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Final Report

Monitoring Event 8 - March 1997
Sites 1 and 3 and Eastern Plume,
Naval Air Station, Brunswick, Maine

Volume 1 of 2
Text through Appendix C

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
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7/16/97
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7/16/97
Date

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QUALITY REVIEW STATEMENT

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Final Report, Monitoring Event 8 - March 1997, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine

EA CTO Manager: Michael S. Battle, P.G.

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.

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1. PROJECT ACTIVITIES

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 required to perform 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. A 5-year review evaluation will provide a basis for continued sampling and proposing 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. 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 VOC and inorganics from the ground water prior to discharge.

This report provides the results for the March 1997 monitoring/sampling event (Monitoring Event 8). Bi-monthly water level gauging data collected during January 1997 are also discussed in this report. A discussion of temporal trends and other observations based on data collected during tri-annual monitoring will be presented in the Annual Report for 1997.

1.2 MEASUREMENT OF WATER LEVEL ELEVATIONS

Water level measurements were obtained during Monitoring Event 8 on 5-6 March 1997 at the well, piezometer, 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 8-9 January 1997 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, 16 EP-series piezometers, 10 P-series piezometers, 7 ground-water extraction wells, and 6 surface water gauging stations. Data were collected from the 6 surface water gauging points (GP-01 to 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 8, 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.

Water elevation data were collected during a period of consistent weather conditions, with no precipitation noted during the January 1997 gauging period and light precipitation (dusting of snow) noted during the March 1997 gauging period.

Water level data were not obtained from MW-216B because it was abandoned in-place in 1995. Artesian conditions were noted in MW-207A during the January 1997 well gauging event and at MW-309A during the January 1997 and March 1997 well gauging events.

Figure 3 provides the locations of ground-water monitoring wells, piezometers, extraction wells, and surface water gauging stations 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).

1.3 GROUND-WATER MONITORING, SAMPLING, AND ANALYSIS

The ground-water sampling program was performed during the period of 13-20 March 1997 and 8-9 April 1997, in accordance with the general methodologies established in the LTMP (ABB-ES 1994). Four wells that were found to be frozen during Monitoring Event 8 (MW-105A, MW-207A, MW-309B, and MW-311) were sampled on 8-9 April 1997. 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.

Ground-water samples were collected from 16 of 19 well locations and at 1 of 2 extraction wells included in the long-term monitoring program at Sites 1 and 3. Well MW-202B did not yield enough water for sample collection. Well MW-210A had a bent well riser which did not permit entry of the sampling pump, and thus could not be sampled. Well MW-216B has been abandoned. Extraction well EW-6 was offline during sampling activities and, thus, no ground-water sample was collected.

At the Eastern Plume site, ground-water samples were collected from 36 of 36 wells and piezometers, and 5 of 5 extraction wells. Three sampling locations were removed from the long-term monitoring program as of Monitoring Event 7; these included P-111, P-112, and P-132. These locations were frequently dry or yielded highly turbid samples. Samples were collected from the treatment system combined influent and combined effluent to confirm that the facility is

operating effectively and that the effluent meets discharge requirements specified in the LTMP (ABB-ES 1994). Three wells/piezometers located in the Eastern Plume were sampled using a peristaltic pump, including MW-105A, P-105, and P-106.

Tables 1 and 2 provide summaries of the wells/piezometers gauged and sampled as part of the long-term monitoring program. Figure 4 provides a schematic of a typical dedicated submersible pump assembly installed in a monitoring well. A detailed description of sample collection methods is provided in the final report for Monitoring Event 4 (EA 1996).

1.3.1 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 achieved when measurements agreed to within 10 percent on three successive readings. Although not required by the LTMP, oxidation-reduction potential (Eh) was recorded for informational purposes.

At Sites 1 and 3, 15 of 16 wells sampled reached equilibrium of the water quality indicator parameters prior to sampling, although turbidity was in excess of 10 nephelometric turbidity units (NTU) at 5 wells (MW-202A, MW-210B, MW-217A, MW-218, and MW-220). Monitoring well MW-217B had two water quality parameters (turbidity and temperature) which did not stabilize to within 10 percent on three successive readings. The flow had to be adjusted during each 5-minute interval at MW-217B, which may have been the cause for it not stabilizing. This monitoring well has had similar results in previous sampling events. At the Eastern Plume site, 34 of 36 wells/piezometers reached equilibrium of the water quality indicator parameters during well purging. Two monitoring wells had one water quality indicator parameter which did not stabilize to within 10 percent on three successive readings (MW-307 [turbidity] and MW-319 [pH]). Twelve of the 36 wells/piezometers sampled reached equilibrium with turbidity measurements in excess of 10 NTU. Elevated dissolved oxygen concentrations (>9.0 mg/L) were noted at 2 of 16 wells sampled at Sites 1 and 3, and 9 of 36 wells/piezometers sampled at the Eastern Plume. However, in general, water quality indicator parameter measurements recorded during Monitoring Event 8 were comparable to those measured during Monitoring Event 7.

1.3.2 Analytical Program

Ground-water samples collected from Sites 1 and 3 and the Eastern Plume were submitted for analysis of Target Compound List (TCL) volatile organic compounds (VOC) plus a library search of 15 tentatively identified compounds 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.

1.4 SURFACE WATER, SEDIMENT, AND SEEP SAMPLING AND ANALYSIS

The surface water, sediment, leachate seep, and leachate seep sediment samples at Sites 1 and 3 were collected on 12 March 1997, in accordance with the general methodologies established in the LTMP (ABB-ES 1994). Exceptions to sampling activities specified in the LTMP during Monitoring Event 8 included:

- Leachate station seep samples were collected at 3 of 5 planned locations at the toe of the Sites 1 and 3 landfill footprint. Two seep sampling stations (SEEP-1 and SEEP-2) were frozen at the time of sampling.

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

Surface water, sediment, and leachate station seep and sediment samples were collected for analysis of TCL VOC plus a library search of 15 tentatively identified compounds 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.

1.5 LANDFILL GAS MONITORING AND CAP INSPECTION

Gas probe monitoring was conducted at Sites 1 and 3 on 19 March 1997 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 3 gas probes (GP-04, GP-05, and 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 incomplete impact barriers.

An engineering inspection was performed on the landfill cap for Sites 1 and 3 on 19 March 1997. There was no erosion, differential settlement, slope failure, or soil cracking noted. There was no stressed vegetation or animal burrowing observed. The existing monitoring wells and gas probes were reported in good condition.

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 March 1997 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 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. Note that these values are presented rather than practical quantitation limits used in previous monitoring event reports.

2. MONITORING EVENT RESULTS

2.1 WATER LEVEL GAUGING

Ground-water potentiometric elevations were measured on 8-9 January 1997 (bi-monthly data) and 5-6 March 1997 (Monitoring Event 8 data) at Sites 1 and 3 and the Eastern Plume. 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 8, 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 well (P-123) was blocked and no water elevation could be obtained. Artesian conditions were noted at MW-207A during the 8-9 January 1997 well gauging event, and at MW-309A during the 8-9 January and 5-6 March 1997 well gauging events. All 7 extraction wells (EW-1 through EW-7) were in operation at the time water table elevation data were collected on 5-6 March 1997. Pumping rates at each of the extraction wells at the time of water level gauging on 5-6 March 1997 were as follows: EW-1 (15 gal per minute [gpm]), EW-2 (25 gpm), EW-3 (35 gpm), EW-4 (25 gpm), EW-5 (19 gpm), EW-6 (1 gpm), and EW-7 (3 gpm). Daily pumping rates for each extraction well for the period 1 January through 31 March 1997 are provided in Table 5.

Shallow and deep potentiometric surface contour maps were prepared based on the water level data collected on 8-9 January and 5-6 March 1997. 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 a 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. Note that previous monitoring event reports did not distinguish between shallow and deep intervals based on lithology, but instead on the depth of the screened interval. This revised definition of shallow and deep intervals was made to provide consistency with previous reports (ABB-ES 1993), and does not affect the accuracy of previous potentiometric surface maps. The interpreted ground-water flow direction for the 8-9 January and 5-6 March 1997 gauging events are shown on Figures 5 and 6, respectively, for the shallow portions of the aquifer, and Figures 7 and 8, respectively, for the deep portions of the aquifer.

Anomalous water elevations were noted at shallow wells MW-209 and MW-234R during the 8-9 January 1997 gauging event (Tables 3 and 4). The anomalous elevation data were significantly different in comparison with previous gauging events, possibly due to equipment or measurement error. The gauging data for these anomalous data were not used during the generation of Figures 5 through 8. Wells MW-210A and MW-211A, located at Sites 1 and 3, are

screened in bedrock. 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 potentiometric surface contour maps.

The predominant direction of ground-water flow in the shallow portion of the aquifer is to the east-southeast, toward Mere Brook and Merriconeag Stream. Potentiometric surface elevations at shallow monitoring points measured on 8-9 January and 5-6 March 1997 near extraction wells EW-1 and EW-3 show a notable effect of pumping at these extraction wells. A depression in the shallow potentiometric surface near EW-1 extends to the northwest toward Sites 1 and 3. The combination of the emplacement of the slurry wall at Sites 1 and 3, which is approximately 90-ft deep and is keyed into natural clay, and active pumping at extraction wells EW-1, EW-6, and EW-7, have created a ground-water trough located southeast of Site 1 (Figures 5 and 6).

The deep ground-water flow pattens indicate ground-water flow is predominantly toward the south-southeast. Well gauging data collected on 8-9 January and 5-6 March 1997 (Figures 7 and 8) indicate that the majority of drawdown due to the operation of extraction wells EW-1 through EW-5 was observed in the shallow overburden monitoring wells. Wells screened in the deep portion of the aquifer (in the deep coarse sand interval) experienced limited drawdown due to pumping from the extraction wells.

At Sites 1 and 3, a comparison of water elevation data collected in May 1995 (prior to emplacement of the slurry wall) and water elevation data collected on 5-6 March 1997 indicates water elevations have decreased within the confines of the slurry wall. Potentiometric head decreased in shallow well MW-211B by 9.61 ft. Potentiometric heads decreased in deep wells MW-216A and MW-232A by 7.86 and 9.29 ft, respectively. Comparison of water elevations in well MW-2101 located outside the confines of the slurry wall and well MW-211B located within the confines of the slurry wall indicate an average potentiometric head difference of 9.72 ft is present between these wells. These changes are likely due to the emplacement of the slurry wall and landfill cap at Sites 1 and 3. 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 March 1997 at monitoring well MW-234R was 34.90 ft mean sea level, which is approximately 2 ft above the bottom of the waste material.

A comparison of the shallow and deep potentiometric head contours indicates that, in general, there is increasing head with depth (upward vertical flow component) in low lying areas, such as near the Merriconeag Stream and Mere Brook. However, a decreasing potentiometric head with depth (downward vertical flow component) is generally observed in upland areas, such as near the Weapons Compound (Building No. 539) and south of Mere Brook.

Based on the 5-6 March 1997 well gauging data, the hydraulic gradient for the shallow portion of the aquifer shows variation across the study area. The hydraulic gradient ranges from 0.032 ft/ft in the central portion of the study area (from MW-307 to MW-224), with higher gradients measured

in the vicinity of the extraction wells. In the deep portion of the aquifer, the hydraulic gradient exhibits less variation and averages approximately 0.010 ft/ft, as measured parallel to the general southeasterly ground-water flow direction (from EP-8 to EP-4).

Artesian conditions were noted at 1 well (MW-207A) during the 8-9 January 1997 gauging event and at 2 wells (MW-207A and MW-309A) during the 5-6 March 1997 gauging event. These wells are screened in the lower coarse sand unit and are located near Merriconeag Stream, where ground surface elevations are less than deep potentiometric head elevations.

Observations regarding well integrity and well condition were made during the well gauging program. Throughout Sites 1 and 3 and the Eastern Plume, 5 locations were found to be unlocked, including 4 piezometers and 1 monitoring well. The lock was replaced on 1 piezometer (P-105). The 3 remaining piezometers and 1 monitoring well cannot be locked due to well casing construction. All wells were labeled. The five offsite wells gauged during Monitoring Event 8 were unlocked.

2.2 WATER QUALITY INDICATOR PARAMETERS

Water quality indicator parameters were measured during the collection of ground-water, surface water, and leachate seep samples according to the methods specified in the LTMP (ABB-ES 1994). The 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.

2.2.1 Sites 1 and 3 and Eastern Plume

Notable results of water quality indicator parameter measurements include:

- With the exception of 1 well (MW-217B, 782 NTU), turbidity did not exceed 50 NTU in any other wells at Sites 1 and 3.

- Elevated levels of conductivity and turbidity were measured at MW-217B, and elevated conductivity was measured at MW-218 compared to other wells at Sites 1 and 3. Elevated conductivity and turbidity are frequently reported at these locations; these elevated results may be due to the location of these wells within or near the landfill.

- At the Eastern Plume, turbidity values below 10 NTU were recorded at 24 of 36 monitoring wells and piezometers sampled. Turbidity values stabilized at all locations prior to sample collection, with the exception of monitoring well MW-307.

- Elevated dissolved oxygen concentrations (>9.0 μg/L) were noted in 9 wells at the Eastern Plume: MW-105A (10.26 mg/L), MW-105B (10.06 mg/L), MW-106 (10.66 mg/L), MW-206B (10.09 mg/L), MW-209 (10.96 mg/L), MW-222 (11.15 mg/L), MW-223 (9.85 mg/L), MW-225B (11.01 mg/L), and MW-231B (10.48 mg/L). All but one of these wells (MW-105A) is screened within the unconfined upper stratified sand/silt transition unit; all of the wells are located along the western-southern portions of the Easter Plume.

Surface water and leachate seep sample water quality indicator parameter measurements are summarized in Table 7. Turbidity in surface water showed little variability with distance from the landfill. Lower overall values were observed in surface water samples during Monitoring Event 8 in comparison with Monitoring Event 7 (November 1996). Elevated turbidity was observed at the 3 leachate seep samples (Table 8).

2.2.2 Ground-Water Extraction and Treatment System

Six ground-water samples were collected from the extraction well network at Sites 1 and 3 and the Eastern Plume. In addition, combined influent and treated effluent water samples were collected from the ground-water extraction and treatment system. Table 8 summarizes the water quality indicator parameter measurements recorded at these locations. Notable results of water quality indicator parameters measured during Monitoring Event 8 include:

- The turbidity of ground water extracted at EW-7 was recorded at >1,000 NTU. The elevated turbidity may be attributable to clogged lines which were subsequently cleaned.

- 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.

Water quality data measured during Monitoring Event 8 indicated lower pH and conductivity values, and nominally higher turbidity and redox potential values, for extracted ground water in comparison to water quality measurements recorded during Monitoring Event 7 (November 1996).

2.3 GROUND WATER

2.3.1 Sites 1 and 3

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

A total of 18 VOC were reported at detectable concentrations at Sites 1 and 3 monitoring wells. VOC were reported in 6 of the 14 monitoring wells sampled at Sites 1 and 3 during the March 1997 sampling event. The majority of VOC were reported at concentrations less than 5 μg/L. No VOC were reported in samples collected at the following 8 wells: MW-204, MW-210B, MW-217A, MW-219, MW-220, MW-232A, MW-234R, and MW-2101.

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 at a concentration of 9 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 the Federal MCL of 2 μg/L: MW-215R (2 μg/L), MW-216A (4 μg/L), and MW-217B (12 μg/L).

- 1,4-Dichlorobenzene was reported in MW-217B at a concentration of 110 μg/L, which exceeds the State MEG of 27 μg/L and Federal MCL of 75 μg/L.

A total of 15 target analytes were reported in ground-water samples collected from Sites 1 and 3 wells. Target analytes were reported in all Sites 1 and 3 monitoring wells. Target analytes reported above primary Federal MCL and State MEG in ground water are summarized below:

- Arsenic was reported at a concentration of 131 μg/L in MW-218, which exceeds the Federal MCL of 50 μg/L.

- Manganese was reported in 6 ground-water samples at concentrations above the State MEG of 200 μg/L.

Analytes which reported concentrations above corresponding primary Federal MCL and State MEG were also elevated compared with reported concentrations at MW-2101, located upgradient of the landfill at Sites 1 and 3. Four wells which reported elevated turbidity (greater than

10 NTU) also reported elevated concentrations of inorganics, including MW-202A, MW-217B, MW-218, and MW-220.

2.3.2 Eastern Plume

Table 10 provides a summary of the analytical results for the ground-water samples collected at the Eastern Plume. Appendix C provides a summary table for tentatively identified VOC reported in the samples. The summary tables (Form Is) for these analyses are provided in Appendix D.

A total of 11 VOC were reported at detectable concentrations at Eastern Plume wells. VOC were reported in 17 of 36 samples. 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 3 wells/piezometers: MW-311 (11,000 μg/L), P-105 (2,400 μg/L), and P-106 (3,600 μg/L).

- Methylene chloride was reported above the Federal MCL of 5 μg/L in MW-311 at 46 μg/L. It should be noted that the results reported are from the undiluted analyses as the analyte was diluted below the detection limit in the diluted sample; the value reported should be considered an estimation of the true concentration.

- Trichloroethene was reported above the State MEG of 5 μg/L and Federal MCL of 5 μg/L in samples collected from 12 wells/piezometers (MW-205, MW-206A, MW-207A, MW-208, MW-225A, MW-229A, MW-306, MW-311, MW-319, P-105, P-106, and MW-NASB-212).

- Tetrachloroethene was reported above the State MEG of 3 μg/L and/or Federal MCL of 5 μg/L in samples collected from 8 wells/piezometers (MW-205, MW-207A, MW-208, MW-229A, MW-311, MW-319, P-105, and P-106).

- 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, MW-306, MW-311, P-105, and P-106).

- 1,1-Dichloroethane was reported above the State MEG of 70 μg/L in 1 sample (MW-311, 171 μg/L). It should be noted that the results reported are from the undiluted analyses as the analyte was diluted below the detection limit in the diluted sample. The value reported should be considered an estimation of the true concentration.

- 1,1,2-Trichloroethane was reported above the State MEG of 3 μg/L and/or Federal MCL of 5 μg/L in samples collected from 3 wells/piezometers: MW-311, P-105, and P-106.

- 1,2-Dichloroethane was reported above the State MEG of 5 μg/L and Federal MCL of 5 μg/L in samples collected from 2 wells/piezometers (MW-311 and P-105).

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 distinct area within the Sites 1 and 3 landfill: in the vicinity of MW-217B. Areas in Sites 1 and 3, including near wells MW-215R, MW-210B, and MW-202A, also reported similar exceedances. The approximate locations of these areas generally coincide with areas showing interpreted total VOC concentrations greater than or equal to 100 μg/L.

A review of total VOC concentration isocontours for wells screened within the deep interval (semi-confined coarse sand unit) at Site 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 show 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 to EW-4. The second area in the Eastern Plume extends from EW-3 southeast toward MW-311 and south toward EW-1. Exceedances of State MEGs and/or Federal MCLs at Sites 1 and 3 were reported in the vicinity of extraction well EW-7 and extends north to monitoring well MW-216A. The inferred area with concentrations above State MEG and Federal MCL extends beyond the interpreted total VOC concentrations greater than or equal to 100 μg/L.

Perimeter Monitoring Wells

Perimeter monitoring wells at Sites 1 and 3 and the Eastern Plume include MW-231A, MW-231B, MW-318, MW-313, MW-311, MW-309A, MW-309B, and MW-305. The majority of perimeter monitoring wells (MW-231A, MW-231B, MW-305, MW-309A, MW-309B, MW-318, and MW-313) reported no concentrations of VOC. One perimeter monitoring well at Sites 1 and 3 (MW-218) reported elevated concentrations of arsenic above Federal MCL. One perimeter monitoring well located in the southeast portion of the Eastern Plume (MW-311) reported concentrations of 8 VOC above corresponding State MEG or Federal MCL.

2.3.3 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. Appendix C provides a summary table for tentatively identified VOC reported in the samples. Laboratory data (Form I documents) are provided in Appendix D.

A total of 18 VOC were reported at detectable concentrations from extraction well and treatment system samples. VOC were reported in all extraction well and treatment system samples.

There were no exceedances of the ground-water treatment plant discharge limits for VOC reported in the combined effluent sample.

A total of 12 target analytes were reported in extraction well and treatment system samples. Target analytes were reported in all extraction well and treatment system samples. There were no target analytes reported at concentrations exceeding the ground-water treatment system discharge limits.

2.4 SURFACE WATER

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

No VOC were reported in any of the surface water samples and the associated equipment rinsate blank. A total of 11 target analytes were reported in surface water samples. Elevated concentrations of iron, calcium, magnesium, manganese, and potassium 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.

2.5 SEDIMENT

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

A total of 6 VOC were reported in the sediment samples. A majority of the VOC were reported in the sediment sample collected at SED-6. The only VOC identified as a constituent of concern (1,1,2,2-tetrachloroethene) was not reported in any of the 7 sediment samples. No VOC were reported in SED-4 or SED-5. A total of 21 target analytes were reported in sediment samples. All sediment samples reported detectable concentrations of target analytes.

2.6 LEACHATE STATION SAMPLES

2.6.1 Seep

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

A total of 14 VOC were reported in leachate station seep samples at low concentrations. VOC were reported at detectable concentrations in the 3 leachate station samples. One VOC (methylene chloride) was reported in seep sample SEEP-04, equipment rinsate blank, and the source water blank; this compound is considered a sampling artifact. A total of 19 target analytes were reported in seep samples. Each of the 3 seep samples reported detectable concentrations of target analytes. The highest concentrations of target analytes were reported in SEEP-4.

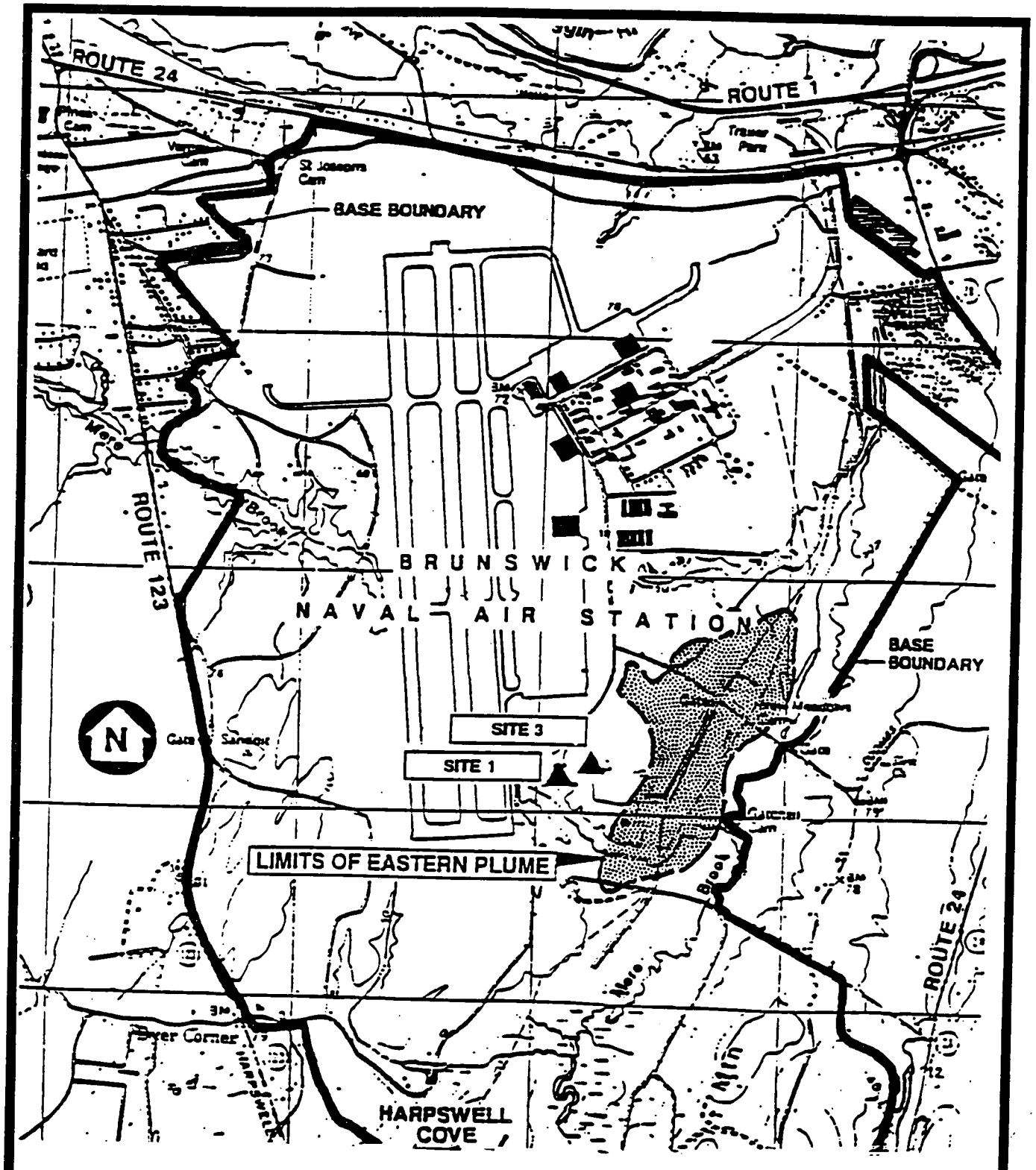
2.6.2 Sediment

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

A total of 4 VOC were reported in leachate station sediment samples. VOC were reported in 3 of 5 leachate station sediment samples. A total of 19 target analytes were reported in leachate station sediment samples. Target analytes were reported in all leachate station sediment samples. Mercury was not detected above 1.0 ppm at any of the sampling locations.

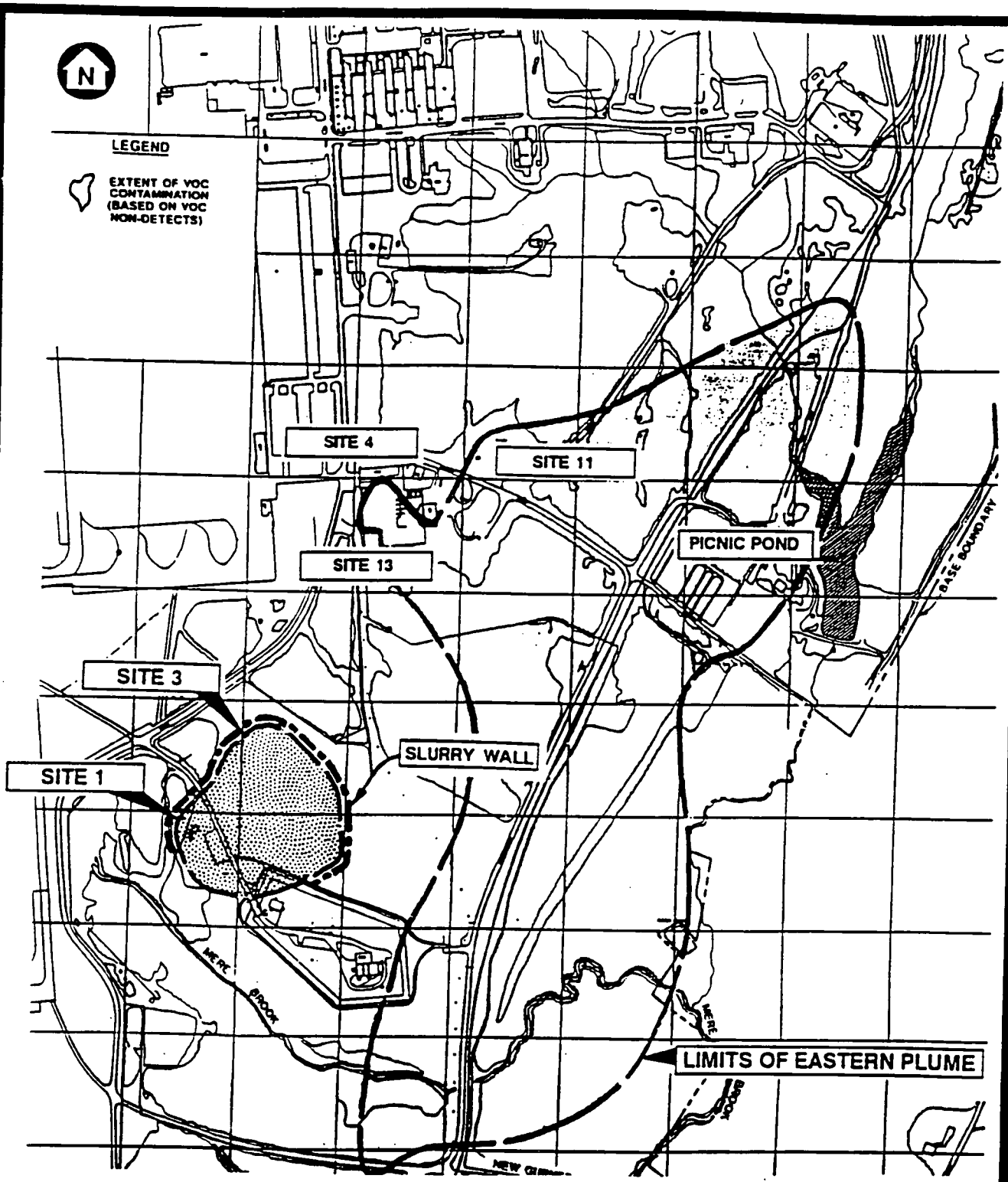
2.7 LANDFILL GAS MONITORING

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. The gas pressure from all gas probes and gas vents was below the detection limit of the differential pressure gauge (<0.01 in. water). The lowest percent oxygen measurement was noted at vent GV-2 (9.0 percent). Methane was detected at only 2 of 14 gas vents: GV-01 (0.2 percent) and GV-02 (0.4 percent). Methane was not detected at the gas probes. Elevated carbon dioxide measurements (i.e., >3.0 percent) were reported at 3 of 14 gas vents: GV-01 (4.1 percent), GV-02 (8.0 percent), and GV-07 (3.7 percent).



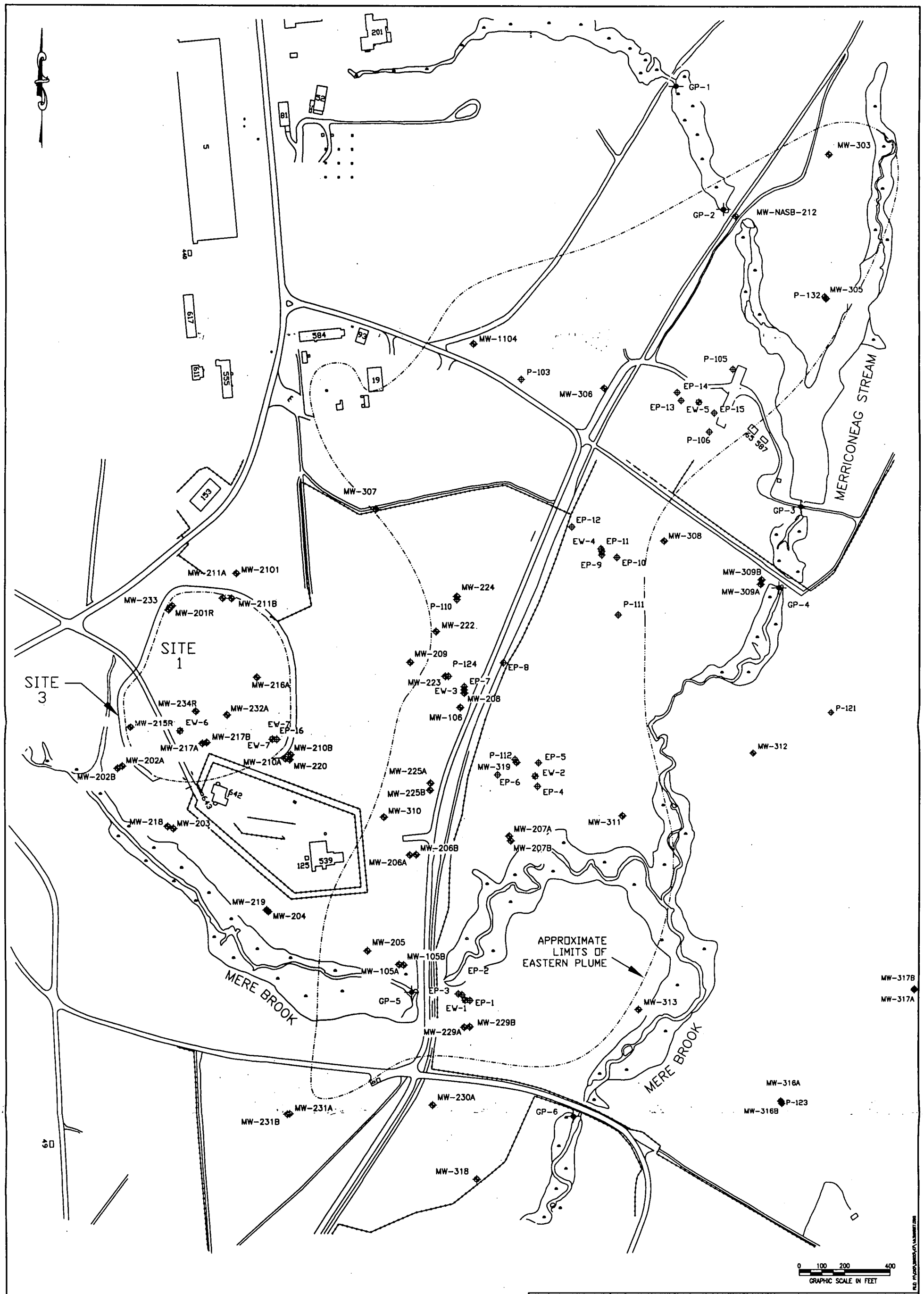
Source: USGS 7.5-minute series topographic maps: Brunswick, Maine, Quadrangles (1980); and Orrs Island, Maine, 1978. Scale 1:24,000.

Figure 1. Site location map for Sites 1 and 3 and Eastern Plum ,
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, Maine.



LEGEND

- MW-209 MONITORING WELL
- EW-1 EXTRACTION WELL
- EP-11 PIEZOMETER
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

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

MONITORING WELL LOCATION PLAN

DATE	19 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	MSB
PROJECT MANAGER	MSB

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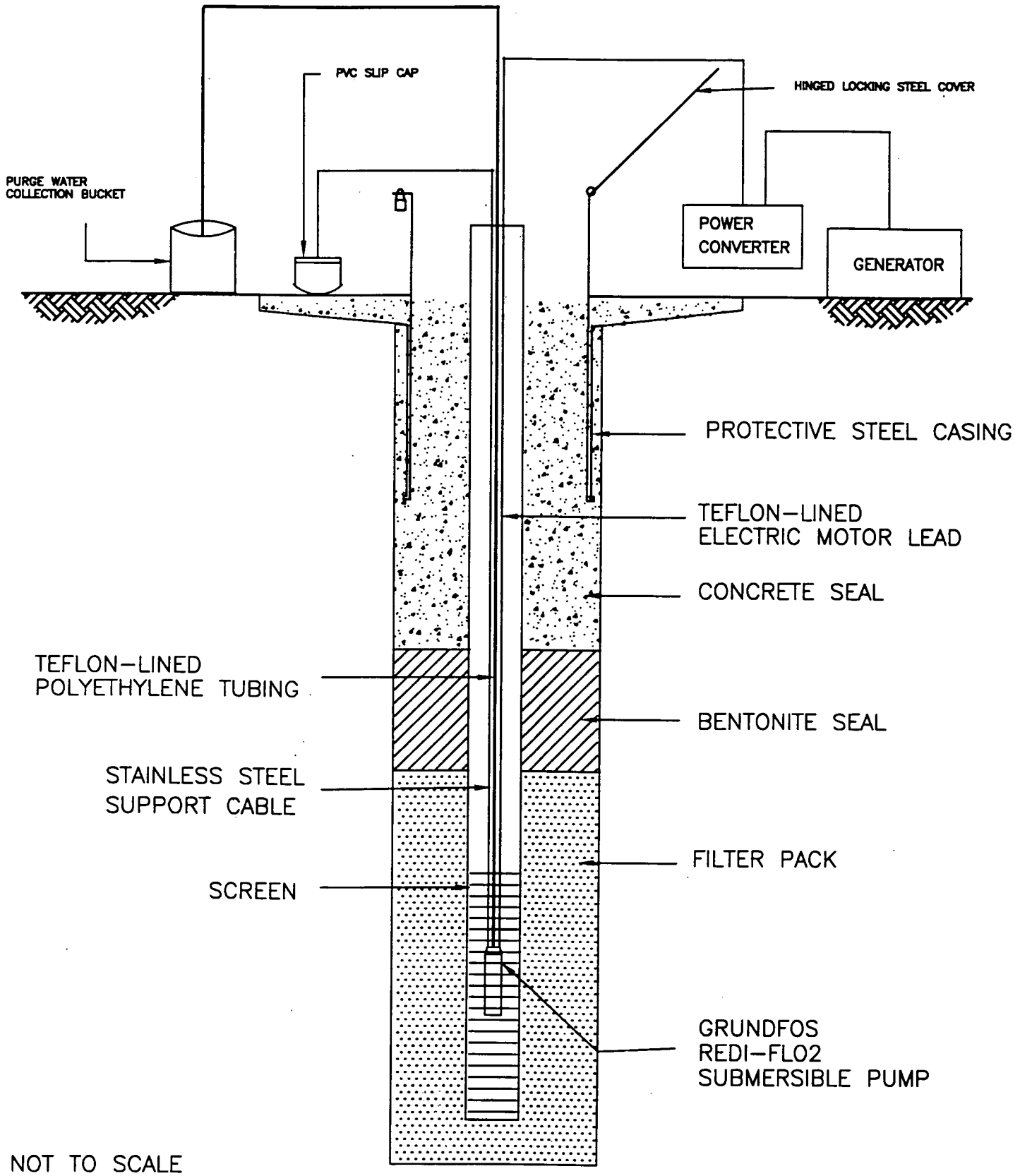
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3MAR97.DWG
DRAWING NUMBER	–
SHEET NUMBER	–



DWG. FILE No. F:\CAD\AGWELL

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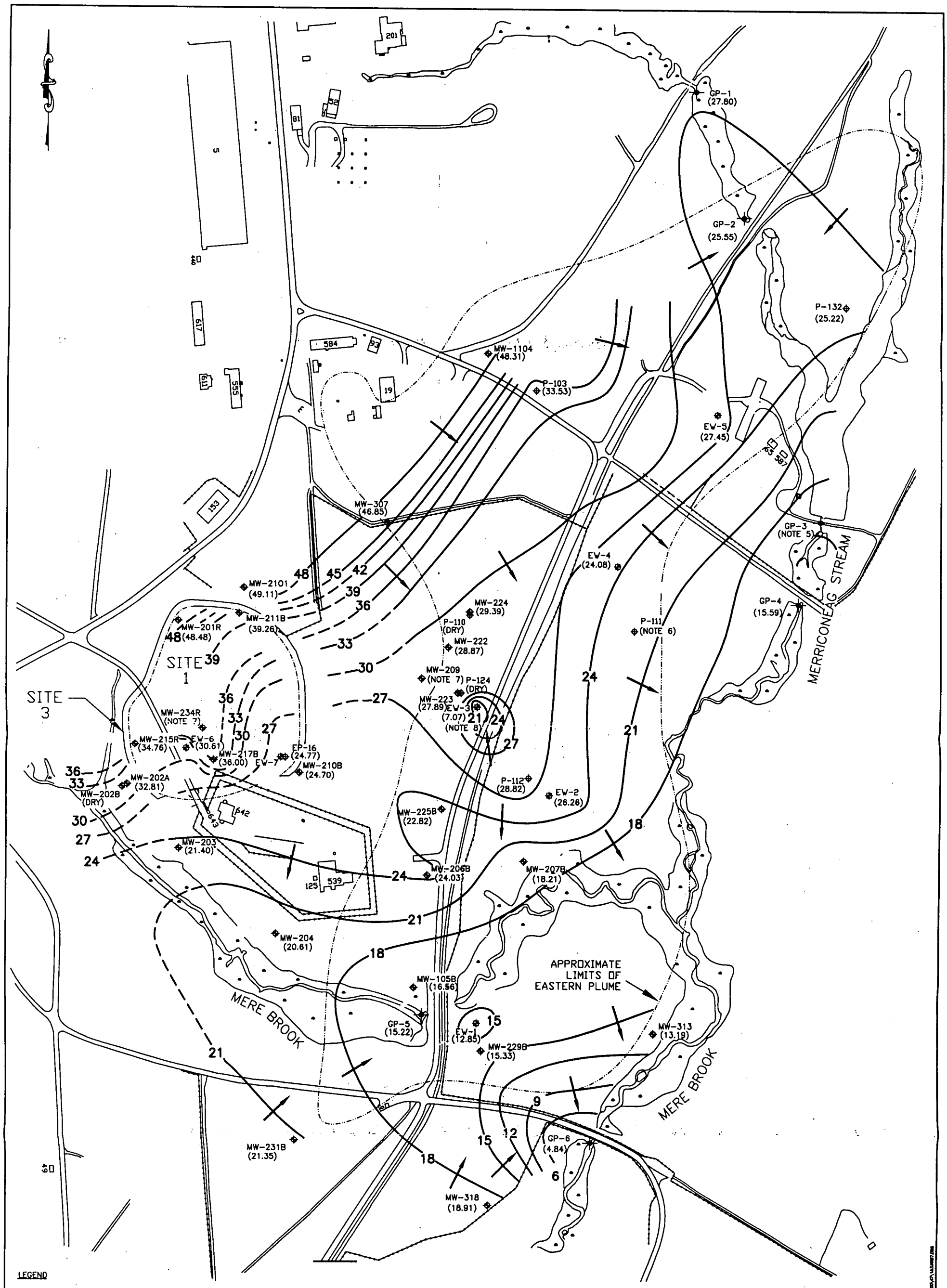
SCHEMATIC OF GENERALIZED INSTALLATION OF DEDICATED SUBMERSIBLE PUMP SYSTEM IN A MONITORING WELL

FIGURE 4

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT NO	FILE No.
MSB		SY		N.T.S.	26 JUNE 1995	29600.47	PUMP



