Monitoring Event 23 Report – September/October 2003 for Site 9: Neptune Drive Disposal Site Naval Air Station, Brunswick, Maine

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

Prepared for

Department of the Navy
Engineering Field Activity Northeast
Naval Facilities Engineering Command
North Loop & American Way, Building G
Code 182
Lester, Pennsylvania 19113-2090

Prepared by

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October 2004
FINAL
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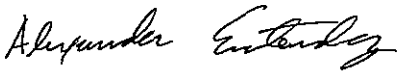
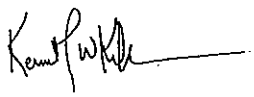


29 October 2004

Alexander C. Easterday, P.G.
CTO Manager

Date



29 October 2004

Kenneth W. Kilmer
Program Manager

Date

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QUALITY REVIEW STATEMENT

Contract No. N62472-92-D-1296 EA Project No.: 29600.47
Contract Task Order No. 0047
Activity: Naval Air Station, Brunswick, Maine

Description of Report/Deliverable:

Final Monitoring Event 23 Report – September/October 2003 for Site 9, Naval Air Station, Brunswick, Maine

EA CTO Manager: Alexander C. Easterday, 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

Peter Nimmer

29 October 2004

Peter L. Nimmer, P.G. (Date)
Senior Geologist

QUALITY REVIEW STATEMENT

Contract No. N62472-92-D-1296 EA Project No.: 29600.47
Contract Task Order No. 47
Activity: Naval Air Station, Brunswick, Maine

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Final Monitoring Event 23 Report – September/October 2003 for Site 9: Neptune Drive Disposal Site, Naval Air Station, Brunswick, Maine

EA CTO Manager: Alexander C. Easterday, P.G.

As per State of Maine Department of Professional and Financial Regulations, Title 32 Chapter 73, Law, the sections of this document related to geology and geologic data interpretation have been reviewed for its technical content by the undersigned State of Maine Certified Geologist.

Specifically, this document and figures have been reviewed by the undersigned for their geological interpretive content. This statement is based upon the review of the undersigned conducted during the preparation of this report, as dated below.

Certified Geologist Reviewer

Gina M. Calderone

STATE OF MAINE
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No. GE442
CERTIFIED GEOLOGIST

Gina M. Calderone, CPG
State of Maine Certified Geologist (No. GE442)

29 October 2004
(Date)

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1. PROJECT ACTIVITIES AND MONITORING EVENT RESULTS

1.1 INTRODUCTION

Under Contract No. N62472-92-D-1296, Contract Task Order No. 0047, Engineering Field Activity Northeast, Naval Facilities Engineering Command contracted with EA Engineering, Science, and Technology, Inc. to perform long-term monitoring at the Neptune Drive Disposal Site (Site 9), Naval Air Station (NAS), Brunswick, Maine. NAS Brunswick is located south of the Androscoggin River between Brunswick and Cooks Corner, Maine (Figure 1). The layout of Site 9 is provided on Figure 2.

At Site 9, the Navy is providing monitoring and maintenance as part of the long-term remedial actions required by the Final Record of Decision for Site 9 (EA 1999a). Monitoring Event 23 was completed in accordance with the Final Long-Term Monitoring Plan (LTMP) (EA 1999b).

This report provides results for Monitoring Event 23, which occurred in September and October 2003. By agreement between the Navy and state and federal regulators, this monitoring event report includes previous annual report sections, as annual reports are no longer prepared. Monitoring event reports present and discuss trend data, and provide recommendations and conclusions. Section 1 describes the activities completed during this monitoring event. Temporal trends and other observations based on data collected during bi-annual monitoring are presented in Section 2. Recommendations are provided in Section 3. Appendix A contains response to comments from the Maine Department of Environmental Protection and U.S. Environmental Protection Agency (EPA). Appendix B contains the laboratory analytical data summary (Tables B-1 through B-7). Appendix C provides temporal trend graphs. Appendix D provides an analytical data quality review. Appendix E provides field monitoring and sampling forms. Appendix F provides the site inspection report. Appendix G provides analytical report Form I data tables.

Beginning with the October 2003 long-term monitoring event, the Navy tasked Environmental Chemical Corporation (ECC) to gauge, collect, and analyze samples from Site 9 as per the LTMP. The Navy tasked EA with completing a data quality review screening of the analytical data and generating the monitoring event report.

1.2 MEASUREMENT OF WATER LEVEL ELEVATIONS

1.2.1 Gauging Activities

Water level measurements for Monitoring Event 23 were collected on 30 September 2003 at 17 monitoring wells and 2 stream gauge stations, as indicated in Tables 1 and 2. The locations of site monitoring wells and gauging stations are provided on Figure 2. To collect data related to upgradient groundwater flow patterns, depth to groundwater was measured (gauged) in the monitoring wells at the Navy Exchange Service Station on 30 September 2003 (Table 3). The gauging procedures are detailed in the final report for Monitoring Event 4 (EA 1996).

1.2.2 Results

Water levels recorded for the September 2003 event were lower than water levels recorded in the May 2003 event due to season variations in precipitation. Gauging results for September 2003 are shown in Table 2. Water level gauging data recorded at the Navy Exchange Service Station on 30 September 2003 are provided in Table 3. It should be noted that the depth to water gauging data for monitoring well MW-NASB-079 is recorded as 16.58 ft on the Field Record of Well Gauging form, and was corrected by the field team to read 12.11 ft. It should also be noted that the top of well riser elevation for MW-NASB-252 is recorded as 59.86 ft mean sea level on the Field Record of Well Gauging form. These elevation data are incorrect; the correct elevation is slightly different at 60.54 ft mean sea level (this discrepancy is noted in Table 3). Field Record of Well Gauging forms completed during the well gauging events are provided in Appendix E. Figure 3 provides the groundwater potentiometric surface elevations and flow directions for Site 9 based on the 30 September 2003 gauging data.

1.3 GROUNDWATER MONITORING, SAMPLING, AND ANALYSIS

1.3.1 Sampling Activities

The groundwater sampling program was completed on 1 October 2003 in accordance with the general methodologies established in the final LTMP (EA 1999b), with the exception of the aqueous diffusion samples. The LTMP is currently being updated to include diffusion sampling. These samples were collected as described in previous phases of the Brunswick pilot study (EA 2001a) and the draft Diffusion Sampler Proposal (EA 2003a). Previously installed dedicated Grundfos Redi-Flo2 stainless steel and Teflon® submersible pumping systems were utilized for low-flow sample collection at Site 9.

A diffusion sampler pilot study has been conducted at the 9 monitoring wells which are sampled for Target Compound List volatile organic compounds (VOCs) to assess whether aqueous diffusion samplers can be used effectively as an alternative to the low-flow sampling method at Site 9. On 12 March 2003, the draft Diffusion Sampler Proposal (EA 2003a) was submitted to stakeholders. This document provides justification that aqueous diffusion samplers can be used effectively as an alternative to the low-flow sampling method. Low-flow sampling will no longer be required for the collection of VOCs at these monitoring wells. Low-flow sampling will still be required for collection of semivolatile organic compounds and Target Analyte List elements as required by the final LTMP (EA 1999b). The draft Diffusion Sampler Proposal contained specific information on the location and placement of each aqueous diffusion sampler in individual monitoring wells as discussed and agreed upon by site stakeholders in the October 2002 Technical Meeting.

On 7 August 2003, diffusion samplers were placed in 9 monitoring wells at specific depths across the length of the well screen (as specified in the 12 March 2003 draft Diffusion Sampler Proposal [EA 2003a]). One diffusion sampler was placed at the deep interval of each

well screen. On 8 September 2003, two diffusion samplers were placed in MW-NASB-069 at the shallow and deep intervals. The 10 diffusion samplers were retrieved on 1 October 2003, after being allowed to equilibrate in each well for 55 days, with the exception of MW-NASB-069. MW-NASB-069 was retrieved on 30 September 2003 after being allowed to equilibrate for 22 days. Note that diffusion samplers reach equilibrium in 14 days, and can remain in wells longer than this time without adverse effects. As required by the final LTMP (EA 1999b), low-flow groundwater sampling was conducted at three monitoring wells (MW-NASB-069, MW-NASB-070, and MA-NASB-079). The low-flow sample for MW-NASB-069 was collected immediately following retrieval of the aqueous diffusion samplers. Aqueous diffusion samples are not required for MW-NASB-70 and MW-NASB-79, which are not sampled for VOC. Low-flow samples were collected where semivolatile organic compounds or Target Analyte List elements sampling is required (MW-NASB-069).

Analytical samples were collected from the 12 required wells at Site 9 during Monitoring Event 23 using the low-flow sampling technique and/or diffusion sampling method. Table 1 provides a summary of the wells that were sampled during Monitoring Event 23. Note that samples were not scheduled to be collected from monitoring wells MW-NASB-073, MW-NASB-077, MW-NASB-078, MW-NASB-081, and MW-NASB–204 as per the current LTMP for Site 9. Water quality indicator parameters, including pH, conductivity, temperature, dissolved oxygen, and oxidation-reduction potential (Eh), were measured immediately following removal of the diffusion samplers. A YSI 600XLM water quality meter was utilized to collect water quality data downhole (note that the YSI 600XLM water quality meter does not record turbidity). Water quality indicator data are presented in Table 4. Field Record of Well Gauging, Purging, and Sampling forms are provided in Appendix E.

Water quality indicator parameters, including pH, conductivity, temperature, dissolved oxygen, and turbidity, were measured during well purging using a YSI 6820 water quality meter and a flow-through cell. Eh, although not required by the most recent LTMP, was recorded for informational purposes. Stabilization of water quality indicator parameters was considered achieved when measurements agreed to within approximately 10 percent on three successive readings, and turbidity was below the goal of 10 nephelometric turbidity units. Wells were purged with the submersible pump between 100 and 460 ml/minute (the ideal purge rate is between 100 and 200 ml/min). Water quality stabilization criteria were achieved in all Site 9 monitoring wells prior to sampling, except for temperature parameter in wells MW-NASB-070 and MW-NASB-079. In both of these wells, the temperature did not reach stabilization during purging, and the recorded temperature is likely not representative of the ambient groundwater temperature. Water quality parameters are summarized in Table 4 for the groundwater samples. Field Record of Well Gauging, Purging, and Sampling forms are provided in Appendix E.

Analytical samples collected during this monitoring event were analyzed by Mitkem Corporation, a State of Maine Department of Human Services certified laboratory, located in Warwick, Rhode Island (Certification No. RI907). Monitoring well samples were analyzed for the following:

- Target Compound List VOCs by EPA Method 8260B.

Groundwater samples collected from monitoring wells MW-NASB-069, MW-NASB-070, and MW-NASB-079 were also analyzed for the following:

- Semivolatile organic compounds by EPA Method 8270C

- Target Analyte List elements, including metals by inductively coupled plasma by EPA Method 6010, graphite furnace by EPA Method 7000 Series, and mercury by cold vapor atomic absorption by EPA Method 7470A.

1.3.2 Analytical Data

Tables B-1, B-2, and B-3 summarize the analytical data for the groundwater samples. Appendix G contains the laboratory Form I summary tables for the analyses performed. Section 2.2 discusses groundwater sample results and temporal trends.

1.4 SURFACE WATER AND LEACHATE STATION SEEP SAMPLING AND ANALYSIS

1.4.1 Sampling Activities

The surface water and leachate station seep sampling was completed on 1 October 2003 in accordance with the most recent final LTMP (EA 1999b). Water quality indicator parameters for the surface water sample and leachate seep samples are summarized in Table 5.

Notable observations of water quality indicator parameter measurements for surface water and the leachate seep sample are described below for informational purposes. Sample data quality is not expected to be adversely impacted due to variations in sample parameters noted below:

- The pH reading was slightly higher (6.20) for the surface water sample collected for Monitoring Event 23 as opposed to that collected during Monitoring Event 22 (6.04). The pH reading was slightly lower (6.13) for the seep sample collected for Monitoring Event 23 as opposed to that collected during Monitoring Event 22 (6.44).

- The dissolved oxygen concentration was lower (6.67 mg/L) for the surface water sample collected for Monitoring Event 23 as opposed to that collected during Monitoring Event 22 (8.39 mg/L). This variation may be due to seasonal changes in water

temperature. The dissolved oxygen concentration was significantly lower (0.63 mg/L) for the seep sample collected for Monitoring Event 23 as opposed to that collected during Monitoring Event 22 (7.61 mg/L). A sheen was noted at this sampling location, which may account for this difference in dissolved oxygen between sampling events.

- Temperature was higher (12.35°C) for the surface water sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (10.5°C). Temperature was higher (12.90°C) for the seep sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (10.77°C). Temperature differences are likely due to seasonal effects.

- Conductivity was lower (277 µmhos/cm) for the surface water sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (335 µmhos/cm). Conductivity was higher (375 µmhos/cm) for the seep sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (329 µmhos/cm).

- The Eh concentration was higher (136 mV) for the surface water sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (61.5 mV). Eh was lower (-2.1 mV) for the seep sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (68.9 mV). A sheen was noted at this sampling location, which could be the reason for this difference in Eh between sampling events.

- Turbidity was higher (13 NTU) for the surface water sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (1.4 NTU). Turbidity was higher (242 NTU) for the seep sample collected for Monitoring Event 23 as opposed to the sample collected for Monitoring Event 22 (0.4 NTU).

Surface water and leachate station seep samples were analyzed for Target Compound List VOCs by EPA Method 8260B.

Table 1 provides a summary of the surface water and leachate station seep sampling program completed during Monitoring Event 23.

1.4.2 Analytical Data

Surface water sample results are summarized in Table B-4. Leachate seep sample results are summarized in Table B-5. Appendix G contains the Form I summary table for the analysis performed. The sample locations are shown on Figure 2.

1.5 STREAM SEDIMENT SAMPLING AND ANALYSIS

1.5.1 Sampling Activities

The stream sediment sampling program was completed on 1 October 2003 in accordance with the final LTMP (EA 1999b).

The stream sediment sample (SED-010) was analyzed for Target Compound List VOCs by EPA Method 8260B.

The stream sediment samples were collected with a modified version of the EnCore® sampler, preserved with sodium bisulfate and methanol, then extracted for VOC analysis using EPA Method 5035/5030. This collection, preservation, and extraction methodology was agreed upon at the 2 August 2000 Technical Meeting (EA 2000). Revisions to the LTMP were completed in July 2001 (EA 2001b) and reflect the changes to the collection, preservation, and extraction procedures.

