mg/L)	3.59	3.67	3.62	3.60	3.59	
Turbidity (NTU)	10.2	16	14	13	13	
eH (mV)	197	196	194	193	192	

Parameter	12	13	14	15	16	17
Time (min.)						
Depth to Water (ft)						
Purge Rate (gpm)						
Volume Purged (gal)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
eH (mV)						

Comments and Observations:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600477502
Well ID:	EW-1	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/17/98	Gauge Time:	900
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	6

Purge Date:	7/17/98	Purge Time:	NA
Purge Method:	NA	Field Personnel:	BB, MC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	13.60	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	0903					
Depth to Water (ft)	13.60					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	7.37					
Temperature (°C)	11.63					
Conductivity (μmhos/cm)	139					
Dissolved Oxygen (mg/L)	6.06					
Turbidity (NTU)	4.9					
eH (mV)	99					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	0855
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-R1006		
Sample Parameters:	VOC		
Comments and Observations:	FLOW = 10 GPM		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	EW-2	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny 85°

Gauge Date:	7/17/98	Gauge Time:	910
Sounding Method:	slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	6

Purge Date:	7/17/98	Purge Time:	NA
Purge Method:	NA	Field Personnel:	BB, MC
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	12.81	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	0913					
Depth to Water (ft)	12.81					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	6.76					
Temperature (°C)	10.85					
Conductivity (μmhos/cm)	212					
Dissolved Oxygen (mg/L)	14.46					
Turbidity (NTU)	12					
eH (mV)	210					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	0905
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-R1005		
Sample Parameters:	VOC		
Comments and Observations:	FLOW = 12 GPM		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	EW-2A	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85

Gauge Date:	7/17/98	Gauge Time:	920
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	2

Purge Date:	7/17/98	Purge Time:	NA
Purge Method:	NA	Field Personnel:	MC, BB
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	45.54	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	0923					
Depth to Water (ft)	45.54					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	7.17					
Temperature (°C)	10.74					
Conductivity (μmhos/cm)	105					
Dissolved Oxygen (mg/L)	13.32					
Turbidity (NTU)	5					
eH (mV)	91					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	0920
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-R1004		
Sample Parameters:	VOC		
Comments and Observations:	FLOW = 17 GPM		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47 7502
Well ID:	EW-3	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/17/98	Gauge Time:	930
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	6

Purge Date:	7/17/98	Purge Time:	NA
Purge Method:	NA	Field Personnel:	MC, BB
Ambient Air VOCs (ppm):	0 / 0	Well Mouth VOCs (ppm):	0 / 0

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	15.10	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	0932					
Depth to Water (ft)	15.10					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	6.18					
Temperature (°C)	9.95					
Conductivity (μmhos/cm)	105					
Dissolved Oxygen (mg/L)	12.15					
Turbidity (NTU)	0					
eH (mV)	199					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	0930
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP-R1003		
Sample Parameters:	VOC		
Comments and Observations:	~~FLOW=~~ FLOW METER INOPERABLE		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47
Well ID:	EW-4	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/17/98	Gauge Time:	936
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):	NA	Well Diameter (in.):	6

Purge Date:	7/17/98	Purge Time:	NA
Purge Method:	NA	Field Personnel:	BB MC
Ambient Air VOCs (ppm):	0 0	Well Mouth VOCs (ppm):	0 0

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	
B. Depth to Water (ft):	21.70	C. Well Volume (L)	
E. Liquid Depth (ft) (A-B)		E. Three Well Volumes	

Parameter	Beginning	1	2	3	4	5
Time (min.)	0939					
Depth to Water (ft)	21.70					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	6.45					
Temperature (°C)	9.77					
Conductivity (μmhos/cm)	99					
Dissolved Oxygen (mg/L)	12.11					
Turbidity (NTU)	0					
eH (mV)	192					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	0935
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:	BN-12-EP - R1002		
Sample Parameters:	VOC		
Comments and Observations:	FLOW = 20 GPM		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	EW-5	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/17/98	Gauge Time:	948
Sounding Method:	Slope indicator	Measurement Ref:	TOC
Stick Up/Down (ft):		Well Diameter (in.):	6

Purge Date:	7/17/98	Purge Time:	NA
Purge Method:	NA	Field Personnel:	MC, BB
Ambient Air VOCs (ppm):	0.10	Well Mouth VOCs (ppm):	0.10

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	16.50	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	0950					
Depth to Water (ft)	16.50					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	7.02					
Temperature (°C)	10.22					
Conductivity (μmhos/cm)	93					
Dissolved Oxygen (mg/L)	9.33					
Turbidity (NTU)	1					
eH (mV)	98					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	0945
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL
Sample Bottle IDs:			
Sample Parameters:	BN-12-EP-R1001	VOC	
Comments and Observations:			

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	Eastern Plume	Project Number:	29600.47.7502
Well ID:	EASTERN PLUME INFLUENT	Well Lock Status:	locked
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/17/98	Gauge Time:	1010
Sounding Method:	NA	Measurement Ref:	NA
Stick Up/Down (ft):	NA	Well Diameter (in.):	NA

Purge Date:	NA	Purge Time:	NA
Purge Method:	NA	Field Personnel:	NA
Ambient Air VOCs (ppm):	NA	Well Mouth VOCs (ppm):	NA

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	NA	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	1015					
Depth to Water (ft)	NA					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	6.60					
Temperature (°C)	11.49					
Conductivity (μmhos/cm)	121					
Dissolved Oxygen (mg/L)	8.74					
Turbidity (NTU)	0					
eH (mV)	223					

Total Quantity of Water Removed (L):			
Samplers:	BB, MC	Sampling Time (Start/End):	1000
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL, nitric acid
Sample Bottle IDs:	BN-12-EP-R1007		
Sample Parameters:	VOC, TAL Elements		
Comments and Observations:	FLOW RATE = 83 GPM		

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

Site Name:	TREATMENT PLANT	Project Number:	29600.47.1502
Well ID:	~~EASTERN PLUME~~ EFFLUENT	Well Lock Status:	NA
Well Condition:	good	Weather:	Sunny, 85°

Gauge Date:	7/17/98	Gauge Time:	NA
Sounding Method:	NA	Measurement Ref:	NA
Stick Up/Down (ft):	NA	Well Diameter (in.):	NA

Purge Date:	NA	Purge Time:	NA
Purge Method:	NA	Field Personnel:	NA
Ambient Air VOCs (ppm):	NA	Well Mouth VOCs (ppm):	NA

WELL VOLUME

A. Well Depth (ft):	NA	D. Well Volume/ft (L):	NA
B. Depth to Water (ft):	NA	C. Well Volume (L)	NA
E. Liquid Depth (ft) (A-B)	NA	E. Three Well Volumes	NA

Parameter	Beginning	1	2	3	4	5
Time (min.)	1032					
Depth to Water (ft)	NA					
Purge Rate (gpm)	NA					
Volume Purged (gal)	NA					
pH	6.48					
Temperature (°C)	13.51					
Conductivity (μmhos/cm)	128					
Dissolved Oxygen (mg/L)	22.73					
Turbidity (NTU)	10.8					
eH (mV)	363					

Total Quantity of Water Removed (L):	NA		
Samplers:	BB, MC	Sampling Time (Start/End):	1030
Sampling Date:	7/17/98	Decontamination Fluids Used:	none
Sample Type:	Grab	Sample Preservatives:	HCL,
Sample Bottle IDs:	BN-12-EF-TE001		
Sample Parameters:	MS/MSD TAKEN	VOC, TAL	
Comments and Observations:	TEX01 Duplicate	Elements	

Appendix A.3

Field Record of Surface Water and Sediment Sampling Forms

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600477502
Sample Location ID: SW15E001			Date: 7/16/98
Sampling Time:	Start:	End:	Sample Team Members: BA SC

SW SED

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location _____ (ft)

Depth of Sample from Top of Water _____ (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
(✓) Temperature 16.29 °C
(✓) Conductivity 520 µmhs/cm
(✓) ph 6.51 units
(✓) Dissolved oxygen 3.57 mg/L
(✓) Turibidity 34 NTU
(✓) Eh -31 mv

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
(✓) Clay
(✓) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color gray
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN12S1SW007
✓		✓		8oz	✓	BN12S1SD007

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: BW1SE002			Date: 7/16/98
Sampling Time:	Start: 1130	End: 1135	Sample Team Members: BA, SC

SW SED

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream ( ) River
( ) Pond/Lake ( ) Seep

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Water Quality Parameters
(✓) Temperature 15.68 °C
(✓) Conductivity 357 µmhs/cm
(✓) ph 6.65 units
(✓) Dissolved oxygen 6.12 mg/L
(✓) Turibidity 13 NTU
(✓) Eh -20 mv

Water Depth and Sample Location 2 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
(✓) Clay
(✓) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color gray
(✓) iron staining

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN12S1SW00~~8~~6
✓		✓		8oz	✓	BN12S1SD006

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SW/SED003			Date: 7/16/98
Sampling Time:	~~Start~~: 1120	~~End~~: 1125	Sample Team Members: BA, SC

SW SED

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 2 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
(✓) Temperature 15.85 °C
(✓) Conductivity 365 µmhs/cm
(✓) ph 6.81 units
(✓) Dissolved oxygen 7.79 mg/L
(✓) Turibidity 8 NTU
(✓) Eh -11 mv

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (✓) Field Duplicate Collected
Duplicate ID BN2SE
( ) MS/MSD SWXD1

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color light brown
(✓) iron staining

Field QC Data: (✓) Field Duplicate Collected
Duplicate ID BN12SISDXD1
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2 L	✓	BN12SISW005
✓		✓		8 oz	✓	BN12SISD005

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SW/SED 004			Date: 7/16/98
Sampling Time:	Start: 1045	End: 1050	Sample Team Members: BA, SC

SW SED

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream
( ) River
( ) Pond/Lake
( ) Seep

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Water Quality Parameters
(✓) Temperature 18.72 °C
(✓) Conductivity 124 µmhs/cm
(✓) ph 6.95 units
(✓) Dissolved oxygen 8.60 mg/L
(✓) Turibidity 5 NTU
(✓) Eh 37 mv

Water Depth and Sample Location 2 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2 L	✓	BN12S1SW004
✓		✓		8 oz	✓	BN12S1SD004

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SW/SED 005			Date: 7/16/98
Sampling Time:	Start: 1025	End: 1030	Sample Team Members: BA, SC

SW SED

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 2 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
(✓) Temperature 18.69 °C
(✓) Conductivity 126 µmhs/cm
(✓) ph 6.72 units
(✓) Dissolved oxygen 7.32 mg/L
(✓) Turibidity 67 NTU
(✓) Eh 19 mv

beaver dam has made water level rise above level at SW-6 approximately 1-2 ft. water cloudy.