LEGEND

- MW-231B (21.35) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- (NA) — NOT AVAILABLE, RISER BLOCKED
- EW-1 — EXTRACTION WELL
- P-112 (28.82) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (14.83) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- —26— — 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 8-9 JANUARY 1997 NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-6 AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. CONTOUR INTERVAL = 3 FT.
4. WATER LEVELS AT OFFSITE WELLS WERE NOT COLLECTED DURING THE JANUARY 1997 GAUGING EVENT.
5. MONITORING POINT FROZEN; NO DATA
6. MONITORING POINT BLOCKED; NO DATA
7. ANAMOLUS WATER ELEVATION NOT USED FOR CONTOUR MAP GENERATION.
8. CONTOURS 18, 15, 12, AND 9 ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT DISPLAYED DUE TO MAP SCALE.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 5

INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 8-9 JANUARY 1997

DATE	12 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JAN97.DWG
DRAWING NUMBER	–
SHEET NUMBER	–

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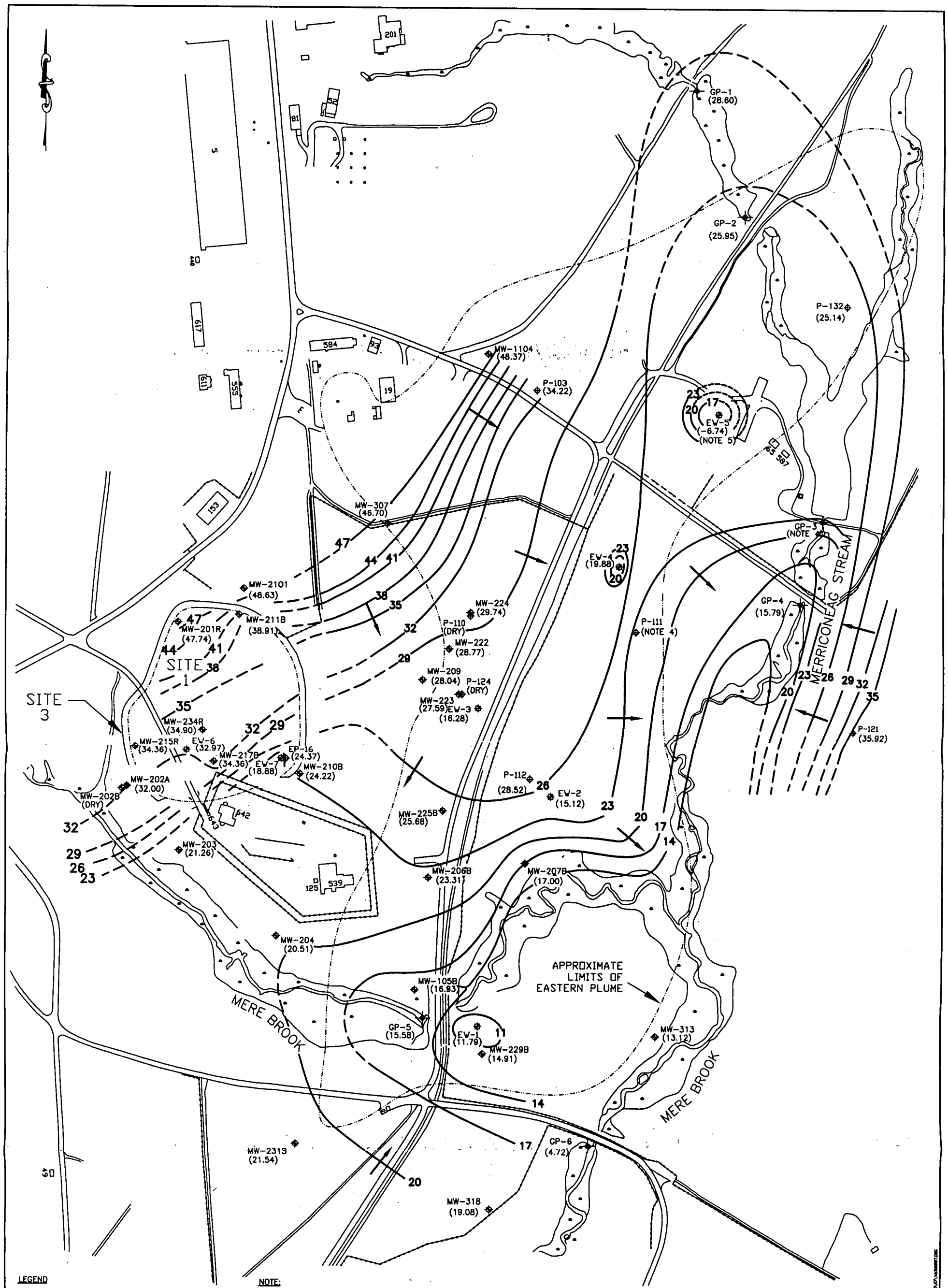

LEGEND

- MW-231B (21.54) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- (NA) — NOT AVAILABLE, RISER BLOCKED
- EW-1 — EXTRACTION WELL
- EP-11 (33.59) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (14.63) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- —26--- 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 5-6 MARCH 1997, LIGHT PRECIPITATION (<0.01 IN.) WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. CONTOUR INTERVAL = 3 FT.
4. MONITORING POINT FROZEN; NO DATA
5. THE CONTOURS FOR 14, 11, 8, 5, 2, -1, -4, AND -5, ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DUE TO MAP SCALE.
6. ANOMALOUS WATER ELEVATION, NOT USED DURING CONTOUR MAP GENERATION.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 6
INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5-6 MARCH 1997

DATE	19 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	MSB
PROJECT MANAGER	MSB

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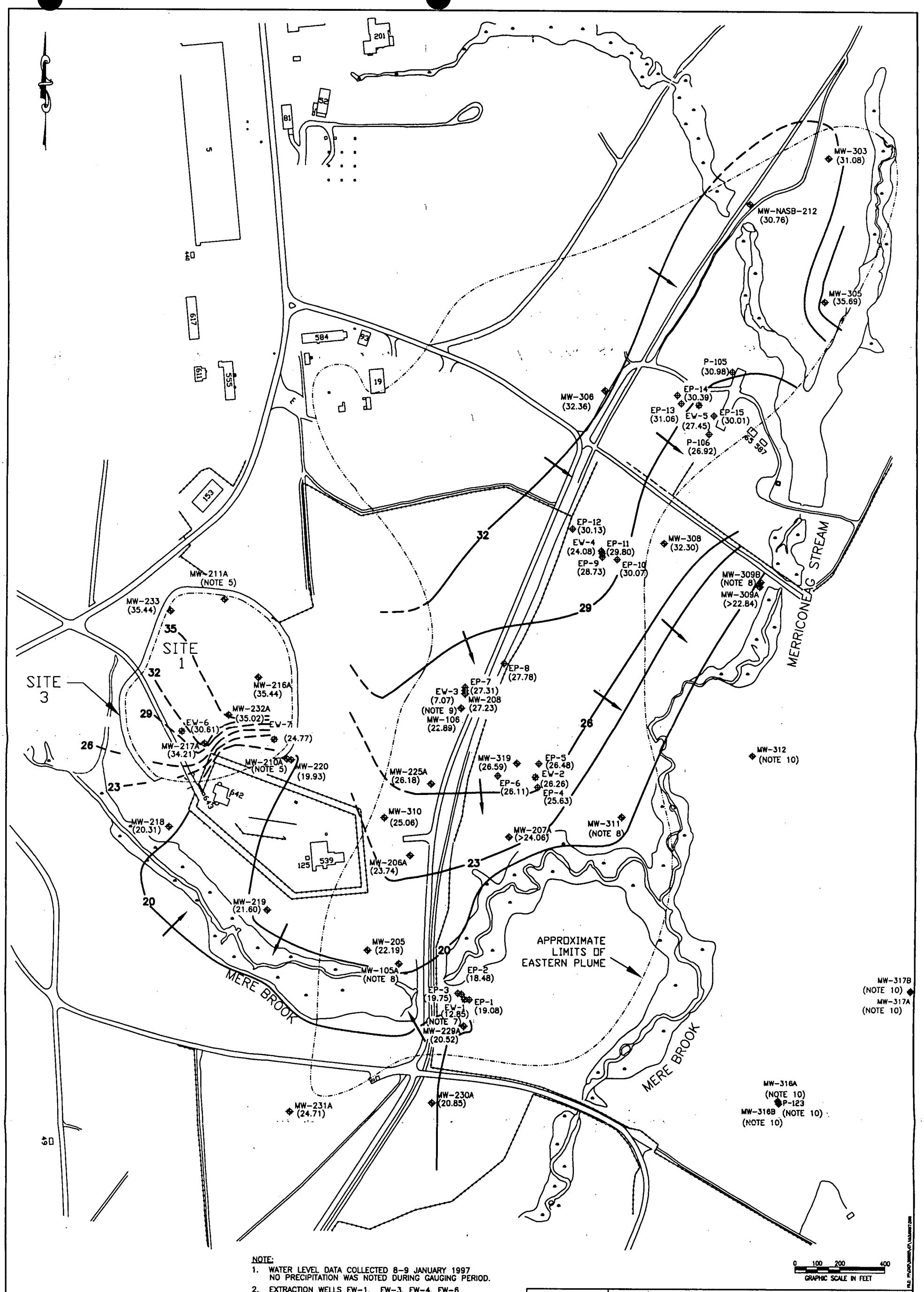
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3MAR97.DWG
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-209 (28.53) MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 EXTRACTION WELL
- EP-11 (33.50) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- —26— 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 8-9 JANUARY 1997 NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-6 AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. MONITORING WELLS MW-207A AND MW-309A WERE ARTESIAN DURING WELL GAUGING EVENT.
4. CONTOUR INTERVAL = 3 FT.
5. DEEP BEDROCK WELL. WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.
6. WATER LEVELS AT OFFSITE WELLS NOT COLLECTED DURING THE JANUARY 97 GAUGING EVENT.
7. THE 17 AND 14 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
8. MONITORING POINT FROZEN; NO DATA.
9. THE 23, 20, 17, 14, 11 AND 8 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
10. GROUND-WATER ELEVATION NOT MEASURED.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 7
INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 8-9 JANUARY 1997

DATE	12 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB

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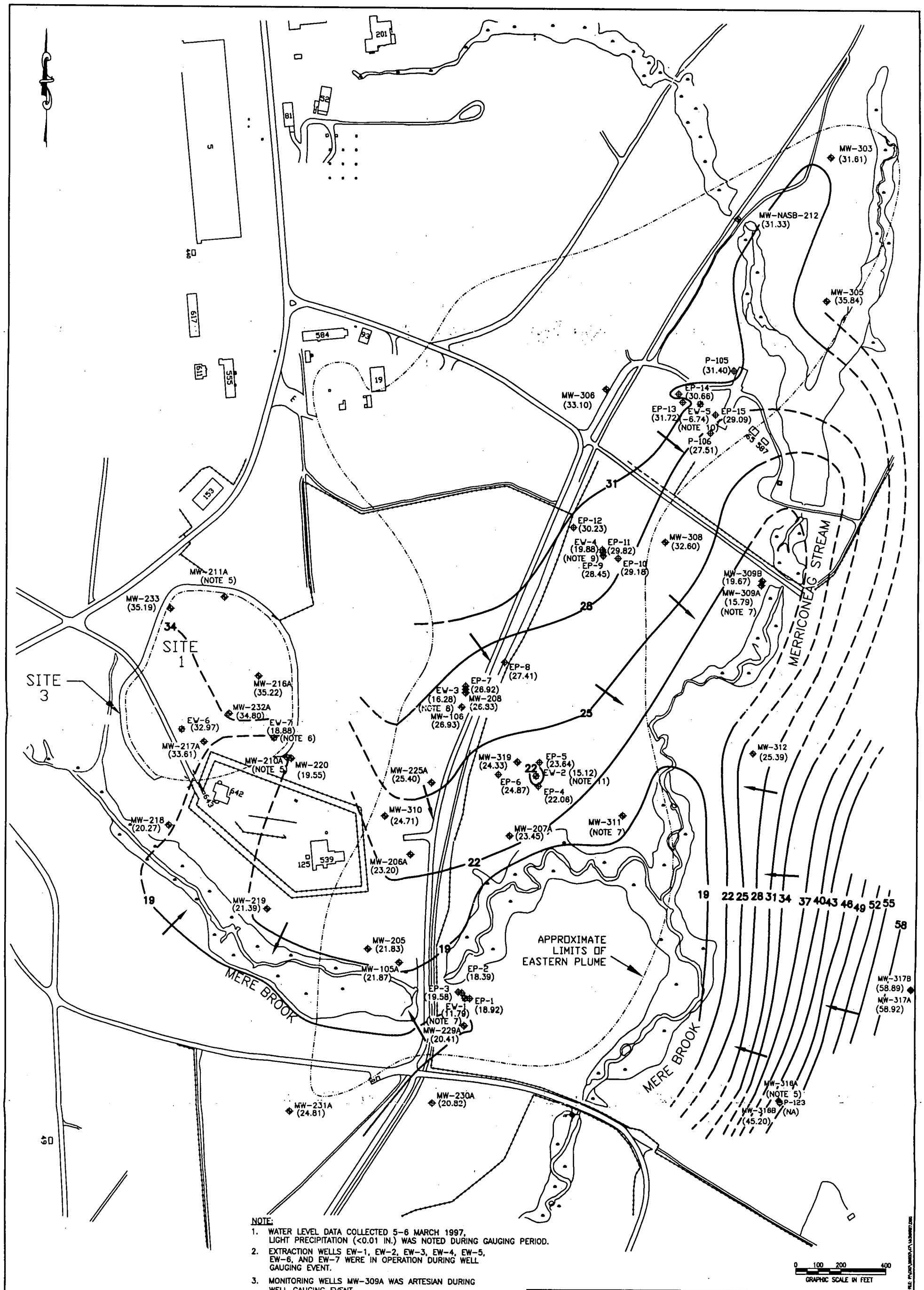
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3JAN97.DWG
DRAWING NUMBER	–
SHEET NUMBER	–



NOTE:

1. WATER LEVEL DATA COLLECTED 5-6 MARCH 1997, LIGHT PRECIPITATION (<0.01 IN.) WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. MONITORING WELLS 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 31, 28 AND 25 FT CONTOURS ENCOMPASS EW-7 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
7. MONITORING POINT FROZEN; NO DATA
8. THE 25, 22 AND 19 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
9. THE 28, 25, AND 22, CONTOURS ENCOMPASS EW-4 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
10. THE 31, 28, 25, 22, 19, 16, 13, 10, 7, 4, 1, -2, AND -5 FT CONTOURS ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
11. THE 19 AND 16 FT CONTOURS ENCOMPASS EW-2 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.

LEGEND

- MW-231A (24.81) MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 EXTRACTION WELL
- EP-11 (33.56) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- —26--- 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 8
INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5-6 MARCH 1997

DATE	19 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	MSB
PROJECT MANAGER	MSB

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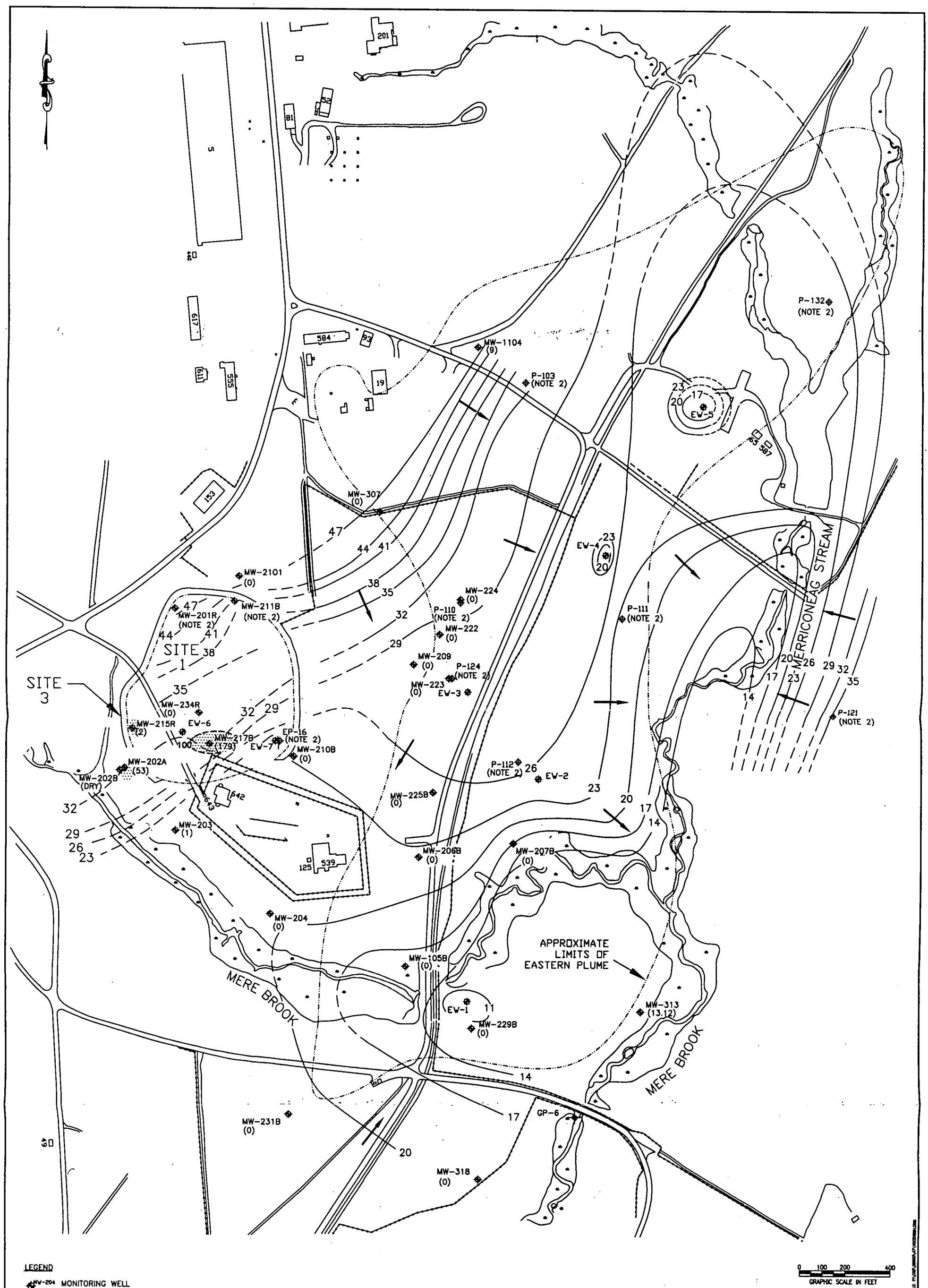
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3MAR97.DWG
DRAWING NUMBER	-
SHEET NUMBER	-



LEGEND

- MW-204 (0) — MONITORING WELL (TOTAL VOC CONCENTRATION, ug/L)
- (NA) — NOT AVAILABLE, RISER BLOCKED
- EW-1 — EXTRACTION WELL
- EP-11 (NS) — PIEZOMETER (TOTAL VOC CONCENTRATION, ug/L)
- —26--- — 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 — 100 ug/L TOTAL VOC CONTOUR (DASHED WHERE INFERRED)

NOTE

1. GROUND-WATER SAMPLES COLLECTED FROM 9 APRIL 1997.
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 TOTAL VOC CONTOUR MAP
SHALLOW WELLS, MONITORING EVENT 8

DATE	19 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	MSB
PROJECT MANAGER	MSB

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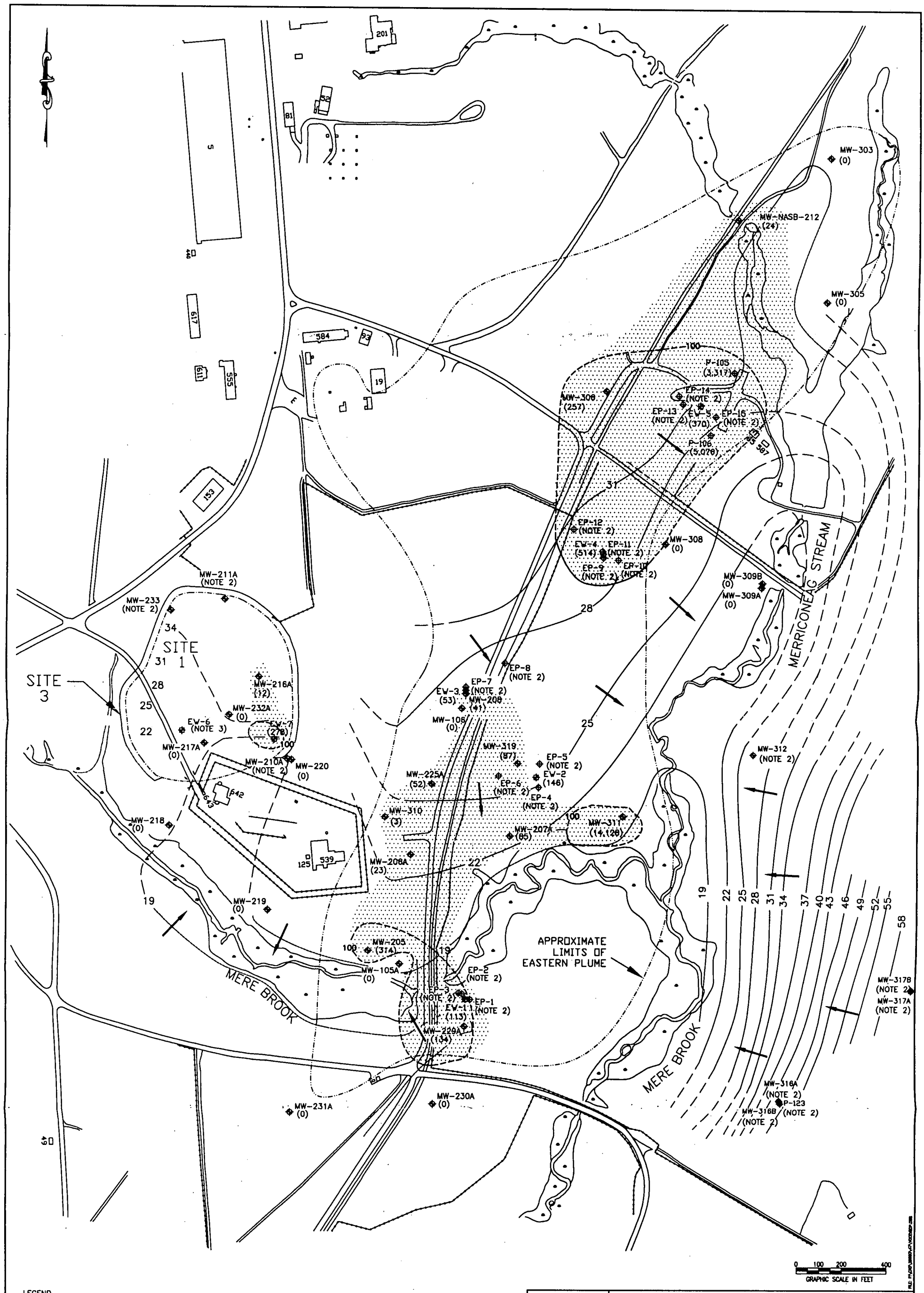
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	VOCEVBSH.DWG
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-231A (0) MONITORING WELL (TOTAL VOC CONCENTRATION; ug/L)
- EW-1 EXTRACTION WELL
- EP-11 PIEZOMETER
- NS NOT SAMPLED
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3
- —26— GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- 100 100 ug/L TOTAL VOC CONTOUR (DASHED WHERE INFERRED)

NOTE

1. GROUND-WATER SAMPLES COLLECTED FROM 8-21 NOVEMBER 1996.
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 TOTAL VOC CONTOUR MAP
DEEP WELLS, MONITORING EVENT 8

DATE	19 MAY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	MSB
PROJECT MANAGER	MSB

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

THE MAPLE BUILDING
3 WASHINGTON CENTER
NEWBURGH, NY 12550
(914) 565-6100

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	VOCEV8DP.DWG
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 8	
		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-210A	Tri-Annual	X	X	X	X	Bent riser
MW-210B	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	X	X	X	X[b]	
EW-7	Tri-Annual	X	X	X	X	X
MW-201R	Tri-Annual	NA	NA	X[b]	X[b]	NA
MW-211A	Tri-Annual	NA	NA	X[b]	X[b]	NA
MW-211B	Tri-Annual	NA	NA	X[b]	X[b]	NA
MW-233R	Tri-Annual	NA	NA	X[b]	X[b]	NA
EP-16	Tri-Annual	NA	NA	X[b]	X[b]	NA

(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; NA = Not applicable.

Sample Type/Location	Monitoring Frequency	Sample Parameters			Event 8	
		TCL VOC	TAL Elements	Field Parameters[a]	Gauged	Sampled
Leachate Station Seep						
SEEP-1	Tri-Annual	X	X	X	Seep frozen	
SEEP-2	Tri-Annual	X	X	X	Seep frozen	
SEEP-3	Tri-Annual	X	X	X	X[c]	X
SEEP-4	Tri-Annual	X	X	X	X[c]	X
SEEP-5	Tri-Annual	X	X	X	X[c]	X
Leachate Station Sediment						
LT-1	Tri-Annual	X	X	NA	NA	X
LT-2	Tri-Annual	X	X	NA	NA	X
LT-3	Tri-Annual	X	X	NA	NA	X
LT-4	Tri-Annual	X	X	NA	NA	X
LT-5	Tri-Annual	X	X	NA	NA	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	NA	NA	X
SED-2	Tri-Annual	X	X	NA	NA	X
SED-3	Tri-Annual	X	X	NA	NA	X
SED-4	Tri-Annual	X	X	NA	NA	X
SED-5	Tri-Annual	X	X	NA	NA	X
SED-6	Tri-Annual	X	X	NA	NA	X
SED-7	Tri-Annual	X	X	NA	NA	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 8	
		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 8	
		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	Event 8 Only	NA	X[b]	X[b]	NA
MW-313	Tri-Annual	X	X	X	Oil
MW-316A	Event 8 Only	NA	X[b]	X[b]	NA
MW-316B	Event 8 Only	NA	X[b]	X[b]	NA
MW-317A	Event 8 Only	NA	X[b]	X[b]	NA
MW-317B	Event 8 Only	NA	X[b]	X[b]	NA
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	NA	X[b]	X[b]	NA
P-105	Tri-Annual	X	X	X	X
P-106	Tri-Annual	X	X	X	X
P-110	Tri-Annual	NA	X[b]	X[b]	NA
P-111	Tri-Annual	NA	X[b]	X[b]	NA
P-112	Tri-Annual	NA	X[b]	X[b]	NA
P-121	Event 8 Only	NA	X[b]	X[b]	NA
P-123	Event 8 Only	NA	X[b]	Gauging port obstructed	
P-124	Tri-Annual	NA	X[b]	X[b]	NA
P-132	Tri-Annual	NA	X	X[b]	NA

(b) Determination of water level only.

NOTE: 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.
NA = Not applicable.

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 8	
		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-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	NA	X[b]	X[b]	NA
EP-2	Tri-Annual	NA	X[b]	X[b]	NA
EP-3	Tri-Annual	NA	X[b]	X[b]	NA
EP-4	Tri-Annual	NA	X[b]	X[b]	NA
EP-5	Tri-Annual	NA	X[b]	X[b]	NA
EP-6	Tri-Annual	NA	X[b]	X[b]	NA
EP-7	Tri-Annual	NA	X[b]	X[b]	NA
EP-8	Tri-Annual	NA	X[b]	X[b]	NA
EP-9	Tri-Annual	NA	X[b]	X[b]	NA
EP-10	Tri-Annual	NA	X[b]	X[b]	NA
EP-11	Tri-Annual	NA	X[b]	X[b]	NA
EP-12	Tri-Annual	NA	X[b]	X[b]	NA
EP-13	Tri-Annual	NA	X[b]	X[b]	NA
EP-14	Tri-Annual	NA	X[b]	X[b]	NA
EP-15	Tri-Annual	NA	X[b]	X[b]	NA
Surface Water					
GP-1	Tri-Annual	NA	X[b]	X[b]	NA
GP-2	Tri-Annual	NA	X[b]	X[b]	NA
GP-3	Tri-Annual	NA	X[b]	X[b]	NA
GP-4	Tri-Annual	NA	X[b]	X[b]	NA
GP-5	Tri-Annual	NA	X[b]	X[b]	NA
GP-6	Tri-Annual	NA	X[b]	X[b]	NA

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 (8 January 1997)		Event 8 Gauging Data (5 March 1997)	
			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-201 R	58.88	39.51	10.40	48.48	11.14	47.74
MW-202 A	52.40	31.09	19.59	32.81	20.40	32.00
MW-202 B	53.04	17.93	Well dry	---	Well dry	---
MW-203	52.75	42.04	31.35	21.40	31.49	21.26
MW-204	50.50	37.18	29.89	20.61	29.99	20.51
MW-210 A	52.17	105.60	18.50	33.67	18.60	33.57
MW-210 B	54.72	26.40	30.02	24.70	30.50	24.22
MW-211 A	65.59	137.02	23.37	41.82	24.23	41.36
MW-211 B	65.44	36.50	26.18	39.26	26.53	38.91
MW-215 R	62.26	49.95	27.50	34.76	27.90	34.36
MW-216 A	71.17	46.96	35.73	35.44	35.95	35.22
MW-217 A	61.78	44.56	27.57	34.21	28.17	33.61
MW-217 B	61.25	34.60	25.25	36.00	25.15	36.10
MW-218	54.16	53.54	33.85	20.31	33.89	20.27
MW-219	51.87	71.82	30.27	21.60	30.48	21.39
MW-220	47.20	49.87	27.27	19.93	27.65	19.55
MW-232 A	71.18	54.76	36.16	35.02	36.38	34.80
MW-233	63.94	50.49	28.50	35.44	28.75	35.19
MW-234 R	68.55	59.52	11.80	56.75	33.65	34.90
MW-2101	61.05	30.00	11.94	49.11	12.42	48.63
Extraction Wells						
EW-6	57.74	39.05	27.13	30.61	24.77	32.97
EW-7	51.13	50.55	31.10	20.03	32.25	18.88
EP Series Piezometers						
EP-16	58.92	49.90	34.15	24.77	34.55	24.37

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 (9 January 1997)		Event 8 Gauging Data (5-6 March 1997)	
			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-105 A	24.19	46.87	Frozen	---	2.32	21.87
MW-105 B	24.55	22.91	7.99	16.56	7.62	16.93
MW-106	51.26	37.27	28.37	22.89	24.33	26.93
MW-205	45.99	78.77	23.80	22.19	24.16	21.83
MW-206 A	43.02	74.36	19.28	23.74	19.82	23.20
MW-206 B	42.77	27.17	18.74	24.03	19.23	23.54
MW-207 A	24.06	73.22	Artesian	>24.06	0.61	23.45
MW-207 B	22.90	27.17	4.69	18.21	5.90	17.00
MW-208	49.40	103.33	22.17	27.23	22.57	26.83
MW-209	54.84	32.38	29.88	24.96	26.80	28.04
MW-222	57.43	45.34	28.56	28.87	28.66	28.77
MW-223	53.71	42.61	25.92	27.79	26.12	27.59
MW-224	57.63	46.95	28.24	29.39	27.89	29.74
MW-225 A	45.95	76.03	19.77	26.18	20.35	25.60
MW-225 B	46.25	42.00	23.43	22.82	20.57	25.68
MW-229 A	33.83	64.97	13.31	20.52	13.42	20.41
MW-229 B	30.08	32.70	14.75	15.33	15.17	14.91
MW-230 A	36.32	82.08	15.47	20.85	15.50	20.82
MW-231 A	45.41	62.42	20.70	24.71	20.60	24.81
MW-231 B	46.31	57.86	24.96	21.35	24.77	21.54
MW-303	44.28	71.62	13.20	31.08	12.67	31.61
MW-305	43.09	54.12	7.40	35.69	7.25	35.84
MW-306	52.12	56.98	19.76	32.36	19.02	33.10
MW-307	62.70	22.21	15.85	46.85	16.00	46.70
MW-308	37.70	72.85	5.40	32.30	5.10	32.60
MW-309 A	22.84	72.71	Artesian	>22.84	Artesian	>22.84
MW-309 B	22.32	59.43	Frozen	---	2.65	19.67

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

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (9 January 1997)		Event 8 Gauging Data (5-6 March 1997)	
			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	28.33	25.06	28.68	24.71
MW-311	21.48	55.78	Frozen	---	Frozen	---
MW-312	35.97	71.15	Not measured		10.58	25.39
MW-313	21.39	37.14	8.20	13.19	8.27	13.12
MW-316A	53.71	103.10	Not measured		19.66	34.05
MW-316B	54.40	57.85	Not measured		9.20	45.20
MW-317A	71.35	120.79	Not measured		12.43	58.92
MW-317B	70.10	96.95	Not measured		11.21	58.89
MW-318	24.28	25.14	5.37	18.91	5.20	19.08
MW-319	40.16	72.44	13.57	26.59	15.83	24.33
MW-1104	60.09	27.55	11.78	48.31	11.72	48.37
MW-NASB-212	41.64	67.34	10.88	30.76	10.31	31.33
P-Series Piezometers						
P-103	60.35	29.05	26.82	33.53	26.13	34.22
P-105	42.08	70.35	11.10	30.98	10.68	31.40
P-106	38.83	71.06	11.91	26.92	11.32	27.51
P-110	56.70	24.14	Dry	---	Dry	---
P-111	31.48	9.99	Blocked	---	Frozen	---
P-112	41.12	16.41	12.30	28.82	12.60	28.52
P-121	50.78	17.35	Not measured		14.86	35.92
P-123	54.19	Blocked	Not measured		Blocked	---
P-124	51.12	23.25	Dry	---	Dry	---
P-132	42.95	32.46	17.73	25.22	17.81	25.14
Extraction Wells						
EW-1	25.34	99.66	12.49	12.85	13.55	11.79
EW-2	31.63	90.86	5.37	26.26	16.51	15.12
EW-3	41.18	67.04	34.11	7.07	24.90	16.28
EW-4	37.13	69.37	13.05	24.08	17.25	19.88
EW-5	36.25	84.99	8.80	27.45	42.99	-6.74

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (9 January 1997)		Event 8 Gauging Data (5-6 March 1997)	
			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	12.59	19.08	12.75	18.92
EP-2	29.74	99.00	11.26	18.48	11.35	18.39
EP-3	27.91	89.21	8.16	19.75	8.33	19.58
EP-4	32.59	91.11	6.96	25.63	10.53	22.06
EP-5	34.61	79.85	8.13	26.48	10.97	23.64
EP-6	40.14	83.51	14.03	26.11	15.27	24.87
EP-7	48.49	70.20	21.18	27.31	21.57	26.92
EP-8	47.31	80.38	19.53	27.78	19.90	27.41
EP-9	37.84	62.46	9.11	28.73	9.39	28.45
EP-10	37.78	58.00	7.71	30.07	8.60	29.18
EP-11	41.59	65.03	11.79	29.80	11.77	29.82
EP-12	49.38	69.61	19.25	30.13	19.15	30.23
EP-13	38.96	71.03	7.90	31.06	7.24	31.72
EP-14	43.46	80.05	13.07	30.39	12.80	30.66
EP-15	45.37	82.68	15.36	30.01	16.28	29.09

Well Designation	Gauging Point Elevation (ft MSL)	Bi-Monthly Gauging Data (9 January 1997)		Event 8 Gauging Data (5-6 March 1997)	
		Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)	Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)
Surface Water Gauging Stations					
GP-1	31.10	3.30	27.80	2.50	28.60
GP-2	28.95	3.40	25.55	3.00	25.95
GP-3	27.33	Frozen	---	Frozen	---
GP-4	18.39	2.80	15.59	2.60	15.79
GP-5	23.38	8.16	15.22	7.80	15.58
GP-6	15.22	10.38	4.84	10.50	4.72

TABLE 5 SUMMARY OF GROUND-WATER EXTRACTION RATE AT INDIVIDUAL WELLS FOR THE PERIOD 1 JANUARY THROUGH 31 MARCH 1997, SITES 1 AND 3 AND EASTERN PLUME NAVAL AIR STATION, BRUNSWICK, MAINE

	Date																					
	1/2	1/3	1/6	1/7	1/8	1/9	1/10	1/13	1/14	1/15	1/16	1/17	1/20	1/21	1/22	1/23	1/24	1/27	1/28	1/29	1/30	1/31
EW-1																						
Flow Rate (gpm)	14.65	14.65	14.74	14.76	14.80	14.38	14.33	14.56	14.62	14.71	14.45	14.49	15.30	15.27	15.38	15.34	14.94	13.77	13.75	13.84	13.65	13.54
Run Time (hours)	24.0	23.0	24.0	24.0	22.3	23.9	0	0	11.9	24.0	24.0	23.8	24.0	24.0	24.0	21.7	24.0	24.0	24.0	24.0	24.0	24.0
EW-2																						
Flow Rate (gpm)	19.38	19.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.95	23.90	24.07	23.73	23.54
Run Time (hours)	24.0	23.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24.0	24.0	24.0	24.0	24.0
EW-3																						
Flow Rate (gpm)	26.14	26.14	26.30	26.33	26.40	25.66	25.56	25.98	26.08	26.24	25.78	25.85	27.30	27.24	27.43	27.37	26.66	24.59	24.53	24.70	24.35	24.16
Run Time (hours)	24.0	23.0	24.0	24.0	22.3	23.9	0	0	11.9	0	2	23.8	24.0	24.0	24.0	21.7	24.0	24.0	24.0	24.0	24.0	24.0
EW-4																						
Flow Rate (gpm)	17.48	17.48	17.59	17.61	17.65	17.16	17.09	17.37	17.44	17.55	17.24	17.29	18.26	18.22	18.35	18.30	17.83	16.44	16.40	16.52	16.29	16.16
Run Time (hours)	24.0	23.0	24.0	24.0	22.3	23.9	0	0	11.9	0	2	23.8	24.0	24.0	24.0	21.7	24.0	24.0	24.0	24.0	24.0	24.0
EW-5																						
Flow Rate (gpm)	22.73	22.73	22.87	22.89	22.95	22.31	22.22	22.59	22.67	22.81	22.42	22.47	23.74	23.68	23.85	23.79	23.18	21.37	21.32	21.47	21.17	21.00
Run Time (hours)	24.0	23.0	24.0	24.0	22.3	23.9	0	0	11.9	0	0	23.8	24.0	24.0	24.0	21.7	24.0	24.0	24.0	24.0	24.0	24.0
EW-6																						
Flow Rate (gpm)	1.70	1.70	2.75	2.90	2.77	3.04	3.05	2.81	2.70	1.09	3.43	2.85	2.67	2.31	3.34	2.84	2.45	2.78	3.21	2.08	2.49	2.55
Run Time (hours)	24.0	23.0	24.0	24.0	22.3	23.9	0	0	11.9	0	0	23.8	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
EW-7																						
Flow Rate (gpm)	0.64	0.64	1.04	1.10	1.04	1.15	1.15	1.06	1.02	0.41	1.30	1.08	1.01	0.87	1.26	1.07	0.92	1.05	1.21	0.78	0.94	0.96
Run Time (hours)	24.0	23.0	24.0	24.0	22.3	23.9	0	0	11.9	0	0	23.8	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0

	Date																			
	2/3	2/4	2/5	2/6	2/7	2/10	2/11	2/12	2/13	2/14	2/17	2/18	2/19	2/20	2/21	2/24	2/25	2/26	2/27	2/28
EW-1																				
Flow rate (gpm)	13.8	13.5	16.0	16.3	17.4	16.9	16.9	17.1	16.9	16.7	16.8	16.6	16.6	16.7	16.5	16.5	16.5	16.5	16.5	16.4
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0
EW-2																				
Flow rate (gpm)	24.0	23.5	22.9	23.4	24.8	24.2	24.1	24.4	24.1	23.8	24.0	23.7	23.8	23.9	23.6	23.6	23.6	23.6	23.6	23.4
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0
EW-3																				
Flow rate (gpm)	24.7	24.1	23.5	24.0	25.5	24.9	24.7	25.1	24.7	24.4	24.6	24.3	24.4	24.5	24.2	24.3	24.2	24.2	24.2	24.0
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0
EW-4																				
Flow rate (gpm)	16.5	16.1	19.0	19.4	20.6	20.1	20.0	20.3	20.0	19.8	19.9	19.7	19.8	19.8	19.6	19.6	19.6	19.6	19.6	19.4
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0
EW-5																				
Flow rate (gpm)	21.4	21.0	20.4	20.8	22.1	21.6	21.5	21.8	21.5	21.3	21.4	21.1	21.2	21.3	21.0	21.1	21.0	21.1	21.0	20.9
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0
EW-6																				
Flow rate (gpm)	2.2	3.0	2.7	2.5	2.6	2.4	2.4	2.4	2.4	2.4	2.5	2.8	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0
EW-7																				
Flow rate (gpm)	0.7	1.0	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Run time (hours)	23.5	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	24.0	24.0	24.0	24.0	24.0

	Date																			
	3/3	3/4	3/5	3/6	3/7	3/10	3/11	3/12	3/13	3/14	3/17	3/18	3/19	3/20	3/21	3/24	3/25	3/26	3/27	3/28	3/31
EW-1																					
Flow rate (gpm)	13.7	14.0	13.3	14.4	13.9	13.0	14.3	14.3	14.4	14.2	14.1	0.0	14.4	14.4	14.4	14.4	14.3	14.4	14.2	14.2	
Run time (hours)	24.0	24.0	24.0	23.7	17	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)	27.1	27.6	26.3	28.4	27.5	25.6	28.2	28.3	28.5	28.1	27.8	0.0	28.5	28.4	28.5	28.4	28.2	28.5	28.0	28.1	
Run time (hours)	24.0	24.0	24.0	23.7	17	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																					
Flow rate (gpm)	28.2	28.8	27.4	29.6	28.7	26.7	29.4	29.5	29.6	29.3	29.0	0.0	29.7	29.6	29.7	29.6	29.3	29.7	29.2	29.3	
Run time (hours)	24.0	24.0	24.0	23.7	17	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)	20.6	20.9	19.9	21.6	20.9	19.4	21.4	21.5	21.6	21.3	21.1	0.0	21.7	21.6	21.6	21.5	21.4	21.7	21.3	21.4	
Run time (hours)	24.0	24.0	24.0	23.7	17	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)	14.2	14.4	13.7	14.9	14.4	13.4	14.8	14.8	14.9	14.7	14.6	0.0	14.9	14.9	14.9	14.9	14.7	14.9	14.7	14.7	
Run time (hours)	24.0	24.0	24.0	23.7	17	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-6																					
Flow rate (gpm)	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	
EW-7																					
Flow rate (gpm)	3.0	3.1	2.9	3.1	3.0	3.1	3.0	2.3	2.5	2.3	2.2	0.0	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2
Run time (hours)	24.0	24.0	24.0	23.7	17	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	

TABLE 6 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUND-WATER SAMPLES COLLECTED 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-202 A	5.77	14.7	580	2.19	22	93
MW-202 B	Well dry; no data					
MW-203	5.67	13.4	611	8.45	2	199
MW-204	7.26	9.4	58	10.66	0	139
MW-210 A	Unable to put pump in well; PVC riser obstructed; no data					
MW-210 B	6.03	12.3	120	1.80	31	89
MW-215 R	5.44	12.6	170	2.05	3	161
MW-216 A	5.84	14.6	264	1.90	0	141
MW-217 A	6.18	14.5	555	1.37	20	125
MW-217 B	6.17	15.9	2,060	0.43	782	-70
MW-218	7.87	14.5	1,094	2.00	30	68
MW-219	6.25	9.8	120	3.89	8	157
MW-220	6.58	12.3	198	7.15	29	148
MW-232 A	6.24	13.8	522	4.95	3	154
MW-234 R	5.78	13.4	246	1.36	2	152
MW-2101	5.51	8.2	262	10.89	1	149

NOTE: NTU = Nephelometric turbidity unit.