Table 1 provides a summary of the stream sediment sampling program completed during Monitoring Event 23.

1.5.2 Analytical Data

Table B-6 summarizes analytical results for the stream sediment sample. Appendix G contains the Form I summary table for the analysis performed. The sample location is shown on Figure 2.

1.6 VISUAL INSPECTION

Site inspection activities at Site 9 were completed by the field team leader on 1 October 2003 in accordance with the final LTMP (1999b). There was no evidence of stressed vegetation. The site monitoring wells were observed to be capped, labeled, locked, and in good condition. The site inspection report is provided in Appendix F.

1.7 QUALITY ASSURANCE/QUALITY CONTROL

A rigorous quality assurance/quality control program is required to meet the data quality objectives of the sampling program (ABB-ES 1994). The data obtained during Monitoring Event 23 were determined to be of sufficient quality to assess the effectiveness of natural attenuation with long-term monitoring. Table B-7 provides a summary of quality control samples collected from Site 9 on 1 October 2003.

1.8 ANALYTICAL DATA QUALITY REVIEW

A review of laboratory data was performed on selected quality control parameters to evaluate precision, accuracy, completeness, comparability, and data quality objective requirements. A complete summary of the analytical data quality review is provided in Appendix D. Method detection limits for solid and aqueous media are included in Appendix D.1. The data represented in this report were found to meet the specified acceptance criteria, with the exception of the following:

- The non-detect result for acetone in sample SD-010 is considered estimated bias low based on matrix spike/matrix spike duplicate recovery criteria.

- The non-detect result for hexachlorobutadiene in sample LT-901 is considered estimated bias low based on matrix spike/matrix spike duplicate recovery criteria.

- The methylene chloride results in 21 samples should be considered false-positive due to method blank contamination (SW-10, SW-10 DUP, QS-001, SD-010, SD-010 DUP, MW-NASB-069 [shallow], MW-NASB-069 [deep], LT-901, LT-901 DUP, MW-NASB-069 DUP, MW-NASB-069 [deep] DUP, MW-NASB-075 [deep], MW-NASB-072 [deep], MW-NASB-074 [deep], MW-NASB-076 [deep], MW-NASB-022 [deep], MW-NASB-227 [deep], MW-NASB-021 [deep], MW-NASB-080 [deep], MW-NASB-076 DUP, and MW-NASB-069).

- The results for 2-butanone in sample MW-NASB-069 (deep) should be considered estimated based on field duplicate precision criteria.

- The results for carbon disulfide and toluene in sediment sample SD-010 should be considered estimated based on field duplicate precision criteria.

Note that these issues are generally minor, and the analytical data are considered to be of sufficient quality to evaluate the long-term effectiveness of the remedial action.

2. TEMPORAL TRENDS AND OBSERVATIONS

2.1 WATER LEVEL GAUGING PROGRAM

Results of the water level gauging program conducted on 30 September 2003 indicate that groundwater flow is generally to the south at Site 9, toward the unnamed stream and two impoundment ponds located south of Neptune Drive. The interpreted flow pattern upgradient of Site 9 is to the southwest. The interpreted hydraulic gradient shows an increasing gradient to the south. The steepest hydraulic gradients are observed in the vicinity of the northern and southern branches of the unnamed stream and in the vicinity of the impoundment ponds. These groundwater flow patterns are consistent with previous gauging results.

Based on data collected on 30 September 2003, the following observations were noted:

- Shallow groundwater north of Neptune Drive is likely to flow toward the northern branch of the unnamed streams and associated branch of the lower impoundment pond.
- Groundwater flow from the portion of Site 9 that is west and immediately south of Building 201 is likely to flow toward the upper impoundment pond.
- Groundwater flow at MW-NASB-077 and MW-NASB-078 is consistently to the north toward the upper impoundment pond.
- The upper impoundment pond appears to act as a groundwater divide for shallow groundwater.

Tables B-1 through B-7 provide analytical data from the September/October 2003 sampling event. Groundwater samples were collected by low-flow sampling method and by aqueous diffusion samplers.

2.2 GROUNDWATER MONITORING AND SAMPLING PROGRAM

2.2.1 Water Quality Parameters

Water quality parameters, including pH, conductivity, temperature, dissolved oxygen, and turbidity, were measured during well purging. Although not required, Eh was recorded for informational purposes. Results are presented in Appendix E.

2.2.2 Groundwater Sampling Results

Trend graphs for the sampling locations at Site 9 from Monitoring Event 23 are provided in Appendix C. Historical trend graphs for select sampling points and compounds at Site 9 from

1995 through 2003 are also included in this report (Figures 4, 5, and 6). A comparison of the results for the groundwater sampling and analysis program conducted at Site 9 indicates the following.

2.2.2.1 Volatiles

Overall, data results show that concentrations of 1,2-dichloroethene (1,2-DCE) and vinyl chloride have leveled off or have decreased over the last 2-3 years. The spike in vinyl chloride concentrations, particularly noted at MW-NASB-069, appears to have reached a maximum in 2001, and has subsequently been stable or is decreasing.

Higher vinyl chloride/total 1,2-DCE ratios indicate increasing dechlorination. Figure 4 depicts the third order polynomial regression based on ratios of vinyl chloride to total 1,2-DCE for Monitoring Events 1 through 23. Note that this figure has been revised from previous monitoring event reports where regressions were presented as a straight line. The curves presented more accurately capture the changes in this ratio over 23 monitoring events. Ratios above zero indicate more vinyl chloride than 1,2-DCE at a sampling point. Overall, the ratio of vinyl chloride to 1,2-DCE is at or near historical lows and, in general, the ratio is greater than 1. These data indicate dechlorination is occurring and 1,2-DCE is roughly in balance with vinyl chloride concentrations although vinyl chloride is more prevalent than 1,2-DCE.

The sum of the concentrations of vinyl chloride and 1,2-DCE in site wells has shown a general decreasing trend since a maximum was reached in 2001/2002 (Figure 5). In general, the sum of the concentrations at Site 9 is similar for total 1,2-DCE and vinyl chloride, although vinyl chloride generally shows a higher value (Monitoring Event 23 is an exception). The source of the 1,2-DCE (the likely parent of the vinyl chloride observed at Site 9) is not apparent, but may be related to changing geochemical conditions at the Navy Exchange Service Station which have affected groundwater chemistry at Site 9. Based on long-term monitoring data, the increase in 1,2-DCE concentrations appears to be limited to the groundwater present in the central portion of Site 9.

Spikes in VOC and vinyl chloride concentrations, followed by decreasing concentrations, have been observed in samples from site wells throughout the Long-Term Monitoring Program. Similar patterns are expected to continue. Figure 6 shows the historical trends of VOCs and vinyl chloride at wells where vinyl chloride has been detected. Concentrations of vinyl chloride have decreased between 2000 and 2003.

Based on groundwater data collected during sampling events from 2000 through 2003, the vinyl chloride plume at Site 9 is limited to the central portion of the site, although data from a recent direct-push sampling investigation indicated low concentrations of vinyl chloride (7.1 µg/L) between MW-NASB-071 and MW-NASB-076 (EA 2003b). It cannot be conclusively shown that this apparently small region of impacted groundwater will move past site monitoring wells, however, the close spacing of wells suggests that the monitoring wells in the long-term monitoring network appear to be well positioned to assess changes in vinyl chloride. Therefore,

if elevated concentrations of vinyl chloride were to occur in areas downgradient of MW-NASB-069, the existing monitoring well network is likely to effectively track changes in groundwater concentrations of VOCs.

The following results are noted for Monitoring Event 23:

- ***Monitoring Well MW-NASB-021***—Volatile concentrations remained similar to results from past monitoring events (non-detect) in the deep diffusion sample.

- ***Monitoring Well MW-NASB-022***— Volatile concentrations decreased since the last monitoring event in the deep diffusion sample. Trichlorofluoromethane has decreased from 400 µg/L to 19 µg/L. This compound has no promulgated State Maximum Exposure Guideline (MEG) or Federal Maximum Contaminant Level (MCL).

- ***Monitoring Well MW-NASB-069***—Volatile concentrations in the deep diffusion sample for total VOC, vinyl chloride, and total 1,2-DCE decreased slightly since the last monitoring event. As per previous sampling events, vinyl chloride exceeds both the State MEG and Federal MCL in the deep diffusion, shallow diffusion, and low-flow samples at 33, 30.4, and 34 µg/L, respectively. These concentrations are similar to the past two sampling events. Volatile concentrations in the deep diffusion sample for 1,1-dichloroethane (DCA), ethylbenzene, toluene, and total xylenes remained the same since the last monitoring event (non-detect). Volatile concentrations for the shallow diffusion sample for total VOC, total 1,2-DCE, and vinyl chloride increased compared to the last monitoring event. Total xylenes, toluene, ethylbenzene, and 1,1-DCA remained the same (non-detect since the last monitoring event. This monitoring well is located within the central portion of Site 9, and had historically shown the highest concentrations of vinyl chloride throughout the duration of the Long-Term Monitoring Program (1995-2003). Monitoring wells outside this central portion of Site 9 generally show steady non-detections of vinyl chloride, or decreasing vinyl chloride concentrations. Overall, since 1998, the concentration of vinyl chloride at this monitoring well location has ranged from approximately 3.0 µg/L to approximately 75 µg/L.

- ***Monitoring Well MW-NASB-071***—Volatile concentrations remained similar to results from the last monitoring event (non-detect) in the deep diffusion sample.

- ***Monitoring Well MW-NASB-072***—Volatile concentrations for 1,1-DCA, total 1,2-DCE ethylbenzene, toluene, vinyl chloride, and total xylenes remained similar to results from the last monitoring event (non-detect) in the deep diffusion sample. Total VOC concentrations decreased since the last monitoring event. Overall, since 1998, the concentration of vinyl chloride has decreased to non-detect at this monitoring well location.

- ***Monitoring Well MW-NASB-074***—Volatile concentrations for 1,1-DCA, ethylbenzene, toluene, vinyl chloride, and total xylenes remained similar to results from the last monitoring event (non-detect) in the deep diffusion sample. Total VOC, trichloroethene, and total 1,2-DCE concentrations remained at very low concentrations, which is similar to the previous monitoring event in the deep diffusion sample. Vinyl chloride concentrations at this monitoring well have remained non-detect since 1997.

- ***Monitoring Well MW-NASB-075***—Volatile concentrations remained similar to results from the last monitoring event. With the exception of detection for tetrahydrofuran at 2.6J in April/May 2003, volatile concentrations for this well have remained non-detect since 1999.

- ***Monitoring Well MW-NASB-076***—Volatile concentrations remained similar to results from the last monitoring event (non-detect) in the deep diffusion sample. Historically, this monitoring well has had four spikes in the concentration of vinyl chloride (one in 1996, one in 1997, one in 1998, and one in 2000); however, since 2000, the detected concentration of vinyl chloride has been decreasing. The deep diffusion sample did not contain detectable concentrations of vinyl chloride during this monitoring event.

- ***Monitoring Well MW-NASB-080***—Volatile concentrations for total VOC, 1,1-DCA, total 1,2-DCE, and vinyl chloride have increased slightly since the last monitoring event. Vinyl chloride exceeds both the State MEG and Federal MCL at 3 µg/L, which is consistent with sampling data from previous monitoring events. Toluene, ethylbenzene, and total xylene remained similar to results from the last monitoring event (non-detect).

- ***Monitoring Well MW-NASB-227***—Total VOCs, trichloroethene, and total 1,2-DCE detections have remained essentially unchanged at low concentrations since the last monitoring event. Methyl tert-butyl ether has decreased since the last monitoring event from 0.6J µg/L to non-detect. Toluene, ethylbenzene, vinyl chloride, and 1,1-DCA remained similar to results from the last monitoring event (non-detect) for the diffusion sample. Concentrations for total xylenes decreased slightly since the last event.

2.2.2.2 Semivolatiles

- ***Monitoring Well MW-NASB-069***—Semivolatile concentrations remained the same as compared to the last monitoring (non-detect).

- ***Monitoring Well MW-NASB-070***—Semivolatile concentrations remained the same as compared to the last monitoring (non-detect).

- ***Monitoring Well MW-NASB-079***—Semivolatile concentrations remained the same as compared to the last monitoring (non-detect).

2.2.2.3 Inorganics

- ***Monitoring Well MW-NASB-069***—Inorganic concentrations for calcium, manganese, magnesium, iron, sodium, and potassium have remained similar since the last monitoring event, however, manganese remains in exceedance of both the Federal MCL (note that the Federal drinking water guideline for manganese is a secondary MCL) and State MEG. Inorganic concentrations for aluminum and barium increased slightly from the last monitoring event. Inorganic concentrations for zinc and nickel have increased slightly since the last monitoring event. Inorganic concentrations for cadmium and chromium remained similar to the last monitoring event (non-detect). The concentration of manganese has historically decreased since 1999. Historically, cadmium concentrations have remained consistently low since 1999 while the chromium concentration ranges from non-detect to approximately 35 µg/L (including two spikes: one in 2000 and one in 2001).

- ***Monitoring Well MW-NASB-070***—Inorganic concentrations for antimony, barium, chromium, cobalt, magnesium, and nickel remained similar since the last monitoring event, however, antimony is now in exceedance of the State MEG. Inorganic concentrations for calcium decreased slightly since the last monitoring event. Inorganic concentration for aluminum, iron, manganese, potassium, and sodium have increased since the last monitoring event. Manganese remains in exceedance of both the Federal MCL (note that manganese has a secondary MCL) and State MEG. Cadmium and zinc concentrations remained the same as compared to the last monitoring event at non-detect levels. Historically, cadmium concentrations have remained consistently low since 1999 while the chromium concentration ranged from non-detect to approximately 9 µg/L (including four spikes: one in 1999, one in 2000, one in 2001, and one in this monitoring event). The concentration of manganese has historically remained consistently low, ranging from approximately 100 µg/L to approximately 400 µg/L, except for three spikes in 1999, 2001, and this monitoring event.