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN125SW003
✓		✓		8oz	✓	BN125SD003

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SW/SED 006			Date: 7/16/98
Sampling Time:	Start: 1015	End: 1020	Sample Team Members: BA, SC

SW SED

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream ( ) River
( ) Pond/Lake ( ) Seep

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Water Quality Parameters
(✓) Temperature 18.50 °C
(✓) Conductivity 123 µmhs/cm
(✓) ph 6.66 units
(✓) Dissolved oxygen 8.11 mg/L
(✓) Turibidity 5 NTU
(✓) Eh 38 mv

Water Depth and Sample Location 2 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor _____
(✓) Color dark brow
(✓) iron staining

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN12515W002
✓		✓		8oz	✓	BN12515D002

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SW/SED 007			Date: 7/16/98
Sampling Time:	Start: 1000 SW	End: 1005 SED	Sample Team Members: BA, SC

SURFACE WATER INFORMATION

Type of Surface Water:
(✓) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 2 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
(✓) Temperature 18.65 °C
(✓) Conductivity 123 µmhs/cm
(✓) ph 6.66 units
(✓) Dissolved oxygen 8.27 mg/L
(✓) Turibidity 5 NTU
(✓) Eh 40 mv

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
(✓) MS/MSD

Sample Location Sketch:
( ) Yes
(✓) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
(✓) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
(✓) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
(✓) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN-12-S1-SW001
✓		✓		8oz	✓	BN-12-S1-SD001

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3	Project Number: 29600.47.7502
Sample Location ID: Seep 1	Date: 7/16/98
Sampling Time: ~~Start~~: 1140 SW ~~End~~: 1150 SED	Sample Team Members: BA, SC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location 0.5 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
(✓) Temperature 14.32 °C
(✓) Conductivity 731 µmhs/cm
(✓) ph 5.91 units
(✓) Dissolved oxygen 3.08 mg/L
(✓) Turibidity 217 NTU
(✓) Eh 84 mv

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (✓) Field Duplicate Collected
Duplicate ID BN12S1
( ) MS/MSD LTXD1

Sample Location Sketch:
( ) Yes
( ) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
(✓) Organic
(✓) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(✓) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown
(✓) iron staining

Field QC Data: (✓) Field Duplicate Collected
Duplicate ID BN12S1LTX02
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		802	✓	BN12S1LTSD1
✓	✓		✓	1.2L	✓	BN12S1LTSW1

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SEEP-2			Date: 7/16/98
Sampling Time:	Start: 1220	End:	Sample Team Members: BA, SC

SURFACE WATER INFORMATION SED

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location NA (ft)

Depth of Sample from Top of Water NA (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
( ) Temperature NA °C
( ) Conductivity NA µmhs/cm
( ) ph NA units
( ) Dissolved oxygen NA mg/L
( ) Turibidity NA NTU
( ) Eh NA mv

not collected dry

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
( ) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
( ) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
(✓) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		802	✓	BN12S1LTSD2

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600477502
Sample Location ID: Seep-3			Date: 7/16/98
Sampling Time:	~~Start:~~ 1235	End:	Sample Team Members: BA, SC

SED

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location NA (ft)

Depth of Sample from Top of Water NA (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
( ) Temperature NA °C
( ) Conductivity NA µmhs/cm
( ) ph NA units
( ) Dissolved oxygen NA mg/L
( ) Turibidity NA NTU
( ) Eh NA mv

not collected, dry

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
( ) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
(✓) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown, orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		802	✓	BN12S1LTSD3

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: Seep-4			Date: 7/16/98
Sampling Time:	Start: 1240	End:	Sample Team Members: BA, SC

SED

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location NA (ft)

Depth of Sample from Top of Water NA (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
( ) Temperature NA °C
( ) Conductivity NA µmhs/cm
( ) ph NA units
( ) Dissolved oxygen NA mg/L
( ) Turibidity NA NTU
( ) Eh NA mv

not collected dry

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
( ) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
(✓) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown, orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		8oz	✓	BN12S1LTSD4

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7502
Sample Location ID: SEEP-S			Date: 7/16/98
Sampling Time:	Start: 1250 SED	End:	Sample Team Members: BA, SC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location NA (ft)

Depth of Sample from Top of Water NA (ft)

Equipment Used for Collection:
(✓) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(✓) None

Water Quality Parameters
( ) Temperature NA °C
( ) Conductivity NA µmhs/cm
( ) ph NA units
( ) Dissolved oxygen NA mg/L
( ) Turibidity NA NTU
( ) Eh NA mv

not collected, Dry

Velocity Measurements Obtained? ( ) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
( ) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(✓) Discrete
( ) Composite

Sediment Type:
( ) Clay
(✓) Sand
(✓) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
(✓) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(✓) Potable Water
( ) None

Sample Observations:
(✓) Odor none
(✓) Color dark brown
(✓) iron staining

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		8oz	✓	BN12SILTSD5

NOTES/SKETCH

Appendix A.4

Field Record of Seep Sampling Forms

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 9			Project Number: 29600.47.7502
Sample Location ID: SW/SED/010			Date: 7/20/98
Sampling Time: 1005	Start: 1015	End: 1025	Sample Team Members: BA, SC

SURFACE WATER INFORMATION SW SED

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 0.5 (ft)

Depth of Sample from Top of Water 0.3 (ft)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____
(X) Dedicated

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Water Quality Parameters
(✓) Temperature 5.65 °C
(✓) Conductivity 125 µmhs/cm
(✓) ph 6.47 units
(✓) Dissolved oxygen 6.91 mg/L
(✓) Turibidity 14 NTU
(✓) Eh 75 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
(✓) Stainless Steel Spoon

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor none
(✓) Color brown, iron staining
( ) _____

Field QC Data: (✓) Field Duplicate Collected
Duplicate ID BN-12-SG-SD001
(X) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	80 mL	✓	BN-12-SG-SW001
✓		✓		2 oz	✓	BN-12-SG-SD001

NOTES/SKETCH

Duplicate, MS/MSD, sample

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 9			Project Number: 29600.47.7502
Sample Location ID: LT-901			Date: 7/20/98
Sampling Time: 1040	~~Start:~~ 1045 SW	~~End:~~ 1050 SED	Sample Team Members: BA, SC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream
( ) Pond/Lake
( ) River
(X) Seep

Water Depth and Sample Location 0.6 (ft)

Depth of Sample from Top of Water 0.3 (ft)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump
(X) Dedicated Jar

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Water Quality Parameters
(X) Temperature 16.54 °C
(X) Conductivity ~~16.54~~ 350 µmhs/cm
(X) ph 6.56 units
(X) Dissolved oxygen 1.55 mg/L
(X) Turibidity 263 NTU
(X) Eh -37 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-12-S9-LT001
(X) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
(X) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor H_2S odor
(X) Color gray-black
( ) _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN 12-S9-SDXD2
(X) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	3.3 L	✓	BN-12-S9-LT001
✓		✓		2402	✓	BN-12-S9-LTSD1

NOTES/SKETCH

sample, duplicate, MS/MSD

Appendix A.5

Field Record of Landfill Gas Monitoring

EA Engineering, Science, and Technology

FIELD RECORD OF LANDFILL GAS MONITORING

Project Name: LTMP Engineer's Inspection	Project No: 29600.47.7502	Date: 7-28-98
Weather/Temperature/Barometric Pressure: Sunny 70°F 29.70"		
EA Personnel: C. Mcleod, S. Chase	Equipment: GA-90 Methane detector	
Equipment Calibration Information:		

ID No.	Labeled/ Capped	Probe/Vent Locked	Casing/Seal Condition	Depth to Bottom (ft)	Pressure (in. H_2O)	Percent Methane	Percent Oxygen	Percent CO_2	Comments
GV-1	NA	NA	Good		<1	.1	21.1	0	
GV-2			Good		<1	0	21.1	0	Animal Hole
GV-3			Good			0	21.1	0	
GV-4			Good			.4	18.3	1.7	
GV-5			Good			0	21.1	0	
GV-6			Good			0	21.1	0	
GV-7			Good			.2	19.5	.3	
GV-8			Good			0	21.1	0	
GV-9			Good			.1	21.1	0	
GV-9			Good			.1	19.6	2.5	
GV-11			Good			0	21.2	0	
GV-12			Incomplete			.1	21.1	.1	
GV-13			Incomplete			.1	19.0	3.7	
GV-14			Good			0	21.2	0	
GP-4	Yes	Yes	Good			.1	20.6	.8	
GP-5	Yes	Yes	Good			.1	18.0	3.6	
GP-6	Yes	Yes	Good			0	19.6	1.7	

f:\wp\29600\47

Engineering Inspection of Sites 1 & 3

EA Personnel: C. McLeod, S. Chase

Date: 7-28-98

Weather: Sunny, 70°F

1) Inspection of ground surface for exposure of geotextile cover (cap erosion):
ok

2) Inspection of ground surface for differential settlement resulting in soil cracking or ponded water: DS & SC noted on North Face of DS as previously noted.
Ponded water in north area DS. & near EW-6

3) Identification of stressed vegetation: None noted.

4) Identification of seeps, rooted vegetation (trees), and/or animal burrows:
Animal Burrow noted @ GW-2

5) Identification of deteriorating equipment (i.e., gas probes, monitoring wells, piezometers, fencing, or drainage structures): GW-12 GW-13 incomplete. Will be completed by next event.

6) Inspection of Sites 1 & 3 storm water detention basins for erosion, sloughing, or flow-through: Erosion @ mouth of drainage swale as previously noted. Will be repaired before next event

7) Inspection of slope south of the landfill along Mere Brook for the presence of erosion or sloughing: None Noted.

8) Inspection of parking lots, access roads, and pavement structures:
No problems noted.

Engineering Inspection of Sites 1 & 3				
Well Number	Locked	Labelled	Depth to Water	Comments
MW-202A				
MW-202B				
MW-203				
MW-204				
MW-210A				
MW-210B				
MW-215R				
MW-216A				
MW-217A				
MW-217B				
MW-218				
MW-219				
MW-220				
MW-232A				
MW-234R				
MW-2101				
EW-6				
EW-7				
MW-201R				
MW-211A				
MW-211B				
MW-233				
EP-16				

Date: 7/28/98 Weather: Sunny, 70°F

EA Personnel: C. McLeod.

Engineering Inspection of Site 9				
Well Number	Locked	Labelled	Depth to Water	Comments
MW-69	Yes	Yes	—	See LTMP Gauging
MW-70			—	
MW-71			—	
MW-72			—	
MW-73			—	
MW-74			—	
MW-75			—	
MW-76			—	
MW-77			—	
MW-78			—	
MW-79			—	
MW-80			—	
MW-81			—	

Date: 7/24/98 Weather: Sunny 70°F

EA Personnel: C. McLeod, S. Chase.

Additional Comments:

1) Stressed Vegetation: None Noted.

2) Other: Detention Basin drained for cleaning

Engineering Inspection of Building 95				
Well Number	Locked	Labelled	Depth to Water	Comments
MW-65	Yes	Yes	—	See LTMP Gauging
MW-66	Yes	Yes	—	↓
MW-67	Yes	Yes	—	↓
MW-68	Yes	Yes	—	↓

Date: 7/28/96 Weather: Sunny 70°F

EA Personnel: C. Mclad, S. Chase

Additional Comments:

1) Stressed Vegetation: Evergreen trees (spruce) look to be stressed. All other vegetation looks good.

2) Geotextile exposure: None

3) Other: None

Appendix B

Analytical Data Quality Review

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APPENDIX B

ANALYTICAL DATA QUALITY REVIEW

B.1 INTRODUCTION

This project utilized both field and analytical laboratory quality control measures to ensure that the data quality objectives presented in the project-specific Quality Assurance Project Plan (QAPP) contained in the Long-Term Monitoring Plan (LTMP) (ABB-ES 1994) were met.

The sampling program consisted of 80 (of which 13 were field duplicates) aqueous samples (ground-water, surface water, and leachate station seep samples) collected from Sites 1 and 3 and Eastern Plume, and 14 (of which 2 were field duplicates) sediment samples collected from Sites 1 and 3. For the combined analyses for these sites, the laboratory was provided with 1 sediment and 7 aqueous sample delivery groups (SDG) which included 2 rinsate blanks, 7 trip blanks, and 1 source water blank. Field sample duplicates and source water, equipment rinsate, and trip blanks were collected at the frequency required by the QAPP.

Analytical quality control was reviewed for compliance against data quality objectives established for precision and accuracy for each sample and analysis type, including field quality control blanks (i.e., trip blank) and field sample duplication. Analytical precision was based upon the mean relative percent difference (RPD) of the matrix spike/matrix spike duplicates (MS/MSD) for organic analysis and the RPD of the laboratory duplicates for inorganic analysis. Accuracy was based upon the reported spike recoveries for the laboratory control standard (LCS), MS/MSD and system monitoring compound (SMC) recoveries (for organic analysis), and LCS and MS recoveries (for inorganic analysis).

The ability of the laboratory to extract compounds is confirmed by the recoveries of the LCS. MS/MSD and SMC recoveries measure the effect of the sample matrix on sample preparation and measurement methodology. Known quantities of target compounds are spiked into the sample matrix for the MS/MSD, and recoveries are used to measure potential bias due to matrix effects. SMC, which are structurally similar to the targeted analytes, are used to evaluate the recovery of the target compounds, which are then used as indicators for all of the analytes. The accuracy of the LCS spike recoveries is used in conjunction with the MS/MSD when evaluating organic analyses.

Analytical completeness was quantified by reviewing the number of usable results to the total number of scheduled results. Field sample completeness was quantified by reviewing the number of samples collected to the number of samples scheduled for collection.
For clarity, the following definitions are defined for use throughout Appendix B:

- **Instrument Detection Limit (IDL)**—Defined as the lowest concentration that can be determined to be statistically different from instrument background noise (instrument blank).