TABLE 7 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUND-WATER SAMPLES COLLECTED 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-105 A	8.13	6.2	64	10.26	3	320
MW-105 B	6.26	12.2	62	10.06	2	141
MW-106	5.86	11.0	60	10.66	3	184
MW-205	7.00	9.6	188	2.50	17	187
MW-206 A	6.65	8.6	122	7.81	5	122
MW-206 B	5.83	10.8	92	10.09	0	216
MW-207 A	6.47	8.5	220	0.30	15	205
MW-207 B	6.40	7.9	202	5.24	0	140
MW-208	8.25	8.4	160	0.32	26	180
MW-209	5.98	14.6	62	10.96	20	173
MW-222	5.88	11.7	114	11.15	1	191
MW-223	5.74	8.7	76	9.85	0	201
MW-224	5.44	12.4	120	8.12	0	220
MW-225 A	6.12	9.5	124	2.79	4	170
MW-225 B	6.37	10.3	58	11.01	3	156
MW-229 A	7.19	9.0	108	6.91	3	204
MW-229 B	6.92	11.2	66	8.53	6	142
MW-230 A	7.67	7.8	58	0.23	30	-133
MW-231 A	6.76	10.5	58	1.94	16	168
MW-231 B	6.48	11.0	72	10.48	7	132
MW-303	8.09	8.7	226	0.21	7	138
MW-305	9.04	9.2	272	0.13	26	143

NOTE: NTU = Nephelometric turbidity unit.

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Monitoring Wells (Continued)						
MW-306	6.01	10.5	80	8.56	9	159
MW-307	5.73	14.8	156	7.17	88	249
MW-308	8.55	7.5	699	5.54	2	-151
MW-309 A	8.72	8.6	282	0.00	1	-171
MW-309 B	8.03	6.7	310	0.27	9	133
MW-310	5.63	8.6	248	6.74	1	201
MW-311	6.40	8.0	148	0.65	13	273
MW-313	6.66	8.1	171	0.34	38	-154
MW-318	5.06	8.1	46	5.37	6	127
MW-319	5.72	9.5	159	1.89	3	174
MW-1104	5.79	12.5	186	1.31	5	187
MW-NASB-212	6.86	9.8	196	0.24	5	140
P-Series Piezometers						
P-105	7.19	7.5	98	5.29	26	173
P-106	6.96	8.1	109	1.86	40	141

TABLE 8 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN SURFACE WATER AND SEEP SAMPLES COLLECTED ON 12 MARCH 1997 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	6.34	1.5	362	10.28[a]	1	83
SW-02	6.70	2.2	212	10.70[a]	10	57
SW-03	6.81	1.3	234	12.57[a]	3	82
SW-04	6.87	4.5	132	3.64	7	88
SW-05	6.44	2.0	144	2.16	10	127
SW-06	6.79	2.1	145	1.75	10	123
SW-07	6.98	2.2	147	1.57	10	115
Seeps						
SEEP-01			Could not sample; frozen			
SEEP-02			Could not sample; frozen			
SEEP-03	6.39	3.0	414	9.08[a]	670	32
SEEP-04	6.38	6.2	>1,000	7.83[a]	677	-5
SEEP-05	6.52	7.8	612	3.06[a]	676	-93

(a) Equipment malfunction, dissolved oxygen measurement taken on 14 March 1997.

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 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	6.76	7.1	118	7.75	14	42
EW-2	6.55	7.5	95	7.28	4	123
EW-3	5.85	7.1	109	10.64	2	181
EW-4	6.18	7.3	78	8.61	0	193
EW-5	6.67	7.0	91	8.60	0	149
EW-6	Well offline; no data					
EW-7	6.04	8.1	324	8.67	>1,000	-7
Ground-Water Treatment Plant						
Sites 1 and 3 Influent	6.20	5.9	299	6.09	5	-36
Eastern Plume Raw Influent	6.38	7.5	94	7.38	3	61
Combined Effluent	6.30	9.6	104	11.84	1	348

NOTE: NTU = Nephelometric turbidity unit.

TABLE 10 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 13, 14, AND 17 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	MW-202A	MW-203	MW-204	MW-210B	MW-215R	MW-215R DUP	MW-216A	MW-217A	MW-217B	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
1,1-Dichloroethane	4	1	(<1U)	(<1U)	0.5J	0.5J	(<1U)	(<1U)	1	70	---
1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**9**	5	5
Total 1,2-Dichloroethene	0.3J	(<1U)	(<1U)	(<1U)	0.7J	0.7J	1J	(<1U)	12J	70	70
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.7J	(<1U)	4	5	5
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	(<1U)	2	47	100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	20	700	700
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	**2**	**2**	**4**	(<1U)	**12**	0.15	2.0
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	8	600	10,000
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	2	---	---
1,1,2,2-Tetrachloroethane	13	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.6J	5	5
1,1,1-Trichloroethane	42	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	11	600	600
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	(<1U)	**110**	27	75
Tetrachloroethene	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Chloroform	0.5J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
1,1,2-Trichloroethane	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5

(a) 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.
(b) 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	MW-203	MW-204	MW-210B	MW-215R	MW-215R DUP	MW-216A	MW-217A	MW-217B	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)											
Aluminum	73.6B*	115B*	38.5B*	150B*	51.8B*	62.0B*	55.6B*	207	724	1,430	50-200[c]
Antimony	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	2.8	6
Arsenic	4.6B*	2.5B*	(<2.0U)	3.3B*	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	7.6B*	---	50
Barium	93.9B*	30.4B*	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	24.3B*	129B*	1,500	2,000
Calcium	55,400	100,000	3,480	13,200	8,670	8,600	24,300	31,900	171,000	---	---
Chromium	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	100	100
Cobalt	13.5B*	(<11.0U)	(<11.0U)	(<11.0U)	(<11.0U)	(<11.0U)	11.9B*	(<11.0U)	(<11.0U)	---	---
Copper	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	---	1,300[d]
Iron	25,800	453	(<40.0U)	614	(<40.0U)	(<40.0U)	56.3B*	342	51,900	---	300[c]
Lead	(<1.0U)	(<1.0U)	1.1B*	1.0B*	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	3.6	---	15[d]
Magnesium	9,410	19,400	1,120	1,500	1,630	1,630	6,430	13,000	55,000	---	---
Manganese	**4,190**	74.5	(<6.0U)	**603**	**1,150**	**1,120**	**1,650**	(<6.0U)	**4,270**	200	50[c]
Mercury	(<0.20U)	(<0.20U)	0.23	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	2	2
Nickel	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	100	100
Potassium	9,320	3,380	386B*	3,060	800B*	860B*	1,750	2,250	8,200	---	---
Sodium	20,200	21,300	5,220	4,410	17,300	17,500	14,400	63,600	207,000	---	---

(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-218	MW-218 DUP	MW-219	MW-220	MW-232A	MW-234R	MW-2101	QT-002	QT-003	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
1,1-Dichloroethane	0.8J	0.7J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<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)	(<1U)	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.15	2
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	10,000
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2,2-Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	(<1U)	(<1U)	(<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	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,4-Dichlorobenzene	0.9J	0.9J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	27	75
Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5

NOTE: QT = Trip blank.

Analyte	MW-218	MW-218 DUP	MW-219	MW-220	MW-232A	MW-234R	MW-2101	QT-002	QT-003	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)											
Aluminum	471	630	152B*	914	69.2B*	42.1B*	170B*	NR	NR	1,430	50-200[c]
Antimony	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	2.4B*	NR	NR	2.8	6
Arsenic	**131**	**140**	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	NR	NR	---	50
Barium	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	39.8B*	NR	NR	1,500	2,000
Calcium	14,100	13,600	8,680	12,200	31,400	9,600	31,400	NR	NR	---	---
Chromium	7.2B*	18.5	(<6.0U)	(<6.0U)	7.9B*	(<6.0U)	(<6.0U)	NR	NR	100	100
Cobalt	(<11.0U)	(<11.0U)	(<11.0U)	(<11.0U)	(<11.0U)	(<11.0U)	(<11.0U)	NR	NR	---	---
Copper	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	28.7	(<6.0U)	(<6.0U)	NR	NR	---	1,300[d]
Iron	3,210	3,720	326	1,630	160	(<40.0U)	111	NR	NR	---	300[c]
Lead	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	1.8B*	NR	NR	---	15[d]
Magnesium	7,550	7,420	3,140	5,650	13,600	2,720	7,430	NR	NR	---	---
Manganese	**871**	**844**	(<6.0U)	20.5	(<6.0U)	98.7	25.5	NR	NR	200	50[c]
Mercury	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	NR	NR	2	2
Nickel	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	NR	NR	100	100
Potassium	7,670	7,960	1,070	1,870	2,690	1,060	2,180	NR	NR	---	---
Sodium	192,000	201,000	7,580	19,600	36,700	32,700	9,060	NR	NR	---	---

NOTE: NR = Analysis not required.

TABLE 11 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 17-20 MARCH AND 8-9 APRIL 1997 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	MW-105A	MW-105B	MW-106	MW-205	MW-206A	MW-206B	MW-206B DUP	MW-207A	MW-207B	MW-208	MW-209	MW-222	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)														
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	170	13	(<1U)	(<1U)	6	(<1U)	10	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	22	2	(<1U)	(<1U)	2	(<1U)	10	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	(<1U)	(<1U)	(<1U)	**94**	**6**	(<1U)	(<1U)	**27**	(<1U)	**15**	(<1U)	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	**14**	2	(<1U)	(<1U)	**50**	(<1U)	**4**	(<1U)	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	**14**	0.6J	(<1U)	(<1U)	(<1U)	(<1U)	2	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	0.7J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.7J	(<1U)	(<1U)	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

(a) 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.
(b) 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 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-223	MW-224	MW-225A	MW-225B	MW-229A	MW-229B	MW-230A	MW-231A	MW-231B	MW-303	MW-305	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
1,1,1-Trichloroethane	(<1U)	(<1U)	4	(<1U)	73	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	32	(<1U)	8	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	0.5J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	0.5J	(<1U)	**14**	(<1U)	**46**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Tetrachloroethene	0.7J	0.5J	2	(<1U)	**5**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	0.4J	(<1U)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

Compound	MW-306	MW-307	MW-308	MW-309A	MW-309B	MW-310	MW-310 DUP	MW-311	MW-311 DUP	MW-313	MW-318	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
1,1,1-Trichloroethane	140	(<1U)	(<1U)	(<1U	(<1U)	3	4	**11,000**	**9,700D**	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	21	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	12	12	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	**46E**	**47E***	(<1U)	(<1U)	---	5
Trichloroethene	**76**	(<1U)	(<1U)	(<1U	(<1U)	0.6J	0.7J	**2,200D**	**2,000D**	(<1U)	(<1U)	5	5
Tetrachloroethene	0.6J	(<1U)	(<1U)	(<1U	(<1U)	0.4J	(<1U)	**56E***	**59E***	(<1U)	(<1U)	3	5
1,1-Dichloroethene	**8**	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	**740D**	**650D**	(<1U)	(<1U)	7	7
1,1-Dichloroethane	12	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	**71E***	**75E***	0.5J	(<1U)	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	**15**	**15**	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	**29**	**29**	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	7	7	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	5	5	(<1U)	(<1U)	5	5

NOTE: E = Compound concentration exceeds calibration range.
* = The laboratory diluted the compound concentration below the instrument detection limit, therefore, the original positive results which exceed the linearity of the instrument have been reported. The data user should be aware that the reported value is an estimate of the true concentration.

Compound	MW-319	MW-319 DUP	MW-1104	P-105	P-105 DUP	P-106	MW-NASB-212	QT-003	QT-004	QT-007	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
1,1,1-Trichloroethane	9	10	7	**2,400D**	**2,600D**	**3,600D**	(<1U)	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	9	10	0.8J	18	17	21	2	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	**32**	**37**	2	**580D**	**620D**	**1,000D**	**20**	(<1U)	(<1U)	(<1U)	5	5
Tetrachloroethene	**37**	**72**	(<1U)	**12**	**11**	**22**	2	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	0.8J	0.8J	(<1U)	**240D**	**260D**	**360D**	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	0.7J	54E*	50JD	64E*	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	23	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	**4**	**4**	**5**	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	**7**	**7**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	2	2	2	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	2	2	4	(<1U)	(<1U)	(<1U)	(<1U)	5	5

TABLE 12 SUMMARY OF ANALYTICAL RESULTS FOR WATER SAMPLES COLLECTED ON 17 MARCH 1997 FROM THE GROUND-WATER EXTRACTION WELLS AND TREATMENT SYSTEM NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	EW-01	EW-02	EW-03	EW-04	EW-05	EW-07	QT-003
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)							
Benzene	(<1U)	(<1U)	(<1U)	0.9J	0.6J	0.9J	(<1U)
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	2	(<1U)
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	44D	(<1U)
1,1-Dichloroethane	1	2	(<1U)	21	21	120D	(<1U)
1,1-Dichloroethene	4	6	(<1U)	21D	27	2	(<1U)
Total 1,2-Dichloroethene	10	2	28	23	18	1	(<1U)
Tetrachloroethene	8	23	14	9	2	(<1U)	(<1U)
1,1,1-Trichloroethane	51D	81D	1	320D	220D	83D	(<1U)
Trichloroethene	39D	32	10	120	82	0.4J	(<1U)
Methylene chloride	1J	0.4J	(<1U)	3	1	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	(<1U)
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	4	(<1U)
Total xylenes	(<1U)	(<1U)	(<1U)	0.7J	(<1U)	5	(<1U)
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.7J	(<1U)
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	10	(<1U)
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	4	(<1U)

NOTE: QT = Trip blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
E = Results reported are from the undiluted analyses as the analyte was diluted below the detection limit in the diluted sample, the value reported should be considered an estimate of the true concentration.
D = Analysis at a secondary dilution factor.
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.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	EW-01	EW-02	EW-03	EW-04	EW-05	EW-07	QT-003
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (μg/L)							
Aluminum	NR	NR	NR	NR	NR	74.8B*	NR
Arsenic	NR	NR	NR	NR	NR	219	NR
Barium	NR	NR	NR	NR	NR	42.7B*	NR
Calcium	NR	NR	NR	NR	NR	32,500	NR
Chromium	NR	NR	NR	NR	NR	(<6.0U)	NR
Iron	NR	NR	NR	NR	NR	105,000	NR
Lead	NR	NR	NR	NR	NR	4.2	NR
Magnesium	NR	NR	NR	NR	NR	8,730	NR
Manganese	NR	NR	NR	NR	NR	2,330	NR
Mercury	NR	NR	NR	NR	NR	(<0.20U)	NR
Nickel	NR	NR	NR	NR	NR	(<15.0U)	NR
Potassium	NR	NR	NR	NR	NR	3,730	NR
Selenium	NR	NR	NR	NR	NR	(<1.0U)	NR
Sodium	NR	NR	NR	NR	NR	12,500	NR
Zinc	NR	NR	NR	NR	NR	124	NR

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

Analyte	Sites 1 and 3 Influent	Eastern Plume Influent	Combined Effluent	Combined Effluent DUP	Discharge Limit[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
Benzene	0.9J	(<1U)	(<1U)	(<1U)	---
Chlorobenzene	2	(<1U)	(<1U)	(<1U)	---
Chloroethane	69D	(<1U)	(<1U)	(<1U)	---
1,1-Dichloroethane	160D	10	4	3	94
1,1-Dichloroethene	3	20	(<1U)	(<1U)	7
Total 1,2-Dichloroethene	1	17	(<1U)	(<1U)	70
Tetrachloroethene	(<1U)	15	(<1U)	(<1U)	5
1,1,1-Trichloroethane	130D	180D	160D	150D	750
Trichloroethene	1	63D	0.4J	(<1U)	5
Methylene chloride	(<1U)	1	0.7J	0.6J	5
Ethylbenzene	1	(<1U)	(<1U)	(<1U)	---
Toluene	0.8J	(<1U)	(<1U)	(<1U)	---
Total xylenes	2	(<1U)	(<1U)	(<1U)	---
Vinyl chloride	2	(<1U)	(<1U)	(<1U)	2
Chloroform	(<1U)	(<1U)	1	1	---
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	---
1,1,2-Trichloroethane	0.5J	(<1U)	(<1U)	(<1U)	---
1,2-Dichlorobenzene	10	(<1U)	(<1U)	(<1U)	---
1,4-Dichlorobenzene	4	(<1U)	(<1U)	(<1U)	---
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)					
Aluminum	46.4B*	25.7B*	27.3B*	32.0B*	---
Arsenic	475	2.6B*	(<2.0U)	(<2.0U)	50
Barium	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	---
Calcium	31,300	9,570	9,420	9,710	---
Chromium	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	
Iron	54,900	48.1B*	(<40.0U)	(<40.0U)	---
Lead	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	15
Magnesium	8,380	3,810	3,630	3,730	---
Manganese	2,220	50.3	51.3	53.0	750
Mercury	(<0.20U)	(<0.20U)	(<0.20U)	(<0.20U)	---
Nickel	(<15.0U)	(<15.0U)	(<15.0U)	(<15.0U)	78
Potassium	3,610	1,260	1,460	1,500	---
Selenium	(<1.0U)	(<1.0U)	(<1.0U)	1.1B*	---
Sodium	11,900	9,830	11,300	11,400	---
Zinc	21.3	(<12.0U)	(<12.0U)	(<12.0U)	200

(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: Results in bold indicate concentrations above discharge limit criteria.
Dashes (---) indicate no discharge limit applicable to this compound/analyte.

ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-6 DUP	SW-7	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1	1
TARGET ANALYTE LIST ELEMENTS BY EPA 6000/7000/9000 SERIES METHODS (μg/L)											
Aluminum	110B*	68.0B*	223	229	248	201	198	209	NR	(<25.0U)	(<25.0U)
Barium	27.5B*	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	(<22.0U)	NR	(<22.0U)	(<22.0U)
Calcium	55,300	25,900	32,100	6,910	7,250	6,980	6,930	7,330	NR	157B*	102B*
Iron	8,760	6,710	4,510	583	691	537	526	730	NR	(<40.0U)	(<40.0U)
Lead	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	1.8B*	(<1.0U)	(<1.0U)	NR	(<1.0U)	(<1.0U)
Magnesium	6,480	3,820	4,930	1,610	1,870	1,640	1,630	1,750	NR	(<85.0U)	(<85.0U)
Manganese	1,130	651	629	137	143	140	138	168	NR	(<6.0U)	(<6.0U)
Potassium	2,700	2,310	2,380	1,560	1,550	1,550	1,520	1,650	NR	(<63.0U)	(<63.0U)
Sodium	15,900	13,400	14,100	23,900	24,000	24,700	24,300	25,200	NR	652B*	560B*
Thallium	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	1.0B*	NR	(<1.0U)	(<1.0U)
Zinc	36.3	(<12.0U)	21.7	22.5	12.1B*	(<12.0U)	(<12.0U)	(<12.0U)	NR	(<12.0U)	(<12.0U)

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
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 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SED-1	SED-2	SED -3	SED-4	SED-5	SED-6	SED-6 DUP	SED-7	QT-001 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)											
Methylene chloride	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	(<9U)	(<15U)	(<8U)	(<1U)	0.9J	1
1,1,1-Trichloroethane	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	(<9U)	(<15U)	(<8U)	(<1U)	0.5J	(<1U)
1,4-Dichlorobenzene	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	41	36	(<8U)	(<1U)	(<1U)	(<1U)
Chloroethane	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	82	70	(<8U)	(<1U)	(<1U)	(<1U)
1,1-Dichloroethane	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	49	48	(<8U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	26	22	(<8U)	(<1U)	(<1U)	(<1U)
Carbon disulfide	(<7U)	(<7U)	12	(<6U)	(<7U)	15	(<15U)	9	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	(<7U)	(<7U)	(<8U)	(<6U)	(<7U)	(<9U)	(<15U)	(<8U)	(<1U)	(<1U)	(<1U)
Toluene	1J	2J	2J	(<6U)	(<7U)	3J	4J	3J	(<1U)	(<1U)	(<1U)

NOTE:
QT = Trip blank. Amples associated with QT-001 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.
NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
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-4	SED-5	SED-6	SED-6 DUP	SED-7	QT-001 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (mg/kg)											
Aluminum	6,970	9,900	3,730	2,830	2,470	6,100	6,470	6,280	NR	(<25.0U)	(<25.0U)
Antimony	0.34B*	(<0.28U)	0.33B*	(<0.25U)	(<0.26U)	(<0.33U)	(<0.58U)	0.47B*	NR	(<2.0U)	(<2.0U)
Arsenic	16.3	4.0	2.0	2.2	3.8	13.2	17.0	5.2	NR	(<2.0U)	(<2.0U)
Barium	39.1	27.1B*	19.3B*	18.3B*	25.5B*	36.4	34.3B*	44.1	NR	(<22.0U)	(<22.0U)
Beryllium	0.17B*	0.56B*	(<0.14U)	(<0.13U)	(<0.13U)	0.44B*	(<0.29U)	0.37B*	NR	(<1.0U)	(<1.0U)
Cadmium	(<0.13U)	(<0.14U)	(<0.14U)	(<0.13U)	(<0.13U)	(<0.17U)	(<0.29U)	(<0.16U)	NR	(<1.0U)	(<1.0U)
Calcium	1,450	1,080	900	499	475	2,280	1,750	1,100	NR	204B*	102B*
Chromium	21.0	13.9	5.2	5.7	3.7	13.7	11.8	14.4	NR	(<6.0U)	(<6.0U)
Cobalt	5.6B*	3.6B*	(<1.5U)	2.8B*	1.4B*	4.5B*	4.5B*	5.8B*	NR	(<11.0U)	(<11.0U)
Copper	9.1	3.1B*	1.5B*	1.9B*	2.5B*	8.8	8.3	7.2	NR	(<6.0U)	(<6.0U)
Iron	12,400	9,220	15,500	7,280	8,410	15,700	16,000	17,100	NR	(<40.0U)	(<40.0U)
Lead	7.3	5.0	3.3	6.5	8.7	21.3	19.6	23.3	NR	(<1.0U)	(<1.0U)
Magnesium	3,200	1,270	962	1,190	882	2,330	2,360	2,350	NR	(<85.0U)	(<85.0U)
Manganese	289	100	169	357	153	352	324	191	NR	(<6.0U)	(<6.0U)
Mercury	(<0.13U)	0.13	0.24	(<0.12U)	(<0.18U)	(<0.19U)	(<0.36U)	(<0.17U)	NR	(<0.20U)	(<0.20U)
Nickel	14.1	5.8	3.3B*	5.2	3.5B*	8.4	7.8B*	9.8	NR	(<15.0U)	(<15.0U)
Potassium	2,200	580	461	556	435	1,150	1,190	1,100	NR	(<63.0U)	(<63.0U)
Selenium	(<0.13U)	0.27B*	(<0.14U)	(<0.12U)	(<0.12U)	(<0.17U)	(<0.29U)	0.35B*	NR	(<1.0U)	(<1.0U)
Sodium	145	128B*	122B*	137	130B*	188	274B*	201	NR	638B*	560B*
Thallium	0.16B*	(<0.15U)	(<0.14U)	(<0.12U)	0.14B*	(<0.17U)	(<0.29U)	(<0.14U)	NR	(<1.0U)	(<1.0U)
Vanadium	20.5	19.7	7.8	7.4	6.8	19.5	19.4	19.6	NR	(<8.0U)	(<8.0U)
Zinc	43.9	15.1	17.2	19.1	19.8	70.5	69.7	55.6	NR	20.4	(<12.0U)

TABLE 15 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEEP SAMPLES COLLECTED ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SEEP-3	SEEP-3 DUP	SEEP-4	SEEP-5	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)							
1,1-Dichloroethane	5	4	12	0.9J	(<1U)	(<1U)	(<1U)
Trichloroethene	0.6J	0.6J	1	(<1U)	(<1U)	(<1U)	(<1U)
Tetrachloroethene	0.3J	0.2J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	7	7	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Benzene	(<1U)	(<1U)	0.6J	0.7J	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	0.3J	0.6J	2	31	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	0.6J	0.7J	4	10	(<1U)	(<1U)	(<1U)
Methylene chloride	(<1U)	(<1U)	0.4J	(<1U)	(<1U)	1	1
Chloroethane	(<1U)	(<1U)	0.6J	0.8J	(<1U)	(<1U)	(<1U)
Vinyl chloride	2	1	6	0.4J	(<1U)	(<1U)	(<1U)
1,1,1-Trichloroethane	6	6	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Chlorobenzene	0.6J	0.6J	0.9J	7	(<1U)	(<1U)	(<1U)
Total 1,2-Dichloroethene	2	2	8	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	0.6J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)

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.
SEEP-1 and SEEP-2 were frozen, therefore, no aqueous sample was 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.

Analyte	SEEP-3	SEEP-3 DUP	SEEP-4	SEEP-5	QT-001	QS-001	QD-001
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)							
Aluminum	407	4,910	7,820	208	NR	(<25.0U)	(<25.0U)
Antimony	(<2.0U)	9.7B*	38.9B*	(<2.0U)	NR	(<2.0U)	(<2.0U)
Arsenic	12.7	128	75.2	12.8	NR	(<2.0U)	(<2.0U)
Barium	97.4B*	825	1970	58.2B*	NR	(<22.0U)	(<22.0U)
Beryllium	(<1.0U)	(<1.0U)	1.8B*	(<1.0U)	NR	(<1.0U)	(<1.0U)
Cadmium	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	NR	(<1.0U)	(<1.0U)
Calcium	49,800	74,600	209,000	40,400	NR	157B*	102B*
Chromium	(<6.0U)	34.6	53.3	(<6.0U)	NR	(<6.0U)	(<6.0U)
Cobalt	(<11.0U)	48.4B*	191	(<11.0U)	NR	(<11.0U)	(<11.0U)
Iron	142,000	1,430,000	6,630,000	128,000	NR	(<40.0U)	(<40.0U)
Lead	2.0B*	31.0	90.5	(<1.0U)	NR	(<1.0U)	(<1.0U)
Magnesium	12,300	15,200	34,800	11,100	NR	(<85.0U)	(<85.0U)
Manganese	4,360	18,700	10,600	2,510	NR	(<6.0U)	(<6.0U)
Mercury	(<0.20U)	0.42	2.1	(<0.20U)	NR	(<0.20U)	(<0.20U)
Nickel	(<15.0U)	38.2	102	(<15.0U)	NR	(<15.0U)	(<15.0U)
Potassium	2,260	2,670	7,860	6,120	NR	(<63.0U)	(<63.0U)
Selenium	(<1.0U)	(<1.0U)	5.2B*	(<1.0U)	NR	(<1.0U)	(<1.0U)
Sodium	37,400	36,100	88,900	17,100	NR	652B*	560B*
Thallium	(<1.0U)	(<1.0U)	1.0B*	(<1.0U)	NR	(<1.0U)	(<1.0U)
Vanadium	(<8.0U)	(<8.0U)	(<8.0U)	(<8.0U)	NR	(<8.0U)	(<8.0U)
Zinc	16.9B*	222	708	29.0	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 16 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	LT-1[a]	LT-2	LT-3	LT-3[a] DUP	LT-4	LT-5[a]	QT-001 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)									
Methylene chloride	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	0.9J	1
1,1-Dichloroethane	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
Total 1,2-dichloroethylene	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<10U)	(<8U)	7J	11	(<14U)	190	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<10U)	(<8U)	(<13U)	2J	14J	40	(<1U)	(<1U)	(<1U)
Toluene	(<10U)	(<8U)	(<13U)	2J	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
Trichloroethene	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<5U)	(<5U)
Acetone	(<19U)	(<16U)	(<25U)	5J	(<29U)	93	(<1U)	(<1U)	(<1U)
Vinyl chloride	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	(<1U)	(<1U)
1,1,1-Trichloroethane	(<10U)	(<8U)	(<13U)	(<9U)	(<14U)	(<14U)	(<1U)	0.5J	(<1U)

(a) Reanalysis due to low surrogate recovery.

NOTE: QT = Trip blank. Samples associated with QT-001 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-2	LT-3	LT-3 DUP	LT-4	LT-5	QT-001 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (mg/kg)									
Aluminum	4,750	3,560	5,050	4,550	1,350	2,800	NR	(<25.0U)	(<25.0U)
Antimony	(<0.37U)	(<0.32U)	(<0.44U)	(<0.35U)	(<0.57U)	(<0.49U)	NR	(<2.0U)	(<2.0U)
Arsenic	1.8B*	4.1	2.5	1.9	47.3	243	NR	(<2.0U)	(<2.0U)
Barium	20.2B*	11.2B*	77.9	88.5	49.7B*	52.8	NR	(<22.0U)	(<22.0U)
Beryllium	0.60B*	(<0.16U)	0.88B*	0.70B*	(<0.28U)	(<0.25U)	NR	(<1.0U)	(<1.0U)
Cadmium	(<0.19U)	(<0.16U)	(<0.22U)	(<0.18U)	(<0.57U)	(<1.2U)	NR	(<1.0U)	(<1.0U)
Calcium	2,440	553	1,960	1,700	4,680	2,960	NR	204B*	102B*
Chromium	6.5	5.2	28.1	29.8	12.3	5.0	NR	(<6.0U)	(<6.0U)
Cobalt	(<2.1U)	9.2	(<2.4U)	2.0B*	30.6	104	NR	(<11.0U)	(<11.0U)
Copper	3.4B*	2.3B*	(<1.3U)	2.6B*	(<8.5U)	(<14.8U)	NR	(<6.0U)	(<6.0U)
Iron	3,470	10,500	22,300	8,300	122,000	221,000	NR	(<40.0U)	(<40.0U)
Lead	11.3	3.7	4.8	3.7	20.2	6.3	NR	(<1.0U)	(<1.0U)
Magnesium	1,240	1,050	1,190	1,350	849	1,390	NR	(<85.0U)	(<85.0U)
Manganese	50.2	249	437	209	603	1,690	NR	(<6.0U)	(<6.0U)
Mercury	(<0.20U)	0.15	(<0.27U)	(<0.18U)	0.47	(<0.34U)	NR	(<0.20U)	(<0.20U)
Nickel	2.8B*	7.6	6.5B*	5.2B*	15.8	16.2	NR	(<15.0U)	(<15.0U)
Potassium	362	388	531	620	107B*	480	NR	(<63.0U)	(<63.0U)
Selenium	0.78B*	(<0.15U)	1.1	0.76B*	0.59B*	(<0.28U)	NR	(<1.0U)	(<1.0U)
Sodium	187	127B*	278	214	421	210B*	NR	638B*	560B*
Vanadium	7.7B*	9.8	7.8B*	8.8B*	6.8B*	(<2.0U)	NR	(<8.0U)	(<8.0U)
Zinc	10.9	13.3	10.6	9.1	28.8	36.2	NR	20.4	(<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 19 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Gas Vent Designation	Depth to Bottom (ft)	Pressure (in. H_20)	Percent Methane	Percent Oxygen	Percent Carbon Dioxide
Gas Probes					
GP-04	7.26	<0.01	0.00	19.9	0.0
GP-05	7.21	<0.01	0.00	19.9	0.0
GP-06	7.22	<0.01	0.00	19.9	0.0
Gas Vents					
GV-01	6.72	<0.01	0.20	15.5	4.1
GV-02	4.76	<0.01	0.40	9.0	8.0
GV-03	4.52	<0.01	0.00	18.6	1.1
GV-04	4.47	<0.01	0.00	20.2	0.0
GV-05	4.52	<0.01	0.00	16.6	2.3
GV-06	4.59	<0.01	0.00	17.5	1.4
GV-07	4.63	<0.01	0.00	14.8	3.7
GV-08	4.57	<0.01	0.00	16.4	2.4
GV-09	4.59	<0.01	0.00	16.8	2.1
GV-10	4.60	<0.01	0.00	19.6	0.2
GV-11	4.54	<0.01	0.00	18.6	0.9
GV-12	4.56	<0.01	0.00	14.7	2.4
GV-13	4.56	<0.01	0.00	17.0	1.5
GV-14	4.56	<0.01	0.00	18.4	1.1

NOTE: Depth to bottom measured from top of polyvinyl chloride coupling.

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

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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
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 Sites 1 & 3	Project No: 2960047	Date: 1/8/97
Weather/Temperature: Sunny, windy below 0°		
EA Personnel: SyC, BDA	Equipment: Slope indicator / OVA 123*	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
MW 202A	Y Y	Yes	0.0	0.0	Good		52.40	19.59	31.09	32.81
MW 202B	Y Y	Yes	0.0	0.0	Good		53.04	Dry	17.93	—
MW 203	Y Y	Yes	0.0	0.0	Good		52.75	31.35	42.04	21.40
MW 204	Y Y	Yes	0.0	0.0	Good		50.56	29.89	37.18	20.61
MW 210A	Y Y	Yes	0.0	0.0	Good		52.17	18.50	105.60	33.67
MW 210B	Y Y	Yes	0.0	0.0	Good		54.72	30.02	26.40	24.75
MW 215R	Y Y	Yes	0.0	0.0	Good		62.26	27.50	49.95	34.76
MW 216A	Y Y	Yes	0.0	0.0	Good		71.17	35.73	46.96	35.44
MW 217A	Y Y	Yes	0.0	0.0	Good		61.78	27.57	44.56	34.21
MW 217B	Y Y	Yes	0.0	0.0	Good		61.25	25.25	34.60	36.01
MW 218	Y Y	Yes	0.0	0.0	Good		54.16	33.85	53.54	20.31
MW 219	Y Y	Yes	0.0	0.0	Good		51.87	30.27	71.82	21.60
MW 220	Y Y	Yes	0.0	0.0	Good		47.20	27.27	49.87	19.93

NOTE: All measurements in feet mean sea level (MSL).

* Cold temperature effecting OVA function, maintain in trucks to warm. personnel maintain upwind location of well to gauge. BA

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly gauging January Sites 1 & 3	Project No: 2960047	Date: 1/8/97
Weather/Temperature: Sunny windy below 0°		
EA Personnel: SYC BDA	Equipment: Slope indicator / OVA 123*	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
MW232A	Y Y	Yes	0.0	0.0	Good		71.18	36.16	54.76	35.02
MW234R	Y Y	Yes	0.0	0.0	Good		68.55	11.80	59.52	56.75
MW210I	Y Y	~~Yes~~ No	0.0	0.0	Good		61.05	11.94	30.00	49.11
EW6	Y Y	Yes	0.0	0.0	Good		57.74	27.13	39.05	30.61
EW7	Y Y	Yes	0.0	0.0	Good		51.13	31.10	50.55	20.03
MW201R	Y Y	Yes	0.0	0.0	Good		58.88	10.40	39.51	~~49.37~~ 48.48
MW211A	Y Y	Yes	0.0	0.0	Good		65.59	23.77	137.02	41.82
MW211B	Y Y	Yes	0.0	0.0	Good		65.44	26.18	36.50	39.26
MW233R	Y Y	Yes	0.0	0.0	Good		63.94	28.50	50.49	35.44
EP-16	Y Y	Yes	0.0	0.0	Good		58.92	34.15	49.90	24.77

NOTE: All measurements in feet mean sea level (MSL).

EW-6 1gpm
EW7 3gpm

* cold temperatures effecting OVA function, maintain in tent to warm, personnel maintain upwind location of well to gauge.

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly Gauging January Eastern Plume	Project No: 29600.47	Date: 1/9/97
Weather/Temperature: Windy, Clear 20°		
EA Personnel: SYC BDA	Equipment: Slope indicator mini Rae	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
MW-205	YY	Yes	0.0	0.0	Good	--	45.99	23.80	78.77	22.19
MW-310	YY	Yes	0.0	0.0	Good		53.39	28.33	72.83	25.06
MW-105A	YY	Yes	0.0	0.0	Good		24.19	Frozen 1.80	46.87	—
MW-105B	YY	Yes	0.0	0.0	Good		24.55	7.99	22.91	16.56
MW-225A	YY	Yes	0.0	0.0	Good		45.95	19.77	76.03	26.18
MW-225B	YY	Yes	0.0	0.0	Good		46.25	23.43	42.00	22.82
MW-206A	YY	Yes	0.0	0.0	Good		43.02	19.28	74.36	23.74
MW-206B	YY	Yes	0.0	0.0	Good		42.77	18.74	27.17	24.03
MW-231A	YY	Yes	0.0	0.0	Good		45.41	20.70	62.42	24.71
MW-231B	YY	Yes	0.0	0.0	Good		46.31	24.96	57.86	21.35
MW-230A	YY	Yes	0.0	0.0	Good		36.32	15.47	82.08	20.85
MW-318	YY	Yes	0.0	0.0	Good		24.28	5.37	25.14	18.91
MW-229A	YY	Yes	0.0	0.0	Good		33.83	13.31	64.97	20.52

NOTE: All measurements in feet mean sea level (MSL).

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly gauging January Eastern Plume	Project No: 2960047	Date: 1/9/97
Weather/Temperature: windy, clear, 20°		
EA Personnel: BDA, SYC	Equipment: Slope indicator mini roe	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
MW-229B	YY	Yes	0.0	0.0	Good	--	30.08	14.75	32.70	15.33
MW-313	YY	Yes	0.0	0.0	Good		21.39	8.20	37.14	13.19
EP-1	YY	Yes	0.0	0.0	Good		31.67	12.59	100.51	19.08
EP-2	YY	Yes	0.0	0.0	Good		29.74	11.26	99.00	18.48
EP-3	YY	Yes	0.0	0.0	Good		27.91	8.16	89.21	19.75
EW-1	YY	Yes	0.0	0.0	Good		25.34	12.49	99.46	12.85
EW-2	YY	Yes	0.0	0.0	Good		31.63	5.37	90.86	26.26
MW-106	YY	Yes	0.0	0.0	Good		51.26	28.37	37.27	22.89
MW-208	YY	Yes	0.0	0.0	Good		49.40	22.17	103.33	27.23
MW-223	YY	Yes	0.0	0.0	Good		53.71	25.92	42.61	27.79
MW-209	YY	Yes	0.0	0.0	Good		54.84	29.88	32.38	24.96
MW-222	YY	Yes	0.0	0.0	Good		57.43	28.56	45.34	28.87
P-110	YN	No	0.0	0.0	Good		56.70	Dry	24.14	—

NOTE: All measurements in feet mean sea level (MSL).

EW-1 ~11gpm
EW-2 OFF

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly gauging January Eastern Plume	Project No: 2960047	Date: 1/9/97
Weather/Temperature: windy, clear, 20°		
EA Personnel: SYC BDA	Equipment: Slope indicator	M.H. Rod

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
MW-224	YY	Yes	0.0	0.0	Good	--	57.63	28.24	46.95	29.39
P-124	YN	No	0.0	0.0	Good		51.12	DRY	23.25	—
EW-3	YY	Yes	0.0	0.0	Good		41.18	34.11	67.04	7.07
EP-7	YY	Yes	0.0	0.0	Good		48.49	21.18	70.20	27.31
EP-8	YY	Yes	0.0	0.0	Good		47.31	19.53	80.38	27.78
EW-4	YY	Yes	0.0	0.0	Good		37.13	13.05	69.37	24.08
MW-207	YY	Yes	0.0	0.0	Good		62.70	15.85	22.21	46.85
MW-207A	YY	Yes	0.0	0.0	Good		24.06	Artesian	73.22	724.06
MW-207B	YY	Yes	0.0	0.0	Good		22.90	4.69	27.17	18.21
MW-311	YY	Yes	0.0	0.0	Good		21.48	Frozen 0.50	55.78	—
MW-319	YY	Yes	0.0	0.0	Good		40.16	13.57	72.44	26.59
P112	YY	Yes	0.0	0.0	Good		41.12	12.30	16.41	28.82
EP4	YY	Yes	0.0	0.0	Good		32.59	6.96	91.11	25.63

NOTE: All measurements in feet mean sea level (MSL).

