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Final Report

Monitoring Event 7 - November 1996
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

Prepared for

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

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CTO Manager

3/11/97
Date

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3/12/97
Date

March 1997

QUALITY REVIEW STATEMENT

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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.

Senior Technical Reviewer(s)

Gloria D. McCleary 11 March 1997

Gloria D. McCleary, P.E., Senior Engineer (Date)
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1. PROJECT ACTIVITIES

1.1 INTRODUCTION

Under Contract No. N62472-92-D-1296, Contract Task Order (CTO) 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 the construction of a low-permeability slurry wall upgradient and surrounding the landfills to a depth of approximately 90 ft, the construction of a low permeability cap atop the landfills, and placement of 2 ground-water extraction wells within the limits of the landfill. 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 contaminants from the ground water prior to discharge.

This report provides the results for the November 1996 monitoring/sampling event (Monitoring Event 7). Bimonthly water level gauging data collected during September 1996 are also discussed in this report.

1.2 MEASUREMENT OF WATER LEVEL ELEVATIONS

Water level measurements were obtained during Monitoring Event 7 on 5-6 November 1996 at the well and piezometer locations indicated in Tables 1 and 2 for Sites 1 and 3 and Eastern Plume, respectively. Water level measurements were taken at 59 ground-water monitoring wells, 16 EP-series piezometers, 10 P-series piezometers, and 7 ground-water extraction wells. Water elevation data were collected during a period of consistent weather conditions, with no precipitation noted during the September and November 1996 gauging periods.

Water level data were not obtained from MW-216B because it was abandoned in-place in 1995. Artesian conditions were noted in MW-207A and MW-309A during the September and November 1996 well gauging events.

Although not required by the LTMP, bimonthly water level data were collected from Sites 1 and 3 and Eastern Plume monitoring wells, piezometers, and extraction wells. Bimonthly water level data were collected on 5 September 1996, in addition to data collected during Monitoring Event 7. These additional bimonthly water level data were collected to identify any seasonality or significant variation in ground-water flow direction with time. Data were collected from six surface water gauging points (GP-01 to GP-06) on 5 September 1996 and during Monitoring Event 7. These stations were added to provide additional data for use in interpretation of shallow ground-water flow direction. Additional water elevation data were collected at offsite locations including MW-312, MW-316A, MW-316B, MW-317A, MW-317B, P-121, and P-123. The offsite data were collected to assess ground-water flow patterns to the east of Merriconeag Stream.

Figure 3 provides the locations of ground-water monitoring wells, piezometers, extraction wells, 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 1996a) 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 8-21 November 1996 in accordance with the general methodologies established in the LTMP (ABB-ES 1994). 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. Two monitoring wells (MW-207A and MW-309A), which are under artesian conditions, required a slip cap with a valve and tubing attachment placed over the well casing for sample collection.

Ground-water samples were collected from 16 of 19 well locations 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.

At the Eastern Plume site, ground-water samples were collected from 42 wells and piezometers, and 4 of 5 extraction wells. Extraction well EW-2 was offline during sampling activities and, thus, no ground-water sample was collected. Three monitoring locations were removed from the long-term monitoring program as of Monitoring Event 7. These included P-111, P-112, and P-132, although P-132 was sampled due to field error. 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). Additional offsite wells were sampled during November 1996 including MW-312, MW-316A, MW-316B,

MW-317A, and MW-317B. Two additional offsite locations, P-121 and P-123, could not be sampled due to insufficient water and a blocked riser pipe, respectively. Three wells/piezometers located in the Eastern Plume were sampled using a peristaltic pump, including MW-105A, P-105, and P-106.

Although not required by the LTMP, ground-water samples were collected at the Eastern Plume on 21 November 1996 from two direct-push sampling locations near MW-311 concurrent with Monitoring Event 7. One shallow ground-water sample was collected from DP-02 at a depth of 13.5-15.5 ft below surface grade. This location was sampled to confirm previous sampling results which reported elevated concentrations of volatile organic compounds (VOC) present in the shallow ground water in the vicinity of MW-311 (EA 1996b). A second ground-water sample was collected from the shallow interval at sampling location DP-04 (from 14 to 16 ft below surface grade). The shallow interval of DP-04 was not sampled previously, although a previously collected deep sample (collected from 52 to 54 ft below ground surface) reported elevated concentrations of VOC. Ground-water samples were collected using a direct-push drilling rig with dedicated polyethylene tubing and a bottom stainless steel check valve. Samples were collected from the uppermost water-bearing intervals encountered. Direct-push sampling locations are shown on Figure 3.

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 1996a).

1.3.1 Water Quality Indicator Parameter Measurements

At Sites 1 and 3, all 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 4 wells (MW-217B, MW-218, MW-219, and MW-220). At the Eastern Plume site, all wells/piezometers reached equilibrium of the water quality indicator parameters during well purging. Seventeen of 42 wells/piezometers sampled reached equilibrium with turbidity measurements in excess of 10 NTU. All wells were within the stabilization criteria of less than 10 percent change for dissolved oxygen during the November 1996 sampling event. Although not required by the LTMP, oxidation-reduction (Eh) was recorded for informational purposes during well purging and sampling. Three offsite wells (MW-312, MW-317A, and MW-317B) reached equilibrium of turbidity with measurements in excess of 10 NTUs. All offsite locations reached equilibrium of the other water quality indicator parameters.

1.3.2 Analytical Program

Ground-water samples collected from Sites 1 and 3 and the Eastern Plume, including the samples collected by the direct-push sampling method, were submitted for analysis of Target Compound List (TCL) 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 trace inductively coupled plasma (EPA Method 6010) and mercury by cold vapor atomic adsorption (EPA Method 7470). 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, and leachate seep samples at Sites 1 and 3 were collected on 7 November 1996 in accordance with the general methodologies established in the LTMP (ABB-ES 1994). Exceptions to sampling activities specified in the LTMP during Monitoring Event 7 included:

- Leachate station seep samples were collected at 4 of 5 planned locations at the toe of the Sites 1 and 3 landfill footprint. One seep sampling station (SEEP-2) was dry at the time of sampling.

Although not required by the LTMP, 2 surface water samples were collected at the Eastern Plume on 14 November 1996. One surface water sample (SW-100) was collected from Merriconeag Stream, located southeast of MW-311. The second surface water sample (SW-101) was collected from Mere Brook directly south of MW-311. These samples were collected to assess if VOC reported in shallow ground water near MW-311 have impacted surface water. Approximate sample locations are shown on Figure 3.

Tables 1 and 2 provide summaries of the locations included in the surface water, sediment, and leachate station seep and sediment sampling program, and the analytical methods performed.

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 trace inductively coupled plasma (EPA Method 6010), and mercury by cold vapor atomic adsorption (EPA Method 7470). Effective November 1996, cyanide analyses were removed from the analytical program. The two additional surface water samples collected at the Eastern Plume were submitted only for analysis of TCL VOC plus a library search of 15 tentatively identified compounds by EPA Method 8260.

1.5 LANDFILL GAS MONITORING AND CAP INSPECTION

Gas probe monitoring was conducted at Sites 1 and 3 on 26 November 1996 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 1996a). 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 26 November 1996. 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 November 1996 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 soil 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.

One VOC (carbon disulfide) was reported at low concentrations in analytical samples and quality assurance/quality control samples. This compound was determined to be present in the preservative (hydrochloric acid) used for VOC samples, and should be considered a sampling artifact. The reported presence of this compound in analytical samples does not compromise the quality of data collected as part of the LTMP. Additional discussion of the presence of carbon disulfide is provided in Appendix B.6 (Analytical Data Quality Review).

2. MONITORING EVENT RESULTS

2.1 WATER LEVEL GAUGING

Ground-water potentiometric elevations were measured on 5 September 1996 (bimonthly data) and 5-6 November 1996 (Monitoring Event 7 data) at Sites 1 and 3 and 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 7 at Sites 1 and 3 and Eastern Plume, water level measurements were not obtained in the following 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 onsite well (MW-234R) and one offsite well (P-123) were blocked and no water elevation could be obtained. Artesian conditions were noted at MW-207A and MW-309A during 5 September and 5-6 November 1996 well gauging. Six extraction wells were in operation at the time water table elevation data were collected on 5-6 November 1996, including: EW-1, and EW-3 through EW-7. Pumping rates at each of the extraction wells at the time of water level gauging on 5-6 November 1996 were as follows: EW-1 (19 gallons per minute [gpm]), EW-3 (27 gpm), EW-4 (19 gpm), EW-5 (25 gpm), EW-6 (2 gpm), and EW-7 (3 gpm). EW-2 was not in operation due to elevated levels of turbidity in the extracted ground water. Daily pumping rates for each extraction well are provided in Appendix A.

Shallow and deep potentiometric surface contour maps were prepared based on the water level data collected on 5 September and 5-6 November 1996. The shallow potentiometric surface contour maps contain data for wells and piezometers screened less than 40 ft below surface grade, while the deep potentiometric surface contour maps contain data for wells and piezometers screened greater than 40 ft below surface grade. The distinction between shallow and deep potentiometric surfaces was made to reflect changes in potentiometric head observed at depth in wells located across Sites 1 and 3 and Eastern Plume. The interpreted ground-water flow direction for the 5 September and 5-6 November 1996 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 deep wells MW-218 and MW-234R during the 5 September 1996 gauging event (Table 3). 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 5 September and 5-6 November 1996 near extraction wells EW-1, EW-3, and EW-5 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). Notable drawdown was observed at shallow piezometer P-112 during the November 1996 gauging event. This piezometer is located approximately 360 ft southeast of EW-3. The drawdown is likely attributable to the operation of EW-3, which has consistently yielded flow rates of 22 gpm or greater during the period August-November 1996. Extraction well EW-2 was operated intermittently during the period August-November 1996 due to high levels of turbidity.

The deep ground-water flow pattens indicate ground-water flow is predominantly toward the south-southeast. Well gauging data collected on 5 September and 5-6 November 1996 (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 (40 ft and greater) experienced limited drawdown due to pumping from the extraction wells. Based on water elevation data, drawdown in the deep wells is limited to less than 100 ft from the extraction wells.

The deep portion of the aquifer in the vicinity of extraction wells EW-1 through EW-5 has historically reported the highest concentrations of dissolved-phase VOC. In an attempt to increase the effect of pumping from the deep interval, and to maximize the removal of VOC from these extraction wells, a pilot packer test was performed. An inflatable packer was used to isolate the shallow and deep portions of the screened intervals of extraction well EW-5. Seven nearby observation wells were monitored during the packer study, which was conducted for 4 days. Analysis of these data indicated no significant increase in ground water extraction rate or VOC removal efficiency was achieved as a result of extraction from the deep interval (EA 1997).

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 November 1996 indicates water elevations have decreased within the confines of the slurry wall. Potentiometric head decreased in shallow well MW-211B by 8.80 ft. Potentiometric heads decreased in deep wells MW-216A and MW-232A by 7.33 and 8.96 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 8.39 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 MSL, as noted at well MW-234R. An anomalous water level

reading was noted at well MW-234R during the November gauging rounds. Future monitoring reports will provide data on the depth of ground water as related to the depth of 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 November 1996 well gauging data, the hydraulic gradient for the shallow portion of the aquifer shows variation across the study area. The hydraulic gradient ranges from 0.033 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 MW-311).

Artesian conditions were noted at 2 wells (MW-207A and MW-309A) during the 5 September and 5-6 November gauging events. These wells are screened in the deep portion of the aquifer 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, 7 locations were found to be unlocked, including 5 piezometers and 2 monitoring wells. The unlocked locations will be fitted with locking caps. All wells were labeled. Five offsite wells, which were sampled as part of Monitoring Event 7 and are not part of the LTMP, 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 5 and 6 for ground-water samples collected at Sites 1 and 3 and the Eastern Plume, respectively. Table 7 provides a summary of the water quality indicator parameter measured in surface water and seep samples collected at Sites 1 and 3. Table 8 provides a summary of water quality indicator parameters measured in surface water collected at the Eastern Plume. 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 4 wells, turbidity did not exceed 10 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. 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 25 of 42 monitoring wells and piezometers sampled. Turbidity values stabilized at all locations prior to sample collection.

Surface water and leachate seep sample water quality indicator parameter measurements are summarized in Tables 7 and 8. Turbidity in surface water showed little variability, with the highest turbidity noted closest to the landfill (SW-01). Elevated turbidity was observed at the 4 leachate seep samples (Table 7). Elevated turbidity was not observed at the two additional surface water samples collected during Monitoring Event 7 (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 9 summarizes the water quality indicator parameter measurements recorded at these locations. Notable results of water quality indicator parameters measured during Monitoring Event 7 include:

- The turbidity of ground water extracted at EW-7 was recorded at 192 NTU. Elevated conductivity was observed at extraction well EW-6.
- Elevated dissolved oxygen concentrations were recorded in the combined effluent, which is likely attributable to the addition of hydrogen peroxide in the ultraviolet/peroxidation system, located immediately upstream of the effluent sample port.

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 Is) 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 13 of the 14 monitoring wells sampled at Sites 1 and 3 during the November 1996 sampling event. The majority of VOC were reported at concentrations less than 5 μg/L. One VOC, carbon disulfide, was reported in 12 ground-water samples and associated trip blanks. This compound was reported in acid used during sample preservation, and is considered a sampling artifact. This compound was determined to be present in a preservative used for VOC sampling at Sites 1 and 3 and the Eastern Plume. Excluding carbon disulfide, no VOC were reported in 7 of 14 samples, including MW-203, MW-204, MW-210B, MW-219, MW-232A, MW-234R, and MW-2101.

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

- 1,2-Dichloroethane was reported in MW-217B at a concentration of 7 μg/L which exceeds the State MEG and Federal MCL of 5 μg/L.
- Vinyl chloride was reported in 3 samples at concentrations of 2 μg/L (MW-215R), 3 μg/L (MW-216A), and 38 μg/L (MW-217B), which exceed the State MEG of 0.15 μg/L and the Federal MCL of 2 μg/L.
- Trichloroethene was reported in MW-202A at a concentration of 8 μg/L, which exceeds the State MCL and Federal MEG of 5 μg/L.
- 1,4-Dichlorobenzene was reported in MW-217B at a concentration of 130 μg/L, which exceeds the State MEG of 27 μg/L and Federal MCL of 75 μg/L.
- Tetrachloroethene was reported in MW-202A at a concentration of 4 μg/L, which exceeds the State MEG of 3 μg/L.
- 1,1,2-Trichloroethane was reported in MW-202A at a concentration of 6 μg/L (MW-202A), which exceeds the State MEG of 3 μg/L and Federal MCL of 5 μg/L.

A total of 18 TAL elements were reported in ground-water samples collected from Sites 1 and 3 wells. TAL elements were reported in all Sites 1 and 3 monitoring wells. TAL elements reported above primary Federal MCL and State MEG in ground water are summarized below:

- Aluminum was reported at concentrations which exceeded the State MEG of 1,430 μg/L in 2 wells (MW-217B; 9,410 μg/L and MW-220; 1,600 μg/L).
- Arsenic was reported at a concentration of 259 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.

Inorganic 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. Three wells which reported elevated turbidity (greater than 10 NTU) also reported elevated concentrations of inorganics, including MW-217B, MW-218, and MW-220.

2.3.2 Eastern Plume

Tables 11 and 12 provide summaries of the analytical results for the ground-water samples collected at the Eastern Plume. Appendix C provides a summary table for tentatively identified compounds (VOC) reported in the samples. The summary tables (Form Is) for these analyses are provided in Appendix D.

A total of 14 VOC were reported at detectable concentrations at Eastern Plume wells. One VOC (carbon disulfide) was reported in 35 of 42 monitoring wells and piezometers sampled during the November 1996 monitoring event, however, this compound was also reported in the acid used as a preservative and is considered a sampling artifact. Excluding carbon disulfide, VOC were reported in 18 of 42 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, P-105, and P-106).
- Methylene chloride was reported above the Federal MCL of 5 μg/L in MW-311.

- 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-207A, MW-208, MW-NASB-212, MW-225A, MW-229A, MW-306, MW-311, MW-319, MW-1104, P-105, and P-106).

- Tetrachloroethene was reported above the State MEG of 3 μg/L and/or Federal MCL of 5 μg/L in samples collected from 9 wells/piezometers (MW-205, MW-207A, MW-208, MW-225A, 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 4 wells/piezometers (MW-205, 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).

- 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 3 wells/piezometers (MW-311, P-105, and P-106).

Direct-push sample DP-02 reported a total of 8 VOC. Two VOC were reported above corresponding State MEG and/or Federal MCL:

- 1,1,1-Trichloroethane was reported at 310 μg/L, which is above the State MEG and Federal MCL of 200 μg/L.

- 1,1-Dichloroethene was reported at 19 μg/L, which is above the State MEG and Federal MCL of 7 μg/L.

Direct-push sample DP-04 reported a total of 3 VOC. There were no VOC reported DP-04 at concentrations above corresponding State MEG and/or Federal MCL.

Total Volatile Organic Compound Isoconcentration Maps

A review of total VOC concentration isocontours for shallow wells at Sites 1 and 3 and the Eastern Plume (Figure 9) indicates that VOC concentrations above corresponding State MEG and Federal MCL were detected in 2 distinct areas within the Eastern Plume: (1) in the vicinity of MW-1104, and (2) in the vicinity of the direct-push sample DP-02 (near MW-311). Areas in

Sites 1 and 3, including near wells MW-215R, EW-6, 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 deep wells at Site 1 and 3 and the Eastern Plume (Figure 10) indicates that two areas of the Eastern Plume show areas with reported concentrations above State MEG and Federal MCL. The first area extends from MW-NASB-212 in the northeastern portion of the Eastern Plume to the vicinity of EW-4. The second area extends from EW-3 southeast toward MW-311 and south to EW-1. 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 reported low concentrations (i.e., less than 10 μg/L) of one VOC (carbon disulfide), which has been attributed to field contamination. This includes perimeter wells along the southern edge of the Eastern Plume (MW-231A, MW-231B, MW-230A, MW-230B, and MW-313) and along the eastern edge of the Eastern Plume (MW-303, MW-305, MW-309A, and MW-309B). 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 13 provides a summary of the VOC and TAL elements reported in ground-water extraction well, treatment system raw 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 Is) are provided in Appendix D.

A total of 20 VOC were reported at detectable concentrations from extraction well and treatment system samples. VOC were reported in all extraction well and treatment system samples. Carbon disulfide was reported in the extraction well samples and 2 treatment system influent samples, however, this compound was detected in acid used for sample preservation and is considered a sampling artifact.

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

A total of 12 TAL elements were reported in extraction well and treatment system samples. TAL elements were reported in all extraction well and treatment system samples. There were no TAL elements reported at concentrations exceeding the ground-water treatment system discharge limits (Woodard and Curran 1996).

2.4 SURFACE WATER

Table 14 provides a summary of the VOC and TAL inorganics reported in surface water samples collected at Sites 1 and 3. No tentatively identified compounds were reported in surface water samples. The reports of laboratory analyses (Form Is) for the surface water samples are provided in Appendix D.

One VOC (carbon disulfide) was reported in all surface water samples and the associated equipment rinsate blank, trip blank, and source water blank. This compound was detected in acid used for sample preservation and is considered a sampling artifact. A total of 11 TAL elements were reported in surface water samples. Elevated concentrations of iron, calcium, manganese, potassium, and sodium were reported in surface water samples SW-1, SW-2, and SW-3 which are located near the toe of the landfill, in comparison with downstream samples SW-4 through SW-7.

Table 15 provides a summary of the VOC reported in surface water samples collected at the Eastern Plume. Appendix C provides a summary table for tentatively identified compounds (VOC) reported in the samples. The reports of laboratory analyses (Form Is) for the surface water samples are provided in Appendix D.

One VOC (carbon disulfide) was reported in the surface water samples and associated trip blank, equipment rinsate blank, and source water blank. This compound was detected in acid used for sample preservation and is considered a sampling artifact.

2.5 SEDIMENT

Table 16 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 compounds (VOC) reported in the samples. The reports of laboratory analyses (Form Is) for sediment samples are provided in Appendix D.

One VOC (carbon disulfide) was reported in 1 of 7 sediment samples. This compound was also detected in the associated trip blank and source water blank and is considered a sampling artifact. A total of 20 TAL elements were reported in sediment samples. All sediment samples reported detectable concentrations of TAL elements.

2.6 LEACHATE STATION SAMPLES

2.6.1 Seep

Table 17 provides a summary of the constituents reported in leachate seep samples collected at Sites 1 and 3. Seep samples were not collected at 1 of the planned locations (SEEP-2) because this location was dry and no aqueous sample could be obtained. Appendix C provides a summary table for tentatively identified compounds (VOC) reported in the samples. The analytical reports for leachate analyses (Form Is) are provided in Appendix D.

A total of 13 VOC were reported in leachate station seep samples. VOC were reported at detectable concentrations in all leachate station samples. One VOC (carbon disulfide) was reported in the seep samples, trip blank, equipment rinsate blank, and source water blank. This compound was detected in acid used for sample preservation and is considered a sampling artifact. A total of 16 TAL elements were reported in seep samples. All seep samples reported detectable concentrations of TAL elements.

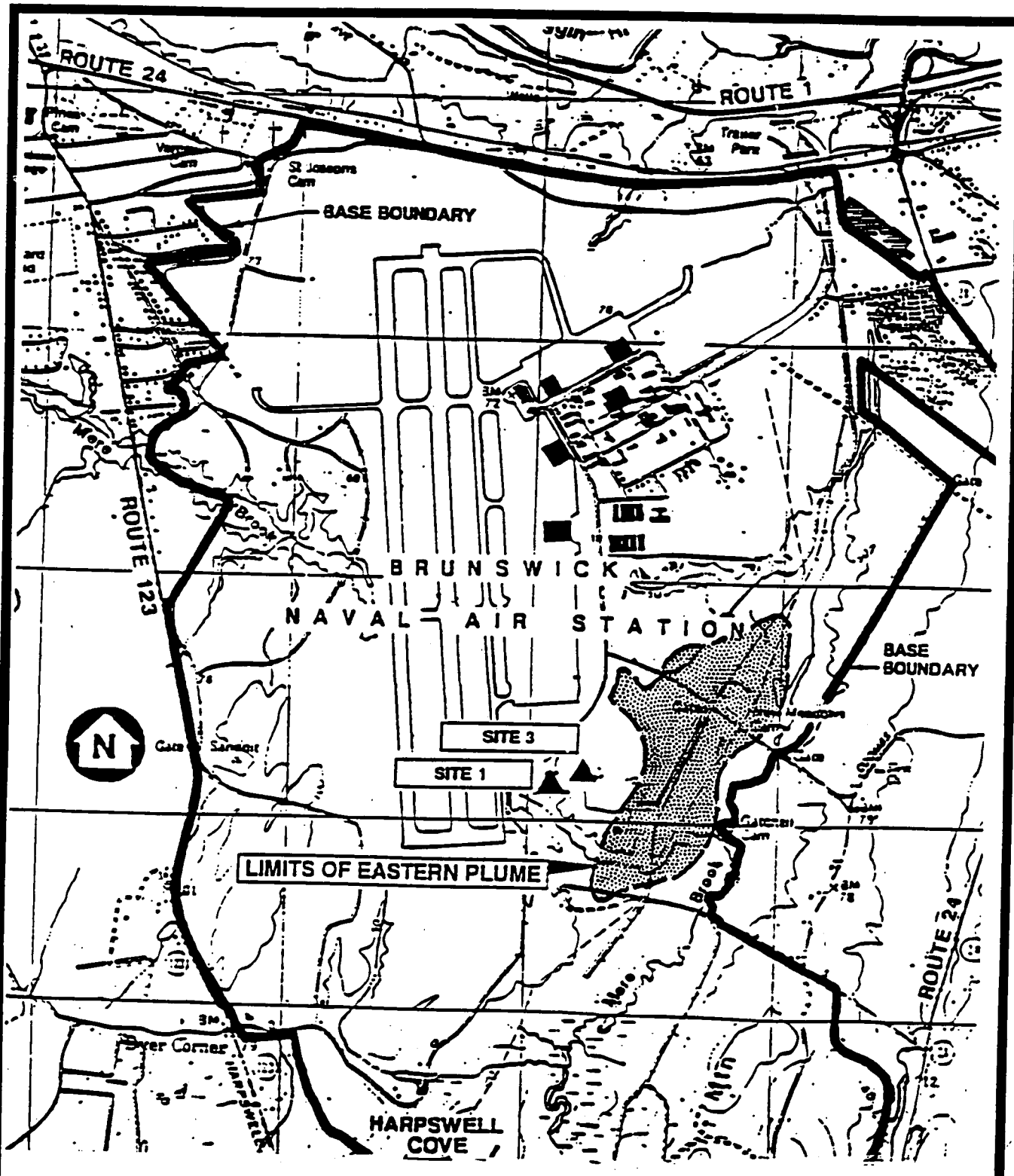
2.6.2 Sediment

Table 18 provides a summary of the constituents reported in leachate station sediment samples collected at Sites 1 and 3. Appendix C provides a summary table for tentatively identified compounds (VOC) reported in leachate station sediment samples. Reports of laboratory analyses (Form Is) are provided in Appendix D.

A total of 3 VOC were reported in leachate station sediment samples. VOC were reported in 3 of 5 leachate station sediment samples. A total of 21 TAL elements were reported in leachate station sediment samples. TAL elements were reported in all leachate station sediment samples.

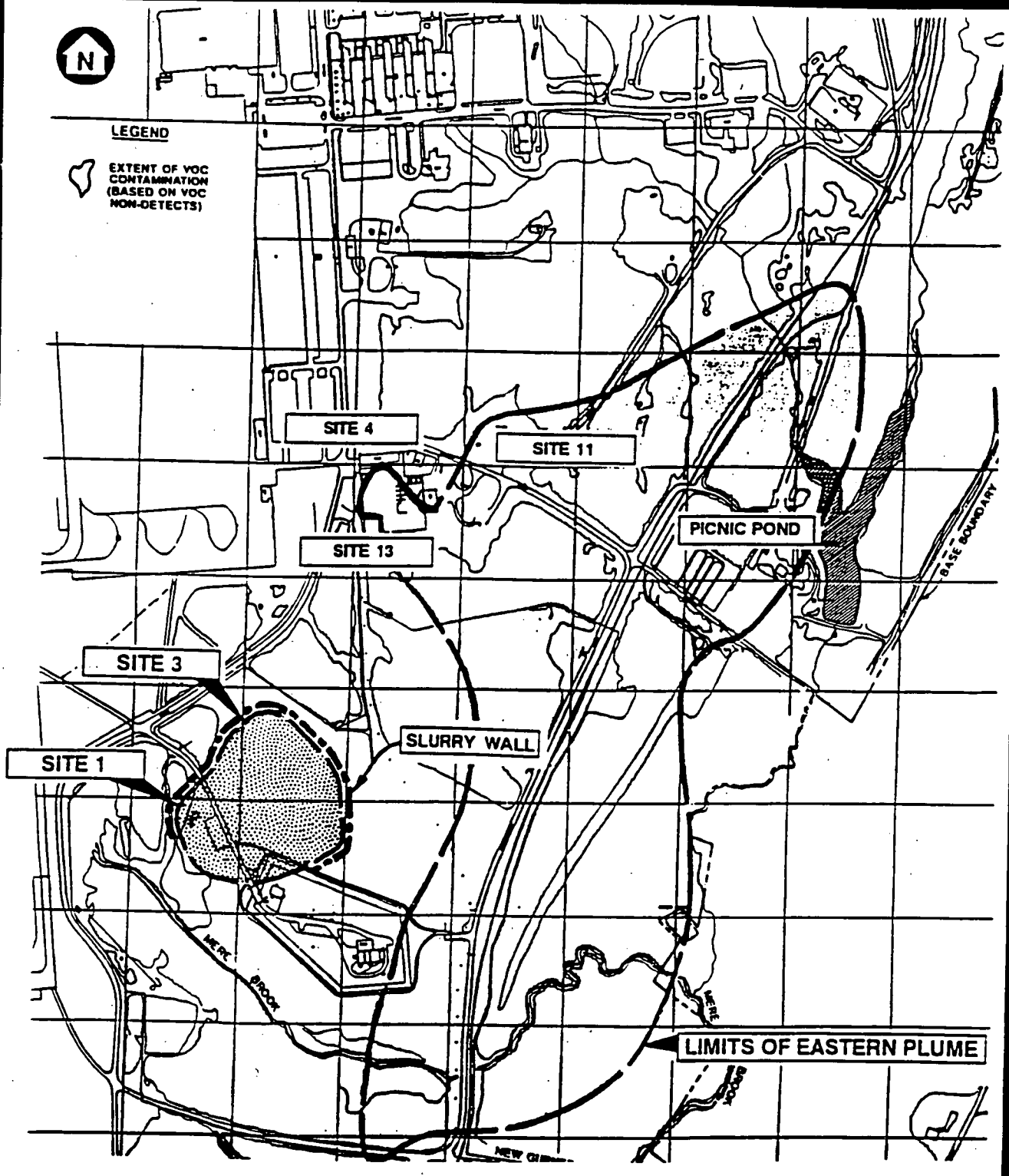
2.7 LANDFILL GAS MONITORING

Table 19 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 measurements were noted at vents GV-2 (0.6 percent) and GV-4 (0.5 percent). Methane was detected at 8 of 14 gas vents at concentrations up to 17.7 percent. Methane was not detected at the gas probes.



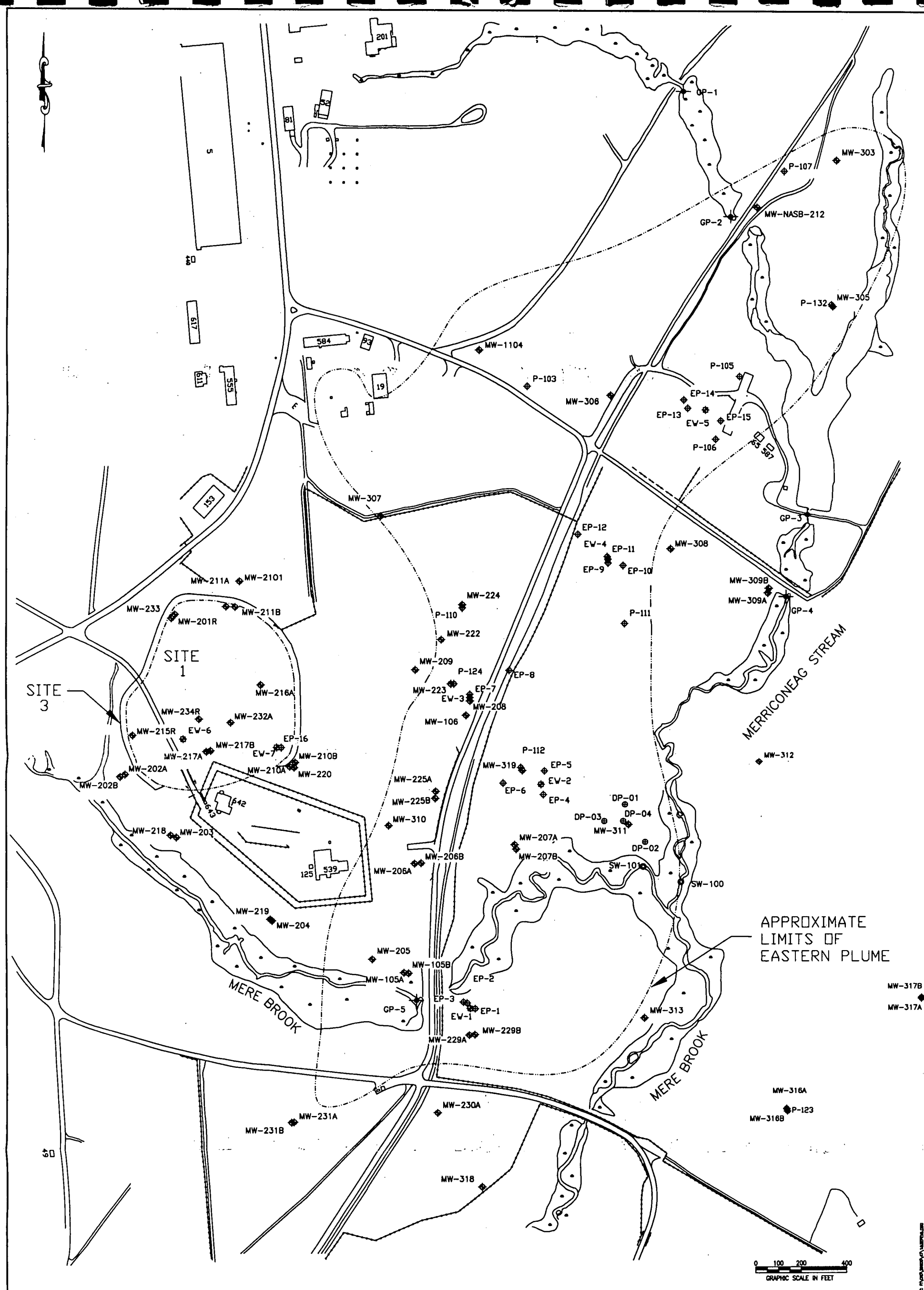
Source: USGS 7.5-minute series topographic maps: Brunswick, Maine, Quadrangles (1980); and Orrs Island, Maine, 1978. Scale 1:24,000.

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



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

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



LEGEND

- MW-209 MONITORING WELL
- EW-1 EXTRACTION WELL
- EP-11 PIEZOMETER
- SEEP-1 SEEP LOCATIONS
- SW/SED-1 SURFACE WATER/SEDIMENT
- GP-1 GP LOCATIONS
- DP-01 DIRECT-PUSH LOCATIONS
- SW-100 SURFACE WATER SAMPLE LOCATION
- 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	30 JANUARY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB

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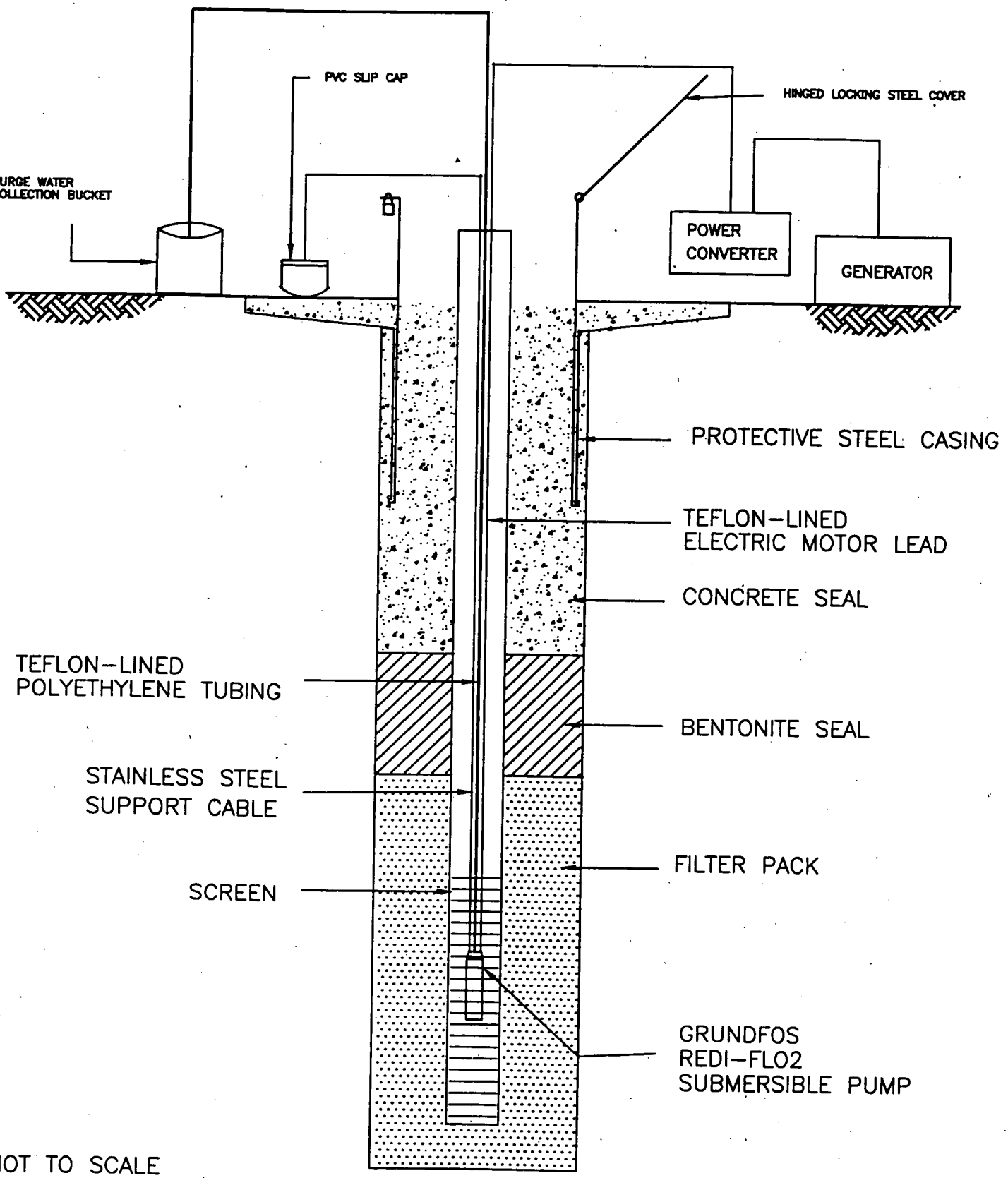
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3EPEV5
DRAWING NUMBER	-
SHEET NUMBER	-