- ***Monitoring Well MW-NASB-079***—Inorganic concentrations for aluminum, antimony, barium, cadmium, calcium, iron, magnesium, potassium, and zinc decreased since the last monitoring event. Inorganic concentration for chromium, cobalt, and nickel decreased slightly since the last monitoring event. Inorganic concentrations for sodium increased slightly since the last monitoring event. Manganese concentrations increased since the last monitoring event to its highest level and exceeds both the State MEG and the Federal MCL (note that manganese has a secondary MCL). Aluminum, antimony, and iron are no longer in exceedance of either the State MEG or Federal MCL. Historically, the concentration of cadmium has remained consistently low (at/near non-detect) since 1995 as well as the concentration of chromium, with the exception of one spike that occurred in 1998. The concentration of manganese has historically remained similar since 1995, ranging between 60 and 150 µg/L, with the exception of a spike during this monitoring event of 655 µg/L. Note that the elevated manganese concentrations at MW-NASB-079

(similar to those reported historically at MW-NASB-070) may have been reported in error by the laboratory. This will be further evaluated and considered during the next round of groundwater sampling at Site 9 for Monitoring Event 24.

2.3 SURFACE WATER SAMPLING PROGRAM

A comparison of the results for the surface water sampling and analysis program conducted at Site 9 during Monitoring Event 23 indicates the following (Appendix C):

- ***Surface Water Sample SW-010***—The total VOC concentration increased slightly since the last monitoring event from non-detect to 1.21 µg/L. The vinyl chloride concentration increased slightly since the last monitoring event from non-detect to 0.51J µg/L. Historically, total VOC and vinyl chloride concentrations have remained consistently low, ranging between non-detect and approximately 3 µg/L, with the exception of one spike in the total VOC concentration in 1996.

2.4 SEDIMENT SAMPLING PROGRAM

A comparison of the results for the sediment sampling and analysis program conducted at Site 9 during Monitoring Event 23 indicates the following (Appendix C):

- ***Sediment Sample SED-10***—Total VOC concentrations increased slightly since the last monitoring event from non-detect to 4 µg/Kg. The vinyl chloride concentration remained the same (non-detect) since the last monitoring event. Historically, the concentration of vinyl chloride has remained consistently low (<2 µg/Kg). Since 1995, total VOC concentrations have ranged from non-detect to approximately 64 µg/Kg.

2.5 SEEP SAMPLING PROGRAM

A comparison of the results for the seep sampling and analysis program conducted at Site 9 during Monitoring Event 23 indicates the following (Appendix C):

- ***Leachate Seep Sample LT-901***—Total VOC concentrations remained the same since the last monitoring event (non-detect). Vinyl chloride concentrations remained the same to the last monitoring event (non-detect). Historically, the concentration of vinyl chloride has remained at non-detect levels since 1995, while the concentration of total VOCs has ranged from non-detect to approximately 2 µg/L, with the exception of three spikes: one in 1995, one in 1997, and one in 1998. It should be noted that a sheen was observed on the surface during sampling activities. This could be related to a minor petroleum release from the nearby road or parking areas that drain into this location. This sheen is likely related to the low dissolved oxygen and negative Eh values noted at this sampling point during this monitoring event.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 GENERAL CONCLUSIONS AND RECOMMENDATIONS

Based on an analysis of the data collected at Site 9 as part of the Long-Term Monitoring Program, the following conclusions and recommendations are made:

- **Conclusion**—In general VOC and vinyl chloride concentrations have remained stable or show a general decreasing trend during the last 2 years of sampling. Recent direct-push sampling of Site 9 groundwater did not locate significant concentrations of VOCs in site groundwater inside or outside the area being monitored. Based on available site groundwater data from the long-term monitoring network, the extent of the vinyl chloride plume is well delineated (both upgradient and downgradient of Site 9) and no additional monitoring points are required.

  Recommendation—Continue long-term monitoring and sampling during 2004 as per the latest version of the LTMP to assess the effectiveness of natural attenuation with long-term monitoring—the selected remedy for the site.

3.2 LONG-TERM MONITORING GOALS

The following lists the uses for the data collected during the Long-Term Monitoring Program as specified in the Site 9 LTMP, and provides conclusions on the degree of success in achieving these objectives.

- ***LTMP Goal***—*Monitor changes in the plume boundaries and potential migration pathways*

  Sufficient data are being collected by the existing long-term monitoring network to monitor changes in plume boundaries and potential migration pathways. Groundwater and surface water are considered to be the migration pathways for site contaminants. Based on long-term monitoring data, the vinyl chloride plume appears to be stable in size and decreases in maximum concentrations have been noted during the last 2 years of sampling. No significant vinyl chloride concentrations have been noted in surface water. The upper and lower impoundment ponds are likely to facilitate volatilization of vinyl chloride if impacted groundwater reaches these surface waterbodies.

- ***LTMP Goal***—*Monitor effectiveness of the remedial action for the protection of human health and the environment*

  The selected remedy for Site 9 includes utilizing natural attenuation to degrade volatile organic contaminants present in groundwater; implementing institutional controls such as

land use restrictions to prevent human contact with groundwater and landfill contents; and long-term monitoring of groundwater to verify that the landfill contents are not impacting groundwater, to monitor the progress of natural attenuation, and to monitor for contaminant plume migration. These remedial measures appear to be successful in protecting human health and the environment as the overall vinyl chloride plume is stable or decreasing, and site use restrictions are currently preventing human contact with site groundwater or surface water.

- ***LTMP Goal***—*Evaluate whether the inactive landfill contents are impacting groundwater*

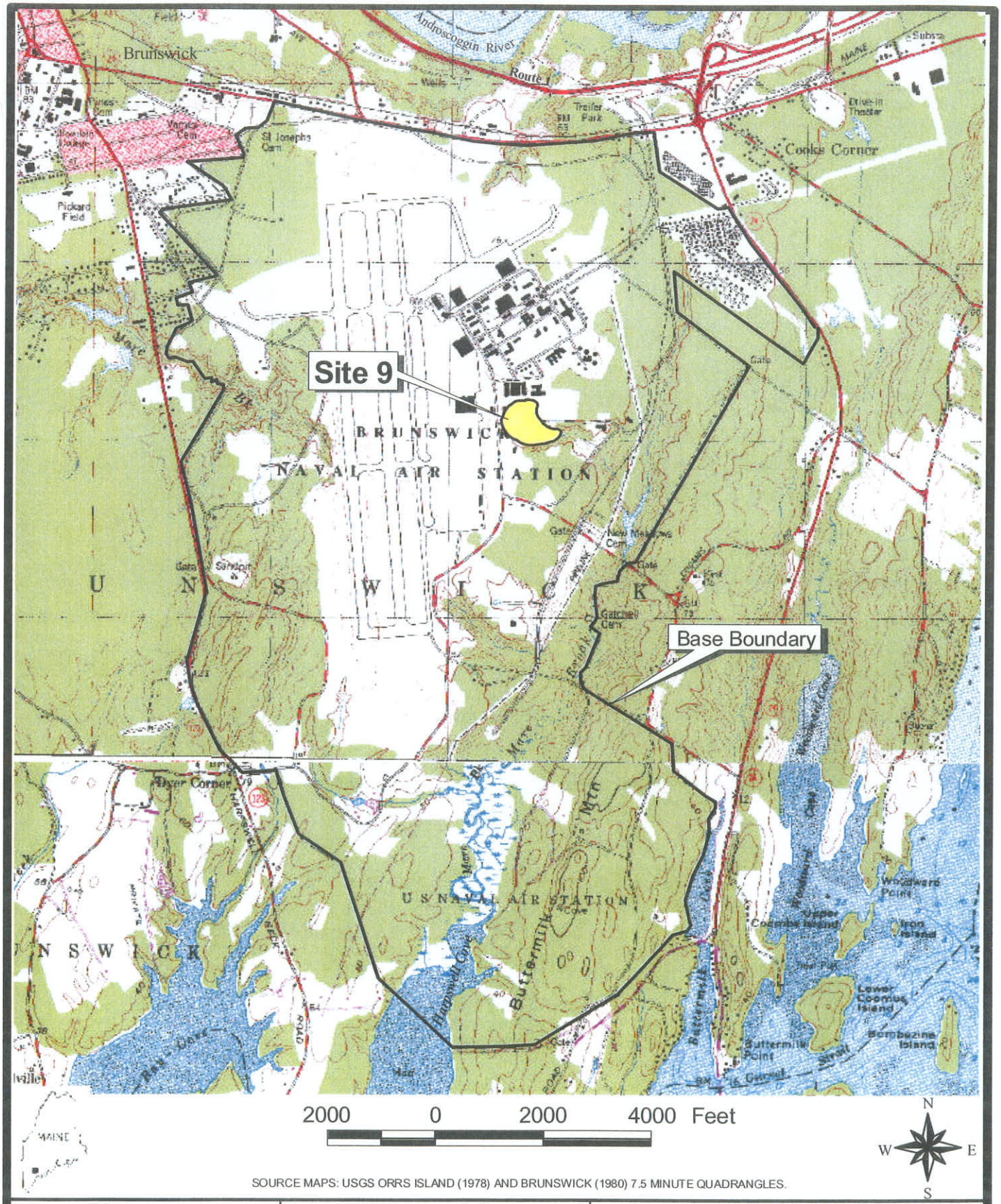
  Long-term monitoring groundwater data from 3 wells located downgradient of the landfill indicate no significant impacts from the inactive landfill. Concentrations of inorganics and semivolatile organic compounds are below applicable State MEG and Federal MCL.

- ***LTMP Goal***—*Monitor the VOC contamination to evaluate the effectiveness of natural attenuation and determine trends with time*

  Groundwater data from the long-term monitoring network indicate natural attenuation appears to be successful in degrading vinyl chloride, which is the primary contaminant of concern at the site. Overall, the sum of concentrations of this compound has been decreasing in recent sampling events (Figure 5).

- ***LTMP Goal***—*Monitor impact to the environment due to Site 9*

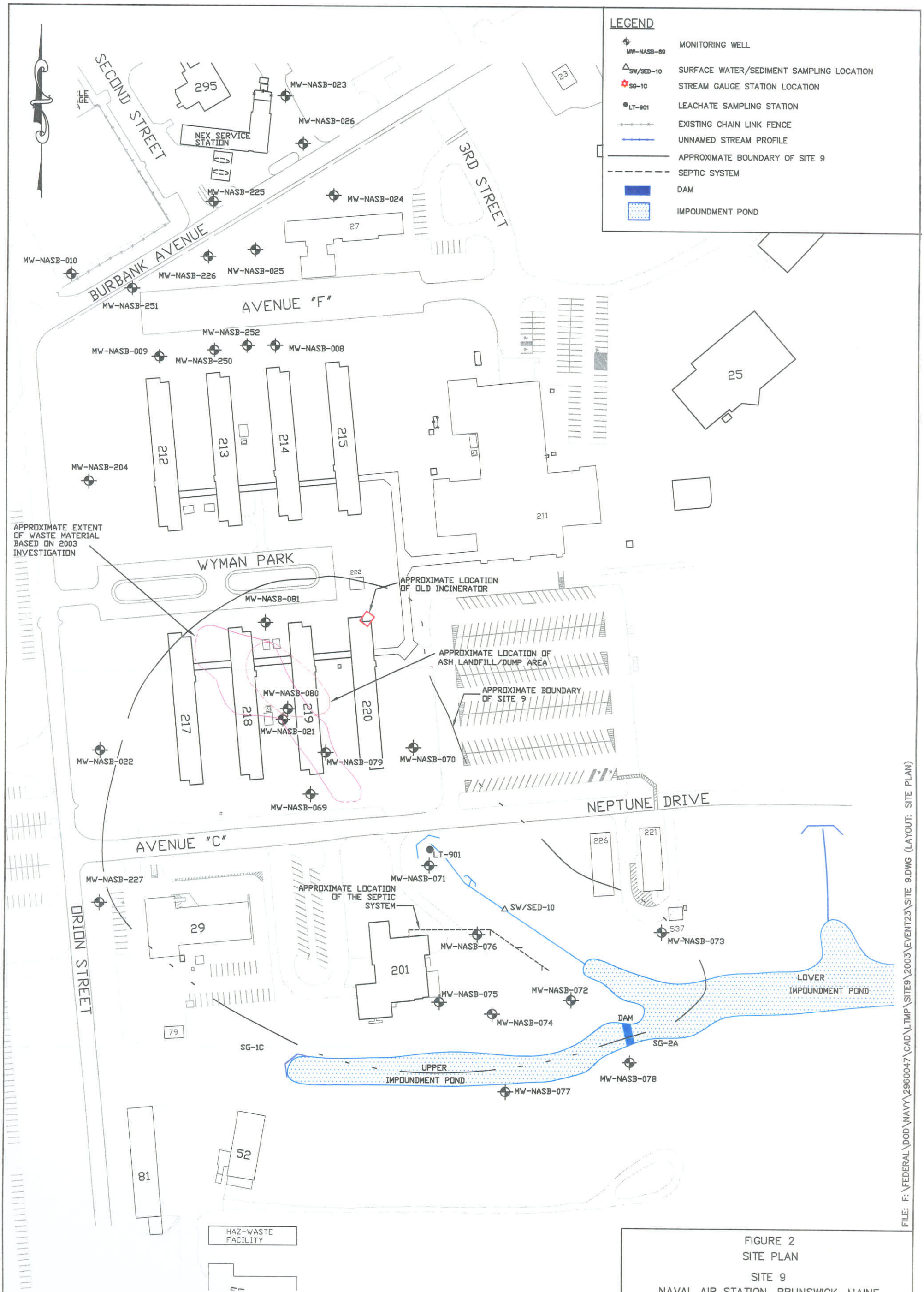
  Impacts to the environment due to Site 9 appear to be minimal. The relatively low concentrations of VOCs and other groundwater analytes are not likely to have a significant impact to environmental conditions within the site or downgradient of Site 9.



SOURCE MAPS: USGS ORRS ISLAND (1978) AND BRUNSWICK (1980) 7.5 MINUTE QUADRANGLES.

EA®	NAVAL AIR STATION BRUNSWICK, MAINE	FIGURE 1 SITE LOCATION MAP, SITE 9 (NEPTUNE DRIVE DISPOSAL SITE)

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
ACE	DC	DC	RW	AS SHOWN	22 JAN 2004	29600.47	I:\NASB_GIS\NAVY.APR



NOTE:

SITE PLAN TAKEN FROM THE INTERGRAPH VERSION 5 BASE-WIDE PLAN PROVIDED BY NAS BRUNSWICK PUBLIC WORKS DEPARTMENT ON 13 OCTOBER 1995. SITE PLAN UPDATED BASED ON BASE-WIDE PLAN PROVIDED BY NAS BRUNSWICK PUBLIC WORKS DEPARTMENT ON 13 JANUARY 2004.