EW-3 - 17gpm
EW-4 - 19gpm

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly gauging January Eastern Plume	Project No: 29600047	Date: 1/9/97
Weather/Temperature: windy, clear, 20°		
EA Personnel: SYC BDA	Equipment: Slope indicator Mini Rae	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
EP-5	Y Y	Yes	0.0	0.0	Good	--	34.61	8.13	79.85	26.48
EP-6	Y Y	Yes	0.0	0.0	Good		40.14	14.03	83.51	26.11
P-111	Y N	No	0.0	0.0	Good		31.48	Blocked at 9.95 *	9.99	—
EP-9	Y Y	Yes	0.0	0.0	Good		37.84	9.11	62.46	28.73
EP-10	Y Y	Yes	0.0	0.0	Good		37.78	7.71	58.00	30.07
EP-11	Y Y	Yes	0.0	0.0	Good		41.59	11.79	65.03	29.80
EP-12	Y Y	Yes	0.0	0.0	Good		49.38	19.25	69.61	30.13
MW-308	Y Y	Yes	0.0	0.0	Good		37.70	5.40	72.85	32.30
MW-309A	Y Y	Yes	0.0	0.0	Good		22.84	Artesian	72.71	>22.84
MW-309B	Y Y	Yes	0	0	Good		22.32	Frozen at 1.45	59.43	—
MW-1104	Yes	Yes	0.0	0.0	Good		60.09	11.78	27.55	48.31
P-103	Y N	No	0.0	0.0	Good		60.35	26.82	29.05	33.53
MW-306	Y Y	Yes	0.0	0.0	Good		52.12	19.76	56.98	32.36

NOTE: All measurements in feet mean sea level (MSL).

* Could not remove sample tubing from well because it was frozen

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly gauging January Eastern Plume	Project No: 2960047	Date: 1/9/97
Weather/Temperature: windy, clear, 20°		
EA Personnel: SYC	Equipment: Slope indicator min. Roe	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
			Air Ambient	Well Mouth						
EP-13	YY	Yes	0.0	0.0	Good		38.96	7.90	71.03	31.06
EP-14	YY	Yes	0.0	0.0	Good		43.46	13.07	80.05	30.39
EP-15	YY	Yes	0.0	0.0	Good		45.37	15.36	82.68	30.01
P106	YY	Yes	0.0	0.0	Good		38.83	11.91	71.06	26.92
P105	YY	No	0.0	0.0	Good		42.08	11.10	70.35	30.98
P132	YY	Yes	0.0	0.0	Good		42.95	17.73	32.46	25.22
MW 305	YY	Yes	0.0	0.0	Good		43.09	7.40	54.12	35.69
MW NASB 212	YY	Yes	0.0	0.0	Good		41.64	10.88	67.34	30.73
MW 303	YY	Yes	0.0	0.0	Good		44.28	13.20	71.62	31.08
EW-5	YY	Yes	0.0	0.0	Good		36.25	8.80	84.99	27.45

NOTE: All measurements in feet mean sea level (MSL).

EW-5 OFF

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Sites 1+3		Project No: 29600.47.7301	Date: 3/5/97
Weather/Temperature: Sunny, 40°, slight breeze			
EA Personnel: SYC, MDC		Equipment: TVA-1000, Slope indicator	

	Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
1	EW-6	YY	Yes	0.0	11.5	Good	--	57.74	24.77	39.05	32.97
	EW-7	YY	Yes	0.0	2.0	Good		51.13	32.25	50.55	18.88
2	MW-234R	YY	Yes	0.0	5.2%	Good		68.55	33.65	59.52	34.90
	MW-232A	YY	Yes	0.0	6,208	Good		71.18	36.38	54.76	34.80
	MW-217B	YY	Yes	0.0	2.8%	Good		61.25	25.15	34.60	36.10
2	MW-217A	YY	Yes	0.0	2.0	Good		61.78	28.17	44.56	33.61
	MW-220	YY	Yes	0.0	0.0	Good		47.20	27.65	49.87	19.55
	MW-210A	YY	Yes	0.0	0.0	Good		52.17	18.60	105.60	33.57
	MW-210B	YY	Yes	0.0	0.0	Good		54.72	30.50	26.40	24.22
	EP-16	YY	Yes	0.0	0.0	Good		58.92	34.55	49.90	24.37
	MW-216A	YY	Yes	0.0	18.1%	Good		71.17	35.95	46.96	35.22
	MW-211A	YY	Yes	0.0	91.7	Good		65.59	24.23	137.02	41.36
	MW-211B	YY	Yes	0.0	21.3	Good		65.44	26.53	36.50	38.91

NOTE: All measurements in feet mean sea level (MSL).

EW-6 - 1gpm
EW-7 3gpm

(2) Came loose at extension of PVC well casing (8 ft below top of steel casing)

(1) water in well vault 6-8 in below top of well sing (approximately 2 ft drop)

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Sites 1+3	Project No: 29600.47.7301	Date: 3/5/97
Weather/Temperature: Sunny, 40°, slight breeze		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
MW-2101	Y Y	No	0.0	0.0	Good	--	61.05	12.42	30.00	48.63
MW-201R	Y Y	Yes	0.0	0.0	Good		58.88	11.14	39.51	47.74
MW-233R	Y Y	Yes	0.0	0.0	Good		63.94	28.75	50.49	35.19
MW-215R	Y Y	Yes	0.0	7.7%	Good		62.26	27.90	49.95	34.36
MW-202A	Y Y	Yes	0.0	0.0	Good		52.40	20.40	31.09	32.00
MW-203	Y Y	Yes	0.0	0.0	Good		52.75	31.49	42.04	21.26
MW-202B	Y Y	Yes	0.0	0.0	Good		53.04	DRY	17.93	—
MW-218	Y Y	Yes	0.0	0.0	Good		54.16	33.89	53.54	20.27
MW-204	Y Y	Yes	0.0	0.0	Good		50.50	29.99	37.18	20.51
MW-219	Y Y	Yes	0.0	0.0	Good		51.87	30.48	71.82	21.39

NOTE: All measurements in feet mean sea level (MSL).

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600.47.7301	Date: 3/5/97
Weather/Temperature: Sunny, 40°, Slight breeze		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
			Air Ambient	Well Mouth						
MW-310	YY	Yes	0.0	0.0	Good	--	53.39	28.68	72.83	24.71
MW-206A	YY	Yes	0.0	0.0	Good		43.02	19.82	74.36	23.20
MW-206B	YY	Yes	0.0	0.0	Good		42.77	19.23	27.17	23.54
MW-225A	YY	Yes	0.0	0.0	Good		45.95	20.35	76.03	25.60
MW-225B	YY	Yes	0.0	0.0	Good		46.25	20.57	42.00	25.68
MW-105A	YY	Yes	0.0	0.0	Good		24.19	2.32	46.87	21.87
MW-105B	YY	Yes	0.0	0.0	Good		24.55	7.62	22.91	16.93
MW-231A	YY	Yes	0.0	0.0	Good		45.41	20.60	62.42	24.81
MW-231B	YY	Yes	0.0	0.0	Good		46.31	24.77	57.86	21.54
MW-230A	YY	Yes	0.0	0.0	Good		36.32	15.50	82.08	20.82
MW-318	YY	Yes	0.0	0.0	Good		24.28	5.20	25.14	19.08
MW-229A	YY	Yes	0.0	0.0	Good		33.83	13.42	64.97	20.41
MW-229B	YY	Yes	0.0	0.0	Good		30.68	15.17	32.70	14.91

NOTE: All measurements in feet mean sea level (MSL).

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600.47.7301	Date: 3/5/97
Weather/Temperature: Sunny, 40°, slight breeze		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
			Air Ambient	Well Mouth						
MW-313	YY	Yes	0.0	0.0	Good		21.39	8.27	37.14	13.12
EP-1	YY	Yes	0.0	0.0	Good		31.67	12.75	100.51	18.92
EP-2	YY	Yes	0.0	0.0	Good		29.74	11.35	99.00	18.39
EP-3	YY	Yes	0.0	0.0	Good		27.91	8.33	89.21	19.58
EW-1	YY	Yes	0.0	0.0	Good		25.34	13.55	99.66	11.79
MW-205	YY	Yes	0.0	0.0	Good		45.99	24.16	78.77	21.83
EW-2	YY	Yes	0.0	0.0	Good		31.63	16.51	90.86	15.12
EP-4	YY	Yes	0.0	0.0	Good		32.59	10.53	91.11	22.06
EP-5	YY	Yes	0.0	0.0	Good		34.61	10.97	79.85	23.64
EP-6	YY	Yes	0.0	0.0	Good		40.14	15.27	83.51	24.87
MW-207A	YY	Yes	0.0	0.0	Good		24.06	0.61	73.22	23.45
MW-207B	YY	Yes	0.0	0.0	Good		22.90	5.90	27.17	17.00
MW-311	YY	Yes	0.0	0.0	Good		21.48	Frozen at 1.5 Ft	55.78	—

NOTE: All measurements in feet mean sea level (MSL).

EW-1 15gpm
EW-2 25gpm

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600.47.7301	Date: 3/5/97
Weather/Temperature: overcast, breezy, 40°		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
P-112	YY	Yes	0.0	0.0	Good		41.12	12.60	16.41	28.52
MW-319	YY	Yes	0.0	0.0	Good		40.16	15.83	72.44	24.33
MW-106	YY	Yes	0.0	0.0	Good		51.26	24.33	37.27	26.93
MW-208	YY	Yes	0.0	0.0	Good		49.40	22.57	103.33	26.83
EW-3	YY	Yes	0.0	0.0	Good		41.18	24.90	67.04	16.28
MW-223	YY	Yes	0.0	0.0	Good		53.71	26.12	42.61	27.59
P-124	YN	No	0.0	0.0	Good		51.12	DRY at 23.25	23.25	—
MW-209	YY	Yes	0.0	0.0	Good		54.84	26.80	32.38	28.04
MW-222	YY	Yes	0.0	0.0	Good		57.43	28.66	45.34	28.77
P-110	YN	No	0.0	0.0	Good		56.70	DRY at 24.14	24.14	—
MW-224	YY	Yes	0.0	0.0	Good		57.63	27.89	46.95	29.74
EP-7	YY	Yes	0.0	0.0	Good		48.49	21.57	70.20	26.92
EP-8	YY	Yes	0.0	0.0	Good		47.31	19.90	80.38	27.41

NOTE: All measurements in feet mean sea level (MSL).

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600.47.7301	Date: 3/5/97
Weather/Temperature: Overcast, 40°, breezy		
EA Personnel: SYC, MDE	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
			Air Ambient	Well Mouth						
EW-4	YY	Yes	0.0	0.0	Good		37.13	17.25	69.37	19.88
EP-9	YY	Yes	0.0	0.0	Good		37.84	9.39	62.46	28.45
EP-10	YY	Yes	0.0	0.0	Good		37.78	8.60	58.00	29.18
EP-11	YY	Yes	0.0	0.0	Good		41.59	11.77	65.03	29.82
EP-12	YY	Yes	0.0	0.0	Good		49.38	19.15	69.61	30.23
MW-307	YY	Yes	0.0	0.0	Good		62.70	16.00	22.21	46.70

NOTE: All measurements in feet mean sea level (MSL).

EW-4 25gpm

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600.47.7301	Date: 3/6/97
Weather/Temperature: Snowing, 35°		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
on EW-5	YY	Yes	0.0	0.0	Good	--	36.25	42.99	84.99	-6.74
P-105	YY	No	0.0	0.0	Good		42.08	10.68	70.35	31.40
P-106	YY	Yes	0.0	0.0	Good		38.83	11.32	71.06	27.51
EP-13	YY	Yes	0.0	0.0	Good		38.96	7.24	71.03	31.72
EP-14	YY	Yes	0.0	0.0	Good		43.46	12.80	80.05	30.66
EP-15	YY	Yes	0.0	0.0	Good		45.37	16.28	82.68	29.09
P-132	YY	Yes	0.0	0.0	Good		42.95	17.81	32.46	25.14
MW-303	YY	Yes	0.0	0.0	Good		44.28	12.67	71.62	31.61
MW-305	YY	Yes	0.0	0.0	Good		43.09	7.25	54.12	35.84
MW-NASB 212	YY	Yes	0.0	0.0	Good		41.64	10.31	67.34	31.33
MW-306	YY	Yes	0.0	0.0	Good		52.12	19.02	56.98	33.10
P-103	YN	No	0.0	0.0	Good		60.35	26.13	29.05	34.22
MW-1104	YY	Yes	0.0	0.0	Good		60.09	11.72	27.55	48.37

NOTE: All measurements in feet mean sea level (MSL).

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600477301	Date: 3/6/97
Weather/Temperature: Snowing, 35°		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
P-111	Y N	No	0.0	0.0	Good	--	31.48	* *	9.99	——
MW-308	Y Y	Yes	0.0	0.0	Good		37.70	5.10	72.85	32.60
MW-309A	Y Y	Yes	0.0	0.0	Good		22.84	Artesian	72.71	>22.84
MW-309B	Y Y	Yes	0.0	0.0	Good		22.32	2.65	59.43	19.67
MW-312	Y N	No	0.0	0.0	Poor		35.97	10.58	71.15	25.39
MW-316A	Y Y	No	0.0	0.0	Good		53.71	19.66	103.10	34.05
MW-316B	Y Y	No	0.0	0.0	Good		54.40	9.20	57.85	45.20
MW-317A	Y Y	No	0.0	0.0	Good		71.35	12.43	120.79	58.92
MW-317B	Y Y	No	0.0	0.0	Good		70.10	11.21	96.95	58.89
P-121	Y Y	No	0.0	0.0	Good		50.78	14.86	17.35	35.92
P-123	Y Y	No	0.0	0.0	Good		54.19	Blocked at 1.15 Ft	Blocked	——

NOTE: All measurements in feet mean sea level (MSL).

* * Sample tube Frozen in piezometer, unable to gauge.

MW-312 has no steel protective casing

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 8 Eastern Plume	Project No: 29600.47.7301	Date: 3/5-3/6/97
Weather/Temperature: Sunny, 40°, slight breeze / Snowing, 35°		
EA Personnel: SYC, MDC	Equipment: TVA-1000, Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
GP-1			0.0				31.10	2.50		28.60
* GP-2			0.0				28.95	3.00		25.95
GP-3			0.0				27.33	Frozen at 2.10 ft		—
GP-4			0.0				18.39	2.60		15.79
GP-5			0.0				23.38	7.80		15.58
GP-6			0.0				15.22	10.50		4.72

NOTE: All measurements in feet mean sea level (MSL).

* smells like sewer

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Bimonthly gauging January Stream gauge points	Project No: 2960047	Date: 1/9/97
Weather/Temperature: Windy Clear 20°		
EA Personnel: SYC BDA	Equipment: Slope indicator	

Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm)		Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
			Air Ambient	Well Mouth						
GP-1							31.10	3.30		27.80
GP-2							28.95	3.40		25.55
GP-3							27.33	Frozen at 3.51		
GP-4							10.39	2.80		7.59
GP-5							23.38	8.16 *		15.22
GP-6							15.22	10.38 !		4.84

NOTE: All measurements in feet mean sea level (MSL).

* numerous debris on rack
! upstream From gauging point blocked

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Appendix A.2

Field Record of Well Gauging, Purging, and Sampling Forms

EA Engineering, Science and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3 ~~Sites 1+3~~ Eastern pt
WELL I.D.: MW-202A
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°, slight breeze

GAUGE DATE: 3/14/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.11

GAUGE TIME: 935
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/14/97
PURGE METHOD: grundfos Rad. Flow Pump
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 940
FIELD PERSONNEL: SYC, KI
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 31.09
B. DEPTH TO WATER (ft): 20.55
C. LIQUID DEPTH (ft) (A-B): 10.54

D. WELL VOLUME/FT (L): ~~0.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 6.38
F. THREE WELL VOLUMES (L) (E*3): 19.14

Parameter	Beginning	1	2	3	4	5
Time (min)	940	944	948	952	956	1000
Depth to Water (ft)	20.55	21.68	22.41	22.01	21.49	21.25
Purge Rate (L/min)	0.4	0.4	0.4	0.35	0.35	0.35
Volume Purged (L)	—	1.6	3.2	4.6	6.0	7.4
pH	5.70	5.71	5.73	5.92	5.78	4.71
Temperature (°C)	9.0	11.0	12.4	12.9	12.3	11.7
Conductivity (μmhos/cm)	416	456	428	570	496	486
Dissolved Oxygen (mg/L)	7.63	4.53	3.65	3.41	3.67	4.60
Turbidity (NTU)	491	304	222	116	113	109
Eh (mv)	185	173	162	189	136	127

TOTAL QUANTITY OF WATER REMOVED (L): 23

SAMPLERS: KI SYC
SAMPLING TIME (START/END): 1045 / 1048
SAMPLING DATE: 3/14/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-SL MW005 1045
SAMPLE PARAMETERS: VOC, TAL Elements

COMMENTS AND OBSERVATIONS: Have to increase frequency on ~~bar~~ pump 'bgx in order to maintain purgerate of 0.35 L/min.
23L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 29600.47	Date: 3/14/97
Well ID: MW-202A	Field Personnel: KI, SYC	

Parameter	6	7	8	9	10	11
Time (min.)	1004	1008	1012	1016	1020	1024
Depth to Water (ft)	21.40	21.51	21.30	21.63	24.30	24.08
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.35	0.35
Volume Purged (L)	8.8	10.2	11.6	13.0	14.4	15.8
pH	5.66	5.76	5.75	5.98	5.76	5.76
Temperature (°C)	13.7	17.4	18.0	13.6	13.2	13.3
Conductivity (μmhos/cm)	488	498	506	572	570	566
Dissolved Oxygen (mg/L)	3.08	4.62	3.29	6.66	4.39	2.89
Turbidity (NTU)	289	305	319	47	27	23
Eh (mv)	117	113	109	109	104	100

Parameter	12	13	14	15	16	17
Time (min)	1028	1031	1034	1037	1040	
Depth to Water (ft)	23.91	23.45	23.61	23.12	23.41	
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.35	
Volume Purged (L)	17.2	18.2	19.1	20.1	21.2	
pH	5.76	5.76	5.76	5.76	5.77	
Temperature (°C)	13.3	13.4	13.9	14.3	14.7	
Conductivity (μmhos/cm)	600	588	564	566	580	
Dissolved Oxygen (mg/L)	2.74	2.61	2.39	2.30	2.19	
Turbidity (NTU)	22	22	22	22	22	
Eh (mv)	99	97	95	94	93	

COMMENTS AND OBSERVATIONS at 1014 pump ~~sug~~ rate variable adjusted to lower flow rate after it suddenly increased, (water shot out) Appears screen & pump might have been clogged and suddenly cleared up.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3
WELL I.D.: MW-202B
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: locked
WEATHER: sunny, windy, 15°C

GAUGE DATE: 3/13/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 1.75

GAUGE TIME: 1515
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/13/97
PURGE METHOD: grundfos
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: —
FIELD PERSONNEL: SYC KI
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 18.15
B. DEPTH TO WATER (ft): 18.15 (DRY)
C. LIQUID DEPTH (ft) (A-B): DRY

D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (L)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
Eh (mv)						

DRY

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: NA
SAMPLING TIME (START/END): NA
SAMPLING DATE: NA
DECONTAMINATION FLUIDS USED: NA
SAMPLE TYPE: NA
SAMPLE PRESERVATIVES: NA
SAMPLE BOTTLE IDs: NA
SAMPLE PARAMETERS: NA

COMMENTS AND OBSERVATIONS: Well dry unable to sample

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick
WELL I.D.: MW-203
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7301
WELL LOCK STATUS: good
WEATHER: cloudy, cold

GAUGE DATE: 3/14/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.12

GAUGE TIME: 1320
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2 in.

PURGE DATE: 3/14/97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1323
FIELD PERSONNEL: MDC, BDA.
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 42.04
B. DEPTH TO WATER (ft): 31.59
C. LIQUID DEPTH (ft) (A-B): 10.45

D. WELL VOLUME/FT (L): ~~0.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 6.32
F. THREE WELL VOLUMES (L) (E*3): 18.96

Parameter	Beginning	1	2	3	4	5
Time (min)	1325	1330	1335	1340	1345	1350
Depth to Water (ft)	31.60	31.59	31.61	31.61	31.61	31.61
Purge Rate (L/min)	.2	.2	.2	.2	.2	.2
Volume Purged (L)	1.0	2.0	3.0	4.0	5.0	6.0
pH	5.34	5.41	5.21	5.15	5.29	5.40
Temperature (°C)	9.16	8.80	8.86	9.93	11.24	12.29
Conductivity (μmhos/cm)	561	555	529	543	557	562
Dissolved Oxygen (mg/L)	9.02	8.93	9.03	8.93	8.98	8.81
Turbidity (NTU)	46.1	17.2	11.0	4.9	3.0	1.2
Eh (mv)	115.2	154.9	164.9	177.8	184.2	188.0

TOTAL QUANTITY OF WATER REMOVED (L): 10.5

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1410 - 1420
SAMPLING DATE: 3/14/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BA-08-51-MW041
SAMPLE PARAMETERS: VOCs, metals.
COMMENTS AND OBSERVATIONS: 10.5 L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick Sites 1 & 3	Project No.: 29600.47	Date: 3/14/97
Well ID: MW 203	Field Personnel: MDC, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1355	14.00	1403			
Depth to Water (ft)	31.61	31.61	31.61			
Purge Rate (L/min)	.2	.2	.2			
Volume Purged (L)	7.0	8.0	9.0			
pH	5.45	5.49	5.67			
Temperature (°C)	13.02	13.34	13.37			
Conductivity (μmhos/cm)	604	577	611.0			
Dissolved Oxygen (mg/L)	8.77	8.74	8.45			
Turbidity (NTU)	1.9	2.0	2.3			
Eh (mv)	191.8	197.7	198.9			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: Sites 1+3
WELL I.D.: MW 204
WELL CONDITION: Good

PROJECT NUMBER: 29600477301
WELL LOCK STATUS: locked
WEATHER: Overcast, 40°

GAUGE DATE: 3/17/97
SOUNDING METHOD: sbpo indicator
STICK UP/DOWN (ft): 1.74

GAUGE TIME: 0740
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/17/97
PURGE METHOD: grundfos · Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0745
FIELD PERSONNEL: KI SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 37.18
B. DEPTH TO WATER (ft): 30.15
C. LIQUID DEPTH (ft) (A-B): 7.03

D. WELL VOLUME/FT (L): ~~1.6~~ SC 0.605
E. WELL VOLUME (L) (C*D): 4.25
F. THREE WELL VOLUMES (L) (E*3): 12.75

Parameter	Beginning	1	2	3	4	5
Time (min)	0745	0948	0951	0954	0957	1000
Depth to Water (ft)	30.15	30.15	30.16	30.15	30.15	30.15
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	—	0.9	1.8	2.7	3.6	4.5
pH	9.64	9.10	8.31	7.63	7.34	7.26
Temperature (°C)	7.6	7.9	8.7	9.0	9.3	9.4
Conductivity (μmhos/cm)	82	63	66	62	62	58
Dissolved Oxygen (mg/L)	10.25	10.70	10.67	10.58	10.65	10.66
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	169	163	158	144	140	139

TOTAL QUANTITY OF WATER REMOVED (L): 5 L

SAMPLERS: KI SC
SAMPLING TIME (START/END): 1005 / 1003
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-SI-MW013 1005
SAMPLE PARAMETERS: VOC, TAL Elements

COMMENTS AND OBSERVATIONS: 5 L Containerized + dumped

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3
WELL I.D.: MW-210A
WELL CONDITION: good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: locked
WEATHER: Sunny, windy, 150°

GAUGE DATE: 3/13/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft):

GAUGE TIME: 1510
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: ——
PURGE METHOD: ——
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: NA
FIELD PERSONNEL: NA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 96.10
B. DEPTH TO WATER (ft): 18.51
C. LIQUID DEPTH (ft) (A-B): 77.59

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 46.94
F. THREE WELL VOLUMES (L) (E*3): 140.82

*See Comments

Parameter	Beginning	1	2	3	4	5
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (L)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
Eh (mv)						

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: NA
SAMPLING TIME (START/END): NA
SAMPLING DATE: NA
DECONTAMINATION FLUIDS USED: NA
SAMPLE TYPE: NA
SAMPLE PRESERVATIVES: NA
SAMPLE BOTTLE IDs: NA
SAMPLE PARAMETERS: NA

COMMENTS AND OBSERVATIONS: Unable to sample, riser is bent and we can not fit pump into well.

EA Engineering, Science and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3
WELL I.D.: MW-210B
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°, slight breeze

GAUGE DATE: 3/14/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.50

GAUGE TIME: 1102
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/14/97
PURGE METHOD: grundfos Redi Flo Low flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1106
FIELD PERSONNEL: SVC, KI
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 41.35
B. DEPTH TO WATER (ft): 30.54
C. LIQUID DEPTH (ft) (A-B): 10.81

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 6.54
F. THREE WELL VOLUMES (L) (E*3): 19.62

Parameter	Beginning	1	2	3	4	5
Time (min)	1106	1110	1114	1118	1122	1126
Depth to Water (ft)	30.54	30.60	30.59	30.56	30.56	30.57
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.8	1.6	2.4	3.2	4.0
pH	6.11	6.01	6.03	6.04	6.02	6.02
Temperature (°C)	7.7	8.0	8.1	8.2	9.1	11.6
Conductivity (μmhos/cm)	124	106	158	72	150	120
Dissolved Oxygen (mg/L)	8.34	4.10	3.88	3.37	3.21	1.64
Turbidity (NTU)	50	57	58	47	44	35
Eh (mv)	77	81	85	88	90	90

TOTAL QUANTITY OF WATER REMOVED (L): 14

SAMPLERS: KI, SVC
SAMPLING DATE: 3/14/97
SAMPLE TYPE: Grab
SAMPLE BOTTLE IDs: BN-08-S1-MW010
SAMPLE PARAMETERS: VOC, TAL Elements

SAMPLING TIME (START/END): 1218/1220
DECONTAMINATION FLUIDS USED: none
SAMPLE PRESERVATIVES: HCL, Nitric acid

COMMENTS AND OBSERVATIONS: 14L containerized + decanted

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 2960047	Date: 3/14/97
Well ID: MW-210B	Field Personnel: SYG KI	

Parameter	6	7	8	9	10	11
Time (min.)	1130	1134	1138	1142	1146	1150
Depth to Water (ft)	30.82	30.75	30.73	30.74	30.73	30.75
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	4.8	5.6	6.4	7.2	8.0	8.8
pH	6.02	6.09	6.11	6.05	6.04	6.03
Temperature (°C)	11.6	12.4	12.7	12.5	12.6	12.5
Conductivity (μmhos/cm)	122	122	122	122	120	120
Dissolved Oxygen (mg/L)	2.04	3.92	4.59	2.52	1.86	1.35
Turbidity (NTU)	206	378	209	161	109	57
Eh (mv)	91	81	84	83	83	84

Parameter	12	13	14	15	16	17
Time (min)	1154	1158	1202	1206	1210	1214
Depth to Water (ft)	30.76	30.76	30.76	30.75	30.76	30.76
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	9.6	10.4	11.2	12.0	12.8	13.6
pH	6.03	6.03	6.03	6.03	6.03	6.03
Temperature (°C)	12.3	12.3	12.3	12.3	12.3	12.3
Conductivity (μmhos/cm)	~~150~~ SC 118	118	118	118	118	120
Dissolved Oxygen (mg/L)	1.50	1.61	1.84	1.82	1.83	1.80
Turbidity (NTU)	33	32	32	31	30	31
Eh (mv)	87	88	89	89	87	89

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3
WELL I.D.: MW-215R
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 30°, slight breeze

GAUGE DATE: 3/14/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 3.20

GAUGE TIME: 833
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/14/97
PURGE METHOD: Low flow grundfos Redi Flo
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0

PURGE TIME: 845
FIELD PERSONNEL: KI SYC
WELL MOUTH VOCs (ppm): Start: 1600 End: 712

WELL VOLUME

A. WELL DEPTH (ft): 44.63
B. DEPTH TO WATER (ft): 27.61
C. LIQUID DEPTH (ft) (A-B): 17.02

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.30
F. THREE WELL VOLUMES (L) (E*3): 30.90

Parameter	Beginning	1	2	3	4	5
Time (min)	845	848	851	854	657	900
Depth to Water (ft)	27.61	27.99	28.35	28.51	28.12	27.88
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.25	0.25
Volume Purged (L)	—	1.6	2.1	3.1	3.9	4.6
pH	6.04	5.39	5.41	5.42	5.43	5.44
Temperature (°C)	8.0	8.7	11.5	11.7	11.6	11.8
Conductivity (μmhos/cm)	204	138	168	152	158	160
Dissolved Oxygen (mg/L)	12.02	6.76	4.48	3.57	3.32	2.78
Turbidity (NTU)	13	7	4	3	3	2
Eh (mv)	125	132	141	155	58	160

TOTAL QUANTITY OF WATER REMOVED (L): 7

SAMPLERS: KI, SYC
SAMPLING TIME (START/END): 9/5/ 920
SAMPLING DATE: 3/14/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-SI-MW003 915
SAMPLE PARAMETERS: VOC TAL Elements
COMMENTS AND OBSERVATIONS: Duplicate collected BN-08-SI-MW XD1
7 Liters containerized & dumped

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 29600.47	Date: 3/14/97
Well ID: MW-215R	Field Personnel: SYC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	903	907	911			
Depth to Water (ft)	27.90	27.91	27.94			
Purge Rate (L/min)	0.2	0.2	0.2			
Volume Purged (L)	5.2	6.0	6.8			
pH	5.44	5.44	5.44			
Temperature (°C)	11.8	12.0	12.6			
Conductivity (μmhos/cm)	2.15 170	162	170			
Dissolved Oxygen (mg/L)	2.15	2.18	2.05			
Turbidity (NTU)	2	2	3			
Eh (mv)	162	162	161			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: Sites 1+3
WELL I.D.: MW-216A
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, windy, 15°

GAUGE DATE: 3/13/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 1.10

GAUGE TIME: 0948
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/13/97
PURGE METHOD: 2" Grundfos Red. Flow Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0950
FIELD PERSONNEL: SYC, KI
WELL MOUTH VOCs (ppm): Start: 13 End: 20.0

WELL VOLUME

A. WELL DEPTH (ft): 46.76
B. DEPTH TO WATER (ft): 35.97
C. LIQUID DEPTH (ft) (A-B): 10.79

D. WELL VOLUME/FT (L): SC 0.1605
E. WELL VOLUME (L) (C*D): 6.93
F. THREE WELL VOLUMES (L) (E*3): 19.59

Parameter	Beginning	1	2	3	4	5
Time (min)	0950	0958	0956	0959	1002	1005
Depth to Water (ft)	35.97	36.38	36.15	36.17	36.16	36.15
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	—	0.9	1.8	2.7	3.6	4.5
pH	5.96	5.93	5.92	5.91	5.90	5.89
Temperature (°C)	8.2	8.9	8.7	9.2	11.9	12.1
Conductivity (μmhos/cm)	320	302	332	292	308	294
Dissolved Oxygen (mg/L)	12.54	6.67	4.76	3.62	2.89	2.59
Turbidity (NTU)	2	1	1	1	0	0
Eh (mv)	107	113	119	125	130	133

TOTAL QUANTITY OF WATER REMOVED (L): 4.5

SAMPLERS: SYC, KI
SAMPLING TIME (START/END): 1025/1028
SAMPLING DATE: 3/13/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: ~~MW~~ BN-08-S1-MW004 1025
SAMPLE PARAMETERS: VOC by EPA 3260, TAL Elements
COMMENTS AND OBSERVATIONS: 9.5L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: S,+oS 1+3	Project No.: 29600.47730 Date: 3/13/97
Well ID: MW-216A	Field Personnel: SYC, KI

Parameter	6	7	8	9	10	11
Time (min.)	1008	1011	1014	1017	1020	
Depth to Water (ft)	36.16	36.17	36.13	36.15	36.14	
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	
Volume Purged (L)	5.4	6.3	7.2	8.1	9.0	
pH	5.88	5.87	5.87	5.85	5.84	
Temperature (°C)	13.8	14.2	14.4	14.6	14.6	
Conductivity (μmhos/cm)	270	256	264	270	264	
Dissolved Oxygen (mg/L)	2.24	2.19	1.91	1.95	1.90	
Turbidity (NTU)	0	0	0	0	0	
Eh (mv)	136	136	139	140	141	

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: NAS Brunswick Sites 1 & 3
WELL I.D.: MW 217A
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7301
WELL LOCK STATUS: good
WEATHER: overcast cold

GAUGE DATE: 14 March 1997
SOUNDING METHOD: Slope indic
STICK UP/DOWN (ft): 5.10

GAUGE TIME: 0932
MEASUREMENT REF: Top of PVC
WELL DIAMETER (in.): 2"

PURGE DATE: 14 MAR 1997
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0943
FIELD PERSONNEL: MC, BA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 42.00
B. DEPTH TO WATER (ft): 27.47
C. LIQUID DEPTH (ft) (A-B): 14.53

D. WELL VOLUME/FT (L): SC ~~0.16~~ 0.605
E. WELL VOLUME (L) (C*D): 8.79
F. THREE WELL VOLUMES (L) (E*3): 26.37

Parameter	Beginning	1	2	3	4	5
Time (min)	0945	0950	0955	1000	1005	1010
Depth to Water (ft)	28.87	28.20	28.17	28.18	28.18	28.21
Purge Rate (L/min)	~~1.5~~ .15	~~1.5~~ .15	~~1.5~~ .15	~~1.5~~ .15	.15	.15
Volume Purged (L)	0.3	1.05	1.8	2.55	3.3	4.05
pH	6.30	6.33	5.83	5.77	5.50	~~5.73~~ 5.52
Temperature (°C)	8.43	8.58	8.39	8.82	9.97	11.37
Conductivity (μmhos/cm)	573	577	541	546	551	573
Dissolved Oxygen (mg/L)	2.50	1.57	1.74	1.75	1.76	1.67
Turbidity (NTU)	69.4	68.3	~~119~~ 183.6	129.2	100.5	59.8
Eh (mv)	93.6	111.9	119.0	113.7	115.2	110.1

TOTAL QUANTITY OF WATER REMOVED (L): 12.3

SAMPLERS: MC, BA
SAMPLING TIME (START/END): 1105 - 1115
SAMPLING DATE: 14 Mar 97
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL, HNO_3
SAMPLE BOTTLE IDs: BN-08-S1-MW007
SAMPLE PARAMETERS: VOCs by 8260, TAL Elements
COMMENTS AND OBSERVATIONS: 12.3 L containerized & dumped

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick Site 103	Project No.: 29600.47	Date: 3/14/97
Well ID: MW 217A	Field Personnel: MC BA	

Parameter	6	7	8	9	10	11
Time (min.)	1015	1020	1025	1030	1035	1040
Depth to Water (ft)	28.21	28.20	28.20	28.20	28.21	28.21
Purge Rate (L/min)	.15	.15	.15	.15	.15	.15
Volume Purged (L)	4.8	5.55	6.3	~~6.75~~ 7.05 MC	7.80	8.55
pH	5.80	5.61	5.70	5.96	6.05	6.05
Temperature (°C)	11.99	12.51	12.95	13.6	14.20	14.2
Conductivity (μmhos/cm)	582	588	593	595	590	592
Dissolved Oxygen (mg/L)	1.89	1.98	1.82	1.66	1.56	1.55
Turbidity (NTU)	42.3	33.7	27.5	21.5	19.1	19.0
Eh (mv)	108.8	113.0	115.7	118.6	121.1	121.1

Parameter	12	13	14	15	16	17
Time (min)	1045	1050	1055	1100		
Depth to Water (ft)	28.20	28.20	28.21	28.20		
Purge Rate (L/min)	.15	.15	.15	.15		
Volume Purged (L)	9.30	10.05	10.80	11.55		
pH	6.03	6.10	6.20	6.18		
Temperature (°C)	14.47	14.53	14.49	14.47		
Conductivity (μmhos/cm)	568	566	559	555		
Dissolved Oxygen (mg/L)	1.34	1.29	1.47	1.37		
Turbidity (NTU)	15.9	15.9	~~6.2~~ 19.8	20.0		
Eh (mv)	124.6	124.2	123.5	125.0		

COMMENTS AND OBSERVATIONS Sample

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: I&S
WELL I.D.: MW 217B
WELL CONDITION: good

PROJECT NUMBER: 2960097.7301
WELL LOCK STATUS: locked
WEATHER: overcast Cold

GAUGE DATE: 3/14/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 1.30

GAUGE TIME: 1128
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 3-14-97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1130
FIELD PERSONNEL: MOC BA
WELL MOUTH VOCs (ppm): Start: 10% End: 3%

WELL VOLUME

A. WELL DEPTH (ft): 34.60
B. DEPTH TO WATER (ft): 25.00
C. LIQUID DEPTH (ft) (A-B): 9.6

D. WELL VOLUME/FT (L): ~~.6~~ 0.605
E. WELL VOLUME (L) (C*D): 5.81
F. THREE WELL VOLUMES (L) (E*3): 17.43

Parameter	Beginning	1	2	3	4	5
Time (min)	1130	1135	1140	11.45	1150	11.55
Depth to Water (ft)	25.68	26.22	26.59	26.65	26.82	26.90
Purge Rate (L/min)	.1 mL	.1 mL	.1 mL	.1 mL	.1 mL	.1 mL
Volume Purged (L)	.5	1	1.5	2	2.5	3
pH	5.37	5.25	5.96	5.71	5.87	5.97
Temperature (°C)	9.47	8.40	11.45	12.97	15.47	14.82
Conductivity (μmhos/cm)	850	758	1100	1204	1513	1595
Dissolved Oxygen (mg/L)	1.65	1.45	.76	.72	.49	.42
Turbidity (NTU)	24	38.4	167.4	260	531	659
Eh (mv)	-37.4	-36.8	-44.7	-50.9	-58.4	-60.5

TOTAL QUANTITY OF WATER REMOVED (L): 39

SAMPLERS: MC BDH
SAMPLING TIME (START/END): 1300 - 1312
SAMPLING DATE: 3/14/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BN-08-S1-MW009
SAMPLE PARAMETERS: VOC, metals
COMMENTS AND OBSERVATIONS: 39 L Containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick Site 1&3	Project No.: 29600.47	Date: 3/14/97
Well ID: MW 217 B	Field Personnel: MC, BA	

Parameter	6	7	8	9	10	11
Time (min.)	1200	1205	1210	1215	1220	1225
Depth to Water (ft)	26.95	26.85	27.02	27.20	27.80	27.76
Purge Rate (L/min)	.1 mc	.1 mc	.1 mc	.1 mc	.1 mc	.1 mc
Volume Purged (L)	3.5	4	4.5	5	5.5	6
pH	5.95	5.96	6.09	5.38	5.96	5.99
Temperature (°C)	14.30	15.79	15.87	14.80	12.38	12.26
Conductivity (μmhos/cm)	1627	1781	1812	1743	1633	1667
Dissolved Oxygen (mg/L)	0.35	0.45	0.35	0.55	0.38	0.53
Turbidity (NTU)	816.2	573.3	>1000	269.8	276.3	433.8
Eh (mv)	-62.6	-65.1	-66.8	-55.1	-54.9	-58.4

Parameter	12	13	14	15	16	17
Time (min)	1230	1235	1240	1245	1250	1255
Depth to Water (ft)	27.31	27.20	27.00	26.99	26.98	26.98
Purge Rate (L/min)	1.0	~~3~~ .5	1.0	1.0	1.0	1.0
Volume Purged (L)	11	13.5	18.5	23.5	28.5	33.5
pH	4.71	5.77	5.94	6.06	6.10	6.17
Temperature (°C)	11.82	12.96	14.09	14.08	15.60	15.85
Conductivity (μmhos/cm)	1693	1795	1902	1934	2032	2060
Dissolved Oxygen (mg/L)	0.69	0.61	.64	.65	.50	.43
Turbidity (NTU)	426	217.5	324	245	576	782
Eh (mv)	-48.8	-57.9	-60.1	-65.6	-65.6	-69.7

COMMENTS AND OBSERVATIONS have to adjust flow during each 5 min. interval.