NOT TO SCALE

DWG. FILE No. F:\CAD\AGWELL

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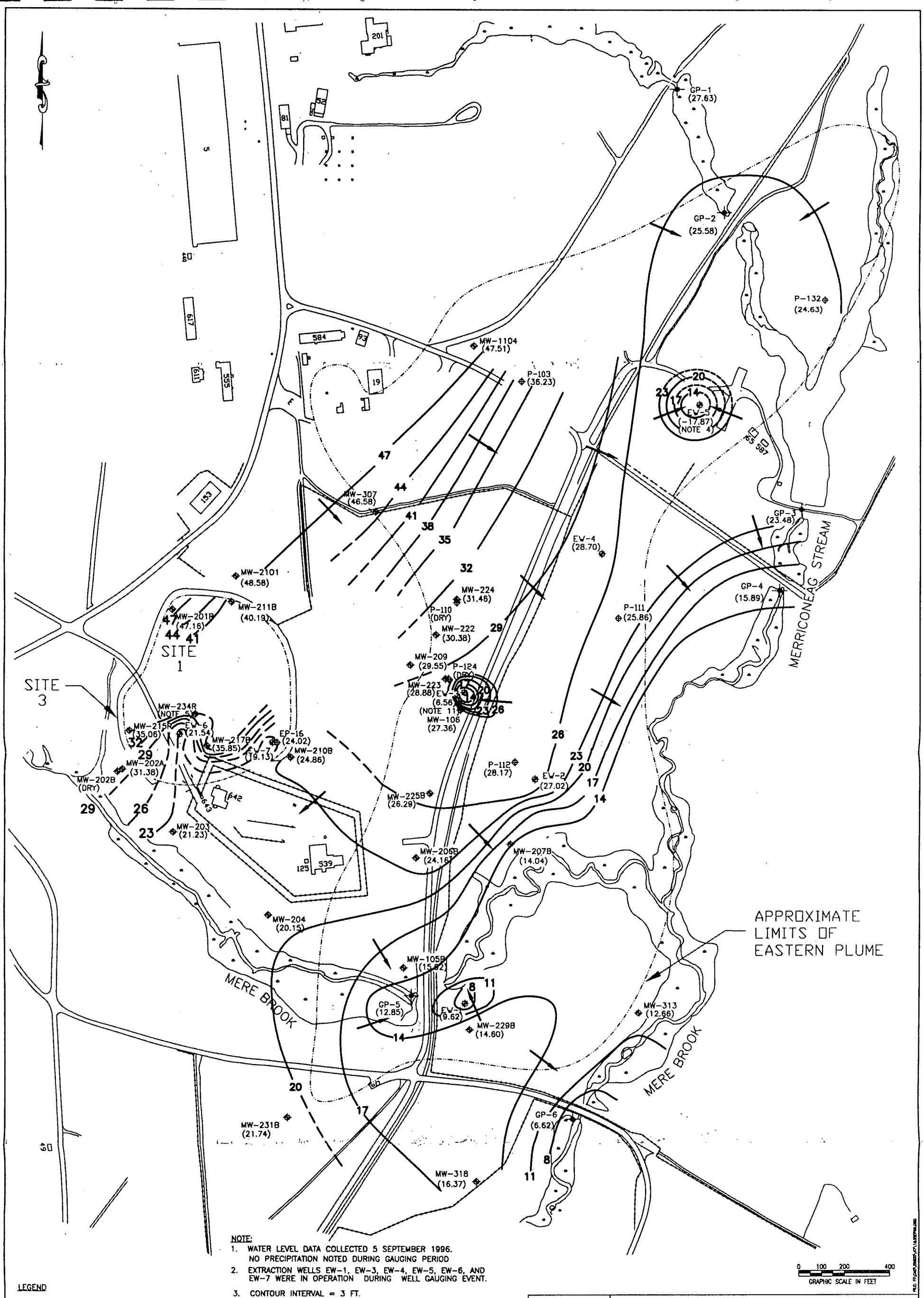
SCHEMATIC OF GENERALIZED INSTALLATION OF DEDICATED SUBMERSIBLE PUMP SYSTEM IN A MONITORING WELL

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



NOTE:

1. WATER LEVEL DATA COLLECTED 5 SEPTEMBER 1996. NO PRECIPITATION NOTED DURING GAUGING PERIOD
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. CONTOUR INTERVAL = 3 FT.
4. CONTOURS FOR 11, 8, 5, 2, -1, -4, -7, -10, AND -13 ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
5. ANAMOLUS WATER ELEVATION NOT USED FOR CONTOUR MAP GENERATION
6. WATER LEVELS AT OFF-SITE WELLS WERE COLLECTED DURING NOVEMBER GAUGING EVENT
7. CONTOURS FOR 11, AND 8 FT ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE

LEGEND

- MW-209 (29.55) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- EW-1 — EXTRACTION WELL
- EP-11 (33.59) — 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

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 5
INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5 SEPTEMBER 1996

DATE	23 JANUARY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB

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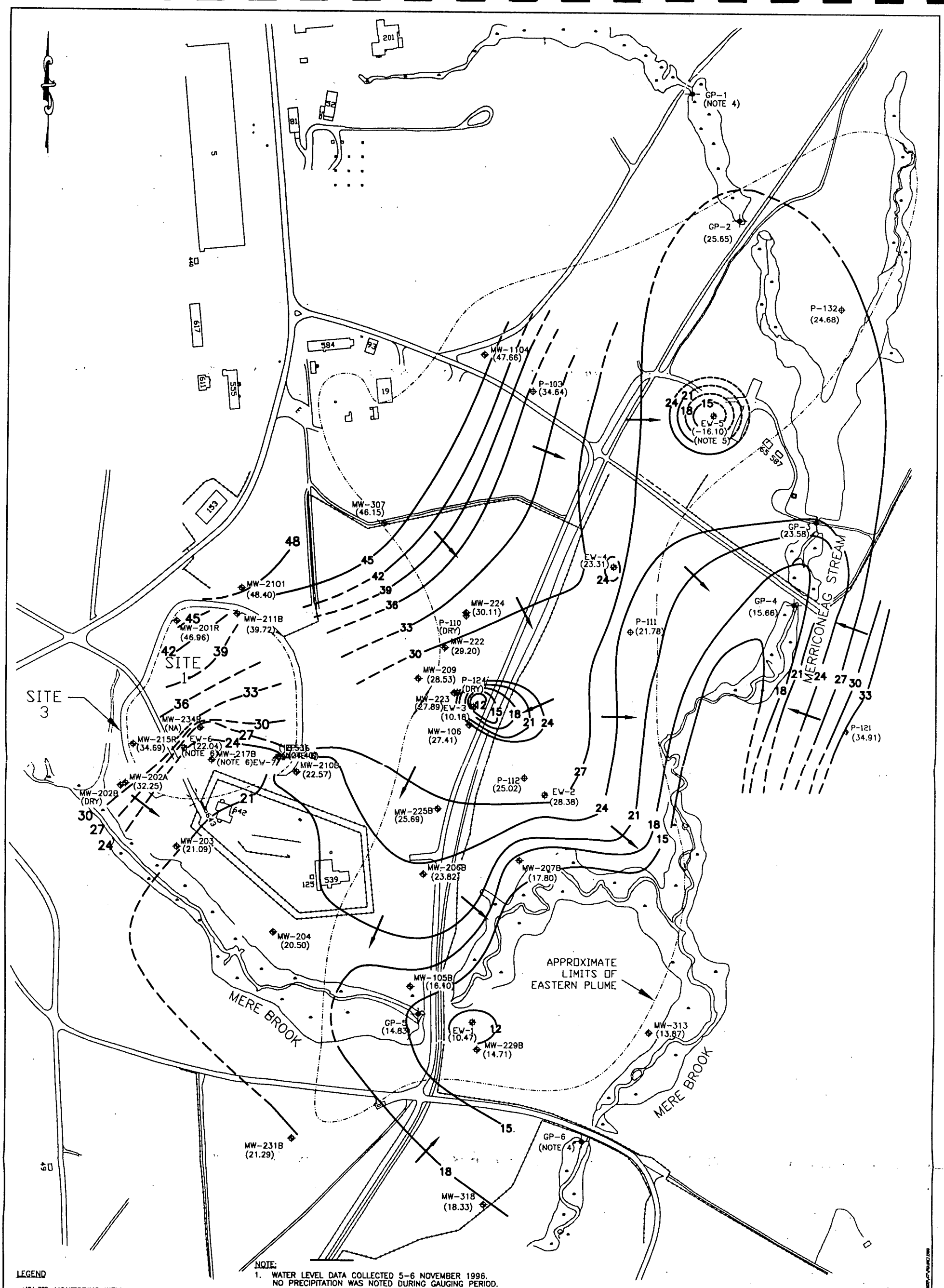
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3SEP96.DWG
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-209 (28.53) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- (NA) — NOT AVAILABLE, RISER BLOCKED
- EW-1 — EXTRACTION WELL
- P-11 (33.59) — 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 5-6 NOVEMBER 1996. NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. CONTOUR INTERVAL = 3 FT.
4. SURFACE WATER ELEVATION NOT REPORTED DUE TO CONSTRUCTION OR OBSTRUCTED CULVERT.
5. THE CONTOURS FOR 15, 12, 9, 6, 3, -3, -6, -9, -12, -15 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 NOVEMBER 1996

DATE	23 JANUARY 1996
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	FIGURE7
DRAWING NUMBER	—
SHEET NUMBER	—

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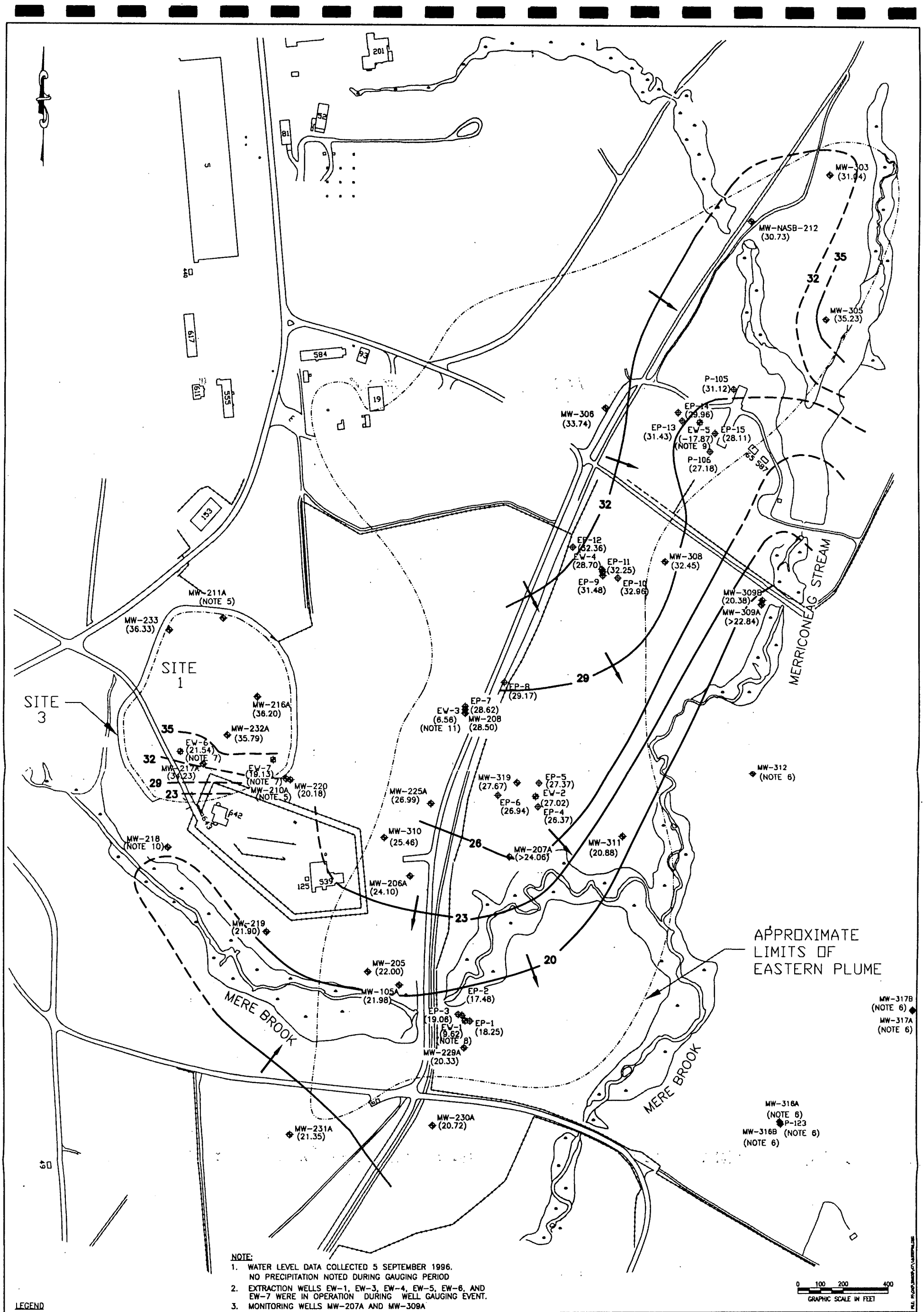

NOTE:

1. WATER LEVEL DATA COLLECTED 5 SEPTEMBER 1996. NO PRECIPITATION NOTED DURING GAUGING PERIOD
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-5, 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 OFF-SITE WELLS WERE ONLY COLLECTED DURING 5-6 NOVEMBER 1996
7. THE 26, 23 AND 20 FT CONTOURS ENCOMPASS EW-6 AND EW-7 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE
8. THE 17, 14 AND 11 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE
9. THE 26, 23, 20, 17, 14, 11, 8, 5, 2, -1, -4, -7, -10, -13 AND -16 CONTOURS ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE
10. ANAMOLUS WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION
11. THE 26, 23, 20, 17, 14, 11, AND 8 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.

LEGEND

- MW-209 (29.56) 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 7

INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5 SEPTEMBER 1996

DATE	23 JANUARY 1997
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB

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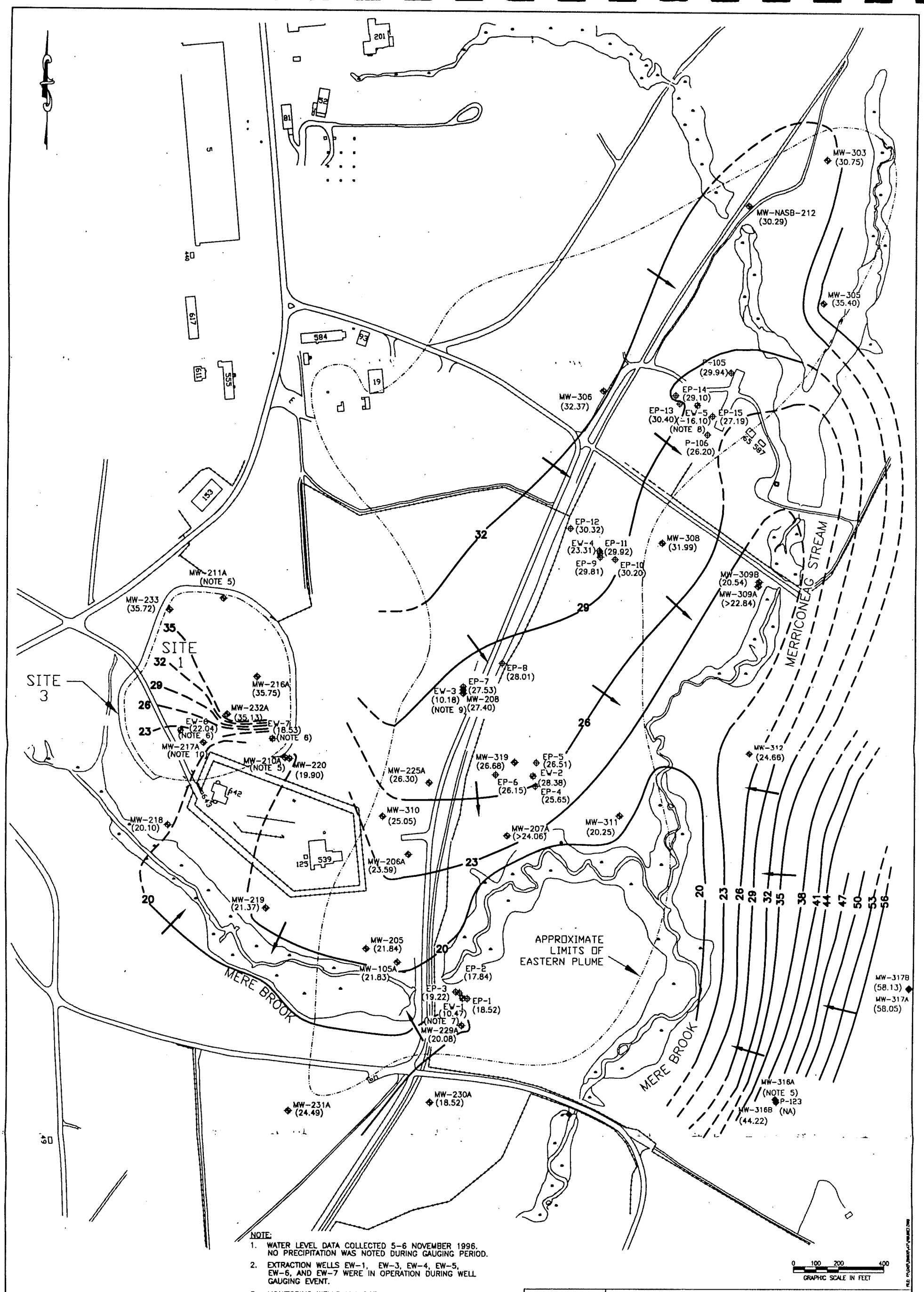
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3SEP96.DWG
DRAWING NUMBER	–
SHEET NUMBER	–



NOTE:

1. WATER LEVEL DATA COLLECTED 5-6 NOVEMBER 1996. NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-5, 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. THE 26, 23 AND 20 FT CONTOURS ENCOMPASS EW-6 & EW-7 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
7. THE 17, 14 AND 11 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
8. THE 23, 20, 17, 14, 11, 8, 5, 2, -1, -4, -7, -10, -13, -16 FT CONTOURS ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
9. THE 23, 20, 17, 14, AND 11 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
10. ANOMALOUS WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.

LEGEND

- MW-209 (28.83) 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

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 8

INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 5-6 NOVEMBER 1996

DATE	23 JANUARY 1996
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB

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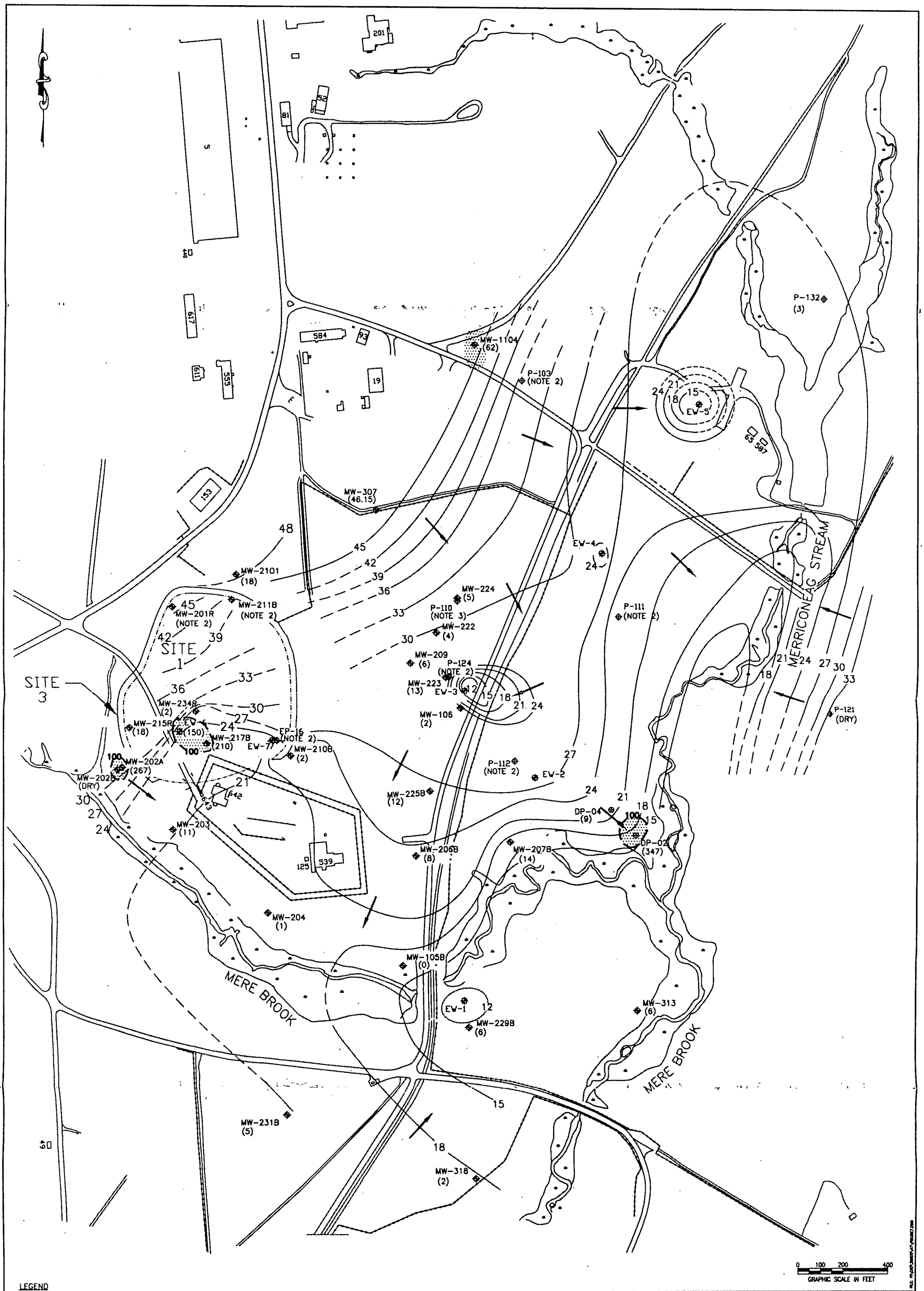
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	FIGURE7
DRAWING NUMBER	–
SHEET NUMBER	–



LEGEND

- MW-203 (202) — MONITORING WELL (TOTAL VOC CONCENTRATION; ug/L)
- EW-1 — EXTRACTION WELL
- EP-11 — PIEZOMETER
- NS — GROUND-WATER CONTOUR (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
- DP-02 (347) — DIRECT-PUSH LOCATION (TOTAL VOC CONCENTRATION; ug/L)
- 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

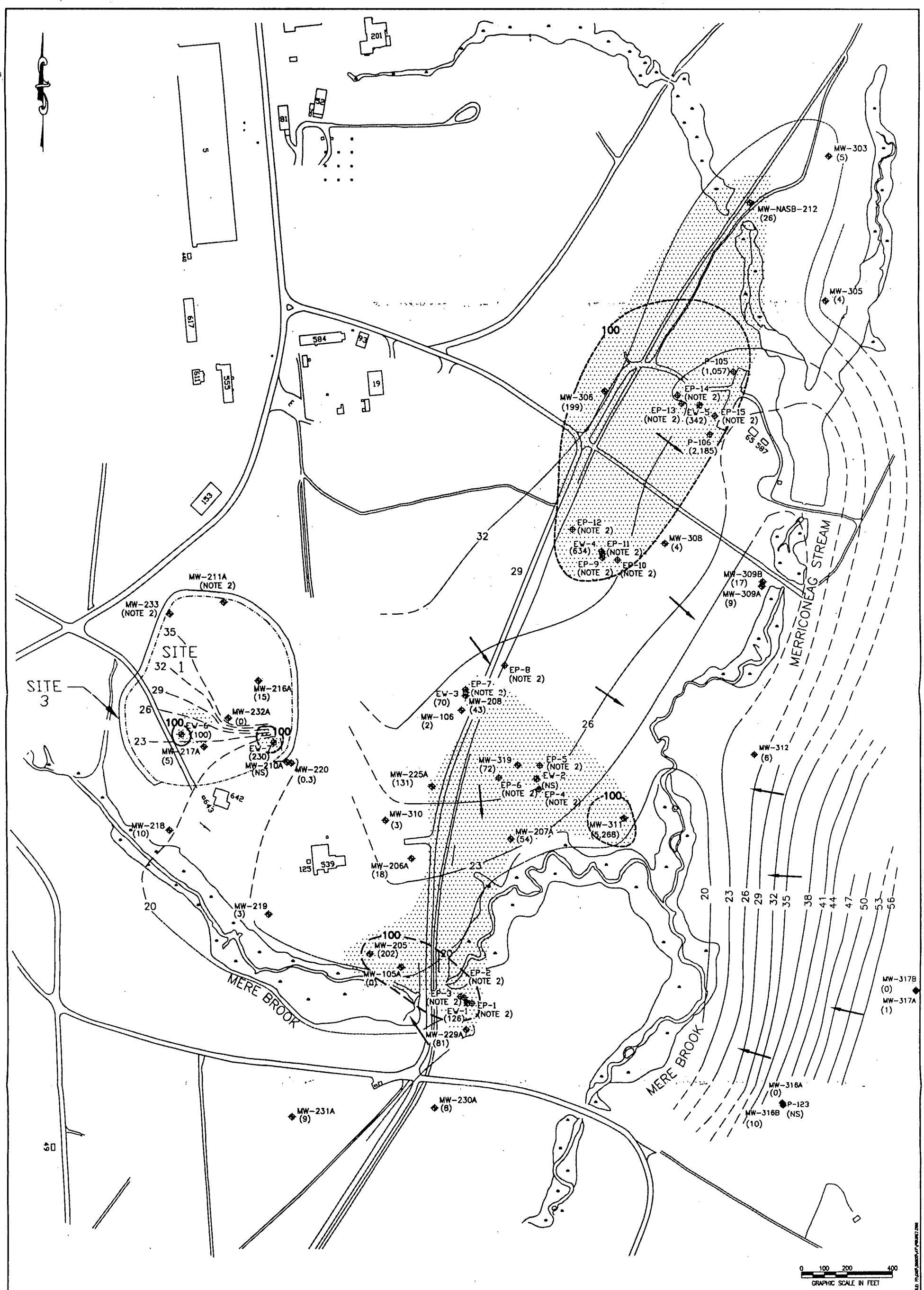
FIGURE 9
INTERPRETED TOTAL VOC CONTOUR MAP - SHALLOW WELLS
MONITORING EVENT 7

DATE	23 JANUARY 1996
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB
PROJECT NUMBER	29500.47
SCALE	1"=400'
FILE NAME	FIGURE7
DRAWING NUMBER	–
SHEET NUMBER	–

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



LEGEND

- MW-205 (202) — 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 7

DATE	23 JANUARY 1998
DESIGNED BY	SY
DRAWN BY	SY
CHECKED BY	PLN
PROJECT MANAGER	MSB

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

THE MAPLE BUILDING
3 WASHINGTON CENTER
NEWBURGH, NY 12550
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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	FIGURE7
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 7	
		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	X
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: TAL = Target Analyte List; TCL = Target Compound List; VOC = Volatile organic compounds (EPA SW-846); SED = Sediment; SW = Surface water.
NA = Not applicable.

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

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

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 7	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Monitoring Wells (Continued)					
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
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 7 Only	X	X	X	X
MW-313	Tri-Annual	X	X	X	X
MW-316A	Event 7 Only	X	X	X	X
MW-316B	Event 7 Only	X	X	X	X
MW-317A	Event 7 Only	X	X	X	X
MW-317B	Event 7 Only	X	X	X	X
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

(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 7	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
P-Series Piezometers (Continued)					
P-111	Tri-Annual	NA	X[b]	X[b]	NA
P-112	Tri-Annual	NA	X[b]	X[b]	NA
P-121	Event 7 Only	X	X	X	Insufficient water
P-123	Event 7 Only	X	X	Gauging port obstructed	
P-124	Tri-Annual	NA	X[b]	X[b]	NA
P-132	Tri-Annual	X	X	X[b]	X
Extraction Wells					
EW-1	Tri-Annual	X	X	X	X
EW-2	Tri-Annual	X	X	X	Well offline
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

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 7	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Surface Water					
SW-100	Event 7	X	X	X[c]	X
SW-101	Event 7	X	X	X[c]	X
Direct-Push Ground Water					
DP-02	Event 7	X	X	X	X
DP-04	Event 7	X	X	X	X

(c) Measurement of water quality indicator parameters only.

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)	Bimonthly Gauging Data (5 September 1996)		Event 7 Gauging Data (5 November 1996)	
			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	11.72	47.16	11.92	46.96
MW-202 A	52.40	31.09	21.02	31.38	20.15	32.25
MW-202 B	53.04	17.93	Well Dry	---	Well dry	---
MW-203	52.75	42.04	31.52	21.23	31.66	21.09
MW-204	50.50	37.18	30.35	20.15	30.00	20.50
MW-210 A	52.17	105.60	18.55	33.62	18.78	33.39
MW-210 B	54.72	26.40	29.86	24.86	32.15	22.57
MW-211 A	65.59	137.02	24.47	41.12	24.42	41.17
MW-211 B	65.44	36.50	25.25	40.19	25.72	39.72
MW-215 R	62.26	49.95	27.20	35.06	27.57	34.69
MW-216 A	71.17	46.96	34.97	36.20	35.42	35.75
MW-217 A	61.78	44.56	27.55	34.23	8.62	53.16
MW-217 B	61.25	34.60	25.40	35.85	3.65	57.60
MW-218	54.16	53.54	49.73	4.43	34.06	20.10
MW-219	51.87	71.82	29.97	21.90	30.50	21.37
MW-220	47.20	49.87	27.02	20.18	27.30	19.90
MW-232 A	71.18	54.76	35.39	35.79	36.05	35.13
MW-233	63.94	50.49	27.61	36.33	28.22	35.72
MW-234 R	68.55	59.52	12.01	56.54	Blocked	---
MW-2101	61.05	30.00	12.47	48.58	12.65	48.40
Extraction Wells						
EW-6	57.74	39.05	36.20	21.54	35.70	22.04
EW-7	51.13	50.55	32.00	19.13	32.60	18.53
EP Series Piezometers						
EP-16	58.92	49.90	34.90	24.02	34.52	24.40

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

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)	Bimonthly Gauging Data (5 September 1996)		Event 7 Gauging Data (5-6 November 1996)	
			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	2.21	21.98	2.36	21.83
MW-105 B	24.55	22.91	8.63	15.92	8.45	16.10
MW-106	51.26	37.27	23.90	27.36	23.85	27.41
MW-205	45.99	78.77	23.99	22.00	24.15	21.84
MW-206 A	43.02	74.36	18.92	24.10	19.43	23.59
MW-206 B	42.77	27.17	18.61	24.16	18.95	23.82
MW-207 A	24.06	73.22	Artesian	>24.06	Artesian	>24.06
MW-207 B	22.90	27.17	8.86	14.04	5.10	17.80
MW-208	49.40	103.33	20.90	28.50	22.00	27.40
MW-209	54.84	32.38	25.29	29.55	26.31	28.53
MW-222	57.43	45.34	27.05	30.38	28.23	29.20
MW-223	53.71	42.61	24.83	28.88	25.82	27.89
MW-224	57.63	46.95	26.17	31.46	27.52	30.11
MW-225 A	45.95	76.03	18.96	26.99	19.65	26.30
MW-225 B	46.25	42.00	19.96	26.29	20.56	25.69
MW-229 A	33.83	64.97	13.50	20.33	13.75	20.08
MW-229 B	30.08	32.70	15.48	14.60	15.37	14.71
MW-230 A	36.32	82.08	15.60	20.72	17.80	18.52
MW-231 A	45.41	62.42	24.06	21.35	20.92	24.49
MW-231 B	46.31	57.86	24.57	21.74	25.02	21.29
MW-303	44.28	71.62	13.24	31.04	13.53	30.75
MW-305	43.09	54.12	7.86	35.23	7.69	35.40
MW-306	52.12	56.98	18.38	33.74	19.75	32.37
MW-307	62.70	22.21	16.12	46.58	16.55	46.15
MW-308	37.70	72.85	5.25	32.45	5.71	31.99
MW-309 A	22.84	72.71	Artesian	>22.84	Artesian	>22.84
MW-309 B	22.32	59.43	1.94	20.38	1.78	20.54

NOTE: MSL = Mean sea level.

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bimonthly Gauging Data (5 September 1996)		Event 7 Gauging Data (5-6 November 1996)	
			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	27.93	25.46	28.34	25.05
MW-311	21.48	55.78	0.60	20.88	1.23	20.25
MW-312	35.97	71.15	Not measured		11.31	24.66
MW-313	21.39	37.14	8.73	12.66	7.52	13.87
MW-316A	53.71	103.10	Not measured		20.45	33.26
MW-316B	54.40	57.85	Not measured		10.18	44.22
MW-317A	71.35	120.79	Not measured		13.30	58.05
MW-317B	70.10	96.95	Not measured		11.97	58.13
MW-318	24.28	25.14	7.91	16.37	5.95	18.33
MW-319	40.16	72.44	12.49	27.67	13.48	26.68
MW-1104	60.09	27.55	12.58	47.51	12.43	47.66
MW-NASB-212	41.64	67.34	10.91	30.73	11.35	30.29
P-Series Piezometers						
P-103	60.35	29.05	24.12	36.23	25.71	34.64
P-105	42.08	70.35	10.96	31.12	12.14	29.94
P-106	38.83	71.06	11.65	27.18	12.63	26.20
P-110	56.70	24.14	Well dry	---	Well dry	---
P-111	31.48	9.99	5.62	25.86	9.70	21.78
P-112	41.12	16.41	12.95	28.17	16.10	25.02
P-121	50.78	17.35	Not measured		15.87	34.91
P-123	54.19	Blocked	Not measured		Blocked	---
P-124	51.12	23.25	Well dry	---	Well dry	---
P-132	42.95	32.46	18.32	24.63	18.27	24.68
Extraction Wells						
EW-1	25.34	99.66	15.72	9.62	14.87	10.47
EW-2	31.63	90.86	4.61	27.02	3.25	28.38
EW-3	41.18	67.04	34.62	6.56	31.00	10.18
EW-4	37.13	69.37	8.43	28.70	13.82	23.31
EW-5	36.25	84.99	54.12	-17.87	52.35	-16.10

NOTE: Dashes (---) indicate data cannot be calculated because well was dry or blocked.

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bimonthly Gauging Data (5 September 1996)		Event 7 Gauging Data (5-6 November 1996)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
EP-Series Piezometers						
EP-1	31.67	100.51	13.42	18.25	13.15	18.52
EP-2	29.74	99.00	12.26	17.48	11.90	17.84
EP-3	27.91	89.21	8.85	19.06	8.69	19.22
EP-4	32.59	91.11	6.22	26.37	6.94	25.65
EP-5	34.61	79.85	7.24	27.37	8.10	26.51
EP-6	40.14	83.51	13.20	26.94	13.99	26.15
EP-7	48.49	70.20	19.87	28.62	20.96	27.53
EP-8	47.31	80.38	18.14	29.17	19.30	28.01
EP-9	37.84	62.46	6.36	31.48	8.03	29.81
EP-10	37.78	58.00	4.82	32.96	7.58	30.20
EP-11	41.59	65.03	9.34	32.25	11.67	29.92
EP-12	49.38	69.61	17.02	32.36	19.06	30.32
EP-13	38.96	71.03	7.53	31.43	8.56	30.40
EP-14	43.46	80.05	13.50	29.96	14.36	29.10
EP-15	45.37	82.68	17.26	28.11	18.18	27.19

Surface Water Gauging Stations

Well Designation	Gauging Point Elevation (ft MSL)	Bimonthly Gauging Data (5 September 1996)		Event 7 Gauging Data (5-6 November 1996)	
		Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)	Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)
GP-1	31.10	3.47	27.63	3.00	28.10
GP-2	28.95	3.37	25.58	3.30	25.65
GP-3	27.33	3.85	23.48	3.75	23.58
GP-4	18.39	2.50	15.89	2.73	15.66
GP-5	23.38	10.80	12.58	8.55	14.83
GP-6	15.22	8.60	6.62	11.00	4.22

TABLE 5 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	6.19	16.5	544	0.99	10	-9
MW-202 B	Well dry; no data					
MW-203	6.15	16.5	648	8.41	0	279
MW-204	7.04	9.6	42	8.04	0	356
MW-210 A	Unable to put pump in well; PVC riser obstructed; no data					
MW-210 B	6.90	14.7	126	1.98	8	110
MW-215 R	5.36	12.9	144	0.20	0	202
MW-216 A	5.93	15.6	288	2.19	0	176
MW-217 A	6.78	15.2	529	2.18	6	129
MW-217 B	6.25	16.1	1,894	3.62	173	-82
MW-218	8.54	11.7	1,244	2.24	12	-14
MW-219	6.68	10.5	133	10.18	18	175
MW-220	6.48	11.4	164	8.87	34	310
MW-232 A	6.85	11.8	242	5.21	0	180
MW-234 R	5.65	9.4	180	0.38	6	123
MW-2101	5.58	15.7	296	8.69	0	213

NOTE: NTU = Nephelometric turbidity unit.

TABLE 6 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	7.47	8.1	62	9.33	9	152
MW-105 B	7.20	13.6	150	5.46	13	133
MW-106	6.11	13.2	50	10.68	0	231
MW-205	7.42	11.4	188	1.83	61	129
MW-206 A	6.75	9.4	98	11.53	7	173
MW-206 B	6.22	11.4	104	6.87	0	360
MW-207 A	6.88	8.6	208	1.81	0	35
MW-207 B	6.11	12.2	450	10.79	0	316
MW-208	8.03	9.7	158	0.36	9	42
MW-209	6.00	14.1	56	3.48	0	343
MW-222	5.84	11.2	92	0.90	0	260
MW-223	6.14	11.9	96	4.82	0	361
MW-224	5.89	12.6	40	2.56	0	254
MW-225 A	7.12	9.9	210	4.01	32	169
MW-225 B	6.71	10.0	78	5.98	0	348
MW-229 A	8.56	9.4	112	9.33	34	104
MW-229 B	6.83	14.4	62	8.30	8	171
MW-230 A	7.77	8.6	72	0.16	26	-95
MW-231 A	6.51	9.4	64	12.54	51	202
MW-231 B	6.72	10.6	76	13.68	18	187
MW-303	7.95	8.5	210	0.21	3	-154
MW-305	8.43	9.9	280	0.88	0	-78

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	5.65	12.4	60	8.70	38	210
MW-307	5.99	21.6	138	7.44	19	224
MW-308	8.57	9.9	764	1.37	0	-146
MW-309 A	9.65	9.0	342	1.34	0	-34
MW-309 B	9.67	9.0	276	1.85	4	127
MW-310	6.30	9.4	82	1.10	21	194
MW-311	6.35	8.6	142	4.13	0	289
MW-312	7.99	8.2	324	0.30	25	348
MW-313	7.82	10.7	140	1.29	7	-148
MW-316 A	8.23	6.5	200	1.55	0	228
MW-316 B	5.09	8.2	140	1.65	7	667
MW-317 A	7.12	7.9	288	1.00	21	102
MW-317 B	3.51	7.5	204	3.80	187	483
MW-318	6.80	15.4	20	0.75	13	114
MW-319	6.03	9.7	192	7.19	0	294
MW-1104	5.93	19.7	148	0.93	22	112
MW-NASB-212	6.97	11.2	282	0.42	6	35
P-Series Piezometers						
P-105	7.53	8.2	122	5.56	40	209
P-106	6.99	8.5	136	2.25	7	83
P-121	Unable to pump; dry					
P-132	6.87	15.3	50	8.63	37	148

TABLE 7 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN SURFACE WATER AND SEEP SAMPLES COLLECTED ON 7 NOVEMBER 1996 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	6.79	8.7	246	5.96	18	39
SW-02	7.05	8.2	294	7.87	3	19
SW-03	7.46	8.1	300	9.85	1	28
SW-04	7.91	7.2	132	11.13	0	49
SW-05	7.54	7.1	138	11.01	1	44
SW-06	7.78	7.0	136	7.56	0	36
SW-07	8.61	7.0	136	11.05	1	12
Seeps						
SEEP-01	6.61	8.8	148	2.88	100	109
SEEP-02	Could not sample; insufficient water					
SEEP-03	6.43	7.2	398	2.43	>1,000	78
SEEP-04	6.02	9.2	1,604	1.51	>1,000	20
SEEP-05	6.57	8.0	428	1.56	>1,000	28

NOTE: NTU = Nephelometric turbidity unit.