- **Method Detection Limit**—The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample for a given matrix. The method detection limit for soil and aqueous media are summarized in Tables B-1 and B-2, respectively.

- **Contract Required Detection Limit/Contract Required Quantitation Limit (CRDL/CRQL)**—Minimum level of detection acceptable under the contract Statement of Work in order to ensure regulatory compliance. This terminology is widely accepted in the industry as defined by the U.S. Environmental Protection Agency (EPA) contract laboratory protocols and is a standard list of inorganic analyte concentrations and organic compound concentrations on which laboratory flags and data validation qualifiers are based. These published concentrations are meant to be above the laboratory IDLs in order to ensure a level of confidence. The published CRDLs/CRQLs are specific to the Contract Laboratory Program methodology but are often used throughout industry methods. The data user should be aware that stated CRDLs/CRQLs are generic for a method and are affected for each sample by sample size, concentration, percent solids, and dilution factors.

- **Practical Quantitation Limit**—Defined as the lowest level that can be reasonably achieved within specified units of precision and accuracy during routine laboratory operating conditions.

The following sections summarize the results of this program:

Data Quality Review		Holding Time	Field Blank Contamination	Precision		Accuracy			Completeness	
				Laboratory	Field	SMC	MS/MSD	LCS	Analytical	Field
Aqueous	VOC	✘	✓B	✓	✓J	✓J	✓	✓		
	Metals	✘	✓B	✓J	✓J	NA	✓J	✓		
Sediment	VOC	✓	NA	✓	✓J	✓J	✓	✓	86.7%✓	94%✓
	Metals	✘	✓B	✓	✓J	NA	✓J	✓J		

NOTE: ✘ = Some analyte concentrations are not usable.
✓B = The data have been affected by field blank/laboratory contamination; false-positives may exist.
✓ = The data are usable as reported based on the data quality review of this quality measurement.
✓J = The data are usable, however, some analyte concentrations should be considered estimates of the true concentrations.
NA = The quality measurement does not apply to this matrix or analytical methodology.

All VOC data are usable with the exception of the reported VOC results for the following samples: MW-217A, MW-222 RE, MW-222 DUP RE, MW-225A RE, MW-224 RE, MW-206A RE, MW-310 RE, MW-318 RE, MW-309A RE, MW-230A RE, MW-230A DUP RE, QS001 RE, QS002 RE, QD001 RE, MW-311 DL, MW-311 DUP DL, MW-205 DL, and MW-306 DL should be considered unusable based on holding time issues. For the rejected re-analyzed data, the original sample results should be used.

All inorganic data are usable with the exception of the reported mercury results for the following samples: EW-5, EW-4, EW-3, EW-2A, EW-2, EW-1, Eastern Plume Influent, Combined Effluent, Eastern Plume Influent DUP, SW-7, SW-6, SW-5, SW-4, SW-3, SW-2, SW-1, SEEP-1, SED-04, SW-5 DUP, SEEP-1 DUP, QD001, QS001, and QS002 should be considered unusable based on holding time issues.

Refer to the appropriate sections below for a detailed description of holding time issues (Section B.2), field/laboratory blank contamination (Section B.6), precision issues (Section B.3), accuracy issues (Section B.4), and analytical and field completeness (Section B.5) are provided below.

B.1.1 Field Sampling Program Quality Control

A field quality control duplicate sample was collected for each matrix (i.e., sediment and water) and analyzed for the same parameters as the environmental samples to determine field sampling precision. The potential for cross-contamination of volatile organics during sample storage and shipment was monitored by trip blanks which were shipped with each sample cooler containing aqueous samples. The trip blanks were analyzed for VOC by EPA SW-846, Method 8260B. To document the effectiveness of decontamination protocols, rinsate blank samples were taken by running de-ionized water through non-dedicated sampling equipment into the appropriate sample containers and analyzing for the same parameters as the environmental samples. In addition, a source water blank was analyzed to assess the chemical quality of the water used in the decontamination process. The source water blank was also analyzed for the same parameters as the environmental samples.

B.1.2 Laboratory Analytical Quality Control Program

Ground-water samples collected at Sites 1 and 3 and the Eastern Plume were analyzed for Target Compound List (TCL) VOC plus a library search of the first 15 tentatively identified compounds by EPA Method 8260B. Surface water, sediment, and leachate station seep and sediment samples were collected at Sites 1 and 3 for analysis of TCL VOC plus a library search of the first 15 tentatively identified compounds by EPA Method 8260B and Target Analyte List (TAL) elements, including metals by inductively coupled plasma (EPA Method 6010A), graphite furnace (EPA Method 7841 [Tl]), and mercury by cold vapor atomic adsorption (EPA Method 7471A/7470M[1]). Arsenic, selenium, and chromium were analyzed by inductively coupled plasma (EPA Method 6010) rather than graphite furnace atomic adsorption (EPA 7000 series methods) as specified in LTMP (ABB-ES 1994); the precision and accuracy objectives and reporting requirements identified in the LTMP were met. Effective November 1996, cyanide analyses were removed from the analytical program. The quality control measures specified in the SW-846 methodology (MS/MSD, SMC, LCS, and laboratory duplicates), as well as those in the QAPP, were used by the laboratory to establish proper analytical quality control.

1. To use a microwave digestion versus water bath.

The range of results for the data quality objective parameters is discussed for each sample matrix in the sections below.

B.2 SAMPLE HOLDING TIMES

Holding times (defined as from date of sample collection to date of sample preparation/analyses) were compared against the maximum holding times identified in the quality control requirements of the referenced analytical methods. The holding times were met for all methods and sample matrixes with the exception of volatile organic analyses and mercury analyses. The following tables summarize the affected samples:

Sample	Method Holding Time for VOA	Exceedance of Acceptance Criteria
EW-5 DL	14 days	13 days
EW-2A DL	14 days	18 days
EW-2 DL	14 days	18 days
EW-1 DL	14 days	18 days
Combined Effluent DL	14 days	18 days
Eastern Plume Influent DL	14 days	19 days
QT006	14 days	1 day
QD001 RE	14 days	40 days
QS001 RE	14 days	41 days
QS002 RE	14 days	41 days
SW-5 DUP RE	14 days	14 days
MW-217B DL	14 days	12 days
MW-217A	14 days	33 days
QT004	14 days	1 day
MW-222 RE	14 days	26 days
MW-222 DUP RE	14 days	26 days
MW-225A RE	14 days	26 days
MW-224 RE	14 days	26 days
MW-206A RE	14 days	26 days
MW-310 RE	14 days	27 days
MW-311 DL	14 days	25 days
MW-311 DUP DL	14 days	25 days
MW-309A RE	14 days	25 days
MW-308	14 days	17 days
MW-105B	14 days	17 days
MW-205 DL	14 days	28 days
MW-306 DL	14 days	1 day
MW-229A RE	14 days	19 days
MW-318 RE	14 days	28 days
MW-230A RE	14 days	28 days
MW-230A DUP RE	14 days	28 days

Sample	Method Holding Time for Mercury	Exceedance of Acceptance Criteria
EW-5	28 days	39 days
EW-4	28 days	39 days
EW-3	28 days	39 days
EW-2A	28 days	39 days
EW-2	28 days	39 days
EW-1	28 days	39 days
Eastern Plume Influent	28 days	39 days
Combined Effluent	28 days	39 days
Combined Effluent Dup	28 days	39 days
QD001	28 days	38 days
QS001	28 days	38 days
QS002	28 days	38 days
SW-7	28 days	38 days
SW-6	28 days	38 days
SW-5	28 days	38 days
SW-4	28 days	38 days
SW-3	28 days	38 days
SW-2	28 days	38 days
SW-1	28 days	38 days
SW-5 DUP	28 days	38 days
SEEP-1	28 days	38 days
SEEP-1 DUP	28 days	38 days
SD-7	28 days	1 day
SD-6	28 days	1 day
SD-5	28 days	1 day
SD-4	28 days	42 days
SD-3	28 days	1 day
SD-2	28 days	1 day
SD-1	28 days	1 day
SD-5 DUP	28 days	1 day
LT-1	28 days	1 day
LT-2	28 days	1 day
LT-3	28 days	1 day
LT-4	28 days	1 day
LT-5	28 days	1 day
LT-1 DUP	28 days	1 day

NOTE: DL = This suffix indicates sample reanalysis at a dilution.
RE = This suffix indicates sample reanalysis to confirm matrix interference.
DUP = This suffix indicates sample duplicate.
VOA = Volatile organic analyses.

The usability of the volatile organic data for diluted samples EW-5, MW-217B, MW-306; reanalyzed sample SW-5 DUP RE; and trip blanks QT006 and QT004 are unaffected, in that the holding time did not exceed 14 days. However, the reported volatile organic concentrations should be considered estimations of the true sample concentration for the above listed samples. The analytical results for these samples may be bias slightly low. The usability of the volatile organic data for samples MW-308 and MW-105B; diluted samples EW-2A, EW-2, EW-1, Combined Effluent, and Eastern Plume Influent; and reanalyzed sample MW-229A are unaffected, since the holding time slightly exceeded 14 days. However, the reported volatile organic concentrations should be considered estimations of the true sample concentration for the above listed samples. The analytical results for these samples may be bias low. The usability of the volatile organic data for samples MW-217A; reanalyzed samples MW-222, MW-222 DUP, MW-225A, MW-224, MW-206A, MW-310, MW-318, MW-309A, MW-230A, MW-230A DUP, rinsate blanks QS001 and QS002, and source water blank (QD001); and diluted samples MW-311, MW-311 DUP, MW-205, and MW-306 are unusable due the gross exceedance of the 14-day holding time requirement. The analytical results for these samples should not be used, instead the analytical results from the initial analysis should be used.

The usability of mercury data for SD-7, SD-6, SD-5, SD-3, SD-2, SD-1, LT-1, LT-2, LT-3, LT-4, LT-5, and the duplicates for SD-5 and LT-1 are unaffected, since the holding time did not exceed 28 days. However, the reported mercury concentrations should be considered estimations of the true sample concentration for the above listed samples. The analytical results for these samples may be bias slightly low. The mercury data for EW-5, EW-4, EW-3, EW-2A, EW-2, EW-1, Eastern Plume Influent, Combined Effluent, the duplicate for Combined Effluent, SW-7, SW-6, SW-5, SW-4, SW-3, SW-2, SW-1, SEEP-1, SD-4, and the duplicates for SW-5 and SEEP-1, source water blank (QD001), and rinsate blanks QS001 and QS002 are unusable as reported, since the holding time was grossly exceeded. The analytical results for the above mentioned samples should not be used in the evaluation process.

B.3 PRECISION

B.3.1 Volatile Organic Compounds

Five VOC were used to qualify the MS/MSD RPD. The control limits identified in the QAPP were used to evaluate the data. MS/MSD sets were performed on Samples SW-07, MW-219, and MW-217A DUP from Sites 1 and 3; Samples P-106, MW-206B, MW-208, MW-230A DUP, MW-224, MW-310, MW-307, Combined Effluent from Eastern Plume and Combined Effluent DUP; and sediment Sample SED-07 from Sites 1 and 3. In addition to the field samples mentioned above, the laboratory spiked several method blanks and LCS for both Sites 1 and 3 and Eastern Plume analyses.

The surface water, monitoring wells, and combined effluent sample MS/MSD RPDs (from Sites 1 and 3 and Eastern Plume) were within the acceptance criteria with the exception of 1,1-dichloroethene (26 percent), and trichloroethene (52 percent) in Sample P-106; 1,1-dichloroethene (17 percent) and toluene (17 percent) in Sample MW-206B;

1,1-dichloroethene (19 percent) and toluene (26 percent) in Sample MW-310; benzene (14 percent), toluene (14 percent), and chlorobenzene (16 percent) in Eastern Plume Combined Effluent. All laboratory prepared spikes (performed in both method blanks and LCS) had acceptable RPDs. The RPD for 1,1-dichloroethene, trichloroethene, toluene, benzene, and chlorobenzene in the samples mentioned above do not indicate significant imprecision, therefore, the data are usable as reported. The analytical precision was determined to be acceptable and the aqueous VOC data usable as reported based on the review of laboratory precision.