EA Engineering, Science and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3
WELL I.D.: MW-218
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°, Slight breeze

GAUGE DATE: 3/14/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.61

GAUGE TIME: 1250
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/14/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1255
FIELD PERSONNEL: SYC KI
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 53.54
B. DEPTH TO WATER (ft): 32.87
C. LIQUID DEPTH (ft) (A-B): 20.67

D. WELL VOLUME/FT (L): SC ~~0.16~~ 0.1605
E. WELL VOLUME (L) (C*D): 12.51
F. THREE WELL VOLUMES (L) (E*3): 37.53

Parameter	Beginning	1	2	3	4	5
Time (min)	1255	1258	1301	1303	1306	1309
Depth to Water (ft)	32.87	36.71	37.67	38.17	38.61	38.82
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	7.01	7.92	8.17	8.22	8.18	8.16
Temperature (°C)	8.4	8.6	8.3	8.1	8.1	8.3
Conductivity (μmhos/cm)	1,270	1,260	1,376	1,218	1,196	1,212
Dissolved Oxygen (mg/L)	6.90	5.04	3.97	3.89	3.47	3.40
Turbidity (NTU)	59	54	53	43	45	58
Eh (mv)	178	155	138	126	119	115

TOTAL QUANTITY OF WATER REMOVED (L): 10

SAMPLERS: KI SYC
SAMPLING DATE: 3/14/97
SAMPLE TYPE: Grab
SAMPLE BOTTLE IDs: BN-08-SI-MW012 1350 BN-08-SI-MWX02
SAMPLE PARAMETERS: VOC TAI Elements

SAMPLING TIME (START/END): 1360/1355
DECONTAMINATION FLUIDS USED: None
SAMPLE PRESERVATIVES: HCL, ~~HO~~ Nitric acid

COMMENTS AND OBSERVATIONS: Duplicate MWX02 collected
10 Liters Containerized

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 2960047	Date: 3/14/97
Well ID: MW-218	Field Personnel: SYC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	1312	1315	1318	1321	1324	1327
Depth to Water (ft)	39.84	39.90	39.96	40.76	41.12	41.85
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.2	4.8	5.4	6.0	6.6
pH	8.11	8.10	8.09	8.07	8.03	8.00
Temperature (°C)	10.3	11.0	11.2	11.8	12.9	13.4
Conductivity (μmhos/cm)	1,084	1,060	1,104	1,066	1,060	1,066
Dissolved Oxygen (mg/L)	3.62	3.46	3.31	3.09	2.86	2.57
Turbidity (NTU)	40	45	43	35	39	37
Eh (mv)	104	101	98	96	93	90

Parameter	12	13	14	15	16	17
Time (min)	1330	1333	1336	1339	1342	
Depth to Water (ft)	41.10	41.35	41.49	41.68	42.00	
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (L)	7.2	7.8	8.4	9.0	9.6	
pH	7.99	7.96	7.90	7.88	7.87	
Temperature (°C)	13.5	13.9	14.2	14.5	14.5	
Conductivity (μmhos/cm)	1,058	1,012	1,080	1,030	1,094	
Dissolved Oxygen (mg/L)	2.44	2.36	2.03	2.06	2.00	
Turbidity (NTU)	35	32	29	30	30	
Eh (mv)	86	84	75	71	68	

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1+3
WELL I.D.: MW-219
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 40°

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.56

GAUGE TIME: 0930
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/17/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0935
FIELD PERSONNEL: KI SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 71.82
B. DEPTH TO WATER (ft): 30.53
C. LIQUID DEPTH (ft) (A-B): 41.29

D. WELL VOLUME/FT (L): ~~.16~~ 0.605
E. WELL VOLUME (L) (C*D): 24.98
F. THREE WELL VOLUMES (L) (E*3): 74.94

Parameter	Beginning	1	2	3	4	5
Time (min)	0935	0938	0941	0944	0947	0950
Depth to Water (ft)	30.53	30.57	30.56	30.56	30.57	30.57
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	7.58	6.73	6.45	6.44	6.42	6.40
Temperature (°C)	8.3	8.3	8.0	8.10	8.0	8.1
Conductivity (μmhos/cm)	122	150	126	142	130	124
Dissolved Oxygen (mg/L)	12.30	11.43	10.03	10.03	9.23	8.35
Turbidity (NTU)	1	37	122	112	72	57
Eh (mv)	124	120	121	123	126	130

TOTAL QUANTITY OF WATER REMOVED (L): 13L

SAMPLERS: KI SC
SAMPLING TIME (START/END): 1040 / 1043
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-S1-MW 014 1040
SAMPLE PARAMETERS: VOC, TAL Elements

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: S H S H 3	Project No.: 2960047	Date: 3/17/97
Well ID: MW-214	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	0953	0956	0959	1003	1006	1009
Depth to Water (ft)	30.56	30.56	30.55	30.55	30.55	30.56
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.2	4.8	5.6	6.2	6.8
pH	6.35	6.34	6.31	6.27	6.28	6.28
Temperature (°C)	8.5	8.7	8.8	9.0	9.0	9.1
Conductivity (μmhos/cm)	134	124	130	144	122	128
Dissolved Oxygen (mg/L)	7.28	6.75	6.28	5.85	5.59	5.24
Turbidity (NTU)	50	36	36	22	23	23
Eh (mv)	134	137	140	144	146	148

Parameter	12	13	14	15	16	17
Time (min)	1013	1017	1020	1023	1026	1029
Depth to Water (ft)	30.56	30.56	30.56	30.56	30.56	30.56
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	7.6	8.4	9.0	9.6	10.2	10.8
pH	6.25	6.23	6.26	6.25	6.24	6.23
Temperature (°C)	9.2	9.3	9.3	9.4	9.4	9.6
Conductivity (μmhos/cm)	104	122	114	112	122	124
Dissolved Oxygen (mg/L)	4.84	4.55	4.49	4.41	4.27	4.09
Turbidity (NTU)	16	11	11	11	9	10
Eh (mv)	150	153	154	154	155	156

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 2960047	Date: 3/17/97
Well ID: MW-219	Field Personnel: KL SC	

Parameter	6	7	8	9	10	11
Time (min.)	1032	1035	1038			
Depth to Water (ft)	30.56	30.56	30.56			
Purge Rate (L/min)	0.2	0.2	0.2			
Volume Purged (L)	11.4	12.0	12.6			
pH	6.25	6.26	6.25			
Temperature (°C)	9.7	9.8	9.8			
Conductivity (μmhos/cm)	126	120	120			
Dissolved Oxygen (mg/L)	4.06	3.92	3.89			
Turbidity (NTU)	8	9	8			
Eh (mv)	157	157	157			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: Sites 1+3
WELL I.D.: MW-220
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.730
WELL LOCK STATUS: locked
WEATHER: sunny, windy, 5°

GAUGE DATE: 3/13/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.80

GAUGE TIME: ~~1250~~ 1245
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/13/97
PURGE METHOD: grundfos pump low flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1250
FIELD PERSONNEL: SYC, KF
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 44.28
B. DEPTH TO WATER (ft): 27.58
C. LIQUID DEPTH (ft) (A-B): 16.70

D. WELL VOLUME/FT (L): ~~0.605~~ SC 0.605
E. WELL VOLUME (L) (C*D): 10.10
F. THREE WELL VOLUMES (L) (E*3): 30.30

Parameter	Beginning	1	2	3	4	5
Time (min)	1252	1255	1258	1301	1304	1307
Depth to Water (ft)	27.58	27.62	27.75	27.79	27.85	27.83
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	—	0.9	1.8	2.7	3.6	4.5
pH	6.07	6.55	6.70	6.64	6.64	6.60
Temperature (°C)	8.0	8.0	8.5	10.6	11.1	11.1
Conductivity (μmhos/cm)	190	248	192	222	210	230
Dissolved Oxygen (mg/L)	13.78	9.97	9.61	8.87	8.54	8.31
Turbidity (NTU)	129	132	225	181	190	191
Eh (mv)	178	161	160	158	158	156

TOTAL QUANTITY OF WATER REMOVED (L): 26.5

SAMPLERS: SYC, KF
SAMPLING DATE: 3/13/97
SAMPLE TYPE: Grab
SAMPLE BOTTLE IDs: BN-08-SL MW001 MS/MSD 1300
SAMPLE PARAMETERS: VOC, TAL Elements

SAMPLING TIME (START/END): 1300 / 1305
DECONTAMINATION FLUIDS USED: none
SAMPLE PRESERVATIVES: HCL, nitric acid

COMMENTS AND OBSERVATIONS:

EA Engineering, Science and Technology

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

Site Name: Sites 1+3	Project No.: 29600.47	Date: 3/13/97
Well ID: MW-220	Field Personnel: SYC, KT	

Parameter	6	7	8	9	10	11
Time (min.)	1310	1315	1320	1325	1330	1335
Depth to Water (ft)	27.81	27.70	27.75	27.70	27.70	27.70
Purge Rate (L/min)	0.3	0.3	0.2	0.2	0.2	0.2
Volume Purged (L)	5.4	6.9	7.9	8.9	9.9	10.9
pH	6.60	6.60	6.59	6.59	6.58	6.56
Temperature (°C)	10.2	9.8	11.8	12.5	12.7	12.9
Conductivity (μmhos/cm)	222	210	188	212	218	196
Dissolved Oxygen (mg/L)	7.89	8.68	7.62	7.29	7.07	7.04
Turbidity (NTU)	232	281	121	77	55	51
Eh (mv)	157	158	157	156	155	154

Parameter	12	13	14	15	16	17
Time (min)	1340	1345	1350	1355	1400	1405
Depth to Water (ft)	27.70	27.69	27.70	27.80	27.70	27.70
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	11.9	12.9	13.9	14.9	15.9	16.9
pH	6.57	6.56	6.57	6.57	6.57	6.57
Temperature (°C)	12.9	12.9	12.9	13.2	13.2	13.3
Conductivity (μmhos/cm)	214	220	224	218	218	200
Dissolved Oxygen (mg/L)	6.85	7.10	6.99	6.80	6.71	6.71
Turbidity (NTU)	46	41	45	38	33	32
Eh (mv)	153	153	152	151	151	150

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 29600.47	Date: 3/13/97
Well ID: MW-220	Field Personnel: SYC, KI	

Parameter	18	19	20	21	10	11
Time (min.)	1410	1415	1420	1430	1440	1450
Depth to Water (ft)	27.71	27.70	27.70	27.70	27.80	27.85
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	17.9	18.9	19.9	21.9	23.9	25.9
pH	6.57	6.56	6.57	6.58	6.58	6.58
Temperature (°C)	13.3	13.3	13.4	12.6	12.3	12.3
Conductivity (μmhos/cm)	176	184	172	188	192	198
Dissolved Oxygen (mg/L)	6.66	6.49	6.89	7.31	7.08	7.15
Turbidity (NTU)	25	24	25	28	29	29
Eh (mv)	150	149	149	147	147	148

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: Sites 1+3
WELL I.D.: MW-2324
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, windy, 15°

GAUGE DATE: 3/13/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 1.80

GAUGE TIME: 1040
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/13/97
PURGE METHOD: grundfos LOW flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1045
FIELD PERSONNEL: SYC, KI
WELL MOUTH VOCs (ppm): Start: 16 End: 2

WELL VOLUME

A. WELL DEPTH (ft): 54.76
B. DEPTH TO WATER (ft): 36.22
C. LIQUID DEPTH (ft) (A-B): 18.54

D. WELL VOLUME/FT (L): ~~0.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 11.22
F. THREE WELL VOLUMES (L) (E*3): 33.66

Parameter	Beginning	1	2	3	4	5
Time (min)	1046	1049	1052	1055	1058	1101
Depth to Water (ft)	36.22	37.35	37.36	37.37	37.37	37.37
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	—	0.9	1.8	2.7	3.6	4.5
pH	6.43	6.17	6.13	6.11	6.14	6.21
Temperature (°C)	8.2	9.6	10.2	12.5	14.2	14.9
Conductivity (μmhos/cm)	256	252	244	208	330	420
Dissolved Oxygen (mg/L)	13.50	9.49	7.93	7.07	6.38	5.47
Turbidity (NTU)	4	3	2	1	6	5
Eh (mv)	155	156	157	156	159	159

TOTAL QUANTITY OF WATER REMOVED (L): 7.5

SAMPLERS: KI, SYC
SAMPLING TIME (START/END): 1115 / 1118
SAMPLING DATE: 3/13/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-SI- MW006
SAMPLE PARAMETERS: VOC by EPA 8260, TAL Elements

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: SHES 1+3	Project No.: 29600.47.731	Date: 3/13/97
Well ID: MW-232A	Field Personnel: SYC, KF	

Parameter	6	7	8	9	10	11
Time (min.)	1104	1107	1110			
Depth to Water (ft)	37.01	36.78	36.65			
Purge Rate (L/min)	0.3	0.3	0.3			
Volume Purged (L)	5.4	6.3	7.2			
pH	6.23	6.24	6.24			
Temperature (°C)	14.6	14.0	13.8			
Conductivity (μmhos/cm)	522	526	522			
Dissolved Oxygen (mg/L)	4.97	5.09	4.95			
Turbidity (NTU)	4	3	3			
Eh (mv)	156	155	154			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: Sites 1+3
WELL I.D.: MW-234R
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: sunny, windy, 15°

GAUGE DATE: 3/13/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft):

GAUGE TIME: 1135
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/13/97
PURGE METHOD: grundfos Red. flo low flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1140
FIELD PERSONNEL: KI, SYC
WELL MOUTH VOCs (ppm): Start: 720 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 54.85
B. DEPTH TO WATER (ft): 33.61
C. LIQUID DEPTH (ft) (A-B): 21.24

D. WELL VOLUME/FT (L): ~~H~~ SC 0.605
E. WELL VOLUME (L) (C*D): 12.85
F. THREE WELL VOLUMES (L) (E*3): 38.55

Parameter	Beginning	1	2	3	4	5
Time (min)	1140	1143	1146	1149	1152	1155
Depth to Water (ft)	33.61	33.85	33.86	33.86	33.87	33.87
Purge Rate (L/min)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (L)	—	1.2	2.4	3.6	4.8	6.0
pH	6.00	5.72	5.77	5.78	5.79	5.78
Temperature (°C)	8.9	9.0	9.9	11.7	12.8	13.1
Conductivity (μmhos/cm)	198	218	212	256	252	216
Dissolved Oxygen (mg/L)	11.28	4.13	2.98	2.33	1.84	1.45
Turbidity (NTU)	11	12	10	7	5	3
Eh (mv)	157	165	164	162	159	157

TOTAL QUANTITY OF WATER REMOVED (L): 11.5

SAMPLERS: KI, SYC
SAMPLING TIME (START/END): 1210 / 1213
SAMPLING DATE: 3/13/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-S1-MW008
SAMPLE PARAMETERS: VOC by EPA 8260, TAL Elements

COMMENTS AND OBSERVATIONS:
11.5L Containerized

EA Engineering, Science, and Technology

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

Site Name: Sites 1+3	Project No.: 29600.47	Date: 3/13/97
Well ID: MW-234R	Field Personnel: SC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	1158	1201	1204	1207		
Depth to Water (ft)	33.87	33.87	33.86	33.86		
Purge Rate (L/min)	0.4	0.4	0.4	0.4		
Volume Purged (L)	7.2	8.4	9.6	10.8		
pH	5.78	5.78	5.78	5.78		
Temperature (°C)	13.2	13.3	13.3	13.4		
Conductivity (μmhos/cm)	240	234	240	246		
Dissolved Oxygen (mg/L)	1.57	1.48	1.39	1.36		
Turbidity (NTU)	3	3	2	2		
Eh (mv)	155	154	152	152		

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: Sites 1+3
WELL I.D.: MW-2101
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: unlocked
WEATHER: Sunny, windy, 15°

GAUGE DATE: 3/13/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.55

GAUGE TIME: 822
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/13/97
PURGE METHOD: 2" grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 905
FIELD PERSONNEL: SYC KI
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 30.00
B. DEPTH TO WATER (ft): 12.49
C. LIQUID DEPTH (ft) (A-B): 17.51

D. WELL VOLUME/FT (L): ~~0.6~~ 0.605
E. WELL VOLUME (L) (C*D): 10.59
F. THREE WELL VOLUMES (L) (E*3): 31.77

Parameter	Beginning	1	2	3	4	5
Time (min)	905	908	911	914	917	920
Depth to Water (ft)	12.49	12.56	12.60	12.55	12.54	12.54
Purge Rate (L/min)	~~0.8~~	0.6	0.6	0.35	0.35	0.35
Volume Purged (L)	—	2.4	4.2	6.0	7.0	8.1
pH	8.01	6.34	5.69	5.62	5.53	5.51
Temperature (°C)	12.6	8.3	8.3	8.3	8.2	8.2
Conductivity (μmhos/cm)	332	284	268	262	254	262
Dissolved Oxygen (mg/L)	13.11	11.95	11.36	11.03	11.00	10.89
Turbidity (NTU)	6	5	4	2	2	1
Eh (mv)	183	136	134	135	145	149

TOTAL QUANTITY OF WATER REMOVED (L): 8.5

SAMPLERS: SYC, KI
SAMPLING TIME (START/END): 925 / 927
SAMPLING DATE: 3/13/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, nitric acid
SAMPLE BOTTLE IDs: BN-08-S1-MW002 Time 925
SAMPLE PARAMETERS: VOC by EPA 8260 TAL Elements
COMMENTS AND OBSERVATIONS: 8.5 Liters Containerized

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-105A
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, windy, 40°

GAUGE DATE: 4/9/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 3.17

GAUGE TIME: 1150
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 4/9/97
PURGE METHOD: Low Flow-Peristaltic
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1159
FIELD PERSONNEL: BDA, SYC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 46.87
B. DEPTH TO WATER (ft): 2.57
C. LIQUID DEPTH (ft) (A-B): 44.30

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 26.8
F. THREE WELL VOLUMES (L) (E*3): 80.4

Parameter	Beginning	1	2	3	4	5
Time (min)	1203	1207	1210	1213	1216	1219
Depth to Water (ft)	2.65	2.66	2.66	2.67	2.67	2.68
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.4	0.8	1.1	1.4	1.7	2.0
pH	8.89	8.84	8.63	8.48	8.36	8.29
Temperature (°C)	4.7	5.4	5.7	5.9	6.2	6.1
Conductivity (μmhos/cm)	80	78	78	72	62	64
Dissolved Oxygen (mg/L)	9.42	10.43	8.92	8.83	10.28	10.24
Turbidity (NTU)	1	2	17	21	1	1
Eh (mv)	199	242	262	279	299	306

TOTAL QUANTITY OF WATER REMOVED (L): 3.6

SAMPLERS: BDA, SYC
SAMPLING TIME (START/END): 1235/1236
SAMPLING DATE: 4/9/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW036
SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS: slug, dirt entered flow cell at 1213 emptied flow cell and refilled.

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 4/9/97
Well ID: MW-105A	Field Personnel: BDA, SYC	

Parameter	6	7	8	9	10	11
Time (min.)	1224	1227	1230			
Depth to Water (ft)	2.68	2.68	2.68			
Purge Rate (L/min)	0.1	0.1	0.1			
Volume Purged (L)	2.5	2.8	3.1			
pH	8.24	8.16	8.13			
Temperature (°C)	6.1	6.1	6.2			
Conductivity (μmhos/cm)	64	64	64			
Dissolved Oxygen (mg/L)	10.25	10.29	10.26			
Turbidity (NTU)	1	3	3			
Eh (mv)	311	317	320			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-105A
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: overcast, mild

GAUGE DATE: 3/20/97
GAUGE TIME: 1
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 3.17
WELL DIAMETER (in.): 2

PURGE DATE: NA
PURGE TIME: NA
PURGE METHOD: NA
FIELD PERSONNEL: KI, RL
AMBIENT AIR VOCs (ppm) Start: 0.0 End: NA
WELL MOUTH VOCs (ppm): Start: 0.0 End: NA

WELL VOLUME

A. WELL DEPTH (ft): 46.87
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA
D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (L)		FROZEN				
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
Eh (mv)						

TOTAL QUANTITY OF WATER REMOVED (L): _____

SAMPLERS: NA
SAMPLING TIME (START/END): NA
SAMPLING DATE: NA
DECONTAMINATION FLUIDS USED: NA
SAMPLE TYPE: NA
SAMPLE PRESERVATIVES: NA
SAMPLE BOTTLE IDs: NA
SAMPLE PARAMETERS: NA

COMMENTS AND OBSERVATIONS: Well FROZEN - unable to pump water

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-105 B
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, ~~30°~~ 40

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 3.20

GAUGE TIME: 826
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 830
FIELD PERSONNEL: KJ, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 46.87
B. DEPTH TO WATER (ft): 7.90
C. LIQUID DEPTH (ft) (A-B): 38.97
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 23.58
F. THREE WELL VOLUMES (L) (E*3): 70.74

Parameter	Beginning	1	2	3	4	5
Time (min)	830	833	836	839	842	845
Depth to Water (ft)	7.90	7.94	7.94	8.35	8.11	7.96
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	6.41	6.71	6.59	6.34	6.29	6.26
Temperature (°C)	6.2	6.5	9.7	10.6	11.4	11.6
Conductivity (μmhos/cm)	156	104	100	68	50	50
Dissolved Oxygen (mg/L)	10.41	9.98	10.00	10.08	10.13	10.06
Turbidity (NTU)	30	29	10	4	3	3
Eh (mv)	145	137	127	129	131	134

TOTAL QUANTITY OF WATER REMOVED (L): 5L

SAMPLERS: KJ, SC
SAMPLING TIME (START/END): 855/856
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW018 855
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 No.: 29600.47	Date: 3/19/97
Well ID: MW-105B	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	848	851	854			
Depth to Water (ft)	7.95	7.93	7.93			
Purge Rate (L/min)	0.2	0.2	0.2			
Volume Purged (L)	3.6	4.2	4.8			
pH	6.26	6.26	6.26			
Temperature (°C)	12.0	12.1	12.2			
Conductivity (μmhos/cm)	58	58	62			
Dissolved Oxygen (mg/L)	10.08	10.09	10.06			
Turbidity (NTU)	2	2	2			
Eh (mv)	137	139	141			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-106
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: sunny, 30°, windy

GAUGE DATE: 3/18/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 3.70

GAUGE TIME: 1126
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE METHOD: grundfos
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1132
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 37.27
B. DEPTH TO WATER (ft): 24.67
C. LIQUID DEPTH (ft) (A-B): 12.60
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 7.62
F. THREE WELL VOLUMES (L) (E*3): 22.86

Parameter	Beginning	1	2	3	4	5
Time (min)	1132	1135	1138	1141	1144	1147
Depth to Water (ft)	24.60	24.64	24.69	24.71	24.72	24.70
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	7.15	6.87	6.54	6.33	6.25	6.12
Temperature (°C)	6.0	6.3	6.7	7.7	8.6	10.2
Conductivity (μmhos/cm)	52	70	66	68	66	58
Dissolved Oxygen (mg/L)	10.86	10.80	10.82	10.80	10.75	10.52
Turbidity (NTU)	15	14	12	8	6	4
Eh (mv)	150	162	171	175	175	180

TOTAL QUANTITY OF WATER REMOVED (L): 5.5'

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1200/1201
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EPMW011 1200
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 5.5L Containerized

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/18/97
Well ID: MW-166	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1150	1153	1156	~~11.59~~ SC		
Depth to Water (ft)	24.69	24.68	24.67			
Purge Rate (L/min)	0.2	0.2	0.2	~~6.2~~ SC		
Volume Purged (L)	3.6	4.2	4.8	~~5.4~~ SC		
pH	6.07	5.87	5.86			
Temperature (°C)	10.7	10.9	11.0			
Conductivity (μmhos/cm)	62	56	60			
Dissolved Oxygen (mg/L)	10.63	10.54	10.66			
Turbidity (NTU)	3	3	3			
Eh (mv)	182	185	184			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: NAS Brunswick - Eastern Plume
PROJECT NUMBER: 29600477301
WELL I.D.: MW 205
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: overcast 32°F

GAUGE DATE: 3/17/97
GAUGE TIME: 0930
SOUNDING METHOD: slope indicator
MEASUREMENT REF: TOR
STICK UP/DOWN (ft): 1.94
WELL DIAMETER (in.): 2"

PURGE DATE: 3/17/97
PURGE TIME: 0935
PURGE METHOD: Low flow
FIELD PERSONNEL: MDC, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.1 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 78.77
B. DEPTH TO WATER (ft): 24.27
C. LIQUID DEPTH (ft) (A-B): 54.50
D. WELL VOLUME/FT (L): ~~1.6~~ 0.605
E. WELL VOLUME (L) (C*D): 32.97
F. THREE WELL VOLUMES (L) (E*3): 98.91

Parameter	Beginning	1	2	3	4	5
Time (min)	0940	0945	0950	0955	1000	1005
Depth to Water (ft)	24.35	24.36	24.36	24.35	24.36	24.35
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	.5	1.0	1.5	2.0	2.5	3.0
pH	6.46	7.02	7.13	7.55	7.32	7.64
Temperature (°C)	7.91	8.13	8.26	8.51	9.06	9.08
Conductivity (μmhos/cm)	211	196	184	171	170	~~167~~ 170
Dissolved Oxygen (mg/L)	4.51	2.80	2.80	3.00	3.13	3.05
Turbidity (NTU)	200	155	100.9	60.3	48	40.9
Eh (mv)	153.3	116.6	114.4	110.7	123.4	129.2

TOTAL QUANTITY OF WATER REMOVED (L): 9.5L

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1105-1108
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-OS-EP-MW001 plus MS/MSD
SAMPLE PARAMETERS: VOCs

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: EASTERN Plume	Project No.: 296047	Date: 3/17/97
Well ID: MW205	Field Personnel: MDC, BDH	

Parameter	6	7	8	9	10	11
Time (min.)	1010	1015	1020	1025	1030	1035
Depth to Water (ft)	24.35	24.35	24.35	24.35	24.35	24.35
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	3.5	4.0	4.5	5.0	5.5	6.0
pH	7.01	7.35	7.72	7.17	6.72	6.73
Temperature (°C)	9.14	9.14	9.17	9.29	9.47	9.52
Conductivity (μmhos/cm)	167	166	164	164	166	167
Dissolved Oxygen (mg/L)	3.03	2.95	2.79	2.84	2.80	2.77
Turbidity (NTU)	35	35	32	26	24	26
Eh (mv)	153.2	149.4	146.9	167.2	150.0	151.5

Parameter	12	13	14	15	16	17
Time (min)	1040	1045	1050	1055	1100	
Depth to Water (ft)	24.35	24.35	24.35	24.35	24.35	
Purge Rate (L/min)	.1	.2	.1	.1	.1	
Volume Purged (L)	6.5	7.5	8.0	8.5	9.0	
pH	7.23	6.50	7.31	7.05	7.00	
Temperature (°C)	9.61	9.68	9.84	9.57	9.57	
Conductivity (μmhos/cm)	169	170	184	184	185	
Dissolved Oxygen (mg/L)	2.49	2.58	2.46	2.48	2.50	
Turbidity (NTU)	22	23	17	17	17	
Eh (mv)	177.4	189.4	182.5	190.3	187.3	

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
PROJECT NUMBER: 29600.47.7301
WELL I.D.: MW-206A
WELL LOCK STATUS: locked
WELL CONDITION: good
WEATHER: sunny, 30°, windy

GAUGE DATE: 3/18/97
GAUGE TIME: 1025
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 2.40
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE TIME: 1026
PURGE METHOD: grundfos Low Flow
FIELD PERSONNEL: KI, SC
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 74.36
B. DEPTH TO WATER (ft): 19.90
C. LIQUID DEPTH (ft) (A-B): 54.46
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 32.95
F. THREE WELL VOLUMES (L) (E*3): 98.95

Parameter	Beginning	1	2	3	4	5
Time (min)	1026	1029	1032	1035	1038	
Depth to Water (ft)	19.90	19.98	20.00	20.01	20.01	
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (L)	—	0.6	1.2	1.8	2.4	
pH	7.03	6.82	6.74	6.69	6.65	
Temperature (°C)	7.2	7.8	7.9	8.3	8.6	
Conductivity (μmhos/cm)	92	86	124	126	122	
Dissolved Oxygen (mg/L)	8.95	8.12	7.86	7.80	7.81	
Turbidity (NTU)	4	10	8	7	5	
Eh (mv)	135	129	125	123	122	

TOTAL QUANTITY OF WATER REMOVED (L): 2.8

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1040/1041
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW010 1040
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 2.8L Containerized
YSI 1307.0
Slope indicator 24414

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
PROJECT NUMBER: 29600.47.7301
WELL I.D.: MW-206B
WELL LOCK STATUS: locked
WELL CONDITION: good
WEATHER: sunny, 30°, windy

GAUGE DATE: 3/18/97
GAUGE TIME: 1031
SOUNDING METHOD: slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 2.40
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE TIME: 1033
PURGE METHOD: grundfos Low Flow
FIELD PERSONNEL: KI, SC
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 27.17
B. DEPTH TO WATER (ft): 19.46
C. LIQUID DEPTH (ft) (A-B): 7.71
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 4.66
F. THREE WELL VOLUMES (L) (E*3): 13.98

Parameter	Beginning	1	2	3	4	5
Time (min)	1033	1036	1039	1042	1045	1048
Depth to Water (ft)	19.46	20.51	21.39	20.61	20.01	19.89
Purge Rate (L/min)	0.25	0.25	0.25	0.25	0.25	0.25
Volume Purged (L)	—	0.75	1.5	2.25	3.0	3.75
pH	7.40	6.59	5.96	5.84	5.83	5.83
Temperature (°C)	6.6	6.9	8.2	10.4	10.8	10.8
Conductivity (μmhos/cm)	110	100	92	96	90	92
Dissolved Oxygen (mg/L)	10.27	10.26	10.25	9.26	10.12	10.09
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	209	211	214	215	215	216

TOTAL QUANTITY OF WATER REMOVED (L): 4

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1050 / 1052
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW012 1050 BN-08-EP-MWXD2
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: Had to adjust pump box to keep purgerate consistent at 0.25 L/min
YSI - 1330.0
slope indicator 23596

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN Plume
WELL I.D.: 207A
WELL CONDITION: good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: good
WEATHER: clear, cold

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.50

GAUGE TIME: 938
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: NA

PURGE TIME:
FIELD PERSONNEL: SVC, BDA.
WELL MOUTH VOCs (ppm): Start: 0.0 End: NA

WELL VOLUME

A. WELL DEPTH (ft): NA
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA
D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (L)		Frozen				
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
Eh (mv)						

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: NA
SAMPLING TIME (START/END): NA
SAMPLING DATE: NA
DECONTAMINATION FLUIDS USED: NA
SAMPLE TYPE: NA
SAMPLE PRESERVATIVES: NA
SAMPLE BOTTLE IDs: NA
SAMPLE PARAMETERS: NA

COMMENTS AND OBSERVATIONS: Frozen unable to remove or move pump in well.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-207A
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, windy, 40°

GAUGE DATE: 4/8/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.50

GAUGE TIME: 1205
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 4/8/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: ____

PURGE TIME: 1208
FIELD PERSONNEL: BDA, SYC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 73.22
B. DEPTH TO WATER (ft): 3.05
C. LIQUID DEPTH (ft) (A-B): 76.17
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 42.5
F. THREE WELL VOLUMES (L) (E*3): 127.5

Parameter	Beginning	1	2	3	4	5
Time (min)	1210	1213	1216	1219	1223	1226
Depth to Water (ft)	3.23	3.25	3.28	2.89	2.30	3.31
Purge Rate (L/min)	1.2	1.2	1.2	1.2	1.2	1.2
Volume Purged (L)	2.8	6.0	9.6	13.2	18.0	21.6
pH	8.67	7.14	6.81	6.72	6.60	6.57
Temperature (°C)	6.9	7.5	7.9	8.0	8.3	8.2
Conductivity (μmhos/cm)	226	192	174	176	214	214
Dissolved Oxygen (mg/L)	1.37	0.48	0.37	0.37	0.34	0.33
Turbidity (NTU)	174	61	34	17	15	15
Eh (mv)	276	310	300	289	265	246

TOTAL QUANTITY OF WATER REMOVED (L): 40 L

SAMPLERS: SYC, BDA
SAMPLING TIME (START/END): 1240/1242
SAMPLING DATE: 4/8/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW033 MS/MSD
SAMPLE PARAMETERS: VOC by 8260

COMMENTS AND OBSERVATIONS:

Containerized water 40L

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 4/8/97
Well ID: MW-207A	Field Personnel: SYC, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1230	1234	1237			
Depth to Water (ft)	3.32	3.32	3.34			
Purge Rate (L/min)	1.2	1.2	1.2			
Volume Purged (L)	26.4	31.2	34.8			
pH	6.50	6.48	6.47			
Temperature (°C)	8.4	8.4	8.5			
Conductivity (μmhos/cm)	218	220	220			
Dissolved Oxygen (mg/L)	0.30	0.30	0.30			
Turbidity (NTU)	15	15	15			
Eh (mv)	224	210	205			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: 29600047 7301
WELL I.D.: MW-207B
WELL LOCK STATUS: good
WELL CONDITION: Good
WEATHER: clear, cold

GAUGE DATE: 3/19/97
GAUGE TIME: 0940
SOUNDING METHOD: slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 2.00
WELL DIAMETER (in.): 2"

PURGE DATE: 3/19/97
PURGE TIME: 0943
PURGE METHOD: Low flow
FIELD PERSONNEL: SVC, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 9.01
B. DEPTH TO WATER (ft): 6.07
C. LIQUID DEPTH (ft) (A-B): 2.94
D. WELL VOLUME/FT (L): ~~0.6~~ 0.605
E. WELL VOLUME (L) (C*D): 1.78
F. THREE WELL VOLUMES (L) (E*3): 5.34

Parameter	Beginning	1	2	3	4	5
Time (min)	9.45	950	0955	1000	1005	1010
Depth to Water (ft)	6.35	6.31	6.30	6.30	6.28	6.28
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	—	0.5	1.0	1.5	2.0	2.5
pH	6.13	6.57	6.63	6.62	6.58	6.46
Temperature (°C)	4.32	4.71	5.82	6.51	7.17	7.56
Conductivity (μmhos/cm)	370	243	255	243	230	215
Dissolved Oxygen (mg/L)	3.64	1.93	2.38	3.11	4.03	4.63
Turbidity (NTU)	3	1	0	0	0	0
Eh (mv)	225	192	169	149	134	134

TOTAL QUANTITY OF WATER REMOVED (L): 3.5

SAMPLERS: SVC, BDA
SAMPLING TIME (START/END): 1020 / 1025
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-03-EP-MW019 MS/MSD
SAMPLE PARAMETERS: VOCs
COMMENTS AND OBSERVATIONS: 3.5L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name:	Eastern Pine	Project No.: 2916[illegible]47	Date: 3/19/97
Well ID:	MW 207B	Field Personnel:	SVC BDA

Parameter	6	7	8	9	10	11
Time (min.)	1015	1018				
Depth to Water (ft)	6.75	6.25				
Purge Rate (L/min)	.1	.1				
Volume Purged (L)	3.0	3.3				
pH	6.45	6.40				
Temperature (°C)	7.89	7.89				
Conductivity (μmhos/cm)	205	202				
Dissolved Oxygen (mg/L)	5.15	5.24				
Turbidity (NTU)	0	0				
Eh (mv)	138	140				

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-208
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: sunny, 30°, windy

GAUGE DATE: 3/18/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 1.75

GAUGE TIME: 1127
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1142
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 103.33
B. DEPTH TO WATER (ft): 23.82
C. LIQUID DEPTH (ft) (A-B): 79.51
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 48.10
F. THREE WELL VOLUMES (L) (E*3): 144.30

Parameter	Beginning	1	2	3	4	5
Time (min)	1142	1145	1148	1151	1154	1157
Depth to Water (ft)	23.82	23.90	23.95	23.94	23.92	23.91
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	7.16	8.06	8.53	8.72	8.75	8.63
Temperature (°C)	6.1	6.4	6.8	6.9	7.1	7.3
Conductivity (μmhos/cm)	146	166	164	194	148	160
Dissolved Oxygen (mg/L)	7.33	4.80	2.36	1.61	0.79	0.90
Turbidity (NTU)	0	0	23	40	34	43
Eh (mv)	207	202	194	189	187	185

TOTAL QUANTITY OF WATER REMOVED (L): 8.5

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1225/1226
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW014 1225
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 8.5L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/18/97
Well ID: MW-208	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1200	1203	1206	1209	1212	1215
Depth to Water (ft)	23.96	24.01	24.08	24.12	24.08	24.08
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.2	4.8	5.4	6.0	6.6
pH	8.54	8.46	8.41	8.35	8.30	8.28
Temperature (°C)	7.6	7.8	8.0	8.1	8.2	8.3
Conductivity (μmhos/cm)	164	154	158	162	160	158
Dissolved Oxygen (mg/L)	0.51	0.45	0.41	0.38	0.38	0.34
Turbidity (NTU)	36	33	31	34	26	26
Eh (mv)	184	183	182	181	181	181

Parameter	12	13	14	15	16	17
Time (min)	1218	1221				
Depth to Water (ft)	24.07	24.07				
Purge Rate (L/min)	0.2	0.2				
Volume Purged (L)	7.2	7.8				
pH	8.26	8.25				
Temperature (°C)	8.3	8.4				
Conductivity (μmhos/cm)	164	160				
Dissolved Oxygen (mg/L)	0.33	0.32				
Turbidity (NTU)	26	26				
Eh (mv)	180	180				

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-209
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 36°

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 1.90

GAUGE TIME: 818
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 821
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 32.38
B. DEPTH TO WATER (ft): 26.88
C. LIQUID DEPTH (ft) (A-B): 5.50
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 3.32
F. THREE WELL VOLUMES (L) (E*3): 9.96

Parameter	Beginning	1	2	3	4	5
Time (min)	~~1021~~ 921	~~1024~~ 924	927	930	933	0936
Depth to Water (ft)	26.88	27.02	27.46	27.10	27.10	27.05
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	6.32	6.00	5.96	6.05	5.98	5.99
Temperature (°C)	6.2	6.5	6.7	9.2	12.0	12.5
Conductivity (μmhos/cm)	36	36	36	228	152	42
Dissolved Oxygen (mg/L)	11.48	11.46	11.45	11.26	10.90	10.10
Turbidity (NTU)	94	78	74	40	41	34
Eh (mv)	153	156	157	155	157	159

TOTAL QUANTITY OF WATER REMOVED (L): 10.5

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1010 / 1011
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-68-EPMW020 1010
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: had to adjust ~~Flow rate~~ pump box in order to keep Flow rate @ 0.2 L/min

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/19/97
Well ID: MW-209	Field Personnel: SC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	0939	942	945	948	951	954
Depth to Water (ft)	27.07	27.05	27.04	27.04	27.04	27.04
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.2	4.8	5.4	6.0	6.6
pH	6.00	6.03	6.01	5.99	5.97	5.97
Temperature (°C)	15.9	16.3	15.7	15.0	14.7	13.9
Conductivity (μmhos/cm)	74	54	68	70	66	64
Dissolved Oxygen (mg/L)	9.40	10.53	10.75	10.85	10.96	11.05
Turbidity (NTU)	44	44	33	37	26	25
Eh (mv)	160	160	162	164	167	169

Parameter	12	13	14	15	16	17
Time (min)	957	1000	1003	1006		
Depth to Water (ft)	27.04	27.06	27.07	27.07		
Purge Rate (L/min)	0.2	0.2	0.2	0.2		
Volume Purged (L)	7.2	7.8	8.4	9.0		
pH	5.95	5.97	5.97	5.98		
Temperature (°C)	13.3	14.6	14.8	14.6		
Conductivity (μmhos/cm)	66	62	64	62		
Dissolved Oxygen (mg/L)	10.98	10.96	10.92	10.96		
Turbidity (NTU)	20	20	20	20		
Eh (mv)	171	172	172	173		

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-222
WELL CONDITION: good

PROJECT NUMBER: 29KCC147.7301
WELL LOCK STATUS: locked
WEATHER: sunny, 38°

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 360

GAUGE TIME: 1021
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1024
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 45.34
B. DEPTH TO WATER (ft): 28.75
C. LIQUID DEPTH (ft) (A-B): 16.59

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.04
F. THREE WELL VOLUMES (L) (E*3): 30.12

Parameter	Beginning	1	2	3	4	5
Time (min)	1024	1027	1030	1033	1036	1039
Depth to Water (ft)	28.75	28.91	28.94	28.96	28.95	28.93
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.35	0.35
Volume Purged (L)	—	1.0	2.1	3.1	4.2	5.2
pH	6.13	5.96	5.92	5.88	5.89	5.88
Temperature (°C)	6.7	7.2	7.6	9.3	10.2	16.8
Conductivity (μmhos/cm)	98	92	86	82	146	120
Dissolved Oxygen (mg/L)	10.70	11.40	11.36	11.20	11.27	11.32
Turbidity (NTU)	9	9	5	2	1	1
Eh (mv)	188	190	190	190	190	190

TOTAL QUANTITY OF WATER REMOVED (L): _____

SAMPLERS: KI SC
SAMPLING TIME (START/END): 1050/1051
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN08-EP-MW022
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 No.: 29600.47	Date: 3/19/97
Well ID: MW-222	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1042	10.45	1048			
Depth to Water (ft)	28.90	28.89	28.89			
Purge Rate (L/min)	0.35	0.35	0.35			
Volume Purged (L)	6.3	7.3	8.4			
pH	5.88	5.88	5.88			
Temperature (°C)	11.4	11.6	11.7			
Conductivity (μmhos/cm)	118	114	114			
Dissolved Oxygen (mg/L)	11.24	11.18	11.15			
Turbidity (NTU)	1	1	1			
Eh (mv)	190	191	191			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-223
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 30° windy

GAUGE DATE: 3/18/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.20

GAUGE TIME: 1319
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1322
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 42.61
B. DEPTH TO WATER (ft): 26.53
C. LIQUID DEPTH (ft) (A-B): 16.08
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 9.73
F. THREE WELL VOLUMES (L) (E*3): 29.19

Parameter	Beginning	1	2	3	4	5
Time (min)	1322	1325	1328	1331	1334	1337
Depth to Water (ft)	26.53	26.62	26.61	26.59	26.59	26.59
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	—	0.9	1.8	2.7	3.6	4.5
pH	7.71	6.47	5.84	5.76	5.75	5.74
Temperature (°C)	6.2	6.3	6.8	8.0	8.4	8.7
Conductivity (μmhos/cm)	78	76	78	76	74	76
Dissolved Oxygen (mg/L)	10.09	10.01	9.99	9.93	9.89	9.85
Turbidity (NTU)	2	5	2	1	0	0
Eh (mv)	174	179	189	196	198	201

TOTAL QUANTITY OF WATER REMOVED (L): 4th 5.4

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1340/1341
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW016 1340
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 5.4L containerized + dumped

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-224
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 30°, windy

GAUGE DATE: 3/18/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.55

GAUGE TIME: 1348
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1352
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 46.95
B. DEPTH TO WATER (ft): 28.09
C. LIQUID DEPTH (ft) (A-B): 18.86

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 11.41
F. THREE WELL VOLUMES (L) (E*3): 34.23

Parameter	Beginning	1	2	3	4	5
Time (min)	1352	1355	1358	1401	1404	1407
Depth to Water (ft)	28.09	28.09	28.09	28.10	28.09	28.09
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	5.90	5.62	5.52	5.49	5.46	5.45
Temperature (°C)	6.5	7.0	7.2	7.8	9.6	11.2
Conductivity (μmhos/cm)	82	54	120	112	106	122
Dissolved Oxygen (mg/L)	9.72	9.13	8.85	8.77	8.65	8.50
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	202	214	221	222	221	221

TOTAL QUANTITY OF WATER REMOVED (L): 6

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1422/1423
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW017 1422
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 6L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 3/18/97
Well ID: MW-224	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1410	1413	1416	1419		
Depth to Water (ft)	28.09	28.10	28.10	28.09		
Purge Rate (L/min)	0.2	0.2	0.2	0.2		
Volume Purged (L)	3.6	4.2	4.8	5.4		
pH	5.45	5.45	5.44	5.44		
Temperature (°C)	11.8	12.1	12.3	12.4		
Conductivity (μmhos/cm)	120	126	118	120		
Dissolved Oxygen (mg/L)	8.36	8.18	8.15	8.12		
Turbidity (NTU)	0	0	0	0		
Eh (mv)	220	220	220	220		

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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 ~~Sites 1-13~~
WELL I.D.: MW-22SA
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.81 Low Flow