TABLE 8 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN SURFACE WATER SAMPLES COLLECTED ON 14 NOVEMBER 1996 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Surface Water						
SW-100	7.61	4.7	136	11.36	8	276
SW-101	7.45	3.5	134	12.24	4	262

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	7.17	8.4	174	3.59	8	17
EW-2	Well offline; no data					
EW-3	6.91	8.0	148	6.89	0	113
EW-4	6.79	8.1	106	6.90	0	140
EW-5	7.14	8.0	132	5.65	1	102
EW-6	7.77	12.2	2,070	2.02	4	11
EW-7	7.13	12.0	484	1.39	192	-17
Ground-Water Treatment Plant						
Raw Influent (Sites 1 and 3)	6.43	10.2	1,094	2.53	3	3
Raw Influent (Eastern Plume)	7.23	8.4	140	6.54	0	155
Combined Effluent	6.87	11.4	224	9.14	0	288

NOTE: NTU = Nephelometric turbidity unit.

TABLE 10 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 14, 15, AND 18 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	MW-202A	MW-203	MW-204	MW-210B	MW-215R	MW-216A	MW-217A	MW-217B	MW-218	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
1,1-Dichloroethane	6	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	(<1U)	1	2	70	---
1,2-Dichloroethane	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	(<1U)	5	5
Total 1,2-Dichloroethene	0.5J	(<1U)	(<1U)	(<1U)	0.8J	0.8J	(<1U)	11	0.5J	70	70
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	3	(<1U)	5	5
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	4	(<1U)	2	(<1U)	47	100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	4	(<1U)	700	700
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	**2**	**3**	(<1U)	**38**	(<1U)	0.15	2.0
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	6	(<1U)	600	10,000
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2,2-Tetrachloroethane	62	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	**8**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	0.5J	(<1U)	5	5
1,1,1-Trichloroethane	170	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	6	(<1U)	600	600
1,3-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,4-Dichlorobenzene	2	(<1U)	(<1U)	(<1U)	(<1U)	3	(<1U)	**130**	(<1U)	27	75
Tetrachloroethene	**4**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Carbon disulfide	8	11	1	2	15	4	5	1	7	---	---
1,1-Dichloroethene	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	7
Chloroform	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
1,1,2-Trichloroethane	**6**	(<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 contaminants 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-216A	MW-217A	MW-217B	MW-218	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (μg/L)											
Aluminum	(<25U)	55.6B*	(<25U)	223	49.3B*	(<39U)	184B*	**9,410**	120B*	1,430	50-200[c]
Antimony	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	2.0B*	(<2U)	2.8	6
Arsenic	2.7B*	(<2U)	(<2U)	4.0B*	(<2U)	(<2U)	(<2U)	24.9	**259**	---	50
Barium	75.5B*	(<22U)	(<22U)	(<22U	(<22U)	(<14U)	(<22U	157B*	(<22U)	1,500	2,000
Beryllium	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	4
Calcium	35,900	53,900	4,140	17,20	10,100	22,300	28,700	138,000	11,700	---	---
Chromium	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<2U)	(<6U)	56.9	(<6U)	100	100
Cobalt	(<11U)	(<11U)	(<11U)	(<11U	(<11U)	6.6B*	(<11U	18.7B*	(<11U)	---	---
Copper	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<4U)	(<6U)	(<6U)	(<6U)	---	1,300[d]
Iron	38,500	136	49.6B*	1,000	(<40U)	149.0	288	82,700	1,760	---	300[c]
Lead	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5.6	(<1U)	---	15[d]
Magnesium	6,340	23,100	1,260	1,830	2,000	5,740	11,600	48,700	6,740	---	---
Manganese	**2,230**	20.3	(<6U)	**509**	**1,310**	**1,650**	(<6U)	**4,590**	**467**	200	50[c]
Mercury	0.27	(<0.20U	0.26	0.34	(<0.20U	0.24	0.23	(<0.20U	0.22	2	2
Nickel	(<15U)	(<15U)	(<15U)	(<15U	(<15U)	(<2U)	(<15U	43.4	(<15U)	100	100
Potassium	9,440	3,720	463B*	3,730	841B*	1,610	2,060	10,700	8,080	---	---
Silver	(<4U)	(<4U)	(<4U)	(<4U)	(<4U)	(<3U)	(<4U)	(<4U)	(<4U)	50	100[c]
Sodium	16,600	28,200	5,640	3,640	17,700	13,400	48,200	170,000	242,00	---	---
Vanadium	(<8U)	(<8U)	(<8U)	(<8U)	(<8U)	(<5U)	(<8U)	18.4B*	(<8U)	---	---
Zinc	(<12U)	(<12U)	(<12U)	(<12U	(<12U)	(<10U)	(<12U	32.7	(<12U)	---	5,000[c]

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

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

Analyte	MW-219	MW-219	MW-220	MW-232A	MW-232A	MW-234R	MW-2101	QT-007	QT-008	QT-009	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Total 1,2-	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	47	100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.15	2
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	10,000
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2,2-	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,3-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	27	75
Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Carbon disulfide	3	1J	(<1U)	(<1U)	(<1U)	2	18	4	(<1U)	5	---	---
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	7
Chloroform	(<1U)	(<1U)	0.3J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5

NOTE: QT = Trip blank.
B = Compound detected in associated method blank.

Analyte	MW-219	MW-219	MW-220	MW-232A	MW-232A	MW-234R	MW-2101	OT-007	OT-008	OT-009	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (μg/L)												
Aluminum	189B*	202	**1,600**	(<39U)	87.2B*	(<25U)	76.7B*	NR	NR	NR	1,430	50-200[c]
Antimony	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	NR	NR	NR	2.8	6
Arsenic	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	NR	NR	NR	---	50
Barium	(<22U)	(<22U)	(<22U)	(<14U)	(<14U)	(<22U)	51.5B*	NR	NR	NR	1,500	2,000
Beryllium	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	NR	NR	NR	---	4
Calcium	9,530	9,670	12,500	22,700	24,700	8,150	45,100	NR	NR	NR	---	---
Chromium	(<6U)	(<6U)	18.4	22.7	25.4	(<6U)	3.5B*	NR	NR	NR	100	100
Cobalt	(<11U)	(<11U)	(<11U)	(<2U)	(<2U)	(<11U)	(<2U)	NR	NR	NR	---	---
Copper	(<6U)	(<6U)	(<6U)	188	149	(<6U)	(<4U)	NR	NR	NR	---	1,300[d]
Iron	467	498	2,890	308	390	61.6B*	149	NR	NR	NR	---	300[c]
Lead	(<1U)	(<1U)	1.4B*	(<1U)	(<1U)	(<1U)	1.3B*	NR	NR	NR	---	15[d]
Magnesium	3,370	3,410	6,100	9,050	9,830	2,340	7,330	NR	NR	NR	---	---
Manganese	(<6U)	(<6U)	48.1	(<1U)	(<1U)	109	28.6	NR	NR	NR	200	50[c]
Mercury	0.31	(<1U)	0.26	(<0.20U)	0.21	0.34	(<0.20U)	NR	NR	NR	2	2
Nickel	(<15U)	(<15U)	(<15U)	(<2U)	3.8B*	(<15U)	(<2U)	NR	NR	NR	100	100
Potassium	1,080	1,120	2,070	2,240	2,350	914B*	2,770	NR	NR	NR	---	---
Silver	(<4U)	(<4U)	(<4U)	(<3U)	(<3U)	(<4U)	(<3U)	NR	NR	NR	50	100[c]
Sodium	7,950	8,030	20,000	23,400	26,200	24,600	8,590	NR	NR	NR	---	---
Vanadium	(<8U)	(<8U)	(<8U)	(<5U)	(<5U)	(<8U)	(<5U)	NR	NR	NR	---	---
Zinc	(<12U)	(<12U)	(<12U)	(<10U)	(<10U)	(<12U)	(<10U)	NR	NR	NR	---	5,000[c]

NOTE: NR = Analysis not required.

TABLE 11 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 8, 10-14, 20, AND 21 NOVEMBER 1996 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	MW-105A	MW-105B	MW-106	MW-205	MW-206A	MW-206B	MW-207A	MW-207A DUP	MW-207B	MW-208	MW-209	MW-209 DUP	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)														
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	69	10	(<1U	6	2	(<1U	8	(<1U	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	23	0.9J	(<1U	1	1	(<1U	6	(<1U	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	1	(<1U)	(<1U	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U)	---	5
Trichloroethene	(<1U)	(<1U)	0.9J	**63**	4	(<1U	**12**	**11**	(<1U	**13**	(<1U	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	0.8J	**17**	2	(<1U	**23**	**27**	(<1U	**4**	(<1U	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	**20**	0.5J	(<1U	0.9J	(<1U)	(<1U	1	(<1U	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	0.7J	(<1U)	(<1U	(<1U)	(<1U)	(<1U	0.6J	(<1U	(<1U)	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	(<5U	(<5U)	(<5U)	(<5U	(<5U	(<5U	(<5U)	---	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U)	600	10,000
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)	0.5J	(<1U)	(<1U	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U)	5	5
Carbon disulfide	(<1U)	(<1U)	(<1U)	8	1	8	11	3	14	10	6	(<1U)	---	---
4-Methyl-2-pentanone	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	(<5U	(<5U)	(<5U)	(<5U	(<5U	(<5U	(<5U)	---	---
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U)	700	700
Toluene	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U)	1,400	1,000
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	(<5U	(<5U)	(<5U)	(<5U	(<5U	(<5U	(<5U)	170	---

(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.
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.
Only those analytes detected in at least one of the samples, and the contaminants 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-NASB-212	MW-222	MW-222 DUP	MW-223	MW-224	MW-225A	MW-225B	MW-229A	MW-229B	MW-230A	MW-230A DUP	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	0.3J	11	(<1U)	30	(<1U)	(<1U	(<1U)	200	200
Total 1,2-Dichloroethene	2	(<1U)	(<1U)	(<1U)	(<1U	**71**	(<1U)	8	(<1U)	(<1U	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	---	5
Trichloroethene	**18**	(<1U)	(<1U)	0.8J	0.4J	**38**	(<1U)	**25**	(<1U)	(<1U	(<1U)	5	5
Tetrachloroethene	2	0.4J	0.4J	0.7J	0.7J	**9**	(<1U)	**5**	(<1U)	(<1U	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	1	(<1U)	3	(<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)	---	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	600	10,000
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
Carbon disulfide	4	4	6	11	4	1	12	10	6	6	8	---	---
4-Methyl-2-pentanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	---	---
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	700	700
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U)	1,400	1,000
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U)	170	---

Compound	MW-231A	MW-231A	MW-231B	MW-303	MW-305	MW-306	MW-307	MW-308	MW-309A	MW-309B	MW-310	MW-311	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)														
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U	(<1U	91	(<1U	(<1U	(<1U)	(<1U)	1	**3,500**	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	34	(<1U	(<1U	(<1U)	(<1U)	(<1U)	11	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	**74J**	---	5
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	**55**	(<1U	(<1U	(<1U)	(<1U)	0.4J	**1,200**	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	0.4J	(<1U	(<1U	(<1U)	(<1U)	0.2J	**54E**	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	5	(<1U	(<1U	(<1U)	(<1U)	(<1U)	**290**	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U	(<1U	13	(<1U	(<1U	(<1U)	(<1U)	(<1U)	**71E**	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U	(<5U	(<5U	(<5U	(<5U	(<5U)	(<5U)	(<5U)	(<5U)	---	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	600	10,000
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	**14**	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	**27**	5	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	6	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	**6**	5	5
Carbon disulfide	(<1U)	9	5	5	4	1J	3	4	9	17	1	15	---	---
4-Methyl-2-pentanone	(<5U)	(<5U)	(<5U)	(<5U	(<5U	(<5U	(<5U	(<5U	(<5U)	(<5U)	(<5U)	(<5U)	---	---
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Toluene	(<1U)	(<1U)	(<1U)	(<1U	(<1U	(<1U	(<1U	(<1U	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U	(<5U	(<5U	(<5U	(<5U	(<5U)	(<5U)	(<5U)	(<5U)	170	---

Compound	MW-312	MW-313	MW-316A	MW-316B	MW-317A	MW-317A DUP	MW-317B	MW-318	MW-319	MW-1104	P-105	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
1,1,1-Trichloroethane	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	**2**	40	**680**	200	200
Total 1,2-Dichloroethene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	2	6	16	70	70
Methylene chloride	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	(<1U	(<1U)	---	5
Trichloroethene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	**12**	**7**	**230**	5	5
Tetrachloroethene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	**54**	0.3J	**12**	3	5
1,1-Dichloroethene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	1	**66**	7	7
1,1-Dichloroethane	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	5	30J	70	---
Acetone	(<5U	(<5U	(<5U)	(<5U)	(<5U	(<5U)	(<5U	(<5U	(<5U)	(<5U	(<5U)	---	---
Total xylenes	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	2	(<1U)	600	10,000
1,1,2-Trichloroethane	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	(<1U	**4**	3	5
1,2-Dichloroethane	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	(<1U	**6**	5	5
Chloroform	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	(<1U	2	---	100
Benzene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	(<1U	2	5	5
Carbon disulfide	26	6	(<1U)	10	1	4	(<1U	2	2	(<1U	9	---	---
4-Methyl-2-pentanone	(<5U	(<5U	(<5U)	(<5U)	(<5U	(<5U)	(<5U	(<5U	(<5U)	(<5U	(<5U)	---	---
Ethylbenzene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	1	(<1U)	700	700
Toluene	(<1U	(<1U	(<1U)	(<1U)	(<1U	(<1U)	(<1U	(<1U	(<1U)	(<1U	(<1U)	1,400	1,000
2-Butanone	(<5U	(<5U	(<5U)	(<5U)	(<5U	(<5U)	(<5U	(<5U	(<5U)	(<5U	(<5U)	170	---

Compound	P-106	P-132	QT-003	QT-004	QT-005	QT-006	QT-012	QT-013	QS-005	QD-001	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
1,1,1-Trichloroethane	**1,900**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.6J	(<1U	200	200
Total 1,2-Dichloroethene	21	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	---	5
Trichloroethene	**600**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	5	5
Tetrachloroethene	**21**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	3	5
1,1-Dichloroethene	**200**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	7	7
1,1-Dichloroethane	49J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	70	---
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U	---	---
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	600	10,000
1,1,2-Trichloroethane	**6**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	3	5
1,2-Dichloroethane	**6**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	5	5
Chloroform	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	18	23	---	100
Benzene	3	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	5	5
Carbon disulfide	7	3	3	13	7	1	9	2	4	92E	---	---
4-Methyl-2-pentanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U	---	---
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	700	700
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U	(<1U	1,400	1,000
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U	(<5U	170	---

TABLE 12 SUMMARY OF ANALYTICAL RESULTS FOR DIRECT-PUSH GROUND-WATER SAMPLES COLLECTED ON 21 NOVEMBER 1996 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	DP-02	DP-04	QT-012	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
1,1,1-Trichloroethane	**310**	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	3	(<1U)	(<1U)	---	5
Trichloroethene	1	(<1U)	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	**19**	(<1U)	(<1U)	7	7
1,1-Dichloroethane	5	(<1U)	(<1U)	70	---
Acetone	(<5U)	(<5U)	(<5U)	---	---
Total xylenes	3	7	(<1U)	600	10,000
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	5	(<1U)	(<1U)	5	5
Chloroform	0.2J	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	5	5
Carbon disulfide	(<1U)	1	9	---	---
4-Methyl-2-pentanone	(<5U)	(<5U)	(<5U)	---	---
Ethylbenzene	1	1J	(<1U)	700	700
Toluene	(<1U)	(<1U)	(<1U)	1,400	1,000
2-Butanone	(<5U)	(<5U)	(<5U)	170	---

(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 contaminants of concern for the Eastern Plume 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.

TABLE 13 SUMMARY OF ANALYTICAL RESULTS FOR WATER SAMPLES COLLECTED ON 14 NOVEMBER 1996 FROM THE GROUND-WATER EXTRACTION WELLS AND TREATMENT SYSTEM, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	EW-01	EW-03	EW-04	EW-05	EW-06	EW-07	QT-007
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)							
Benzene	(<1U)	(<1U)	1	0.8J	1	1	(<1U)
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	4	3	(<1U)
Chloroethane	(<1U)	(<1U)	(<1U)	(<1U)	3	45	(<1U)
1,1-Dichloroethane	0.8J	(<1U)	25	23	11	83	(<1U)
1,1-Dichloroethene	5	(<1U)	28J	36	(<1U)	2	(<1U)
Total 1,2-Dichloroethene	8	33	14	18	20	2	(<1U)
Tetrachloroethene	10	22	10	2	(<1U)	(<1U)	(<1U)
1,1,1-Trichloroethane	54E	1	400	190	(<1U)	64	(<1U)
Trichloroethene	41E	12	150	81	2	0.4J	(<1U)
Methylene chloride	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	8	4	(<1U)
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	1	3	(<1U)
Total xylenes	(<1U)	(<1U)	0.9J	(<1U)	27	6	(<1U)
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	55	3	(<1U)
Carbon disulfide	6	2	5	40	2	1	4
Chloroform	0.2J	(<1U)	0.3J	0.4J	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	0.6J	(<1U)
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	5	2	(<1U)
1,3-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	(<1U)
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	11	5	(<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.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and the contaminants 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-03	EW-04	EW-05	EW-06	EW-07	QT-007
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (μg/L)							
Aluminum	NR	NR	NR	NR	67.0B*	27.4B*	NR
Arsenic	NR	NR	NR	NR	3.3B*	79.4	NR
Barium	NR	NR	NR	NR	87.7B*	22.6B*	NR
Calcium	NR	NR	NR	NR	69,700	36,200	NR
Iron	NR	NR	NR	NR	52,000	69,300	NR
Lead	NR	NR	NR	NR	(<1U)	(<1U)	NR
Magnesium	NR	NR	NR	NR	29,300	9,350	NR
Manganese	NR	NR	NR	NR	2,650	2,350	NR
Mercury	NR	NR	NR	NR	(<0.2U)	0.24	NR
Potassium	NR	NR	NR	NR	5,580	4,000	NR
Sodium	NR	NR	NR	NR	251,000	13,800	NR
Zinc	NR	NR	NR	NR	21.2	58.3	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 Raw Influent	Eastern Plume Raw Influent	Combined Effluent	Combined Effluent DUP	Discharge Limit[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
Benzene	1	0.5J	(<1U)	(<1U)	---
Chlorobenzene	3	(<1U)	(<1U)	(<1U)	---
Chloroethane	37	(<1U)	(<1U)	(<1U)	---
1,1-Dichloroethane	60	13	3	3	94
1,1-Dichloroethene	2	29	2	2	7
Total 1,2-Dichloroethene	8	21	(<1U)	(<1U)	70
Tetrachloroethene	(<1U)	15	(<1U)	(<1U)	5
1,1,1-Trichloroethane	57	260	170	120	750
Trichloroethene	1	100	(<1U)	0.1J	5
Methylene chloride	(<1U)	1	0.5J	0.7J	5
Ethylbenzene	2	(<1U)	(<1U)	(<1U)	---
Toluene	1J	(<1U)	(<1U)	(<1U)	---
Total xylenes	6	(<1U)	(<1U)	(<1U)	---
Vinyl chloride	25	(<1U)	(<1U)	(<1U)	2
Carbon disulfide	11	2	(<1U)	(<1U)	---
Chloroform	(<1U)	0.2J	2	2	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	---
1,2-Dichlorobenzene	3	(<1U)	(<1U)	(<1U)	---
1,3-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	---
1,4-Dichlorobenzene	7	(<1U)	(<1U)	(<1U)	---
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (μg/L)					
Aluminum	32.0B*	(<25U)	(<25U)	(<25U)	---
Arsenic	38.6	2.4B*	2.0B*	(<2U)	50
Barium	42.0B*	(<22U)	(<22U)	(<22U)	---
Calcium	49,500	9,440	10,000	9,800	---
Iron	53,200	99.0B*	(<40U)	(<40U)	---
Lead	(<1U)	(<1U)	1.2B*	(<1U)	15
Magnesium	17,300	3,890	4,000	3,950	---
Manganese	2,450	68.5	82.2	81.9	750
Mercury	(<0.2U)	0.27	0.34	(<0.2U)	---
Potassium	4,720	1,320	1,880	1,780	---
Sodium	109,000	10,700	16,800	17,300	---
Zinc	19B*	(<12U)	(<12U)	(<12U)	200

(a) Ground-water treatment plant discharge limits taken from agreement to accept treated ground water (Woodard and Curran 1996).

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

TABLE 14 SUMMARY OF ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SW-1	SW-2	SW-3	SW-3 DUP	SW-4	SW-5	SW-6	SW-7	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
Carbon disulfide	1	2	0.8J	0.8J	7	3	2	3	2	14	92E
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	26	23
TARGET ANALYTE LIST ELEMENTS BY EPA 6000/7000/9000 SERIES METHODS (μg/L)											
Aluminum	65.6B*	(<25U)	(<25U)	45.0B*	36.7B*	44.3B*	33.2B*	69.8B*	NR	(<25U)	(<25U)
Barium	(<22U)	24.4B*	24.7B*	(<22U)	(<22U)	24.3B*	(<22U)	(<22U)	NR	(<22U)	(<22U)
Cadmium	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	NR	1.1B*	(<1U)
Calcium	20,500	25,900	28,000	8,590	8,290	8,860	8,410	8,850	NR	92.9B*	(<79U)
Iron	7,050	4,480	3,510	694	633	696	733	865	NR	86.0B*	(<40U)
Lead	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	2.7B*	NR	(<1U)	(<1U)
Magnesium	2,580	4,550	5,040	2,000	1,760	2,110	1,880	1,940	NR	(<85U)	(<85U)
Manganese	1,080	564	658	171	164	178	172	198	NR	(<6U)	(<6U)
Potassium	2,980	2,620	2,570	1,680	1,630	1,710	1,650	1,700	NR	(<63U)	(<63U)
Sodium	17,400	18,400	19,000	12,800	12,500	13,400	12,200	13,000	NR	529B*	635B*
Zinc	37.7	13.1B*	(<12U)	(<12U)	(<12U)	23.5	(<12U)	15.6B*	NR	(<12U)	(<12U)

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.
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.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and contaminants 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 15 SUMMARY OF ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED ON 14 NOVEMBER 1996 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SW-100	SW-101	QT-007	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Carbon disulfide	5	7	4	14	92E
Chloroform	(<1U)	(<1U)	(<1U)	26	23
Tetrachloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)

NOTE: QT = Trip blank.
QS = Equipment rinsate blank. Samples associated with QS-001 were analyzed under a separate delivery group shipped on 7 November 1996.
QD = Source water blank. Samples associated with QD-001 were analyzed under a separate delivery group shipped on 7 November 1996.
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.
Only those analytes detected in at least one of the samples, and contaminants of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

TABLE 16 SUMMARY OF ANALYTICAL RESULTS FOR SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SED-1	SED-2	SED -3	SED-3 DUP	SED-4	SED-5	SED-6	SED-7	QT-002 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)											
Methylene chloride	(<6U)	(<7U)	(<7U)	(<7U)	(<6U)	(<8U)	(<7U)	(<6U)	(<1U)	1	(<1U)
2-Butanone	(<12U)	(<14U)	(<14U)	(<14U)	(<12U)	(<16U)	(<15U)	(<13U)	(<5U)	(<5U)	(<5U)
1,1,2,2-Tetrachloroethane	(<6U)	(<7U)	(<7U)	(<7U)	(<6U)	(<8U)	(<7U)	(<6U)	(<1U)	(<1U)	(<1U)
Carbon disulfide	(<6U)	(<7U)	(<7U)	(<7U)	4J	(<8U)	(<7U)	(<6U)	9	(<1U)	92E
Chloroform	(<6U)	(<7U)	(<7U)	(<7U)	(<6U)	(<8U)	(<7U)	(<6U)	(<1U)	25	23
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (mg/kg)											
Aluminum	5,950	10,200	8,000	3,760	4,490	4,990	3,950	4,750	NR	(<25U)	(<25U)
Antimony	0.30B*	0.73B*	0.39B*	(<0.25U)	(<0.28U)	(<0.30U)	(<0.28U)	(<0.25U)	NR	(<2U)	(<2U)
Arsenic	2.2	3.4	2.1	4.5	21.4	8.4	10.0	6.2	NR	(<2U)	(<2U)
Barium	31.1	57.5	38.0	27.4	57.3	33.6	30.7	40.8	NR	(<22U)	(<22U)
Beryllium	0.12B*	0.32B*	0.22B*	0.18B*	0.18B*	0.28B*	0.21B*	0.20B*	NR	(<1U)	(<1U)
Cadmium	0.32B*	0.67B*	0.46B*	0.49B*	0.51B*	0.75B*	0.61B*	0.59B*	NR	(<1U)	(<1U)
Calcium	1,220	1,720	1,280	880	816	1,040	1,200	961	NR	206B*	(<79U)
Chromium	17.3	31.6	18.9	7.0	9.0	9.7	7.1	9.0	NR	(<6U)	(<6U)
Cobalt	3.9B*	5.8B*	5.0B*	2.5B*	2.9B*	4.0B*	3.3B*	3.6B*	NR	(<11U)	(<11U)
Copper	6.4	6.0	4.2	3.6	3.3B*	5.1	4.2	3.6	NR	(<6U)	(<6U)
Iron	10,700	21,300	20,000	11,900	13,900	18,200	14,100	16,800	NR	75.5B*	(<40U)
Lead	3.6	8.3	18.6	8.7	9.6	9.6	11.2	8.8	NR	(<1U)	(<1U)
Magnesium	3,070	4,920	2,500	1,580	1,730	2,080	1,490	2,140	NR	(<85U)	(<85U)
Manganese	137	263	806	274	208	379	471	327	NR	(<6U)	(<6U)
Mercury	(<0.12U)	(<0.12U)	(<0.13U)	(<0.13U)	(<0.11U)	(<0.17U)	(<0.12U)	(<0.11U)	NR	(<0.20U)	(<0.20U)
Nickel	12.8	15.9	13.8	7.1	8.2	9.1	7.1	7.8	NR	(<15U)	(<15U)
Potassium	2,290	3,370	1,230	664	690	917	636	1,140	NR	(<63U)	(<63U)
Sodium	140	175	152	151	136B*	154	143	171	NR	402B*	635B*
Thallium	(<0.12U)	0.16B*	(<0.14U)	(<0.13U)	(<0.14U)	(<0.15U)	(<0.14U)	0.24B*	NR	(<3U)	(<3U)
Vanadium	17.0	28.7	15.2	10.3	11.5	14.0	11.2	12.7	NR	(<8U)	(<8U)
Zinc	26.9	47.5	35.5	36.5	34.3	51.4	45.2	37.5	NR	(<12U)	(<12U)

NOTE:
QT = Trip blank.
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).
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.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and contaminants 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 17 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEEP SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SEEP-1	SEEP-3	SEEP-4	SEEP-4 DUP	SEEP-5	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)								
1,1-Dichloroethane	1	5	19	19	(<1U)	(<1U)	(<1U)	(<1U)
Trichloroethene	0.3J	0.3J	0.4J	0.4J	(<1U)	(<1U)	(<1U)	(<1U)
Tetrachloroethene	(<1U)	0.1J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	4	7	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Benzene	(<1U)	(<1U)	0.8J	0.9J	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<1U)	(<1U)	3	3	6	(<1U)	(<1U)	(<1U)
1,3-Dichlorobenzene	(<1U)	(<1U)	6	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<1U)	(<1U)	6	7	2	(<1U)	(<1U)	(<1U)
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Vinyl chloride	(<1U)	(<1U)	4	5	(<1U)	(<1U)	(<1U)	(<1U)
Carbon disulfide	2	1	2	(<1U)	0.2J	2	14	92E
1,1,1-Trichloroethane	1	5	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Total 1,2-Dichloroethene	(<1U)	0.6J	3	3	(<1U)	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	0.8J	0.7J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	26	23

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water 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.
J = Estimated concentration below detection limit.
SEEP-2 was dry, therefore, no aqueous sample was collected.
Only those analytes detected in at least one of the samples, and contaminants 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-1	SEEP-3	SEEP-4	SEEP-4 DUP	SEEP-5	QT-001	QS-001	QD-001
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (μg/L)								
Aluminum	623	18,100	361	1,560	2,320	NR	(<25U)	(<25U)
Antimony	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	NR	(<2U)	(<2U)
Arsenic	(<2U)	45.3	39.4	184	641	NR	(<2U)	(<2U)
Barium	130B*	2,540	240	935	482	NR	(<22U)	(<22U)
Beryllium	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	NR	(<1U)	(<1U)
Cadmium	3.0B*	(<1U)	7.6	49.2	50.8	NR	1.1B*	(<1U)
Calcium	52,300	68,800	116,000	135,000	31,700	NR	92.9B*	(<79U)
Chromium	(<6U)	62.0	(<6U)	(<6U)	(<6U)	NR	(<6U)	(<6U)
Cobalt	(<11U)	114	(<11U)	50.3	75.6	NR	(<11U)	(<11U)
Iron	90,100	743,000	239,000	1,250,000	1,360,000	NR	86.0B*	(<40U)
Lead	2.0B*	69.9	1.4B*	6.8	4.3	NR	(<1U)	(<1U)
Magnesium	7,330	18,300	42,500	44,500	12,600	NR	(<85U)	(<85U)
Manganese	861	121,000	3,760	5,800	8,550	NR	(<6U)	(<6U)
Mercury	(<0.20U)	0.46	(<0.20U)	0.78	(<0.20U)	NR	(<0.20U)	(<0.20U)
Nickel	(<15U)	92.7	(<15U)	30.9B*	33.7B*	NR	(<15U)	(<15U)
Potassium	2,380	7,700	7,210	7,400	5,510	NR	(<63U)	(<63U)
Sodium	21,200	42,300	121,000	118,000	12,300	NR	529B*	635B*
Vanadium	(<8U)	(<8U)	(<8U)	(<8U)	(<16U)	NR	(<8U)	(<8U)
Zinc	27.1	207	22.8	142	142	NR	(<12U)	(<12U)

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

TABLE 18 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	LT-1	LT-2	LT-3	LT-4	LT-4 DUP	LT-5	QT-002 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD									
Methylene chloride	(<9U)	(<19U)	(<13U)	(<28U)	(<7U)	(<7U)	(<1U)	1	(<1U)
1,2-Dichlorobenzene	(<9U)	10J	(<13U)	14J	(<7U)	47	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<9U)	34	(<13U)	63	(<7U)	6J	(<1U)	(<1U)	(<1U)
1,1-Dichloroethane	(<9U)	(<19U)	(<13U)	17J	3J	(<7U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethene	(<9U)	(<19U)	(<13U)	(<28U)	(<7U)	(<7U)	(<1U)	(<1U)	(<1U)
Carbon disulfide	(<9U)	(<19U)	(<13U)	(<28U)	(<7U)	(<7U)	9	(<1U)	92E
Chloroform	(<9U)	(<19U)	(<13U)	(<28U)	(<7U)	(<7U)	(<1U)	25	23

NOTE: QT = Trip blank.
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).
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.
B = Compound detected in associated method blank.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and contaminants 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-4	LT-4 DUP	LT-5	QT-002 (μg/L)	QS-002 (μg/L)	QD-001 (μg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000/9000 METHODS (mg/kg)									
Aluminum	4,580	3,400	5,950	5,340	4,840	42.3	NR	(<25U)	(<25U)
Arsenic	1.2B*	28.8	13.4	37.5	2.3	101	NR	(<2U)	(<2U)
Barium	22.1B*	92.8	180	125	18.1B*	44.5	NR	(<22U)	(<22U)
Beryllium	0.35B*	0.60B*	0.26B*	0.90B*	0.15B*	(<0.13U)	NR	(<1U)	(<1U)
Cadmium	0.63B*	8.3	2.4	10.2	0.38B*	6.7	NR	(<1U)	(<1U)
Calcium	1,530	8,200	3,260	11,800	532	378	NR	206B*	(<79U)
Chromium	8.6	28.7	22.5	47.4	6.3	(<0.80U)	NR	(<6U)	(<6U)
Cobalt	3.4B*	6.0B*	11.0B*	9.5B*	3.5B*	7.3	NR	(<11U)	(<11U)
Copper	6.3	(<42.9U)	(<14.2U)	(<33.3U)	4.7	(<8U)	NR	(<6U)	(<6U)
Iron	8,430	209,000	105,000	256,000	9,130	176,000	NR	75.5B*	(<40U)
Lead	14.3	21.3	7.6	29.5	3.8	(<0.14U)	NR	(<1U)	(<1U)
Magnesium	1,560	2,020	3,840	3,130	1,500	379	NR	(<85U)	(<85U)
Manganese	111	418	5,300	601	80.2	266	NR	(<6U)	(<6U)
Mercury	0.61	1.0	(<0.24U)	1.3	(<0.14U)	(<0.10U)	NR	(<0.20U	(<0.20U
Nickel	7.4	7.7B*	15.6	13.6B*	7.3	3.9B*	NR	(<15U)	(<l5U)
Potassium	644	260B*	2,650	378B*	684	(<8.4U)	NR	(<63U)	(<63U)
Selenium	0.23B*	2.4	(<0.23U)	3.7	(<0.12U)	(<0.14U)	NR	(<1U)	(<1U)
Sodium	144B*	766	233B*	1,200	95.2B*	89.0B*	NR	402B*	635B*
Thallium	(<0.16U	(<0.36U)	0.34B*	(<0.54U)	(<1.2U)	(<1.4U)	NR	(<3U)	(<3U)
Vanadium	17.2	5.8B*	19.2	9.7B*	12.9	(<1.1U)	NR	(<8U)	(<8U)
Zinc	22.9	44.8	41.7	54.4	20.6	16.9	NR	(<12U)	(<12U)

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

TABLE 19 SUMMARY OF LANDFILL GAS MONITORING CONDUCTED ON 26 NOVEMBER 1996 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	0.0	19.4	0.6
GP-05	7.21	<0.01	0.0	20.4	0.0
GP-06	7.22	<0.01	0.0	20.4	0.0
Gas Vents					
GV-01	6.72	<0.01	0.0	19.0	0.6
GV-02	4.76	<0.01	5.0	0.5	15.3
GV-03	4.52	<0.01	4.5	8.5	10.1
GV-04	4.47	<0.01	17.7	0.6	23.3
GV-05	4.52	<0.01	1.1	14.9	4.1
GV-06	4.59	<0.01	0.0	20.1	0.0
GV-07	4.63	<0.01	0.2	20.1	0.0
GV-08	4.57	<0.01	0.0	20.3	0.0
GV-09	4.59	<0.01	1.5	19.5	1.5
GV-10	4.60	<0.01	0.2	6.9	9.6
GV-11	4.54	<0.01	0.0	8.4	8.7
GV-12	4.56	<0.01	0.0	8.0	8.8
GV-13	4.56	<0.01	0.0	11.7	5.6
GV-14	4.56	<0.01	0.0	18.7	2.5

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

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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 Site 1 + 3	Project No: 2960047	Date: 9/5/96
Weather/Temperature: Sunny, breezy, 80°		
EA Personnel: JS / SYC	Equipment: TVA 1000 / water level 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-217A	Y / Y	Yes	0.0	0.0	Good	--	61.78	27.55	44.56	34.23
MW-234R	Y/Y	Yes	0.0	5.1%	Good		68.55	12.01	59.52	56.54
ON EW-6	Y/Y	Yes	0.0	15.2	Good		57.74	36.20	39.05	21.54
MW-215R	Y/Y	Yes	0.0	1.5%	Good		62.26	27.20	49.95	35.06
MW-202A	Y/Y	Yes	0.0	0.0	Good		52.40	21.02	31.09	31.38
MW-202B	Y/Y	Yes	0.0	0.0	Good		53.04	Dry at 18.15	17.93	—
MW-218	Y/Y	Yes	0.0	0.0	Good		54.16	49.73	53.54	4.43
MW-203	Y/Y	Yes	0.0	0.0	Good		52.75	31.52	42.04	21.23
MW-219	Y/Y	Yes	0.0	0.0	Good		51.87	29.97	71.82	21.90
MW-204	Y/Y	Yes	0.0	0.0	Good		50.50	30.35	37.18	20.15

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 Sites 1+3	Project No: 2960047	Date: 9/5/96
Weather/Temperature: Sunny, 68°, breezy		
EA Personnel: JS/SYC	Equipment: TVA 1000 / water level 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-210I	Y/Y	No	0.0	5.2	Good	--	61.05	12.47	30.00	48.58
MW-211A	Y/Y	Yes	0.0	54.3	Good		65.59	24.47	137.02	41.12
MW-211B	Y/Y	Yes	0.0	4,169	Good		63.44	25.25	36.50	40.19
MW-201R	Y/Y	Yes	0.0	10.5	Good		58.88	11.72	39.51	47.16
MW-233R	Y/Y	Yes	0.0	2.2	Good		63.94	27.61	50.49	36.33
MW-216A	Y/Y	Yes	0.0	28.3%	Good		71.17	34.97	46.96	36.20
EP-16	Y/Y	Yes	0.0	0.48	Good		58.92	34.90	49.90	24.02
MW-210B	Y/Y	Yes	0.0	690	Good		54.77	29.86	26.40	24.91
MW-220	Y/Y	Yes	0.0	2.1	Good		47.20	27.02	49.87	20.18
MW-20A	Y/Y	Yes	0.0	1.3	Good		52.17	18.55	No data	33.62
ON EW-7	Y/Y	Yes	0.0	210	Good		51.13	32.00	50.55	19.13
MW-232A	Y/Y	Yes	0.0	1.4	Good		71.18	35.39	54.76	35.79
MW-217B	Y/Y	Yes	0.0	3.5%	Good		61.25	25.40	34.60	35.85

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 Eastern Plume	Project No: 2960047	Date: 9/5/96
Weather/Temperature: Sunny, 80°, breezy		
EA Personnel: JCS/SYC	Equipment: HNU-DL101, water level 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-205	Y/Y	Yes	0.0	1.0	Good		45.99	23.99	78.77	22.00
	MW-310	Y/Y	Yes	0.0	0.0	Good		53.39	27.93	72.83	25.46
	MW-206A	Y/Y	Yes	0.0	0.0	Good		43.02	18.92	74.36	24.10
	MW-206B	Y/Y	Yes	0.0	0.0	Good		42.77	18.61	27.17	24.16
	MW-308	Y/Y	Yes	0.0	0.0	Good		37.70	5.25	72.89	32.45
	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	1.94	59.43	20.38
	MW-318	Y/Y	Yes	0.0	6.2	Good		24.28	7.91	25.14	16.37
	MW-230A	Y/Y	Yes	0.0	0.0	Good		36.32	15.60	82.08	20.72
	MW-231A	Y/Y	Yes	0.0	1.8	Good		45.41	24.06	62.42	21.35
	MW-231B	Y/Y	Yes	0.0	2.4	Good		46.31	24.57	57.86	21.74
ON	EW-1	Y/Y	Yes	0.0	0.0	Good		25.34	15.72	99.66	9.62
	EP-2	Y/Y	Yes	0.0	0.0	Good		29.74	12.26	99.00	17.48

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 Eastern Plume	Project No: 2960047	Date: 9/5/96
Weather/Temperature: Sunny, 80° breezy		
EA Personnel: JS/SYC	Equipment: HNu PK 101	