140 70 0 70 140

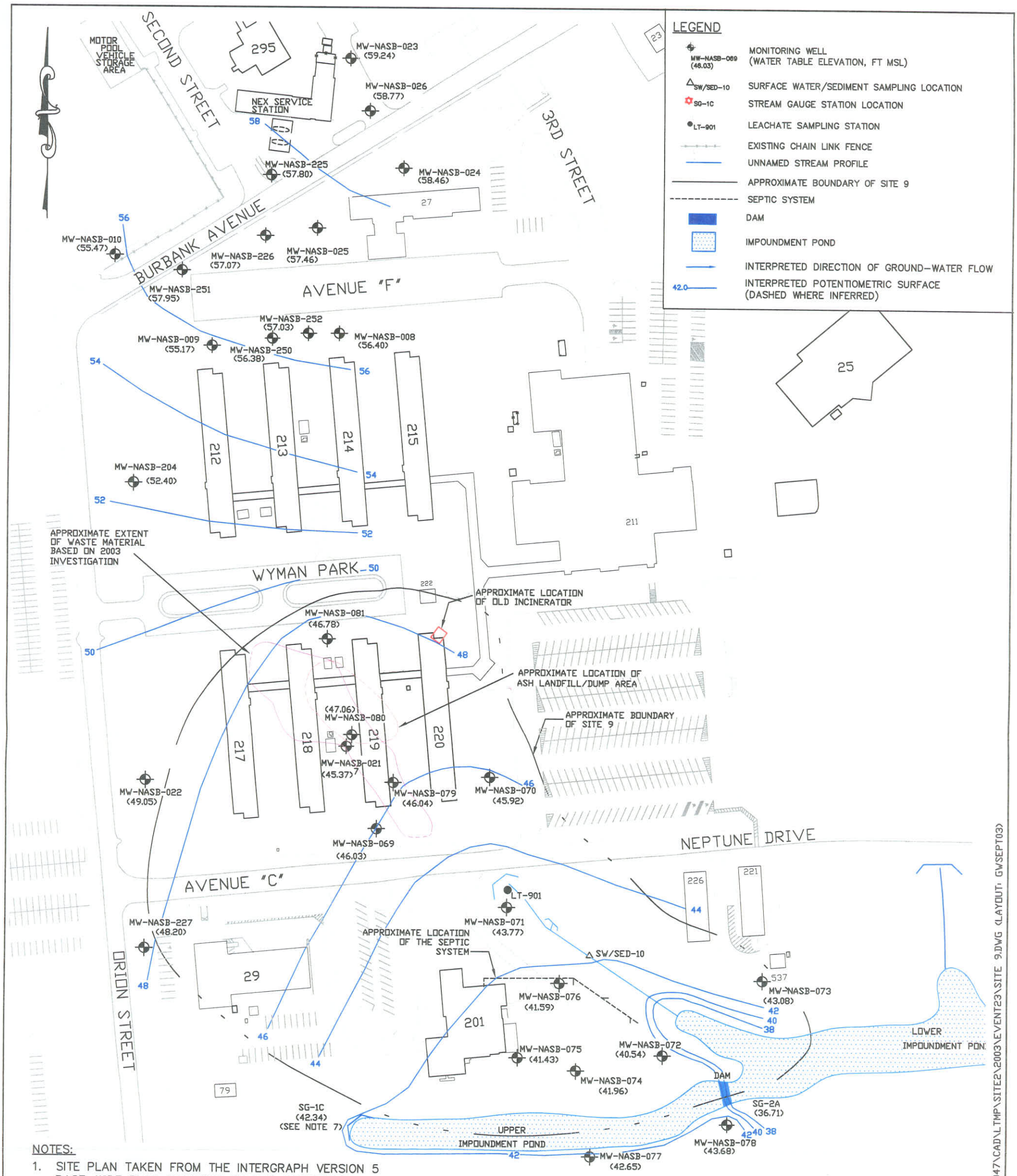
GRAPHIC SCALE IN FEET

FIGURE 2
SITE PLAN

SITE 9
NAVAL AIR STATION, BRUNSWICK, MAINE

DATE	9 FEBRUARY 2004
DESIGNED BY	SAP
DRAWN BY	SAP
CHECKED BY	AE/GMC
PROJECT MANAGER	AE
PROJECT NUMBER	29600.47
SCALE	1"=140'
FILE NAME	SITE 9.DWG
DRAWING NUMBER	-
SHEET NUMBER	-

FILE: F:\FEDERAL\DOD\NAVY\2960047\CAD\LTMP\SITE9\2003\EVENT23\SITE 9.DWG (LAYOUT: SITE PLAN)



NOTES:

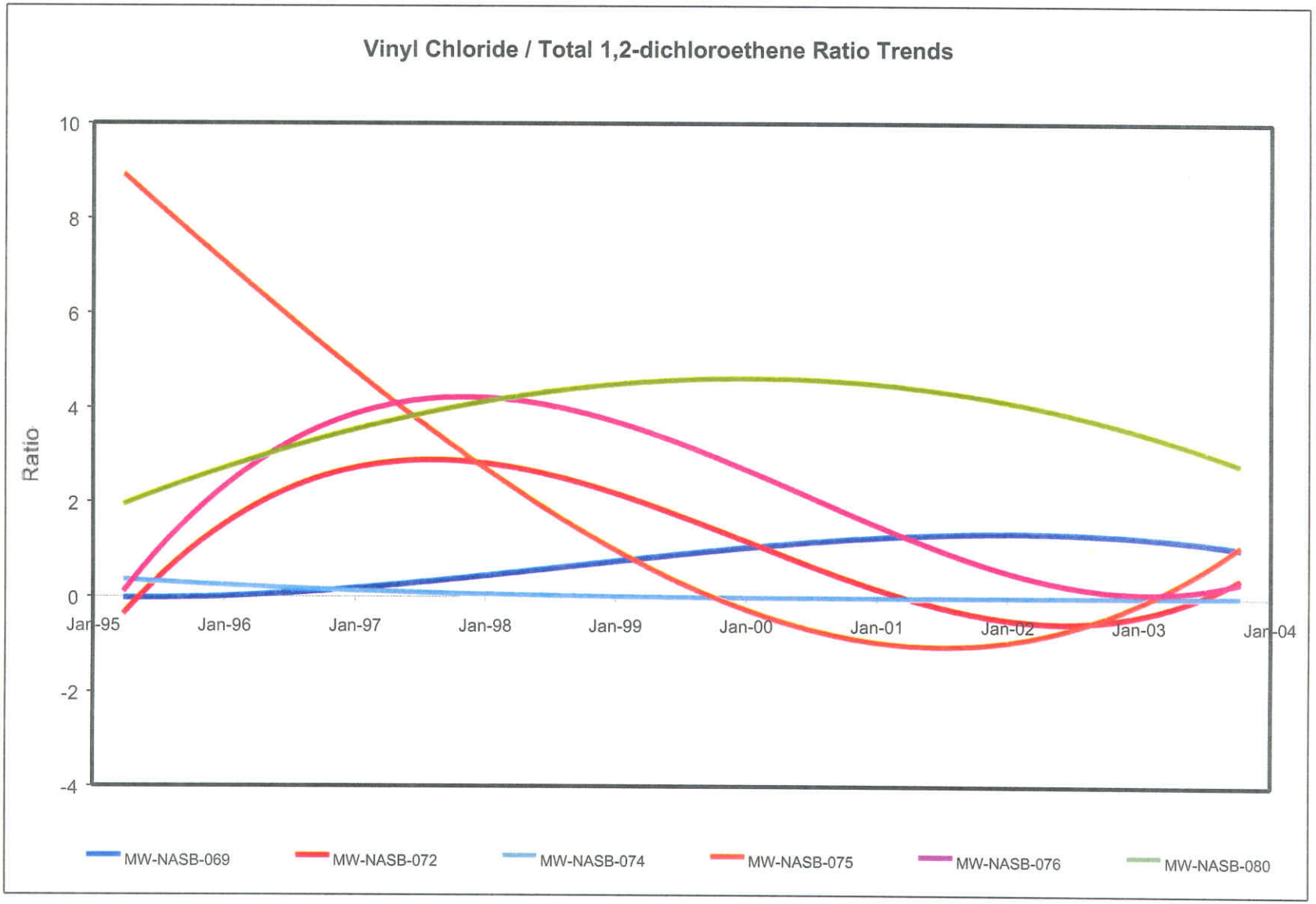
1. SITE PLAN TAKEN FROM THE INTERGRAPH VERSION 5 BASE-WIDE PLAN PROVIDED BY NAS BRUNSWICK PUBLIC WORKS DEPARTMENT ON 13 OCTOBER 1995. SITE PLAN UPDATED BASED ON BASE-WIDE PLAN PROVIDED BY NAS BRUNSWICK PUBLIC WORKS DEPARTMENT ON 13 JANUARY 2004.
2. A TOTAL OF 2.66 IN. OF PRECIPITATION (RAIN) WAS RECORDED 1 WEEK BEFORE AND DURING GAUGING EVENT.
3. SURFACE OF UPPER IMPOUNDMENT POND IS APPROXIMATELY 3 FT ABOVE LOWER IMPOUNDMENT POND.
4. CONTOURS REPRESENT EVALUATION OF PROBABLE CONDITIONS BASED ON PRESENTLY AVAILABLE DATA. SOME VARIATION FROM THESE CONDITIONS MUST BE EXPECTED.
5. CONTOUR INTERVAL = 2 FT.
6. ELEVATION DATA FOR SG-1C IS CONSIDERED QUESTIONABLE DUE TO HISTORICAL DATA. NOT USED IN GROUNDWATER CONTOURS.
7. THE GROUNDWATER ELEVATION AT MW-NASB-021 IS SHOWN IN THE FIGURE FOR INFORMATIONAL PURPOSES, SINCE ITS SCREEN IS SHALLOW. THE GROUNDWATER ELEVATION FOR MW-NASB-021 IS NOT INCLUDED IN THE GROUNDWATER CONTOURS FOR SITE 9 WELLS SHOWN IN THIS FIGURE.

140 70 0 70 140

FIGURE 3
INTERPRETED POTENTIOMETRIC SURFACE ELEVATIONS, 30 SEPTEMBER 2003
WELL GAUGING DATA
SITE 9
NAVAL AIR STATION, BRUNSWICK, MAINE

DATE 26 FEBRUARY 2004		PROJECT NUMBER 29600.47
DESIGNED BY SAP		SCALE 1"=140'
DRAWN BY SAP		FILE NAME SITE 9.DWG
CHECKED BY AE/GMC		DRAWING NUMBER -
PROJECT MANAGER AE		SHEET NUMBER -

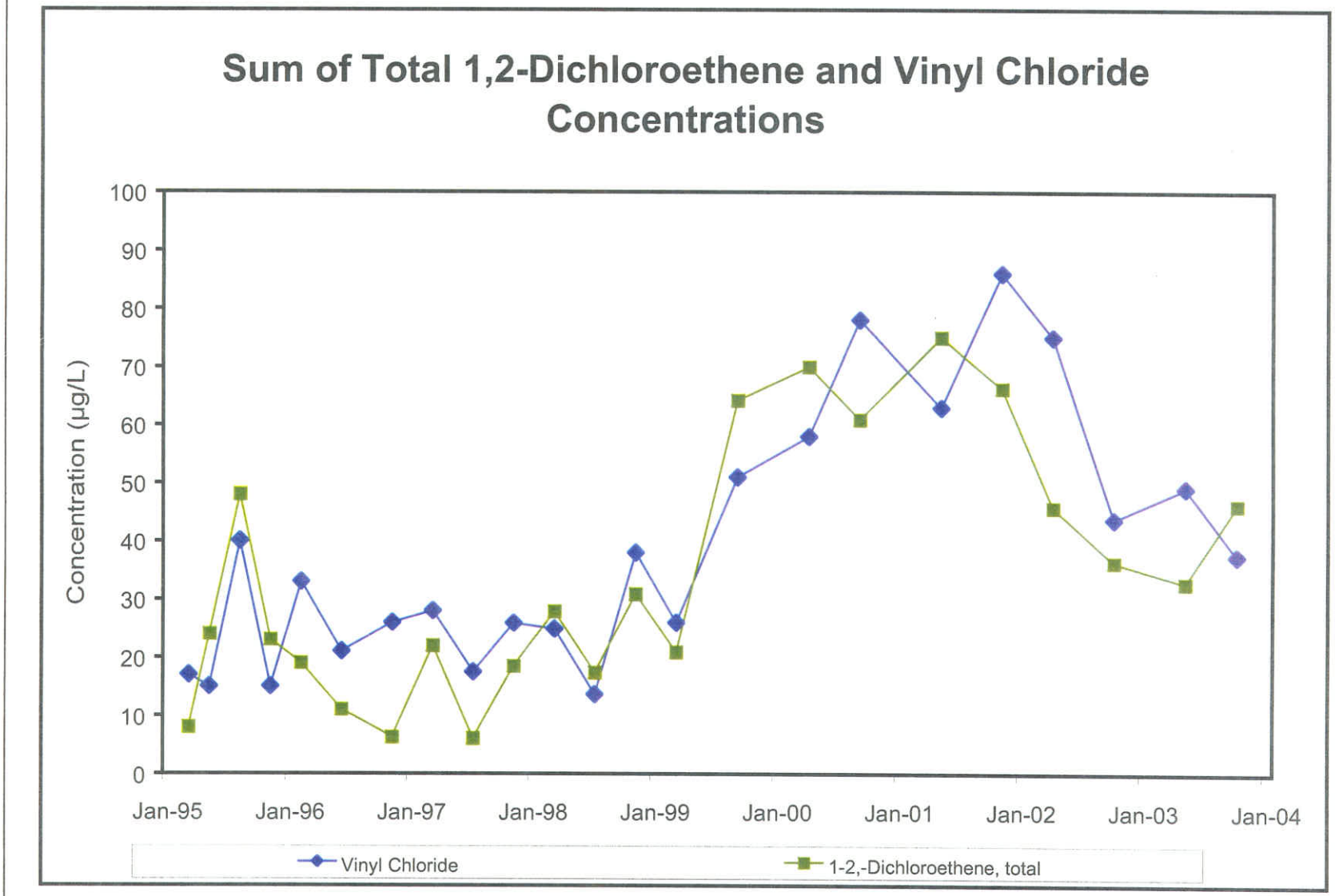
FILE: F:\FEDERAL\DDD\NAVY\2960047\CAD\LTMP\SITE2\2003\EVENT23\SITE 9.DWG <LAYOUT: GWSEPT03>



F:\Federal\DoD\Navy\2960047\Monitoring Events\Qrtly23\SITE 9\charts\Fig_4_2003_10.doc

NOTE: Higher vinyl chloride/total 1,2 -dichloroethene ratio indicates increasing dechlorination. Trend lines show a third order polynomial regression based on ratios of vinyl chloride to total 1,2-dichloroethene.