GAUGE TIME: 1110
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/17/97
PURGE METHOD: grundfos
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1115
FIELD PERSONNEL: SC, KI
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 76.03
B. DEPTH TO WATER (ft): 20.59
C. LIQUID DEPTH (ft) (A-B): 55.44

D. WELL VOLUME/FT (L): SC ~~0.605~~
E. WELL VOLUME (L) (C*D): 33.54
F. THREE WELL VOLUMES (L) (E*3): 100.62

Parameter	Beginning	1	2	3	4	5
Time (min)	1115	1118	1121	1125	1128	1131
Depth to Water (ft)	20.59	20.61	20.62	20.62	20.63	20.62
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.35	0.35
Volume Purged (L)	—	1.0	2.1	3.5	4.8	~~6.3~~ SC 5.6
pH	6.91	6.54	6.30	6.22	6.17	6.16
Temperature (°C)	8.0	7.3	7.4	7.6	8.4	8.7
Conductivity (μmhos/cm)	166	178	132	160	136	130
Dissolved Oxygen (mg/L)	5.52	4.62	4.04	3.75	3.40	3.32
Turbidity (NTU)	2	15	75	56	51	35
Eh (mv)	170	170	169	169	169	169

TOTAL QUANTITY OF WATER REMOVED (L): 15.5

SAMPLERS: KI, SC
SAMPLING DATE: 3/17/97
SAMPLE TYPE: Grab

SAMPLING TIME (START/END): 1200/1202
DECONTAMINATION FLUIDS USED: none
SAMPLE PRESERVATIVES: HCL

SAMPLE BOTTLE IDs: BN-08-EP-MW-004
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: 15.5L containerized
Slope indicator 244M
YSI-3600 1330.0

EA Engineering, Science, and Technology

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

Site Name: EASTERN PLUME	Project No.: 2960047	Date: 3/17/97
Well ID: MW-225A	Field Personnel: SC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	1134	1137	1141	1145	1148	1152
Depth to Water (ft)	20.62	20.62	20.62	20.62	20.62	20.62
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.35	0.35
Volume Purged (L)	6.7	7.7	9.1	10.5	11.5	12.9
pH	6.13	6.13	6.12	6.11	6.11	6.18
Temperature (°C)	9.0	9.1	9.1	9.1	9.2	9.4
Conductivity (μmhos/cm)	126	116	136	142	122	122
Dissolved Oxygen (mg/L)	3.09	3.09	3.03	2.92	2.92	2.91
Turbidity (NTU)	33	29	25	23	23	2
Eh (mv)	169	169	170	170	170	169

Parameter	12	13	14	15	16	17
Time (min)	1155	1158				
Depth to Water (ft)	20.62	20.62				
Purge Rate (L/min)	0.35	0.35				
Volume Purged (L)	14.0	15.1				
pH	6.12	6.12				
Temperature (°C)	9.5	9.5				
Conductivity (μmhos/cm)	125 ~~2.80~~	55 ~~2.7~~ 124				
Dissolved Oxygen (mg/L)	2.80	2.79				
Turbidity (NTU)	2	4				
Eh (mv)	170	170				

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-225B
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.35

GAUGE TIME: 1120
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/17/97
PURGE METHOD: grundfos - Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1124
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 42.00
B. DEPTH TO WATER (ft): 21.14
C. LIQUID DEPTH (ft) (A-B): 20.86

D. WELL VOLUME/FT (L): ~~0.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 12.62
F. THREE WELL VOLUMES (L) (E*3): 37.86

Parameter	Beginning	1	2	3	4	5
Time (min)	1124	1127	1130	1133	1136	1139
Depth to Water (ft)	21.14	21.18	21.24	21.17	21.16	21.17
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	7.37	6.75	6.59	6.47	6.39	6.37
Temperature (°C)	7.0	7.4	7.6	9.4	10.0	10.3
Conductivity (μmhos/cm)	60	60	58	54	58	58
Dissolved Oxygen (mg/L)	10.73	11.08	11.05	10.95	10.98	11.01
Turbidity (NTU)	15	17	13	7	4	3
Eh (mv)	150	163	161	157	156	156

TOTAL QUANTITY OF WATER REMOVED (L): 3.2

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1145/1146
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW002
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: 3.2L containerized
Slope indicator 23596
YSI 3800-1307.0

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-229A
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: sunny, 30°, windy

GAUGE DATE: 3/18/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.76

GAUGE TIME: 845
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 849
FIELD PERSONNEL: SC, KI
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 64.97
B. DEPTH TO WATER (ft): 13.52
C. LIQUID DEPTH (ft) (A-B): 51.45
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 31.13
F. THREE WELL VOLUMES (L) (E*3): 93.39

Parameter	Beginning	1	2	3	4	5
Time (min)	849	852	855	858	901	904
Depth to Water (ft)	13.52	13.84	13.83	13.83	13.84	13.86
Purge Rate (L/min)	0.4	0.4	0.2	0.2	0.2	0.2
Volume Purged (L)	—	1.2	1.8	2.4	3.0	3.6
pH	6.33	6.84	6.96	7.06	7.13	7.14
Temperature (°C)	6.4	6.9	7.1	8.2	8.8	9.0
Conductivity (μmhos/cm)	106	102	112	110	112	108
Dissolved Oxygen (mg/L)	8.89	7.19	7.02	6.74	6.66	6.64
Turbidity (NTU)	21	111	84	72	60	52
Eh (mv)	211	209	209	207	206	207

TOTAL QUANTITY OF WATER REMOVED (L): 8.8

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 930/931
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW007 930
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 8.8L containerized

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 3/18/97
Well ID: MW-229A	Field Personnel: SYC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	907	910	913	916	919	922
Depth to Water (ft)	13.85	13.87	13.88	13.76	13.76	13.77
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	4.2	4.8	5.4	6.0	6.6	7.2
pH	7.16	7.14	7.16	7.15	7.19	7.18
Temperature (°C)	9.1	9.1	8.9	8.5	8.6	8.7
Conductivity (μmhos/cm)	112	112	112	128	110	110
Dissolved Oxygen (mg/L)	6.67	6.76	6.78	6.82	6.94	6.92
Turbidity (NTU)	42	31	33	30	15	9
Eh (mv)	207	206	207	207	207	206

Parameter	12	13	14	15	16	17
Time (min)	925	928				
Depth to Water (ft)	13.78	13.78				
Purge Rate (L/min)	0.2	0.2				
Volume Purged (L)	7.8	8.4				
pH	7.19	7.19				
Temperature (°C)	8.9	9.0				
Conductivity (μmhos/cm)	108	108				
Dissolved Oxygen (mg/L)	6.89	6.91				
Turbidity (NTU)	5	3				
Eh (mv)	204	204				

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-229B
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: sunny, 30°, windy

GAUGE DATE: 3/18/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.55

GAUGE TIME: 853
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/18/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 859
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 32.70
B. DEPTH TO WATER (ft): 15.30
C. LIQUID DEPTH (ft) (A-B): 17.40

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.53
F. THREE WELL VOLUMES (L) (E*3): 31.59

Parameter	Beginning	1	2	3	4	5
Time (min)	859	902	905	908	911	914
Depth to Water (ft)	15.30	15.96	16.21	16.71	16.64	16.51
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.4	0.4
Volume Purged (L)	—	0.6	1.2	1.8	3.0	4.2
pH	9.40	8.40	7.71	7.46	7.28	7.17
Temperature (°C)	5.8	6.5	8.2	9.7	9.8	10.3
Conductivity (μmhos/cm)	78	60	66	56	52	52
Dissolved Oxygen (mg/L)	9.70	8.60	8.70	8.56	8.54	8.53
Turbidity (NTU)	14	13	14	17	18	15
Eh (mv)	145	165	160	151	150	148

TOTAL QUANTITY OF WATER REMOVED (L): 12.0

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 935/936
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW008 935
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 12.0 L containerized

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 3/18/97
Well ID: MW-229B	Field Personnel: SYC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	917	920	923	926	929	932
Depth to Water (ft)	16.25	16.19	16.08	15.98	15.96	15.88
Purge Rate (L/min)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (L)	5.4	6.6	7.8	9.0	10.2	11.4
pH	7.10	7.03	7.04	6.96	6.94	6.92
Temperature (°C)	10.4	10.4	9.9	10.5	11.1	11.2
Conductivity (μmhos/cm)	48	62	60	66	64	66
Dissolved Oxygen (mg/L)	8.50	8.55	8.75	8.55	8.52	8.53
Turbidity (NTU)	12	10	7	6	6	6
Eh (mv)	148	147	148	144	142	142

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: ~~Eg~~ Eastern Plume
PROJECT NUMBER: 29600.47
WELL I.D.: MW 2304
WELL LOCK STATUS: Locked
WELL CONDITION: Good
WEATHER: Sunny breezy cool

GAUGE DATE: 3/18/97
GAUGE TIME: 1320
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: Top of PVC
STICK UP/DOWN (ft): 2.21
WELL DIAMETER (in.): 2"

PURGE DATE: 3/18/97
PURGE TIME: 1320
PURGE METHOD: Low Flow
FIELD PERSONNEL: MDC BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 82.08
B. DEPTH TO WATER (ft): 15.58
C. LIQUID DEPTH (ft) (A-B): 66.50
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 40.23
F. THREE WELL VOLUMES (L) (E*3): 120.69

Parameter	Beginning	1	2	3	4	5
Time (min)	1325	1330	1335	1340	1345	1350
Depth to Water (ft)	15.58	15.66	15.67	15.67	15.67	15.64
Purge Rate (L/min)	.2	.2 MDC	.2 MDC	.2 MDC	.2 MDC	.2
Volume Purged (L)	1	2 ~~1.5~~	2.3	~~2.5~~ 4	3.5	~~3.5~~ 6 MDC
pH	6.83	7.23	6.70	6.71	6.91	6.73
Temperature (°C)	6.92	6.81	6.92	6.95	7.04	7.07
Conductivity (μmhos/cm)	56	57	55	57	57	59
Dissolved Oxygen (mg/L)	2.5	1.21	.94	.86	.64	.65
Turbidity (NTU)	109	143	87.2	78	64	53
Eh (mv)	175	49	-36	-64.6	-82.7	-38

TOTAL QUANTITY OF WATER REMOVED (L): 15

SAMPLERS: MDC / BDA
SAMPLING TIME (START/END): 1435
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-005
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: Sites 1 & 3	Project No.: 24600.47	Date: 3/18/97
Well ID: 23U4	Field Personnel: MDC, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1355	~~1~~1400	1405	1410	1415 ~~1420~~	1420
Depth to Water (ft)	15.67	15.67	15.67	15.67	15.67	15.67
Purge Rate (L/min)	.2	.2	.2	.2	.2	.2
Volume Purged (L)	~~4~~ 7 MDC	~~4.5~~ 8 MDC	~~5~~ 9 MDC	~~5.5~~ 10 MDC	~~6~~ 11 MDC	12 MDC ~~6.5~~
pH	7.39	7.54	7.12	7.53	7.64	7.64
Temperature (°C)	7.15	7.16	7.48	7.80	7.85	7.88
Conductivity (μmhos/cm)	60	59	58	58	58	57
Dissolved Oxygen (mg/L)	.39	.38	.44	.21	.28	.24
Turbidity (NTU)	42	42	44	31	31	26
Eh (mv)	-107	-111	-116	-123	-127	-130

Parameter	12	13	14	15	16	17
Time (min)	1425	1430				
Depth to Water (ft)	15.67	15.67				
Purge Rate (L/min)	.2	.2				
Volume Purged (L)	~~7~~ MC 13	14 MC ~~7.5~~				
pH	7.67	7.67				
Temperature (°C)	7.84	7.81				
Conductivity (μmhos/cm)	58	58				
Dissolved Oxygen (mg/L)	.23	.23				
Turbidity (NTU)	26	30				
Eh (mv)	-132	-133				

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-231A
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°, snowing

GAUGE DATE: 3/17/97
SOUNDING METHOD: Sbpe indicator
STICK UP/DOWN (ft): 2.65

GAUGE TIME: 1331
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/17/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1335
FIELD PERSONNEL: KI, SYC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 62.42
B. DEPTH TO WATER (ft): 20.64
C. LIQUID DEPTH (ft) (A-B): 41.78

D. WELL VOLUME/FT (L): ~~H~~ SC 0.605
E. WELL VOLUME (L) (C*D): 25.28
F. THREE WELL VOLUMES (L) (E*3): 75.84

Parameter	Beginning	1	2	3	4	5
Time (min)	1335	1338	1341	1344	1347	1350
Depth to Water (ft)	20.64	20.80	20.80	20.79	20.79	20.77
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	7.04	6.93	6.84	6.81	6.79	6.77
Temperature (°C)	5.8	6.1	6.6	7.0	7.8	8.8
Conductivity (μmhos/cm)	62	58	52	72	58	66
Dissolved Oxygen (mg/L)	4.80	4.36	3.95	3.73	3.54	3.18
Turbidity (NTU)	3	50	85	75	79	69
Eh (mv)	170	171	170	169	169	168

TOTAL QUANTITY OF WATER REMOVED (L): 13.5

SAMPLERS: KI SC
SAMPLING DATE: 3/17/97
SAMPLE TYPE: Grab
SAMPLE BOTTLE IDs: BN-08-EP-MW-006
SAMPLE PARAMETERS: VOC

SAMPLING TIME (START/END): 1445/1447
DECONTAMINATION FLUIDS USED: none
SAMPLE PRESERVATIVES: HCL

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600147	Date: 3/17/97
Well ID: MW-231A	Field Personnel: SC KI	

Parameter	6	7	8	9	10	11
Time (min.)	1353	1356	1359	1402	1405	1408
Depth to Water (ft)	20.76	20.76	20.77	20.77	20.76	20.76
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.2	4.8	5.4	6.0	6.6
pH	SC 6.79 ~~6.58~~	6.78	6.77	6.76	6.77	6.77
Temperature (°C)	9.4	9.4	9.4	9.4	9.4	9.5
Conductivity (μmhos/cm)	62	44	62	50	70	50
Dissolved Oxygen (mg/L)	2.95	2.88	2.80	2.70	2.64	2.50
Turbidity (NTU)	32	42	24	29	30	32
Eh (mv)	168	168	168	168	168	168

Parameter	12	13	14	15	16	17
Time (min)	1411	1414	1417	1420	1423	14.26
Depth to Water (ft)	20.77	20.77	20.76	20.76	20.76	20.78
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	7.2	7.8	8.4	9.0	9.6	10.2
pH	6.77	6.77	6.77	6.77	6.77	6.77
Temperature (°C)	9.7	9.8	9.9	9.9	10.0	10.2
Conductivity (μmhos/cm)	50	52	80	70	58	54
Dissolved Oxygen (mg/L)	2.39	2.43	2.36	2.31	2.25	2.18
Turbidity (NTU)	30	27	23	28	33	26
Eh (mv)	168	168	168	168	168	168

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/17/97
Well ID: MW-231A	Field Personnel: SC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	1429	1432	1435	1438	1441	
Depth to Water (ft)	20.78	20.78	20.79	20.79	20.79	
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (L)	10.8	11.4	12.0	12.6	13.2	
pH	6.78	6.77	6.77	6.76	6.76	
Temperature (°C)	10.5	10.4	10.4	10.5	10.5	
Conductivity (μmhos/cm)	52	58	54	58	58	
Dissolved Oxygen (mg/L)	2.08	2.10	2.06	2.00	1.94	
Turbidity (NTU)	17	17	16	16	16	
Eh (mv)	168	168	168	168	168	

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-231B
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: overcast, 30°

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 3.00

GAUGE TIME: 1340
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/17/97
PURGE METHOD: grundfos Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1345
FIELD PERSONNEL: KI, SYC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 57.86
B. DEPTH TO WATER (ft): 24.84
C. LIQUID DEPTH (ft) (A-B): 33.02

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 19.98
F. THREE WELL VOLUMES (L) (E*3): 59.94

Parameter	Beginning	1	2	3	4	5
Time (min)	1345	1348	1351	1354	1357	1400
Depth to Water (ft)	24.84	25.48	25.50	25.57	25.62	25.80
Purge Rate (L/min)	~~13.45~~ 0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	6.71	6.63	6.55	6.58	6.61	6.59
Temperature (°C)	5.9	6.1	7.4	9.1	10.5	10.6
Conductivity (μmhos/cm)	62	74	80	74	62	62
Dissolved Oxygen (mg/L)	10.92	10.66	10.60	10.56	10.48	10.50
Turbidity (NTU)	82	81	57	37	18	18
Eh (mv)	184	176	144	131	129	130

TOTAL QUANTITY OF WATER REMOVED (L): 8.5

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1420/1422
SAMPLING DATE: ~~Eva~~ 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-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 No.: 29600.47	Date: 3/17/97
Well ID: MW-231B	Field Personnel: SC, KI	

Parameter	6	7	8	9	10	11
Time (min.)	1403	1406	1409	1412	1415	
Depth to Water (ft)	25.95	25.55	25.49	25.44	25.51	
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (L)	3.6	4.2	4.8	5.4	6.0	
pH	6.55	6.53	6.52	6.50	6.48	
Temperature (°C)	10.7	10.7	10.9	11.0	11.0	
Conductivity (μmhos/cm)	66	76	76	70	72	
Dissolved Oxygen (mg/L)	10.50	10.48	10.47	10.36	10.48	
Turbidity (NTU)	17	10	8	8	7	
Eh (mv)	130	131	130	130	132	

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-303
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 35°

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 1.81

GAUGE TIME: 1304
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1306
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 71.62
B. DEPTH TO WATER (ft): 12.63
C. LIQUID DEPTH (ft) (A-B): 58.99
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 35.69
F. THREE WELL VOLUMES (L) (E*3): 107.07

Parameter	Beginning	1	2	3	4	5
Time (min)	1306	1309	1312	1315	1318	1321
Depth to Water (ft)	12.63	12.64	12.64	12.65	12.65	12.65
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	—	0.6	1.2	1.8	2.4	3.0
pH	8.65	8.02	7.97	7.98	8.00	8.02
Temperature (°C)	6.0	6.5	6.7	7.0	7.3	7.7
Conductivity (μmhos/cm)	202	194	206	200	226	222
Dissolved Oxygen (mg/L)	9.11	1.73	0.74	0.72	0.41	0.32
Turbidity (NTU)	4	9	27	18	17	17
Eh (mv)	144	150	153	155	155	154

TOTAL QUANTITY OF WATER REMOVED (L): 7

SAMPLERS: KI SC
SAMPLING TIME (START/END): 1340 / 1341
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW024 1340
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 No.: 29600.47	Date: 3/19/97
Well ID: MW-303	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1324	1327	1330	1333	1336	1339
Depth to Water (ft)	12.64	12.64	12.64	12.64	12.64	12.64
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.2	4.8	5.4	6.0	6.6
pH	8.04	8.05	8.06	8.07	8.08	8.09
Temperature (°C)	7.9	8.2	8.5	8.5	8.7	8.7
Conductivity (μmhos/cm)	~~0~~ 228	222	218	224	222	226
Dissolved Oxygen (mg/L)	0.30	0.27	0.25	0.23	0.22	0.21
Turbidity (NTU)	16	12	12	9	8	7
Eh (mv)	153	150	148	145	139	138

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-305
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: sunny, 35°

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.70

GAUGE TIME: 1156
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1200
FIELD PERSONNEL: KI
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 54.12
B. DEPTH TO WATER (ft): 7.11
C. LIQUID DEPTH (ft) (A-B): ~~54.01~~ 47.01

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 28.44
F. THREE WELL VOLUMES (L) (E*3): 85.32

Parameter	Beginning	1	2	3	4	5
Time (min)	1200	1203	1206	1209	1212	1215
Depth to Water (ft)	7.11	10.71	10.55	10.60	10.60	10.60
Purge Rate (L/min)	0.4	0.4	0.4	0.4	0.4	0.4
Volume Purged (L)	—	1.2	2.4	3.6	4.8	6.0
pH	8.32	8.80	8.97	9.01	9.02	9.03
Temperature (°C)	7.2	6.9	7.6	8.2	8.5	8.4
Conductivity (μmhos/cm)	206	274	200	222	212	216
Dissolved Oxygen (mg/L)	1.69	0.24	0.40	0.16	0.15	0.15
Turbidity (NTU)	603	415	220	114	113	97
Eh (mv)	207	196	178	169	163	159

TOTAL QUANTITY OF WATER REMOVED (L): 14.4

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1250/1251
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP MW023 1250
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: water smells like sulfur

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/19/97
Well ID: MW-305	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	12.18	1221	1224	1227	1230	1233
Depth to Water (ft)	10.31	10.11	10.03	10.04	10.04	10.05
Purge Rate (L/min)	0.4	0.4	0.2	0.2	0.2	0.2
Volume Purged (L)	7.2	8.4	9.0	9.6	10.2	10.8
pH	9.03	9.04	9.04	9.03	9.04	9.04
Temperature (°C)	8.6	8.7	8.6	8.8	8.9	8.9
Conductivity (μmhos/cm)	198	212	180	156	124	160
Dissolved Oxygen (mg/L)	0.30	0.15	0.14	0.14	0.14	0.13
Turbidity (NTU)	98	79	66	54	51	48
Eh (mv)	156	154	152	151	149	148

Parameter	12	13	14	15	16	17
Time (min)	1236	1239	1242	1245	1248	
Depth to Water (ft)	10.04	10.04	10.05	10.05	10.05	
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (L)	11.4	12.0	12.6	13.2	13.8	
pH	9.03	9.04	9.05	9.04	9.04	
Temperature (°C)	9.0	9.1	9.1	9.2	9.2	
Conductivity (μmhos/cm)	154	252	260	268	272	
Dissolved Oxygen (mg/L)	0.14	0.15	0.13	0.13	0.13	
Turbidity (NTU)	31	32	26	26	26	
Eh (mv)	147	145	144	143	143	

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-306
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 25°, windy

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.35

GAUGE TIME: 1436
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE:
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1441
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 56.98
B. DEPTH TO WATER (ft): 19.25
C. LIQUID DEPTH (ft) (A-B): 37.73

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 22.83
F. THREE WELL VOLUMES (L) (E*3): 68.49

Parameter	Beginning	1	2	3	4	5
Time (min)	1441	1444	1447	1450	1453	1456
Depth to Water (ft)	19.25	19.34	19.34	19.34	19.34	19.36
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	—	0.9	1.8	2.7	3.6	4.5
pH	7.61	6.66	6.26	6.21	6.11	6.08
Temperature (°C)	6.6	7.1	7.3	8.0	8.8	9.5
Conductivity (μmhos/cm)	70	68	68	78	68	50
Dissolved Oxygen (mg/L)	11.01	10.67	8.94	8.90	8.59	8.44
Turbidity (NTU)	1	128	120	110	109	88
Eh (mv)	122	125	136	132	137	141

TOTAL QUANTITY OF WATER REMOVED (L): 13

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1525/1526
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: 4CL
SAMPLE BOTTLE IDs: BN-08-EP-MW028
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 13 L Containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29660.47	Date: 3/19/97
Well ID: MW-3016	Field Personnel: KI, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1459	1502	1505	1508	1511	1514
Depth to Water (ft)	19.45	19.41	19.39	19.38	19.34	19.35
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	5.4	6.3	7.2	8.1	9.0	9.9
pH	6.06	6.03	6.05	6.02	6.02	6.03
Temperature (°C)	10.9	10.4	10.2	9.9	9.9	10.3
Conductivity (μmhos/cm)	82	76	82	84	72	76
Dissolved Oxygen (mg/L)	8.33	8.52	8.73	8.09	8.52	8.15
Turbidity (NTU)	38	19	17	14	13	9
Eh (mv)	145	148	148	153	154	156

Parameter	12	13	14	15	16	17
Time (min)	1517	1520	1523			
Depth to Water (ft)	19.35	19.35	19.36			
Purge Rate (L/min)	0.3	0.3	0.3			
Volume Purged (L)	10.8	11.7	12.6			
pH	6.01	6.01	6.01			
Temperature (°C)	10.5	10.4	10.5			
Conductivity (μmhos/cm)	~~8.5~~ 80	84	80			
Dissolved Oxygen (mg/L)	8.54	8.58	8.56			
Turbidity (NTU)	9	9	9			
Eh (mv)	158	159	159			

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN PLUME
WELL I.D.: MW-307
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: good
WEATHER: overcast, mild

GAUGE DATE: 3/26/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.00

GAUGE TIME: 1054
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 3/20/97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1057
FIELD PERSONNEL: KI, BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 22.21
B. DEPTH TO WATER (ft): 16.02
C. LIQUID DEPTH (ft) (A-B): 6.19

D. WELL VOLUME/FT (L): ~~.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 3.74
F. THREE WELL VOLUMES (L) (E*3): 11.22

Parameter	Beginning	1	2	3	4	5
Time (min)	1100	1105	1110	1115	1120	1125
Depth to Water (ft)	16.31	16.31	16.30	16.29	16.24	16.27
Purge Rate (L/min)	.4	.4	.4	.4	.4	.2
Volume Purged (L)	—	2	4	6	8	10
pH	4.71	5.47	5.70	5.04	4.55	5.51
Temperature (°C)	7.51	9.86	11.57	12.16	13.22	13.47
Conductivity (μmhos/cm)	158	169	160	158	154	149
Dissolved Oxygen (mg/L)	7.90	6.38	6.92	7.33	7.54	7.66
Turbidity (NTU)	322	221	129	62	62	~~64~~ 52
Eh (mv)	331	279	260	280	336	294

TOTAL QUANTITY OF WATER REMOVED (L): 18

SAMPLERS: KI, BDA
SAMPLING TIME (START/END): 1145/1147
SAMPLING DATE: 3/20/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: ~~VOC~~ pH HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW031
SAMPLE PARAMETERS: VOC by 8260 pH ✓

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: EASTERN PLUME	Project No.: 2960.47	Date: 3/20/97
Well ID: MW-307	Field Personnel: KI, BD	

Parameter	6	7	8	9	10	11
Time (min.)	1130	1135	1140			
Depth to Water (ft)	16.26	16.28	16.27			
Purge Rate (L/min)	.2	.2	.2			
Volume Purged (L)	12	14	16			
pH	5.73	5.75	5.73			
Temperature (°C)	14.72	14.78	14.84			
Conductivity (μmhos/cm)	153	150	156			
Dissolved Oxygen (mg/L)	7.33	7.35	7.17			
Turbidity (NTU)	39	79	88			
Eh (mv)	262	257	249			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW 308
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7301
WELL LOCK STATUS: good
WEATHER: Clear Sunny

GAUGE DATE: 3/19/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.44

GAUGE TIME: 1436
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 3/19/97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1437
FIELD PERSONNEL: SUC BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 72.85
B. DEPTH TO WATER (ft): 5.20
C. LIQUID DEPTH (ft) (A-B): 67.65

D. WELL VOLUME/FT (L): ~~.160~~ .605
E. WELL VOLUME (L) (C*D): 40.93
F. THREE WELL VOLUMES (L) (E*3): 122.79

Parameter	Beginning	1	2	3	4	5
Time (min)	1440	1445	1450	1455	1500	1505
Depth to Water (ft)	5.27	5.49	5.50	5.51	5.52	5.53
Purge Rate (L/min)	.3	.2	.2	.2	.2	.2
Volume Purged (L)	0.9	1.9	2.9	3.9	4.9	5.9
pH	8.06	8.23	8.52	8.61	8.09	8.41
Temperature (°C)	6.79	6.98	6.86	6.95	7.19	7.32
Conductivity (μmhos/cm)	656	667	674	683	691	694
Dissolved Oxygen (mg/L)	10.72	9.04	8.23	7.80	7.57	6.64
Turbidity (NTU)	3	16	26.8	13	7	4
Eh (mv)	64	-4	-62	-95	-113	-127

TOTAL QUANTITY OF WATER REMOVED (L): 8.9

SAMPLERS: SUC, BDA
SAMPLING DATE: 3/19/97
SAMPLE TYPE: grab
SAMPLE BOTTLE IDs: BN-08 - EP - MW027
SAMPLE PARAMETERS: VOCs

SAMPLING TIME (START/END): 1520/1522
DECONTAMINATION FLUIDS USED: none
SAMPLE PRESERVATIVES: HCL

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: EASTERN PLUME		Project No.: 2960047	Date: 3/19/97
Well ID: MW 308		Field Personnel: SVC, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1510	1513	1516			
Depth to Water (ft)	5.54	5.55	5.55			
Purge Rate (L/min)	.2	.2	.2			
Volume Purged (L)	6.9	7.5	8.1			
pH	8.52	8.54	8.55			
Temperature (°C)	7.45	7.48	7.53			
Conductivity (μmhos/cm)	698	698	699			
Dissolved Oxygen (mg/L)	6.05	5.82	5.54			
Turbidity (NTU)	3	2	2			
Eh (mv)	-142	-146	-151			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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 7301
WELL I.D.: MW 309A
WELL LOCK STATUS: Good
WELL CONDITION: good
WEATHER: Clear, Sunny, cold

GAUGE DATE: 3/19/97
GAUGE TIME: 1333
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 2.49
WELL DIAMETER (in.): 2"

PURGE DATE: 3/19/97
PURGE TIME: 1335
PURGE METHOD: Low flow *
FIELD PERSONNEL: SVC, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 72.71
B. DEPTH TO WATER (ft): 0.0
C. LIQUID DEPTH (ft) (A-B): 72.71
D. WELL VOLUME/FT (L): 0.60 S
E. WELL VOLUME (L) (C*D): 43.79
F. THREE WELL VOLUMES (L) (E*3): 131.97

Parameter	Beginning	1	2	3	4	5
Time (min)	1340	1345	1350	1355	1400	1405
Depth to Water (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Purge Rate (L/min)	2.8	2.8	2.8	2.8	2.8	2.8
Volume Purged (L)	14	28	42	56	70	84
pH	8.57	8.70	8.72	8.58	8.72	8.75
Temperature (°C)	8.52	8.52	8.56	8.56	8.58	8.59
Conductivity (μmhos/cm)	284	282	282	282	282	282
Dissolved Oxygen (mg/L)	0.63	.11	.03	.05	.04	.02
Turbidity (NTU)	3.4	1	1	0.9	0.8	1.0
Eh (mv)	68	-25	-74	-115	-136	-152

TOTAL QUANTITY OF WATER REMOVED (L): 126

SAMPLERS: SVC, BDA
SAMPLING TIME (START/END): 1420
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW02
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: * artesian flow unable to pump slower than 2.8 L/min.

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960.47.7301	Date: 3/19/97
Well ID: MW 3097	Field Personnel: BA SVC	

Parameter	6	7	8	9	10	11
Time (min.)	1410	1415				
Depth to Water (ft)	0.0	0.0				
Purge Rate (L/min)	2.8	2.8				
Volume Purged (L)	98	112				
pH	8.72	8.72				
Temperature (°C)	8.58	8.59				
Conductivity (μmhos/cm)	282	282				
Dissolved Oxygen (mg/L)	0.0	0.0				
Turbidity (NTU)	1.4	1.3				
Eh (mv)	-163	-171				

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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: 29600.47730i
WELL I.D.: MW-309B
WELL LOCK STATUS: Good
WELL CONDITION: good
WEATHER: clear, cold

GAUGE DATE: 3/19/97
GAUGE TIME: —
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft):
WELL DIAMETER (in.): 2"

PURGE DATE: NA
PURGE TIME: —
PURGE METHOD: NA
FIELD PERSONNEL: SVC, BDM
AMBIENT AIR VOCs (ppm) Start: 0.0 End: NA
WELL MOUTH VOCs (ppm): Start: 0.0 End: NA

WELL VOLUME

A. WELL DEPTH (ft): NA
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA
D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (L)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
Eh (mv)						

Frozen

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: NA
SAMPLING TIME (START/END): NA
SAMPLING DATE: NA
DECONTAMINATION FLUIDS USED: NA
SAMPLE TYPE: NA
SAMPLE PRESERVATIVES: NA
SAMPLE BOTTLE IDs: NA
SAMPLE PARAMETERS: NA

COMMENTS AND OBSERVATIONS: Well Frozen - unable to move pump

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-309B
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 40°

GAUGE DATE: 4/8/97
SOUNDING METHOD: Slopindicator
STICK UP/DOWN (ft): 2.42

GAUGE TIME: 1418
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 4/8/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1420
FIELD PERSONNEL: BA, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 59.43
B. DEPTH TO WATER (ft): 1.14
C. LIQUID DEPTH (ft) (A-B): 58.29

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 35.3
F. THREE WELL VOLUMES (L) (E*3): 105.9

Parameter	Beginning	1	2	3	4	5
Time (min)	1423	1427	1430	1434	1438	1441
Depth to Water (ft)	4.47	4.89	5.15	5.41	5.68	6.57
Purge Rate (L/min)	1.2	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	3.6	4.0	4.3	4.7	5.1	5.4
pH	7.10	7.38	7.57	7.71	7.79	7.84
Temperature (°C)	7.7	7.8	7.5	7.1	6.9	6.9
Conductivity (μmhos/cm)	258	270	256	200	252	302
Dissolved Oxygen (mg/L)	0.30	0.26	0.30	0.28	0.27	0.26
Turbidity (NTU)	11	13	12	10	10	9
Eh (mv)	233	189	167	158	152	149

TOTAL QUANTITY OF WATER REMOVED (L): _____

SAMPLERS: _____
SAMPLING TIME (START/END): 1455/1456

SAMPLING DATE: 4/8/97
DECONTAMINATION FLUIDS USED: none

SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL

SAMPLE BOTTLE IDs: BN-08-EP-MW035

SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS: had to adjust Flow to keep it constant at 0.1 L/m

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume		Project No.: 2960047	Date: 4/8/97
Well ID: MW-309B		Field Personnel: SYC, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1444	1447	1450	1453		
Depth to Water (ft)	6.83	7.09	7.18	7.31		
Purge Rate (L/min)	0.1	0.1	0.1	0.1		
Volume Purged (L)	5.7	6.0	6.3	6.6		
pH	7.95	7.99	8.01	8.03		
Temperature (°C)	6.7	6.7	6.7	6.7		
Conductivity (μmhos/cm)	350	322	300	310		
Dissolved Oxygen (mg/L)	0.28	0.28	0.28	0.27		
Turbidity (NTU)	9	9	9	9		
Eh (mv)	141	137	135	133		

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-310
WELL CONDITION: good

PROJECT NUMBER: 2966-07-7
WELL LOCK STATUS: locked
WEATHER: overcast cold

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.57

GAUGE TIME: 1125
MEASUREMENT REF: Top of PVC
WELL DIAMETER (in.): 2"

PURGE DATE: 3-17-97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1125
FIELD PERSONNEL: MDC BG
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): ~~72.83~~ SC
B. DEPTH TO WATER (ft): 28.95
C. LIQUID DEPTH (ft) (A-B): 43.88
D. WELL VOLUME/FT (L): ~~0.6~~ SC 0.605
E. WELL VOLUME (L) (C*D): 26.55
F. THREE WELL VOLUMES (L) (E*3): ~~9~~ 79.65

Parameter	Beginning	1	2	3	4	5
Time (min)	1130	1135	1140	1145	1150	1155
Depth to Water (ft)	28.95	28.95	28.96	28.96	28.96	28.96
Purge Rate (L/min)	.2	.2	.2	.2	.2	.2
Volume Purged (L)	1	2	3	4	5	6
pH	~~4.86~~ ~~7.12~~	3.67	3.35	3.14	3.68	5.01
Temperature (°C)	7.12	7.36	7.82	8.03	8.33	8.47
Conductivity (μmhos/cm)	114	115	117	247	213	205
Dissolved Oxygen (mg/L)	7.26	7.50	7.51	7.25	7.12	6.82
Turbidity (NTU)	19.5	23.8	12.8	8.0	2.7	1.4
Eh (mv)	307.8	237.1	215.1	210	215	205.3

TOTAL QUANTITY OF WATER REMOVED (L): 9

SAMPLERS: MDC BG
SAMPLING TIME (START/END): 1210/1215
SAMPLING DATE: 3-17-97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: ~~BN-08-EP-MW0223~~ BN-08-EP-MW+D1
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: 9L Containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: EASTERN Plume	Project No.: 29600.47	Date: 3/17/97
Well ID: MW310	Field Personnel: MDC, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1200	1205				
Depth to Water (ft)	28.96	28.96				
Purge Rate (L/min)	.2	.2				
Volume Purged (L)	7	8				
pH	5.11	5.63				
Temperature (°C)	8.52	8.60				
Conductivity (μmhos/cm)	245	248				
Dissolved Oxygen (mg/L)	6.97	6.74				
Turbidity (NTU)	1.0	1.0				
Eh (mv)	204.3	201.2				

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-311
WELL CONDITION: good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER:

GAUGE DATE: 4/8/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.30

GAUGE TIME: ~~1300~~ SC 1258
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 4/8/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1300
FIELD PERSONNEL: SC, BA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 55.78
B. DEPTH TO WATER (ft): 2.91
C. LIQUID DEPTH (ft) (A-B): 52.87

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): ~~31.9~~ 32
F. THREE WELL VOLUMES (L) (E*3): 96

Parameter	Beginning	1	2	3	4	5
Time (min)	1302	1305	1309	1312	1316	1320
Depth to Water (ft)	3.80	3.82	3.83	3.84	3.84	3.83
Purge Rate (L/min)	1	1	1	1	1	1
Volume Purged (L)	2	5	9	12	16	20
pH	7.03	6.88	6.81	6.72	6.69	6.66
Temperature (°C)	6.7	7.2	7.5	7.7	7.8	7.8
Conductivity (μmhos/cm)	134	142	138	140	140	136
Dissolved Oxygen (mg/L)	0.92	0.69	0.69	0.70	0.69	0.69
Turbidity (NTU)	151	115	123	43	48	28
Eh (mv)	349	329	315	307	300	293

TOTAL QUANTITY OF WATER REMOVED (L): 61

SAMPLERS: SYC, BDA
SAMPLING TIME (START/END): 1400/1401
SAMPLING DATE: 4/8/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW034 Duplicate BN-08-EP-MW105
SAMPLE PARAMETERS: VOC by 8260

COMMENTS AND OBSERVATIONS:

containerized water 61L

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 4/8/97
Well ID: MW-311	Field Personnel: SVC BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1324	1328	1332	1336	1340	1344
Depth to Water (ft)	3.83	3.83	3.83	3.83	3.83	3.83
Purge Rate (L/min)	1	1	1	1	1	1
Volume Purged (L)	24	28	32	36	40	44
pH	6.60	6.55	6.53	6.46	6.42	6.41
Temperature (°C)	7.9	7.9	7.8	7.8	7.9	7.9
Conductivity (μmhos/cm)	144	136	136	142	144	142
Dissolved Oxygen (mg/L)	0.66	0.66	0.65	0.65	0.69	0.65
Turbidity (NTU)	24	18	17	16	13	12
Eh (mv)	284	279	278	279	276	275

Parameter	12	13	14	15	16	17
Time (min)	1348	1352				
Depth to Water (ft)	3.83	3.83				
Purge Rate (L/min)	1	1				
Volume Purged (L)	48	52				
pH	6.41	6.40				
Temperature (°C)	7.9	8.0				
Conductivity (μmhos/cm)	148	148				
Dissolved Oxygen (mg/L)	0.65	0.65				
Turbidity (NTU)	13	13				
Eh (mv)	274	273				

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN PLUME
PROJECT NUMBER: 29600.477301
WELL I.D.: MW-311
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: clear, cold

GAUGE DATE: 3/19/97
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) Start: 0.0 End: NA
WELL MOUTH VOCs (ppm): Start: 0.0 End: NA

WELL VOLUME

A. WELL DEPTH (ft): NA
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA
D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (L)						
pH						
Temperature (°C)						
Conductivity (μmhos/cm)						
Dissolved Oxygen (mg/L)						
Turbidity (NTU)						
Eh (mv)						

FROZEN

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: NA
SAMPLING TIME (START/END): NA
SAMPLING DATE: NA
DECONTAMINATION FLUIDS USED: NA
SAMPLE TYPE: NA
SAMPLE PRESERVATIVES: NA
SAMPLE BOTTLE IDs: NA
SAMPLE PARAMETERS: NA

COMMENTS AND OBSERVATIONS: FROZEN unable to move pump

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW313
WELL CONDITION: good

PROJECT NUMBER: 29600.477301
WELL LOCK STATUS: good
WEATHER: clear, 25°, wind

GAUGE DATE: 3/18/97
SOUNDING METHOD: Slope indicate
STICK UP/DOWN (ft): 3.35

GAUGE TIME: 0835
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 3/18/97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0845
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 37.14
B. DEPTH TO WATER (ft): 8.37
C. LIQUID DEPTH (ft) (A-B): 28.77

D. WELL VOLUME/FT (L): ~~.160~~ .0005
E. WELL VOLUME (L) (C*D): 17.41
F. THREE WELL VOLUMES (L) (E*3): 52.23

Parameter	Beginning	1	2	3	4	5
Time (min)	0845	0850	0855	0900	0905	0910
Depth to Water (ft)	8.94	9.10	9.27	9.25	9.16	9.25
Purge Rate (L/min)	.1	.2	.2	.2	.1	.1
Volume Purged (L)	—	.5	1.5	2.5	3.5	4.0
pH	7.91	6.16	6.27	6.67	6.67	6.56
Temperature (°C)	5.85	6.83	6.87	6.79	6.48	6.57
Conductivity (μmhos/cm)	169	181	190	203	209	212
Dissolved Oxygen (mg/L)	8.71	1.22	0.60	0.54	0.62	0.71
Turbidity (NTU)	281	>1000	>1000	>1000	>1000	>1000
Eh (mv)	158.2	~~-313~~ -386	-95.2	-121.7	-132	-132

TOTAL QUANTITY OF WATER REMOVED (L): 14.5

SAMPLERS: MDC, BDA
SAMPLING DATE: 3/17/97
SAMPLE TYPE: grab
SAMPLE BOTTLE IDs: BN-08-EP-MW009
SAMPLE PARAMETERS: VOCs

SAMPLING TIME (START/END): 1055 / 1056
DECONTAMINATION FLUIDS USED: None
SAMPLE PRESERVATIVES: HCL

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: EASTERN PLUME	Project No.: 29600.47	Date: 3/18/97
Well ID: MW 313	Field Personnel: MDC, BDH	