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-313	Y/Y	Yes	0.0	0.0	Good		21.39	8.73	37.14	12.66
MW-229B	Y/Y	Yes	0.0	0.0	Good		30.08	15.48	32.70	14.60
MW-229A	Y/Y	Yes	0.0	0.0	Good		33.83	13.50	64.97	20.33
EP-1	Y/Y	Yes	0.0	0.0	Good		31.67	13.42	100.51	18.25
EP-3	Y/Y	Yes	0.0	0.0	Good		27.91	8.85	89.21	19.06
MW-105A	Y/Y	Yes	0.0	0.0	Good		24.19	2.21	46.87	21.98
MW105B	Y/Y	Yes	0.0	0.0	Good		24.55	8.63	22.91	15.92
MW-225A	Y/Y	Yes	0.0	0.0	Good		45.95	18.96	76.03	26.99
MW-225B	Y/Y	Yes	0.0	0.0	Good		46.25	19.96	42.00	26.29
MW-311	Y/Y	Yes	0.0	0.0	Good		21.48	0.60	55.78	20.88
MW 207A	Y/Y	Yes	0.0	0.0	Good		24.06	Artesian	73.22	>24.06
MW-207B	Y/Y	Yes	0.0	0.0	Good		22.90	8.86	27.17	14.04
OFF EW-2	Y/Y	Yes	0.0	0.0	Good		31.63	4.61	90.86	27.02

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 Eastern Plume	Project No: 29600047	Date: 9/5/96
Weather/Temperature: Sunny, 80° breezy		
EA Personnel: JS SYC	Equipment: HNu OL-101, water level 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)
	EP-6	Yes/Yes	Yes	0.0	0.0	Good	--	40.14	13.20	83.51	26.94
	EP-4	Yes/Yes	Yes	0.0	0.0	Good		32.59	6.22	91.11	26.37
	EP-5	Yes/Yes	Yes	0.0	0.0	Good		34.61	7.24	79.85	27.37
	MW-319	Yes/Yes	Yes	0.0	0.0	Good		40.16	12.49	72.44	27.67
	P-112	Yes/Yes	Yes	0.0	0.0	Good		41.12	12.95	16.41	28.17
ON	EW-3	Yes/Yes	Yes	0.0	0.0	Good		41.18	34.62	67.04	6.56
	MW-106	Yes/Yes	Yes	0.0	0.0	Good		51.26	23.90	37.27	27.36
	MW-208	Yes/Yes	Yes	0.0	0.0	Good		49.40	20.90	103.33	28.50
	MW-223	Yes/Yes	Yes	0.0	0.0	Good		53.71	24.83	42.61	28.88
	P-124	Yes/No	No	0.0	0.0	Good		51.12	DRY at 23.25	23.25	——
	MW-209	Yes/Yes	Yes	0.0	0.0	Good		54.84	25.29	32.38	29.55
	MW-222	Yes/Yes	Yes	0.0	0.0	Good		57.43	27.05	45.34	30.38
	MW-224	Yes/Yes	Yes	0.0	0.0	Good		57.63	26.17	46.95	31.46

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 Eastern Plume	Project No: 29600047	Date: 9/5/96
Weather/Temperature: Sunny, 80°, breezy		
EA Personnel: JS / SYC	Equipment: 1+ Nu DL101 water level 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)
	EP-7	Y/Y	Yes	0.0	0.0	Good	--	48.49	19.87	70.20	28.62
	EP-8	Y/Y	Yes	0.0	0.0	Good		47.31	18.14	80.38	29.17
	EP-12	Y/Y	Yes	0.0	0.0	Good		49.38	17.02	69.61	32.36
	EP9	Y/Y	Yes	0.0	0.0	Good		37.84	6.36	62.46	31.48
	EP-10	Y/Y	Yes	0.0	0.0	Good		37.78	4.82	58.00	32.96
	EP-11	Y/Y	Yes	0.0	0.0	Good		41.59	9.34	69.03	32.25
ON	EW-4	Y/Y	Yes	0.0	0.0	Good		37.13	8.43	69.37	28.70
	P-111	Y/N	No	0.0	0.0	Good		31.48	5.62	9.99	25.86
	MW-1104	Y/Y	Yes	0.0	0.0	Good		60.09	12.58	27.55	47.51
	P-132	Y/Y	Yes	0.0	0.0	Good		42.95	18.32	32.46	24.63
	MW-305	Y/Y	Yes	0.0	0.0	Good		43.09	7.86	54.12	35.23
	MW-303	Y/Y	Yes	0.0	0.0	Good		44.28	13.24	71.62	31.04
	MW-NASB-212	Y/Y	Yes	0.0	0.0	Good		41.64 No Data	10.91	67.34	30.73

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 Eastern Plume	Project No: 2960047	Date: 9/5/96
Weather/Temperature: Sunny, 80°, breezy		
EA Personnel: SYC, JS	Equipment: HNU DL101, water level 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-110	Y/N	No	0.0	0.0	Good	—	56.70	DRY at 24.14	24.14	—
P-105	Y/Y	Yes	0.0	0.0	Good	—	42.08	10.96	70.35	31.12
ON EW-5	Y/Y	Yes	0.0	0.0	Good		36.25	54.12	84.99	-17.87
EP-13	Y/N	Yes	0.0	0.0	Good		38.96	7.53	71.03	31.43
EP-14	Y/Y	Yes	0.0	0.0	Good		43.46	13.50	80.05	29.96
EP-15	Y/Y	Yes	0.0	0.0	Good		45.37	17.26	82.68	28.11
P-106	Y/Y	Yes	0.0	0.0	Good		38.83	11.65	71.06	27.18
MW-306	Y/Y	Yes	0.0	0.0	Good		52.12	18.38	56.98	33.74
P-103	Y/N	No	0.0	0.0	Good		60.35	24.12	29.05	36.23
MW-307	Y/Y	Yes	0.0	0.0	Good		62.70	16.12	22.21	46.58

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 Eastern Plume	Project No: 2960047	Date: 9/5/96
Weather/Temperature: 80°, Sunny		
EA Personnel: SYC, JCS	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	3.47		27.63
GP-2							28.95	3.37		25.58
GP-3							27.33	3.85		23.48
GP-4							18.39	2.50		15.89
GP-5							23.38	10.80*		12.58
GP-6							15.22	8.60		6.62

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

* culvert extends 10 ft past measuring point and slopes down

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Sites 1+3	Project No: 29600.47	Date: 11/5/96
Weather/Temperature: overcast, breezy, 45°		
EA Personnel: MDC, SYC	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-217B	Y Y	Yes	6	8080	Good	--	61.25	3.65	34.60	57.60
*	MW-234R	Y Y	Yes	6	1082	Good		—	—	—	—
ON	EW-6	Y Y	Yes	6	27	Good		57.74	35.70	39.05	22.04
	MW-215R	Y Y	Yes	6	7500	Good		62.26	27.57	49.95	34.69
	MW-202A	Y Y	Yes	6	6	Good		52.40	20.15	31.09	32.25
	MW-202B	Y Y	Yes	6	6	Good		53.04	Dry	17.93	—
	MW-218	Y Y	Yes	6	6	Good		54.16	34.06	53.54	20.10
	MW-203	Y Y	Yes	6	6	Good		52.75	31.66	42.04	21.09
	MW-219	Y Y	Yes	6	6	Good		51.87	30.50	71.82	21.37
	MW-204	Y Y	Yes	6	6	Good		50.50	30.00	37.18	20.50

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

* PVC broken at approximately 12 Ft. Hit dirt with probe. PVC 1 Ft below top of steel casing

EW-6 2gpm

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Sites 1+3	Project No: 29600.47.7207	Date: 11/5/96
Weather/Temperature: overcast, breezy, 45°		
EA Personnel: SYC, MDC	Equipment: Slope indicator, TVA-1000.	

	Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
	MW-210I	Y Y	No	6	6	Good	--	61.05	12.65	30.00	48.40
	MW-211A	Y Y	Yes	6	6	Good		65.59	24.42	137.02	41.17
	MW-211B	Y Y	Yes	6	6	Good		65.44	25.72	36.50	39.72
*	MW-201B	Y Y	Yes	6	6	Good		58.88	11.92	39.51	46.96
	MW-233B	Y Y	Yes	6	6	Good		63.94	28.22	50.49	35.72
	MW-216A	Y Y	Yes	6	1714	Good		71.17	35.42	46.96	35.75
	EP-16	Y Y	Yes	6	6	Good		58.92	34.52	49.90	24.40
	MW-210B	Y Y	Yes	6	1630	Good		54.77	32.15	26.40	22.62
	MW-220	Y Y	Yes	6	6	Good		47.20	27.30	49.87	19.90
	MW-210A	Y Y	Yes	6	6	Good		52.17	18.78	105.60	33.39
on	EW-7	Y Y	Yes	6	1957	Good		51.13	32.60	50.53	18.53
	MW-232A	Y Y	Yes	6	6	Good		71.18	36.05	54.76	35.13
X X	MW-217A	Y Y	Yes	6	7	Good		61.78	8.62	44.56	53.16

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

* PVC is 1 Foot below top of Steel casing

EW-7 3gpm

XX PVC [redacted] pur[redacted]d, [redacted] 1. [redacted] to [redacted] ec[redacted]

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Eastern Plume	Project No: 29600.47.7207	Date: 11/5/96
Weather/Temperature: overcast, breezy, 45°		
EA Personnel: SYC, MDC	Equipment: Slope indicator, TVA-1000	

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-205	Y Y	Yes	0	0	Good		45.99	24.15	78.77	21.84
MW-310	Y Y	Yes	0	0	Good		53.39	28.34	72.83	25.05
MW-206A	Y Y	Yes	0	0	Good		43.02	19.43	74.36	23.59
MW-206B	Y Y	Yes	0	0	Good		42.77	18.95	27.17	23.82
MW-225A	Y Y	Yes	0	0	Good		45.95	19.65	76.03	26.30
MW-225B	Y Y	Yes	0	0	Good		46.25	20.56	42.00	25.69
MW-318	Y Y	Yes	0	0	Good		24.28	5.95	25.14	18.33
MW-230A	Y Y	Yes	0	0	Good		36.32	17.80	82.08	18.52
MW-231A	Y Y	Yes	0	0	Good		45.41	20.92	62.42	24.49
MW-231B	Y Y	Yes	0	0	Good		46.31	25.02	57.86	21.29
MW-229A	Y Y	Yes	0	0	Good		33.83	13.75	64.97	20.08
MW-229B	Y Y	Yes	0	0	Good		30.08	15.37	32.70	14.71
MW-313	Y Y	Yes	0	0	Good		21.39	7.52	37.14	13.87

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 7 Eastern Plume	Project No: 29600.47.7207	Date: 11/5/96
Weather/Temperature: overcast, breezy, 45°		
EA Personnel: SYC, MDC	Equipment: Slope indicator, TVA-1000	

	Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
	EW-2	Y Y	Yes	0	0	Good		31.63	3.25	90.86	28.38
	MW-106	Y Y	Yes	0	0	Good		51.26	23.85	37.27	27.41
	MW-208	Y Y	Yes	0	0	Good		49.40	22.00	103.33	27.40
	MW-223	Y Y	Yes	0	0	Good		53.71	25.82	42.61	27.89
	MW-209	Y Y	Yes	0	0	Good		54.84	26.31	32.38	28.53
	MW-222	Y Y	Yes	0	0	Good		57.43	28.23	45.34	29.20
	MW-224	Y Y	Yes	0	0	Good		57.63	27.52	46.95	30.11
	P-110	Y N	No	0	0	Good		56.70	Dry	24.14	—
	P-124	Y N	No	0	0	Good		51.12	Dry	23.25	—
ON	EW-3	Y Y	Yes	0	0	Good		41.18	31.00	67.64	10.18
	EP-7	Y Y	Yes	0	0	Good		48.49	20.96	70.20	27.53
	EP-8	Y Y	Yes	0	0	Good		47.31	19.30	80.38	28.01
ON	EW-4	Y Y	Yes	0	0	Good		37.13	13.82	69.37	23.31

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

EW-4 19gpm

EW-3 22gpm

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Eastern Plume	Project No: 29600.47.7207	Date: 11/5/96
Weather/Temperature: Overcast, breezy, 45°		
EA Personnel: SYC MDC	Equipment:	

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-1	Y Y	Yes	0	0	Good		25.34	14.87	99.66	10.47
EP-1	Y Y	Yes	0	0	Good		31.67	13.15	100.51	18.52
EP-2	Y Y	Yes	0	0	Good		29.74	11.90	99.00	17.84
EP-3	Y Y	Yes	0	0	Good		27.91	8.69	89.21	19.22
MW-105A	Y Y	Yes	0	0	Good		24.19	2.36	46.87	21.83
MW-105B	Y Y	Yes	0	0	Good		24.55	8.45	22.91	16.10
MW-307	Y Y	Yes	0	0	Good		62.70	16.55	22.21	46.15
MW-303	Y Y	Yes	0	0	Good		44.28	13.53	71.62	30.75
P-132	Y Y	Yes	0	0	Good		42.95	18.27	32.46	24.68
MW-305	Y Y	Yes	0	0	Good		43.09	7.69	54.12	35.40
MW-1104	Y Y	Yes	0	0	Good		60.09	12.43	27.55	47.66
MW-306	Y Y	Yes	0	0	Good		52.12	19.75	56.98	32.37
P-103	Y N	No	0	0	Good		60.35	25.71	29.05	34.64

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 7 Eastern Plume	Project No: 29600.47.7207	Date: 11/6/96
Weather/Temperature: Sunny, cool 50's		
EA Personnel: BDA, SAP, SYC	Equipment: Slope Indicator, TWA-1000 #4918779 #24328	

	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-106	Y Y	Yes	0	0	Good		38.83	12.63	71.66	26.20
	P-105	Y Y	Yes	0	0	Good		42.08	12.14	70.35	29.94
	EP-15	Y Y	Yes	0	0	Good		45.37	18.18	82.68	27.19
**	EW-5	Y Y	Yes	0	0	Good		36.25	52.35	84.99	-16.10
	EP-14	Y Y	Yes	0	0	Good		43.46	14.36	80.05	29.10
	EP-13	Y Y	Yes	0	0	Good		38.96	8.56	71.03	30.40
	MW-311	Y Y	Yes	0	0	Good		21.48	1.23	55.78	20.25
	EP-6	Y Y	Yes	0	0	Good		40.14	13.99	83.51	26.15
XXX	MW-207A	Y Y	Yes	0	0	Good		24.06	Artesian	73.22	>24.06
	MW-207B	Y Y	Yes	0	0	Good		22.90	5.10	27.17	17.80
	EP-4	Y Y	Yes	0	0	Good		32.59	6.94	91.11	25.65
	EP-5	Y Y	Yes	0	0	Good		34.61	8.10	79.85	26.51
Lock Tag	MW-319	Y Y	Yes	0	0	Good		40.16	13.48	72.44	26.68

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

~~X Tubing caught in well unable to gauge~~ BA

** Main well reading, No readings from lor 2 gauging ports, come up with sand from!

XXX Actively Flowing

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Eastern Plume	Project No: 29600.47.7207	Date: 11/6/96
Weather/Temperature: Sunny, cool, 50's		
EA Personnel: BDA, SAP, SYC	Equipment: TVA-1000 #4918779, Slope indicator #24328	

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	Y Y	Yes	0	2	Good		41.12	16.10	16.41	25.02
EP-12	Y Y	Yes	0	0	Good		49.38	19.06	69.61	30.32
EP-9	Y Y	Yes	0	0	Good		37.84	8.03	62.46	29.81
P-111	Y N	No	0	0	Good		31.48	9.70	9.99	21.78
EP-10	Y Y	Yes	0	0	Good		37.78	7.58	58.00	30.20
EP-11	Y Y	Yes	0	0	Good		41.59	11.67	65.03	29.92
MW-308	Y Y	Yes	0	0	Good		37.70	5.71	72.85	31.99
MW-309A	Y Y	Yes	0	0	Good		22.84	Artesian	72.71	>22.84
MW-309B	Y Y	Yes	0	0	Good		22.32	1.78	59.43	20.54
2" * MW-312	Y Y	No	0	0	Poor		35.97	11.31	71.15	24.66
3/4" P-121	Y Y	No	0	0	Good		50.78	15.87	17.35	34.91
2" MW-317B	Y Y	No	0	0	Good			11.97	96.95	58.13
2" MW-317A	Y N	No	0	0	Good			13.30	120.79	58.05

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

* Needs steel casing, bottom of well

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Eastern Plume	Project No: 29600 47.7207	Date: 11/6/96
Weather/Temperature: Sunny, cool 50's		
EA Personnel: BDA, SYC, SAP	Equipment: TVA-1000 #4918779, Slope indicator #24328	

	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)
2" X	MW-316A	Y N	No	0	0	Good	--	53.71	20.45	103.10	33.26
3/4" XX	P-123	Y N	No	0	0	Good		54.19	—	—	—
2"	MW-316B	Y N	No	0	0	Good		54.40	10.18	57.85	44.22
	MW-NASB-212	Y Y	YES	0	0	Good		41.64	11.35	67.34	30.29

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

X PVC extended 1Ft above casing
XX Plugged at 15 Ft

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EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

FIELD RECORD OF WELL GAUGING

Project Name: LTMP Event 7 Eastern Plume	Project No: 2960047 7207	Date: 11/5 - 11/6
Weather/Temperature: overcast, 45°		
EA Personnel: SYC, BDA, SAP	Equipment: Slope indicator TVA-1000	

	Well No.	Labeled/ Capped	Well Locked	VOCs Concentration (ppm) Air Ambient	VOCs Concentration (ppm) Well Mouth	Casing/Seal Condition	Protective Casing Elevation (ft)	PVC Casing Elevation (ft)	Depth to Water (ft)	Measured Well Depth (ft)	Water Table Elevation (ft)
X	GP-1							31.10	3.00		28.10
	GP-2							28.95	3.30		25.65
	GP-3							27.33	3.75		23.58
	GP-5							23.38	8.55		14.83
*	GP-6							15.22	11.00		4.22
11/6/96	GP-4							10.39	2.73		7.66

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

X Construction upstream of gauging point. data may be inaccurate

* Dam upsteam of culvert. Water level approximately 1 Foot above culvert level.

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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: Site 183
WELL I.D.: 202 A
WELL CONDITION: Good

PROJECT NUMBER: 2960047 7207
WELL LOCK STATUS: locked
WEATHER: Sunny windy 30

GAUGE DATE: 11/15/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.11

GAUGE TIME: 1035
MEASUREMENT REF: Top
WELL DIAMETER (in.): 2

PURGE DATE: 11/15/96
PURGE METHOD: low flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1040
FIELD PERSONNEL: MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0
6.6% 90

WELL VOLUME

A. WELL DEPTH (ft): 31.09
B. DEPTH TO WATER (ft): 21.35
C. LIQUID DEPTH (ft) (A-B): 9.74

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 5.89
F. THREE WELL VOLUMES (L) (E*3): 17.67

Parameter	Beginning	1	2	3	4	5
Time (min)	1040	1045	1050	1055	1100	1105
Depth to Water (ft)	21.35	21.43	21.44	21.43	21.31	21.32
Purge Rate (L/min)	.2	.2	.2	.2	.2	.2
Volume Purged (L)	—	1.0	2.0	3.0	4.0	5.0
pH	6.03	6.08	6.17	6.23	6.26	6.25
Temperature (°C)	10.4	10.6	13.7	15.4	15.6	16.0
Conductivity (μmhos/cm)	.522	.500	.512	.556	.542	.542
Dissolved Oxygen (mg/L)	.38	.86	.60	.91	1.24	1.57
Turbidity (NTU)	142	98	52	31	22	18
Eh (mv)	76	34	-6	-18	-19	-46

TOTAL QUANTITY OF WATER REMOVED (L): 15.0 L

SAMPLERS: MDC
SAMPLING TIME (START/END): 1157/1203
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BN-07-51-MW007
SAMPLE PARAMETERS: VOCs, metals
COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: Site 1&3	Project No.: 2960047	Date: 11/15/96
Well ID: 202A	Field Personnel: MOC	

Parameter	6	7	8	9	10	11
Time (min.)	1110	1115	~~1112~~ 1120	1125	1130	1135
Depth to Water (ft)	21.32	21.33	21.33	21.33	21.34	21.32
Purge Rate (L/min)	.2	.2	.2	.2	.2	.2
Volume Purged (L)	6.0	7.0	8.0	9.0	10.0	11.0
pH	6.24	6.22	6.21	6.21	6.20	6.20
Temperature (°C)	16.3	16.3	16.4	16.4	16.6	16.6
Conductivity (μmhos/cm)	.514	.522	.548	.528	.526	.534
Dissolved Oxygen (mg/L)	1.72	1.78	1.67	1.60	1.55	1.38
Turbidity (NTU)	17	16	14	13	12	12
Eh (mv)	-13	-10	-8	-8	-8	-8

Parameter	12	13	14	15	16	17
Time (min)	1140	1145	1150	1155		
Depth to Water (ft)	21.33	21.33	21.33	21.33		
Purge Rate (L/min)	.2	.2	.2	.2		
Volume Purged (L)	12.0	13.0	14.0	15.0		
pH	6.20	6.20	6.19	6.19		
Temperature (°C)	16.7	16.7	16.6	16.5		
Conductivity (μmhos/cm)	.540	.542	.544	.544		
Dissolved Oxygen (mg/L)	1.43	1.20	1.10	.99		
Turbidity (NTU)	11	10	10	10		
Eh (mv)	-8	-8	-9	-9		

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1 & 3
WELL I.D.: 202 B
WELL CONDITION: Good

PROJECT NUMBER: 2960047 7207
WELL LOCK STATUS: locked
WEATHER: Sunny windy 70

GAUGE DATE: 11/15/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 1.75

GAUGE TIME: 1030
MEASUREMENT REF: Top
WELL DIAMETER (in.): 2

PURGE DATE: N/A
PURGE METHOD: N/A
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

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

WELL VOLUME

A. WELL DEPTH (ft): 19.76
B. DEPTH TO WATER (ft): Dry - 19.76
C. LIQUID DEPTH (ft) (A-B): 0.0

D. WELL VOLUME/FT (L): 0.605
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)						

TOTAL QUANTITY OF WATER REMOVED (L): N/A

SAMPLERS: MDC
SAMPLING TIME (START/END): NA
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: N/A
SAMPLE BOTTLE IDs: N/A
SAMPLE PARAMETERS: VOC's metals

COMMENTS AND OBSERVATIONS:

 1155

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Site 14 3
WELL I.D.: MW-203
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY (AD 15 (Wind chill -6)

GAUGE DATE: 11/15/96
~~SOUNDING~~ METHOD: Slope ~~Indicator~~
STICK UP/DOWN (ft): 2.12

GAUGE TIME: 1202
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/15/96
PURGE METHOD: LOWFLOW
AMBIENT AIR VOCs (ppm) Start: 0 End:

PURGE TIME: 1208
FIELD PERSONNEL: SAP BDA
WELL MOUTH VOCs (ppm): Start: 0 End:

WELL VOLUME

A. WELL DEPTH (ft): 42.04
B. DEPTH TO WATER (ft): 31.65
C. LIQUID DEPTH (ft) (A-B): 10.39

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 6.29
F. THREE WELL VOLUMES (L) (E*3): 18.87

Parameter	Beginning	1	2	3	4	5
Time (min)	1211	1216	1221	1226	1231	1236
Depth to Water (ft)	31.71	31.73	31.73	31.73	31.73	31.73
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	0.6	1.6	2.6	3.6	4.6	5.6
pH	6.65	6.47	6.30	6.24	6.20	6.16
Temperature (°C)	7.2	9.9	12.1	15.0	16.2	16.6
Conductivity (μmhos/cm)	0.600	0.590	0.590	0.650	0.648	0.650
Dissolved Oxygen (mg/L)	8.66	8.62	8.34	8.33	8.38	8.47
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	189	198	209	230	252	271

TOTAL QUANTITY OF WATER REMOVED (L): 7.6 L

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1245
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL / HNO_3
SAMPLE BOTTLE IDs: BN-07-51-MW009
SAMPLE PARAMETERS: VOC / TAL Metals

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: Sites 1 + 3	Project No.: 29600.47	Date: 11/15/96
Well ID: MW-203	Field Personnel: SAP, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1241					
Depth to Water (ft)	31.73					
Purge Rate (L/min)	0.2					
Volume Purged (L)	6.6					
pH	6.15					
Temperature (°C)	16.5					
Conductivity (μmhos/cm)	0.648					
Dissolved Oxygen (mg/L)	8.41					
Turbidity (NTU)	0					
Eh (mv)	279					

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: Site 18 3
WELL I.D.: ~~GOOD~~ MW-204
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY, COLD 30°

GAUGE DATE: 11/14/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 1.74

GAUGE TIME: 1246
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/14/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

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

WELL VOLUME

A. WELL DEPTH (ft): 37.18
B. DEPTH TO WATER (ft): 30.01
C. LIQUID DEPTH (ft) (A-B): 7.17

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 4.34
F. THREE WELL VOLUMES (L) (E*3): 13.01

Parameter	Beginning	1	2	3	4	5
Time (min)	1254	1259	1304	1309	1314	
Depth to Water (ft)	30.05	30.05	30.05	30.05	30.05	
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	
Volume Purged (L)	0.4	0.9	1.4	1.9	2.4	
pH	7.55	7.40	7.28	7.15	7.04	
Temperature (°C)	9.7	9.7	9.8	9.7	9.6	
Conductivity (μmhos/cm)	0.058	0.086	0.053	0.044	0.042	
Dissolved Oxygen (mg/L)	8.20	8.21	8.15	8.11	8.04	
Turbidity (NTU)	0	0	0	0	0	
Eh (mv)	312	323	334	347	356	

TOTAL QUANTITY OF WATER REMOVED (L): 5.5

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1318
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, ~~NH~~ Nitric Acid
SAMPLE BOTTLE IDs: BN-07-S1-MW002 MS/MSD
SAMPLE PARAMETERS: VOCs, TAL Metals
COMMENTS AND OBSERVATIONS: Contained and disposed of purge water at treatment plant

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Site 1 + 3
WELL I.D.: MW-210B
WELL CONDITION: GOOD

PROJECT NUMBER: 2960.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY COLD 15° (windchill -6°)

GAUGE DATE: 11/15/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 1.50

GAUGE TIME: 925
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/15/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0

PURGE TIME: 956
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 21.05 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 41.35
B. DEPTH TO WATER (ft): 30.28
C. LIQUID DEPTH (ft) (A-B): 11.07
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): ~~6.6~~ 6.70
F. THREE WELL VOLUMES (L) (E*3): 20.10

Parameter	Beginning	1	2	3	4	5
Time (min)	941	946	951	958	904	909
Depth to Water (ft)	30.23	30.24	30.24	30.24	30.24	30.24
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	1.0	2.0	3.0	4.0	5.2	6.2
pH	9.67	8.43	7.53	7.20	7.30	7.10
Temperature (°C)	9.5	8.90	9.0	9.3	11.6	12.2
Conductivity (μmhos/cm)	0.148	0.136	0.134	0.130	0.124	0.126
Dissolved Oxygen (mg/L)	3.32	2.08	1.91	2.05	2.03	2.14
Turbidity (NTU)	17	13	12	10	8	9
Eh (mv)	158	162	167	161	134	127

TOTAL QUANTITY OF WATER REMOVED (L): 8.2 L

SAMPLERS: SAP BDA
SAMPLING TIME (START/END): ~~10~~ 920
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL / HNO_3
SAMPLE BOTTLE IDs: BN-07-91-MW004
SAMPLE PARAMETERS: VOC By EPA 8260 and TAL Metals

COMMENTS AND OBSERVATIONS:
Had to continuelly adjust to keep purge rate the same
contained and disposed of purge water at
treatment plant

EA Engineering, Science, and Technology

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

Site Name: Site 1 & 3	Project No.: 29600.47	Date: 11/15/96
Well ID: MW 210B	Field Personnel: SAP, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	914					
Depth to Water (ft)	30.24					
Purge Rate (L/min)	0.2					
Volume Purged (L)	7.2					
pH	6.76					
Temperature (°C)	14.7					
Conductivity (μmhos/cm)	0.126					
Dissolved Oxygen (mg/L)	1.98					
Turbidity (NTU)	5					
Eh (mv)	112					

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: VAS Brunswick-Sites 1 & 3
PROJECT NUMBER: 2960047 7207
WELL I.D.: 215 R
WELL LOCK STATUS: locked
WELL CONDITION: Good
WEATHER: Sunny windy 25

GAUGE DATE: 11/15/96
GAUGE TIME: 0910
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: Top
STICK UP/DOWN (ft): 3.20
WELL DIAMETER (in.): 2

PURGE DATE: 11/15/96
PURGE TIME: 0905
PURGE METHOD: low flow
FIELD PERSONNEL: MDC
AMBIENT AIR VOCs (ppm) Start: 0 End: 0
WELL MOUTH VOCs (ppm): Start: 0 End: 0
FID 6.6% 0

WELL VOLUME

A. WELL DEPTH (ft): 44.63
B. DEPTH TO WATER (ft): 27.62
C. LIQUID DEPTH (ft) (A-B): 17.01
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.29
F. THREE WELL VOLUMES (L) (E*3): 30.87

Parameter	Beginning	1	2	3	4	5
Time (min)	910	915	920	925	930	935
Depth to Water (ft)	27.62	27.73	27.86	27.86	27.86	27.86
Purge Rate (L/min)	.15 ~~.50~~ r	.15	.15	.15	.15	.15
Volume Purged (L)	—	.75	1.5	2.25	3	3.75
pH	5.6	5.41	5.37	5.39	5.35	5.31
Temperature (°C)	9.1	10.2	10.4	11.5	11.9	12.3
Conductivity (μmhos/cm)	.166	.216	.209	.168	.188	.155
Dissolved Oxygen (mg/L)	.21	.27	.31	.31	.27	.25
Turbidity (NTU)	1	2	1	1	1	0
Eh (mv)	250	239	226	220	219	217

TOTAL QUANTITY OF WATER REMOVED (L): 6.75

SAMPLERS: MDC
SAMPLING TIME (START/END): 1000 / 1005
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HNO3, HCL
SAMPLE BOTTLE IDs: BN-07-S1-MW003
SAMPLE PARAMETERS: VOCs, metals
COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: Site 163	Project No.: 2960047	Date: 11/15/96
Well ID: 215R	Field Personnel: MDC	

Parameter	6	7	8	9	10	11
Time (min.)	940	945	950	955		
Depth to Water (ft)	27.86	27.86	27.86	27.86		
Purge Rate (L/min)	.15	.15	.15	.15		
Volume Purged (L)	4.5	5.25	6.00	6.75		
pH	5.32	5.36	5.36	5.36		
Temperature (°C)	12.5	12.8	12.9	12.9		
Conductivity (μmhos/cm)	.148	.142	.144	.144		
Dissolved Oxygen (mg/L)	.21	.20	.18	.20		
Turbidity (NTU)	0	0	0	0		
Eh (mv)	212	205	204	202		

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: Site 1 + 3
WELL I.D.: 216A
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY

GAUGE DATE: 11/18/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 1.10

GAUGE TIME: 948
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/18/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 0947
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 35.4 End: 3.4%

WELL VOLUME

A. WELL DEPTH (ft): 30.65
B. DEPTH TO WATER (ft): 35.44
C. LIQUID DEPTH (ft) (A-B): 4.79

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 2.90
F. THREE WELL VOLUMES (L) (E*3): 8.70

Parameter	Beginning	1	2	3	4	5
Time (min)	0950	0955	1000	1005	1010	1015
Depth to Water (ft)	35.62	35.65	35.63	35.63	35.63	35.52
Purge Rate (L/min)	.2	.2	.2	.2	.2	.1
Volume Purged (L)	.6	1.6	2.6	3.6	4.6	5.1
pH	6.57	6.17	6.10	6.05	5.99	5.93
Temperature (°C)	10.2	10.5	13.5	15.0	15.9	15.6
Conductivity (μmhos/cm)	0.316	0.302	0.330	0.322	0.296	0.288
Dissolved Oxygen (mg/L)	3.65	2.26	2.20	2.29	2.19	2.19
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	203	203	187	182	179	176

TOTAL QUANTITY OF WATER REMOVED (L): 6.2

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1017 - 1020
SAMPLING DATE: 11/18/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCl / HNO_3
SAMPLE BOTTLE IDs: BN-07-S1-MW013
SAMPLE PARAMETERS: VOC / TAL Elements
COMMENTS AND OBSERVATIONS: ~~Sample~~ water purged to treatment plant

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Sites 1 & 3
WELL I.D.: MW-217A
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7207
WELL LOCK STATUS: good
WEATHER: Cold (-6 windchill)

GAUGE DATE: 11/15/96
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 1.00

GAUGE TIME: 0955
MEASUREMENT REF: Top
WELL DIAMETER (in.): 2"

PURGE DATE: 11/15/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End:

PURGE TIME: 1000
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0.0 End:

WELL VOLUME

A. WELL DEPTH (ft): 40.93
B. DEPTH TO WATER (ft): 29.45
C. LIQUID DEPTH (ft) (A-B): 11.48

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 6.95
F. THREE WELL VOLUMES (L) (E*3): 20.85

Parameter	Beginning	1	2	3	4	5
Time (min)	1005	1010	1015	1020	1025	1030
Depth to Water (ft)	29.45	28.95	28.98	28.98	28.98	28.98
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	6.90	6.91	6.86	6.82	6.79	6.78
Temperature (°C)	9.7	11.6	13.9	14.5	15.1	15.0
Conductivity (μmhos/cm)	0.798	0.478	0.522	0.552	0.522	0.562
Dissolved Oxygen (mg/L)	3.68	2.64	2.45	2.36	2.23	2.29
Turbidity (NTU)	15	15	15	10	9	8
Eh (mv)	164	147	137	134	127	126

TOTAL QUANTITY OF WATER REMOVED (L): 8.1

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1038
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BIN-07-SI-MW008
SAMPLE PARAMETERS: VOCs, metals

COMMENTS AND OBSERVATIONS: PVC pipe inside well loose.
Contained and disposed of purge water at treatment plant

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick Site 103	Project No.: 2960.47	Date: 15 Nov 96
Well ID: MW-217A	Field Personnel: BDA SAP	

Parameter	6	7	8	9	10	11
Time (min.)	1033					
Depth to Water (ft)	28.98					
Purge Rate (L/min)	.2					
Volume Purged (L)	7.0					
pH	6.78					
Temperature (°C)	15.2					
Conductivity (μmhos/cm)	0.529					
Dissolved Oxygen (mg/L)	2.18					
Turbidity (NTU)	6					
Eh (mv)	129					

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: Site 1 + 3
WELL I.D.: MW-217B
WELL CONDITION: GOOD
PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY, COLD

GAUGE DATE: 11/15/96
SOUNDING METHOD: SLOPE INDICATOR
STICK UP/DOWN (ft): 1.30
GAUGE TIME: 1608
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/15/96
PURGE METHOD: Low Flow ~~Slope Indicator~~ SAP
AMBIENT AIR VOCs (ppm) Start: 0 End: 0
PURGE TIME: 1008
FIELD PERSONNEL: SAP, BDA
WELL MOUTH VOCs (ppm): Start: 380 End: 171

WELL VOLUME

A. WELL DEPTH (ft): 32.74
B. DEPTH TO WATER (ft): 25.63
C. LIQUID DEPTH (ft) (A-B): 7.11
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 4.30
F. THREE WELL VOLUMES (L) (E*3): 12.9

Parameter	Beginning	1	2	3	4	5
Time (min)	10:11	10:21	10:26	1031	1037	1042
Depth to Water (ft)	25.63	25.63	25.63	25.50	25.50	25.50
Purge Rate (L/min)	0.2	0.2	0.4	0.4	0.4	0.4
Volume Purged (L)	0.6	1.6	3.6	5.6	7.6	9.6
pH	5.98	5.94	5.97	6.11	6.18	6.18
Temperature (°C)	10.4	11.5	15.3	21.3	17.8	16.8
Conductivity (μmhos/cm)	0.934	1.346	1.658	1.924	2.49	1.79
Dissolved Oxygen (mg/L)	6.06	5.48	5.17	2.72	2.95	2.75
Turbidity (NTU)	17	22	98	100	85	206
Eh (mv)	4	-35	-51	-74	-76	-80

TOTAL QUANTITY OF WATER REMOVED (L): 22.0 L

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1130/1134
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL / HNO3
SAMPLE BOTTLE IDs: BN-07-S1-MW005
SAMPLE PARAMETERS: VOC / TAL Metals
COMMENTS AND OBSERVATIONS: Had to continually adjust to keep rate constant.

EA Engineering, Science, and Technology

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

Site Name: Site 14 3	Project No.: 29600.47	Date: 11/15/96
Well ID: MW-217B	Field Personnel: SAP, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1047	1052	1057	1102	1107*	
Depth to Water (ft)	25.50	25.50	25.50	26.85	26.74	
Purge Rate (L/min)	0.4	0.4	0.5	0.5	0.4	
Volume Purged (L)	11.6	13.6	15.6	17.6	19.6	
pH	6.21	6.26	6.26	6.29	6.25	
Temperature (°C)	21.3	21.8	20.8	18.8	16.1	
Conductivity (μmhos/cm)	2.370	2.350	2.350	2.100	1.894	
Dissolved Oxygen (mg/L)	2.56	1.71	1.80	3.35	3.62	
Turbidity (NTU)	326	210	340	197	173	
Eh (mv)	-96	-100	-98	-77	-82	

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 * Backed pump down then turned up the flow to flush out - pump box went to overload - shut off pump - started back up - pump seems to be clogged - water had an odor, let well recharge took sample - contained and disposed of purge water.