The sediment sample MS/MSD RPDs from Sites 1 and 3 met acceptance criteria, therefore, the analytical precision was determined to be acceptable and the sediment VOC data usable as reported based on the review of laboratory precision.

Though the analytical sequence and quality control requirements for matrix spike duplicates were met by the laboratory, a matrix-specific MS/MSD was not performed on the solid seep matrix, therefore, analytical precision for this matrix could not be evaluated by the data Reviewer.

B.3.2 Target Analyte List Metals

The 23 target analytes were used to quantify the laboratory duplicate RPD. There were no control limits identified in the QAPP for duplicate RPD for target analytes, therefore, EPA Region I RPD control limits were used (aqueous RPD should not exceed 20 percent; solid RPD should not exceed 35 percent) for analytes which are greater than 5 times the reporting limit. For analytes less than 5 times the reporting limit, a difference of 2 times the reporting limit for aqueous samples and a difference of 4 times the reporting limit for solid samples was used to evaluate laboratory precision.

The aqueous laboratory duplicate measurements were performed on Samples SW-07, MW-219, Eastern Plume Combined Effluent, and Eastern Plume Combined Effluent DUP. The analytical precision of the above mentioned samples was determined to be acceptable and all data are usable as reported based on the review of laboratory precision with the exception of Sample MW-219. The analytical results for calcium, iron, magnesium, and sodium in Sample MW-219 were appropriately flagged by the laboratory for non-compliance of laboratory precision criteria. The precision measurements were outside the above stated acceptance criteria. The analytical results for calcium, iron, magnesium, and sodium should be considered estimations of the true sample concentrations.

The sediment laboratory duplicate measurements were performed on Sample SED-07. The analytical results for thallium were appropriately flagged by the laboratory for non-compliance of laboratory precision criteria. However, the precision measurements were within the above stated acceptance criteria, therefore, the analytical precision was determined to be acceptable and the sediment TAL metals data usable as reported based on the review of laboratory precision.

Though the analytical sequence and quality control requirements for laboratory duplicates were met by the laboratory, a matrix-specific duplicate was not performed on the solid seep matrix, therefore, analytical precision for this matrix could not be evaluated by the data Reviewer.

B.4 ACCURACY

B.4.1 Volatile Organic Compounds

Three SMCs are normally used to measure the ability of the laboratory to purge the target analytes from the environmental samples, however, the laboratory reported an additional SMC. The SMC control limits for the aqueous and sediment samples identified in the QAPP and reported by the laboratory were identical for the first three SMC. The fourth SMC, dibromofluoromethane, was not listed in the QAPP; therefore, laboratory limits were used to evaluate the data.

The sediment SMC recoveries were within the QAPP control limits, therefore, the volatile organic analyte results are usable as reported for both Sites 1 and 3 and Eastern Plume, based on the review of SMC accuracy.

The SMC recoveries for the aqueous sample analyses were within the QAPP control limits for the three typical SMCs, with the exception of bromofluorobenzene in Samples MW-222 (75 percent), MW-222 DUP (84 percent), MW-225A (81 percent), MW-224 (83 percent), MW-206A (83 percent), MW-230A DUP (85 percent), MW-309A (70 percent), MW-318 (81 percent), MW-230A (84 percent), MW-229A (82 percent), MW-202A (72 percent), MW-217A (73 percent), MW-215R (60 percent), SW-5 (73 percent), QT-005 (85 percent), Source water blank (QD001[74 percent]), rinsate blank (QS001[72 percent]), and rinsate blank ([72 percent]) exceeded the lower control limit for the SMC (86 percent). The laboratory appropriately repeated the analysis results for these samples. The re-analysis results indicate similar results for the SMC. The original analysis results for the above mentioned samples should be considered the most usable and, therefore, the data are included in the summary tables. The data user should be aware that the low recoveries of this SMC indicate a possible low analytical bias due to sample matrix, however, the sample data should still be considered usable.

Five VOC were used to quantify the MS/MSD recoveries against QAPP control limits. The recovery limits identified in the QAPP were different than those reported by the laboratory. The data Reviewer used the QAPP limits to evaluate the data. The laboratory performed MS/MSD spikes on Samples P-106, MW-206B, MW-208, MW-230A DUP, ME-224, MW-310, MW-307, MW-217A DUP, MW-219, SED-07, and Eastern Plume Combined Effluent. In addition, the laboratory performed additional MS/MSD spikes on method blanks to support analytical precision and accuracy measurement requirements.

The aqueous and sediment MS/MSD recoveries were within the established control limits with the exception of P-106 (Eastern Plume) and a method blank. The MSD for Sample P-106 exhibited a low recovery for trichloroethene (47 percent) and the MS for the method blank

exhibited a low recovery for toluene (72 percent). The laboratory was required to perform a diluted analysis for sample P-106 in order to obtain trichloroethene concentrations within the calibration range. The laboratory performed MS/MSD on the diluted sample and all spiked compounds were compliant, therefore, the usability of the data is unaffected. The associated MS for the method blank was compliant, therefore, the exceedance is most likely due to poor laboratory spiking precision and is related to this single incident. Based on the conformance of all other MS/MSD and the accuracy of LCS recoveries, the toluene data are usable as reported.

Five VOC are used to quantify LCS recoveries against laboratory established control limits. No LCS recovery limits are stated in the QAPP. The LCS recovery limits used are provided in Appendix D. The aqueous and sediment LCS recoveries are within laboratory established control limits, confirming the laboratory's purging efficiency for both aqueous and solid matrices. Therefore, the aqueous and sediment VOC data are usable as reported based on the review of LCS accuracy.

B.4.2 Target Analyte List Metals

Nineteen TAL analytes were used to quantify MS recoveries for aqueous and sediment samples. Calcium, magnesium, potassium, and sodium were not required as spiking compounds due to the potential for these compounds to be present in the environmental samples at high concentrations. The MS samples were analyzed at the correct frequency, and the accuracy control limits used to evaluate the data were taken from the QAPP.

The laboratory performed an MS on 4 aqueous samples (Eastern Plume Combined Effluent, Eastern Plume Combined Effluent DUP, MW-219, and SW-07). The MS recoveries were within the established control limits of 75-125 percent with the exception of thallium (Eastern Plume Combined Effluent DUP [66.3 percent]). Thallium results for the Eastern Plume Combined Effluent DUP should be considered bias low due to possible matrix interferences. Sample matrices appear to have caused little or no interferences with the methodology for all other TAL metals analytes, therefore, all data are usable as reported based on the review of MS/MSD accuracy.

The laboratory performed an MS on sediment sample SED-07. The MS recoveries for sample SED-07 were within the established control limits, with the exception of antimony (33.6 percent), arsenic (58.3 percent), barium (64.2 percent), beryllium (61.6 percent), cadmium (57.8 percent), calcium (61.9 percent), chromium (64.7 percent), cobalt (61.6 percent), copper (60.2 percent), lead (57.8 percent), magnesium (70.7 percent), nickel (62.6 percent), potassium (65.3 percent), selenium (51.9 percent), silver (60.2 percent), sodium (62.4 percent), vanadium (63.3 percent), and zinc (53.5 percent). The results in Sample SED-07 should be considered to be biased low. The data user should be aware that in previous sampling events, the results of MS for both antimony and lead indicate a consistent low bias associated with matrix interference for these sediment samples (solid LCS recoveries confirm the bias to be matrix related and not associated with laboratory performance).

All 23 TAL analytes were used to quantify the LCS recoveries against laboratory established control limits. No LCS recovery limits were stated in the QAPP. The aqueous LCS recoveries for Sites 1 and 3 and Eastern Plume were within laboratory established control limits, confirming the laboratory's ability to perform sample digestion/distillation. The sediment LCS recoveries were within laboratory established control limits, with the exception of thallium (176.6 mg/Kg). The data user should consider the results for thallium in the sediment samples as estimates of the true concentrations. The aqueous and sediment results should be considered usable based on the review of the LCS accuracy.

B.5 COMPLETENESS

Field sampling completeness was quantified by comparing the number of samples analyzed to the number of samples scheduled for collection. At Sites 1 and 3, 43 of 48 samples were collected for a field completeness of 90 percent. The 5 samples not collected were: 4 dry SEEP locations (SEEP-2, SEEP-3, SEEP-4, and SEEP-5) and a dry monitoring well (MW-202B). The data user should note that MW-210A (which had a bent casing) was replaced by MW-210R, MW-216B was abandoned in-place in 1995, and 2 extraction well locations were turned off (EW-6 and EW-7) as of December 1997 (along with Sites 1 and 3 Influent).

At Eastern Plume, 36 of 36 samples were collected for a field completeness of 100 percent.

The field quality control blanks (e.g., trip blanks) were collected at the proper frequency. A total of 7 trip blanks were collected for Sites 1 and 3 and Eastern Plume. There were 2 rinsate blanks collected (associated with Sites 1 and 3). The rinsate blanks collected for Sites 1 and 3 included 1 rinsate blank associated with the sediment samples and 1 was associated with the surface water/seep samples. Rinsate blanks were not required for the Eastern Plume sampling events as dedicated equipment was used. In addition to the 2 rinsate samples, 1 source water blank for Sites 1 and 3 was submitted in compliance with the QAPP.

Analytical completeness was quantitated by reviewing the number of acceptable analytical results to the total number of analytical results. Usable analytical data for Sites 1 and 3 and Eastern Plume were available for all analytes/compounds with the exception of mercury resulting in a total analytical completeness of 98 percent.

B.6 FIELD QUALITY CONTROL BLANKS

Field quality control blanks (rinsate blanks) were evaluated for contamination that may have been introduced during field sampling activities. Trip blanks are indicators for contamination of VOC during sample shipment. In cases where contamination exists, environmental samples should be reviewed for possible false-positives. The field quality control blanks collected for this site included 7 trip blanks, 2 rinsate blanks, and 1 source water blank.

Trip blanks associated with Sites 1 and 3, and Eastern Plume were analyzed for VOC. The results of the 7 trip blanks are shown in the following table:

Compounds	Units	QT-001	QT-002	QT-003	QT-004	QT-005	QT-006	QT-008
Methylene chloride	µg/L	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).

Concentrations of methylene chloride (a common laboratory contaminant) were detected in one trip blank (QT-001) associated with Sites 1 and 3 monitoring well sampling event. The methylene chloride contamination did not affect the usability of the monitoring well samples as the concentration of this compound in the samples exceeds 5 times the trip blank concentration.

The equipment rinsate blanks associated with sediment and surface water samples collected at Sites 1 and 3 were analyzed for VOC and TAL metals. The positive results of the 2 rinsate blanks (QS-001 [dedicated jar rinsate] and QS-002 [equipment rinsate]) and the associated source water blank (QD-001) associated with Sites 1 and 3 are shown in the table below:

Compounds/Analytes	Units	QS-001	QS-002	QD-001
Methylene chloride	µg/L	0.3J	0.3J	0.4J
Chloroform	µg/L	3	4	4
Antimony	µg/L	1.1B*	1.5B*	3.2
Calcium	µg/L	114B*	150B*	55.4B*
Lead	µg/L	1.4B*	2.4B*	4.3
Potassium	µg/L	75.8B*	98.7B*	(<71.0U)
Selenium	µg/L	(<2.0U)	(<2.0U)	4.1B*
Sodium	µg/L	856B*	677B*	633B*
Thallium	µg/L	1.0B*	(<1.0U)	(<1.0U)

NOTE: J = Estimated concentration below detection limit.
B* = Analyte concentration is between the IDL and the CRDL.
U = Not detected. Sample quantitation limits are shown as (<__U).

The analytical results of the equipment rinsate blanks and source water blank indicate that there was minor VOC contamination present. Methylene chloride and chloroform were both identified in the rinsate blanks and the source water blank. Methylene chloride and chloroform results in the two mentioned samples should be considered false-positives. The rinsate blank concentrations are not significantly different from the concentrations in the source water blank. This indicates that the source of contamination is not necessarily related to the decontamination process and may be laboratory or source water related. As noted, methylene chloride and chloroform were not detected in any of the associated environmental samples and, therefore, the usability of methylene chloride and chloroform data was unaffected.