Parameter	6	7	8	9	10	11
Time (min.)	915	920	925	930	935	940
Depth to Water (ft)	9.41	9.41	9.41	9.41	9.41	9.70
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	4.5	5.0	5.5	6.0	6.5	7.0
pH	5.38	7.09	6.77	6.65	6.42	5.76
Temperature (°C)	7.64	7.63	8.11	8.08	7.89	8.12
Conductivity (μmhos/cm)	213	211	202	197	191	175
Dissolved Oxygen (mg/L)	1.07	.44	.38	.33	.39	.70
Turbidity (NTU)	677.3	568.4	450.4	294	245	212
Eh (mv)	-137	-148	-146	-148	-148	-133

Parameter	12	13	14	15	16	17
Time (min)	0945	0950	0955	1000	1005	1010
Depth to Water (ft)	9.65	9.74	9.80	9.78	9.78	9.78
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	7.5	8.0	8.5	9.0	9.5	10.0
pH	6.25	8.01	8.13	5.98	6.10	6.36
Temperature (°C)	7.73	6.06	5.00	7.73	7.69	8.00
Conductivity (μmhos/cm)	174	171	169	169	168	168
Dissolved Oxygen (mg/L)	0.40	0.42	0.41	0.50	0.39	0.43
Turbidity (NTU)	183	129	110	95	88	91
Eh (mv)	-143	-145	-145	-143	-145	-150

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

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

Site Name: EASTERN Plume		Project No.: 2960047	Date: 3/18/97
Well ID: MW313		Field Personnel: MDX BDH	

Parameter	6	7	8	9	10	11
Time (min.)	1015	1020	1025	1030	1035	1040
Depth to Water (ft)	9.90	9.82	9.80	9.80	9.71	9.80
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	10.5	11	11.5	12	12.5	13
pH	6.07	6.03	6.38	7.07	7.38	6.41
Temperature (°C)	8.18	8.00	7.85	7.97	8.09	8.16
Conductivity (μmhos/cm)	169	166	170	168	170	167
Dissolved Oxygen (mg/L)	.35	.36	.33	.26	.23	.36
Turbidity (NTU)	62.8	54	51.2	48	49	41
Eh (mv)	-148	-150	-153	-155	-159	-153

Parameter	12	13	14	15	16	17
Time (min)	1045					
Depth to Water (ft)	9.80					
Purge Rate (L/min)	.1					
Volume Purged (L)	13.5					
pH	6.66					
Temperature (°C)	8.13					
Conductivity (μmhos/cm)	171					
Dissolved Oxygen (mg/L)	.34					
Turbidity (NTU)	38.2					
Eh (mv)	-154					

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN PLUME
WELL I.D.: MW-318
WELL CONDITION: good

PROJECT NUMBER: 29600 47
WELL LOCK STATUS: good
WEATHER: sunny, 30°

GAUGE DATE: 3/18/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.57

GAUGE TIME: 1112
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 3/18/97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1114
FIELD PERSONNEL: MDC BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 25.14
B. DEPTH TO WATER (ft): 5.43
C. LIQUID DEPTH (ft) (A-B): 19.71

D. WELL VOLUME/FT (L): ~~.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 11.92
F. THREE WELL VOLUMES (L) (E*3): 35.76

Parameter	Beginning	1	2	3	4	5
Time (min)	1115	1120	1125	1130	1135	1140
Depth to Water (ft)	5.43	5.60	5.60	5.63	5.60	5.62
Purge Rate (L/min)	.2	.2	.2	.2	.2	.2
Volume Purged (L)	0.2	1.2	2.2	3.2	4.2	5.2
pH	6.46	5.30	6.33	5.01	5.15	4.75
Temperature (°C)	6.20	6.69	6.98	7.53	7.72	7.88
Conductivity (μmhos/cm)	49	53	55	54	52	50
Dissolved Oxygen (mg/L)	4.35	1.69	1.53	3.22	4.06	4.95
Turbidity (NTU)	112.6	58	35	17.0	11.0	8.0
Eh (mv)	95.6	72	44	78	87	111

TOTAL QUANTITY OF WATER REMOVED (L): 7.8

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1153
SAMPLING DATE: 3/18/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: ~~VOCs~~ BA grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW013
SAMPLE PARAMETERS: VOCs
COMMENTS AND OBSERVATIONS: ~~BN-08-BA~~

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/18/97
Well ID: MW318	Field Personnel: MDC BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1143	1146	1149			
Depth to Water (ft)	5.62	5.64	5.60			
Purge Rate (L/min)	.2	.2	.2			
Volume Purged (L)	5.8	6.4	7.0			
pH	5.21	4.98	5.06			
Temperature (°C)	8.00	8.11	8.10			
Conductivity (μmhos/cm)	48	46	46			
Dissolved Oxygen (mg/L)	5.17	5.51	5.37			
Turbidity (NTU)	7.0	6	6			
Eh (mv)	116	129	127			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-319
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7301
WELL LOCK STATUS: good
WEATHER: clear, 32°

GAUGE DATE: 3/19/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.30

GAUGE TIME: 1107
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 3/19/97
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1115-1200
FIELD PERSONNEL: SUC, BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 92.44
B. DEPTH TO WATER (ft): 16.41
C. LIQUID DEPTH (ft) (A-B): 76.03

D. WELL VOLUME/FT (L): ~~.16~~ SC 0.605
E. WELL VOLUME (L) (C*D): 46.00
F. THREE WELL VOLUMES (L) (E*3): 138.00

Parameter	Beginning	1	2	3	4	5
Time (min)	1115	1120	1125	1130	1135	1140
Depth to Water (ft)	16.57	16.72	16.74	16.86	16.94	16.86
Purge Rate (L/min)	.1	~~.1~~ .1	.1	.1	.1	.1
Volume Purged (L)	—	0.5	1	1.5	2	2.5
pH	6.24	5.08	4.85	4.80	5.31	4.87
Temperature (°C)	8.07	8.47	8.31	8.34	8.50	8.75
Conductivity (μmhos/cm)	158	152	149	154.	157	158
Dissolved Oxygen (mg/L)	11.31	8.10	4.68	3.57	2.92	2.80
Turbidity (NTU)	3.8	12.5	13.1	8.5	5.3	3.5
Eh (mv)	202	204	203	194.2	177.0	187.6

TOTAL QUANTITY OF WATER REMOVED (L): 4.0

SAMPLERS: SUC, BDA
SAMPLING TIME (START/END): 1200 / 1202
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW021 ; BN-08-EP-MWXD3 (Duplicate
SAMPLE PARAMETERS: VOCs
COMMENTS AND OBSERVATIONS: 4L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47 7301	Date: 3/19/97
Well ID: MW-319	Field Personnel: SG BA	

Parameter	6 SG	7	8	9	10	11
Time (min.)	1145	1150	1153			
Depth to Water (ft)	16.61	16.61	16.61			
Purge Rate (L/min)	.1	.1	.1			
Volume Purged (L)	3.0	3.5	3.8			
pH	4.81	5.18	5.72			
Temperature (°C)	9.21	9.41	9.52			
Conductivity (μmhos/cm)	156.0	159.	159			
Dissolved Oxygen (mg/L)	2.03	2.04	1.89			
Turbidity (NTU)	3.5	1.7	2.5			
Eh (mv)	187.5	182.3	173.7			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-1104
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: YES
WEATHER: CLOUDY, 35°F

GAUGE DATE: 3/20/97
SOUNDING METHOD: WATER LEVEL IND.
STICK UP/DOWN (ft): 2.25

GAUGE TIME: 12:04
MEASUREMENT REF: T.O.C. PVC
WELL DIAMETER (in.): 2" PVC

PURGE DATE: 3/20/97
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 12:05
FIELD PERSONNEL: KJ, BA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 27.55
B. DEPTH TO WATER (ft): 12.38
C. LIQUID DEPTH (ft) (A-B): 15.17

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 9.18
F. THREE WELL VOLUMES (L) (E*3): 27.54

Parameter	Beginning	1	2	3	4	5
Time (min)	12:05	12:10	12:15	12:20	12:25	12:30
Depth to Water (ft)	12.38	12.39	12.39	12.39	12.39	12.39
Purge Rate (L/min)	0.1 l	0.1 l	0.1	0.1	0.1	0.1
Volume Purged (L)	0	0.5	1.0	1.5	2.0	2.5
pH	4.71	5.30	5.61	5.68	5.75	5.78
Temperature (°C)	7.14	6.92	7.28	7.94	9.47	10.74
Conductivity (μmhos/cm)	155	174	176	182	186	188
Dissolved Oxygen (mg/L)	2.84	1.67	1.63	1.49	1.43	1.45
Turbidity (NTU)	33	58.X	35	22	14	9
Eh (mv)	318	281	250	236	219	208

TOTAL QUANTITY OF WATER REMOVED (L): 3.8

SAMPLERS: KJ/BA
SAMPLING TIME (START/END): 12:42/12:43
SAMPLING DATE: 3/20/97
DECONTAMINATION FLUIDS USED: DI
SAMPLE TYPE: GRAB
SAMPLE PRESERVATIVES: HCl
SAMPLE BOTTLE IDs: BN-08-EP-MW032
SAMPLE PARAMETERS: VOC'S

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: EASTERN PLUME	Project No.: 25600.47	Date: 3/20/97
Well ID: MW-1104	Field Personnel: SA, KT	

Parameter	6	7	8	9	10	11
Time (min.)	12:33	12:36	12:39			
Depth to Water (ft)	12.39	12.39	12.39			
Purge Rate (L/min)	0.1	0.1	0.1			
Volume Purged (L)	2.8	3.1	3.4			
pH	5.78	5.79	5.79			
Temperature (°C)	11.31	11.77	12.45			
Conductivity (μmhos/cm)	188	183	186			
Dissolved Oxygen (mg/L)	1.46	1.39	1.31			
Turbidity (NTU)	7.0	6	5			
Eh (mv)	200	193	187			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: MW-NASB-212
WELL CONDITION: Good

PROJECT NUMBER: 29600.47.7301
WELL LOCK STATUS: locked
WEATHER: Sunny, 35, windy

GAUGE DATE: 3/19/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.96

GAUGE TIME: 1355
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 3/19/97
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1359
FIELD PERSONNEL: KI, SC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 67.34
B. DEPTH TO WATER (ft): 10.41
C. LIQUID DEPTH (ft) (A-B): 56.93
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 34.44
F. THREE WELL VOLUMES (L) (E*3): 103.32

Parameter	Beginning	1	2	3	4	5
Time (min)	1359	1402	1405	1408	1411	1414
Depth to Water (ft)	10.41	10.43	10.44	10.45	10.48	10.51
Purge Rate (L/min)	0.35	0.35	0.35	0.35	0.35	0.35
Volume Purged (L)	—	1.0	2.1	3.1	4.2	5.2
pH	7.95	7.27	7.01	6.90	6.86	6.86
Temperature (°C)	7.3	7.7	8.0	8.7	9.2	9.4
Conductivity (μmhos/cm)	340	218	248	236	240	200
Dissolved Oxygen (mg/L)	6.76	2.82	0.92	0.51	0.38	0.32
Turbidity (NTU)	3	13	13	9	7	6
Eh (mv)	129	133	135	138	140	140

TOTAL QUANTITY OF WATER REMOVED (L): 9.0

SAMPLERS: KI, SC
SAMPLING TIME (START/END): 1425/1426
SAMPLING DATE: 3/19/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: ~~VOC~~ HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW026 1425
SAMPLE PARAMETERS: VOC
COMMENTS AND OBSERVATIONS: 9.0 L containerized + dumped

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 3/19/97
Well ID: MW-NASB-212	Field Personnel: K I, SC	

Parameter	6	7	8	9	10	11
Time (min.)	1417	1420	1423			
Depth to Water (ft)	10.49	10.44	10.45			
Purge Rate (L/min)	0.35	0.35	0.35			
Volume Purged (L)	6.3	7.3	8.4			
pH	6.84	6.86	6.86			
Temperature (°C)	9.6	9.7	9.8			
Conductivity (μmhos/cm)	200	196	196			
Dissolved Oxygen (mg/L)	0.27	0.25	0.24			
Turbidity (NTU)	5	4	5			
Eh (mv)	140	140	140			

Parameter	12	13	14	15	16	17
Time (min)						
Depth to Water (ft)						
Purge Rate (L/min)						
Volume Purged (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
WELL I.D.: P-105
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7301
WELL LOCK STATUS: not locked
WEATHER: overcast, mild

GAUGE DATE: 3/20/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.24

GAUGE TIME: 0945
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 3/4"

PURGE DATE: 3/20/97
PURGE METHOD: Low flow*
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0952
FIELD PERSONNEL: KF, BA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 70.35
B. DEPTH TO WATER (ft): 10.54
C. LIQUID DEPTH (ft) (A-B): ~~59.79~~ 59.81

D. WELL VOLUME/FT (L): 0.085
E. WELL VOLUME (L) (C*D): 5.09
F. THREE WELL VOLUMES (L) (E*3): 15.27

Parameter	Beginning	1	2	3	4	5
Time (min)	0953	0958	1003	1008	1013	1018
Depth to Water (ft)	10.54 @	@	@	@	@	@ 10.73
Purge Rate (L/min)	.8	.8	.8	.8	.8	.8
Volume Purged (L)	0.8	~~2.48~~	8.0	12.0	16.0	20.0
pH	7.26	7.13	7.20	7.19	7.19	7.19
Temperature (°C)	6.90	7.39	7.47	7.48	7.44	7.46
Conductivity (μmhos/cm)	102	100	98	98	96	98
Dissolved Oxygen (mg/L)	5.43	5.73	5.36	~~6.18~~ 5.50	5.30	5.29
Turbidity (NTU)	12	343	66	26	22	26
Eh (mv)	177	176	169	175	173	173

TOTAL QUANTITY OF WATER REMOVED (L): 24.8

SAMPLERS: KF BA
SAMPLING TIME (START/END): 1024/1028
SAMPLING DATE: 3/20/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-03-EP-MW030 + BN-03-EP-MW4D4
SAMPLE PARAMETERS: VOCs by 8260

COMMENTS AND OBSERVATIONS: @ unable to gauge during sampling because of tubing in 3/4" piezometer.

* peristaltic pump. EA # 906.2

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN Plume
PROJECT NUMBER: 2960047
WELL I.D.: P-106
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: overcast

GAUGE DATE: 3/20/97
GAUGE TIME: 3/20/97 – 0903
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft):
WELL DIAMETER (in.): 2 3/4" PVC

PURGE DATE: 3/20/97
PURGE TIME: 0906
PURGE METHOD: Low flow*
FIELD PERSONNEL: KI, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 71.06
B. DEPTH TO WATER (ft): 11.54 / 11.65
C. LIQUID DEPTH (ft) (A-B): 59.52
D. WELL VOLUME/FT (L): 0.085
E. WELL VOLUME (L) (C*D): 5.06
F. THREE WELL VOLUMES (L) (E*3): 15.18

Parameter	Beginning	1	2	3	4	5
Time (min)	0907	0912	0917	0922	0927	0932
Depth to Water (ft)	11.54 (a)	(a)	(a)	(a)	(a)	(a)
Purge Rate (L/min)	1	1	1	1	1	1
Volume Purged (L)	1	6	11	16	21	26
pH	8.48	7.27	7.03	6.98	6.95	6.96
Temperature (°C)	8.33	8.01	8.09	8.10	8.12	8.12
Conductivity (μmhos/cm)	164	110	111	112	109	109
Dissolved Oxygen (mg/L)	5.59	1.18	1.83	2.36	1.87	1.86
Turbidity (NTU)	20	308	102	46	33	40
Eh (mv)	126	128	135	140	140	141

TOTAL QUANTITY OF WATER REMOVED (L):

SAMPLERS: KI, BDA
SAMPLING TIME (START/END): 933/935
SAMPLING DATE: 3/20/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-MW029
SAMPLE PARAMETERS: VOCs by 8260

COMMENTS AND OBSERVATIONS: * peristaltic pump
(a) unable to gauge with tubing installed. measured 11.65 at end of purge 1st

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: EW-1
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7301
WELL LOCK STATUS: good
WEATHER: overcast, 28°

GAUGE DATE: 3/17/97
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): NA

GAUGE TIME: 1446
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 6"

PURGE DATE: NA
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: NA
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft):
B. DEPTH TO WATER (ft): 13.56
C. LIQUID DEPTH (ft) (A-B):

D. WELL VOLUME/FT (L):
E. WELL VOLUME (L) (C*D):
F. THREE WELL VOLUMES (L) (E*3):

Parameter	Beginning	1	2	3	4	5
Time (min)	1447					
Depth to Water (ft)	13.56					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.76					
Temperature (°C)	7.09					
Conductivity (μmhos/cm)	118					
Dissolved Oxygen (mg/L)	7.75					
Turbidity (NTU)	14.1					
Eh (mv)	42.4					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1450 / 1453
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-RI001
SAMPLE PARAMETERS: VOCs

COMMENTS AND OBSERVATIONS:

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FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
PROJECT NUMBER: 29600.47 7301
WELL I.D.: EW-2
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: overcast, 28°

GAUGE DATE: 3/17/97
GAUGE TIME: 1457
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): NA
WELL DIAMETER (in.): 6"

PURGE DATE: NA
PURGE TIME: NA
PURGE METHOD: NA
FIELD PERSONNEL: MDC, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft):
B. DEPTH TO WATER (ft): 16.51
C. LIQUID DEPTH (ft) (A-B):
D. WELL VOLUME/FT (L):
E. WELL VOLUME (L) (C*D):
F. THREE WELL VOLUMES (L) (E*3):

Parameter	Beginning	1	2	3	4	5
Time (min)	1458					
Depth to Water (ft)	16.51					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.55					
Temperature (°C)	7.48					
Conductivity (μmhos/cm)	95					
Dissolved Oxygen (mg/L)	7.28					
Turbidity (NTU)	3.6					
Eh (mv)	123.2					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1500/1502
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE:
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-RI002
SAMPLE PARAMETERS: VOCs,

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: EW-3
WELL CONDITION: good

PROJECT NUMBER: 29600.477301
WELL LOCK STATUS: good
WEATHER: overcast, 28°

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): NA

GAUGE TIME: 1504
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 6"

PURGE DATE: NA
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: NA
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft):
B. DEPTH TO WATER (ft): 24.88
C. LIQUID DEPTH (ft) (A-B):

D. WELL VOLUME/FT (L):
E. WELL VOLUME (L) (C*D):
F. THREE WELL VOLUMES (L) (E*3):

Parameter	Beginning	1	2	3	4	5
Time (min)	1505					
Depth to Water (ft)	24.88					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	5.85					
Temperature (°C)	7.08					
Conductivity (μmhos/cm)	109.0					
Dissolved Oxygen (mg/L)	10.64					
Turbidity (NTU)	1.8					
Eh (mv)	181.4					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1508/1509
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-RI003
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: 29600.477301
WELL I.D.: EW-4
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: overcast, 28°

GAUGE DATE: 3/17/97
GAUGE TIME: 1511
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): NA
WELL DIAMETER (in.): 6"

PURGE DATE: ~~3/17~~ 3/18 NA
PURGE TIME: NA
PURGE METHOD: NA
FIELD PERSONNEL: MDC, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft):
B. DEPTH TO WATER (ft): 17.25
C. LIQUID DEPTH (ft) (A-B):
D. WELL VOLUME/FT (L):
E. WELL VOLUME (L) (C*D):
F. THREE WELL VOLUMES (L) (E*3):

Parameter	Beginning	1	2	3	4	5
Time (min)	1514					
Depth to Water (ft)	17.25					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.18					
Temperature (°C)	7.29					
Conductivity (μmhos/cm)	78.0					
Dissolved Oxygen (mg/L)	8.61					
Turbidity (NTU)	0.3					
Eh (mv)	193.3					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1515/1517
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-RI004
SAMPLE PARAMETERS: VOCs

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: EW-5
WELL CONDITION: good

PROJECT NUMBER: 2960047 7301
WELL LOCK STATUS: good
WEATHER: Overcast, 28°

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): NA

GAUGE TIME: 1521
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 6"

PURGE DATE: NA
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: NA
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft):
B. DEPTH TO WATER (ft): 42.99
C. LIQUID DEPTH (ft) (A-B):

D. WELL VOLUME/FT (L):
E. WELL VOLUME (L) (C*D):
F. THREE WELL VOLUMES (L) (E*3):

Parameter	Beginning	1	2	3	4	5
Time (min)	15.22					
Depth to Water (ft)	42.99					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.67					
Temperature (°C)	7.04					
Conductivity (μmhos/cm)	91.0					
Dissolved Oxygen (mg/L)	8.60					
Turbidity (NTU)	0.1					
Eh (mv)	149.4					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1525/1527
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-08-EP-RI005
SAMPLE PARAMETERS: VOCs

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Site 103
WELL I.D.: EW-7
WELL CONDITION: Good

PROJECT NUMBER: 29600047
WELL LOCK STATUS: Good
WEATHER: overcast, 24° Snow

GAUGE DATE: 3/17/97
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): NA

GAUGE TIME: 1425
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 6"

PURGE DATE: NA
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: NA
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: 420 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft):
B. DEPTH TO WATER (ft): 31.53
C. LIQUID DEPTH (ft) (A-B):

D. WELL VOLUME/FT (L):
E. WELL VOLUME (L) (C*D):
F. THREE WELL VOLUMES (L) (E*3):

Parameter	Beginning	1	2	3	4	5
Time (min)	1430					
Depth to Water (ft)	31.53					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.04					
Temperature (°C)	8.10					
Conductivity (μmhos/cm)	324					
Dissolved Oxygen (mg/L)	8.67					
Turbidity (NTU)	>1000					
Eh (mv)	-7.2					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC, BDA
SAMPLING TIME (START/END): 1430 / 1435
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL, HNO_3
SAMPLE BOTTLE IDs: BN-08-S1-RJ001
SAMPLE PARAMETERS: VOCs, metals
COMMENTS AND OBSERVATIONS: Vent EW to eliminate VOCs in well.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1 & 3
WELL I.D.: Plant Influent
WELL CONDITION: NA

PROJECT NUMBER: 29600.477301
WELL LOCK STATUS: NA
WEATHER: overcast, 25°C

GAUGE DATE: NA
SOUNDING METHOD: NA
STICK UP/DOWN (ft): NA

GAUGE TIME: NA
MEASUREMENT REF: NA
WELL DIAMETER (in.): NA

PURGE DATE: NA
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: NA
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: NA End: NA

WELL VOLUME

A. WELL DEPTH (ft): NA
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA

D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)	1555					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.20					
Temperature (°C)	5.89					
Conductivity (μmhos/cm)	299					
Dissolved Oxygen (mg/L)	6.09					
Turbidity (NTU)	4.9					
Eh (mv)	-36.4					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC
SAMPLING TIME (START/END): 1600
SAMPLING DATE: 2/17/98
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL / HNO3
SAMPLE BOTTLE IDs: BN-08-S1-R1002
SAMPLE PARAMETERS: VOC / metals

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN PLUME
PROJECT NUMBER: 29600.47 7301
WELL I.D.: NA
WELL LOCK STATUS: NA
WELL CONDITION: NA
WEATHER: overcast 25°

GAUGE DATE: NA
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: MDC, BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: NA End: NA

WELL VOLUME

A. WELL DEPTH (ft): NA
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA
D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)	1610					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.38					
Temperature (°C)	7.53					
Conductivity (μmhos/cm)	94.0					
Dissolved Oxygen (mg/L)	7.38					
Turbidity (NTU)	3.1					
Eh (mv)	61.1					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: MDC
SAMPLING TIME (START/END): 1615
SAMPLING DATE: 3/17/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL / HNO3
SAMPLE BOTTLE IDs: BN-08-EP-RI006
SAMPLE PARAMETERS: VOC / metals

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 103 / Eastern Plume
WELL I.D.: Combined Effluent
WELL CONDITION: NA

PROJECT NUMBER: 29600.477701
WELL LOCK STATUS: good
WEATHER: overcast, 28°

GAUGE DATE: NA
SOUNDING METHOD: NA
STICK UP/DOWN (ft): NA

GAUGE TIME: NA
MEASUREMENT REF: NA
WELL DIAMETER (in.): NA

PURGE DATE: NA
PURGE METHOD: NA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: NA
FIELD PERSONNEL: MDC, BDA
WELL MOUTH VOCs (ppm): Start: NA End: NA

WELL VOLUME

A. WELL DEPTH (ft): NA
B. DEPTH TO WATER (ft): NA
C. LIQUID DEPTH (ft) (A-B): NA

D. WELL VOLUME/FT (L): NA
E. WELL VOLUME (L) (C*D): NA
F. THREE WELL VOLUMES (L) (E*3): NA

Parameter	Beginning	1	2	3	4	5
Time (min)	1630					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.30					
Temperature (°C)	9.55					
Conductivity (μmhos/cm)	104					
Dissolved Oxygen (mg/L)	11.84					
Turbidity (NTU)	.9					
Eh (mv)	347.6					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: ~~MA~~ BDA
SAMPLING TIME (START/END): 1630
SAMPLING DATE: 7/17/97
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: Na_2SO_3 / HNO_3
SAMPLE BOTTLE IDs: BN-08-EP-TE001, BN-08-EP-TEXD1 + MS/MSD
SAMPLE PARAMETERS: VOCs / metals

COMMENTS AND OBSERVATIONS: Combined effluent water tested for hydrogen peroxide add small amount of Na_2SO_3 - tested & < 50 ppm.

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: 29600.47.7301
Sample Location ID: BW/SED1			Date: 3/12/97
Sampling Time: SW 1120 SED 1130	Start: 1115	End: 1135	Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream
( ) River
( ) Pond/Lake
( ) Seep

Water Depth and Sample Location 0.3 (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
( ) Temperature 1.54 °C
( ) Conductivity 361.5 µmhs/cm
( ) ph 6.34 units SC 10.28 *
( ) Dissolved oxygen ~~0.6~~ mg/L
( ) Turibidity 0.9 NTU
( ) Eh 83.0 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD
none

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
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color brown-orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID none
( ) 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
✓	✓		✓	2L 30mL	✓	BN-08-S1-SW007
✓		✓		8oz	✓	BN-08-S1-SD001

NOTES/SKETCH

* Equipment malfunction, DO checked on 3/14/97

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3				Project Number: 29600.47.7301
Sample Location ID: SW/SED 2				Date: 3/12/97
Sampling Time: SW 1055 SED 1105	Start: 1052	End: 1110		Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream
( ) River
( ) Pond/Lake
( ) Seep

Water Depth and Sample Location 0.3 (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
( ) Temperature 22 °C
( ) Conductivity 211.8 µmhs/cm
( ) ph 6.70 units
( ) Dissolved oxygen ~~0.51~~ SC 10.70 * mg/L
( ) Turibidity 9.6 NTU
( ) Eh 56.9 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected (X)
Duplicate ID _____ none
( ) MS/MSD (X)

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:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color brown-orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected (X)
Duplicate ID _____ none
( ) 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
✓	✓		✓	2x 80mL	✓	BN-08-S1-SW006
✓		✓		8oz	✓	BN-08-S1-SD006

NOTES/SKETCH

Iron Staining

* Equipment malfunction DO checked on 3/14/97

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: SW/SED 3			Date: 3/12/97
Sampling Time: SW 1035 SED 1045	Start: 1030	End: 1050	Sample Team Members: SC, MC, KI, RA

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream
( ) River
( ) Pond/Lake
( ) Seep

Water Depth and Sample Location 0.3 (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
( ) Temperature 1.3 °C
( ) Conductivity 233.6 µmhs/cm
( ) ph 6.81 units
( ) Dissolved oxygen 0.30 mg/L SC 12.57 *
( ) Turibidity 2.51 NTU
( ) Eh 81.8 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected (X)
Duplicate ID _____
( ) MS/MSD (X) none

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:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected (X)
Duplicate ID none
( ) 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
✓	✓		✓	2L 80mL	✓	BN-08-S1-SW005
✓		✓		8oz	✓	BN-08-S1-SD005

NOTES/SKETCH

* Equipment malfunction, DO checked on 3/14/97

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1 + 3			Project Number: 29600.47.7301
Sample Location ID: SW/SED 4			Date: 3/12/97
Sampling Time: SW 1000 SED 1010	Start: 955	End: 1020	Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

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 0.2 (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 4.5
( ) Temperature ~~26.9~~ °C
( ) Conductivity 131.6 µmhs/cm
( ) ph 6.87 units
( ) Dissolved oxygen 3.64 mg/L
( ) Turbidity 6.9 NTU
( ) Eh 87.7 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
(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
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color orange, brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID ~~X~~ None
(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
✓	✓		✓	4L 240ml	✓	BN-08-S1-SW004
✓		✓		16oz	✓	BN-08-S1-SD004

NOTES/SKETCH

iron staining

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: SW/SED 005			Date: 3/12/97
Sampling Time: SW 935 SED 949	Start: 932	End: 950	Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream
( ) River
( ) Pond/Lake
( ) Seep

Water Depth and Sample Location 0.8 (ft)

Depth of Sample from Top of Water 0.2 (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
( ) Temperature 20 °C
( ) Conductivity 143.9 µmhs/cm
( ) ph 6.44 units
( ) Dissolved oxygen 2.16 mg/L
( ) Turibidity 9.5 NTU
( ) Eh 126.5 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD none

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
(X) 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:
(X) Odor none
(X) Color brown-orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID none
( ) 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
✓	✓		✓	2L 80ml	✓	BN-08-SI-SW003
✓		✓		8oz	✓	BN-08-SI-SD003

NOTES/SKETCH

iron Staining in sediment along bank

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: SW/SED 6			Date: 3/12/97
Sampling Time: SW-920 SED-925	Start: 918	End: 928	Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream
( ) River
( ) Pond/Lake
( ) Seep

Water Depth and Sample Location 1 (ft)

Depth of Sample from Top of Water 0.5 (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
( ) Temperature 2.6 °C
( ) Conductivity 144.9 µmhs/cm
( ) ph 6.79 units
( ) Dissolved oxygen 1.75 mg/L
( ) Turibidity 10.1 NTU
( ) Eh 122.9 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-08-S1-SWXD1
( ) 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
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color brown-orange
( ) _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-08-S1-SDXD1
( ) 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
✓	✓		✓	2L 80mL	✓	BN-08-S1-SW002
✓		✓		8oz	✓	BN-08-S1-SD002

NOTES/SKETCH

Iron Staining in Sediment

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: SW1 SED 7			Date: 3/12/97
Sampling Time: SW 905 SED 910	Start: 900	End: 915	Sample Team Members: SC, MC, KI, BA

SURFACE WATER INFORMATION

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 0.5 (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
( ) Temperature 2.19 °C
( ) Conductivity 147 µmhs/cm
( ) ph 6.98 units
( ) Dissolved oxygen 1.57 mg/L
( ) Turibidity 9.6 NTU
( ) Eh 114.9 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) ~~Field Duplicate Collected~~
~~Duplicate ID~~ _____
( ) ~~MS/MSD~~ None

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:
~~(X) Gravity Corer~~ VC
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor None
(X) Color Brown
( ) Sheen on water

Field QC Data: ( ) ~~Field Duplicate Collected~~
~~Duplicate ID~~ none
( ) 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
✓	✓		✓	2 80mL	✓	BN-08-S1-SW001
✓		✓		8oz	✓	BN-08-S1-SD001

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: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: Seep #1			Date: 3/12/97
Sampling Time: 1145	Start: 1140	End: 1155	Sample Team Members: SC MC BA KI

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 _____ °C
( ) Conductivity _____ µmhs/cm
( ) ph _____ units
( ) Dissolved oxygen _____ mg/L
( ) Turibidity _____ NTU
( ) Eh _____ mv

Coulant Sample, water Frozen

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:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID none
( ) 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	✓	BN-08-SI-LTSD1

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: Seep #2			Date: 3/12/97
Sampling Time: 1205	Start: 1200	End: 1210	Sample Team Members: BA, KI, SC, MC

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 _____ °C
( ) Conductivity _____ µmhs/cm
( ) ph _____ units
( ) Dissolved oxygen _____ mg/L
( ) Turbidity _____ NTU
( ) Eh _____ mv

Couldn't Sample Water Frozen

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:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color gray-brown, orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID (X) none
( ) 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	✓	BN-08-SI-LTSD2

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: Seep #3			Date: 3/12/97
Sampling Time: SW 1225 SED 1235	Start: 1220	End: 1240	Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream
( ) River
( ) Pond/Lake
(X) Seep

Water Depth and Sample Location 0.3 (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
( ) Temperature 3.03 °C
( ) Conductivity 414.3 µmhs/cm
( ) ph 6.37 units SC 9.08 *
( ) Dissolved oxygen 0.0 mg/L
( ) Turibidity 670 NTU
( ) Eh 32.2 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-08-SI-LTVD1
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
(X) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
(X) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
(X) Odor none
(X) Color brown-black
( ) _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-08-SI-LTVD2
( ) 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
✓	✓		✓	2L 50mL	✓	BN-08-SI-LTSW1
✓		✓		8oz	✓	BN-08-SI-LTSD3

NOTES/SKETCH

* Equipment malfunction. DO checked on 3/14/97.

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FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47.7301
Sample Location ID: Seep #4			Date: 3/12/97
Sampling Time: SW 1250 SED 1300	Start: 1245	End: 1305	Sample Team Members: BA, KJ, SC, MC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location 0.3 (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
(✓) None

Water Quality Parameters
( ) Temperature 6.19 °C
( ) Conductivity 71000 µmhs/cm
( ) ph 6.38 units sc 7.83 *
( ) Dissolved oxygen ~~0.41~~ mg/L
( ) Turibidity 676.5 NTU
( ) Eh -4.9 mv

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected (✓)
Duplicate ID _____
( ) MS/MSD (✓) none

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-gray, orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected (✓) ( ) MS/MSD
Duplicate ID _____ none

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
✓	✓		✓	2L 80ml	✓	BN-08-S1-LTSW2
✓		✓		8oz	✓	BN-08-S1-LTSD4

NOTES/SKETCH

iron staining

* Equipment malfunction. DO checked on 3/14/97

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1+3			Project Number: 29600.47-7301
Sample Location ID: Seep # 5			Date: 3/12/97
Sampling Time: SW 1320 SED 1330	Start: 1315	End: 1335	Sample Team Members: SC, MC, BA, KI

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (✓) Seep

Water Depth and Sample Location 0.3 (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
(✓) None

Water Quality Parameters
( ) Temperature 7.841 °C
( ) Conductivity 611.96 µmhs/cm
( ) ph 6.52 units SC 3.06*
( ) Dissolved oxygen 0.0 mg/L
( ) Turibidity 67.7 NTU
( ) Eh -93.1 mv

Velocity Measurements Obtained? (✓) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD none

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, orange
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID none
( ) 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
✓	✓		✓	2L 80mL	✓	BN-08-S1-LTSW3
✓		✓		8oz	✓	BN-08-S1-LTSD5

NOTES/SKETCH

* Equipment malfunction. Do checked on 3/14/97.

Appendix A.5

Field Record of Landfill Gas Monitoring

EA Engineering, Science, and Technology

FIELD RECORD OF LANDFILL GAS MONITORING

Project Name: NAS Brunswick LTMP	Project No: 29600.47.7301	Date: 3-19-97
Weather/Temperature/Barometric Pressure: Sunny, 31°F, 30.5 Hg		
EA Personnel: Mike Chase, Chip McLeod	Equipment: GA-90	
Equipment Calibration Information: GA-90 Infrared Gas Analyzer		

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
1	n/com	—	good	—	0	.2	15.5	4.1	
2	n/com	—	good	—	0	.4	9	8	
3	n/com	—	good	—	0	0	18.6	1.1	
4	n/com	—	good	—	0	0	20.2	0	
5	n/com	—	good	—	0	0	16.6	2.3	
6	n/com	—	good	—	0	0	17.5	1.4	
7	n/com	—	good	—	0	0	14.8	3.7	
8	n/com	—	good	—	0	0	16.4	2.4	
9	n/com	—	good	—	0	0	16.8	2.1	
10	n/com	—	good	—	0	0	19.6	.2	
11	n/com	—	good	—	0	0	18.6	.9	
12	n/inc	—	good	—	0	0	14.7	2.4	
13	n/inc	—	good	—	0	0	17	1.5	
14	n/com	—	good	—	0	0	18.4	1.1	

Com = Complete gas vent

#12 } stick up sealed w/ screw cap
#13 }

f:\wp\29600\47

EA Engineering, Science, and Technology

FIELD RECORD OF LANDFILL GAS MONITORING

Project Name: NAS Brunswick LTMP	Project No: 29600.47.7301	Date: 3-19-97
Weather/Temperature/Barometric Pressure: Sunny 31°F, 30.5 Hg		
EA Personnel: Mike Chase, Chip McLeod	Equipment: GA-90	
Equipment Calibration Information: GA-90 Infrared Gas Analyzer		

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
GP-4	n/y	—	good		0	0	19.9	0	
-5	n/y	—	good		0	0	19.9	0	
-6	n/y	—	good		0	0	19.9	0	

Engineering Inspection of Sites 1 & 3

EA Personnel: Mike Chase, Chip McLeod

Date: 3-19-97

Weather: Sunny, 31°F, 30.5" Hg

1) Inspection of ground surface for exposure of geotextile cover (cap erosion):
None observed Due to snow cover.

2) Inspection of ground surface for differential settlement resulting in soil cracking or ponded water: None observed Due to snow cover.

3) Identification of stressed vegetation:
None observed.

4) Identification of seeps, rooted vegetation (trees), and/or animal burrows:
None observed (seeps etc.) Ground covered w/snow.

5) Identification of deteriorating equipment (i.e., gas probes, monitoring wells, piezometers, fencing, or drainage structures): None noted. Some gas vents have not been completed & are capped shut.

6) Inspection of Sites 1 & 3 storm water detention basins for erosion, sloughing, or flow-through: No flow through at water, frozen
No other observations

7) Inspection of slope south of the landfill along Mere Brook for the presence of erosion or sloughing: No erosion or sloughing noted.
Mere Brook is clear & unfrozen. Some iron in mud along the Brook in deposition areas.

8) Inspection of parking lots, access roads, and pavement structures:
Nothing unusual noted.

Engineering Inspection of Sites 1 & 3				
Well Number	Locked	Labelled	Depth to Water	Comments
MW-202A	Yes	Yes		
MW-202B	Yes	Yes		
MW-203	Yes	Yes		
MW-204	Yes	Yes		
MW-210A	Yes	Yes		
MW-210B	Yes	Yes		
MW-215R	Yes	Yes		
MW-216A	Yes	Yes		
MW-217A	Yes	Yes		
MW-217B	Yes	Yes		
MW-218	Yes	Yes		
MW-219	Yes	Yes		
MW-220	Yes	Yes		
MW-232A	Yes	Yes		
MW-234R	Yes	Yes		
MW-2101	NO	Yes		NO lock Tab. needs repair
EW-6	Yes	Yes		4 2' of water in vault.
EW-7	Yes	Yes		
MW-201R	Yes	Yes		
MW-211A	Yes	Yes		
MW-211B	Yes	Yes		
MW-233	Yes	Yes		
EP-16	Yes	Yes		

Date: 3-19-97 Weather: Sunny, 31°F, 30.5" Hg

EA Personnel: Chip McLead

Depth to water measurements performed as part of the LTMP gauging round.

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 (ABB-ES 1994) were met.

The sampling program consisted of 80 (of which 10 were field duplicates) aqueous samples (ground water, surface water, and leachate station seep samples) and 14 (of which 2 were field duplicates) sediment samples collected from Sites 1 and 3 and the Eastern Plume sites. For the combined analyses for these sites, the laboratory was provided with 1 sediment and 6 aqueous sample delivery groups (SDG) which included 2 rinsate blanks, 5 trip blanks, and 1 source water blank. 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.

Data completeness was quantified by reviewing the number of usable results to the number of samples scheduled for collection.

For clarity, the following definitions are defined for use throughout Appendix B:

- **Instrument Detection Limit**—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 instrument detection limits 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.

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 volatile organic compounds (VOC) by EPA SW-846, Method 8260. 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 TCL VOC plus a library search of 15 tentative identified compounds by EPA Method 8260. 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 15 tentatively identified compounds 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. 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.

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 except for the following:

Sample	Method Holding Time	Holding Time Exceedance
MW-217B (Sites 1 and 3)*	7 days	2 days
MW-217BDL (Sites 1 and 3)*	7 days	7 days
MW-311 (eastern plume)	14 days	1 day
MW-311DL (eastern plume)	14 days	1 day

NOTE: DL = This suffix indicates a sample reanalysis at a dilution.
* = The sample pH was >2 SU.

None of the holding time exceedances were gross, therefore, the usability of the data is unaffected. However, the concentrations of detected compounds (1,1,-dichloroethane, 1,2-dichloroethane, total 1,2-dichloroethene, benzene, chlorobenzene, ethylbenzene, methylene chloride, vinyl chloride, total xylenes, chloroethane, trichloroethene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene) in sample MW217B should be considered biased low estimates. In Sample MW-311 (Eastern Plume), concentrations of detected compounds (1,1,1-trichloroethane, total 1,2-dichloroethene, methylene chloride, trichloroethene, tetrachloroethene, 1,1-dichloroethene, 1,1-dichloroethane, 1,1,2-trichloroethane, 1,2-dichloroethane, chloroform, and benzene) should be considered biased low estimates.

B.3 PRECISION

B.3.1 Volatile Organic Compounds

Five VOC were used to quantify the MS/MSD RPD. The control limits identified in the QAPP were used to evaluate the data. MS/MSD sets were performed on Samples MW-220 and SW-04 from Sites 1 and 3; Samples MW-205, MW-207B, and MW-207A from Eastern Plume; treatment plant effluent; and sediment Sample SED-04. In addition to the field samples mentioned above, the laboratory spiked several method blanks for both Sites 1 and 3 and Eastern Plume.

The surface water, treatment plant effluent, monitoring well, and method blank sample MS/MSD RPDs from Sites 1 and 3 were within the established control limits, therefore, analytical precision is acceptable and the usability of the data is unaffected.