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick
WELL I.D.: MW 218
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7207
WELL LOCK STATUS: good
WEATHER: Cold, clear

GAUGE DATE: 11/15/96
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.61

GAUGE TIME: 1202
MEASUREMENT REF: TOP
WELL DIAMETER (in.): 2"

PURGE DATE: 11/15/96
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: _____

PURGE TIME: 1205
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0.0 End: _____

WELL VOLUME

A. WELL DEPTH (ft): 53.54
B. DEPTH TO WATER (ft): 34.03
C. LIQUID DEPTH (ft) (A-B): 19.51

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 7.71
F. THREE WELL VOLUMES (L) (E*3): 23.13

Parameter	Beginning	1	2	3	4	5
Time (min)	1207	1212	1217	1222	1227	1232
Depth to Water (ft)	38.13	38.20	38.20	38.20	38.55	38.55
Purge Rate (L/min)	.2	.1	.1	.1	.1	.1
Volume Purged (L)	.4	.9	1.4	1.9	2.4	2.9
pH	7.41	7.85	8.02	8.12	8.18	8.26
Temperature (°C)	9.7	8.7	8.5	8.5	9.2	9.4
Conductivity (μmhos/cm)	1,376	1,174	1,408	1,320	1,288	1,896
Dissolved Oxygen (mg/L)	5.57	2.65	2.31	2.24	2.22	2.05
Turbidity (NTU)	37	30	29	29	26	22
Eh (mv)	138	75	57	48	40	32

TOTAL QUANTITY OF WATER REMOVED (L): 7.4

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1310
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BN-07-S1-MW010
SAMPLE PARAMETERS: VOCs, metals

COMMENTS AND OBSERVATIONS:

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: 11/15/96
Well ID: MW-218	Field Personnel: BDH, SAP	

Parameter	6	7	8	9	10	11
Time (min.)	1237	1242	1247	1252	1257	1302
Depth to Water (ft)	39.04	39.25	39.35	39.45	39.45	39.45
Purge Rate (L/min)	.1	.1	.1	.1	.1	.1
Volume Purged (L)	3.4	3.7	4.4	4.7	5.4	5.7
pH	8.36	8.46	8.56	8.57	8.56	8.54
Temperature (°C)	9.7	10.6	10.5	10.8	11.6	11.9
Conductivity (μmhos/cm)	1,230	1,278	1,326	1,280	1,232	1,274
Dissolved Oxygen (mg/L)	2.16	2.30	2.07	2.05	2.30	2.28
Turbidity (NTU)	16	16	14	13	12	12
Eh (mv)	24	16	8	2	-3	-9

Parameter	12	13	14	15	16	17
Time (min)	1307					
Depth to Water (ft)	39.45					
Purge Rate (L/min)	.1					
Volume Purged (L)	6.4					
pH	8.54					
Temperature (°C)	11.7					
Conductivity (μmhos/cm)	1,244					
Dissolved Oxygen (mg/L)	2.24					
Turbidity (NTU)	12					
Eh (mv)	-14					

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick Site 10.3
WELL I.D.: MW219
WELL CONDITION: good

PROJECT NUMBER: 29600.47 7207
WELL LOCK STATUS: good · locked
WEATHER: clear cold NW breeze

GAUGE DATE: 11/14/96
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.56

GAUGE TIME: 1235
MEASUREMENT REF: TOP
WELL DIAMETER (in.): 2"

PURGE DATE: 11/14/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1243
FIELD PERSONNEL: BDA SAM
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 71.82
B. DEPTH TO WATER (ft): 30.50
C. LIQUID DEPTH (ft) (A-B): 41.32

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 24.99
F. THREE WELL VOLUMES (L) (E*3): 74.99

Parameter	Beginning	1	2	3	4	5
Time (min)	1245	1250	1255	1300	1305	1310
Depth to Water (ft)	30.50	30.53	30.53	30.56	30.56	30.56
Purge Rate (L/min)	.1	.1	.4 *	.4	.4	.1
Volume Purged (L)	.2	.7	1.2	3.2	5.2	5.7
pH	9.63	8.52	7.86	7.45	7.18	7.02
Temperature (°C)	9.3	9.2	9.4	9.4	10.4	11.0
Conductivity (μmhos/cm)	0.192	0.180	0.056	0.130	0.122	0.190
Dissolved Oxygen (mg/L)	8.48	7.92	8.90	9.86	10.37	10.21
Turbidity (NTU)	21	18	68	57	28	26
Eh (mv)	138	166	168	170	171	172

TOTAL QUANTITY OF WATER REMOVED (L): ~~8.2~~ 10.3

SAMPLERS: BDA SAM
SAMPLING TIME (START/END): 1338
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL / HNO3
SAMPLE BOTTLE IDs: BN-07-S1-MW001 and BN-07-31-MWXD1
SAMPLE PARAMETERS: VOCs, TAL Elements (Metals)
COMMENTS AND OBSERVATIONS: * turbidity increase, increase flow, watch for draw down (initial 30.56 and stable).

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: 11/14/96
Well ID: MW-219	Field Personnel: BDA SAP	

Parameter	6	7	8	9	10	11
Time (min.)	1315	1320	1325	1330	1335	
Depth to Water (ft)	30.56	30.56	30.56	30.56	30.56	
Purge Rate (L/min)	.1	.1	.1	.1	.1	
Volume Purged (L)	6.2	6.7	7.2	7.7	8.2	
pH	6.94	6.82	6.75	6.69	6.68	
Temperature (°C)	11.0	10.7	10.6	10.5	10.5	
Conductivity (μmhos/cm)	0.122	0.124	0.130	0.120	0.133	
Dissolved Oxygen (mg/L)	10.21	10.16	10.08	9.99	10.18	
Turbidity (NTU)	19	19	19	15	18	
Eh (mv)	173	174	174	174	175	

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 7207
WELL LOCK STATUS: good
WEATHER: cold (20°), clear

GAUGE DATE: 11/15/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 1.81

GAUGE TIME: 0815
MEASUREMENT REF: TOP
WELL DIAMETER (in.): 2"

PURGE DATE: 11/15/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0830
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: .85 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 44.28
B. DEPTH TO WATER (ft): 27.41
C. LIQUID DEPTH (ft) (A-B): 16.87
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.21
F. THREE WELL VOLUMES (L) (E*3): 30.63

Parameter	Beginning	1	2	3	4	5
Time (min)	0835	0845	0850	0855	0900	0905
Depth to Water (ft)	27.69	27.69	27.51	27.68	27.69	27.69
Purge Rate (L/min)	.6	.6	.2	.6	.6	.6
Volume Purged (L)	30	9.0	10.0	13	16	19
pH	7.06	6.72	6.64	6.55	6.53	6.51
Temperature (°C)	10.8	11.4	10.8	12.4	12.1	12.0
Conductivity (μmhos/cm)	0.174	0.123	0.176	0.162	0.182	0.178
Dissolved Oxygen (mg/L)	9.05	9.01	8.66	8.33	8.99	8.75
Turbidity (NTU)	496	68	56	40	23	18
Eh (mv)	266	287	297	268	301	303

TOTAL QUANTITY OF WATER REMOVED (L): 24.1

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 0920
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BN-07-S1- MW006
SAMPLE PARAMETERS: VOCs, metals.
COMMENTS AND OBSERVATIONS: water very turbid on start up
purge water contained & disposed.

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: 11/15/96
Well ID: MW 220	Field Personnel: BDH, SHP	

Parameter	6	7	8	9	10	11
Time (min.)	0910	0915				
Depth to Water (ft)	27.59	27.58				
Purge Rate (L/min)	.6	.2				
Volume Purged (L)	22	23				
pH	6.50	6.48				
Temperature (°C)	11.8	11.4				
Conductivity (μmhos/cm)	0.174	0.164				
Dissolved Oxygen (mg/L)	8.83	8.87				
Turbidity (NTU)	23	34				
Eh (mv)	308	310				

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: Site 1+3
WELL I.D.: MW ~~2101~~ 2101
WELL CONDITION: GOOD
PROJECT NUMBER: 29600.47
WELL LOCK STATUS: UNLOCKED
WEATHER: Sunny, COLD 35°

GAUGE DATE: 11/18/96
SOUNDING METHOD: Slope indicate
STICK UP/DOWN (ft): 5.24
GAUGE TIME: 1038
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/18/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0
PURGE TIME: 1038
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 30.00
B. DEPTH TO WATER (ft): 12.79
C. LIQUID DEPTH (ft) (A-B): 17.21
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.41
F. THREE WELL VOLUMES (L) (E*3): 31.23

Parameter	Beginning	1	2	3	4	5
Time (min)	1040	1045	1050	1055	1100	1105
Depth to Water (ft)	12.79 ~~0.7~~ SAP	12.79	12.81	12.79	12.79	12.79
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	0.4	1.4	2.4	3.4	~~4~~ 4	~~5~~ 5.0
pH	6.27	5.79	5.59	5.69	5.64	5.62
Temperature (°C)	10.	11.1	12.3	14.2	15.4	15.8
Conductivity (μmhos/cm)	0.362	0.400	0.380	0.388	0.396	0.382
Dissolved Oxygen (mg/L)	9.01	8.44	8.57	8.50	8.90	9.76
Turbidity (NTU)	3	0	0	0	0	0
Eh (mv)	209	218	219	209	210	210

TOTAL QUANTITY OF WATER REMOVED (L): 7.9

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1111
SAMPLING DATE: 11/18/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, HNO_3 SAP
SAMPLE BOTTLE IDs: BV-07-S1-MW014 @ 1111
SAMPLE PARAMETERS: VOC, TAL Elements
COMMENTS AND OBSERVATIONS: water ~~purged~~ to treatment plant

EA Engineering, Science, and Technology

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

Site Name: Site 1+3	Project No.: 29600.47	Date: 11/18/96
Well ID: MW 2101	Field Personnel: BDA, SMP	

Parameter	6	7	8	9	10	11
Time (min.)	1106	1109				
Depth to Water (ft)	12.79	12.79				
Purge Rate (L/min)	0.1	0.1				
Volume Purged (L)	5.6	5.9				
pH	5.60	5.58				
Temperature (°C)	15.9	15.7				
Conductivity (μmhos/cm)	0.300	0.296				
Dissolved Oxygen (mg/L)	8.64	8.69				
Turbidity (NTU)	0	0				
Eh (mv)	212	213				

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 / Site 1+3
WELL I.D.: 232 A
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47 7207
WELL LOCK STATUS: LOCKED
WEATHER: Sunny Breeze (L+) 35°

GAUGE DATE: 11/18/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.30

GAUGE TIME: 839
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/18/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: *0907
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 48.44
B. DEPTH TO WATER (ft): 35.93
C. LIQUID DEPTH (ft) (A-B): 12.48

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 7.55
F. THREE WELL VOLUMES (L) (E*3): 22.65

Parameter	Beginning	1	2	3	4	5
Time (min)	0905 ~~4 Hbc~~	0913	0918	0923	0926	
Depth to Water (ft)	36.75	36.48	36.35	36.25	36.25	
Purge Rate (L/min)	.2	.2	.2	.1	.1	
Volume Purged (L)	.2	1.2	2.2	2.7	3.2	
pH	8.04	7.42	7.10	6.98	6.85	
Temperature (°C)	10.4	10.7	11.4	11.6	11.8	
Conductivity (μmhos/cm)	0.266	0.248	~~0.246~~ 0.248	0.248	0.242	
Dissolved Oxygen (mg/L)	7.01	5.86	5.29	5.25	5.21	
Turbidity (NTU)	0	0	0	0	0	
Eh (mv)	155	168	175	179	180	

TOTAL QUANTITY OF WATER REMOVED (L): 5.4

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 0930 - 0933

SAMPLING DATE: 11/18/96
DECONTAMINATION FLUIDS USED: None

SAMPLE TYPE: ~~VOC~~ SAP + Grab
SAMPLE PRESERVATIVES: HCl / HNO_3

SAMPLE BOTTLE IDs: BN-07-S1-MW012, BN-07-S1-MWXD2

SAMPLE PARAMETERS: VOC, TAL Elements

COMMENTS AND OBSERVATIONS: Water pumped to treatment plant.

* ran out of gas delayed start time

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Site 1E3
WELL I.D.: 234R
WELL CONDITION: Good

PROJECT NUMBER: 29600.47 7207
WELL LOCK STATUS: Locked
WEATHER: Sunny windy 30

GAUGE DATE: 11/15/96
SOUNDING METHOD: Slope ind.
STICK UP/DOWN (ft): 2.78

GAUGE TIME: 1220
MEASUREMENT REF: Top
WELL DIAMETER (in.): 2

PURGE DATE: 11/15/96
PURGE METHOD: low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1225
FIELD PERSONNEL: MDC.
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 54.85
B. DEPTH TO WATER (ft): 34.52
C. LIQUID DEPTH (ft) (A-B): 20.33

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 12.20
F. THREE WELL VOLUMES (L) (E*3): 36.90

Parameter	Beginning	1	2	3	4	5
Time (min)	1225	1230	1235	1240	1245	
Depth to Water (ft)	34.52	34.45	34.45	34.45	34.45	
Purge Rate (L/min)	.1	.1	.1	.1	.1	
Volume Purged (L)	—	.5	1.0	1.5	2	
pH	5.95	5.63	5.64	5.64	5.65	
Temperature (°C)	8.9	7.7	8.1	8.6	9.4	
Conductivity (μmhos/cm)	.194	.152	.162	.160	.180	
Dissolved Oxygen (mg/L)	.63	.33	.35	.37	.38	
Turbidity (NTU)	11	6	6	6	6	
Eh (mv)	120	118	119	121	123	

TOTAL QUANTITY OF WATER REMOVED (L): 2

SAMPLERS: MDC
SAMPLING TIME (START/END): 1247/1252
SAMPLING DATE: 11/15/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-51 - MW 0011
SAMPLE PARAMETERS: VOC/Metals
COMMENTS AND OBSERVATIONS:

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
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY, COLD 30°

GAUGE DATE: 11/13/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 3.17

GAUGE TIME: 926
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/13/96
PURGE METHOD: Peristaltic Pump
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 0929
FIELD PERSONNEL: SAT BOA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): SM ~~2.43~~ 46.87
B. DEPTH TO WATER (ft): 2.43
C. LIQUID DEPTH (ft) (A-B): 44.44

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 26.89
F. THREE WELL VOLUMES (L) (E*3): 80.66

Parameter	Beginning	1	2	3	4	5
Time (min)	935	940	945	952	955	958
Depth to Water (ft)	2.48	2.48	2.48	2.48	2.48	2.48
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	1.2	2.2	3.2	4.4	5.0	5.6
pH	7.16	7.88	7.72	7.58	7.51	7.47
Temperature (°C)	7.8	8.2	8.2	8.2	8.2	8.1
Conductivity (μmhos/cm)	0.058	0.058	0.060	0.060	0.060	0.062
Dissolved Oxygen (mg/L)	9.43	9.91	9.39	9.52	9.51	9.33
Turbidity (NTU)	1	10	10	9	9	9
Eh (mv)	179	188	182	160	156	152

TOTAL QUANTITY OF WATER REMOVED (L): 5.6

SAMPLERS: SAT BOA
SAMPLING TIME (START/END): ~~10:37~~ SM 9.59
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: DN-07-EP-MW01 (a)
SAMPLE PARAMETERS: VOC By EPA 8260
COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

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

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Locked
WEATHER: Sunny Cold 30

GAUGE DATE: 11/13/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 3.20

GAUGE TIME: 1001
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/13/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1007
FIELD PERSONNEL: SMP, BDA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 46.87
B. DEPTH TO WATER (ft): 8.45
C. LIQUID DEPTH (ft) (A-B): 38.42

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 23.24
F. THREE WELL VOLUMES (L) (E*3): 69.73

Parameter	Beginning	1	2	3	4	5
Time (min)	1008	1013	1018	1023	1028	1033
Depth to Water (ft)	8.55 ~~16.55~~	8.53	8.53	8.53	8.53	8.46
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.1	0.1
Volume Purged (L)	0.2	1.2	2.2	3.2	~~4.3~~ 3.7	4.2
pH	7.34	7.41	7.49	7.34	7.28	7.24
Temperature (°C)	9.2	11.9	14.1	15.0	14.7	13.9
Conductivity (μmhos/cm)	0.194	0.197	0.148	0.150	0.154	0.156
Dissolved Oxygen (mg/L)	1.26	2.99	3.94	4.25	4.33	5.15
Turbidity (NTU)	24	15	14	13	13	13
Eh (mv)	140	101	95	110	121	130

TOTAL QUANTITY OF WATER REMOVED (L): 4.8

SAMPLERS: SMP / BDA
SAMPLING TIME (START/END): 1037
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-JEP-MW033
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: ~~X~~ SMP

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 296047	Date: 11/13/96
Well ID: MW-105B	Field Personnel: SAP BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1036					
Depth to Water (ft)	8.46					
Purge Rate (L/min)	0.1					
Volume Purged (L)	4.2					
pH	7.20					
Temperature (°C)	13.6					
Conductivity (μmhos/cm)	0.150					
Dissolved Oxygen (mg/L)	5.46					
Turbidity (NTU)	13					
Eh (mv)	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-106
WELL CONDITION: Good.

PROJECT NUMBER: 29600.47.7
WELL LOCK STATUS: locked
WEATHER: overcast, bre

GAUGE DATE: 11/8/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 3.70

GAUGE TIME: 0950
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2in

PURGE DATE: 11/8/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1005
FIELD PERSONNEL: SYC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 37.27
B. DEPTH TO WATER (ft): 23.89
C. LIQUID DEPTH (ft) (A-B): 13.38

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 8.09
F. THREE WELL VOLUMES (L) (E*3): 24.28

Parameter	Beginning	1	2	3	4	5
Time (min)	1005	1008	1011	1014	1017	1022
Depth to Water (ft)	23.89	23.97	23.92	23.93	23.93	23.93
Purge Rate (L/min)	0.15	0.15	0.15	0.15	0.15	0.15
Volume Purged (L)	—	0.45	0.90	1.35	1.80	2.25
pH	16.44	8.69	7.98	7.49	7.18	6.76
Temperature (°C)	7.8	8.3	8.9	9.7	10.9	12.1
Conductivity (μmhos/cm)	0.068	0.052	0.062	0.066	0.054	0.058
Dissolved Oxygen (mg/L)	10.66	10.86	10.84	10.86	10.89	10.23
Turbidity (NTU)	9	0	0	0	0	0
Eh (mv)	118	180	217	222	224	223

TOTAL QUANTITY OF WATER REMOVED (L): 3.8

SAMPLERS: SYC
SAMPLING TIME (START/END): 1035/1036

SAMPLING DATE: 11/8/96
DECONTAMINATION FLUIDS USED: none

SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL

SAMPLE BOTTLE IDs: BN-07-EP-MW002

SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS: 3.8L collected and run through treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/8/96
Well ID: MW-106	Field Personnel: SYC	

Parameter	6	7	8	9	10	11
Time (min.)	1025	1028	1031			
Depth to Water (ft)	23.93	23.93	23.93			
Purge Rate (L/min)	0.15	0.15	0.15			
Volume Purged (L)	2.70	3.15	3.60			
pH	6.55	6.30	6.11			
Temperature (°C)	12.6	12.9	13.2			
Conductivity (μmhos/cm)	0.054	0.052	0.050			
Dissolved Oxygen (mg/L)	10.76	10.75	10.68			
Turbidity (NTU)	0	0	0			
Eh (mv)	225	227	231			

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 205
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: Sunny, COLD 30°

GAUGE DATE: 11/13/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 1.94

GAUGE TIME: 0833
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/13/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 8 D 8
FIELD PERSONNEL: SAP, BDA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 78.77
B. DEPTH TO WATER (ft): 24.19
C. LIQUID DEPTH (ft) (A-B): 54.58
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 33.02
F. THREE WELL VOLUMES (L) (E*3): 99.06

Parameter	Beginning	1	2	3	4	5
Time (min)	0810	0819	0824	0829	0834	0839
Depth to Water (ft)	24.30	24.35	24.39	24.39	24.39	24.39
Purge Rate (L/min)	0.1	0.1	0.4	0.4	0.4	0.4
Volume Purged (L)	0.2	1.1	3.1	5.1	7.1	9.1
pH	9.01	8.56	8.09	7.84	7.68	7.60
Temperature (°C)	8.6	8.6	9.1	9.4	10.8	11.0
Conductivity (μmhos/cm)	0.176	0.208	0.218	0.206	0.188	0.180
Dissolved Oxygen (mg/L)	6.07	1.96	1.85	1.70	1.97	2.07
Turbidity (NTU)	39	290	266	212	147	101
Eh (mv)	189	172	169	160	152	145

TOTAL QUANTITY OF WATER REMOVED (L): 18.1

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 905 / 908
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW029 @ 0905
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: ~~V~~ SH

Contained and disposed of purge water at treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 27600.47	Date: 11/13/96
Well ID: MW-205	Field Personnel: BDA, SAP	

Parameter	6	7	8	9	10	11
Time (min.)	0844 ~~0844~~	0849	0854	0859 ~~0857~~	0904	
Depth to Water (ft)	24.39	24.39	24.33	24.39	24.39	
Purge Rate (L/min)	0.4	0.4	0.2	0.4	0.4	
Volume Purged (L)	11.1	13.1	14.1	16.1	18.1	
pH	7.55	7.51	7.47	7.45	7.42	
Temperature (°C)	11.1	11.3	11.3	11.1	11.4	
Conductivity (μmhos/cm)	0.184	0.186	0.174	0.182	0.178	
Dissolved Oxygen (mg/L)	1.99	1.92	1.81	1.82	1.83	
Turbidity (NTU)	81	69	64	63	61	
Eh (mv)	142	139	139	134	129	

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-20A
WELL CONDITION: good

PROJECT NUMBER: 2960047
WELL LOCK STATUS: locked
WEATHER: Sunny, windy 35

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.40

GAUGE TIME: 1055
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1056
FIELD PERSONNEL: SVC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 74.36
B. DEPTH TO WATER (ft): 19.31
C. LIQUID DEPTH (ft) (A-B): 55.05
D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 33.30
F. THREE WELL VOLUMES (L) (E*3): 99.92

Parameter	Beginning	1	2	3	4	5
Time (min)	1056	1059	1102	1105	1108	1111
Depth to Water (ft)	19.36	19.40	19.40	19.41	19.41	19.41
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	—	0.3	0.6	0.9	1.2	1.5
pH	7.53	7.23	6.99	6.83	6.76	6.76
Temperature (°C)	9.0	8.7	8.8	9.0	9.4	9.7
Conductivity (μmhos/cm)	0.106	0.090	0.126	0.122	0.122	0.128
Dissolved Oxygen (mg/L)	12.52	10.61	11.07	11.27	11.47	11.50
Turbidity (NTU)	18	24	21	21	16	14
Eh (mv)	176	182	186	188	185	181

TOTAL QUANTITY OF WATER REMOVED (L): 3

SAMPLERS: SVC MDC
SAMPLING TIME (START/END): 1125/1126

SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: none

SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL

SAMPLE BOTTLE IDs: BN-07-EP-MW-024

SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS: 3L containerized and run through treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 296047	Date: 11/12/96
Well ID: MW-206A	Field Personnel: SYC, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1114	1117	1121			
Depth to Water (ft)	19.41	19.41	19.41			
Purge Rate (L/min)	0.1	0.1	0.1			
Volume Purged (L)	1.8	2.1	2.5			
pH	6.76	6.77	6.75			
Temperature (°C)	9.8	9.6	9.4			
Conductivity (μmhos/cm)	0.098	0.104	0.098			
Dissolved Oxygen (mg/L)	11.13	11.57	11.53			
Turbidity (NTU)	9	8	7			
Eh (mv)	176	174	173			

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-206B
WELL CONDITION: good

PROJECT NUMBER: 2960047
WELL LOCK STATUS: locked
WEATHER: sunny, 35° windy

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.40

GAUGE TIME: 1043
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/12/96
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1045
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 27.17
B. DEPTH TO WATER (ft): 19.20
C. LIQUID DEPTH (ft) (A-B): 7.97

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 4.82
F. THREE WELL VOLUMES (L) (E*3): 14.46

Parameter	Beginning	1	2	3	4	5
Time (min)	1045	1048	1052	1055	1058	1101
Depth to Water (ft)	19.20	19.20	19.20	19.20	19.20	19.20
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	6.85	6.66	6.43	6.31	6.26	6.22
Temperature (°C)	9.5	9.6	9.9	10.6	11.1	11.4
Conductivity (μmhos/cm)	0.092	0.098	0.108	0.104	0.100	0.104
Dissolved Oxygen (mg/L)	7.43	7.21	7.30	7.06	6.89	6.87
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	349	352	355	357	359	360

TOTAL QUANTITY OF WATER REMOVED (L): 4L

SAMPLERS: SYC, MDC
SAMPLING TIME (START/END): 1105 / 1106
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW022
SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW207A
WELL CONDITION: Poor

PROJECT NUMBER: 296047
WELL LOCK STATUS: Locked
WEATHER: Sunny, windy, 35

GAUGE DATE: 11/11/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.50

GAUGE TIME: 0900
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/11/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0905
FIELD PERSONNEL: SYC, MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 73.22
B. DEPTH TO WATER (ft): Artesian 0.0
C. LIQUID DEPTH (ft) (A-B): 73.22

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 43.69
F. THREE WELL VOLUMES (L) (E*3): 131.08

Parameter	Beginning	1	2	3	4	5
Time (min)	0905	0908	0911	0914	0917	0920
Depth to Water (ft)	0.00	2.20	2.25	2.25	2.25	2.25
Purge Rate (L/min)	~~1.5~~ 1.5	1.5	1.5	1.5	1.5	1.5
Volume Purged (L)	—	4.5	9.0	13.5	18.0	22.5
pH	10.57	8.64	8.06	7.65	7.43	7.28
Temperature (°C)	7.8	7.9	8.2	8.4	8.4	8.5
Conductivity (μmhos/cm)	0.252	0.342	0.288	0.268	0.234	0.210
Dissolved Oxygen (mg/L)	9.58	3.51	2.37	2.17	2.07	2.00
Turbidity (NTU)	0	0	7	0	0	0
Eh (mv)	240	-28	-41	64	59	57

TOTAL QUANTITY OF WATER REMOVED (L): 65.0L

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 0955/0956
SAMPLING DATE: 11/11/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP MW012 BN-07-EP MWXD2
SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS: Hole in Steel casing Duplicate Sample collected

65.0 Liters of water containerized and run through treatment plant.

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600047	Date: 11/11/96
Well ID: MW-207A	Field Personnel: SYC, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	0925	0930	0935	0938	0941	0944
Depth to Water (ft)	2.25	2.25	2.25	2.27	2.27	2.27
Purge Rate (L/min)	1.5	1.5	1.5	1.5	1.5	1.5
Volume Purged (L)	30.0	37.5	45.0	49.5	54.0	58.5
pH	7.09	7.01	6.95	6.93	6.90	6.89
Temperature (°C)	8.5	8.5	8.5	8.5	8.6	8.6
Conductivity (μmhos/cm)	0.208	0.216	0.232	0.209	0.212	0.212
Dissolved Oxygen (mg/L)	3.10	3.12	2.15	1.91	1.85	1.82
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	51	47	42	40	38	35

Parameter	12	13	14	15	16	17
Time (min)	0947					
Depth to Water (ft)	2.28					
Purge Rate (L/min)	1.5					
Volume Purged (L)	63.0					
pH	6.93					
Temperature (°C)	8.6					
Conductivity (μmhos/cm)	0.208					
Dissolved Oxygen (mg/L)	1.51					
Turbidity (NTU)	0					
Eh (mv)	35					

COMMENTS AND OBSERVATIONS _____

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-207B
WELL CONDITION: Good

PROJECT NUMBER: 2960047
WELL LOCK STATUS: locked
WEATHER: Sunny, 35° windy

GAUGE DATE: 11/11/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.00

GAUGE TIME: 0958
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/11/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1000
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 9.01
B. DEPTH TO WATER (ft): 5.47
C. LIQUID DEPTH (ft) (A-B): 3.54

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 2.14
F. THREE WELL VOLUMES (L) (E*3): 6.42

Parameter	Beginning	1	2	3	4	5
Time (min)	1000	1003	1006	1009	1012	1015
Depth to Water (ft)	5.47	6.44	6.43	6.39	6.32	6.26
Purge Rate (L/min)	0.65	0.65	0.65	0.65	0.65	0.65
Volume Purged (L)	—	1.95	3.9	5.85	7.8	9.75
pH	7.20	6.73	6.53	6.41	6.26	6.11
Temperature (°C)	9.5	11.2	11.8	11.8	12.0	12.2
Conductivity (μmhos/cm)	0.096	0.422	0.418	0.428	0.436	0.450
Dissolved Oxygen (mg/L)	8.43	10.31	10.76	10.77	10.86	10.79
Turbidity (NTU)	1	0	0	0	0	0
Eh (mv)	242	325	320	318	318	316

TOTAL QUANTITY OF WATER REMOVED (L): 11

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1020 / 1021
SAMPLING DATE: 11/11/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP MW014
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: 11 Liters containerized and run through treatment plant

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-20S
WELL CONDITION: Good

PROJECT NUMBER: 2960047
WELL LOCK STATUS: locked
WEATHER: Overcast, breezy 60

GAUGE DATE: 11/8/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 1.75

GAUGE TIME: 1045
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/8/96
PURGE METHOD: Low flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1150
FIELD PERSONNEL: SYC
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 103.33
B. DEPTH TO WATER (ft): 21.89
C. LIQUID DEPTH (ft) (A-B): 81.44

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 49.27
F. THREE WELL VOLUMES (L) (E*3): 147.81

Parameter	Beginning	1	2	3	4	5
Time (min)	1050	1053	1056	1059	1102	1105
Depth to Water (ft)	21.89	23.35	23.25	23.28	23.12	23.12
Purge Rate (L/min)	0.2	0.2	0.2	0.3	0.3	0.3
Volume Purged (L)	—	0.6	1.2	2.1	3.0	3.9
pH	6.65	7.13	7.44	7.50	7.55	7.59
Temperature (°C)	8.0	8.2	8.2	8.3	8.2	8.2
Conductivity (μmhos/cm)	0.158	0.170	0.156	0.140	0.146	0.146
Dissolved Oxygen (mg/L)	5.51	3.80	1.22	0.93	0.73	0.67
Turbidity (NTU)	0	3	39	34	24	21
Eh (mv)	187	178	170	167	162	161

TOTAL QUANTITY OF WATER REMOVED (L): 24

SAMPLERS: SYC
SAMPLING TIME (START/END): 1215 / 1216
SAMPLING DATE: 11/8/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW-004
SAMPLE PARAMETERS: VOC EPA 8260

COMMENTS AND OBSERVATIONS: Containerized 24L ran through treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/8/96
Well ID: MW-208	Field Personnel: SYC	

Parameter	6	7	8	9	10	11
Time (min.)	1110	1115	1120	1125	1130	1133
Depth to Water (ft)	23.12	22.97	22.87	22.87	23.14	23.13
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	5.4	6.9	8.4	9.9	11.4	12.3
pH	7.69	7.71	7.71	7.72	7.78	7.82
Temperature (°C)	8.5	8.6	8.8	8.9	9.2	9.5
Conductivity (μmhos/cm)	0.148	0.148	0.144	0.198	0.176	0.178
Dissolved Oxygen (mg/L)	0.55	0.48	0.46	0.44	0.39	0.38
Turbidity (NTU)	28	25	31	37	32	26
Eh (mv)	147	139	130	116	99	90

Parameter	12	13	14	15	16	17
Time (min)	1136	1139	1142	1147	1152	1155
Depth to Water (ft)	23.12	23.09	23.09	23.09	23.07	23.06
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3
Volume Purged (L)	13.2	14.1	15.0	16.5	18.0	18.9
pH	7.87	7.88	7.89	7.90	7.91	7.92
Temperature (°C)	9.4	9.5	9.5	9.5	9.5	9.5
Conductivity (μmhos/cm)	0.152	0.162	0.158	0.152	0.152	0.144
Dissolved Oxygen (mg/L)	0.38	0.35	0.34	0.35	0.35	0.35
Turbidity (NTU)	20	18	17	13	12	12
Eh (mv)	84	79	73	70	67	62

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

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

Site Name: Easten Plume	Project No.: 2960047	Date: 11/8/96
Well ID: MW-208	Field Personnel: SYC	

Parameter	6	7	8	9	10	11
Time (min.)	1158	1201	1204	1207	1210	
Depth to Water (ft)	23.10	23.09	23.09	23.08	23.07	
Purge Rate (L/min)	0.3	0.3	0.3	0.3	0.3	
Volume Purged (L)	19.8	20.7	21.6	22.5	23.4	
pH	7.94	7.97	8.00	8.02	8.03	
Temperature (°C)	9.6	9.6	9.6	9.7	9.7	
Conductivity (μmhos/cm)	0.150	0.154	0.152	0.158	0.158	
Dissolved Oxygen (mg/L)	0.35	0.35	0.36	0.36	0.36	
Turbidity (NTU)	10	9	9	9	9	
Eh (mv)	58	50	45	43	42	

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-209
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Locked
WEATHER: OVERCAST, BREEZY, 60°

GAUGE DATE: 11/8/96
SOUNDING METHOD: Slope Indicator ~~Low Flow~~ #P
STICK UP/DOWN (ft): 1.90

GAUGE TIME: 1135
MEASUREMENT REF: SAP ~~24~~ TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/8/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1135
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 32.38
B. DEPTH TO WATER (ft): 26.33
C. LIQUID DEPTH (ft) (A-B): 6.05

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 3.66
F. THREE WELL VOLUMES (L) (E*3): 10.98

Parameter	Beginning	1	2	3	4	5
Time (min)	1138	1143	1148	1153	1158	1203
Depth to Water (ft)	26.33	26.33	26.40	26.40	26.40	26.39
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.2	0.7	1.2	1.7	2.2	2.7
pH	6.70	6.41	6.11	6.11	6.19	6.10
Temperature (°C)	7.7	8.1	8.8	13.8	14.6	14.1
Conductivity (μmhos/cm)	0.062	0.082	0.094	0.076	0.056	0.060
Dissolved Oxygen (mg/L)	4.98	4.23	4.16	3.66	3.61	3.58
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	422	420	364	341	342	344

TOTAL QUANTITY OF WATER REMOVED (L): 3.2

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1210 1220
SAMPLING DATE: 11/8/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW003 / BN-07-EP-MWXD1
SAMPLE PARAMETERS: VOC by EPA Method 8260

COMMENTS AND OBSERVATIONS: Adjust pump up to maintain flow. Back down to maintain flow, appears that pump may be clogging.

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 11/8/96
Well ID: MW 209	Field Personnel: SAP, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1208					
Depth to Water (ft)	26.42					
Purge Rate (L/min)	0.1					
Volume Purged (L)	3.2					
pH	6.00					
Temperature (°C)	14.1					
Conductivity (μmhos/cm)	0.056					
Dissolved Oxygen (mg/L)	3.47					
Turbidity (NTU)	0					
Eh (mv)	343					

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-222
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: Clear, Cold, 40°

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 3.00

GAUGE TIME: 1036
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1036
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 45.34
B. DEPTH TO WATER (ft): 28.37
C. LIQUID DEPTH (ft) (A-B): 16.97

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.27
F. THREE WELL VOLUMES (L) (E*3): 30.80

Parameter	Beginning	1	2	3	4	5
Time (min)	1038	1043	1048	1053	1058	1102
Depth to Water (ft)	~~0.2~~ 28.37	28.37	28.37	28.37	28.37	28.37
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	~~5.76~~ 0.4	1.4	2.4	3.4	4.4	5.4
pH	5.75	5.72	5.71	5.89	5.86	5.84
Temperature (°C)	7.3	7.5	8.6	10.0	10.9	11.2
Conductivity (μmhos/cm)	0.026	0.052	0.011	0.016	0.090	0.092
Dissolved Oxygen (mg/L)	2.30	1.82	1.42	1.17	0.97	0.90
Turbidity (NTU)	6	3	0	0	10	0
Eh (mv)	302	291	275	262	260	260

TOTAL QUANTITY OF WATER REMOVED (L): 7.0

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1103
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW023, BN-07-EP-MWXD3
SAMPLE PARAMETERS: VOC by EPA Method 8260

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
WELL LOCK STATUS: Locked
WEATHER: Overcast, 60°, breezy

GAUGE DATE: 11/8/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.20

GAUGE TIME: 1030
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/8/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: SAP ~~1035~~ 1035
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 42.61
B. DEPTH TO WATER (ft): 25.87
C. LIQUID DEPTH (ft) (A-B): 16.74

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.13
F. THREE WELL VOLUMES (L) (E*3): 30.39

Parameter	Beginning	1	2	3	4	5
Time (min)	1035	1050	1055	1100	1105	
Depth to Water (ft)	25.87	25.87	25.88	25.87	25.87	
Purge Rate (L/min)	0.1	0.2	0.2	0.2	0.2	
Volume Purged (L)	—	SM ~~1.5~~ 3.0	4.0	5.0	6.0	
pH	6.91	6.29	6.45	6.27	6.14	
Temperature (°C)	8.1	11.9	11.1	11.3	11.9	
Conductivity (μmhos/cm)	0.158	0.106	0.092	0.094	0.096	
Dissolved Oxygen (mg/L)	SM ~~0.158~~ 4.94	4.92	5.15	4.86	4.82	
Turbidity (NTU)	0	0	0	0	0	
Eh (mv)	372	367	382	355	361	

TOTAL QUANTITY OF WATER REMOVED (L): 6.0

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1110 1115
SAMPLING DATE: 11/8/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW001 MS/MSP
SAMPLE PARAMETERS: VOC by EPA Method 8260
COMMENTS AND OBSERVATIONS:

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: 29400.47
WELL LOCK STATUS: LOCKED
WEATHER: Clear, cold (40)

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.55

GAUGE TIME: 930
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: ~~934~~ 930
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 46.95
B. DEPTH TO WATER (ft): 27.66
C. LIQUID DEPTH (ft) (A-B): 19.29

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 11.67
F. THREE WELL VOLUMES (L) (E*3): 35.01

Parameter	Beginning	1	2	3	4	5
Time (min)	935	0940	0945	0950	0955	1000
Depth to Water (ft)	27.67	27.68	27.68	27.68	27.52	27.66
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	1.0	2.0	3.0	4.0	5.0	6.0
pH	10.15	7.94	7.29	6.95	6.52	6.28
Temperature (°C)	7.4	7.7	9.4	10.7	11.7	12.0
Conductivity (μmhos/cm)	0.134	0.061	0.064	0.034	0.040	0.060
Dissolved Oxygen (mg/L)	10.08	8.79	6.48	4.81	3.51	2.90
Turbidity (NTU)	1	1	0	0	0	0
Eh (mv)	248	269	257	251	250	250

TOTAL QUANTITY OF WATER REMOVED (L): 8.8

SAMPLERS: SAP BDA
SAMPLING TIME (START/END): 1011 - 1015
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN07-EP-MW021 (MS/MSD)
SAMPLE PARAMETERS: VOC by EPA Method 8260

COMMENTS AND OBSERVATIONS:
contained & disposed of purge water at treatment plant.