Analytes antimony, calcium, lead, potassium, selenium, thallium, and sodium were identified in Sites 1 and 3 rinsate blanks. The appearance of analytes antimony, calcium, lead, selenium, and sodium in the source water blank indicates the analytes are constituents of the rinse water and should not be considered indicators of poor field decontamination procedures. The presence of these compounds in the equipment rinsate blanks indicates a potential for these compounds to be false-positives, including selenium (which does not appear to be a residual of the source water, but rather a contaminant from the sample rinsed). Based on EPA Region I guidelines for data validation, the data Reviewer did not evaluate the effects of rinsate contamination on solid samples due to the effects of percent moisture. The data user should be aware of the potential for these analytes to be false-positives due to poor equipment decontamination and/or source water contamination, however, the analytical data require full data validation in order to truly evaluate the impact of field and/or laboratory contamination.

Antimony, lead, sodium, and selenium positive results in the aqueous surface water samples should be considered to be false-positives. Calcium in the above-mentioned samples were greater than 5 times the rinsate contamination concentration and, therefore, should be considered to be accurate concentrations.

Antimony, calcium, potassium, and sodium results in aqueous SEEP samples were greater than 5 times the rinsate contamination concentration and, therefore, should be considered to be accurate concentrations. Lead positive results in the aqueous SEEP samples should be considered to be false-positives. Selenium was not detected in any of the aqueous SEEP samples and, therefore, the usability of selenium data was unaffected.

B.7 DUPLICATE FIELD SAMPLES

Field duplicate samples are used to evaluate the overall precision for both the field and laboratory, and the homogeneity of the sample matrix. Typically, these results have more variability than laboratory precision measurements with the extremes being noted in soil matrices. Based on EPA Region I criteria for evaluating field duplicates, the following guidelines were used to review the field duplicates taken during the sampling event. The overall precision of organic compounds was evaluated as the RPD (non-detects were defined as one-half the reporting limit) and were considered acceptable at an RPD of less than 30 percent for water samples and 50 percent for soil samples. Overall precision for inorganic analytes was evaluated by reviewing the difference of the field duplicate for analytes with concentrations less than 5 times the reporting limit (the difference cannot be greater than ±2 times the reporting limit for water samples or cannot be greater than ±4 times reporting limit for soil samples), and by the RPD (less than 30 percent for water samples and 50 percent for soil samples) for the analytes greater than 5 times the reporting limit. Non-detects were defined as one-half the reporting limit for difference measurements. The reporting limits used to evaluate the data are based on those presented in the QAPP.

The sample locations of the field duplicated samples were not identified to the laboratory. A total of 12 samples were duplicated for Sites 1 and 3 and Eastern Plume (collected during the ground-water, surface water, sediment, seep, and treatment plant sampling programs). Each SDG had the appropriate number of duplicate field samples collected. The RPD results from the 8 field duplicate ground-water samples, 1 field duplicate sediment sample, 1 field duplicate surface water sample, 1 field duplicate leachate station seep sample, 1 field duplicate leachate station sediment sample, and 1 field duplicate effluent sample are shown in the tables below.

The following table shows the field duplicate results from the sediment samples associated with SDG S1SD001:

Analyte	Units	SED-3	SED-3 DUP	RPD %	Difference
2-Butanone	µg/Kg	(<20U)	9J	11	---
Acetone	µg/Kg	28	34J	19	---
Aluminum	mg/Kg	6,160	14,000	**78**	NR
Antimony	mg/Kg	0.98B*	2.3	NA	1.32
Arsenic	mg/Kg	1.7B*	3.2B*	NA	1.5
Barium	mg/Kg	41.8	127	NA	85.2
Beryllium	mg/Kg	(<0.11U)	0.29B*	NA	0.24
Calcium	mg/Kg	1,410	5,170	NA	3,760
Chromium	mg/Kg	16.0	36.6	NA	21
Cobalt	mg/Kg	3.6B*	10.6B*	NA	7
Copper	mg/Kg	5.3	14.5	NA	9.2
Iron	mg/Kg	28,200	107,000	**117**	NR
Lead	mg/Kg	4.8	14.6	NA	9.8
Magnesium	mg/Kg	2,270	5,670	NA	3,400
Manganese	mg/Kg	425	1,690	**120**	NR
Mercury	mg/Kg	0.15B*	(<0.17U)	NA	0.065
Nickel	mg/Kg	9.0	23.7	NA	14.7
Potassium	mg/Kg	1,220	32.9B*	NA	1187.1
Sodium	mg/Kg	183	349	NA	166
Thallium	mg/Kg	0.21B*	0.42B*	NA	0.21
Vanadium	mg/Kg	14.0	34.9	NA	20.9
Zinc	mg/Kg	29.6	85.2	NA	55.6

NOTE:
U = Not detected. Sample quantitation limits are shown as (<___U).
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the IDL and the CRDL.
NR = Not required; analyte concentration was greater than 5 times the reporting limit and, therefore, the RPD was applied.
NA = Not applicable; analyte concentration was less than 5 times the reporting limit.
Dashes (---) indicate this column does not apply to organic analysis.

All precision requirements were met for the field duplicate analyses with the exception of aluminum, manganese, and iron. The results for aluminum, manganese, and iron should be considered estimation of the true concentration in Sample SED-4 due to the lack of precision between field sample duplicates.

The following table shows the field duplicate results from the surface water samples associated with SDG S1QD001:

Analyte	Units	SW-3	SW-3 DUP	RPD %	Difference
Aluminum	µg/L	138B*	214	NA	76
Antimony	µg/L	(<1.0U)	1.2B*	NA	0.8
Barium	µg/L	28.5B*	27.3B*	NA	1.2
Calcium	µg/L	53,000	49,700	6	NR
Copper	µg/L	(<2.0U)	2.9B*	NA	1.9
Iron	µg/L	2,200	4,070	**60**	NR
Lead	µg/L	1.0B*	1.3B*	NA	0.3
Magnesium	µg/L	6,030	5,620	7	NR
Manganese	µg/L	549	606	10	NR
Potassium	µg/L	3,340	2,970	NA	370
Selenium	µg/L	2.6B*	(<2.0U)	NA	1.6
Sodium	µg/L	13,500	12,900	5	NR

NOTE: B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the reporting limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
NR = Not required; analyte concentration was greater than 5 times the reporting limit and, therefore, the RPD was applied.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the exception of iron. The result for iron should be considered an estimation of the true concentration.

The following two tables show the field duplicate sample results associated with the monitoring well samples at Sites 1 and 3.

The first set of field duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-217B	MW-217B DUP	RPD %	Difference
1,1-Dichloroethane	µg/L	0.7J	0.8J	13	---
Total 1,2-Dichloroethene	µg/L	5	6	18	---
Benzene	µg/L	4	5	22	---
Chlorobenzene	µg/L	2	33	**40**	---
Ethylbenzene	µg/L	1	1	0	---
Methylene chloride	µg/L	(<1.0U)	1	**67**	---
Vinyl chloride	µg/L	42D	47D	11	---
Total Xylenes	µg/L	0.5J	0.4J	22	---
Trichloroethene	µg/L	0.4J	0.5J	22	---
1,2-Dichlorobenzene	µg/L	140D	140D	0	---
1,3-Dichlorebenzene	µg/L	75D	(<1.0U)	**395**	---
1,4-Dichlorobenzene	µg/L	75D	74D	1	---
Chloroethane	µg/L	1	(<1.0U)	**67**	---
1,2-Dichloroethane	µg/L	7	8	13	---
Aluminum	µg/L	8,930	3,060	**98**	NR
Antimony	µg/L	3.3B*	1.5B*	NA	1.8
Arsenic	µg/L	6.2B*	5.2B*	NA	1.0
Barium	µg/L	158B*	113B*	NA	45
Calcium	µg/L	150,000	127,000	17	NR
Chromium	µg/L	56.1	39.9	NA	16.2
Cobalt	µg/L	17.3B*	10.3B*	NA	7
Copper	µg/L	12.8	4.2B*	NA	8.6
Iron	µg/L	3,850	3,100	22	NR
Lead	µg/L	3.8	(<1.0U)	NA	3.3
Magnesium	µg/L	53,500	42,700	22	NR
Manganese	µg/L	3,800	3,210	17	NR
Nickel	µg/L	51.9	39.5B*	NA	12.4
Potassium	µg/L	9,440	7,370	25	NR
Sodium	µg/L	246,000	200,000	21	NR
Vanadium	µg/L	14.5B*	(<3.0U)	NA	13
Zinc	µg/L	30.3	(<12U)	NA	24.3

NOTE:
J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
D = This flag indicates an analysis at a secondary dilution factor.
B* = Analyte concentration is between the IDL and the CRDL.
NR = Not required; analyte concentration was greater than 5 times the reporting limit and, therefore, the RPD was applied.
NA = Not applicable; analyte concentration was less than 5 times the reporting limit.
Dashes (---) indicate this column does not apply to organic analysis.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses; with the following exceptions: chlorobenzene, methylene chloride, 1,3-dichlorobenzene, chloroethane, and aluminum. The concentrations of these compounds (chlorobenzene, methylene chloride, 1,3-dichlorobenzene, chloroethane, and aluminum) should be considered estimations of the true concentrations in Sample MW-217B based on the exceedance of precision criteria for field duplicates. All other analyte results should be considered to be usable based on the data Reviewer's review of the field duplicates.

The second set of field duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-216	MW-216 DUP	RPD%	Difference
Total 1,2-Dichloroethene	µg/L	4	5	22	---
Benzene	µg/L	2	2	0	---
Chlorobenzene	µg/L	20	22	10	---
Vinyl Chloride	µg/L	22	23	10	---
Total Xylenes	µg/L	0.6J	0.8J	29	---
1,4-Dichlorobenzene	µg/L	7	8	13	---
Chloroethane	µg/L	(<1.0U)	0.4J	22	---
Aluminum	µg/L	88.0B*	77.2B*	NA	10.8
Barium	µg/L	12.9B*	12.3B*	NA	0.6
Calcium	µg/L	39,600	37,900	4	NR
Iron	µg/L	562	552	NA	10
Magnesium	µg/L	10,700	10,300	9	NR
Manganese	µg/L	3,830	3,710	3	NR
Potassium	µg/L	2,390	2,330	NA	60
Sodium	µg/L	20,700	19,700	5	NR

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the CRDL.
NR = Not required; analyte concentration was greater than 5 times the CRDL and, therefore, the RPD was applied.
Dashes (---) indicate this column does not apply to organic analysis.

All precision requirements were met for the field duplicate analysis; the results are usable as reported.

The following table shows the organic and inorganic field duplicate sample results associated with the aqueous seep samples in SDG S1QD001:

Analyte	Units	SEEP-1	SEEP-1 DUP	RPD %	Difference
1,1-Dichloroethane	µg/L	3	2	**40**	---
1,1,2,2-tetrachloroethane	µg/L	2	3	**40**	---
1,1,1-Trichloroethane	µg/L	2	1	**67**	---
1,1,2-Trichloroethane	µg/L	(<1.0U)	0.4J	22	---
Total 1,2-Dichloroethene	µg/L	0.5J	(<1.0U)	0	---
Aluminum	µg/L	1,460	1,630	11	NR
Antimony	µg/L	2.0B*	2.5B*	NA	0.5
Arsenic	µg/L	(<2.0U)	3.3B*	NA	2.3
Barium	µg/L	201	144B*	NA	57
Calcium	µg/L	147,000	141,000	4	NR
Cobalt	µg/L	75.8	38.7B*	NA	37.1
Copper	µg/L	6.1B*	5.2B*	NA	0.9
Iron	µg/L	110,000	58,400	**61**	NR
Lead	µg/L	12.7	14.2	NA	1.5
Magnesium	µg/L	14,400	13,900	4	NR
Manganese	µg/L	1,880	1,050	**57**	NR
Mercury	µg/L	0.18B*	0.36B*	NA	0.18
Nickel	µg/L	27.0B*	13.9B*	NA	13.1
Potassium	µg/L	3,730	3,420	NA	310
Sodium	µg/L	18,800	17,700	6	NR
Zinc	µg/L	43.5	26	NA	17.5

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
NR = Not required; analyte concentration was greater than 5 times the CRDL and, therefore, the RPD was applied.
B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the CRDL.
Dashes (---) indicate this column does not apply to organic analysis.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the following exceptions: 1,1-dichloroethane, 1,1,2,2,-tetrachloroethane, 1,1,1-trichloroethane, iron, and manganese. The concentrations of these compounds (1,1-dichloroethane, 1,1,2,2,-tetrachloroethane, 1,1,1-trichloroethane, iron, and manganese) should be considered estimations of the true concentrations in Sample SEEP-1 based on the exceedance of precision criteria for field duplicates. All other analyte results in Sample SEEP-1 should be considered to be usable based on the data Reviewer's review of the field duplicates. The lack of precision for this matrix may be indicative of sampling a low flow source.