The MS/MSD sets performed on samples MW-205, MW-207B, and MW-207A for Eastern Plume met RPD requirements, however, the method blanks which were spiked by the laboratory failed to meet RPD acceptance criteria for 1,1-dichlorothene (22 percent) and trichloroethene (23 percent). These exceedances are not considered significant and the usability of the data is unaffected as both MS/MSD were within accuracy requirements.

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, the laboratory control limits were used.

The sediment duplicate RPD were within the laboratory control limits, with the exception of aluminum (57.8 percent) and iron (41.8 percent). The data user should consider the positive results for aluminum and iron in the sediment samples as estimations of the true concentrations.

The aqueous duplicate measurements were within the laboratory control limits, therefore, the analytical precision was determined to be acceptable and the usability of the data unaffected.

B.4 ACCURACY

B.4.1 Volatile Organic Compounds

Four SMC were used to measure the ability of the laboratory to purge the target analytes from the environmental samples. The control limits for the aqueous samples identified in the QAPP and reported by the laboratory were identical for all SMC. The control limits for sediment samples identified in the QAPP and reported by the laboratory were different for all four SMC. The QAPP limits for dibromofluoromethane were 70-121 percent, while the laboratory used 80-120 percent. The QAPP limits for bromofluorobenzene were 59-113 percent, while the laboratory used 74-121 percent. The QAPP limits for toluene-d8 were 84-138 percent, while the laboratory used 81-117 percent. The QAPP limits for 1,2-dichloroethane-d4 were 76-114 percent, while the laboratory used 70-121 percent. The quality control results were reviewed against the QAPP limits.

The aqueous SMC recoveries were within the established control limits, therefore, the results are usable as reported. The sediment SMC recoveries were within the control limits identified in the QAPP with the exception of the following. In the re-analysis of sample LT-01 (Sites 1 and 3), two surrogates (dibromofluoromethane [64 percent] and bromofluorobenzene [44 percent]) exceeded the lower control limits. The usability of the data is unaffected as surrogate recoveries in the original analysis were compliant with QAPP criteria. In the re-analysis of the field duplicate of sample LT-03, surrogate 1,2-dichloroethane-d4 (58 percent) exceeded the lower control limit. The usability of the data is unaffected as the surrogate recoveries of the original analysis were compliant with QAPP criteria.

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 sediment sample MS/MSD analyses were compliant. The laboratory failed to perform VOC MS/MSD analysis on some of the aqueous samples identified for MS/MSD, due to insufficient sample volume. However, the laboratory did perform 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 MW-205 (Eastern Plume) and MW-207A (Eastern Plume). Both samples exhibited low recoveries for trichloroethene (MW-205 [38 and 25 percent] and MW-207A [69 and 60 percent]). However, the laboratory was required to perform a diluted analysis for sample MW-205 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 data user should be aware that the positive result for trichloroethene in sample MW-207A should be considered bias low.

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.

The data user should note that LCS recoveries for trichloroethene were compliant and the low recovery exhibited in the MS/MSD of sample MW-207A is due to matrix effects. These matrix effects may or may not be present in the remainder of monitoring well samples.

B.4.2 Target Analyte List Metals

All 23 TAL analytes were used to quantify MS recoveries for aqueous and sediment samples. All of the MS samples were analyzed at the correct frequency.

The laboratory performed an MS on 3 aqueous samples. The MS recoveries for sample MW-205 were within the control limits identified in the QAPP and reported by the laboratory (75-125 percent), with the exception of mercury (69.2 percent), which was reported below the lower control limit. The results for mercury in the aqueous samples should be considered to be biased low. The MS recoveries for sample EFFLUENT were within the established control limits, with the exception of silver (70.3 percent), which was reported below the lower control limit. The results for silver in the ground-water treatment system samples should be considered to be biased low. The MS recoveries for sample SW-4 are within the established control limits. All sample results are usable as reported.

The laboratory performed an MS on sediment sample SED-04. The MS recoveries for sample SED-04 were within the established control limits, with the exception of antimony (65.7 percent) and lead (42.4 percent), which were reported below the lower control limit. The results for antimony and lead in the sediment samples should be considered to be biased low.

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 sediment LCS recoveries were within laboratory established control limits, confirming the laboratory's ability to perform sample digestion/distillation. The aqueous LCS were within laboratory established control limits, with the exception of thallium (78.4 percent). The data user should consider the results for thallium in the surface water and seep water samples as estimates of the true concentrations.

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, 37 of 42 samples were collected for a field completeness of 88 percent. The 6 samples which were not collected were: 1 dry well (MW-202B), 1 abandoned well (MW-216B), 1 well with a bent casing (MW-210A), 2 dry seep locations (SEEP-1 and SEEP-2), and 1 extraction well (EW-6) which was off line.

At the Eastern Plume, 36 of 36 samples were collected for field completeness of 100 percent.

The field quality control blanks (e.g., trip blanks) were collected at the proper frequency. A total of 5 trip blanks were collected for Sites 1 and 3 and Eastern Plume. There were 2 rinsate blanks collected for sampling conducted at Sites 1 and 3. One rinsate blank was associated with the sediment samples and 1 was associated with the surface water/seep samples. One source water blank was taken at the site and analyzed as required for this project.

Analytical completeness was quantitated by reviewing the number of acceptable analytical results to the total number of analytical results. Usable analytical data was available for all analytes/ compounds for all field samples, therefore, total analytical completeness is 100 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 both cases where contamination exists, environmental samples should be reviewed for possible false-positives. The field quality control blanks collected for this site included 5 trip blanks, 2 rinsate blanks, and a source water blank.

Trip blanks associated with Sites 1 and 3 and Eastern Plume were analyzed for VOC. The results of the 5 trip blanks are shown in the following table:

Analyte	Units	QT-001	QT-002	QT-003	QT-004	QT-007
Acetone	μg/L	(<5U)	(<5U)	(<5U)	(<5U)	23
NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).						

The trip blank contamination noted in QT-007 did not affect the usability of any data as acetone was not detected in the associated samples.

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 results of the 2 rinsate blanks (QS-001 [dedicated jar rinsate] and QS-002 [equipment rinsate]) and the associated source water blank (QD-001) are shown in the following table:

Analyte	Units	QS-001	QS-002	QD-001
Methylene chloride	μg/L	1	0.9J	1
1,1,1-Trichloroethane	μg/L	(<1U)	0.5J	(<1U)
Calcium	μg/L	157B*	204B*	102B*
Sodium	μg/L	652B*	638B*	560B*
NOTE: B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit. U = Not detected. Sample quantitation limits are shown as (<____U).				

Methylene chloride was identified in both rinsate blanks at very low concentrations (1 and 2 μg/L). Since methylene chloride was not detected in any of the associated samples, the data were unaffected. The appearance of methylene chloride (1 μg/L) in the source water blank indicates that methylene chloride was a contaminant of the rinse water. At such a low concentration, methylene chloride did not interfere with the decontamination process. The usability of the surface water and sediment sample data is not affected.

The appearance of calcium and sodium in the source water blank indicates that these analytes are contaminants of the rinse water and should not be considered as significant sources of field contamination due to decontamination processes. The usability of the surface water and sediment sample data is not affected.

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 duplicate taken during the sampling event. The overall precision of organic compounds was evaluated as the RPD (non-detects were defined as one-half the CRQL) 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 CRDL (the difference cannot be greater than ±2 times CRDL for water samples or cannot be greater than ±4 times CRDL 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 CRDL. Non-detects were defined as one-half the CRDL for difference measurements. The CRQLs and CRDLs 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 samples collected.

The RPD results from the 7 duplicate ground-water samples, 1 duplicate sediment sample, 1 duplicate surface water sample, 1 duplicate leachate station seep sample, 1 duplicate leachate station sediment sample, and 1 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-06	SED-06 DUP	RPD %	Difference
1,4-Dichlorobenzene	µg/Kg	41	36	13.0	---
Chloroethene	µg/Kg	82	70	15.8	---
1,1-Dichloroethane	µg/Kg	49	48	2.1	---
1,2-Dichlorobenzene	µg/Kg	26	22	16.7	---
Carbon disulfide	µg/Kg	15	(<15U)	66.7	---
Toluene	µg/Kg	3J	4J	28.6	---
Aluminum	mg/Kg	6,100	6,470	5.9	NR
Arsenic	mg/Kg	13.2	17.0	NA	3.8
Calcium	mg/Kg	2,280	1,750	NA	530
Chromium	mg/Kg	13.7	11.8	NA	1.9
Iron	mg/Kg	15,700	16,000	1.9	NR
Lead	mg/Kg	21.3	19.6	8.3	NR
Magnesium	mg/Kg	2,330	2,360	NA	30
Manganese	mg/Kg	352	324	8.2	NR
Potassium	mg/Kg	1,150	1,190	NA	40
Zinc	mg/Kg	70.5	69.7	NA	0.8

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
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.
U = Not detected. Sample quantitation limits are shown as (<____U).

All precision requirements were met for the duplicate analysis, with the exception of carbon disulfide. Carbon disulfide should be considered as an estimated compound in sample SED-06 because it was not detected in the field duplicate but was present in the environmental sample.

The following table shows the duplicate results from the surface water samples associated with SDG S1QD001:

Analyte	Units	SW- 6	SW- 6 DUP	RPD %	Difference
Aluminum	μg/L	201	198	NA	3
Calcium	μg/L	6,980	6,930	0.7	NR
Iron	μg/L	537	526	2.1	NR
Magnesium	μg/L	1,640	1,630	0.6	NR
Manganese	μg/L	140	138	1.4	NR
Potassium	μg/L	1,550	1,520	NA	30
Sodium	μg/L	24,700	24,300	1.6	NR

NOTE: 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.

All precision requirements were met for the duplicate analyses; the results are usable as reported.

The following two tables show the duplicate sample results associated with the monitoring well samples at Sites 1 and 3.

The first set of duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-215R	MW-215R DUP	RPD %	Difference
1,1-Dichloroethane	μg/L	0.5J	0.5J	0	---
Total 1,2-Dichloroethene	μg/L	0.7J	0.7J	0	---
Vinyl Chloride	μg/L	2	2	0	---
Calcium	μg/L	8,670	8,600	0.8	NR
Magnesium	μg/L	1,630	1,630	0	NR
Manganese	μg/L	1,150	1,120	2.6	NR
Sodium	μg/L	17,300	17,500	1.1	NR

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
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.

All precision requirements were met for the duplicate analyses; the results are usable as reported.

The second set of duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-218	MW-218 DUP	RPD%	Difference
1,1-Dichloroethane	µg/L	0.8J	0.7J	13.3	---
1,4-Dichlorobenzene	µg/L	0.9J	0.9J	0	---
Aluminum	µg/L	471	630	NA	12.8
Arsenic	µg/L	131	140	6.6	NA
Calcium	µg/L	14,100	13,600	3.6	NR
Chromium	µg/L	7.2B*	18.5	NA	11.3
Iron	µg/L	3,210	3,720	14.7	NR
Magnesium	µg/L	7,550	7,420	1.7	NR
Manganese	µg/L	871	844	3.1	NR
Potassium	µg/L	7,670	7,960	3.7	NR
Sodium	µg/L	192,000	201,000	4.6	NR

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
NA = Not applicable; analyte concentration was less than 5 times the Contract Required Detection Limit.
NR = Not required; analyte concentration was greater than 5 times the Contract Required Detection Limit and, therefore, the relative percent difference was applied.

All precision requirements were met for the duplicate analyses, therefore, the results are usable as reported.

The following table shows the organic and inorganic duplicate sample results associated with the aqueous seep samples in SDG S1SD001:

Analyte	Units	SEEP-3	SEEP-3 DUP	RPD %	Difference
Vinyl chloride	µg/L	2	1	66.7	---
Tetrachloroethene	µg/L	0.3J	0.2J	40	---
1,1-Dichloroethane	µg/L	5	4	22.2	---
Total 1,2-Dichloroethene	µg/L	2	2	0	---
Trichloroethene	µg/L	0.6J	0.6J	0	---
1,2-Dichlorobenzene	µg/L	0.3J	0.6J	66.7	---
1,4-Dichlorobenzene	µg/L	0.6J	0.7J	15.4	---
1,1,2,2-Tetrachloroethane	µg/L	7	7	0	---
1,1,1-Trichloroethane	µg/L	6	6	0	---
Chlorobenzene	µg/L	0.6J	0.6J	0	---
1,1,2-Trichloroethane	µg/L	0.6J	(<1U)	18.2	---
Aluminum	µg/L	407	4,910	NA	4,503
Arsenic	µg/L	12.7	128	NA	1,15.3
Barium	µg/L	97.4B*	825	NA	727.6
Chromium	µg/L	(<6U)	34.6	NA	31.6
Calcium	µg/L	49,800	74,600	39.9	NR
Iron	µg/L	142,000	1,430,000	163.9	NR
Lead	µg/L	2.0B*	31.0	NA	29
Magnesium	µg/L	12,300	15,200	21.1	NR
Manganese	µg/L	4,360	18,700	NA	14,340
Mercury	µg/L	(<0.2U)	0.42	NA	0.32
Potassium	µg/L	2,260	2,670	NA	410
Sodium	µg/L	37,400	36,100	3.5	NR
Zinc	µg/L	16.9B*	222	NA	205.1

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
NA = Not applicable; analyte concentration was less than 5 times the Contract Required Detection Limit.
NR = Not required; analyte concentration was greater than 5 times the Contract Required Detection Limit and, therefore, the relative percent difference was applied.

The duplicate precision requirements were met for the organic analyses, with the exception of vinyl chloride and 1,2-dichlorobenzene. The results for both compounds are at or near the quantitation limits where analytical imprecision is expected and, therefore, should not be considered significant.

The inorganic precision requirements were met, with the following exceptions: aluminum, arsenic, lead, iron, manganese, and zinc. The data user should consider the positive results for aluminum, arsenic, lead, iron, manganese, and zinc in the seep samples as estimations of the true concentrations. This may be indicative of the sampled media (i.e., sampling a low flow source such as a seep).

The following table shows the results of the leachate station sediment sample duplicate associated with S1SD001:

Analyte	Units	LT-3	LT-3 DUP	RPD %	Difference
1,2-Dichlorobenzene	µg/Kg	7J	11	150	---
1,4-Dichlorobenzene	µg/Kg	(<13U)	2J	105.9	---
Toluene	µg/Kg	(<13U)	2J	105.9	---
Acetone	µg/Kg	(<25U)	5J	85.7	---
Aluminum	mg/Kg	5,050	4,550	NA	500
Barium	mg/Kg	77.9	88.5	NA	10.6
Calcium	mg/Kg	1,960	1,700	NA	260
Chromium	mg/Kg	28.1	29.8	NA	1.7
Iron	mg/Kg	22,300	8,300	91.5	NR
Lead	mg/Kg	4.8	3.7	NA	1.1
Magnesium	mg/Kg	1,190	1,350	NA	160
Manganese	mg/Kg	437	209	70.6	NR
Potassium	mg/Kg	531	620	NA	89
Selenium	mg/Kg	1.1	0.76B*	NA	0.3
Sodium	mg/Kg	278	214	NA	64
Zinc	mg/Kg	10.6	9.1	NA	1.5

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
NA = Not applicable; analyte concentration was less than 5 times the Contract Required Detection Limit.
NR = Not required; analyte concentration was greater than 5 times the Contract Required Detection Limit and, therefore, the relative percent difference was applied.

The duplicate precision requirements were met for the organic analyses, with the exception of 1,2-dichlorobenzene, 1,4-dichlorobenzene, toluene, and acetone. The results for all four compounds are at or near the quantitation limits where analytical imprecision is expected and, therefore, should not be considered significant.

The inorganic precision requirements were met, with the following exceptions: iron and manganese. The data user should consider the positive results for iron and manganese in the seep samples as estimations of the true concentrations. The discrepancies may be indicative of the sampling procedure.

The following six tables show the duplicate sample results associated with the Eastern Plume monitoring well samples.

The following table shows the first set of duplicate sample results from the samples associated with SDG EPMW001:

Analyte	Units	MW-310	MW-310 DUP	RPD%
1,1,1-Trichloroethane	μg/L	3	4	28.6
Trichloroethene	μg/L	0.6J	0.7J	15.4
Tetrachloroethene	μg/L	0.4J	(<1U)	22.2

NOTE: J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).

All precision requirements were met for the duplicate analyses, therefore, the results are usable as reported.

The field duplicate of SDG EPMW001 (Sample MW-206B) did not contain target analytes/compounds in either sample or its duplicate. Therefore, precision requirements were met and results are usable as reported. All precision requirements were met for the duplicate analyses for the second set of duplicate sample (MW-206B) results from the samples associated with SDG EPMW001, therefore, the results are usable as reported.

The following table shows the first set of duplicate sample results from the samples associated with SDG EPMW018:

Analyte	Units	MW-319	MW-319 DUP	RPD %
1,1,1-Trichloroethane	μg/L	9	10	10.5
Total 1,2-Dichloroethene	μg/L	9	10	10.5
Trichloroethene	μg/L	32	37	14.5
Tetrachloroethene	μg/L	37	72	64.2
1,1-Dichloroethene	μg/L	0.8J	0.8J	0

NOTE: J = Estimated concentration below detection limit.

All precision requirements were met for the duplicate analyses, with the exception of tetrachloroethane. The result for tetrachlorethene should be considered as an estimated concentration in Sample MW-319.

The following table shows the second set of duplicate sample results from the samples associated with SDG EPMW018:

Analyte	Units	P-105	P-105 DUP	RPD %
1,1,1-Trichloroethane	µg/L	2,400D	2,600D	8
Total 1,2-Dichloroethene	µg/L	18	17	5.7
Trichloroethene	µg/L	580D	620D	6.7
Tetrachloroethene	µg/L	12	11	8.7
1,1-Dichloroethene	µg/L	240D	260D	8
1,1-Dichloroethane	µg/L	54E*	50JD	7.7
1,1,2-Trichloroethane	µg/L	4	4	0
1,2-Dichloroethane	µg/L	7	7	0
Chloroform	µg/L	2	2	0
Benzene	µg/L	2	2	0

NOTE: J = Estimated concentration below detection limit.
D = This flag indicates an analysis at a secondary dilution factor.
E = Compound concentration exceeds calibration range.
* = The laboratory diluted the compound concentration below the Instrument Detection Limit, therefore, the original results which exceed the linearity of the instrument have been reported. The data user should be aware that the reported value is an estimate of true concentration.

All precision requirements were met for the duplicate analyses, therefore, the results are usable as reported.

The following table shows the set of duplicate sample results from the samples associated with SDG EPMW033:

Analyte	Units	MW-311	MW-311 DUP	RPD %
1,1,1-Trichloroethane	µg/L	11,000D	9,700D	12.6
Total 1,2-Dichloroethene	µg/L	12	12	0
Methylene chloride	µg/L	46E*	47E*	2.1
Trichloroethene	µg/L	2,200D	2,000D	9.5
Tetrachloroethene	µg/L	56E	59E	5.2
1,1-Dichloroethene	µg/L	740D	650D	12.9
1,1-Dichloroethane	µg/L	71E*	75E*	5.4
1,1,2-Trichloroethane	µg/L	15	15	0
1,2-Dichloroethane	µg/L	29	29	0
Chloroform	µg/L	7	7	0
Benzene	µg/L	5	5	0

NOTE: D = This flag indicates an analysis at a secondary dilution factor.
E = Compound concentration exceeds calibration range.
* = The laboratory diluted the compound concentration below the Instrument Detection Limit, therefore, the original results which exceed the linearity of the instrument have been reported. The data user should be aware that the reported value is an estimate of true concentration.

All precision requirements were met for the duplicate analyses, therefore, the results are usable as reported.

The following table shows the duplicate sample results associated with Sites 1 and 3 and the Eastern Plume extraction wells and treatment plant samples. The results from the duplicated effluent samples associated with SDG S1RI001 are shown in the table below:

Analyte	Units	Combined Effluent	Combined Effluent DUP	RPD%	Difference
1,1-Dichloroethene	µg/L	4	3	28.6	---
Methylene chloride	µg/L	0.7J	0.6J	15.4	---
Chloroform	µg/L	1	1	0	---
1,1,1-Trichloroethane	µg/L	160	150	6.5	---
Trichloroethene	µg/L	0.4J	(<1U)	22.2	---
Arsenic	µg/L	27.3B*	32.0B*	NA	4.7
Calcium	µg/L	9,420	9,710	3.0	NR
Magnesium	µg/L	3,630	3,730	NA	100
Manganese	µg/L	51.3	53.0	NA	1.7
Potassium	µg/L	1,460	1,500	NA	40
Sodium	µg/L	11,300	11,400	0.9	NR

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
NA = Not applicable; analyte concentration was less than 5 times the Contract Required Detection Limit.
NR = Not required; analyte concentration was greater than 5 times the Contract Required Detection Limit and, therefore, the relative percent difference was applied.

All precision requirements were met for the duplicate analyses, therefore, the results are usable as reported.

B.8 METHOD DETECTION LIMITS FOR SOLID AND AQUEOUS SAMPLES

The following tables provide the method detection limit for solid samples (Table B-1) and aqueous samples (Table B-2). 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	3	27 FEB 97
METALS - COLD VAPOR			
Mercury	mg/kg	0.10	16 MAY 96
METALS - FURNACE (SW-846 3050/7000 SERIES)			
Antimony	mg/kg	0.2	16 MAY 96
Arsenic	mg/kg	0.2	16 MAY 96
Beryllium	mg/kg	0.1	16 MAY 96
Cadmium	mg/kg	0.1	16 MAY 96
Chromium	mg/kg	0.2	16 MAY 96
Copper	mg/kg	0.2	16 MAY 96
Lead	mg/kg	0.1	16 MAY 96
Nickel	mg/kg	0.2	16 MAY 96
Selenium	mg/kg	0.1	16 MAY 96
Silver	mg/kg	0.1	16 MAY 96
Thallium	mg/kg	0.3	16 MAY 96
METALS - ICP (SW-846 3050/6010A)			
Aluminum	mg/kg	6.5	10 APR 97
Antimony	mg/kg	2.4	10 APR 97
Arsenic	mg/kg	2.9	10 APR 97
Barium	mg/kg	2.2	16 MAY 96
Beryllium	mg/kg	0.056	10 APR 97
Boron	mg/kg	1.1	10 APR 97
Cadmium	mg/kg	0.4	16 MAY 96
Calcium	mg/kg	7.9	16 MAY 96
Chromium	mg/kg	0.41	10 APR 97
Cobalt	mg/kg	0.65	10 APR 97
Copper	mg/kg	0.51	10 APR 97
Iron	mg/kg	5.3	16 MAY 96
Lead	mg/kg	5.1	10 APR 97
Lithium	mg/kg	0.22	10 APR 97
Magnesium	mg/kg	8.5	16 MAY 96
Manganese	mg/kg	0.6	16 MAY 96
Molybdenum	mg/kg	0.49	10 APR 97
Nickel	mg/kg	0.50	10 APR 97

Parameter	Units	Method Detection Limit [a]	Date
METALS - ICP (SW-846 3050/6010A) (Continued)			
Potassium	mg/kg	6.3	10 APR 97
Selenium	mg/kg	4.4	10 APR 97
Silver	mg/kg	0.43	16 MAY 96
Sodium	mg/kg	8.1	10 APR 97
Strontium	mg/kg	0.1	16 MAY 96
Thallium	mg/kg	5.6	10 APR 97
Tin	mg/kg	2.4	16 MAY 96
Titanium	mg/kg	2.0	16 MAY 96
Vanadium	mg/kg	0.8	16 MAY 96
Zinc	mg/kg	1.2	10 APR 97
METALS - TRACE ICP (SW-846 3050/6010A)			
Antimony	mg/kg	0.13	10 APR 97
Arsenic	mg/kg	0.20	10 APR 97
Barium	mg/kg	0.61	10 APR 97
Beryllium	mg/kg	0.064	10 APR 97
Cadmium	mg/kg	0.056	10 APR 97
Chromium	mg/kg	0.0068	10 APR 97
Copper	mg/kg	0.23	10 APR 97
Lead	mg/kg	0.10	10 APR 97
Nickel	mg/kg	0.15	10 APR 97
Selenium	mg/kg	0.2	10 APR 97
Silver	mg/kg	0.11	10 APR 97
Thallium	mg/kg	0.37	10 APR 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
PESTICIDES AND PCBs GC/ECD - ORGANOCHLORINE COMPOUNDS (SW-846 3520/8080)			
Aldrin	µg/L	0.010	25 JUL 96
α-BHC	µg/L	0.009	25 JUL 96
β-BHC	µg/L	0.007	25 JUL 96
δ-BHC	µg/L	0.009	25 JUL 96
γ-BHC (Lindane)	µg/L	0.003	25 JUL 96
α-Chlordane	µg/L	0.003	25 JUL 96
γ-Chlordane	µg/L	0.007	25 JUL 96
Chlordane (Technical)	µg/L	0.22	19 JAN 96
4,4'-DDD	µg/L	0.010	25 JUL 96
4,4'-DDE	µg/L	0.010	25 JUL 96
4,4'-DDT	µg/L	0.026	25 JUL 96
Dieldrin	µg/L	0.025	25 JUL 96
Endosulfan I	µg/L	0.010	25 JUL 96
Endosulfan II	µg/L	0.010	25 JUL 96
Endosulfan sulfate	µg/L	0.032	25 JUL 96
Endrin	µg/L	0.008	25 JUL 96
Endrin aldehyde	µg/L	0.045	25 JUL 96
Endrin ketone	µg/L	0.010	25 JUL 96
Heptachlor	µg/L	0.008	25 JUL 96
Heptachlor epoxide	µg/L	0.016	25 JUL 96
Methoxychlor	µg/L	0.051	25 JUL 96
Toxaphene	µg/L	0.44	07 AUG 96
Aroclor 1016	µg/L	0.25	12 JUL 96
Aroclor 1221	µg/L	0.77	23 JUL 96
Aroclor 1232	µg/L	0.55	23 JUL 96
Aroclor 1242	µg/L	0.69	23 JUL 96
Aroclor 1248	µg/L	0.73	23 JUL 96
Aroclor 1254	µg/L	0.31	23 JUL 96
Aroclor 1260	µg/L	0.13	12 JUL 96
Aroclor 5432	µg/L	1.1	20 JUN 96
Aroclor 5460	µg/L	1.3	20 JUN 96
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	µg/L	2.0	15 NOV 96
Allyl chloride	µg/L	0.4	15 NOV 96
Benzene	µg/L	0.3	15 NOV 96
Bromobenzene	µg/L	0.9	15 NOV 96
Bromochloromethane	µg/L	0.3	15 NOV 96
Bromodichloromethane	µg/L	0.3	15 NOV 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
Bromofluorobenzene	μg/L	0.3	15 NOV 96
Bromoform	μg/L	0.3	15 NOV 96
Bromomethane	μg/L	0.7	15 NOV 96
2-Butanone	μg/L	2.0	15 NOV 96
sec-Butylbenzene	μg/L	0.4	15 NOV 96
n-Butylbenzene	μg/L	0.5	15 NOV 96
tert-Butylbenzene	μg/L	0.4	15 NOV 96
Carbon disulfide	μg/L	0.4	15 NOV 96
Carbon tetrachloride	μg/L	0.4	15 NOV 96
Chlorobenzene	μg/L	0.3	15 NOV 96
Chloroethane	μg/L	0.4	15 NOV 96
2-Chloroethylvinyl ether	μg/L	0.9	15 NOV 96
Chloroform	μg/L	0.3	15 NOV 96
1-Chlorohexane	μg/L	0.5	15 NOV 96
Chloromethane	μg/L	0.4	15 NOV 96
2-Chlorotoluene	μg/L	0.3	15 NOV 96
4-Chlorotoluene	μg/L	0.4	15 NOV 96
Dibromochloromethane	μg/L	0.3	15 NOV 96
1,2-Dibromo-3-chloropropane (DBCP)	μg/L	0.5	15 NOV 96
1,2-Dibromoethane (EDB)	μg/L	0.2	15 NOV 96
Dibromofluoromethane	μg/L	0.3	15 NOV 96
Dibromomethane	μg/L	0.3	15 NOV 96
1,2-Dichlorobenzene	μg/L	0.3	15 NOV 96
1,3-Dichlorobenzene	μg/L	0.3	15 NOV 96
1,4-Dichlorobenzene	μg/L	0.3	15 NOV 96
trans 1,4-dichloro2-Butene	μg/L	5.0	15 NOV 96
Dichlorodifluoromethane	μg/L	0.5	15 NOV 96
1,1-Dichloroethane	μg/L	0.3	15 NOV 96
1,2-Dichloroethane	μg/L	0.4	15 NOV 96
1,2-Dichloroehtane-d_4	μg/L	0.2	15 NOV 96
1,1-Dichloroethene	μg/L	0.4	15 NOV 96
cis-1,2-Dichloroethene	μg/L	0.3	15 NOV 96
trans-1,2-Dichloroethene	μg/L	0.4	15 NOV 96
1,2-Dichloropropane	μg/L	0.4	15 NOV 96
1,3-Dichloropropane	μg/L	0.3	15 NOV 96
2,2-Dichloropropane	μg/L	0.5	15 NOV 96
1,1-Dichloropropene	μg/L	0.5	15 NOV 96
cis-1,3-Dichloropropene	μg/L	0.3	15 NOV 96
trans-1,3-Dichloropropene	μg/L	0.3	15 NOV 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
Ethylbenzene	μg/L	0.4	15 NOV 96
Ethyl acetate	μg/L	0.7	15 NOV 96
Ethyl ether	μg/L	0.3	15 NOV 96
Ethyl methacrylate	μg/L	0.3	15 NOV 96
Hexachlorobutadiene	μg/L	0.4	15 NOV 96
Iodomethane	μg/L	0.4	15 NOV 96
Isobutyl alchol	μg/L	0.3	15 NOV 96
Isopropylbenzene	μg/L	0.4	15 NOV 96
p-Isopropyltoluene	μg/L	0.4	15 NOV 96
Methacrylonitrile	μg/L	0.5	15 NOV 96
Methylene chloride	μg/L	0.3	15 NOV 96
Methyl methacrylate	μg/L	0.3	15 NOV 96
4-Methyl-2-Pentanone	μg/L	1.6	15 NOV 96
Methyl tertiary-butyl ether	μg/L	0.4	15 NOV 96
Naphthalene	μg/L	0.6	15 NOV 96
Pentachloroethane	μg/L	0.3	15 NOV 96
n-Propylbenzene	μg/L	0.4	15 NOV 96
Styrene	μg/L	0.3	15 NOV 96
1,1,1,2-Tetrachloroethane	μg/L	0.3	15 NOV 96
1,1,2,2-Tetrachloroethane	μg/L	0.3	15 NOV 96
Tetrachloroethene	μg/L	0.4	15 NOV 96
Toluene-d_8	μg/L	0.3	15 NOV 96
Toluene	μg/L	0.4	15 NOV 96
1,2,3-Trichlorobenzene	μg/L	0.4	15 NOV 96
1,2,4-Trichlorobenzene	μg/L	0.4	15 NOV 96
1,1,1-Trichloroethane	μg/L	0.4	15 NOV 96
1,1,2-Trichloroethane	μg/L	0.3	15 NOV 96
Trichloroethene	μg/L	0.3	15 NOV 96
Trichlorofluoromethane	μg/L	0.5	15 NOV 96
1,2,3-Trichloropropane	μg/L	0.5	15 NOV 96
1,1,2-Trichlorotrifluoroethane	μg/L	0.5	15 NOV 96
1,2,3-Trimethylbenzene	μg/L	0.3	15 NOV 96
1,2,4-Trimethylbenzene	μg/L	0.3	15 NOV 96
1,3,5-Trimethylbenzene	μg/L	0.4	15 NOV 96
Vinyl chloride	μg/L	0.5	15 NOV 96
Vinyl acetate	μg/L	0.8	15 NOV 96
m&p-Xylenes	μg/L	0.7	15 NOV 96
o-Xylene	μg/L	0.4	15 NOV 96

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	24 APR 97
Arsenic	μg/L	1.0	24 APR 97
Beryllium	μg/L	1.0	14 MAR 96
Cadmium	μg/L	1.0	24 APR 97
Chromium	μg/L	2.0	14 MAR 96
Copper	μg/L	1.4	24 APR 97
Lead	μg/L	1.4	24 APR 97
Nickel	μg/L	2.0	14 MAR 96
Selenium	μg/L	1.0	24 APR 97
Silver	μg/L	1.0	24 APR 97
Thallium	μg/L	1.4	24 APR 97
METALS - ICP (SW-846 3010/6010)			
Aluminum	μg/L	65.3	10 APR 97
Antimony	μg/L	24.1	10 APR 97
Arsenic	μg/L	29.2	10 APR 97
Barium	μg/L	17.0	08 NOV 94
Beryllium	μg/L	1.0	10 APR 97
Boron	μg/L	10.8	10 APR 97
Cadmium	μg/L	5.0	08 NOV 94
Calcium	μg/L	46.0	08 NOV 94
Chromium	μg/L	4.1	10 APR 97
Cobalt	μg/L	6.5	10 APR 97
Copper	μg/L	5.1	10 APR 97
Iron	μg/L	63.0	08 NOV 94
Lead	μg/L	51.3	10 APR 97
Lithium	μg/L	2.2	10 APR 97
Magnesium	μg/L	48.0	08 NOV 94
Manganese	μg/L	6.0	08 NOV 94
Molybdenum	μg/L	4.9	10 APR 97
Nickel	μg/L	5.0	10 APR 97
Potassium	μg/L	55.0	08 NOV 94
Selenium	μg/L	43.9	10 APR 97
Silicon	μg/L	63.0	08 NOV 94
Silver	μg/L	4.3	10 APR 97

Parameter	Units	Method Detection Limit[a]	Date
METALS - ICP (SW-846 3010/6010) (Continued)			
Sodium	μg/L	81.0	10 APR 97
Strontium	μg/L	1.0	08 NOV 94
Thallium	μg/L	55.9	10 APR 97
Tin	μg/L	25.0	08 NOV 94
Titanium	μg/L	2.0	08 NOV 94
Vanadium	μg/L	7.0	08 NOV 94
Zinc	μg/L	12.2	10 APR 97
METALS - TRACE ICP (SW-846 6010)			
Antimony	μg/L	1.3	10 APR 97
Arsenic	μg/L	2.0	10 APR 97
Barium	μg/L	6.1	10 APR 97
Beryllium	μg/L	1.0	10 APR 97
Cadmium	μg/L	1.0	10 APR 97
Chromium	μg/L	1.0	10 APR 97
Copper	μg/L	2.3	10 APR 97
Lead	μg/L	1.0	10 APR 97
Nickel	μg/L	1.5	10 APR 97
Selenium	μg/L	2.0	10 APR 97
Silver	μg/L	1.1	10 APR 97
Thallium	μg/L	3.7	10 APR 97

Appendix C

Summary Tables for Analyses of Tentatively Identified Compounds

TABLE C-1 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 13, 14, AND 17 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	MW-202A	MW-203	MW-204	MW-210B	MW-215R	MW-215R DUP	MW-216A	MW-217A	MW-217B	MW-218
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
Methane, chlorodifluoro-	2.95		1JN								
Methane, chlorodifluoro-	2.96							2JN			
Methane, chlorodifluoro-	2.97									18JN	
Methane,	4.58									1JN	
Ether	5.65									3JN	
Unknown Hydrocarbon	11.90									2J	
Unknown Hydrocarbon	14.59									1J	
Cycoltetrasiloxane,	22.33			1JN							
Benzene, (1-methylethyl)-	22.70									3JN	
1,2,4-Trimethylbenzene	24.62									2JN	
Unknown	25.77										
Unknown	25.79			2J							
Unknown	28.99	1J									
Unknown	29.00										
Naphthalene	30.11									9JN	

NOTE: J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
Only those compounds detected in at least one of the samples are shown on this table.

Compound	Retention Time (min)	MW-218 DUP	MW-219	MW-220	MW-232A	MW-234R	MW-2101	QT-002	QT-003
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)									
Methane, chlorodifluror-	2.95								
Methane, chlorodifluror-	2.96								
Methane, chlorodifluror-	2.97								
Methane, dichlorodifluror-	4.58								
Ether	5.65								
Unknown Hydrocarbon	11.90								
Unknown Hydrocarbon	14.59								
Cyclotetrasiloxane, octameth	22.33								
Benzene, (1-methylethyl)-	22.70								
1,2,4-Trimethylbenzene	24.62								
Unknown	25.77		2J						
Unknown	25.79								
Unknown	28.99								
Unknown	29.00			1J					
Naphthalene	30.11								

NOTE: QT = Trip blank. Samples associated with QT-003 were analyzed under a separate delivery group shippeed the same day.

TABLE C-2 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 18-20 MARCH AND 8-9 APRIL 1997 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	MW-105A	MW-105B	MW-106	MW-205	MW-206A	MW-206B	MW-206B DUP	MW-207A	MW-207B	MW-208	MW-209	MW-222
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
Ethane,1,1,2-trichloro-1,2	5.98				4JN								
Cyclotertasiloxane, octameth	22.32	1JN					2JN		3JN				
Unknown	33.92												1J

Compound	Retention Time (min)	MW-223	MW-224	MW-225A	MW-225B	MW-229A	MW-229B	MW-2230A	MW-231A	MW-231B	MW-303	MW-305	MW-306
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
Ethane,1,1,2-trichloro-1,2	5.98					2JN							
Cyclotertasiloxane, octameth	22.32												
Unknown	33.92												

Compound	Retention Time (min)	MW-307	MW-308	MW-309A	MW-309B	MW-310	MW-310 DUP	MW-311	MW-311 DUP	MW-313	MW-318	MW-319
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
Ethane,1,1,2-trichloro-1,2	5.98											
Cyclotertasiloxane, octameth	22.32											
Unknown	33.92											

Compound	Retention Time (min)	MW-319 DUP	MW-1104	P-105	P-106	MW-NASB-212	QT-003	QT-004	QT-007
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)									
Ethane,1,1,2-trichloro-1,2	5.98								
Cyclotertasiloxane, octameth	22.32								
Unknown	33.92								

NOTE: J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
Only those compounds detected in at least one of the samples are shown on this table.

TABLE C-3 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN AQUEOUS SAMPLES COLLECTED ON 17 MARCH 1997 FROM THE GROUND-WATER EXTRACTION AND TREATMENT SYSTEM, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	EW-01	EW-02	EW-03	EW-04	EW-05	EW-07	QT-003
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)								
Methane, chlorodifluoro	2.96						6JN	
Methane, chlorodifluoro	2.98							
Methane, chlorofluoro	3.49						2JN	
Ether	5.65							
Ether	5.67						2JN	
Ethane, 1,1,2-trichloro-	5.98	1JN						
1,2,4-Trimethylbenzene	24.63						1JN	

Compound	Retention Time (min)	Sites 1 and 3 Influent	Eastern Plume Influent	Combined Effluent	Combined Effluent DUP
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
Methane, chlorodifluoro	2.96				
Methane, chlorodifluoro	2.98	8JN			
Methane, chlorofluoro	3.49	2JN			
Ether	5.65	2JN			
Ether	5.67				
Ethane, 1,1,2-trichloro-	5.98				
1,2,4-Trimethylbenzene	24.63	1JN			

NOTE: QT = Trip blank. Samples associated with QT-003 were analyzed under a separate sample delivery group number shipped the same day.
J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
Only those compounds detected in at least one of the samples are shown on this table.

TABLE C-4 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SURFACE WATER SAMPLES COLLECTED ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-6 DUP	SW-7	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
Cyclotetrasiloxane,	22.30									1JN		
Unknown	25.75							2J				
Unknown	25.77									2J		

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
JN = Presumptive identification; estimated values.
J = Estimated concentration below detection limit.
Only those compounds detected in at least one of the samples are shown on this table.

TABLE C-5 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SEDIMENT SAMPLES COLLECTED ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	SED-1	SED-2	SED-3	SED-4	SED-5	SED-6	SED-6 DUP	SED-7	QT-001 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)												
Isopropyl Alcohol	5.73										2JN	
Cyclotetrasiloxane,	22.30									1JN		
Unknown C9H12	24.34						5J					
1,2,4-Trimethylbenzene	24.62						11JN					
Unknown	25.77									2J		
Unknown	26.17							8J				
Unknown	26.19						8J					
Unknown hydrocarbon	26.59						9J					
Unknown C10H14	26.84						8J					
Unknown C10H14	27.73						6J					
Unknown	28.99								4J			
Unknown	29.23						9J					
Naphthalene	30.09							15JN				
Naphthalene	30.10						16JN					
Unknown Hydrocarbon	31.20						8J					
Unknown	32.67						6J					

NOTE: QT = Trip blank. Samples associated with QT-001 were analyzed under a separate 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.
J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
Only those compounds detected in at least one of the samples are shown on this table.

TABLE C-6 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN LEACHATE STATION SEEP SAMPLE COLLECTED ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	SEEP-3	SEEP-3 DUP	SEEP-4	SEEP-5	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)								
Unknown	2.94		1J					
Unknown	2.96	2J		6J				
Unknown	2.97				6J			
Methane, chlorofluoro-	3.49				1JN			
Ether	5.63			1J				
Cyclotetrasiloxane, octameth	22.30					1JN		
Unknown	25.74			2J				
Unknown	25.75	1J			2J			
Unknown	25.76		1J					
Unknown	25.77					2J		
Unknown	26.90			1J				
Unknown	28.99			1J				

NOTE:
QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
Only those compounds detected in at least one of the samples are shown on this table.

TABLE C-7 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 12 MARCH 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	LT-1[a]	LT-2	LT-3	LT-3[a] DUP	LT-4	LT-5[a]	QT-001 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)										
Isopropyl Alcohol	5.73								2JN	
Cyclotetrasiloxane, octameth	22.30							1JN		
Unknown	23.36	6J								
Unknown	25.76			10J						
Unknown	25.77							2J		

(a) Reanalysis due to low surrogate recovery.

NOTE: QT = Trip blank. Samples associated with QT-001 were analyzed under a separate delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-002 were analyzed under a separate delivery group shipped on the same day.
QD = Source water blank. Samples associated with QD-001 were analyzed under a separate delivery group shipped on the same day.
J = Estimated concentration below detection limit.
Only those compounds detected in at least one of the samples are shown on this table.