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick - EP	Project No.: 29600.47	Date: 11/12/96
Well ID: MW-224	Field Personnel: SAP, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1005	1010				
Depth to Water (ft)	27.66	27.66				
Purge Rate (L/min)	.2	.2				
Volume Purged (L)	7.0	8.0				
pH	5.99	5.89				
Temperature (°C)	12.4	12.6				
Conductivity (μmhos/cm)	0.056	0.040				
Dissolved Oxygen (mg/L)	2.96	2.56				
Turbidity (NTU)	0	0				
Eh (mv)	252	254				

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-225A
WELL CONDITION: good

PROJECT NUMBER: 2960017
WELL LOCK STATUS: locked
WEATHER: Sunny, 35°, windy

GAUGE DATE: 11/12/96
SOUNDING METHOD: slope indicator
STICK UP/DOWN (ft): 2.81

GAUGE TIME: 0949
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 953
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 76.03
B. DEPTH TO WATER (ft): 19.78
C. LIQUID DEPTH (ft) (A-B): 56.25
D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 34.03
F. THREE WELL VOLUMES (L) (E*3): 102.09

Parameter	Beginning	1	2	3	4	5
Time (min)	953	956	0959	1002	1005	1008
Depth to Water (ft)	19.78	19.78	19.78	19.78	19.78	19.80
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	11.19	9.78	9.16	8.66	8.29	7.72
Temperature (°C)	8.1	8.3	8.7	8.7	8.9	9.3
Conductivity (μmhos/cm)	0.120	0.110	0.188	0.216	0.216	0.154
Dissolved Oxygen (mg/L)	8.57	4.89	4.32	4.17	4.06	3.79
Turbidity (NTU)	71	135	95	78	63	48
Eh (mv)	177	192	197	199	199	197

TOTAL QUANTITY OF WATER REMOVED (L): 8

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1035/1036
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW020
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: 8L containerized and run through treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/12/96
Well ID: MW-225A	Field Personnel: SYC, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1011	1015	1019	1022	1025	1028
Depth to Water (ft)	19.80	19.80	19.80	19.80	19.80	19.80
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	3.6	4.4	5.2	5.8	6.4	7.0
pH	7.45	7.34	7.18	7.19	7.17	7.12
Temperature (°C)	9.5	9.5	9.7	9.8	9.8	9.9
Conductivity (μmhos/cm)	0.212	0.196	0.192	0.202	0.200	0.210
Dissolved Oxygen (mg/L)	3.98	4.19	3.99	4.16	4.12	4.01
Turbidity (NTU)	42	39	36	35	33	32
Eh (mv)	193	190	182	177	172	169

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-229B
WELL CONDITION: good
PROJECT NUMBER: 2960047
WELL LOCK STATUS: locked
WEATHER: sunny, 35, windy

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.35
GAUGE TIME: 940
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
PURGE TIME: 943
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 42.00
B. DEPTH TO WATER (ft): 20.69
C. LIQUID DEPTH (ft) (A-B): 21.31
D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 12.89
F. THREE WELL VOLUMES (L) (E*3): 38.68

Parameter	Beginning	1	2	3	4	5
Time (min)	0943	0946	0949	0952	0955	0958
Depth to Water (ft)	20.69	20.69	20.69	20.69	20.69	20.69
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	—	0.3	0.6	0.9	1.2	1.5
pH	9.64	8.83	8.09	7.71	7.27	7.05
Temperature (°C)	8.3	8.3	8.4	8.6	8.9	9.1
Conductivity (μmhos/cm)	0.108	0.082	0.096	0.086	0.082	0.080
Dissolved Oxygen (mg/L)	7.95	6.93	6.57	6.46	6.49	6.30
Turbidity (NTU)	1	0	0	0	0	0
Eh (mv)	265	322	332	333	331	336

TOTAL QUANTITY OF WATER REMOVED (L): 3

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1010 / 1011
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-8P-MW018
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: 3 Liters containerized water and ran through treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/12/96
Well ID: MW-225B	Field Personnel: SYC, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1001	1004				
Depth to Water (ft)	20.69	20.69				
Purge Rate (L/min)	0.1	0.1				
Volume Purged (L)	1.8	2.1				
pH	6.86	6.71				
Temperature (°C)	9.7	10.0				
Conductivity (μmhos/cm)	0.082	0.078				
Dissolved Oxygen (mg/L)	6.04	5.98				
Turbidity (NTU)	0	0				
Eh (mv)	340	348				

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 EP
PROJECT NUMBER: 29600.47
WELL I.D.: MW-229 A
WELL LOCK STATUS: LOCKED
WELL CONDITION: GOOD
WEATHER: SUNNY, COLD 30

GAUGE DATE: 11/13/96
GAUGE TIME: ~~1305~~ 1302
SOUNDING METHOD: Slope Indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 2.76
WELL DIAMETER (in.): 2"

PURGE DATE: 11/13/96
PURGE TIME: 1304
PURGE METHOD: SLOW FLOW
FIELD PERSONNEL: BDA, SAP
AMBIENT AIR VOCs (ppm) Start: 0 End: 0
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 64.97
B. DEPTH TO WATER (ft): 13.79
C. LIQUID DEPTH (ft) (A-B): 51.18
D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 30.96
F. THREE WELL VOLUMES (L) (E*3): 92.89

Parameter	Beginning	1	2	3	4	5
Time (min)	1305	1310	1315	1320	1325	1330
Depth to Water (ft)	13.79	13.91	14.04	14.05	14.05	14.05
Purge Rate (L/min)	0.2	0.2*	0.4	0.4	0.4	0.4
Volume Purged (L)	0.2	1.2	3.2	5.2	7.2	9.2
pH	9.64	9.65	9.39	9.20	9.07	8.92
Temperature (°C)	8.0	8.3	8.8	9.7	9.8	10.1
Conductivity (μmhos/cm)	0.116	0.104	0.124	0.126	0.112	0.114
Dissolved Oxygen (mg/L)	10.82	10.25	10.19	9.52	9.28	9.36
Turbidity (NTU)	8	178	125	76	53	44
Eh (mv)	70	66	70	74	81	87

TOTAL QUANTITY OF WATER REMOVED (L): 16.2

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1355
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: VOA
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW034 (a)
SAMPLE PARAMETERS: VOCs by 8260

COMMENTS AND OBSERVATIONS: * because of increased turbidity increase flow to 0.4 L/min. and watch for drawdown.

purge water to treatment plant.

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick EP	Project No.: 29600.47	Date: 11/13/96
Well ID: MW-22917	Field Personnel: BDH	

Parameter	6	7	8	9	10	11
Time (min.)	1335	1340	1345	1350	1355	
Depth to Water (ft)	14.05	14.05	13.90	13.90	13.90	
Purge Rate (L/min)	0.4	~~0.2~~ 0.4	0.2	0.2	0.2	
Volume Purged (L)	11.2	~~13.2~~ 13.2	14.2	15.2	16.2	
pH	8.85	8.76	8.68	8.61	8.56	
Temperature (°C)	10.1	10.2	10.2	9.7	9.4	
Conductivity (μmhos/cm)	0.108	0.114	0.114	0.112	0.112	
Dissolved Oxygen (mg/L)	9.43	9.51	9.50	9.43	9.33	
Turbidity (NTU)	37	36	33	33	34	
Eh (mv)	90	94	97	102	104	

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-229B
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY COLD 30

GAUGE DATE: 11/13/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.55

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

PURGE DATE: 11/13/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1305
FIELD PERSONNEL: SHP BDA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 32.70
B. DEPTH TO WATER (ft): 15.53
C. LIQUID DEPTH (ft) (A-B): 17.17

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 10.39
F. THREE WELL VOLUMES (L) (E*3): 31.16

Parameter	Beginning	1	2	3	4	5
Time (min)	1311	1316	1321	1326	1331	1336
Depth to Water (ft)	15.29	15.29	15.29	15.29	15.29	15.29
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.6	1.1	1.6	2.1	2.6	3.1
pH	7.66	7.53	7.36	7.26	7.16	7.10
Temperature (°C)	10.0	11.1	11.9	12.9	13.2	13.5
Conductivity (μmhos/cm)	0.054	0.050	0.052	0.052 ~~7.56~~	0.062	0.068
Dissolved Oxygen (mg/L)	7.72	8.40	7.76	7.56	7.74	7.62
Turbidity (NTU)	24	24	19	17	16	15
Eh (mv)	102	118	133	145	152	158

TOTAL QUANTITY OF WATER REMOVED (L): Gal

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1404
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW0
SAMPLE PARAMETERS: VOC by EPA Method 8260
COMMENTS AND OBSERVATIONS:

Purge water to treat. Plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 11/13/96
Well ID: MW-2.24 B	Field Personnel: SMP, BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1341	1346	1351	1356	1359	1402
Depth to Water (ft)	15.89	15.89	15.89	15.89	15.89	15.89
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	3.6	4.1	4.6	5.1	5.6	6.1
pH	7.03	6.97	6.92	6.88	6.85	6.83
Temperature (°C)	13.7	13.9	13.9	14.1	14.2	14.4
Conductivity (μmhos/cm)	0.058	0.060	0.064	0.058	0.050	0.062
Dissolved Oxygen (mg/L)	7.71	7.60	7.55	8.13	8.37	8.30
Turbidity (NTU)	11	10	10	9	8	8
Eh (mv)	164	168	173	176	177	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
WELL I.D.: MW 30A
WELL CONDITION: GOOD

PROJECT NUMBER: 2960.47
WELL LOCK STATUS: LOCKED
WEATHER: SUNNY COLD 30°

GAUGE DATE: 11/13/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.21

GAUGE TIME: 1105
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/13/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1106
FIELD PERSONNEL: BDA, SMP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 82.08
B. DEPTH TO WATER (ft): 15.57
C. LIQUID DEPTH (ft) (A-B): 64.51

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 40.24
F. THREE WELL VOLUMES (L) (E*3): 120.72

Parameter	Beginning	1	2	3	4	5
Time (min)	11:08	1113	1118	1123	1128	1133
Depth to Water (ft)	15.94	15.95	15.94	15.95	15.95	15.95
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	0.4	1.4	2.4	3.4	4.4	5.4
pH	7.57	7.57	7.60	7.62	7.72	7.77
Temperature (°C)	7.3	7.5	7.6	7.8	8.3	8.6
Conductivity (μmhos/cm)	0.072	0.078	0.094	0.070	0.096	0.072
Dissolved Oxygen (mg/L)	2.36	0.49	0.30	0.22	0.20	0.16
Turbidity (NTU)	7	22	18	19	22	26
Eh (mv)	164	118	7	-65	-81	-95

TOTAL QUANTITY OF WATER REMOVED (L): 5.4

SAMPLERS: SMP BDA
SAMPLING TIME (START/END): 1135
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW035 / BN-07-EP-MWXD5
SAMPLE PARAMETERS: VOC by EPA Method 8260

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: 2960047
WELL LOCK STATUS: locked
WEATHER: sunny, 40 windy

GAUGE DATE: 11/12/96
SOUNDING METHOD: Sipon indicator
STICK UP/DOWN (ft): 2.65

GAUGE TIME: 1314
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1320
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 62.42
B. DEPTH TO WATER (ft): 20.99
C. LIQUID DEPTH (ft) (A-B): 41.43

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 25.06
F. THREE WELL VOLUMES (L) (E*3): 75.19

Parameter	Beginning	1	2	3	4	5
Time (min)	1320	1323	1326	1329	1332	1335
Depth to Water (ft)	20.99	21.15	21.08	21.01	21.01	21.02
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	—	0.3	0.6	0.9	1.2	1.5
pH	7.13	6.92	6.78	6.70	6.66	6.62
Temperature (°C)	7.5	7.3	7.3	7.6	7.7	7.9
Conductivity (μmhos/cm)	0.048	0.090	0.086	0.094	0.098	0.092
Dissolved Oxygen (mg/L)	14.25	13.01	12.54	12.71	12.91	12.87
Turbidity (NTU)	15	43	72	75	70	76
Eh (mv)	186	194	199	201	202	202

TOTAL QUANTITY OF WATER REMOVED (L): 4L

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1355/1356
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW026 BN-07-EP-MWXD4
SAMPLE PARAMETERS: VOC by EPA 8260 Duplicate sample
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: 11/12/96
Well ID: MW-231A	Field Personnel: SYC MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1338	1343	1347	1350	1353	
Depth to Water (ft)	21.01	21.01	21.02	21.02	21.02	
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	
Volume Purged (L)	1.8	2.3	2.7	3.0	3.3	
pH	6.44	6.51	6.51	6.51	6.51	
Temperature (°C)	8.2	8.7	9.1	9.2	9.4	
Conductivity (μmhos/cm)	0.072	0.068	0.068	0.068	0.064	
Dissolved Oxygen (mg/L)	12.87	12.59	12.57	12.64	12.54	
Turbidity (NTU)	79	61	50	55	51	
Eh (mv)	203	203	202	202	202	

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-23B
WELL CONDITION: good

PROJECT NUMBER: 2960047
WELL LOCK STATUS: locked
WEATHER: Sunny 50 windy

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 3.00

GAUGE TIME: 1327
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1359
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 57.56
B. DEPTH TO WATER (ft): 25.01
C. LIQUID DEPTH (ft) (A-B): 32.55
D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 19.87
F. THREE WELL VOLUMES (L) (E*3): 59.62

Parameter	Beginning	1	2	3	4	5
Time (min)	1359	1402	1405	1408	1412	1415
Depth to Water (ft)	25.01	25.81	25.76	25.76	25.76	25.76
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	3.9	4.8
pH	6.53	6.51	6.48	6.48	6.66	6.72
Temperature (°C)	8.4	8.3	9.3	10.1	10.4	10.6
Conductivity (μmhos/cm)	0.058	0.058	0.074	0.078	0.074	0.076
Dissolved Oxygen (mg/L)	14.34	14.29	14.10	13.77	13.70	13.68
Turbidity (NTU)	28	23	17	18	17	18
Eh (mv)	206	205	205	203	791	187

TOTAL QUANTITY OF WATER REMOVED (L): 5.5 L

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1420 / 1421
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW028
SAMPLE PARAMETERS: VOC by EPA 8260

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
WELL LOCK STATUS: LOCKED
WEATHER: Partly Cloudy, 50°

GAUGE DATE: 11/10/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 1.81

GAUGE TIME: 930
MEASUREMENT REF: X TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/10/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 935
FIELD PERSONNEL: SAP, BDA
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 71.62
B. DEPTH TO WATER (ft): 13.70
C. LIQUID DEPTH (ft) (A-B): 57.92

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 35.04
F. THREE WELL VOLUMES (L) (E*3): 105.12

Parameter	Beginning	1	2	3	4	5
Time (min)	939	944	949	954	959	1004
Depth to Water (ft)	13.70	13.71	13.71	13.71	13.71	13.71
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.4	~~1.9~~ 0.9	1.4	1.9	2.4	2.9
pH	9.25	8.46	8.15	8.03	7.99	7.96
Temperature (°C)	7.7	7.9	8.1	8.0	8.2	8.5
Conductivity (μmhos/cm)	0.214	0.212	0.218	0.212	~~0.24~~ 0.204	0.210
Dissolved Oxygen (mg/L)	2.21	0.62	0.31	0.26	0.24	0.21
Turbidity (NTU)	2	6	9	4	5	4
Eh (mv)	195	139	-53	-106	-134	-148

TOTAL QUANTITY OF WATER REMOVED (L): 3.4

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1010/1015
SAMPLING DATE: 11/10/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW007
SAMPLE PARAMETERS: VOC by EPA Method 8260

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: 11/10/96
Well ID: MW-303	Field Personnel: SAP BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1009					
Depth to Water (ft)	13.71					
Purge Rate (L/min)	0.1					
Volume Purged (L)	~~4.4~~ 3.4					
pH	7.95					
Temperature (°C)	8.5					
Conductivity (μmhos/cm)	0.210					
Dissolved Oxygen (mg/L)	0.21					
Turbidity (NTU)	3					
Eh (mv)	-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: Eastern Plume
WELL I.D.: MW-305
WELL CONDITION: good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Locked
WEATHER: OVERCAST Breezy 60°

GAUGE DATE: ~~1350~~ SAP 11/8/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.70

GAUGE TIME: 1350
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/8/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0

PURGE TIME: 1353
FIELD PERSONNEL: BDA, SP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 54.12
B. DEPTH TO WATER (ft): 7.56
C. LIQUID DEPTH (ft) (A-B): 46.56

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 28.17
F. THREE WELL VOLUMES (L) (E*3): 84.51

Parameter	Beginning	1	2	3	4	5
Time (min)	1355	1400	1405	1410	1415	1420
Depth to Water (ft)	7.56	8.84	8.72	8.75	8.75	8.75
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.2	0.7	1.2	1.7	2.2	2.7
pH	6.76	6.93	7.37	7.75	8.09	8.20
Temperature (°C)	9.1	9.0	9.0	9.2	9.4	9.5
Conductivity (μmhos/cm)	0.166	0.134	0.278	0.270	0.254	0.268
Dissolved Oxygen (mg/L)	3.42	1.07	1.11	1.06	0.99	0.99
Turbidity (NTU)	0	69	80	42	30	19
Eh (mv)	307	137	32	-22	-48	-63

TOTAL QUANTITY OF WATER REMOVED (L): 4.9

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1435 - 1440
SAMPLING DATE: 11/8/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW005
SAMPLE PARAMETERS: VOCs by 8260

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: NAS Brunswick - EP	Project No.: 29600.47	Date: 11/8/96
Well ID: MW-305	Field Personnel: BDA, SAP	

Parameter	6	7	8	9	10	11
Time (min.)	1425	1430	1433			
Depth to Water (ft)	8.75	8.75	8.75			
Purge Rate (L/min)	0.1	0.1	0.1			
Volume Purged (L)	3.2	3.7	4.2			
pH	8.30	8.40	8.43			
Temperature (°C)	9.6	9.8	9.9			
Conductivity (μmhos/cm)	0.270	0.268	0.280			
Dissolved Oxygen (mg/L)	0.90	0.85	0.88			
Turbidity (NTU)	0	0	0			
Eh (mv)	-75	-80	-78			

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-306
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Locked
WEATHER: Partly Cloudy, 50° SW breeze

GAUGE DATE: 11/10/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.35

GAUGE TIME: 1119
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/10/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1119
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 56.98
B. DEPTH TO WATER (ft): 19.86
C. LIQUID DEPTH (ft) (A-B): 37.12

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 22.46
F. THREE WELL VOLUMES (L) (E*3): 67.37

Parameter	Beginning	1	2	3	4	5
Time (min)	1124	1129	1134	1139	1144	1149
Depth to Water (ft)	19.93	19.90	19.90	19.90	19.90	19.90
Purge Rate (L/min)	0.1	0.1	0.2	0.2	0.2	0.2
Volume Purged (L)	0.5	1.0	2.0	3.0	4.0	5.0
pH	7.62	6.68	6.27	5.98	5.90	5.76
Temperature (°C)	9.3	9.4	9.6	10.2	11.4	11.6
Conductivity (μmhos/cm)	0.090	0.092	0.072	0.060	0.076	0.080
Dissolved Oxygen (mg/L)	8.95	8.87	8.87	8.87	8.62	8.49
Turbidity (NTU)	105	265	284	141	76	72
Eh (mv)	162	194	201	204	203	208

TOTAL QUANTITY OF WATER REMOVED (L): 9.6

SAMPLERS: BDA, SAP
SAMPLING TIME (START/END): 1213/1218
SAMPLING DATE: 11/10/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW009
SAMPLE PARAMETERS: VOC by EPA Method 8260

COMMENTS AND OBSERVATIONS: Fluids contained and will be disposed of at treatment plant

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 11/10/96
Well ID: MW-306	Field Personnel: BDA, SAP	

Parameter	6	7	8	9	10	11
Time (min.)	1154	1159	1204	1209	1212	
Depth to Water (ft)	19.95	19.95	19.95	19.95	19.95	
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	
Volume Purged (L)	6.0	7.0	8.0	9.0	9.6	
pH	5.67	5.60	5.58	5.59	5.65	
Temperature (°C)	11.7	11.8	11.9	12.1	12.4	
Conductivity (μmhos/cm)	0.088	0.090	0.072	0.060	0.060	
Dissolved Oxygen (mg/L)	8.46	8.51	8.56	8.75	8.70	
Turbidity (NTU)	40	37	33	37	38	
Eh (mv)	211	214	214	213	210	

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-307
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Locked
WEATHER: Partly Cloudy 50° SW Breeze

GAUGE DATE: 11/10/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.00

GAUGE TIME: 1330
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/10/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1336
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 22.21
B. DEPTH TO WATER (ft): 16.56
C. LIQUID DEPTH (ft) (A-B): 5.65

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 3.42
F. THREE WELL VOLUMES (L) (E*3): 10.26

Parameter	Beginning	1	2	3	4	5
Time (min)	1337	1343	1348	1353	1358	1403
Depth to Water (ft)	16.65	16.60	16.60	16.60	16.62	16.62
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.7	1.3	1.8	2.3	2.8	3.3
pH	6.08	5.79	5.85	5.94	5.99	5.96
Temperature (°C)	10.1	10.8	12.3	17.8	19.6	19.0
Conductivity (μmhos/cm)	0.188	0.160	0.204	0.204	0.176	0.172
Dissolved Oxygen (mg/L)	6.31	5.95	6.38	6.41	6.90	6.87
Turbidity (NTU)	148	72	64	51	29	28
Eh (mv)	272	236	225	207	207	212

TOTAL QUANTITY OF WATER REMOVED (L)*: 10.1

SAMPLERS: SAP, BDA
SAMPLING TIME (START/END): 1525/1530
SAMPLING DATE: 11/10/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW010
SAMPLE PARAMETERS: VOC by EPA Method 8260
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: 11/10/96
Well ID: MW-307	Field Personnel: SM BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1408	1418	1423	1431	1436	~~1443~~ 1441
Depth to Water (ft)	16.82	16.62	16.64	16.62	16.62	16.62
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	3.8	4.8	5.3	6.1	6.6	7.1
pH	5.97	5.91	5.96	5.96	5.96	6.00
Temperature (°C)	18.4	15.4	17.4	18.4	19.0	20.6
Conductivity (μmhos/cm)	0.134	0.122	0.170	~~0.670~~ 0.180 *	0.140	0.132
Dissolved Oxygen (mg/L)	6.94	7.63	7.56	7.39	7.28	7.26
Turbidity (NTU)	29	135	97	86	81	55
Eh (mv)	214	218	203	212	214	211

Parameter	12	13	14	15	16	17
Time (min)	1446	1451	1456	1501	1507	1512
Depth to Water (ft)	16.62	16.62	16.62	16.62	16.62	16.62
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	7.6	8.1	8.6	7.1	7.6	8.1
pH	6.00	6.00	6.02	6.00	5.96	5.96
Temperature (°C)	20.7	21.5	22.1	21.0	20.6	20.8
Conductivity (μmhos/cm)	0.136	0.174	0.178	0.154	0.154	0.166
Dissolved Oxygen (mg/L)	7.20	7.21	7.31	7.49	7.44	7.53
Turbidity (NTU)	42	35	30	25	23	22
Eh (mv)	219	218	220	224	229	229

COMMENTS AND OBSERVATIONS Adjust water rate to free up pump many times
*add 3 L to total Quantity of water removed from well

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29200.47	Date: 11/10/96
Well ID: MW-307	Field Personnel: SAP BDA	

Parameter	6	7	8	9	10	11
Time (min.)	1517	1522				
Depth to Water (ft)	16.42	16.42				
Purge Rate (L/min)	0.1	0.1				
Volume Purged (L)	8.6	9.1				
pH	5.96	5.99				
Temperature (°C)	20.9	21.6				
Conductivity (μmhos/cm)	0.148	0.138				
Dissolved Oxygen (mg/L)	7.41	7.44				
Turbidity (NTU)	19	19				
Eh (mv)	230	224				

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: 2960047
WELL LOCK STATUS: locked
WEATHER: 90-sunny 35°

GAUGE DATE: 11/11/96
SOUNDING METHOD: Sonic indicator
STICK UP/DOWN (ft): 2.44

GAUGE TIME: 1332
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/11/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

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

WELL VOLUME

A. WELL DEPTH (ft): 72.85
B. DEPTH TO WATER (ft): 5.65
C. LIQUID DEPTH (ft) (A-B): 67.20

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 40.66
F. THREE WELL VOLUMES (L) (E*3): 121.97

Parameter	Beginning	1	2	3	4	5
Time (min)	1335	1338	1341	1344	1347	1350
Depth to Water (ft)	5.65	5.99	5.99	5.99	5.99	6.00
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	6.68	7.17	7.61	7.80	7.96	8.07
Temperature (°C)	9.2	8.9	9.3	9.3	9.3	9.4
Conductivity (μmhos/cm)	0.574	0.814	0.874	0.894	0.796	0.716
Dissolved Oxygen (mg/L)	12.83	5.79	4.42	2.46	2.06	1.90
Turbidity (NTU)	0	0	4	0	0	0
Eh (mv)	151	62	-14	-50	-70	-82

TOTAL QUANTITY OF WATER REMOVED (L): 9.5L

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1425/1426
SAMPLING DATE: 11/11/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW017
SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2160047	Date: 11/11/96
Well ID: MW-308	Field Personnel: MDC SYC	

Parameter	6	7	8	9	10	11
Time (min.)	1353	1356	1359	1402	1405	1408
Depth to Water (ft)	6.00	6.00	6.00	6.00	6.00	6.00
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	8.18	8.29	8.40	8.44	8.48	8.52
Temperature (°C)	9.5	9.7	9.8	9.8	9.8	9.9
Conductivity (μmhos/cm)	0.726	0.652	0.686	0.706	0.670	0.640
Dissolved Oxygen (mg/L)	1.74	1.90	2.19	1.85	1.49	1.57
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	-96	-109	-124	-125	-128	-133

Parameter	12	13	14	15	16	17
Time (min)	1411	1414	1417	1420		
Depth to Water (ft)	6.00	6.00	6.00	6.00		
Purge Rate (L/min)	0.2	0.2	0.2	0.2		
Volume Purged (L)	7.2	7.8	8.4	9.0		
pH	8.56	8.57	8.57	8.57		
Temperature (°C)	9.9	9.9	9.9	9.9		
Conductivity (μmhos/cm)	0.736	0.710	0.736	0.764		
Dissolved Oxygen (mg/L)	1.67	1.52	1.42	1.37		
Turbidity (NTU)	0	0	0	0		
Eh (mv)	-137	-139	-142	-146		

COMMENTS AND OBSERVATIONS

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
PROJECT NUMBER: 2960047
WELL I.D.: MW-309A
WELL LOCK STATUS: locked
WELL CONDITION: good
WEATHER: S

GAUGE DATE: 11/13/96
GAUGE TIME: 1020
SOUNDING METHOD: Slope indicator
MEASUREMENT REF: TOC
STICK UP/DOWN (ft): 2.49
WELL DIAMETER (in.): 2

PURGE DATE: 11/13/96
PURGE TIME: 1022
PURGE METHOD: Low Flow
FIELD PERSONNEL: SYC MDC
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): Artesian
C. LIQUID DEPTH (ft) (A-B): 72.71
D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 43.99
F. THREE WELL VOLUMES (L) (E*3): 131.97

Parameter	Beginning	1	2	3	4	5
Time (min)	1022	1025	1028	1031	1033	1036
Depth to Water (ft)	>0.00	>0.00	>0.00	>0.00	>0.00	>0.00
Purge Rate (L/min)	1.6	1.6	1.6	1.6	1.6	1.6
Volume Purged (L)	—	4.8	9.6	14.4	19.2	24.0
pH	9.68	9.67	9.66	9.66	9.66	9.66
Temperature (°C)	8.4	8.5	8.7	8.8	8.9	9.0
Conductivity (μmhos/cm)	0.348	0.340	0.338	0.340	0.340	0.338
Dissolved Oxygen (mg/L)	2.98	1.84	1.68	1.69	1.64	1.52
Turbidity (NTU)	2	1	0	0	0	0
Eh (mv)	102	89	77	67	59	45

TOTAL QUANTITY OF WATER REMOVED (L): 82

SAMPLERS: SYC, MDC
SAMPLING TIME (START/END): 1113/1114
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP- MW032
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: well actively Flowing (>0.00ft to tw)

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/13/96
Well ID: MW-309A	Field Personnel: SYC MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1039	1042	1045	1048	1051	1054
Depth to Water (ft)	>0.00	>0.00	>0.00	>0.00	>0.00	>0.00
Purge Rate (L/min)	1.6	1.6	1.6	1.6	1.6	1.6
Volume Purged (L)	28.8	33.6	38.4	43.2	48.0	52.8
pH	9.65	9.65	9.65	9.65	9.64	9.65
Temperature (°C)	9.0	9.0	9.0	9.0	9.0	9.0
Conductivity (μmhos/cm)	0.344	0.342	0.342	0.338	0.344	0.338
Dissolved Oxygen (mg/L)	1.45	1.50	1.41	1.43	1.42	1.41
Turbidity (NTU)	0	0	0	0	0	0
Eh (mv)	34	30	15	6	0	-3

Parameter	12	13	14	15	16	17
Time (min)	1057	1100	1103	1106	1109	
Depth to Water (ft)	>0.00	>0.00	>0.00	>0.00	>0.00	
Purge Rate (L/min)	1.6	1.6	1.6	1.6	1.6	
Volume Purged (L)	57.6	62.4	67.2	73.0	77.8	
pH	9.65	9.64	9.65	9.65	9.65	
Temperature (°C)	9.0	9.0	9.0	9.0	9.0	
Conductivity (μmhos/cm)	0.342	0.338	0.338	0.338	0.342	
Dissolved Oxygen (mg/L)	1.34	1.33	1.37	1.31	1.34	
Turbidity (NTU)	0	0	0	0	0	
Eh (mv)	-16	-27	-31	-32	-34	

COMMENTS AND OBSERVATIONS _____

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: 29600047
WELL LOCK STATUS: locked
WEATHER: Sunny ~~[illegible]~~ 30°

GAUGE DATE: 11/13/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.42

GAUGE TIME: 940
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/13/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 943
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 59.43
B. DEPTH TO WATER (ft): 0.72
C. LIQUID DEPTH (ft) (A-B): 58.71

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 35.52
F. THREE WELL VOLUMES (L) (E*3): 71.04

Parameter	Beginning	1	2	3	4	5
Time (min)	943	946	949	952	955	958
Depth to Water (ft)	0.72	3.67	5.12	6.79	7.01	7.32
Purge Rate (L/min)	variable	→				
Volume Purged (L)	—					
pH	11.03	10.78	10.59	10.36	10.22	10.01
Temperature (°C)	8.2	8.1	7.9	8.0	8.1	7.8
Conductivity (μmhos/cm)	0.216	0.186	0.192	0.162	0.224	0.226
Dissolved Oxygen (mg/L)	6.58	3.66	3.04	2.49	2.31	1.96
Turbidity (NTU)	15	15	12	8	7	6
Eh (mv)	141	139	139	137	137	135

TOTAL QUANTITY OF WATER REMOVED (L): _____

SAMPLERS: MDC SYC
SAMPLING TIME (START/END): 1020/1021
SAMPLING DATE: 11/13/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW030
SAMPLE PARAMETERS: VOC by EPA 8260

COMMENTS AND OBSERVATIONS: purge rate varied. The purge rate could not be low enough to not cause drawdown in well. Had to be constantly adjusted

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/13/96
Well ID: MW-309B	Field Personnel: SYC, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1001	1004	1007	1010	1013	1016
Depth to Water (ft)	8.61	9.32	10.47	11.21	12.62	13.53
Purge Rate (L/min)	Variable →					
Volume Purged (L)						
pH	9.96	9.87	9.77	9.73	9.69	9.67
Temperature (°C)	7.9	8.3	8.6	8.9	9.0	9.0
Conductivity (μmhos/cm)	0.284	0.290	~~8.7~~ 0.284	0.282	0.272	0.276
Dissolved Oxygen (mg/L)	2.12	1.92	1.77	1.91	1.89	1.85
Turbidity (NTU)	5	6	5	4	4	4
Eh (mv)	135	133	130	129	128	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-310
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: LOCKED
WEATHER: COLD, Clear 40

GAUGE DATE: 11/12/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2.57

GAUGE TIME: 1121
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/12/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1121
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 72.83
B. DEPTH TO WATER (ft): 28.45
C. LIQUID DEPTH (ft) (A-B): 44.38

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 26.85
F. THREE WELL VOLUMES (L) (E*3): 80.55

Parameter	Beginning	1	2	3	4	5
Time (min)	11.23	11.28	11.33	1138	1143	1148
Depth to Water (ft)	28.47	28.47	28.47	28.47	28.47	28.47
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.2	0.7	SAP 1.2	1.7	2.2	2.7
pH	6.19	6.26	6.28	6.30	6.30	6.31
Temperature (°C)	8.5	8.7	9.0	8.9	9.1	9.2
Conductivity (μmhos/cm)	0.124	0.046	0.076	0.094	0.094	0.084
Dissolved Oxygen (mg/L)	1.36	1.24	1.15	1.13	1.12	1.11
Turbidity (NTU)	7	24	28	23	23	20
Eh (mv)	244	244	214	204	198	196

TOTAL QUANTITY OF WATER REMOVED (L): 4.1

SAMPLERS: BDA SAP
SAMPLING TIME (START/END): 1154
SAMPLING DATE: 11/12/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW025
SAMPLE PARAMETERS: VOC by EPA Method 8260

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: 11/12/96
Well ID: MW-310	Field Personnel: BDA, SMP	

Parameter	6	7	8	9	10	11
Time (min.)	1152					
Depth to Water (ft)	38.47					
Purge Rate (L/min)	0.2					
Volume Purged (L)	3.7					
pH	6.30					
Temperature (°C)	9.4					
Conductivity (μmhos/cm)	0.082					
Dissolved Oxygen (mg/L)	1.10					
Turbidity (NTU)	21					
Eh (mv)	194					

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: 2960047
WELL LOCK STATUS: locked
WEATHER: Sunny, 35° windy

GAUGE DATE: 11/11/96
SOUNDING METHOD: Slope indicator
STICK UP/DOWN (ft): 2.30

GAUGE TIME: 1036
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2

PURGE DATE: 11/11/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 1040
FIELD PERSONNEL: SYC MDC
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 55.78
B. DEPTH TO WATER (ft): 1.32
C. LIQUID DEPTH (ft) (A-B): 54.46

D. WELL VOLUME/FT (L): .605
E. WELL VOLUME (L) (C*D): 32.95
F. THREE WELL VOLUMES (L) (E*3): 98.84

Parameter	Beginning	1	2	3	4	5
Time (min)	1040	1043	1046	1049	1052	1055
Depth to Water (ft)	1.32	2.65	2.68	2.70	2.71	2.74
Purge Rate (L/min)	1.2	1.2	1.2	1.2	1.2	1.2
Volume Purged (L)	—	3.6	7.2	10.8	14.4	18.0
pH	6.42	6.40	6.38	6.37	6.37	6.37
Temperature (°C)	7.6	7.9	8.1	8.4	8.5	8.5
Conductivity (μmhos/cm)	0.142	0.138	0.144	0.136	0.140	0.140
Dissolved Oxygen (mg/L)	7.89	6.47	5.22	4.57	4.59	4.16
Turbidity (NTU)	60	52	87	82	25	19
Eh (mv)	333	316	307	301	296	295

TOTAL QUANTITY OF WATER REMOVED (L): 38

SAMPLERS: SYC MDC
SAMPLING TIME (START/END): 1115/1116
SAMPLING DATE: 11/11/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW016
SAMPLE PARAMETERS: VOC by EPA 8260
COMMENTS AND OBSERVATIONS: 38 Lg water containerized and run through treatment plant.