The following table shows the results of the leachate station sediment sample field duplicate associated with S1SD001:

Analyte	Units	LT-01	LT-01 DUP	RPD %	Difference
1,2-Dichlorobenzene	µg/Kg	130	(<2.0U)	**187**	---
1,4-Dichlorobenzene	µg/Kg	110	2J	**193**	---
Acetone	µg/Kg	96	17J	**140**	---
Aluminum	mg/Kg	4,210	4,820	NA	610
Antimony	mg/Kg	6.2	0.63B*	NA	5.57
Arsenic	mg/Kg	2,210	1.9	NA	**2,208.1**
Barium	mg/Kg	171	336	NA	165
Beryllium	mg/Kg	(<0.42U)	0.38B*	NA	0.17
Cadmium	mg/Kg	(<4.2U)	0.14B*	NA	1.96
Calcium	mg/Kg	6,820	2,080	NA	**4,740**
Chromium	mg/Kg	8.3	8.6	NA	0.3
Cobalt	mg/Kg	24.4B*	24.1	NA	0.3
Copper	mg/Kg	10.9	7.1	NA	3.8
Iron	mg/Kg	504,000	12,900	**118**	NR
Lead	mg/Kg	25.1	11.3	NA	13.8
Magnesium	mg/Kg	2,980	1,690	NA	1,290
Manganese	mg/Kg	1,170	211	**139**	NR
Mercury	mg/Kg	(<0.31U)	0.52B*	NA	0.37
Nickel	mg/Kg	20.9B*	20.1	NA	0.8
Potassium	mg/Kg	553B*	759	NA	206
Selenium	mg/Kg	(<13.9U)	0.60B*	NA	6.35
Sodium	mg/Kg	846	148B*	NA	698
Vanadium	mg/Kg	3.0B*	15.2	NA	12.2
Zinc	mg/Kg	66.2	40.8	NA	25.4

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
NA = Not applicable; analyte concentration was less than 5 times the CRDL.
B* = Analyte concentration is between the IDL and the CRDL.
NR = Not required; analyte concentration was greater than 5 times the CRDL and, therefore, the RPD was applied.
Dashes (---) indicate this column does not apply to organic analysis.
Results in bold indicate an exceedance of the precision requirements.

The field duplicate precision requirements were met for all analytes with the following exceptions: 1,2-dichlorobenzene, 1,4-dichlorobenzene, acetone, arsenic, calcium, iron, and manganese. The results for arsenic, calcium, iron, and manganese should be considered estimations of the true concentration in Sample LT-1 due to the lack of precision between field sample duplicates. The exceedance of the RPD criteria for 1,2-dichlorobenzene, 1,4-dichloroethane, and acetone should not be considered to be significant as the concentrations are at or near the IDL where analytical error is expected. All other analytes are usable as reported based on the data Reviewer's review of the precision of the field duplicate. The lack of precision

for this matrix may be indicative of sampling a sediment with high moisture content due to a low flow source which penetrates the soil. All leachate samples most likely imitate the type of precision indicated by the field duplicate for LT-1 and should be considered rough estimates of the actual given concentrations of analytes at any one given time.

The following table shows the field duplicate sample results associated with the Eastern Plume monitoring well samples.

The field duplicate sample results from the samples associated with SDG EPMW001 (MW-305, MW-305 DUP, MW-230A, and MW-230A DUP) had no detected analytes (analyzed for volatile organic analytes only as per the scope of work) for organics in either sample and, therefore, met all precision requirements. The analytical results for MW-305 and MW-230A are usable as reported based on the review of the field duplicate precision.

The following table shows the field duplicate sample results from the samples associated with SDG EPMW015:

Analyte	Units	MW-311	MW-311 DUP	RPD%
1,1,1-Trichloroethane	µg/L	3,700D	3,700D	0
Trichloroethene	µg/L	980D	960	2
Tetrachloroethene	µg/L	20J	15J	29
1,1-Dichloroethene	µg/L	580	520	11
1,1-Dichloroethane	µg/L	130	120	8
1,1,2-Trichloroethane	µg/L	11J	(<25U)	29

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
D = This flag indicates an analysis at a secondary dilution factor.

All precision requirements were met for the field duplicate analyses; the results are usable as reported.

The second set of field duplicate sample results from the samples associated with SDG EPMW015 (MW-222 and MW-222 DUP) had no detected analytes (analyzed for volatile organic analytes only as per the scope of work) for organics in either sample and, therefore, met all precision requirements. The analytical results for MW-222 are usable as reported based on the review of the field duplicate precision.

The field duplicate sample results from the samples associated with SDG EPMW031 (MW-209 and MW-209 DUP) had no detected analytes (analyzed for volatile organic analytes only as per the scope of work) for organics in either sample and, therefore, met all precision requirements. The analytical results for MW-209 are usable as reported based on the review of the field duplicate precision.

The field duplicate sample results from the samples associated with SDG EPMW036 (MW-206B and MW-206B DUP) had no detected analytes (analyzed for volatile organic analytes only as per the scope of work) for organics in either sample and, therefore, met all precision requirements. The analytical results for MW-206B are usable as reported based on the review of the field duplicate precision.

The following table shows the field duplicate sample results associated with the treatment plant samples from SDG S1RI001:

Analyte	Units	Combined Effluent	Combined Effluent DUP	RPD %	Difference
1,1-Dichloroethane	µg/L	2	2	0	---
1,1,1-Trichloroethane	µg/L	300D	350D	15	---
Acetone	µg/L	3J	(5.0U)	18	---
Chloroform	µg/L	0.6J	0.5J	18	---
Arsenic	µg/L	2.2B*	(<2.0U)	NA	1.2
Calcium	µg/L	12,200	10,900	11	NR
Magnesium	µg/L	4,340	3,880	NA	460
Manganese	µg/L	42.0	37.0	NA	5
Mercury	µg/L	(<0.10U)	0.14B*	NA	0.09
Potassium	µg/L	1,370	1,350	NA	20
Selenium	µg/L	3.4B*	(<2.0U)	NA	2.4
Sodium	µg/L	10,400	9,090	13	NR

NOTE:
D = This flag indicates an analysis at a secondary dilution factor.
J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the CRDL.
NR = Not required; analyte concentration was greater than 5 times the CRDL and, therefore, the RPD was applied.
Dashes (---) indicate this column does not apply to organic analysis.

All precision requirements were met for the field duplicate analyses and, therefore, the analytical results for the Combined Effluent are usable as reported based on the review of the field duplicate precision.

B.8 METHOD DETECTION LIMITS FOR SOLID AND AQUEOUS SAMPLES

Tables B-1 and B-2 provide the method detection limits for solid samples and aqueous samples, respectively. The method detection limit represents the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample for a given matrix.

TABLE B-1 METHOD DETECTION LIMITS FOR SEDIMENT SAMPLES

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3540/8270B)			
Acenaphthene	µg/kg	140	24 JUL 96
Acenaphthylene	µg/kg	97	24 JUL 96
Anthracene	µg/kg	120	24 JUL 96
Benzidine	µg/kg	59	24 JUL 96
Benzo[a]anthracene	µg/kg	93	24 JUL 96
Benzo[b]fluoranthene	µg/kg	92	24 JUL 96
Benzo[k]fluoranthene	µg/kg	94	24 JUL 96
Benzo[a]pyrene	µg/kg	93	24 JUL 96
Benzo[ghi]perylene	µg/kg	120	24 JUL 96
Benzoic acid	µg/kg	200	24 JUL 96
Benzyl alcohol	µg/kg	82	24 JUL 96
Bis(2-chloroethyl) ether	µg/kg	110	24 JUL 96
Bis(2-chloroethoxy)methane	µg/kg	100	24 JUL 96
Bis(2-ethylhexyl) phthalate	µg/kg	94	24 JUL 96
4-Bromophenyl phenyl ether	µg/kg	120	24 JUL 96
Butylbenzylphthalate	µg/kg	89	24 JUL 96
Carbazole	µg/kg	110	24 JUL 96
4-Chloroaniline	µg/kg	85	24 JUL 96
4-Chloro-3-methylphenol	µg/kg	96	24 JUL 96
2-Chloronaphthalene	µg/kg	120	24 JUL 96
2-Chlorophenol	µg/kg	110	24 JUL 96
2-Chlorophenol-d4	µg/kg	97	24 JUL 96
4-Chlorophenyl phenyl ether	µg/kg	130	24 JUL 96
Chrysene	µg/kg	110	24 JUL 96
Cyclohexanone	µg/kg	88	24 JUL 96
Dibenzo[a,h]anthracene	µg/kg	130	24 JUL 96
Dibenzofuran	µg/kg	130	24 JUL 96
Di-n-butyl phthalate	µg/kg	150	24 JUL 96
1,2-Dichlorobenzene	µg/kg	110	24 JUL 96
1,2-Dichlorobenzene-d4	µg/kg	110	24 JUL 96
1,3-Dichlorobenzene	µg/kg	110	24 JUL 96
1,4-Dichlorobenzene	µg/kg	99	24 JUL 96
3,3'-Dichlorobenzidine	µg/kg	71	24 JUL 96
2,4-Dichlorophenol	µg/kg	82	24 JUL 96
Diethyl phthalate	µg/kg	88	24 JUL 96
4,6-Dinitro-2-Methylphenol	µg/kg	240	24 JUL 96
2,4-Dimethylphenol	µg/kg	92	24 JUL 96
Dimethyl phthalate	µg/kg	84	24 JUL 96
2,4-Dinitrophenol	µg/kg	190	24 JUL 96

(a) Determined according to the procedure specified in 40 CFR 136, Appendix B.