Figure 4. Vinyl chloride/total 1,2-dichloroethene ratio trends, Monitoring Events 1 through 23.



Analyte concentrations less than the sample detection limit (2 µg/L) were summed as zero concentrations in these graphs.

Figure 5. Sum of vinyl chloride and 1,2-dichloroethene, total concentrations, 1995-2003.

NOTE: Vinyl chloride concentrations less than the detection limit (2 µg/L) are plotted as a zero concentration on these charts. MW-NASB-080 graph scale enlarged to show vinyl chloride trends. Acetone concentration detected in February 1996 is considered a laboratory contaminant and is shown off graph scale.

Figure 6. Total volatile organic compounds and vinyl chloride trends, 1995-2003.

TABLE 1 SUMMARY OF LONG-TERM MONITORING PROGRAM AT SITE 9

Well Designation	Previous Well Designation	Monitoring Frequency	Sample Parameters			Monitoring Event 23			
			TCL VOC	SVOC	TAL Elements	Field Parameters[a]	Gauged	Low-Flow Sample	ADS
Monitoring Wells									
MW-NASB-069	MW-901	Bi-Annual	X	X	X	X	X	X	X
MW-NASB-070	MW-902	Bi-Annual	NR	X	X	X	X	X	NR
MW-NASB-071	MW-903	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-072	MW-904	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-073	MW-905	Bi-Annual	NR	NR	NR	NR	X	NR	NR
MW-NASB-074	MW-906	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-075	MW-907	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-076	MW-908	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-077[b]	MW-909	Bi-Annual	NR	NR	NR	NR	X	NR	NR
MW-NASB-078	MW-910	Bi-Annual	NR	NR	NR	NR	X	NR	NR
MW-NASB-079	MW-914	Bi-Annual	NR	X	X	X	X	X	NR
MW-NASB-080	MW-915	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-081	MW-916	Bi-Annual	NR	NR	NR	NR	X	NR	NR
MW-NASB-021	None	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-022	None	Bi-Annual	X	NR	NR	NR	X	NR	X
MW-NASB-204	None	Bi-Annual	NR	NR	NR	NR	X	NR	NR
MW-NASB-227	None	Bi-Annual	X	NR	NR	NR	X	NR	X

Sample Type/Location	Monitoring Frequency	Sample Parameters		Monitoring Event 23	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Leachate Station					
LT-901 (SEEP)	Bi-Annual	X	X	NR	X
Surface Water					
SW-010	Bi-Annual	X	X	NR	X
Sediment					
SED-010	Bi-Annual	X	NR	NR	X
Stream Gauge Water					
SG-1C[c]	Bi-Annual	NR	NR	X	NR
SG-2A	Bi-Annual	NR	NR	X	NR

(a) Determination of field parameters in accordance with EPA/600/4-79/020 using the following methods: pH (Method 150.1), temperature (Method 170.1), specific conductance (Method 120.1), and turbidity (180.1); optional field parameters, including dissolved oxygen (Method 360.1) and Eh, were also recorded. Includes water level measurement.

(b) Monitoring well MW-NASB-077 was analyzed for two rounds (September 1999 and April 2000) using U.S. Environmental Protection Agency Method 8260B modified for selected ion mass for vinyl chloride. Results for both rounds were non-detect, therefore, monitoring well MW-NASB-077 was removed from the sampling program in August 2000.

(c) Stream gauge SG-1A was replaced with SG-1B prior to Monitoring Event 17. Stream gauge SG-1B was replaced with SG-1C prior to Monitoring Event 21.

NOTE: TCL = Target Compound List.
VOC = Volatile organic compound.
SVOC = Semivolatile organic compound.
TAL = Target Analyte List.
ADS = Aqueous diffusion sampler.
NR = Procedure not required.

TABLE 2 MONITORING WELL GAUGING SUMMARY, SITE 9
30 SEPTEMBER 2003

Well Designation	Previous Well Designation	Top of Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below Top of PVC Riser)	Depth to Water (ft below Top of PVC Riser)	Water Table Elevations (ft MSL)
MW-NASB-069	MW-901	57.35	42.42	11.32	46.03
MW-NASB-070	MW-902	58.26	27.32	12.34	45.92
MW-NASB-071	MW-903	46.25	21.54	2.48	43.77
MW-NASB-072	MW-904	49.81	14.63	9.27	40.54
MW-NASB-073	MW-905	51.71	32.12	8.63	43.08
MW-NASB-074	MW-906	51.68	27.12	9.72	41.96
MW-NASB-075	MW-907	54.91	21.22	13.48	41.43
MW-NASB-076	MW-908	52.79	19.94	11.20	41.59
MW-NASB-077	MW-909	58.89	37.29	16.24	42.65
MW-NASB-078	MW-910	53.74	14.93	10.06	43.68
MW-NASB-079	MW-914	58.15	18.92	12.11	46.04
MW-NASB-080	MW-915	58.51	19.04	11.45	47.06
MW-NASB-081	MW-916	58.22	18.85	11.44	46.78
MW-NASB-021	None	57.35	50.30	11.98	45.37
MW-NASB-022	None	59.52	17.97	10.47	49.05
MW-NASB-204	None	62.09	17.93	9.69	52.40
MW-NASB-227	None	58.39	40.60	10.19	48.20
Stream Gauging Station					
SG-1C	None	42.41[(a)]	NA	5.23	42.34[(a)]
SG-2A	None	34.41[(a)]	NA	2.30	36.71

(a) Measurement from surveyed point on staff gauge. Zero mark on the staff gauge is the measured elevation.

NOTE: MSL = Mean sea level.
PVC = Polyvinyl chloride.
NA = Not applicable.

TABLE 3 MONITORING WELL GAUGING SUMMARY FOR 30 SEPTEMBER 2003 AT THE NAVY EXCHANGE SERVICE STATION

Well Designation	Top of Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below Top of PVC Riser)	Depth to Water (ft below Top of PVC Riser)	Water Table Elevations (ft MSL)
MW-NASB-8	59.22	13.15	2.82	56.40
MW-NASB-9	59.00	11.50	3.83	55.17
MW-NASB-10	62.03	12.48	6.56	55.47
MW-NASB-23	67.29	21.90	8.05	59.24
MW-NASB-24	65.31	13.15	6.85	58.46
MW-NASB-25	64.34	14.70	6.88	57.46
MW-NASB-26	66.61	12.55	7.84	58.77
MW-NASB-225	64.61	14.31	6.81	57.80
MW-NASB-226	62.22	12.68	5.15	57.07
MW-NASB-250	60.21	10.00	3.83	56.38
MW-NASB-251	62.39	8.55	4.44	57.95
MW-NASB-252	60.54[a]	11.75	3.51	57.03

(a) The field form incorrectly noted the top of well riser elevation at 59.86 ft.

NOTE: MSL = Mean sea level.
PVC = Polyvinyl chloride.
Monitoring wells listed on this table are not part of Site 9.
Water elevations were collected at the Navy Exchange Service Station wells to provide data upgradient of Site 9.

TABLE 4 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUNDWATER SAMPLES COLLECTED ON 30 SEPTEMBER AND 1 OCTOBER 2003 AT SITE 9

Well Designation	Previous Well Designation	pH	Temperature (°C)[a]	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Low-Flow Sampling							
MW-NASB-069	MW-901	6.23	16.60	340	0.80	0.3	160
MW-NASB-070	MW-902	5.30	18.69	103	1.70	3	461
MW-NASB-079	MW-914	6.72	21.72	270	0.40	4	-115
Diffusion Sampling							
MW-NASB-069	MW-901	6.38	18.68	378	5.26[b]	NC	111
MW-NASB-071	MW-903	6.74	12.28	317	0.51	NC	-33
MW-NASB-072	MW-904	6.23	11.23	155	1.28	NC	179
MW-NASB-074	MW-906	6.87	10.64	346	7.02	NC	153
MW-NASB-075	MW-907	6.03	12.79	369	0.37	NC	93
MW-NASB-076	MW-908	6.06	13.69	315	5.69	NC	315
MW-NASB-080	MW-915	6.95	15.07	425	4.84	NC	100
MW-NASB-021	None	6.55	13.71	273	5.70	NC	119
MW-NASB-022	None	6.49	12.32	523	3.57	NC	326
MW-NASB-227	None	6.57	12.17	265	3.11	NC	277

(a) Temperature results for low-flow samples may not be representative of actual conditions due to operation of the submersible pump.
(b) The valued noted during the low-flow sampling is believed to be more accurate.

NOTE: NTU = Nephelometric turbidity unit.
NC = Not collected.
Diffusion sampling water quality data were collected utilizing an in-well YSI 600XLM; it should be noted that this water quality meter does not record turbidity.

TABLE 5 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN SURFACE WATER AND LEACHATE SEEP SAMPLES COLLECTED ON 1 OCTOBER 2003 AT SITE 9

Sample Designation	pH	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Surface Water						
SW-010	6.20	12.35	277	6.67	13	136
Leachate Seep						
LT-901	6.13	12.90	375	0.63	242	-2.1

NOTE: NTU = Nephelometric turbidity unit.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1994. Interim Groundwater Record of Decision for the Groundwater Operable Unit at Site 9. September.

EA Engineering, Science, and Technology, Inc. 1996. Final Report, Quarterly Monitoring Event 4 –November 1995, Site 9: Neptune Drive Disposal Site, Naval Air Station, Brunswick, Maine. February.

EA. 1999a. Final Record of Decision for Site 9, Naval Air Station, Brunswick, Maine. September.

EA. 1999b. Final Long-Term Monitoring Plan, Site 9: Neptune Drive Disposal Site, Naval Air Station, Brunswick, Maine. August.

EA. 2000. Technical Meeting Minutes. 2 August.

EA. 2001a. Summary of the April 2001 Aqueous Diffusion Sampling Pilot Study for Site 9, Naval Air Station, Brunswick, Maine. August.

EA. 2001b. Draft Revision No. 1, Long-Term Monitoring Plan, Site 9, Naval Air Station, Brunswick, Maine. July.

EA. 2003a. Draft Diffusion Sampler Proposal, Naval Air Station, Brunswick, Maine. 12 March.

EA. 2003b. Direct-Push Groundwater and Ash Landfill/Dump Area Delineation Investigation Summary Report for Site 9, Naval Air Station, Brunswick, Maine. October.

Appendix A

Response to Comments from the Maine Department of Environmental Protection and U.S. Environmental Protection Agency on the Draft Report

FOLLOW-UP RESPONSE TO RESPONSE TO COMMENTS FROM THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION ON THE DRAFT SITE 9 MONITORING EVENT 23 SEPTEMBER/OCTOBER 2003 REPORT

Commentor: Claudia Sait	
Comment Issue Date: 29 July 2004	**Navy Response Date: 20 August 2004**

The Maine Department of Environmental Protection (MEDEP) has reviewed the Navy's Response to Comments, dated 15 June 2004 for Monitoring Event 23 Report – September/October 2003 for Site 9 (February 2004), prepared by EA Engineering, Science, and Technology. Based on that review, MEDEP has the following follow-up comments.

6. Section 2.2.2.1, Volatiles, p. 9, 5th paragraph

MEDEP's comment stated that the Navy's report statement in question was true "for sampling events in 2000's". The time period being referenced might better have been stated as 2000 to 2003. As a consequence, the Navy inadvertently shortened the time period to only 2000 in their proposed revised sentence. Therefore, please change "sampling events in 2000" *to "sampling events from 2000 through 2003"*.

Navy's Revised Response—This sentence will be revised as shown below:

Based on groundwater data collected during ~~historical monitoring events~~ sampling events from 2000 through 2003, the vinyl chloride plume at Site 9 is limited to the central portion of the site, although data...

10. Section 3.2, Long-Term Monitoring Goals, p. 14, 1st bullet:

"Based on long-term monitoring data collected since 1995, the vinyl chloride plume appears to be stable in size with decreases noted during the last 2 years of sampling."

MEDEP's Comment—This sentence is internally self-contradictory. The plume cannot be stable and decreasing in the same time frame. Please clarify the meaning of this statement. (ED)

Navy's Response—This sentence has been re-written as shown below:

Based on long-term monitoring data ~~collected since 1995~~, the vinyl chloride plume appears to be stable in size ~~with,~~ and decreases in maximum concentrations have been noted during the last 2 years of sampling.

MEDEP's Follow-Up Comment—This rewrite is an improvement as a general statement. MEDEP notes that the size of the boundaries of the vinyl chloride plume has not been delineated on maps in any monitoring event report to date. Therefore, visual representations of plume stability are unavailable for support, and the reader has to compare time snapshots of concentrations at the various monitoring wells. At the key wells (MW-NASB-069 and

MW-NASB-080), the vinyl chloride concentrations have been fluctuating considerably, and do not show any consistent trend over the last two years. In future monitoring event reports MEDEP would like the Navy to include a figure that shows the extent of the vinyl chloride plume.

Navy's Follow-Up Response—The reader should review the trend graphs to understand the vinyl chloride concentrations over time. This review should then be used with other parts of the report (data summary tables, figures, etc.) which support the statements made through interpretation of the data. The extent of the vinyl chloride plume, based on the detected concentrations from the monitoring event data, will be shown on future report figures.

RESPONSE TO COMMENTS FROM THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION ON THE SITE 9 MONITORING EVENT 23 (SEPTEMBER/OCTOBER 2003) REPORT NAVAL AIR STATION, BRUNSWICK, MAINE

COMMENTOR: Claudia Sait	
COMMENT DATE: 12 March 2004	NAVY RESPONSE DATE: 15 June 2004

The Maine Department of Environmental Protection (MEDEP) has reviewed the draft *Monitoring Event 23 Report-September/October 2003 for Site 9*, dated February 2004, prepared by EA Engineering, Science, and Technology. Based on that review, MEDEP has the following comments and issues.