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 2960047	Date: 11/11/96
Well ID: MW-311	Field Personnel: SYC, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	1100	1105	1108	1111		
Depth to Water (ft)	2.76	2.77	2.78	2.78		
Purge Rate (L/min)	1.2	1.2	1.2	1.2		
Volume Purged (L)	24.0	30.0	33.6	37.2		
pH	6.37	6.36	6.35	6.35		
Temperature (°C)	8.5	8.6	8.6	8.6		
Conductivity (μmhos/cm)	0.140	0.144	0.144	0.142		
Dissolved Oxygen (mg/L)	4.37	4.14	4.13	4.13		
Turbidity (NTU)	5	0	0	0		
Eh (mv)	291	290	290	289		

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-312
WELL CONDITION: No steel casing

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: UNLOCKED
WEATHER: Partly cloudy 35°

GAUGE DATE: 11/21/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 5.08

GAUGE TIME: 1218
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/21/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 1222
FIELD PERSONNEL: BDA, SLP
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): 73.48 BT ~~68.4~~ 71.15 BT
B. DEPTH TO WATER (ft): 9.85
C. LIQUID DEPTH (ft) (A-B): 63.63

D. WELL VOLUME/FT (L): .085
E. WELL VOLUME (L) (C*D): 5.41
F. THREE WELL VOLUMES (L) (E*3): 16.23

Parameter	Beginning	1	2	3	4	5
Time (min)	1224	1229	1234	1237	1244	
Depth to Water (ft)	13.12	13.28	13.36	13.38	13.37	
Purge Rate (L/min)	~~0.2~~ 0.4	~~2.4~~ 0.4	0.4	0.4	0.4	
Volume Purged (L)	0.8	2.8	4.8	6.8	8.8	
pH	7.96	5.41	7.93	7.80	7.99	
Temperature (°C)	7.4	7.6	8.0	8.1	8.2	
Conductivity (μmhos/cm)	0.316	0.326	0.326	0.326	0.324	
Dissolved Oxygen (mg/L)	1.30	0.30	0.30	0.30	0.30	
Turbidity (NTU)	10	14	14	16	25	
Eh (mv)	516	576	453	377	348	

TOTAL QUANTITY OF WATER REMOVED (L): 9.7

SAMPLERS: BDA, SLP
SAMPLING TIME (START/END): 1246
SAMPLING DATE: 11/21/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: ~~MW~~ ~~AA~~ BN-07-EP-MW041
SAMPLE PARAMETERS:

COMMENTS AND OBSERVATIONS: ~~Continued after sa~~ continued monitoring turbidity after sampling - ~~ranged from~~ 9-27

61" PVC Tubing

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Eastern Plume
WELL I.D.: MW-313
WELL CONDITION: GOOD

PROJECT NUMBER: 29400.47
WELL LOCK STATUS: LOCKED
WEATHER: Sunny, Very Cold teens

GAUGE DATE: 11/14/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 3.35

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

PURGE DATE: 11/14/96
PURGE METHOD: Low Flow
AMBIENT AIR VOCs (ppm) Start: 0 End: 0

PURGE TIME: 824
FIELD PERSONNEL: SAP, MDC
WELL MOUTH VOCs (ppm): Start: 0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 37.14
B. DEPTH TO WATER (ft): 7.58
C. LIQUID DEPTH (ft) (A-B): 29.56

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 17.88
F. THREE WELL VOLUMES (L) (E*3): 53.65

Parameter	Beginning	1	2	3	4	5
Time (min)	826	831	836	841	846	851
Depth to Water (ft)	8.14	8.14	9.15	9.17	9.19	9.25
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	1.6	2.1	3.1	4.1	5.1	6.1
pH	8.73	8.40	8.15	8.01	7.96	7.93
Temperature (°C)	6.6	6.7	6.9	7.4	~~7.46~~ 8.8	8.7
Conductivity (μmhos/cm)	0.224	0.230	0.194	~~2~~ 0.188	0.166	0.164
Dissolved Oxygen (mg/L)	2.46	2.01	2.12	2.10	1.58	1.61
Turbidity (NTU)	401	322	360	345	~~25~~ 314	317
Eh (mv)	-41	-74	-105	-134	-146	-170

TOTAL QUANTITY OF WATER REMOVED (L): 24.1

SAMPLERS: MDC, SAP
SAMPLING TIME (START/END): 1023
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-BP-MW037
SAMPLE PARAMETERS: VOC by EPA Method 8260
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: 11/14/96
Well ID: MW-313	Field Personnel: SHP, MDC	

Parameter	6	7	8	9	10	11
Time (min.)	856	~~8~~ 901	906	911	916	921
Depth to Water (ft)	9.30	9.33	9.35	9.45	9.58	9.58
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	7.1	8.1	9.1	10.1	11.1	12.1
pH	7.95	7.95	7.95	7.96	7.95	7.95
Temperature (°C)	9.5	9.7	9.8	9.8	9.9	10.0
Conductivity (μmhos/cm)	0.166	0.162	0.160	0.168	0.160	0.144
Dissolved Oxygen (mg/L)	1.62	1.57	1.57	1.65	1.47	1.46
Turbidity (NTU)	136	SHP ~~169~~ 140	122	85	81	51
Eh (mv)	-178	-150	-117	-130	-128	-134

Parameter	12	13	14	15	16	17
Time (min)	926	931	936	941	946	951
Depth to Water (ft)	9.58	9.58	9.58	9.58	9.58	9.58
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	13.1	14.1	15.1	16.1	17.1	18.1
pH	7.93	7.92	7.91	7.89	7.88	7.86
Temperature (°C)	10.1	10.2	10.2	10.3	10.4	10.5
Conductivity (μmhos/cm)	~~0.130~~ 0.142	0.122	0.120	0.138	0.130	0.130
Dissolved Oxygen (mg/L)	1.51	1.48	1.48	1.40	1.34	1.41
Turbidity (NTU)	44	33	27	24	21	17
Eh (mv)	-136	-153	-152	-143	-139	-145

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: 11/14/96
Well ID: MW-313	Field Personnel: SAP, MDC	

Parameter	~~8~~ 18	~~9~~ 19	~~8~~ 20	~~8~~ 21	~~10~~ 22	~~11~~ 23
Time (min.)	956	1001	1006	1011	1016	1021
Depth to Water (ft)	9.58	9.58	9.58	9.58	~~9~~ 9.58	9.58
Purge Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2
Volume Purged (L)	19.1	20.1	21.1	22.1	23.1	24.1
pH	7.86	7.85	7.84	7.83	7.83	7.82
Temperature (°C)	10.5	10.6	10.6	10.6	10.7	10.7
Conductivity (μmhos/cm)	0.152	0.142	0.146	0.136	0.140	0.140
Dissolved Oxygen (mg/L)	1.04	1.39	1.35	1.33	1.32	1.29
Turbidity (NTU)	15	15	10	9	8	7
Eh (mv)	-146	-147	-142	-141	-144	-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: Eastern Plume
WELL I.D.: ~~[illegible]~~ MW-316A
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: UNLOCKED
WEATHER: PARTLY SUNNY 30°

GAUGE DATE: 11/21/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): 2" 3.10
Difference 11.25" PVC 37.25"

GAUGE TIME: 0829
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/21/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 0831
FIELD PERSONNEL: BDA SAP
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

WELL VOLUME

A. WELL DEPTH (ft): ~~99.50~~ 102.60 BA
B. DEPTH TO WATER (ft): 17.25
C. LIQUID DEPTH (ft) (A-B): 85.35

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 51.64
F. THREE WELL VOLUMES (L) (E*3): 154.91

Parameter	Beginning	1	2	3	4	5
Time (min)	0834	0839	0844	0849	0854	
Depth to Water (ft)	21.73	22.21	22.70	23.11	23.19	
Purge Rate (L/min)	0.2	0.1	0.1	0.1	0.1	
Volume Purged (L)	0.6	1.1	1.6	2.1	2.6	
pH	8.61	8.37	8.31	8.25	8.23	
Temperature (°C)	6.9	6.7	6.5	6.6	6.5	
Conductivity (μmhos/cm)	0.204	0.202	0.200	0.200	0.200	
Dissolved Oxygen (mg/L)	2.25	1.60	1.65	1.45	1.55	
Turbidity (NTU)	0	0	0	0	0	
Eh (mv)	264	273	241	232	228	

TOTAL QUANTITY OF WATER REMOVED (L): 2.8

SAMPLERS: SAP BDA
SAMPLING TIME (START/END): 855
SAMPLING DATE: 11/21/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Trap 6
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW039
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS:

37.25 = 3' 1.25" = 3.10

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: EASTERN Plume
WELL I.D.: MW-316B
WELL CONDITION: GOOD

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: UNLOCKE
WEATHER: Cloudy 30

GAUGE DATE: 11/21/96
SOUNDING METHOD: Slope Indicator
STICK UP/DOWN (ft): ~~26.50~~ 2.54

GAUGE TIME: 918
MEASUREMENT REF: TOC
WELL DIAMETER (in.): 2"

PURGE DATE: 11/21/96
PURGE METHOD: LOW FLOW
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

PURGE TIME: 918
FIELD PERSONNEL: BDA, SAP
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0

WELL VOLUME

A. WELL DEPTH (ft): 58.54
B. DEPTH TO WATER (ft): 11.79
C. LIQUID DEPTH (ft) (A-B): 47.05

D. WELL VOLUME/FT (L): 0.605
E. WELL VOLUME (L) (C*D): 28.46
F. THREE WELL VOLUMES (L) (E*3): 85.39

Parameter	Beginning	1	2	3	4	5
Time (min)	9.21	9.26	931	936	941	946
Depth to Water (ft)	11.96	~~12.05~~ 12.59	~~12.04~~ 12.57	12.87	12.85	12.86
Purge Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1
Volume Purged (L)	0.3	0.8	1.3	1.8	2.3	2.8
pH	*	*	4.30	5.21	5.35	*
Temperature (°C)	6.8	7.0	7.2	8.0	8.2	8.2
Conductivity (μmhos/cm)	0.202	0.212	0.226	0.218	0.178	0.144
Dissolved Oxygen (mg/L)	0.75	0.60	0.50	0.70	~~0.~~ 1.50	1.65
Turbidity (NTU)	8	32	31	22	~~427~~	6
Eh (mv)	849	684	685	433	430	~~650~~ 660

TOTAL QUANTITY OF WATER REMOVED (L): 3.5

SAMPLERS: BDA SAP
SAMPLING TIME (START/END): 950
SAMPLING DATE: 11/21/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-MW040
SAMPLE PARAMETERS: VOC

COMMENTS AND OBSERVATIONS: * pH reading was LO believe it is correlate a high Eh.

Steel casing 26.50" - 30.50" to top of PVC - 4" difference

EA Engineering, Science, and Technology

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

Site Name: Eastern Plume	Project No.: 29600.47	Date: 11/21/96
Well ID: MW-316 B	Field Personnel: BDA, SKP	

Parameter	6	7	8	9	10	11
Time (min.)	949					
Depth to Water (ft)	12.88					
Purge Rate (L/min)	0.1					
Volume Purged (L)	3.3					
pH	5.09					
Temperature (°C)	8.2					
Conductivity (μmhos/cm)	0.140					
Dissolved Oxygen (mg/L)	1.65					
Turbidity (NTU)	7					
Eh (mv)	667					

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 - EP
WELL I.D.: EW-1
WELL CONDITION: good

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

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 End: 0

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

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)	0850					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	7.17					
Temperature (°C)	5.4					
Conductivity (μmhos/cm)	0.174					
Dissolved Oxygen (mg/L)	3.51					
Turbidity (NTU)	3					
Eh (mv)	17					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 0855
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-R1001
SAMPLE PARAMETERS: VOCs

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick - Site 103
PROJECT NUMBER: 29600.47
WELL I.D.: Sites 173 influent
WELL LOCK STATUS: NA
WELL CONDITION: ~~g~~ NA
WEATHER: NA

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: BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: — End: —

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)	1005					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.43					
Temperature (°C)	10.2					
Conductivity (μmhos/cm)	1.094					
Dissolved Oxygen (mg/L)	2.53					
Turbidity (NTU)	3					
Eh (mv)	3					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 1010
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL / HNO_3
SAMPLE BOTTLE IDs: BN-07-S1-RI003
SAMPLE PARAMETERS: VOCs, metals

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick - EP
WELL I.D.: EW-3
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Good
WEATHER: Clear, Cold

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: BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

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)	0905					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.91					
Temperature (°C)	8.0					
Conductivity (μmhos/cm)	0.148					
Dissolved Oxygen (mg/L)	6.89					
Turbidity (NTU)	0					
Eh (mv)	113					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 0910
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL/
SAMPLE BOTTLE IDs: BN-07-EP-RI002
SAMPLE PARAMETERS: VOCS.

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick - EP
WELL I.D.: EW-4
WELL CONDITION: Good

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

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: BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

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)	0913					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	6.79					
Temperature (°C)	8.1					
Conductivity (μmhos/cm)	0.106					
Dissolved Oxygen (mg/L)	6.90					
Turbidity (NTU)	0					
Eh (mv)	140					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 0915
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-RI.003
SAMPLE PARAMETERS: VOCs

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick
WELL I.D.: EW-5
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Good
WEATHER: clear, cold (20s)

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: BDA
WELL MOUTH VOCs (ppm): Start: 0.0 End: 0.0

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)	0930					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	7.14					
Temperature (°C)	8.0					
Conductivity (μmhos/cm)	0.132					
Dissolved Oxygen (mg/L)	5.65					
Turbidity (NTU)	1					
Eh (mv)	102					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 0935
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL
SAMPLE BOTTLE IDs: BN-07-EP-RI004
SAMPLE PARAMETERS: VOCs.

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Site 1 + 3
WELL I.D.: EW-6
WELL CONDITION: Good

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: Good
WEATHER: clear cold (20°)

GAUGE DATE: ~~11/14/96~~ NA
SOUNDING METHOD: ~~Slope Indicator~~ NA
STICK UP/DOWN (ft): NA

GAUGE TIME: NA
MEASUREMENT REF: NA
WELL DIAMETER (in.): NA

PURGE DATE: ~~11/14/96~~ NA
PURGE METHOD: NA ~~Low Flow~~
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0

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

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)	0820					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	7.77					
Temperature (°C)	12.2					
Conductivity (μmhos/cm)	2.07					
Dissolved Oxygen (mg/L)	2.02					
Turbidity (NTU)	4					
Eh (mv)	11					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 0825
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: NONE
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL, HNO_3
SAMPLE BOTTLE IDs: BN-07-S1-R1002
SAMPLE PARAMETERS: VOC by EPA Method 8260, Metals by ~~EPA~~ TAL Elements*
COMMENTS AND OBSERVATIONS:
~~*Refer to~~ SAP

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: NAS Brunswick Sites 1&3
PROJECT NUMBER: 29600.47
WELL I.D.: EW-7
WELL LOCK STATUS: good
WELL CONDITION: good
WEATHER: clear, cold

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: BDA
AMBIENT AIR VOCs (ppm) Start: 0.0 End: 0.0
WELL MOUTH VOCs (ppm): Start: 900 End: 0.0

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)	0835					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	7.13					
Temperature (°C)	12.0					
Conductivity (μmhos/cm)	0.484					
Dissolved Oxygen (mg/L)	1.39					
Turbidity (NTU)	192					
Eh (mv)	-17					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 0845
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: ~~VOC, metals~~ grab
SAMPLE PRESERVATIVES: HCL, HNO3
SAMPLE BOTTLE IDs: BN-07-S1-R1 002
SAMPLE PARAMETERS: VOCs, metals
COMMENTS AND OBSERVATIONS: let run 5 min because of iron (rust color).

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Treatment Plant
WELL I.D.: Eastern Plume Influent
WELL CONDITION: NA

PROJECT NUMBER: 29600.47
WELL LOCK STATUS: NA
WEATHER: clear cold.

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 End: 0

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

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)	0955					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	7.23					
Temperature (°C)	8.4					
Conductivity (μmhos/cm)	0.140					
Dissolved Oxygen (mg/L)	6.54					
Turbidity (NTU)	0					
Eh (mv)	155					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 1000
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: None
SAMPLE TYPE: Grab
SAMPLE PRESERVATIVES: HCL / HNO3
SAMPLE BOTTLE IDs: BN-07-EP - RI005
SAMPLE PARAMETERS: VOCs, metals.

COMMENTS AND OBSERVATIONS:

EA Engineering, Science, and Technology

FIELD RECORD OF WELL GAUGING, PURGING, AND SAMPLING

SITE NAME: Treatment Plant
WELL I.D.: Treated effluent
WELL CONDITION: NA
PROJECT NUMBER: 29600.47 T207
WELL LOCK STATUS: NA
WEATHER: NA

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

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)	1015					
Depth to Water (ft)	NA					
Purge Rate (L/min)	NA					
Volume Purged (L)	NA					
pH	10.57					
Temperature (°C)	11.4					
Conductivity (μmhos/cm)	0.224					
Dissolved Oxygen (mg/L)	9.14					
Turbidity (NTU)	0					
Eh (mv)	288					

TOTAL QUANTITY OF WATER REMOVED (L): NA

SAMPLERS: BDA
SAMPLING TIME (START/END): 1020
SAMPLING DATE: 11/14/96
DECONTAMINATION FLUIDS USED: none
SAMPLE TYPE: GRAB
SAMPLE PRESERVATIVES: Na_2SO_3 / HNO_3
SAMPLE BOTTLE IDs: BN-07-EP-TE001 BN-07-EP-TEXD1
SAMPLE PARAMETERS: VOCs, Metals
COMMENTS AND OBSERVATIONS: MS/MSD and duplicate.

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: Site land 3			Project Number: 29600.47.7207
Sample Location ID: SW/SD-1			Date: 11/7/96
Sampling Time: H_2O 1120 SED 1125	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 8.7 °C
(X) Conductivity 0.246 µmhs/cm
(X) ph 6.79 units
(X) Dissolved oxygen 5.96 mg/L
(X) Turibidity 18 NTU
(X) Eh 39 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 medium coarse
( ) 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
(X) None

Sample Observations:
(X) Odor None
(X) Color Medium brown
(X) Iron staining, 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 L 30 mL	✓	BN-07-51-SW007
✓		✓		8 oz	✓	BN-07-51-SD007

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 and 3			Project Number: 29600.47.7207
Sample Location ID: SW/SD-2			Date: 11/7/96
Sampling Time: H_2O 1110 SED 1115	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 8.2 °C
(X) Conductivity 0.294 µmhs/cm
(X) ph 7.05 units
(X) Dissolved oxygen 7.87 mg/L
(X) Turibidity 3 NTU
(X) Eh 19 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID None
( ) 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 medium coarse
( ) 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
(X) None

Sample Observations:
(X) Odor None
(X) Color Brown
(X) Water flow greater than in the past, 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 L 80 mL	✓	BN-07-51-SW006
✓		✓		8 oz	✓	BN-07-51-SD006

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 and 3			Project Number: 29600.47.7207
Sample Location ID: SW/SD-3			Date: 11/7/96
Sampling Time: H_2O 1055 SED 1100	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 8.1 °C
(X) Conductivity 0.300 µmhs/cm
(X) ph 7.46 units
(X) Dissolved oxygen 9.85 mg/L
(X) Turibidity 1 NTU
(X) Eh 28 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 medium coarse
(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
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Sample Observations:
(X) Odor None
(X) Color lt brown
(X) Red-orange percipitate thru out location

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-07-S1-SW005
✓		✓		8oz	✓	BN-07-S1-SD005

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site land 3			Project Number: 29600.47.7207
Sample Location ID: SW/SD-4			Date: 11/7/96
Sampling Time: H2O 1030 SED 1035	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 7.2 °C
(X) Conductivity 0.132 µmhs/cm
(X) ph 7.91 units
(X) Dissolved oxygen 11.13 mg/L
(X) Turibidity 0 NTU
(X) Eh 49 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 medium, coarse
(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
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Sample Observations:
( ) Odor _____
(X) Color Lt brown
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
(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
✓	✓		✓	2 L 80 mL	✓	BN-07-S1-SW004
✓		✓		8 oz	✓	BN-07-S1-SD004

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site land 3			Project Number: 29600.47.7207
Sample Location ID: SW15D-5			Date: 11/7/96
Sampling Time: H2O 1005 SED 1010	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 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
(X) Temperature 7.1 °C
(X) Conductivity 0.138 µmhs/cm
(X) ph 7.54 units
(X) Dissolved oxygen 11.01 mg/L
(X) Turibidity 1 NTU
(X) Eh ~~36~~ mv
44 SAP

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-07-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 Coarse, medium
( ) 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 Lt brown
(X) Sheen along river bank

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-07-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-07-S1-SW003
✓		✓		8 oz	✓	BN-07-S1-SD003

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 and 3			Project Number: 29600.47.7207
Sample Location ID: SW/SD-6			Date: 11/7/96
Sampling Time: H2O 0950 SED 0955	Start:	End:	Sample Team Members: SAP, BDA, SYC

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 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 7.0 °C
( ) Conductivity 0.136 µmhs/cm
( ) ph 7.78 units
( ) Dissolved oxygen 7.56 mg/L
( ) Turibidity 0 NTU
( ) Eh 36 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 COARSE
(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 Dark brown, dark gray
(X) Sheen along bank

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-07-S1-SW002
✓		✓		8oz	✓	BN-07-S1-SD002

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 and 3			Project Number: 29600.47/7207
Sample Location ID: SW/SD 7			Date: 11/7/96
Sampling Time: 0935 SED 0930 H2O	Start:	End:	Sample Team Members: SAP, BDA, SYC

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 2" (ft)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____
X Delicatest Jar

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Water Quality Parameters
(X) Temperature 7.0 °C
(X) Conductivity 0.136 µmhs/cm
(X) ph 8.61 units
(X) Dissolved oxygen 11.05 mg/L
(X) Turibidity 1 NTU
(X) Eh 12 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, Medium COARSE
SAP (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 DARK, BROWN/GRAY
(X) Sheen present on surface of water, near stream edge

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 L 80 mL	✓	BN-07-S1-SW001
✓		✓		8 oz	✓	BN-07-S1-SD001

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Eastern Plume			Project Number: 2960047
Sample Location ID: SW 100			Date: 11/14/96
Sampling Time: 1315	Start: 1310	End: 1316	Sample Team Members: SYC MDC

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 0.2 (ft)

Equipment Used for Collection:
(X) None. Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(✓) Temperature 4.7 °C
(✓) Conductivity 0.136 µmhs/cm
(✓) ph 7.61 units
(✓) Dissolved oxygen 11.36 mg/L
(✓) Turibidity 8 NTU
(✓) Eh 276 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) ~~Field Duplicate Collected~~ Duplicate ID _____
( ) ~~MS/MSD~~

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION NA

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
( ) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
( ) Odor _____
( ) Color _____
( ) _____

Field QC Data: ( ) Field Duplicate Collected Duplicate ID _____ ( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
X	X		✓ HCL	80ml	X	BN-07-EP-SW100

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Eastern Plume			Project Number: 29600047
Sample Location ID: EP SW 101			Date: 11/14/96
Sampling Time: 1325	Start: 1320	End: 1326	Sample Team Members: SYC MDC

SURFACE WATER INFORMATION

Type of Surface Water:
(X) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 16 (ft)

Depth of Sample from Top of Water 0.2 (ft)

Equipment Used for Collection:
(X) None. Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(✓) Temperature 3.5 °C
(✓) Conductivity 0.134 µmhs/cm
(✓) ph 7.45 units
(✓) Dissolved oxygen 12.24 mg/L
(✓) Turibidity 4 NTU
(✓) Eh 262 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION NA

Type of Sample Collected:
( ) Discrete
( ) Composite

Sediment Type:
( ) Clay
( ) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
( ) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Sample Observations:
( ) Odor _____
( ) Color _____
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
X	X		✓ HCL	80ml	X	BN-07-EP-SW101

NOTES/SKETCH

Appendix A.4

Field Record of Seep Sampling Forms

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 and 3			Project Number: 29600.47 7207
Sample Location ID: SEEP-1			Date: 11/7/96
Sampling Time: H2O 1135 SED 1140	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 3" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 8.8 °C
(X) Conductivity 0.148 µmhs/cm
(X) ph 6.61 units
(X) Dissolved oxygen 2.88 mg/L
(X) Turibidity 100 NTU
(X) Eh 109 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 fine
(X) 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:
(X) Odor _____
(X) Color Gray fine sand, black organic
(X) Sheen present on water surface

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 L 80 mL	✓	BN-07-51-LTSW1
✓		✓		8 oz	✓	BN-07-51-LTSD1

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1+3			Project Number: 29600.47.7207
Sample Location ID: SEEP 2			Date: 11/7/96
Sampling Time: ~~H2O~~ SED 1145	Start:	End:	Sample Team Members: BDA, SYC, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location 3 ~~8~~" (ft)

Depth of Sample from Top of Water 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
(X) 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

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
No surface water

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand medium
(X) 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:
(X) Odor _____
(X) Color Orange, gray sand, black organic matter
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
NONO
( ) 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	X	
✓		✓		8oz	✓	BN-07-S1-LTSD 2

Location Dry

NOTES/SKETCH

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FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 + 3			Project Number: 29600.47.00 7207
Sample Location ID: SEEP 3			Date: 11/2/96
Sampling Time: H2O 1200 SED 1205	Start:	End:	Sample Team Members: SAP, BDA, SYC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 3" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 7.2 °C
(X) Conductivity 0.398 µmhs/cm
(X) ph 6.43 units
(X) Dissolved oxygen 2.43 mg/L
(X) Turibidity >1000 NTU
(X) Eh 78 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 fine
(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
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Sample Observations:
( ) Odor _____
(X) Color 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 80 mL	✓	BN-07-SI-LTSW2
✓		✓		8 oz	✓	BN-07-SI-LTSD3

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 + 3			Project Number: 29600.47.7207
Sample Location ID: SEEP 4			Date: 11/7/96
Sampling Time: H_2O 1210 SED 1215	Start:	End:	Sample Team Members: SYC, BDA, SAP

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 3" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 9.2 °C
(X) Conductivity 1.604 µmhs/cm
(X) ph 6.02 units
(X) Dissolved oxygen 1.51 mg/L
(X) Turibidity >1000 NTU
(X) Eh 20 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-07-SI-LTXD1
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
( ) 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
(X) None

Sample Observations:
( ) Odor _____
(X) Color Black, Brown & Red
(X) Sheen present on water surface

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-07-SI-LTXD2
( ) 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-07-SI-LTSW3
✓		✓		8oz	✓	BN-07-SI-LTSD4

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 + 3			Project Number: 29600.47.7207
Sample Location ID: SEEP 5			Date: 11/7/96
Sampling Time: H_2O 1210 SED 1215	Start: —	End:	Sample Team Members: SYC, BDA, SMP

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 3" (ft)

Depth of Sample from Top of Water 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
(X) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
(X) Temperature 8.0 °C
(X) Conductivity 0.428 µmhs/cm
(X) ph 6.57 units
(X) Dissolved oxygen 1.56 mg/L
(X) Turibidity >1000 NTU
(X) Eh 28 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:
(X) Clay
(X) Sand fine
( ) 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
(X) None

Sample Observations:
( ) Odor _____
(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-07-SI-LTSW 4
✓		✓		8 oz	✓	BN-07-SI-LTSD 5

NOTES/SKETCH

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: 29600.47.7207	Date: 11/26/96
Weather/Temperature/Barometric Pressure: Rain/Ice 28°F 400" Hg		
EA Personnel: Charles McLeod/Mike Chase	Equipment: GA-90 Infra-Red Gas Analyzer	
Equipment Calibration Information: Calibration Completed.		

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-6	yes	yes	Good		<0.1	0	20.4	0	
GP-5	yes	yes	Good		<0.1	0	20.4	0	
GP-4	yes	yes	Good		<0.1	0	19.4	.6	

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EA Engineering, Science, and Technology

FIELD RECORD OF LANDFILL GAS MONITORING

Project Name: NAS Brunswick - LTMP	Project No: 29600.47.7207	Date: 11/26/96
Weather/Temperature/Barometric Pressure: Rain/Ice 28°F 400" H_2O		
EA Personnel: Charles McLeod/Mike Chase	Equipment: GA-90 Infra-Red Gas Analyzer	
Equipment Calibration Information: Calibration completed.		

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
GU-1	No	No	See Comments		<0.1	0.0	19.0	0.6	Incomplete - No Neck
-2	No	No	Good		<0.1	5.0	0.5	15.3	
-3	No	No	Good		<0.1	4.5	8.5	10.1	
-4	No	No	Good		<0.1	17.7	0.6	23.3	
-5	No	No	Good		<0.1	1.1	14.9	4.1	
-6	No	No	Good		<0.1	0.0	20.1	0.0	
-7	No	No	Good		<0.1	0.2	20.1	0.0	
-8	No	No	Good		<0.1	0.0	20.3	0.0	
-9	No	No	Good		<0.1	1.5	19.5	1.5	Odor present
-10	No	No	Good		<0.1	0.2	6.9	9.6	
-11	No	No	Good		<0.1	0.0	8.4	8.7	
-12	No	No	Good		<0.1	0.0	8.0	8.8	
-13	No	No	Good		<0.1	0.0	11.7	5.6	
-14	No	No	See Comments		<0.1	0.0	18.7	2.5	Incomplete - No Neck

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Appendix B

Analytical Data Quality Review

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APPENDIX B

ANALYTICAL DATA QUALITY REVIEW

B.1 INTRODUCTION

This investigation utilized both field quality control measures 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 aqueous samples (ground water, surface water, and leachate station seep samples) and 12 sediment samples collected from Sites 1 and 3 and the Eastern Plume sites. For the combined analyses for these sites, 1 sediment and 6 aqueous sample delivery groups (SDG) were provided to the laboratory. Sample duplicates, a source water blank, equipment rinsate blanks, 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 samples (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 level 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

Aqueous samples collected from the monitoring sites were analyzed for Target Compound List (TCL) VOC by EPA SW-846, Method 8260; and Target Analyte List (TAL) metals and mercury by EPA SW-846, Methods 6010 and 7470, respectively. 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 (DL)	14 days	3 days
MW-202A (DL)	14 days	5 days
EW-5 (DL)	14 days	4 days
EW-7 (DL)	14 days	4 days
Sites 1 and 3 Raw Influent (DL)	14 days	4 days
Eastern Plume Raw Influent (DL)	14 days	4 days
Combined Effluent Duplicate (DL)	14 days	4 days
NOTE: DL = This suffix indicates a sample reanalysis at a dilution.		

The diluted results for toluene and 1,4-dichlorobenzene in sample MW-217B; 1,1,2,2-tetrachloroethane and 1,1,1-trichloroethane in sample 202A; 1,1,1-trichloroethane and trichloroethene in samples EW-5 and Eastern Plume raw influent; chloroethane, 1,1-dichloroethane, and 1,1,1-trichloroethane in samples EW-07 and Sites 1 and 3 raw influent; and 1,1,1-trichloroethane in sample combined effluent duplicate should all be considered estimations of the true concentrations.

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 the same as those reported by the laboratory.

The aqueous MS/MSD RPD were within the established control limits for all compounds in all samples, therefore, analytical precision was determined to be acceptable and the usability of the data is not affected.

The sediment MS/MSD RPD were within the established control limits, therefore, analytical precision was determined to be acceptable and the usability of the data is not affected.

B.3.2 Target Analyte List Metals

All 23 TAL analytes were used to quantify the laboratory duplicate RPD. There were no control limits identified in the QAPP for duplicate RPD for TAL metals, therefore, the laboratory control limits were used. The sediment duplicate RPD were within the laboratory control limits, therefore, the analytical precision was determined to be acceptable and the usability of the data unaffected. 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 both sets of control 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 laboratory established control limits and the control limits identified in the QAPP, and the results are usable as reported.

Five VOC were used to quantify the MS/MSD recoveries against laboratory established control limits. The recovery limits identified in the QAPP were the same as those reported by the laboratory. MS/MSD samples were analyzed at the correct frequency for each matrix.

The aqueous and sediment MS/MSD recoveries were within the established control limits, therefore, the results are usable as reported.

Five VOC were used to quantify LCS recoveries against laboratory established control limits. No LCS recovery limits are stated in the QAPP, although the LCS recovery units used are provided in Appendix D. The aqueous and sediment LCS recoveries were within laboratory established control limits, confirming the laboratory's purging efficiency.

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 aqueous MS recoveries for sample SW-4 were within the control limits identified in the QAPP and reported by the laboratory (75-125 percent), with the exception of thallium (126.3 percent), which was reported above the upper control limit. Thallium results reported as not detected should be considered usable as reported.

The laboratory performed an MS on 2 sediment samples. The MS recoveries for sample SED-04 were within the established control limits, with the exception of antimony (58.9 percent) and arsenic (209.6 percent). The extreme exceedance of the established control limits indicates the presence of matrix interferents, therefore, the results for antimony should be considered biased low. The positive results for arsenic should be considered biased high. The MS recoveries for sample LTXD2 were within the established control limits. All sample results are usable as reported.

All 23 TAL analytes were used to quantify the LCS recoveries against laboratory established control limits. No LCS recovery limits were stated in the QAPP. The aqueous and sediment LCS recoveries were within laboratory established control limits, confirming the laboratory's ability to perform sample digestion/distillation.

B.5 COMPLETENESS

Field sampling completeness was quantified by reviewing the number of samples analyzed to the number of samples scheduled for collection. At Sites 1 and 3, 16 of 19 ground-water samples were collected for an analytical completeness of 84 percent (due to 1 dry well [MW-202B],

1 abandoned well [MW-216B], and 1 well with a bent casing [MW-210A]), 7 of 7 surface water and 7 of 7 sediment samples were collected for an analytical completeness of 100 percent, 4 of 5 leachate station seep samples were collected for an analytical completeness of 80 percent (due to a dry seep location), and 5 of 5 leachate station sediment samples were collected for an analytical completeness of 100 percent. Two of 2 extraction well samples were collected for an analytical completeness of 100 percent.

At the Eastern Plume, 36 of 36 well and piezometer samples were collected for an analytical completeness of 100 percent, and 4 of 5 extraction well samples were collected for an analytical completeness of 80 percent (due to an inoperable extraction well).

The following samples were collected in addition to the normal sampling locations listed in the LTMP (ABB-ES 1994). Two additional offsite surface water samples (EP-SW100 and EP-SW101) were requested by EPA and were collected at the Eastern Plume. Five additional offsite monitoring well samples (MW-317A, MW-317B, MW-316A, MW-316B, and MW-312) and 2 direct-push samples (DP02-5 and DP04-5) were collected at the Eastern Plume site. Piezometer P-132, which was removed from the long-term monitoring program prior to Monitoring Event 6, was sampled in error.

The field quality control blanks (e.g., trip blanks) were collected at the proper frequency. A total of 11 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 samples. One rinsate blank was collected at the Eastern Plume associated with the use of a submersible pump for collection of ground-water samples at offsite wells. One source water blank was taken at the site and analyzed as required for this project.

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 11 trip blanks and 3 rinsate blanks.

Trip blanks associated with Sites 1 and 3 and Eastern Plume were analyzed for VOC. The results of the 11 trip blanks are shown in the following table:

Analyte	Units	QT-001	QT-002	QT-003	QT-004	QT-005	QT-006	QT-007	QT-008	QT-009	QT-012	QT-013
Carbon disulfide	µg/L	2	9	3	13	7	1	4	(<1U)	5	9	2

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).

The presence of carbon disulfide is related to acid preservation contamination as confirmed by the laboratory (see table below). Therefore, the results for carbon disulfide should be considered to be false-positive results in all samples.

Analyte	Units	Confirmatory Analysis (NASBHCL)
Carbon disulfide	µg/L	7

NOTE: Four drops of preservative acid added to laboratory pure water and analyzed by EPA SW-846 Method 8260 on 22 January 1997.

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 equipment rinsate blank associated with sampling offsite monitoring wells at the Eastern Plume was analyzed for VOC. The results of the 3 rinsate blanks (QS-001 [dedicated jar rinsate], QS-002 [equipment rinsate], and QS-005 [equipment rinsate]) and the associated source water blank (QD-001) are shown in the following table:

Analyte	Units	QS-001	QS-002	QS-005	QD-001
Carbon disulfide	µg/L	14	(<1U)	4	92E
Chloroform	µg/L	26	25	18	23
Methylene chloride	µg/L	(<1U)	1	(<1U)	(<1U)
1,1,1-Trichloroethane	µg/L	(<1U)	(<1U)	0.6J	(<1U)
Cadmium	µg/L	1.1	(<1U)	NA	(<1U)
Calcium	µg/L	92.9	206	NA	(<9.0U)
Iron	µg/L	86.0	75.5	NA	(<40U)
Sodium	µg/L	529	402	NA	635

NOTE: E = Results reported are from the undiluted analyses as the analyte was not detected in the diluted sample, the value reported should be considered an estimate of the true concentration.
U = Not detected. Sample quantitation limits are shown as (<____U).
NA = Not analyzed for this analyte.

The analytical results of the equipment rinsate blanks indicate the presence of VOC contamination. Chloroform was identified in the 3 rinsate blanks. The rinsate blank concentrations were not significantly different from the concentration of chloroform reported in the source water blank. This indicates that the source of contamination is not necessarily related to the decontamination process and may be laboratory or source water related. Methylene chloride was identified in one rinsate blank that was collected in association with the sediment samples. Methylene chloride was not detected in the sediment samples, therefore, the usability of the sediment samples is not affected. The analyte 1,1,1-trichloroethane was identified below

the CRQL (where analytical error is anticipated) in one equipment rinsate blank that was collected in association with the offsite monitoring wells at the Eastern Plume; 1,1,1-trichloroethane was not detected in the monitoring well samples. The usability of the offsite monitoring well samples is not affected.

The presence of carbon disulfide is related to acid preservation contamination as confirmed by the laboratory. Therefore, the results for carbon disulfide should be considered to be false-positive results in all samples.

Sodium concentrations in the 2 rinsate blanks were not greater than the source water blank concentration. This indicates that the source of contamination is not necessarily related to the decontamination process and may be laboratory or source water related. The concentrations reported for cadmium, calcium, and iron were not significantly high and did not indicate that there was a decontamination problem related to the surface water or sediment sampling events.

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 ±CRDL for water samples or cannot be greater than ±2 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 13 samples were duplicated for Sites 1 and 3 and Eastern Plume (collected during the ground-water, surface water, sediment, and seep sampling programs). Each SDG had the appropriate number of duplicate samples collected.

The RPD results from the 8 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-05	SED-05 DUP	RPD %	Difference
Aluminum	mg/Kg	4,990	3,760	28.1	NR
Arsenic	mg/Kg	8.4	4.5	NA	3.9
Barium	mg/Kg	33.6	27.4	NA	6.2
Beryllium	mg/Kg	00.28B*	0.18B*	NA	0.1
Cadmium	mg/Kg	0.75B*	0.49B*	NA	0.26
Calcium	mg/Kg	1,040	880	NA	160
Chromium	mg/Kg	9.7	7.0	NA	2.7
Cobalt	mg/Kg	4.0B*	2.5B*	NA	1.5
Copper	mg/Kg	5.1	3.6	NA	1.5
Iron	mg/Kg	18,200	11,900	41.8	NR
Lead	mg/Kg	9.6	8.7	NA	0.9
Magnesium	mg/Kg	2,080	1,580	NA	500
Manganese	mg/Kg	379	274	32.1	NR
Nickel	mg/Kg	9.1	7.1	NA	2
Potassium	mg/Kg	917	664	NA	254
Sodium	mg/Kg	154	151	NA	3
Vanadium	mg/Kg	14.0	10.3	NA	3.7
Zinc	mg/Kg	51.4	36.5	NA	14.9

NOTE: B* = Analyte concentration is between the Instrument Detection Limit and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the CRDL.
NR = Not required; analyte concentration was greater than 5 times the CRDL and, therefore, the RPD was applied.

All precision requirements were met for the duplicate analysis, therefore, the results are usable as reported.

The following table shows the duplicate results from the surface water samples associated with SDG S1QD001:

Analyte	Units	SW- 5	SW- 5 DUP	RPD %	Difference
Carbon disulfide	µg/L	152	162	6.4	---
Aluminum	µg/L	20.5	20.0	NA	0.5
Barium	µg/L	8,000	7,990	0.1	NR
Calcium	µg/L	1.0B*	0.85B*	NA	0.15
Iron	µg/L	820	799	2.6	NR
Magnesium	µg/L	1,840	1,840	0	NR
Manganese	µg/L	249	248	0.4	NR
Potassium	µg/L	1,450	1,550	NA	100
Sodium	µg/L	12,100	12,100	0	NR
Zinc	µg/L	(<1.3U)	1.5B*	NA	0.2

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
B* = Analyte concentration is between the Instrument Detection Limit and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the CRDL.
NR = Not required; analyte concentration was greater than 5 times the CRDL and, therefore, the RPD was applied.
U = Not detected. Sample quantitation limits are shown as (<____U).

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-219	MW-219 DUP	RPD %
Carbon disulfide	µg/L	11	(<1U)	188
Trichloroethene	µg/L	0.8J	(<1U)	46
Tetrachloroethene	µg/L	0.7J	(<1U)	44

NOTE: J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).

Precision requirements were not met for the duplicate analyses. The results of trichloroethene and tetrachloroethene in sample MW-219 are reported below the CRQL where analytical error is anticipated. These RPD discrepancies are not considered significant and the results are usable as reported.

The presence of carbon disulfide is related to acid preservation contamination as confirmed by the laboratory. Therefore, the results for carbon disulfide should be considered to be false-positive results in all samples.

The second set of duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-232A	MW-232A DUP	RPD%	Difference
Aluminum	µg/L	(<39.0U)	87.2B*	NA	12.8
Calcium	µg/L	22,700	24,700	8.4	NR
Chromium	µg/L	22.7	25.4	NA	-2.7
Copper	µg/L	188	149	23.1	NR
Iron	µg/L	308	390	NA	-82
Magnesium	µg/L	9,050	9,830	8.4	NR
Mercury	µg/L	(<0.2U)	0.21	NA	0.06
Nickel	µg/L	(<2.0U)	3.8B*	NA	16.2
Potassium	µg/L	2,240	2,350	NA	-110
Sodium	µg/L	23,400	26,200	11.3	NR

NOTE: B* = Analyte concentration is between the Instrument Detection Limit and the CRDL.
U = Not detected. Sample quantitation limits are shown as (<____U).
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, 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-4	SEEP-4 DUP	RPD %	Difference
Vinyl chloride	µg/L	4	5	22.2	---
Carbon disulfide	µg/L	2	(<1U)	120.0	---
1,1-Dichloroethane	µg/L	19	19	0	---
Total 1,2-Dichloroethene	µg/L	3	3	0	---
Benzene	µg/L	0.8J	0.9J	11.8	---
Trichloroethene	µg/L	0.4J	0.4J	0	---
1,2-Dichlorobenzene	µg/L	3	3	0	---
1,3-Dichlorobenzene	µg/L	6	(<1U)	169.0	---
1,4-Dichlorobenzene	µg/L	6	7	15.4	---
Aluminum	µg/L	361	1,560	NA	1,199
Arsenic	µg/L	39.4	184	NA	144.6
Barium	µg/L	240	935	NA	695
Cadmium	µg/L	7.6	49.2	NA	-41.6
Calcium	µg/L	116,000	135,000	15.1	NR
Cobalt	µg/L	(<11.0U)	50.3	NA	25.3
Iron	µg/L	239,000	1,250,000	135.8	NR
Lead	µg/L	1.4B*	6.8	NA	5.4
Magnesium	µg/L	42,500	44,500	4.6	NR
Manganese	µg/L	3,760	5,800	42.7	NR
Mercury	µg/L	(<0.2U)	0.78	NA	0.63
Nickel	µg/L	(<15U)	30.9B*	NA	10.9
Potassium	µg/L	7,210	7,400	2.9	NR
Sodium	µg/L	121,000	118,000	2.5	NR
Zinc	µg/L	22.8	142	NA	-119.2

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
B* = Analyte concentration is between the Instrument Detection Limit and the CRDL.
J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
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.

The duplicate precision requirements were met for the organic analyses, with the exception of carbon disulfide and 1,3-dichlorobenzene. The large discrepancies between the two analyses for 1,3-dichlorobenzene was due to the fact that the result in one sample was slightly above the CRQL where analytical error is anticipated and not detected in the duplicate analysis. This discrepancy is not considered significant and the data usability is unaffected.