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3540/8270B) (Continued)			
2,4-Dinitrotoluene	µg/kg	110	24 JUL 96
2,6-Dinitrotoluene	µg/kg	110	24 JUL 96
1,2-Diphenylhydrazine	µg/kg	93	24 JUL 96
Di-n-octyl phthalate	µg/kg	85	24 JUL 96
Fluoranthene	µg/kg	150	24 JUL 96
2-Fluorobiphenyl	µg/kg	550	24 JUL 96
2-Fluorophenol	µg/kg	710	10 FEB 95
Fluorene	µg/kg	150	24 JUL 96
Hexachlorobenzene	µg/kg	110	24 JUL 96
Hexachlorobutadiene	µg/kg	110	24 JUL 96
Hexachloroethane	µg/kg	110	24 JUL 96
Hexachlorocyclopentadiene	µg/kg	95	24 JUL 96
Indeno[1,2,3-cd]pyrene	µg/kg	110	24 JUL 96
Isophorone	µg/kg	100	24 JUL 96
2-Methylnaphthalene	µg/kg	110	24 JUL 96
2-Methylphenol	µg/kg	91	24 JUL 96
3+4-Methylphenol	µg/kg	100	24 JUL 96
4-Methylphenol	µg/kg	100	24 JUL 96
Naphthalene	µg/kg	100	24 JUL 96
2-Nitroaniline	µg/kg	96	24 JUL 96
3-Nitroaniline	µg/kg	91	24 JUL 96
4-Nitroaniline	µg/kg	77	24 JUL 96
Nitrobenzene	µg/kg	100	24 JUL 96
Nitrobenzene-d_5	µg/kg	430	24 JUL 96
2-Nitrophenol	µg/kg	100	24 JUL 96
4-Nitrophenol	µg/kg	87	24 JUL 96
N-Nitrosodiphenylamine	µg/kg	87	24 JUL 96
N-Nitrosodimethylamine	µg/kg	86	24 JUL 96
N-Nitroso-di-n-propylamine	µg/kg	99	24 JUL 96
2,2'-Oxybis(1-chloropropane)	µg/kg	230	24 JUL 96
Pentachlorophenol	µg/kg	140	24 JUL 96
Phenanthrene	µg/kg	130	24 JUL 96
Phenol	µg/kg	89	24 JUL 96
Phenol-d4	µg/kg	650	24 JUL 96
Pyrene	µg/kg	76	24 JUL 96
Pyridine	µg/kg	210	24 JUL 96
Terphenyl-d_4	µg/kg	280	24 JUL 96
2,4,6-Tribromophenol	µg/kg	460	24 JUL 96
1,2,4-Trichlorobenzene	µg/kg	100	24 JUL 96
2,4,5-Trichlorophenol	µg/kg	99	24 JUL 96
2,4,6-Trichlorophenol	µg/kg	92	24 JUL 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	μg/kg	3	27 FEB 97
Acetonitrile	μg/kg	18	27 FEB 97
Acrolein	μg/kg	12	27 FEB 97
Allyl chloride	μg/kg	3	27 FEB 97
Acrylonitrile	μg/kg	14	27 FEB 97
Benzene	μg/kg	1	27 FEB 97
Bromobenzene	μg/kg	1	27 FEB 97
Bromochloromethane	μg/kg	0.8	27 FEB 97
Bromodichloromethane	μg/kg	0.9	27 FEB 97
Bromofluorobenzene	μg/kg	0.8	27 FEB 97
Bromoform	μg/kg	1	27 FEB 97
Bromomethane	μg/kg	3	27 FEB 97
2-Butanone	μg/kg	4	27 FEB 97
sec-Butylbenzene	μg/kg	1	27 FEB 97
n-Butylbenzene	μg/kg	1	27 FEB 97
tert-Butylbenzene	μg/kg	0.9	27 FEB 97
Carbon disulfide	μg/kg	2	27 FEB 97
Carbon tetrachloride	μg/kg	1	27 FEB 97
Chlorobenzene	μg/kg	0.9	27 FEB 97
Chloroethane	μg/kg	1	27 FEB 97
2-Chloroethylvinyl ether	μg/kg	4	27 FEB 97
Chloroform	μg/kg	1	27 FEB 97
1-Chlorohexane	μg/kg	2	27 FEB 97
Chloromethane	μg/kg	2	27 FEB 97
Chloroprene	μg/kg	1	09 JAN 95
2-Chlorotoluene	μg/kg	0.9	27 FEB 97
4-Chlorotoluene	μg/kg	2	27 FEB 97
Dibromochloromethane	μg/kg	0.8	27 FEB 97
1,2-Dibromo-3-chloropropane (DBCP)	μg/kg	2	27 FEB 97
1,2-Dibromoethane (EDB)	μg/kg	0.9	27 FEB 97
Dibromofluoromethane	μg/kg	1	27 FEB 97
Dibromomethane	μg/kg	1	27 FEB 97
1,2-Dichlorobenzene	μg/kg	0.9	27 FEB 97
1,3-Dichlorobenzene	μg/kg	1	27 FEB 97
1,4-Dichlorobenzene	μg/kg	1	27 FEB 97
trans 1,4-dichloro2-Butene	μg/kg	4	27 FEB 97
Dichlorodifluoromethane	μg/kg	2	27 FEB 97
1,1-Dichloroethane	μg/kg	1	27 FEB 97
1,2-Dichloroethane	μg/kg	1	27 FEB 97
1,2-Dichloroehtan-d4	μg/kg	0.8	27 FEB 97
1,1-Dichloroethene	μg/kg	2	27 FEB 97
cis-1,2-Dichloroethene	μg/kg	1	27 FEB 97

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
trans-1,2-Dichloroethene	µg/kg	2	27 FEB 97
1,2-Dichloropropane	µg/kg	4	27 FEB 97
1,3-Dichloropropane	µg/kg	1	27 FEB 97
2,2-Dichloropropane	µg/kg	2	27 FEB 97
1,1-Dichloropropene	µg/kg	1	27 FEB 97
cis-1,3-Dichloropropene	µg/kg	0.8	27 FEB 97
trans-1,3-Dichloropropene	µg/kg	0.8	27 FEB 97
Diisopropyl ether	µg/kg	2	27 FEB 97
Ethylbenzene	µg/kg	2	27 FEB 97
Ethyl acetate	µg/kg	2	27 FEB 97
Ethyl ether	µg/kg	2	27 FEB 97
Ethyl methacrylate	µg/kg	2	27 FEB 97
Hexachlorobutadiene	µg/kg	1	27 FEB 97
2-Hexanone	µg/kg	4	27 FEB 97
Iodomethane	µg/kg	0.8	27 FEB 97
Isobutyl alchol	µg/kg	40	27 FEB 97
Isopropylbenzene	µg/kg	1	27 FEB 97
p-Isopropyltoluene	µg/kg	0.9	27 FEB 97
Methacrylonitrile	µg/kg	3	27 FEB 97
Methylene chloride	µg/kg	1	27 FEB 97
Methyl methacrylate	µg/kg	2	27 FEB 97
4-Methyl-2-Pentanone	µg/kg	5	27 FEB 97
Methyl tertiary-butyl ether	µg/kg	2	27 FEB 97
Naphthalene	µg/kg	2	27 FEB 97
2-Nitropropane	µg/kg	3	27 FEB 97
Pentachloroethane	µg/kg	2	27 FEB 97
Propionitrile	µg/kg	20	27 FEB 97
n-Propylbenzene	µg/kg	1	27 FEB 97
Styrene	µg/kg	0.8	27 FEB 97
1,1,1,2-Tetrachloroethane	µg/kg	1	27 FEB 97
1,1,2,2-Tetrachloroethane	µg/kg	1	27 FEB 97
Tetrachloroethene	µg/kg	2	27 FEB 97
Tetrahydrofuran	µg/kg	4	27 FEB 97
Toluene-d_8	µg/kg	1	27 FEB 97
Toluene	µg/kg	1	27 FEB 97
1,2,3-Trichlorobenzene	µg/kg	1	27 FEB 97
1,2,4-Trichlorobenzene	µg/kg	1	27 FEB 97
1,1,1-Trichloroethane	µg/kg	1	27 FEB 97
1,1,2-Trichloroethane	µg/kg	1	27 FEB 97
Trichloroethene	µg/kg	0.9	27 FEB 97
Trichlorofluoromethane	µg/kg	2	27 FEB 97
1,2,3-Trichloropropane	µg/kg	1	27 FEB 97

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
1,1,2-Trichlorotrifluoroethane	μg/kg	3	27 FEB 97
1,2,3-Trimethylbenzene	μg/kg	2	27 FEB 97
1,2,4-Trimethylbenzene	μg/kg	1	27 FEB 97
1,3,5-Trimethylbenzene	μg/kg	1	27 FEB 97
Vinyl chloride	μg/kg	2	27 FEB 97
Vinyl acetate	μg/kg	1	27 FEB 97
m&p-Xylenes	μg/kg	2	27 FEB 97
o-Xylene	μg/kg	1	27 FEB 97
Xylenes (total)	μg/kg	2	27 FEB 97
METALS - COLD VAPOR			
Mercury	mg/kg	0.10	16 MAY 96
METALS - FURNACE (SW-846 3050/7000 SERIES)			
Antimony	mg/kg	0.1	11 JUL 97
Arsenic	mg/kg	0.1	11 JUL 97
Cadmium	mg/kg	0.1	11 JUL 97
Copper	mg/kg	0.1	11 JUL 97
Lead	mg/kg	0.1	11 JUL 97
Selenium	mg/kg	0.1	11 JUL 97
Silver	mg/kg	0.1	11 JUL 97
Thallium	mg/kg	0.1	11 JUL 97
METALS - ICP (SW-846 3050/6010A)			
Aluminum	mg/kg	6.5	11 JUL 97
Antimony	mg/kg	2.4	11 JUL 97
Arsenic	mg/kg	2.9	11 JUL 97
Barium	mg/kg	0.8	11 JUL 97
Beryllium	mg/kg	0.1	11 JUL 97
Boron	mg/kg	1.1	11 JUL 97
Cadmium	mg/kg	0.3	11 JUL 97
Calcium	mg/kg	3.9	11 JUL 97
Chromium	mg/kg	0.4	11 JUL 97
Cobalt	mg/kg	0.7	11 JUL 97
Copper	mg/kg	0.5	11 JUL 97
Iron	mg/kg	5.3	11 JUL 97
Lead	mg/kg	5.1	11 JUL 97
Lithium	mg/kg	0.2	11 JUL 97
Magnesium	mg/kg	3.5	11 JUL 97
Manganese	mg/kg	0.2	11 JUL 97
Molybdenum	mg/kg	0.5	11 JUL 97
Nickel	mg/kg	0.5	11 JUL 97

Parameter	Units	Method Detection Limit[a]	Date
METALS - ICP (SW-846 3050/6010A) (Continued)			
Potassium	mg/kg	7.1	11 JUL 97
Selenium	mg/kg	4.4	11 JUL 97
Silver	mg/kg	0.4	11 JUL 97
Sodium	mg/kg	8.1	11 JUL 97
Strontium	mg/kg	0.1	11 JUL 97
Thallium	mg/kg	5.6	11 JUL 97
Tin	mg/kg	3.4	11 JUL 97
Titanium	mg/kg	0.4	11 JUL 97
Vanadium	mg/kg	0.3	11 JUL 97
Zinc	mg/kg	1.2	11 JUL 97
METALS - TRACE ICP (SW-846 3050/6010A)			
Antimony	mg/kg	0.1	11 JUL 97
Arsenic	mg/kg	0.2	11 JUL 97
Barium	mg/kg	0.6	11 JUL 97
Beryllium	mg/kg	0.06	11 JUL 97
Cadmium	mg/kg	0.07	11 JUL 97
Chromium	mg/kg	0.07	11 JUL 97
Copper	mg/kg	0.2	11 JUL 97
Lead	mg/kg	0.1	11 JUL 97
Nickel	mg/kg	0.2	11 JUL 97
Selenium	mg/kg	0.2	11 JUL 97
Silver	mg/kg	0.1	11 JUL 97
Thallium	mg/kg	0.4	11 JUL 97

TABLE B-2 METHOD DETECTION LIMITS FOR AQUEOUS SAMPLES

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3520/8270B)			
Acenaphthene	µg/L	3.0	26 JUL 96
Acenaphthylene	µg/L	4.0	26 JUL 96
Anthracene	µg/L	4.0	26 JUL 96
Benzidine	µg/L	18.0	09 AUG 96
Benzo[a]anthracene	µg/L	3.0	26 JUL 96
Benzo[b]fluoranthene	µg/L	4.0	26 JUL 96
Benzo[k]fluoranthene	µg/L	3.0	26 JUL 96
Benzo[a]pyrene	µg/L	4.0	26 JUL 96
Benzo[ghi]perylene	µg/L	5.0	26 JUL 96
Benzoic acid	µg/L	4.0	26 JUL 96
Benzyl alcohol	µg/L	4.0	26 JUL 96
Bis(2-chloroethyl) ether	µg/L	4.0	26 JUL 96
Bis(2-chloroethoxy)methane	µg/L	4.0	26 JUL 96
Bis(2-ethylhexyl) phthalate	µg/L	7.0	08 MAR 95
4-Bromophenyl phenyl ether	µg/L	5.0	26 JUL 96
Butylbenzylphthalate	µg/L	4.0	09 AUG 96
Carbazole	µg/L	5.0	26 JUL 96
4-Chloroaniline	µg/L	5.0	26 JUL 96
4-Chloro-3-methylphenol	µg/L	4.0	26 JUL 96
2-Chloronaphthalene	µg/L	3.0	26 JUL 96
2-Chlorophenol	µg/L	3.0	26 JUL 96
2-Chlorophenol-d^4	µg/L	4.0	08 MAR 95
4-Chlorophenyl phenyl ether	µg/L	4.0	26 JUL 96
Chrysene	µg/L	3.0	26 JUL 96
Cyclohexanone	µg/L	5.0	26 JUL 96
Dibenzo[a,h]anthracene	µg/L	4.0	26 JUL 96
Dibenzofuran	µg/L	4.0	26 JUL 96
Di-n-butyl phthalate	µg/L	4.0	09 AUG 96
1,2-Dichlorobenzene	µg/L	2.0	26 JUL 96
1,2-Dichlorobenzene-d^4	µg/L	4.0	08 MAR 95
1,3-Dichlorobenzene	µg/L	3.0	26 JUL 96
1,4-Dichlorobenzene	µg/L	3.0	26 JUL 96
3,3'-Dichlorobenzidine	µg/L	4.0	26 JUL 96
2,4-Dichlorophenol	µg/L	3.0	26 JUL 96
Diethyl phthalate	µg/L	3.0	09 AUG 96
4,6-Dinitro-2-Methylphenol	µg/L	6.0	26 JUL 96
2,4-Dimethylphenol	µg/L	3.0	26 JUL 96
Dimethyl phthalate	µg/L	3.0	09 AUG 96
2,4-Dinitrophenol	µg/L	6.0	26 JUL 96
2,4-Dinitrotoluene	µg/L	4.0	26 JUL 96

(a) Determined according to 40 CFR 136 Appendix B.