SPECIFIC COMMENTS

1. Section 1.2.2, Results, p. 2:

   a.) "These elevation data are incorrect; the correct elevation is slightly different at 60.54 ft mean sea level (this discrepancy is noted in Table 3)."

   The discrepancy was not noted in Table 3, as either an asterisk or a written comment under 'Notes". Please add the appropriate note to the table. (ED)

   Response—A note has been added to Table 3 as shown below for well MW-NASB-252:

   The field form incorrectly noted the top of well riser elevation at 59.86 ft.

   b.) "The depth to water reading for stream gauge SG-1C was recorded as 5.23 ft. The data are considered to be questionable, as the reading is approximately 2.38 ft lower than was previously recorded, and shows considerable variation compared to historical data from that stream location."

   The report contains inconsistencies that cast doubt on the conclusion that the field reading is not reliable. First, no comment or footnote was recorded by the field personnel on the typed table in Appendix E.1. Therefore, the field measurement was apparently not questioned at the time of measurement. Secondly, a seemingly unrelated value (42.34) was entered in Table 2 for the water table elevation of SG-1C. If the field measurement shown in Table 2 of 5.23 were used, the water table (pond) elevation would be 37.18 ft. This figure appears to be "approximately 2.38 ft lower than previously recorded". Although Note 2 in Figure 3 states that 2.66 inches of rain was recorded over the period of a week before the gauging, the summer was unusually dry beforehand, and therefore, the pond may have been very low preceding the September rain. On the other hand, Note 3 in Figure 3 says "surface of upper impoundment is approximately 3 ft above lower impoundment pond". This is exactly the same statement that appears in Figure 3 notes for Monitoring Events 21 and 22. These problems seem to discredit the report compilation and text more than the field measurement. MEDEP learned from the

Brunswick Environmental Office that the upper pond was not purposely lowered in 2003, and that the subsurface pipe input only drains surface water from the flightline and roadways. Unless the Navy can provide creditable backup, MEDEP will believe that the field measurement, was accurate indicating that the upper pond was very low. If the field measurement is determined to be valid, Figure 3 contours need to be modified to account for a usually low pond elevation. (RR)

Response—The reading of the staff gauge based on field notes is 37.18 ft. While low, this value is within the recorded range of water elevations. This value was used to re-contour Figure 3. This change has only a minor effect on two contour lines immediately adjacent to the pond, and does not affect the inferred flow direction at the site.

The text cited in the comment in Section 1.2.2 was removed, as shown below:

~~*The depth to water reading for stream gauge SG-1C was recorded as 5.23 ft. The data are considered to be questionable, as the reading is approximately 2.38 ft lower than was previously recorded, and shows considerable variation compared to historical data from that stream location. Therefore, SG-1C is not included in the groundwater contour figure (Figure 3).*~~

2. Section 1.4.1, Sampling Activities, p. 4 and 5:

Six bullets describe some differences in field parameter measurements between those recorded for Monitoring Event 22 and Monitoring Event 23. Most of these parameters can be expected to fluctuate between the spring event and fall event, due to variations in recharge of groundwater and its temperature in-situ, as the report suggests. Therefore the value of comparisons to the last event only are questionable. A better analysis would be to draw comparisons to the historical range in each parameter's recorded fluctuations, which would identify abnormal conditions.

Another interesting comparison is the relationship between parameter values when collected by low-flow versus diffusion samplers. For example, in Table 4 dissolved oxygen is given as 0.80 mg/L for the low-flow sample for MW-NASB-069 and as 5.26 mg/L for the diffusion sampler. This difference is very significant. Either the groundwater is nearly depleted of oxygen or else it is in the normal range for the warmer fall groundwater. The Navy needs to analyze the circumstances of collection, and state which value it believes actually represents in-situ groundwater at MW-NASB-069. Also of interest in Table 4 are the relatively high groundwater temperatures for MW-NASB-069, MW-NASB-070, and especially MW-NASB-079. These wells can be construed as located close and downgradient of the Site 9 landfill, and possibly the higher temperatures may represent biodegradation of buried wastes. (RR)

Response—We agree that the report should focus on long-term changes in parameters rather than making comparisons to the previous event. Comparisons with only the one past sampling event will be avoided in future reports.

The dissolved oxygen reading of 0.80 mg/L noted during the low-flow sampling at MW-NASB-069 is more accurate. This value is within the historical range for this well (which has been typically at or near 1.0 mg/L). The noted value of 5.26 for the diffusion sampler appears to be anomalously high, possibly related to the different meter used for this sample. Other readings for diffusion samplers appear to be accurate. A note has been added to Table 4 for MW-NASB-069 stating that the value noted during the low-flow sampling is believed to be more accurate.

We do not agree that the temperatures noted at MW-NASB-069, MW-NASB-070, and MW-NASB-079 are indicative of biodegradation of buried waste, any more than would usually be the case. The readings noted during Monitoring Event 23 fall within the range of historically observed temperatures at these wells, as noted below:

- MW-NASB-069: 16.60 degrees during Monitoring Event 23, historical range of 12.3-17.8 degrees
- MW-NASB-070: 18.69 degrees during Monitoring Event 23, historical range of 13.5-17.7 degrees
- MW-NASB-079: 21.72 degrees during Monitoring Event 23, historical range of 11.9-23.4 degrees.

3. Section 1.6, Visual Inspection, p. 6:

   Please state that the field site inspection form can be found in Appendix F. (ED)

   Response—The requested note has been added.

4. Section 1.7, Quality Assurance/Quality Control, p. 6, 2nd sentence:

   "... to evaluate the effectiveness of the remedial action (i.e., monitored natural attenuation)."

   Page 14 of this report correctly states the remedial action as "natural attenuation with long-term monitoring". Please correct the language on page 6 to match that on page 14. (ED)

   Response—The requested text has been added to this sentence.

5. Section 2.2.2.1, Volatiles, p. 9, 1st paragraph:

   "The spike in vinyl chloride concentrations, particularly noted at MW-NASB-069, appears to have reached a maximum in 2001, and has subsequently been stable or is decreasing."

   The above statement is a valid statement for concentration data collected by the low-flow method (Figure 16, Appendix C). However, it is disturbing to find that it does not apply to the concentration trends for either the shallow or deep diffusion sampler data (Figures 17 and 19, respectively). The diffusion data show a peak in late 2001-early 2002, followed by steep decline over the next two events, and then by a sharp rise for Event 23. MEDEP has questioned the diffusion data for this well for Monitoring Event 22, which differed greatly

from the low-flow result. As request in MEDEP comments for Monitoring Event 22 MEDEP would like to discuss the disparity between low flow sampling and diffusion sampling. (MTG)

Response—We agree that diffusion samples at this well have not reported consistent concentrations of vinyl chloride or other VOCs compared to low-flow samples during Monitoring Events 21 and 22. Results for before and after Monitoring Events 21 and 22 have much better correlation, especially for the deep sampler. In fact, the deep diffusion sampler has noted greater concentrations of vinyl chloride and other VOCs compared to the low-flow sampler. It is possible that some sampling anomaly or other factor may have accounted for the two rounds of lower than expected vinyl chloride results in diffusion samplers at MW-NASB-069. We would be interested in discussing this with site stakeholders during an upcoming technical meeting.

6. Section 2.2.2.1, Volatiles, p. 9, 5th paragraph:

"Based on groundwater data collected during historical monitoring events, the vinyl chloride plume at Site 9 is limited to the central portion of the site, although data from a recent direct-push sampling investigation indicated low concentrations of vinyl chloride (7.1 µg/L) between MW-NASB-071 and MW-NASB-076."

This statement is true for sampling events in 2000's, but is not accurate for characterizing the long-term historical extent of the vinyl chloride plume. The following wells have experienced vinyl chloride maximums as follows: MW-NASB-072 (9 µg/L), MW-NASB-074 (4 µg/L), MW-NASB-075 (13 µg/L), MW-NASB-076 (15 µg/L), MW-NASB-080 (9 µg/L). The above text needs to be revised. (ED)

Response—This statement was meant to generalize current conditions, and was not meant to fully describe the historical extent of the vinyl chloride plume. The text has been changed as noted below:

Based on groundwater data collected during ~~historical monitoring events~~ sampling events in 2000, the vinyl chloride plume at Site 9 is limited to the central portion of the site, although data...

7. Section 2.2.2.1, Volatiles, p. 10, 2nd bullet:

"Trichlorofluoromethane has decreased from 400 µg/L to 19 µg/L. This compound is not in exceedance of regulatory criteria."

a.) To the best of our knowledge, neither the USEPA nor MEDEP has a promulgated drinking water guideline for trichlorofluoromethane. However, the Maine Department of Human Services, Bureau of Health (BOH) issued MEGs for trichlorofluoromethane in January 2000 with a value of 2100 µg/L for therefore it is well below its BOH's standard. (NR)

Response—The text has been revised as noted below:

This compound has no promulgated State MEG or Federal MCL. ~~is not in exceedance of regulatory criteria.~~

b.) Trichlorofluoromethane (19 µg/L) are not listed in Table B-1 (Summary of Groundwater Samples, Volatile Organic Compounds). Please add this detection. (ED)

Response—This compound has been added to Table B-1.

8. Section 2.2.3, Inorganics, p. 12, 2nd bullet:

"... however, antimony is now in exceedance of the State MEG."

The reported concentration of antimony is 5.3B µg/L. The qualifier "B" means that it is between the IDL and CRDL, which implies a low level of accuracy. The MEG is 2.8 µg/L and the MCL is 6 µg/L. If the next monitoring event finds that antimony is at, or above, the MCL, this element should be added to the inorganic trend graph for MW-NASB-069 in Appendix C. (RR)

Response—We agree that the 'B' qualifier implies a lower level of accuracy. If this compound is detected above the MCL during Monitoring Event 24, the graphs will be revised as requested.

9. Section 3.1, General Conclusions and Recommendations, p. 14, 1st bullet:

"Recent direct-push sampling of Site 9 groundwater did not locate significant concentrations of VOCs in site groundwater inside or outside the area being monitored. Based on available site groundwater data from the long-term monitoring network, the extent of vinyl chloride plume is well delineated (both upgradient and downgradient of Site 9) and no additional monitoring points are required."

This conclusion cannot be drawn at this time. Vinyl chloride and TCE were found at new locations over their MCLs and MEGs, although still at relativity low levels, therefore the Navy has agreed to sample at two additional locations prior to agreeing that the plume is fully delineated. Please either delete the above statements or rewrite so as not to draw a final conclusion. (ED)

Response—The available monitoring well data from the recent direct-push sampling effort did not indicate that the vinyl chloride plume is present in any areas outside the currently monitored area of Site 9. Based on existing data, the plume is well delineated and the Navy does not believe that any additional monitoring points are required. If additional vinyl chloride is detected in the two additional direct-push borings scheduled for June 2004, this statement will be revised.

10. Section 3.2, Long-Term Monitoring Goals, p. 14, 1st bullet:

"Based on long-term monitoring data collected since 1995, the vinyl chloride plume appears to be stable in size with decreases noted during the last 2 years of sampling."

This sentence is internally self-contradictory. The plume cannot be stable and decreasing in the same time frame. Please clarify the meaning of this statement. (ED)

Response—This sentence has been re-written as shown below:

Based on long-term monitoring data ~~collected since 1995~~, the vinyl chloride plume appears to be stable in size ~~with,~~ and decreases in maximum concentrations have been noted during the last 2 years of sampling.

11. Section 3.2, Long-Term Monitoring Goals, p. 15, 2nd to last bullet:

"Overall concentrations of this compound have been steady or decreasing in recent sampling events, and have shown significant decreases since maximum concentrations were noted in 2001 and 2002."

Again, another statement that appears to be internally inconsistent and contradictory. If concentrations have been steady in recent events then apparently natural attenuation has not been successful. The claim of "significant decreases" must be based on the key contaminated monitoring well (MW-NASB-069). The graph in Figure 16 of Appendix C (low-flow results for this well) shows a slight decreasing trend since the spring of 2002. However, the shallow and deep diffusion sampler graphs (Figures 17 and 19) show a significant rebound in Monitoring Event 23 from a sharp decline that is not supported by the low-flow concentration data. Please refer to Comment 5 above. This goal might be better evaluated by summarizing the graphs of total site vinyl chloride and 1,2-DCE in groundwater monitoring well samples (Figure 5). The summation graph indicates that these two contaminants are now back down to levels recorded in January 1995. The above quoted statement must be deleted or modified to be clearly based on what the Navy considers to be the most defensible interpretation of confusing data. MEDEP believes that the impact of remedial activities at the upgradient NEX likely accounts for the substantially higher concentrations between 1999 and 2003. (RR)

Response—This statement was based on the site-wide trend of vinyl chloride, as shown in Figure 5. This graph provides the most conservative results and is based on the highest recorded concentrations of vinyl chloride noted at the site regardless of sampling method. We believe this graph clearly shows that Site 9 vinyl chloride concentrations have significantly decreased (by approximately 50 percent between 2001 and 2003). While some site data, notable diffusion sampler results at MW-NASB-069, show even greater reductions, we believe this trend is clear and worth noting. This sentence has been revised as noted below:

Overall, the sum of concentrations of this compound has been ~~steady or~~ decreasing in recent sampling events (Figure 5). ~~and have shown significant decreases since maximum concentrations were noted in 2001 and 2002."~~

12. Table B-3, Summary of Groundwater Samples for Target Analyte List Elements:

With very low dissolved oxygen in groundwater under some areas of Site 9, arsenic should be added to the analyte list for analysis to determine whether arsenic either natural or from the landfill has been mobilized. (RR)

Response—Arsenic has been analyzed in the past at numerous site wells (including MW-NASB-069, MW-NASB-070, MW-NASB-071, MW-NASB-072, MW-NASB-079, MW-NASB-080, and MW-NASB-081). Several of these wells have noted low dissolved oxygen concentrations, and arsenic has never been detected at concentrations approaching the State MCL.

RESPONSE TO COMMENTS FROM THE
U.S. ENVIRONMENTAL PROTECTION AGENCY
ON THE DRAFT MONITORING EVENT 23 REPORT FOR SITE 9
SEPTEMBER/OCTOBER 2003 AT NAVAL AIR STATION, BRUNSWICK, MAINE

Commentor: Christine Williams	
Comment Issue Date: 4 March 2004	**Navy Response Date: 6 October 2004**

GENERAL COMMENTS

1. Event 23 sampling and analysis is complete, carefully executed, and documented fully. Results are generally consistent with those from recent past events.