The presence of carbon disulfide is related to acid preservation contamination as confirmed by the laboratory. Therefore, the results for carbon disulfide should be considered to be false-positive results in all samples.

The inorganic precision requirements were met, with the following exceptions: aluminum, arsenic, barium, cadmium, iron, manganese, mercury, and zinc. The data user should consider the positive results for aluminum, arsenic, barium, cadmium, iron, manganese, mercury, and zinc in the seep samples as estimations of the true concentrations. This may be indicative of the sampling procedure (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-4	LT-4 DUP	RPD %	Difference
1,2-Dichlorobenzene	µg/Kg	14J	(<9U)	102.7	---
1,4-Dichlorobenzene	µg/Kg	63	(<9U)	173.3	---
1,1-Dichloroethane	µg/Kg	17J	(<9U)	116.3	---
Aluminum	mg/Kg	4,490	3,760	17.7	NR
Arsenic	mg/Kg	21.4	4.5	NA	16.9
Barium	mg/Kg	57.3	27.4	NA	29.9
Beryllium	mg/Kg	0.18B*	0.18B*	NA	0
Cadmium	mg/Kg	0.51B*	0.49B*	NA	0.02
Calcium	mg/Kg	816	880	NA	-64
Chromium	mg/Kg	9.0	7.0	NA	2
Cobalt	mg/Kg	2.9B*	2.5B*	NA	0.4
Copper	mg/Kg	3.3B*	3.6	NA	-0.3
Iron	mg/Kg	13,900	11,900	15.5	NR
Lead	mg/Kg	9.6	8.7	NA	0.9
Magnesium	mg/Kg	1,730	1,580	NA	150
Manganese	mg/Kg	208	274	27.4	NR
Nickel	mg/Kg	8.2	7.1	NA	1.1
Potassium	mg/Kg	690	664	NA	26
Sodium	mg/Kg	136B*	151	NA	-15
Vanadium	mg/Kg	11.5	10.3	NA	1.2
Zinc	mg/Kg	34.3	36.5	NA	-2.2

NOTE: Dashes (---) indicate this column does not apply to organic analysis.
B* = Analyte concentration is between the Instrument Detection Limit and the CRDL.
J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
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.

These seep samples did not meet the field duplicate precision criteria. The discrepancies for 1,2-dichlorobenzene, 1,4-dichlorobenzene, and 1,1-dichloroethane may be attributed to sampling precision or sampling methods for seep samples as noted by the extreme differences in the percent moisture contents. These samples cannot be accurately compared since the percent moisture content for each sample (LT-4 [82 percent] and LT-4 DUP [27 percent]) is extremely different and unexplained. All of the analytical precision requirements were met for the inorganic analyses with the exception of arsenic. The data user should consider the positive results for this analyte as an estimation of the actual concentrations in seep station sediment sample LT-4. The remainder of the results are usable as reported, however, the large differences in percent moisture contents are unexplained.

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-207A	MW-207A DUP	RPD%
1,1-Dichloroethene	μg/L	0.9J	(<1U)	57.0
Carbon disulfide	μg/L	11	3	114.3
Total 1,2-Dichloroethene	μg/L	1	1	0.0
1,1,1-Trichloroethane	μg/L	6	2	100.0
Trichloroethene	μg/L	12	11	8.7
Tetrachloroethene	μg/L	23	27	16.0

NOTE: J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).

The analytical precision requirements were met for total 1,2-dichloroethene, trichloroethene, and tetrachloroethene; the results are usable as reported. The analytical precision requirements were not met for 1,1-dichloroethene, carbon disulfide, and 1,1,1-trichloroethane. The discrepancies for 1,1-dichloroethene are due to the fact that the result in sample MW-207A was reported near the CRQL where analytical measurement error is anticipated and the duplicate result was not detected. Therefore, this discrepancy is not considered significant; the results are usable as reported. The discrepancies for 1,1,1-trichloroethane are not considered significant, due to the small difference between the reported results and the CRQL; the results are usable as reported. The presence of carbon disulfide is related to the acid preservation contamination as confirmed by the laboratory.

The following table shows the second set of duplicate sample results from the samples associated with SDG EPMW001:

Analyte	Units	MW-209	MW-209 DUP	RPD %
Carbon disulfide	µg/L	6	(<1U)	169.2
NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).				

The analytical precision requirement for carbon disulfide was not met. The presence of carbon disulfide is related to the acid preservation contamination as confirmed by the laboratory.

The following table shows the first set of duplicate sample results from the samples associated with SDG EPMW017:

Analyte	Units	MW-222	MW-222 DUP	RPD %
Carbon disulfide	µg/L	4	6	40
Tetrachloroethene	µg/L	0.4J	0.4J	0
NOTE: J = Estimated concentration below detection limit.				

The analytical precision requirement for carbon disulfide was not met. The presence of carbon disulfide is related to the acid preservation contamination as confirmed by the laboratory.

The following table shows the second set of duplicate sample results from the samples associated with SDG EPMW017:

Analyte	Units	MW-231	MW-231 DUP	RPD %
Carbon disulfide	µg/L	(<1U)	9	178.9
NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).				

The analytical precision requirement for carbon disulfide was not met. The presence of carbon disulfide is related to the acid preservation contamination as confirmed by the laboratory.

The following table shows the first set of duplicate sample results from the samples associated with SDG EPMW033:

Analyte	Units	MW-230A	MW-230A DUP	RPD %
Carbon disulfide	µg/L	6	8	28.6

The analytical precision requirement was met for carbon disulfide. Results are usable as reported.

The following table shows the second set of duplicate sample results from the samples associated with SDG EPMW033:

Analyte	Units	MW-317A	MW-317A DUP	RPD %
Carbon disulfide	µg/L	1	4	120

The analytical precision requirement was not met for carbon disulfide. The presence of carbon disulfide is related to the acid preservation contamination as confirmed by the laboratory.

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	2	4J	66.7	---
Methylene chloride	µg/L	0.5J	0.7J	33.3	---
1,1,1-Dichloroethane	µg/L	3	3	0	---
Chloroform	µg/L	2	2	0	---
1,1,1-Trichloroethane	µg/L	170D	120D	34.5	---
Trichloroethene	µg/L	(<1U)	0.1J	133.3	---
Arsenic	µg/L	2.0B*	(<2U)	NA	3
Calcium	µg/L	10,000	9,800	2.0	NR
Lead	µg/L	1.2B*	(<1U)	NA	-0.3
Magnesium	µg/L	4,000	3,950	NA	50
Manganese	µg/L	82.2	81.9	0.4	NR
Mercury	µg/L	0.34	0.40	NA	0.06
Potassium	µg/L	1,880	1,780	NA	100
Sodium	µg/L	16,800	17,300	2.9	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 CRDL.
D = This flag indicates an analysis at a secondary dilution factor.
U = Not detected. Sample quantitation limits are shown as (<____U).
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 all the inorganic analyses, 1,1,1-dichloroethane, and chloroform. The precision requirements for the remainder of the organic compounds were not met; however, the positive results for methylene chloride, trichloroethene, and 1,1-dichloroethene were reported near the CRQL, where analytical measurement error is anticipated. Therefore, these discrepancies are not considered significant, and the results are usable as reported. The discrepancy between the sample and duplicate sample for 1,1,1-trichloroethene may be indicative of the sampling procedure when collecting sequential samples from a sample tap subject to turbulent flow rather than poor laboratory precision.

B.8 METHOD DETECTION LIMITS FOR SOIL AND WATER SAMPLES

The tables in this section 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 SOIL SAMPLES

Parameter	Units	MDL[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	MDL[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	MDL[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	µg/kg	3	16 APR 96
Acetonitrile	µg/kg	3	16 APR 96
Acrolein	µg/kg	5	16 APR 96
Allyl chloride	µg/kg	1	16 APR 96
Acrylonitrile	µg/kg	8	16 APR 96
Benzene	µg/kg	0.4	16 APR 96
Bromobenzene	µg/kg	0.7	16 APR 96
Bromochloromethane	µg/kg	0.6	16 APR 96
Bromodichloromethane	µg/kg	0.1	16 APR 96
Bromofluorobenzene	µg/kg	0.4	16 APR 96
Bromoform	µg/kg	0.6	16 APR 96
Bromomethane	µg/kg	2	16 APR 96
2-Butanone	µg/kg	3	16 APR 96
sec-Butylbenzene	µg/kg	1	16 APR 96
n-Butylbenzene	µg/kg	1	16 APR 96
tert-Butylbenzene	µg/kg	1	16 APR 96
Carbon disulfide	µg/kg	1	16 APR 96
Carbon tetrachloride	µg/kg	1	16 APR 96
Chlorobenzene	µg/kg	0.4	16 APR 96
Chloroethane	µg/kg	0.9	16 APR 96
2-Chloroethylvinyl ether	µg/kg	0.6	16 APR 96
Chloroform	µg/kg	0.2	16 APR 96
1-Chlorohexane	µg/kg	0.7	16 APR 96
Chloromethane	µg/kg	0.5	16 APR 96
Chloroprene	µg/kg	1	09 JAN 95
2-Chlorotoluene	µg/kg	0.5	16 APR 96
4-Chlorotoluene	µg/kg	1	16 APR 96
Dibromochloromethane	µg/kg	0.5	16 APR 96
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	0.8	16 APR 96
1,2-Dibromoethane (EDB)	µg/kg	0.5	16 APR 96
Dibromofluoromethane	µg/kg	0.2	16 APR 96
Dibromomethane	µg/kg	0.5	16 APR 96
1,2-Dichlorobenzene	µg/kg	0.5	16 APR 96
1,3-Dichlorobenzene	µg/kg	0.3	16 APR 96
1,4-Dichlorobenzene	µg/kg	0.7	16 APR 96
trans 1,4-dichloro2-Butene	µg/kg	1	16 APR 96
Dichlorodifluoromethane	µg/kg	0.5	16 APR 96
1,1-Dichloroethane	µg/kg	0.2	16 APR 96
1,2-Dichloroethane	µg/kg	0.5	16 APR 96
1,2-Dichloroehtan-d4	µg/kg	0.4	16 APR 96
1,1-Dichloroethene	µg/kg	0.8	16 APR 96
cis-1,2-Dichloroethene	µg/kg	0.4	16 APR 96

Parameter	Units	MDL[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260)			
trans-1,2-Dichloroethene	µg/kg	0.7	16 APR 96
1,2-Dichloropropane	µg/kg	0.3	16 APR 96
1,3-Dichloropropane	µg/kg	0.5	16 APR 96
2,2-Dichloropropane	µg/kg	1	16 APR 96
1,1-Dichloropropene	µg/kg	0.6	16 APR 96
cis-1,3-Dichloropropene	µg/kg	0.4	16 APR 96
trans-1,3-Dichloropropene	µg/kg	0.3	16 APR 96
Diisopropyl ether	µg/kg	0.2	16 APR 96
Ethylbenzene	µg/kg	0.7	16 APR 96
Ethyl acetate	µg/kg	0.5	16 APR 96
Ethyl ether	µg/kg	0.5	16 APR 96
Ethyl methacrylate	µg/kg	0.8	16 APR 96
Hexachlorobutadiene	µg/kg	2	16 APR 96
2-Hexanone	µg/kg	2	16 APR 96
Iodomethane	µg/kg	1	16 APR 96
Isobutyl alchol	µg/kg	27	16 APR 96
Isopropylbenzene	µg/kg	0.8	16 APR 96
p-Isopropyltoluene	µg/kg	0.8	16 APR 96
Methacrylonitrile	µg/kg	0.8	16 APR 96
Methylene chloride	µg/kg	0.3	16 APR 96
Methyl methacrylate	µg/kg	1	16 APR 96
4-Methyl-2-Pentanone	µg/kg	3	16 APR 96
Methyl tertiary-butyl ether	µg/kg	0.5	16 APR 96
Naphthalene	µg/kg	1	16 APR 96
2-Nitropropane	µg/kg	1	16 APR 96
Pentachloroethane	µg/kg	0.3	16 APR 96
Propionitrile	µg/kg	8	16 APR 96
n-Propylbenzene	µg/kg	0.9	16 APR 96
Styrene	µg/kg	0.3	16 APR 96
1,1,1,2-Tetrachloroethane	µg/kg	0.5	16 APR 96
1,1,2,2-Tetrachloroethane	µg/kg	1	16 APR 96
Tetrachloroethene	µg/kg	0.8	16 APR 96
Tetrahydrofuran	µg/kg	2	16 APR 96
Toluene-d_8	µg/kg	0.4	16 APR 96
Toluene	µg/kg	0.6	16 APR 96
1,2,3-Trichlorobenzene	µg/kg	0.7	16 APR 96
1,2,4-Trichlorobenzene	µg/kg	0.8	16 APR 96
1,1,1-Trichloroethane	µg/kg	0.5	16 APR 96
1,1,2-Trichloroethane	µg/kg	0.5	16 APR 96
Trichloroethene	µg/kg	0.7	16 APR 96
Trichlorofluoromethane	µg/kg	0.6	16 APR 96
1,2,3-Trichloropropane	µg/kg	0.5	16 APR 96

Parameter	Units	MDL[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260)			
1,1,2-Trichlorotrifluoroethane	µg/kg	0.6	16 APR 96
1,2,3-Trimethylbenzene	µg/kg	1	16 APR 96
1,2,4-Trimethylbenzene	µg/kg	0.7	16 APR 96
1,3,5-Trimethylbenzene	µg/kg	0.8	16 APR 96
Vinyl chloride	µg/kg	0.9	16 APR 96
Vinyl acetate	µg/kg	0.8	16 APR 96
m&p-Xylenes	µg/kg	0.9	16 APR 96
o-Xylene	µg/kg	0.4	16 APR 96
Xylenes (total)	µg/kg	1	16 APR 96
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	3.9	16 MAY 96
Antimony	mg/kg	3.1	16 MAY 96
Arsenic	mg/kg	5.5	16 MAY 96
Barium	mg/kg	2.2	16 MAY 96
Beryllium	mg/kg	0.1	16 MAY 96
Boron	mg/kg	0.9	16 MAY 96
Cadmium	mg/kg	0.4	16 MAY 96
Calcium	mg/kg	7.9	16 MAY 96
Chromium	mg/kg	0.6	16 MAY 96
Cobalt	mg/kg	1.1	16 MAY 96
Copper	mg/kg	0.6	16 MAY 96
Iron	mg/kg	5.3	16 MAY 96
Lead	mg/kg	7.1	16 MAY 96
Lithium	mg/kg	0.2	16 MAY 96
Magnesium	mg/kg	8.5	16 MAY 96
Manganese	mg/kg	0.6	16 MAY 96
Molybdenum	mg/kg	1.0	16 MAY 96
Nickel	mg/kg	1.5	16 MAY 96

Parameter	Units	MDL[a]	Date
METALS - ICP (SW-846 3050/6010A) (Continued)			
Potassium	mg/kg	6.3	16 MAY 96
Selenium	mg/kg	7.3	16 MAY 96
Silver	mg/kg	0.4	16 MAY 96
Sodium	mg/kg	22.1	16 MAY 96
Strontium	mg/kg	0.1	16 MAY 96
Thallium	mg/kg	9.6	16 MAY 96
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	16 MAY 96
METALS - TRACE ICP (SW-846 3050/6010A)			
Antimony	mg/kg	0.2	16 MAY 96
Arsenic	mg/kg	0.2	16 MAY 96
Cadmium	mg/kg	0.1	16 MAY 96
Lead	mg/kg	0.2	16 MAY 96
Selenium	mg/kg	0.2	16 MAY 96
Thallium	mg/kg	0.3	16 MAY 96

TABLE B-2 METHOD DETECTION LIMITS FOR WATER SAMPLES

Parameter	Units	MDL[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3520/8270B)			
Acenaphthene	µg/L	3	26 JUL 96
Acenaphthylene	µg/L	4	26 JUL 96
Anthracene	µg/L	4	26 JUL 96
Benzidine	µg/L	18	09 AUG 96
Benzo[a]anthracene	µg/L	3	26 JUL 96
Benzo[b]fluoranthene	µg/L	4	26 JUL 96
Benzo[k]fluoranthene	µg/L	3	26 JUL 96
Benzo[a]pyrene	µg/L	4	26 JUL 96
Benzo[ghi]perylene	µg/L	5	26 JUL 96
Benzoic acid	µg/L	4	26 JUL 96
Benzyl alcohol	µg/L	4	26 JUL 96
Bis(2-chloroethyl) ether	µg/L	4	26 JUL 96
Bis(2-chloroethoxy)methane	µg/L	4	26 JUL 96
Bis(2-ethylhexyl)phthalate	µg/L	7	08 MAR 95
4-Bromophenyl phenyl ether	µg/L	5	26 JUL 96
Butylbenzylphthalate	µg/L	4	09 AUG 96
Carbazole	µg/L	5	26 JUL 96
4-Chloroaniline	µg/L	5	26 JUL 96
4-Chloro-3-methylphenol	µg/L	4	26 JUL 96
2-Chloronaphthalene	µg/L	3	26 JUL 96
2-Chlorophenol	µg/L	3	26 JUL 96
2-Chlorophenol-d^4	µg/L	4	08 MAR 95
4-Chlorophenyl phenyl ether	µg/L	4	26 JUL 96
Chrysene	µg/L	3	26 JUL 96
Cyclohexanone	µg/L	5	26 JUL 96
Dibenzo[a,h]anthracene	µg/L	4	26 JUL 96
Dibenzofuran	µg/L	4	26 JUL 96
Di-n-butyl phthalate	µg/L	4	09 AUG 96
1,2-Dichlorobenzene	µg/L	2	26 JUL 96
1,2-Dichlorobenzene-d^4	µg/L	4	08 MAR 95
1,3-Dichlorobenzene	µg/L	3	26 JUL 96
1,4-Dichlorobenzene	µg/L	3	26 JUL 96
3,3'-Dichlorobenzidine	µg/L	4	26 JUL 96
2,4-Dichlorophenol	µg/L	3	26 JUL 96
Diethyl phthalate	µg/L	3	09 AUG 96
4,6-Dinitro-2-Methylphenol	µg/L	6	26 JUL 96
2,4-Dimethylphenol	µg/L	3	26 JUL 96
Dimethyl phthalate	µg/L	3	09 AUG 96
2,4-Dinitrophenol	µg/L	6	26 JUL 96

(a) Determined according to 40 CFR 136 Appendix B.

Parameter	Units	MDL[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-8463520/ 8270B) (Continued)			
2,4-Dinitrotoluene	µg/L	4	26 JUL 96
2,6-Dinitrotoluene	µg/L	4	26 JUL 96
1,2-Diphenylhydrazine	µg/L	5	26 JUL 96
Di-n-octyl phthalate	µg/L	4	26 JUL 96
Fluoranthene	µg/L	5	26 JUL 96
2-Fluorobiphenyl	µg/L	4	08 MAR 95
Fluorene	µg/L	4	26 JUL 96
2-Fluorophenol	µg/L	4	08 MAR 95
Hexachlorobenzene	µg/L	6	26 JUL 96
Hexachlorobutadiene	µg/L	4	26 JUL 96
Hexachloroethane	µg/L	3	26 JUL 96
Hexachlorocyclopentadiene	µg/L	2	09 AUG 96
Indeno[1,2,3-cd]pyrene	µg/L	4	26 JUL 96
Isophorone	µg/L	4	26 JUL 96
2-Methylnaphthalene	µg/L	3	26 JUL 96
2-Methylphenol	µg/L	4	26 JUL 96
4-Methylphenol	µg/L	4	26 JUL 96
3+4-Methylphenol	µg/L	4	26 JUL 96
Naphthalene	µg/L	3	26 JUL 96
2-Nitroaniline	µg/L	5	26 JUL 96
3-Nitroaniline	µg/L	4	26 JUL 96
4-Nitroaniline	µg/L	4	26 JUL 96
Nitrobenzene	µg/L	4	26 JUL 96
Nitrobenzene-d_5	µg/L	4	08 MAR 95
2-Nitrophenol	µg/L	3	26 JUL 96
4-Nitrophenol	µg/L	5	26 JUL 96
N-Nitrosodiphenylamine	µg/L	4	26 JUL 96
N-Nitrosodimethylamine	µg/L	4	26 JUL 96
N-Nitroso-di-n-propylamine	µg/L	4	26 JUL 96
2,2'-Oxybis(1-chloropropane)	µg/L	4	26 JUL 96
Pentachlorophenol	µg/L	5	26 JUL 96
Phenanthrene	µg/L	5	26 JUL 96
Phenol	µg/L	4	26 JUL 96
Pyrene	µg/L	4	26 JUL 96
Pyridine	µg/L	4	09 AUG 96
Terphenyl-d_{14}	µg/L	2	08 MAR 95
2,4,6-Tribromophenol	µg/L	3	08 MAR 95
1,2,4-Trichlorobenzene	µg/L	3	26 JUL 96
2,4,5-Trichlorophenol	µg/L	3	26 JUL 96
2,4,6-Trichlorophenol	µg/L	3	26 JUL 96

Parameter	Units	MDL[a]	Date
VOLATILE ORGANICS GC/MS -5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	µg/L	4	15 FEB 96
Acetonitrile	µg/L	5	15 FEB 96
Acrolein	µg/L	5	15 FEB 96
Allyl chloride	µg/L	1	15 FEB 96
Acrylonitrile	µg/L	4	15 FEB 96
Benzene	µg/L	1	15 FEB 96
Bromobenzene	µg/L	2	15 FEB 96
Bromochloromethane	µg/L	1	15 FEB 96
Bromodichloromethane	µg/L	1	15 FEB 96
Bromofluorobenzene	µg/L	1	15 FEB 96
Bromoform	µg/L	1	15 FEB 96
Bromomethane	µg/L	2	15 FEB 96
2-Butanone	µg/L	2	15 FEB 96
sec-Butylbenzene	µg/L	2	15 FEB 96
n-Butylbenzene	µg/L	2	15 FEB 96
tert-Butylbenzene	µg/L	2	15 FEB 96
Carbon disulfide	µg/L	1	15 FEB 96
Carbon tetrachloride	µg/L	1	15 FEB 96
Chlorobenzene	µg/L	1	15 FEB 96
Chloroethane	µg/L	1	15 FEB 96
2-Chloroethylvinyl ether	µg/L	1	11 DEC 94
Chloroform	µg/L	1	15 FEB 96
1-Chlorohexane	µg/L	1	15 FEB 96
Chloromethane	µg/L	2	15 FEB 96
Chloroprene	µg/L	1	11 DEC 94
2-Chlorotoluene	µg/L	2	15 FEB 96
4-Chlorotoluene	µg/L	3	15 FEB 96
Dibromochloromethane	µg/L	1	15 FEB 96
1,2-Dibromo-3-chloropropane	µg/L	2	15 FEB 96
1,2-Dibromoethane (EDB)	µg/L	0.2	15 FEB 96
Dibromofluoromethane	µg/L	0.9	15 FEB 96
Dibromomethane	µg/L	0.4	15 FEB 96
1,2-Dichlorobenzene	µg/L	2	15 FEB 96
1,3-Dichlorobenzene	µg/L	2	15 FEB 96
1,4-Dichlorobenzene	µg/L	2	15 FEB 96
trans 1,4-dichloro2-Butene	µg/L	5	15 FEB 96
Dichlorodifluoromethane	µg/L	1	15 FEB 96
1,1-Dichloroethane	µg/L	0.8	15 FEB 96
1,2-Dichloroethane	µg/L	0.8	15 FEB 96
1,2-Dichloroehtane-d_4	µg/L	0.5	15 FEB 96

Parameter	Units	MDL[a]	Date
VOLATILE ORGANICS GC/MS -5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
1,1-Dichloroethene	µg/L	0.9	15 FEB 96
cis-1,2-Dichloroethene	µg/L	0.9	15 FEB 96
trans-1,2-Dichloroethene	µg/L	0.9	15 FEB 96
1,2-Dichloropropane	µg/L	0.5	15 FEB 96
1,3-Dichloropropane	µg/L	1	15 FEB 96
2,2-Dichloropropane	µg/L	0.8	15 FEB 96
1,1-Dichloropropene	µg/L	0.6	15 FEB 96
cis-1,3-Dichloropropene	µg/L	0.6	15 FEB 96
trans-1,3-Dichloropropene	µg/L	0.5	15 FEB 96
Diisopropyl ether	µg/L	0.7	15 FEB 96
Ethylbenzene	µg/L	1	15 FEB 96
Ethyl acetate	µg/L	1	15 FEB 96
Ethyl ether	µg/L	1	15 FEB 96
Ethyl methacrylate	µg/L	0.5	15 FEB 96
Hexachlorobutadiene	µg/L	2	15 FEB 96
2-Hexanone	µg/L	2	15 FEB 96
Iodomethane	µg/L	0.5	15 FEB 96
Isobutyl alchol	µg/L	6	15 FEB 96
Isopropylbenzene	µg/L	2	15 FEB 96
p-Isopropyltoluene	µg/L	2	15 FEB 96
Methacrylonitrile	µg/L	0.7	15 FEB 96
Methylene chloride	µg/L	0.8	15 FEB 96
Methyl methacrylate	µg/L	0.8	15 FEB 96
4-Methyl-2-Pentanone	µg/L	2	15 FEB 96
Methyl tertiary-butyl ether	µg/L	0.7	15 FEB 96
Naphthalene	µg/L	2	15 FEB 96
Pentachloroethane	µg/L	2	15 FEB 96
Propionitrile	µg/L	5	15 FEB 96
n-Propylbenzene	µg/L	2	15 FEB 96
Styrene	µg/L	0.9	15 FEB 96
1,1,1,2-Tetrachloroethane	µg/L	1	15 FEB 96
1,1,2,2-Tetrachloroethane	µg/L	3	15 FEB 96
Tetrachloroethene	µg/L	1	15 FEB 96
Tetrahydrofuran	µg/L	5	15 FEB 96
Toluene-d_8	µg/L	0.6	15 FEB 96
Toluene	µg/L	0.6	15 FEB 96
1,2,3-Trichlorobenzene	µg/L	2	15 FEB 96
1,2,4-Trichlorobenzene	µg/L	2	15 FEB 96
1,1,1-Trichloroethane	µg/L	1	15 FEB 96
1,1,2-Trichloroethane	µg/L	0.5	15 FEB 96

Parameter	Units	MDL[a]	Date
VOLATILE ORGANICS GC/MS -5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
Trichloroethene	µg/L	0.7	15 FEB 96
Trichlorofluoromethane	µg/L	1	15 FEB 96
1,2,3-Trichloropropane	µg/L	3	15 FEB 96
1,1,2-Trichlorotrifluoroethane	µg/L	0.8	15 FEB 96
1,2,3-Trimethylbenzene	µg/L	2	15 FEB 96
1,2,4-Trimethylbenzene	µg/L	2	15 FEB 96
1,3,5-Trimethylbenzene	µg/L	2	15 FEB 96
Vinyl chloride	µg/L	1	15 FEB 96
Vinyl acetate	µg/L	0.7	15 FEB 96
m&p-Xylenes	µg/L	2	15 FEB 96
o-Xylene	µg/L	1	15 FEB 96
Xylenes	µg/L	3	15 FEB 96
SEMIVOLATILE ORGANICS HPLC - POLYCYCLIC AROMATIC HYDROCARBONS (SW-846 3520/8310)			
Pyrethrin I	µg/L	0.53	19 FEB 97
Pyrethrin II	µg/L	0.16	19 FEB 97
Pyrethrin (total)	µg/L	0.70	19 FEB 97
Rotenone	µg/L	0.34	19 FEB 97
METALS - COLD VAPOR (SW-846 7470S)			
Mercury	µg/L	.20	14 MAR 96
METALS - FURNACE (SW-846 7000 SERIES)			
Antimony	µg/L	2.0	14 MAR 96
Arsenic	µg/L	2.0	14 MAR 96
Beryllium	µg/L	1.0	14 MAR 96
Cadmium	µg/L	1.0	14 MAR 96
Chromium	µg/L	2.0	14 MAR 96
Copper	µg/L	2.0	14 MAR 96
Lead	µg/L	1.0	14 MAR 96
Nickel	µg/L	2.0	14 MAR 96
Selenium	µg/L	1.0	14 MAR 96
Silver	µg/L	1.0	14 MAR 96
Thallium	µg/L	3.0	14 MAR 96
METALS - ICP (SW-846 3010/6010)			
Aluminum	µg/L	155	08 NOV 94
Antimony	µg/L	71.0	08 NOV 94
Arsenic	µg/L	82.0	08 NOV 94
Barium	µg/L	17.0	08 NOV 94
Beryllium	µg/L	1.0	08 NOV 94
Boron	µg/L	14.0	08 NOV 94
Cadmium	µg/L	5.0	08 NOV 94
Calcium	µg/L	46.0	08 NOV 94

Parameter	Units	MDL[a]	Date
METALS - ICP (SW-846 3010/6010) (Continued)			
Chromium	µg/L	5.0	08 NOV 94
Cobalt	µg/L	9.0	08 NOV 94
Copper	µg/L	4.0	08 NOV 94
Iron	µg/L	63.0	08 NOV 94
Lead	µg/L	24.0	08 NOV 94
Lithium	µg/L	1.0	08 NOV 94
Magnesium	µg/L	48.0	08 NOV 94
Manganese	µg/L	6.0	08 NOV 94
Molybdenum	µg/L	17.0	08 NOV 94
Nickel	µg/L	9.0	08 NOV 94
Potassium	µg/L	55.0	08 NOV 94
Selenium	µg/L	104	08 NOV 94
Silicon	µg/L	63.0	08 NOV 94
Silver	µg/L	4.0	08 NOV 94
Sodium	µg/L	91.0	08 NOV 94
Strontium	µg/L	1.0	08 NOV 94
Thallium	µg/L	24.0	08 NOV 94
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	11.0	08 NOV 94
METALS - TRACE ICP (SW-846 6010)			
Antimony	µg/L	2.0	14 MAR 96
Arsenic	µg/L	2.0	14 MAR 96
Cadmium	µg/L	1.0	14 MAR 96
Lead	µg/L	2.0	14 MAR 96
Selenium	µg/L	2.0	14 MAR 96
Thallium	µg/L	2.0	08 NOV 94

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 14,15, AND 18 NOVEMBER 1996 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-216A	MW-217A	MW-217B	MW-218	MW-219	MW-219 DUP
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
Methane, chlorodifluoro-	3.02						1JN					
Methane, chlorodifluoro-	3.03								13JN			
Methane, chlorodifluoro-	3.18									2JN		
Ether	5.67								2JN			
Unknown	11.82								1J			
Unknown	14.46								1J			
Cyclotetrasiloxane, octameth	22.14											

Compound	Retention Time (min)	MW-220	MW-232A	MW-232A DUP	MW-234R	MW-2101	QT-007	QT-008	QT-009
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)									
Methane, chlorodifluoro-	3.02								
Methane, chlorodifluoro-	3.03								
Methane, chlorodifluoro-	3.18								
Ether	5.67								
Unknown	11.82								
Unknown	14.46								
Cyclotetrasiloxane, octameth	22.14				1JN				2JN

NOTE: J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
Only those analytes detected in at least one of the samples are shown on this table. Samples not analyzed for Target Analyte List elements.

TABLE C-2 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 8, 10-14, 20, AND 21 NOVEMBER1996 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-207A	MW-207A DUP	MW-207B	MW-208	MW-209	MW-209 DUP
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
Ethane,1,1,2-trichloro-1,2,	5.98				4JN								
Ethane,1,1,2-trichloro-1,2,	6.22												
Unknown	10.8												
Unknown	16.06												
Unknown	16.10												
Cycloterasiloxane	22.13												
Cyclotetrasiloxane, octameth	22.14												
Unknown C9H12	23.61												
Unknown C9H12	23.62												
1,2,4-Trimethylbenzene	24.50												
1,2,4-Trimethylbenzene	24.51												

NOTE: JN = Presumptive identification; estimated values.
Only those analytes detected in at least one of the samples are shown on this table. Samples not analyzed for Target Analyte List elements.

Compound	Retention Time (min)	MW-NASB-212	MW-222	MW-222 DUP	MW-223	MW-224	MW-225A	MW-225B	MW-229A	MW-229B	MW-230A	MW-230A DUP	MW-231A
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
Ethane,1,1,2-trichloro-1,2,	5.98												
Ethane,1,1,2-trichloro-1,2,	6.22								1JN				
Unknown	10.84												
Unknown	16.06												
Unknown	16.10												
Cycloterasiloxane, octameth	22.13								1JN			2JN	
Cyclotetrasiloxane, octameth	22.14												
Unknown C9H12	23.61												
Unknown C9H12	23.62												
1,2,4-Trimethylbenzene	24.50												
1,2,4-Trimethylbenzene	24.51												

Compound	Retention Time (min)	MW-231A DUP	MW-231B	MW-303	MW-305	MW-306	MW-307	MW-308	MW-309A	MW-309B	MW-310	MW-311	MW-312
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)													
Ethane,1,1,2-trichloro-1,2	5.98												
Ethane,1,1,2-trichloro-1,2	6.22												
Unknown	10.8												
Unknown	16.1												
Unknown	16.1											5J	
Cyclotetrasiloxane, octameth	22.1												
Cyclotetrasiloxane, octameth	22.1												
Unknown C9H12	23.6												
Unknown C9H12	23.6												
1,2,4-Trimethylbenzene	24.5												
1,2,4-Trimethylbenzene	24.5												

NOTE: J = Estimated concentration below detection limit.

Compound	Retention Time (min)	MW-313	MW-316A	MW-316B	MW-317A	MW-317A DUP	MW-317B	MW-318	MW-319	MW-1104	P-105
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
Ethane,1,1,2-trichloro-1,2,	5.98										
Ethane,1,1,2-trichloro-1,2,	6.22										
Unknown	10.84										
Unknown	16.06										2J
Unknown	16.10										
Cyclotetrasiloxane, octameth	22.13						15JN				
Cyclotetrasiloxane, octameth	22.14		2JN								
Unknown C9H12	23.61									2J	
Unknown C9H12	23.62										
1,2,4-Trimethylbenzene	24.50									1JN	
1,2,4-Trimethylbenzene	24.51										

Compound	Retention Time (min)	P-106	P-132	QT-003	QT-004	QT-005	QT-006	QT-012	QT-013	QS-005	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)											
Ethane,1,1,2-trichloro-1,2,	5.98										
Ethane,1,1,2-trichloro-1,2,	6.22										
Unknown	10.84										1.1J
Unknown	16.06										
Unknown	16.10	3J									
Cyclotetrasiloxane, octameth	22.13										
Cyclotetrasiloxane, octameth	22.14	3JN									
Unknown C9H12	23.61										
Unknown C9H12	23.62										
1,2,4-Trimethylbenzene	24.50										
1,2,4-Trimethylbenzene	24.51										

TABLE C-3 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 14 NOVEMBER 1996 FROM EXTRACTION WELLS AND THE TREATMENT PLANT AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound/Analyte	Retention Time (min)	EW-01	EW-02	EW-04	EW-05	EW-06	EW-07	QT-007
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)								
Methane, chlorodifluoro-	3.28						4JN	
Methane, chlorodifluoro-	3.35					9JN		
Ether	6.07						2JN	
Ether	6.17					1JN		
Unknown C6H10	13.20					4J		
Unknown C8H18	15.44				4J			
Unknown C9H12	22.59					1J		
Unknown C9H12	23.62					2J		
Benzene,1,3,5-trimethyl-	23.73					2JN		
Unknown C9H12	24.25					1J		
1,2,4-Trimethylbenzene	24.52					6JN		
Unknown C10H14	25.80					1J		
Unknown C10H14	25.94					1J		
Unknown	26.08					1J		
Unknown C10H14	26.55					2J		
Unknown C10H14	26.72					1J		
Unknown C10H14	27.46					1J		
Unknown C10H14	27.61					2J		

Compound/Analyte	Retention Time (min)	Sites 1 and 3 Raw Influent	Eastern Plume Raw Influent	Eastern Plume Combined Effluent	Eastern Plume Combined Effluent DUP
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)					
Methane, chlorodifluoro-	3.15	6JN			
Ether	5.85	2JN			
Unknown hydrocarbon	15.48		1J		
Unknown C9H12	23.61	1J			
1,2,4-Trimethylbenzene	24.51	3JN			
Unknown C10H14	27.60	1J			

NOTE: EW = Extraction well.
QT = Trip blank samples associated with QT-006 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 analytes detected in at least one of the samples are shown on this table. Samples not analyzed for Target Analyte List elements.

TABLE C-4 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SURFACE WATER SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SW-1	SW-2	SW-3	SW-3 DUP	SW-4	SW-5	SW-6	SW-7	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)												
Unknown	10.84											1.1J
Naphthalene	30.01				0.2JN							

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 analytes detected in at least one of the samples, and contaminants of concern listed in the Long-Term Monitoring Plan (AB-ES 1994), are shown on this table.

TABLE C-5 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SURFACE WATER SAMPLES COLLECTED ON 14 NOVEMBER 1996 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SW-100	SW-101	QT-007	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)						
Unknown	10.84					1.1J

NOTE: QT = Trip blank.
QS = Equipment rinsate blank. Samples associated with QS-001 were analyzed under a separate delivery group shipped on 7 November 1996.
QD = Source water blank. Samples associated with QD-001 were analyzed under a separate delivery group shipped on 7 November 1996.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and contaminants of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.

TABLE C-6 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SED-1	SED-2	SED-3	SED-3 DUP	SED-4	SED-5	SED-6	SED-7	QT-002	QS-002	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)												
Unknown	10.84											1.1J
Unknown	22.11	4J										
1,2,4-Trimethylbenzene	24.29							2JN				
Unknown	27.74							10J				
Unknown	28.70							6J				
Unknown	28.87							21J				
Unknown	29.79							10J				
Unknown	30.43							6J				
Unknown	30.60							4J				
Unknown hydrocarbon	30.84							17J				
Unknown	32.30							16J				

NOTE: QT = Trip blank.
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 analytes 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 SEEP SAMPLE COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SEEP-1	SEEP-3	SEEP-4	SEEP-4 DUP	SEEP-5	QT-001	QS-001	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)									
Methane, chlorodifluoro-	2.97					1JN			
Methane, chlorodifluoro-	2.98				5JN				
Methane, chlorodifluoro-	2.99			4JN					
Ether	5.58				2JN				
Ether	5.61			2JN					
Unknown	10.84								1.1J

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 analytes detected in at least one of the samples are shown on this table.

TABLE C-8 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1996 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	LT-1	LT-2	LT-3	LT-4	LT-4 DUP	LT-5	QT-002	QS-002	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)										
Unknown	10.84									1.1J

NOTE: QT = Trip blank.
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 analytes detected in at least one of the samples are shown on this table.
Samples not analyzed for Target Analyte List elements.

TABLE C-9 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN DIRECT-PUSH GROUND-WATER SAMPLES COLLECTED ON 21 NOVEMBER1996 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time	DP-02	DP-04	QT-012
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/L)				
Cyclotetrasiloxane, octameth	22.14	1JN		
Unknown C9H12	23.62	1J	1J	
1,2,4-Trimethylbenzene	24.51		1JN	

NOTE: QT = Trip blank.
J = Estimated concentration delow detection limit.
JN = Presumptive identification; estimated value.
Only those analytes detected in at least one of the samples, and contaminants of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.