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-8463520/ 8270B) (Continued)			
2,6-Dinitrotoluene	μg/L	4.0	26 JUL 96
1,2-Diphenylhydrazine	μg/L	5.0	26 JUL 96
Di-n-octyl phthalate	μg/L	4.0	26 JUL 96
Fluoranthene	μg/L	5.0	26 JUL 96
2-Fluorobiphenyl	μg/L	4.0	08 MAR 95
Fluorene	μg/L	4.0	26 JUL 96
2-Fluorophenol	μg/L	4.0	08 MAR 95
Hexachlorobenzene	μg/L	6.0	26 JUL 96
Hexachlorobutadiene	μg/L	4.0	26 JUL 96
Hexachloroethane	μg/L	3.0	26 JUL 96
Hexachlorocyclopentadiene	μg/L	2.0	09 AUG 96
Indeno[1,2,3-cd]pyrene	μg/L	4.0	26 JUL 96
Isophorone	μg/L	4.0	26 JUL 96
2-Methylnaphthalene	μg/L	3.0	26 JUL 96
2-Methylphenol	μg/L	4.0	26 JUL 96
4-Methylphenol	μg/L	4.0	26 JUL 96
3+4-Methylphenol	μg/L	4.0	26 JUL 96
Naphthalene	μg/L	3.0	26 JUL 96
2-Nitroaniline	μg/L	5.0	26 JUL 96
3-Nitroaniline	μg/L	4.0	26 JUL 96
4-Nitroaniline	μg/L	4.0	26 JUL 96
Nitrobenzene	μg/L	4.0	26 JUL 96
Nitrobenzene-d_5	μg/L	4.0	08 MAR 95
2-Nitrophenol	μg/L	3.0	26 JUL 96
4-Nitrophenol	μg/L	5.0	26 JUL 96
N-Nitrosodiphenylamine	μg/L	4.0	26 JUL 96
N-Nitrosodimethylamine	μg/L	4.0	26 JUL 96
N-Nitroso-di-n-propylamine	μg/L	4.0	26 JUL 96
2,2'-Oxybis(1-chloropropane)	μg/L	4.0	26 JUL 96
Pentachlorophenol	μg/L	5.0	26 JUL 96
Phenanthrene	μg/L	5.0	26 JUL 96
Phenol	μg/L	4.0	26 JUL 96
Pyrene	μg/L	4.0	26 JUL 96
Pyridine	μg/L	4.0	09 AUG 96
Terphenyl-d_{14}	μg/L	2.0	08 MAR 95
2,4,6-Tribromophenol	μg/L	3.0	08 MAR 95
1,2,4-Trichlorobenzene	μg/L	3.0	26 JUL 96
2,4,5-Trichlorophenol	μg/L	3.0	26 JUL 96
2,4,6-Trichlorophenol	μg/L	3.0	26 JUL 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	µg/L	3.0	28 JAN 98
Allyl chloride	µg/L	0.4	28 JAN 98
Benzene	µg/L	0.3	28 JAN 98
Bromobenzene	µg/L	0.2	28 JAN 98
Bromochloromethane	µg/L	0.2	28 JAN 98
Bromodichloromethane	µg/L	0.4	28 JAN 98
Bromofluorobenzene	µg/L	0.3	15 NOV 96
Bromoform	µg/L	0.2	28 JAN 98
Bromomethane	µg/L	0.7	28 JAN 98
2-Butanone	µg/L	0.4	28 JAN 98
sec-Butylbenzene	µg/L	0.4	28 JAN 98
n-Butylbenzene	µg/L	0.4	28 JAN 98
tert-Butylbenzene	µg/L	0.3	28 JAN 98
Carbon disulfide	µg/L	0.4	28 JAN 98
Carbon tetrachloride	µg/L	0.4	28 JAN 98
Chlorobenzene	µg/L	0.2	28 JAN 98
Chloroethane	µg/L	0.6	28 JAN 98
2-Chloroethylvinyl ether	µg/L	0.9	28 JAN 98
Chloroform	µg/L	0.2	28 JAN 98
1-Chlorohexane	µg/L	0.2	28 JAN 98
Chloromethane	µg/L	0.7	28 JAN 98
2-Chlorotoluene	µg/L	0.3	28 JAN 98
4-Chlorotoluene	µg/L	0.3	28 JAN 98
Dibromochloromethane	µg/L	0.2	28 JAN 98
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	0.3	28 JAN 98
1,2-Dibromoethane (EDB)	µg/L	0.3	28 JAN 98
Dibromofluoromethane	µg/L	0.3	15 NOV 96
Dibromomethane	µg/L	0.5	28 JAN 98
1,2-Dichlorobenzene	µg/L	0.2	28 JAN 98
1,3-Dichlorobenzene	µg/L	0.3	28 JAN 98
1,4-Dichlorobenzene	µg/L	0.3	28 JAN 98
trans 1,4-dichloro2-Butene	µg/L	0.3	28 JAN 98
Dichlorodifluoromethane	µg/L	0.7	28 JAN 98
1,1-Dichloroethane	µg/L	0.4	28 JAN 98
1,2-Dichloroethane	µg/L	0.2	28 JAN 98
1,2-Dichloroehtane-d_4	µg/L	0.2	15 NOV 96
1,1-Dichloroethene	µg/L	0.6	28 JAN 98
cis-1,2-Dichloroethene	µg/L	0.2	28 JAN 98
trans-1,2-Dichloroethene	µg/L	0.5	28 JAN 98
1,2-Dichloropropane	µg/L	0.4	28 JAN 98
1,3-Dichloropropane	µg/L	0.2	28 JAN 98

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
2,2-Dichloropropane	µg/L	0.4	28 JAN 98
1,1-Dichloropropene	µg/L	0.4	28 JAN 98
cis-1,3-Dichloropropene	µg/L	0.4	28 JAN 98
trans-1,3-Dichloropropene	µg/L	0.3	28 JAN 98
Ethylbenzene	µg/L	0.3	28 JAN 98
Ethyl acetate	µg/L	0.3	28 JAN 98
Ethyl ether	µg/L	0.3	28 JAN 98
Ethyl methacrylate	µg/L	0.3	28 JAN 98
Hexachlorobutadiene	µg/L	0.4	28 JAN 98
Iodomethane	µg/L	0.3	28 JAN 98
Isobutyl alchol	µg/L	0.3	15 NOV 96
Isopropylbenzene	µg/L	0.4	28 JAN 98
p-Isopropyltoluene	µg/L	0.3	28 JAN 98
Methacrylonitrile	µg/L	0.6	28 JAN 98
Methylene chloride	µg/L	0.5	28 JAN 98
Methyl methacrylate	µg/L	0.2	28 JAN 98
4-Methyl-2-Pentanone	µg/L	1.2	28 JAN 98
Methyl tertiary-butyl ether	µg/L	0.3	28 JAN 98
Naphthalene	µg/L	0.2	28 JAN 98
Pentachloroethane	µg/L	0.2	28 JAN 98
n-Propylbenzene	µg/L	0.3	28 JAN 98
Styrene	µg/L	0.3	28 JAN 98
1,1,1,2-Tetrachloroethane	µg/L	0.2	28 JAN 98
1,1,2,2-Tetrachloroethane	µg/L	0.2	28 JAN 98
Tetrachloroethene	µg/L	0.3	28 JAN 98
Toluene-d_8	µg/L	0.3	15 NOV 96
Toluene	µg/L	0.5	28 JAN 98
1,2,3-Trichlorobenzene	µg/L	0.3	28 JAN 98
1,2,4-Trichlorobenzene	µg/L	0.4	28 JAN 98
1,1,1-Trichloroethane	µg/L	0.3	28 JAN 98
1,1,2-Trichloroethane	µg/L	0.4	28 JAN 98
Trichloroethene	µg/L	0.4	28 JAN 98
Trichlorofluoromethane	µg/L	0.7	28 JAN 98
1,2,3-Trichloropropane	µg/L	0.7	28 JAN 98
1,1,2-Trichlorotrifluoroethane	µg/L	0.4	28 JAN 98
1,2,3-Trimethylbenzene	µg/L	0.2	28 JAN 98
1,2,4-Trimethylbenzene	µg/L	0.3	28 JAN 98
1,3,5-Trimethylbenzene	µg/L	0.4	28 JAN 98
Vinyl chloride	µg/L	0.6	28 JAN 98
Vinyl acetate	µg/L	0.3	28 JAN 98
m&p-Xylenes	µg/L	0.6	28 JAN 98
o-Xylene	µg/L	0.2	28 JAN 98

Parameter	Units	Method Detection Limit[a]	Date
METALS - COLD VAPOR (SW-846 7470S)			
Mercury	μg/L	0.10	24 APR 97
METALS - FURNACE (SW-846 7000 SERIES)			
Antimony	μg/L	1.0	11 JUL 97
Arsenic	μg/L	1.0	11 JUL 97
Cadmium	μg/L	1.0	11 JUL 97
Copper	μg/L	1.0	11 JUL 97
Lead	μg/L	1.0	11 JUL 97
Selenium	μg/L	1.0	11 JUL 97
Silver	μg/L	1.0	11 JUL 97
Thallium	μg/L	1.0	11 JUL 97
METALS - ICP (SW-846 3010/6010)			
Aluminum	μg/L	65	11 JUL 97
Antimony	μg/L	24	11 JUL 97
Arsenic	μg/L	29	11 JUL 97
Barium	μg/L	8.0	11 JUL 97
Beryllium	μg/L	1.0	11 JUL 97
Boron	μg/L	11.0	11 JUL 97
Cadmium	μg/L	3.0	11 JUL 97
Calcium	μg/L	39.0	11 JUL 97
Chromium	μg/L	4.0	11 JUL 97
Cobalt	μg/L	7.0	11 JUL 97
Copper	μg/L	5.0	11 JUL 97
Iron	μg/L	53	11 JUL 97
Lead	μg/L	51	11 JUL 97
Lithium	μg/L	2.0	11 JUL 97
Magnesium	μg/L	35	11 JUL 97
Manganese	μg/L	2.0	11 JUL 97
Molybdenum	μg/L	5.0	11 JUL 97
Nickel	μg/L	5.0	11 JUL 97
Potassium	μg/L	71	11 JUL 97
Selenium	μg/L	44	11 JUL 97
Silicon	μg/L	105	11 JUL 97
Silver	μg/L	4.0	11 JUL 97
Sodium	μg/L	81.0	11 JUL 97
Strontium	μg/L	1.0	11 JUL 97
Thallium	μg/L	56	11 JUL 97
Tin	μg/L	34	11 JUL 97
Titanium	μg/L	4.0	11 JUL 97
Vanadium	μg/L	3.0	11 JUL 97
Zinc	μg/L	12	11 JUL 97

Parameter	Units	Method Detection Limit[a]	Date
METALS - TRACE ICP (SW-846 6010)			
Antimony	μg/L	1.0	11 JUL 97
Arsenic	μg/L	2.0	11 JUL 97
Barium	μg/L	6.0	11 JUL 97
Beryllium	μg/L	0.6	11 JUL 97
Cadmium	μg/L	0.6	11 JUL 97
Chromium	μg/L	0.7	11 JUL 97
Copper	μg/L	2.0	11 JUL 97
Lead	μg/L	1.0	11 JUL 97
Nickel	μg/L	2.0	11 JUL 97
Selenium	μg/L	2.0	11 JUL 97
Silver	μg/L	1.0	11 JUL 97
Thallium	μg/L	4.0	11 JUL 97