   Response—Comment noted.

2. A recommendation from Monitoring Event No. 22 was to install shallow and mid-depth diffusion samplers in MW-NASB-069. It seems that shallow samplers have continued to be installed, but mid-depth samplers were not installed in this round nor were they recommended again. Why has the recommendation changed for this well? See below for our previous comment agreeing with the recommendation:

   Page 9, Section 2.2.2.1—Figures in Appendix C for MW-NASB-069 show that the low-flow sampling in Event 22 detected vinyl chloride at ~50 micrograms per liter, while the deep diffusion sampler detected only ~5 micrograms per liter, following a sharp decline from a high of ~70 micrograms per liter two rounds previously. The low-flow results do not show a similar decline. The report later notes this discrepancy (p. 10, third bullet), and recommends (sec. 3) that mid-depth and shallow diffusion samplers be installed in this well in order to seek evidence for a vertical shift in the vinyl chloride contamination. This is well motivated, and should be carried out.

   Response—During Monitoring Event 23, only shallow and deep aqueous diffusion samplers were deployed in monitoring well MW-NASB-069. The mid-depth sampler was inadvertently omitted for this event. It should be noted that the VOC sample results from MW-NASB-069 were quite similar: 33 ppb (shallow diffusion sample), 30.4 ppb (deep diffusion sample), and 35.7 ppb (low-flow sample); this is quite different from Monitoring Event 22 results that showed a significant difference between the low-flow and deep diffusion sample results. The mid-depth sampler will be installed during the next monitoring event.

SPECIFIC COMMENTS

3. ***Page 2, Section 1.2.2***—It is noted that the water level at MW-NASB-021 is anomalously low (45.37 ft msl), and the contouring shown on Figure 3 ignores this point (it lies between the 46 and 48 ft contours). Is there any reason to suspect this datum as a field error?

Response—Figure 3 will be revised accordingly. The 28 April 2003 Monitoring Event 22 gauging data for Site 9 indicated that the water level at MW-NASB-021 was approximately 1 ft higher (at 46.29 ft msl) than that recorded during Monitoring Event 23 collected on 30 September 2003. The reason for this difference is thought to be representative of the seasonally high water table elevations during the wet season (April).

4. ***Page 3, Section 1.3.1***—The text states that field parameters were monitored for stability during the purge for those wells sampled by the low-flow method. It is noted that the temperature did not stabilize for MW-NASB-70 and -79. In both wells, the temperature was rising fairly sharply throughout the purge (from about 14 to 19 deg C at MW-NASB-70, and from about 17 to 22 deg C at MW-NASB-79). The rise likely is due to power dissipation by the submersible pump. However, it is noted that neither of these samples was analyzed for VOCs, so that there is no concern for sample quality due to heating. Nonetheless, it should be noted that the final recorded temperature probably is not representative of the ambient groundwater temperature.

   Response—Section 1.3.1 Paragraph 5 will be revised to indicate that the temperature in wells MW-NASB-70 and -79 did not reach stabilization, and that the recorded temperature is likely not representative of the ambient groundwater temperature.

5. ***Page 9, Section 2.2.2.1***—Figure 5 shows the trend of dichloroethene and vinyl chloride concentrations observed over the past nine years, represented as the sum of the concentrations at all monitoring points. It is noted that the *average* concentration for all site monitoring wells would be an easier quantity to grasp; such a plot would be essentially identical, of course, but with a smaller concentration scale. For comparison of dichloroethene and vinyl chloride concentrations, it might be more meaningful to plot molar concentrations, rather than mass concentrations. The present plot shows that the average mass concentrations of dichloroethene and vinyl chloride are remarkably similar throughout this nine-year period. The molar concentrations would separate somewhat more, as the molecular weight of vinyl chloride (62.50 g/mole) is significantly lower than that of dichloroethene (96.94 g/mole). This would support the observation made in the text that, "... vinyl chloride is more prevalent than 1,2-dichloroethene."

   It is interesting that the ratio of vinyl chloride to dichloroethene is so stable throughout the monitoring period, and it is agreed that this seems to imply that the two compounds are "roughly in balance," as stated in the text. That is, for example, the vinyl chloride concentration may be limited by the flux of dichloroethene into the area and the rate of degradation of dichloroethene to vinyl chloride.

   Response—Comment noted. The trend graphs are meant to show the flux of VOC concentrations over time. It may, however, be useful to plot the molar concentrations of these two compounds in a future monitoring event report to further assess the distribution and ratio of vinyl chloride to dichloroethene. Currently, the data suggest that the vinyl chloride is limited by the slower rate of degradation of dichloroethene.

6. ***Page 10, Section 2.2.2.1***—It was noted in review of Monitoring Event 22 data (April/May 2003) that the low-flow and diffusion sampler results for VOCs at MW-NASB-069 showed significant discrepancies. In the present round (Monitoring Event 23), results for the low-flow sample and for both the shallow and the deep diffusion samples are very similar for the principal VOCs (1,2-dichloroethene and **vinyl chloride**), suggesting that the previous round was an anomaly, and providing some assurance of the comparability of the two sample-collection methods for VOC analyses.

   Response—The Navy agrees with this observation. The deep and shallow diffusion sampling results for Monitoring Event 23 compare closely to the low-flow groundwater sample results and to the duplicate sample results for MW-NASB-069.

7. ***Page 12, Section 2.2.2.3***—The text notes that manganese was found to be "... in exceedance of both the federal Maximum Contaminant Level and the State MEG" for all three wells for which inorganics were analyzed. It might be noted here that the federal drinking-water guideline for manganese is a "secondary" Maximum Contaminant Level (i.e., it is a non-enforceable standard).

   Response—Comment noted. In Section 2.2.2.3 Page 12, Inorganics, a note has been inserted in all three paragraphs to indicate that the federal drinking water guideline for manganese is a secondary Maximum Contaminant Level.

8. ***Page 12, Section 2.2.2.3, First Bullet***—The text notes that manganese has declined at MW-NASB-069 since 1999, and this is shown nicely in Appendix C, Figure 15. It would be of interest to tabulate the ORP data collected during the low-flow sampling of this well in order to see if the decline in Mn concentration correlates with an increase in ORP, perhaps in response to recovery of local groundwater quality from historic fuel releases upgradient.

   Response—The relationship between ORP and manganese in MW-NASB-069 will be further assessed with the next Monitoring Event 24 sampling data.

9. ***Page 12, Section 2.2.2.3, Third Bullet***—Analytical results for inorganics at MW-NASB-079 are discussed in this bullet. It is noted from Table B-3 that the results reported for this well are nearly identical to those reported for MW-NASB-070 for every element. This seems quite unlikely, particularly given the sharply contrasting redox conditions measured at the two wells (ORP = +460.9 mV at MW-NASB-070; ORP = -115.4 mV at MW-NASB-079). One might expect that the iron concentrations, in particular, would differ significantly under these contrasting redox conditions. Finally, the text notes that manganese was much higher at MW-NASB-079 in this round than in any previous round, as shown graphically in Appendix C, Figure 48. Manganese in Monitoring Event 23 is recorded as 655 micrograms per liter, while it had been in the range 60 to 150 micrograms per liter for the previous 20 rounds of sampling. In contrast, at MW-NASB-070, Mn has generally been in the range ~100 to ~700 micrograms per liter (see, e.g., Appendix C, Figure 21), similar to the anomalous measurement at MW-NASB-079 in Monitoring Event23. A possible explanation

for the anomalies reported at MW-NASB-079 in Monitoring Event23 (i.e., concentrations of all inorganics nearly identical to those at -070, and a significant jump in Mn concentration over historical results) is that the lab mistakenly analyzed aliquots from MW-NASB-070 twice.

Response—A sentence has been added to the text in this section indicating that the reported elevated manganese concentrations at MW-NASB-079 (similar to those reported historically at MW-NASB-070) may have been reported in error by the laboratory. This issue will be considered when evaluating the next round of groundwater sampling data at Site 9 for Monitoring Event 24.

Appendix B

Laboratory Analytical Data Summary Tables

TABLE B-1 SUMMARY OF GROUNDWATER SAMPLES COLLECTED FROM SITE 9 ON 30 AND 1 OCTOBER 2003
VOLATILE ORGANIC COMPOUNDS BY U.S. ENVIRONMENTAL PROTECTION AGENCY METHOD 8260B

			MW-NASB-021	MW-NASB-022	MW-NASB-069			MW-NASB-069 (Dup)	
			Diffusion Sample	Diffusion Sample	Diffusion Sample		Ground Water	Diffusion Sample	Ground Water
			Deep Diffusion Sample	Deep Diffusion Sample	Deep Diffusion Sample	Shallow Diffusion Sample	Low-Flow Sample	Deep Diffusion Sample	Low-Flow Sample
Compound/Element	**MEG (a)**	**MCL (b)**							
Total VOC	NC	NC	ND	19	76.72	65.5	68	82.9	68.2
1,1-Dichloroethane	70	NC	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichloroethene, Total	70	70	(<1U)	(<1U)	43	35.1	34	47.2	34.2
2-Butanone	NC	NC	(<5U)	(<5U)	0.72J	(<5U)	(<5U)	(<5U)	(<5U)
Ethylbenzene	700	700	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Methylene Chloride	NC	5	1B	1.6B	0.76JB	1.9B	2B	1.5B	0.91JB
Toluene	1,400	1,000	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Trichloroethene	5	5	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Trichlorofluoromethane	2100	NC	(<1U)	19	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Vinyl Chloride	0.15	2	(<1U)	(<1U)	33	30.4	34	35.7	34
Xylenes, Total	600	10,000	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)

			MW-NASB-071	MW-NASB-072	MW-NASB-074	MW-NASB-075	MW-NASB-076	W-NASB-076 (Du	MW-NASB-080
			Diffusion Sample	Diffusion Sample	Diffusion Sample	Diffusion Sample	Diffusion Sample	Diffusion Sample	Diffusion Sample
			Deep Diffusion Sample	Deep Diffusion Sample	Deep Diffusion Sample	Deep Diffusion Sample	Deep Diffusion Sample	Deep Diffusion Sample	Deep Diffusion Sample
Compound/Element	**MEG (a)**	**MCL (b)**							
Total VOC	NC	NC	ND	ND	3.7	ND	ND	ND	4.8
1,1-Dichloroethane	70	NC	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1
1,2-Dichloroethene, Total	70	70	(<1U)	(<1U)	2.5	(<1U)	(<1U)	(<1U)	0.8J
2-Butanone	NC	NC	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Ethylbenzene	700	700	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Methylene Chloride	NC	5	(<1U)	0.48JB	0.86JB	0.64JB	1.3B	2B	1B
Toluene	1,400	1,000	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Trichloroethene	5	5	(<1U)	(<1U)	1.2	(<1U)	(<1U)	(<1U)	(<1U)
Trichlorofluoromethane	2100	NC	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Vinyl Chloride	0.15	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3
Xylenes, Total	600	10,000	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)

TABLE B-1 (CONTINUED)

Compound/Element	MEG (a)	MCL (b)	MW-NASB-227 Diffusion Sample Deep Diffusion Sample
Total VOC	NC	NC	5.1
1,1-Dichloroethane	70	NC	(<1U)
1,2-Dichloroethene, Total	70	70	3.1
2-Butanone	NC	NC	(<5U)
Ethylbenzene	700	700	(<1U)
Methylene Chloride	NC	5	0.9JB
Toluene	1,400	1,000	(<1U)
Trichloroethene	5	5	2
Trichlorofluoromethane	2100	NC	(<1U)
Vinyl Chloride	0.15	2	(<1U)
Xylenes, Total	600	10,000	(<1U)

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Maximum Exposure Guidelines, memorandum dated 23 October 1992.
(b) MCL (Maximum Contaminant Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1998).

NOTE:
NC = Criteria not applicable.
MW = Monitoring well.
NASB = Naval Air Station Brunswick.
DUP = Duplicate sample.
Units are micrograms per liter (µg/L).
Total VOC calculation does not include common laboratory contaminants (Acetone or Methylene Chloride) or VOCs detected in the Trip Blank or Method Blank
U = Not detected at or above the sample quantitation limit. Shown as (<____U).
J = Estimated concentration.
ND = Not detected.
Only those analytes detected in at least one of the samples, and chemicals of concern listed in the Final Long-Term Monitoring Plan (EA 1999b), are shown on this table.
Concentrations highlighted with gray and bold type denote exceedance of MEG or MCL.

TABLE B-2 SUMMARY OF GROUNDWATER SAMPLES COLLECTED FROM SITE 9 ON 30 AND 1 OCTOBER 2003
SEMIVOLATILE ORGANIC COMPOUNDS BY U.S. ENVIRONMENTAL PROTECTION AGENCY METHOD 8270C

			MW-NASB-069	W-NASB-069 (Du	MW-NASB-070	MW-NASB-079
			Ground Water	Ground Water	Ground Water	Ground Water
			Low-Flow Sample	Low-Flow Sample	Low-Flow Sample	Low-Flow Sample
Compound/Element	**MEG (a)**	**MCL (b)**				

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Maximum Exposure Guidelines, memorandum dated 23 October 1992.
(b) MCL (Maximum Contaminant Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1998).

MW = Monitoring well.
NASB = Naval Air Station Brunswick.

NO SVOC DETECTED

TABLE B-3 SUMMARY OF GROUNDWATER SAMPLES COLLECTED FROM SITE 9 ON 30 AND 1 OCTOBER 2003
TARGET ANALYTE LIST ELEMENTS BY U.S. ENVIRONMENTAL PROTECTION AGENCY 6000/7000 SERIES METHODS

			MW-NASB-069	W-NASB-069 (Du	MW-NASB-070	MW-NASB-079
			Ground Water	Ground Water	Ground Water	Ground Water
			Low-Flow Sample	Low-Flow Sample	Low-Flow Sample	Low-Flow Sample
Compound/Element	**MEG (a)**	**MCL (b)**				
Aluminum	1,430	200	40.8B*	74.2B*	161B*	147B*
Antimony	2.8	6	(<3U)	(<3U)	**5.3B***	(<3U)
Barium	1,500	2,000	6.6B*	10.4B*	18B*	17.4B*
Cadmium	5	5	(<0.7U)	(<0.7U)	(<0.7U)	(<0.7U)
Calcium	NC	NC	4,680	5,350	10,100	10,100
Chromium	100	100	(<0.6U)	1.3B*	7.5B*	8.3B*
Cobalt	NC	NC	(<0.9U)	1.3B*	5.6B*	5.4B*
Copper	NC	1,300	(<4U)	5.2B*	19.7B*	19.9B*
Iron	NC	300	231	255	220	245
Magnesium	NC	NC	2,230	2,350	1,190	1,170
Manganese	200	50	**360**	**404**	**630**	**655**
Nickel	100	100	0.9B*	2.1B*	5B*	5.8B*
Potassium	NC	NC	1,620	1,440	716B*	759B*
Silver	50	100	(<2U)	(<2U)	2.2B*	(<2U)
Sodium	NC	NC	54,000	55,800	8,490	8,870
Vanadium	NC	NC	1.2B*	1.7B*	1.3B*	0.74B*
Zinc	NC	5,000	9B*	8.3B*	(<7U)	(<7U)

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Maximum Exposure Guidelines, memorandum dated 23 October 1992.
(b) MCL (Maximum Contaminant Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1998).

NOTE:
NC = Criteria not applicable.
MW = Monitoring well.
NASB = Naval Air Station Brunswick.
Units are micrograms per liter (µg/L).
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
U = Not detected at or above the sample quantitation limit. Shown as (<____U).
Only those analytes detected in at least one of the samples, and chemicals of concern listed in the Final Long-Term Monitoring Plan (EA 1999b), are shown on this table.
Concentrations highlighted with gray and bold type denote exceedance of MEG or MCL.

TABLE B-4 SUMMARY OF SURFACE WATER SAMPLES COLLECTED FROM SITE 9 ON 1 OCTOBER 2003
VOLATILE ORGANIC COMPOUNDS BY U.S. ENVIRONMENTAL PROTECTION AGENCY METHOD 8260B

			SW-010	SW-010 (Dup)
			Surface water	Surface Water
			Grab Sample	Grab Sample
Compound/Element	SWQC (a)	NWQC (b)		
Total VOC	NC	NC	1.21	1.23
1,2-Dichloroethene, Total	NC	NC	0.7J	0.73J
Methylene Chloride	NC	NC	0.94JB	2B
Vinyl Chloride	NC	NC	0.51J	0.5J

(a) SWQC Maine Statewide Water Quality Criteria compared to Criteria Maximum Concentration (CMC). If not CMC value, then it is compared to Criteria Continuous Concentration (CCC).
(b) NWQC National Recommended Water Quality Criteria Correction, EPA Office of Water, EPA 822-799-001, April 1999.

NOTE:
NC = Criteria not applicable.
Units are micrograms per liter (µg/L).
Total VOC calculation does not include common laboratory contaminants (Acetone or Methylene Chloride) or VOCs detected in the Trip Blank or Method Blank
SW = Surface water sample.
B = Compound detected in associated method blank.
J = Estimated concentration.
Only those compounds detected in at least one of the samples and vinyl chloride are shown on this table.

TABLE B-5 SUMMARY OF LEACHATE STATION SEEP SAMPLES COLLECTED FROM SITE 9 ON 1 OCTOBER 2003
VOLATILE ORGANIC COMPOUNDS BY U.S. ENVIRONMENTAL PROTECTION AGENCY METHOD 8260B

			LT-901	LT-901 (Dup)
			Leachate	Leachate
			Grab Sample	Grab Sample
Compound/Element	SWQC (a)	NWQC (b)		
Total VOC	NC	NC	ND	ND
Methylene Chloride	NC	NC	0.56JB	0.51JB
Vinyl Chloride	NC	NC	(<1U)	(<1U)

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Maximum Exposure Guidelines, memorandum dated 23 October 1992.
(b) MCL (Maximum Contaminant Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1998).

NOTE:
NC = Criteria not applicable.
Units are micrograms per liter (µg/L).
Total VOC calculation does not include common laboratory contaminants (Acetone or Methylene Chloride) or VOCs detected in the Trip Blank or Method Blank.
LT = Leachate sample.
DUP = Duplicate sample.
ND = Not detected.
U = Not detected. Sample quantitation limits are shown as (<___U).
B = Compound detected in associated method blank.
J = Estimated concentration.
Only those analytes detected in at least one of the samples and vinyl chloride are shown on this table.

TABLE B-6 SUMMARY OF SEDIMENT SAMPLES COLLECTED FROM SITE 9 ON 1 OCTOBER 2003
VOLATILE ORGANIC COMPOUNDS BY U.S. ENVIRONMENTAL PROTECTION AGENCY METHOD 8260B

			SED-10	SED-10 (Dup)
			Sediment	Sediment
			Grab Sample	Grab Sample
Compound/Element	**MEG (a)**	**MCL (b)**		
Total VOC	NC	NC	4	2
Acetone	NC	NC	12	14
Carbon Disulfide	NC	NC	1J	(<5U)
Methylene Chloride	NC	NC	4JB	4JB
Toluene	NC	NC	1J	(<5U)
Vinyl Chloride	NC	NC	(<6U)	(<5U)
Xylenes, Total	NC	NC	2J	2J

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Maximum Exposure Guidelines, memorandum dated 23 October 1992.
(b) MCL (Maximum Contaminant Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1998).

NOTE:
NC = Criteria not applicable.
Units are micrograms per liter (µg/Kg).
Total VOC calculation does not include common laboratory contaminants (Acetone or Methylene Chloride) or VOCs detected in the Trip Blank or Method Blank.
SED = Sediment sample.
DUP = Duplicate sample.
U = Not detected. Sample quantitation limits are shown as (<___U).
B = Compound detected in associated method blank.
J = Estimated concentration.
Only those analytes detected in at least one of the samples are shown on this table.

TABLE B-7 SUMMARY OF QUALITY CONTROL SAMPLES COLLECTED FROM SITE 9 ON 1 OCTOBER 2003
VOLATILE ORGANIC COMPOUNDS BY U.S. ENVIRONMENTAL PROTECTION AGENCY METHOD 8260B

			QS-001
			Rinsate Blank
Compound/Element	**MEG (a)**	**MCL (b)**	
Total VOC	NC	NC	ND
Methylene Chloride	NC	NC	1.2B
Vinyl Chloride	NC	NC	(<1U)

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Maximum Exposure Guidelines, memorandum dated 23 October 1992.
(b) MCL (Maximum Contaminant Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1998).

NOTE:
NC = Criteria not applicable.
Units are micrograms per liter (µg/L).
Total VOC calculation does not include common laboratory contaminants (Acetone or Methylene Chloride) or VOCs detected in the Trip Blank or Method Blank.
QS = Equipment rinsate blank.
U = Not detected. Sample quantitation limits are shown as (<___U).
B = Compound detected in associated method blank.
ND = Not detected.
Only those analytes detected in at least one of the samples and vinyl chloride are shown on this table.

Appendix C

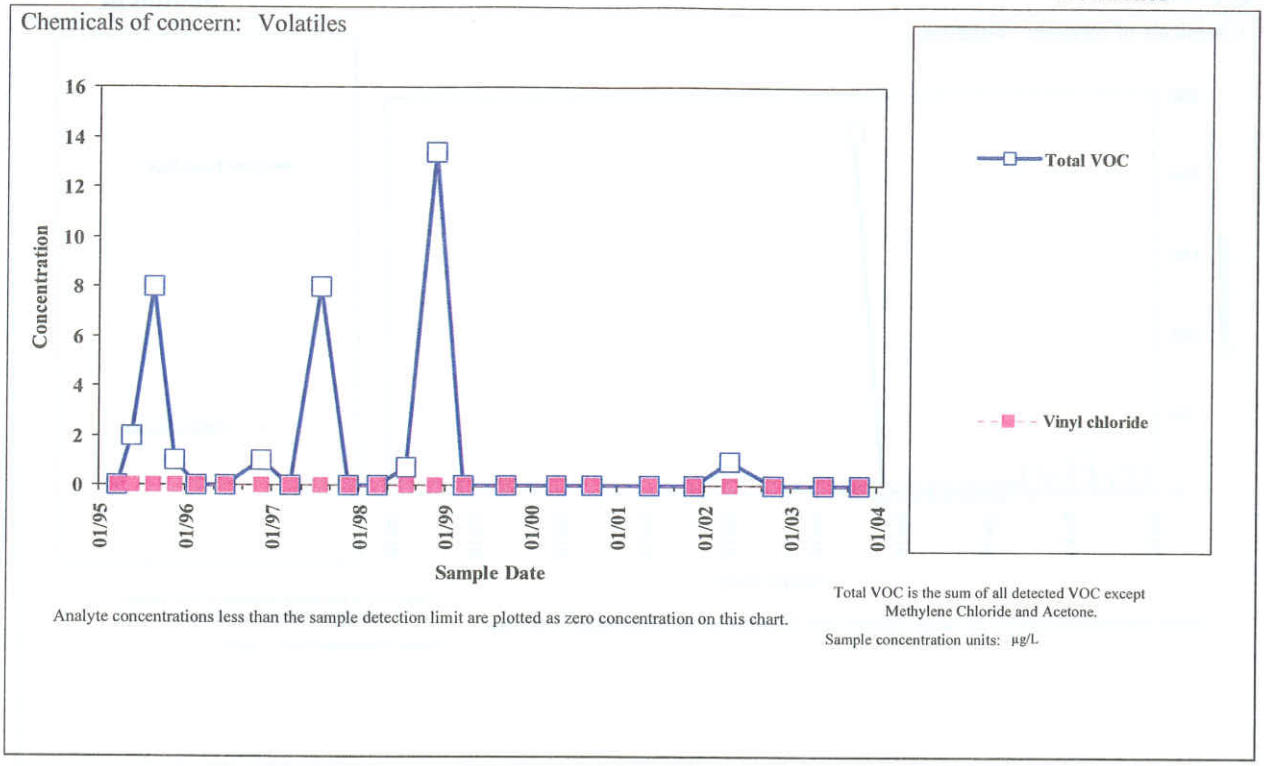
Temporal Trend Graphs

Sample Location:

LT-901

Site 9
Leachate

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

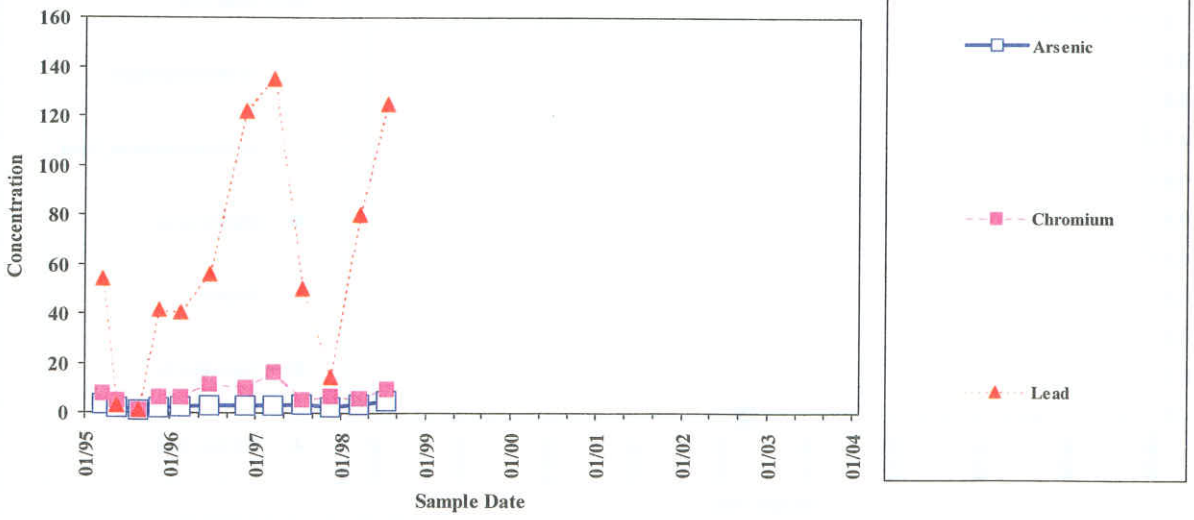
Figure 1 of 77

Sample Location:

LT-901

Site 9
Sediment

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: mg/Kg

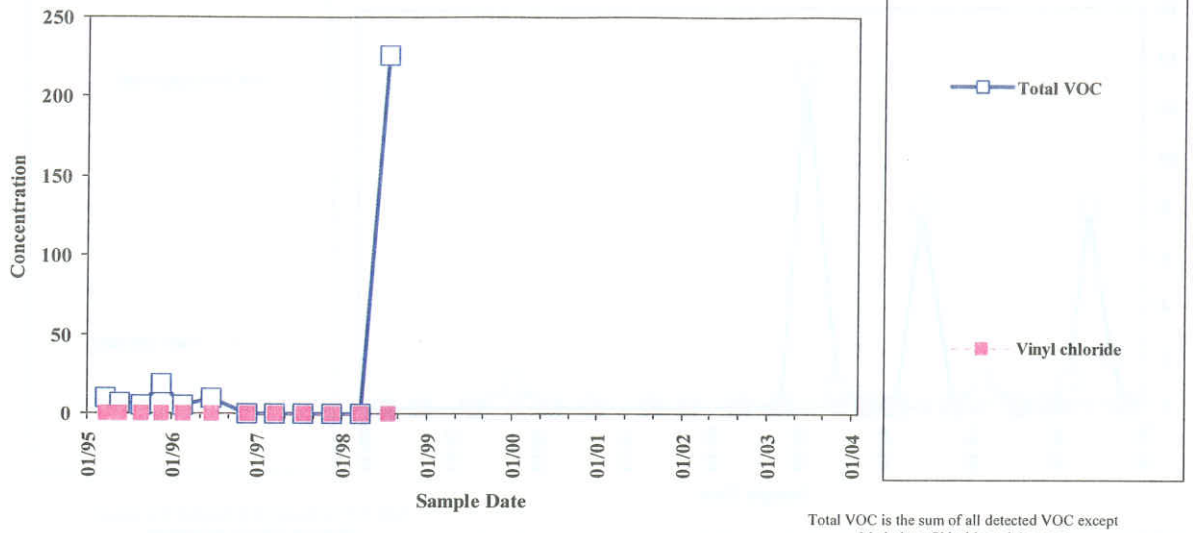
Figure 2 of 77

Sample Location:

LT-901

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/Kg

Figure 3 of 77

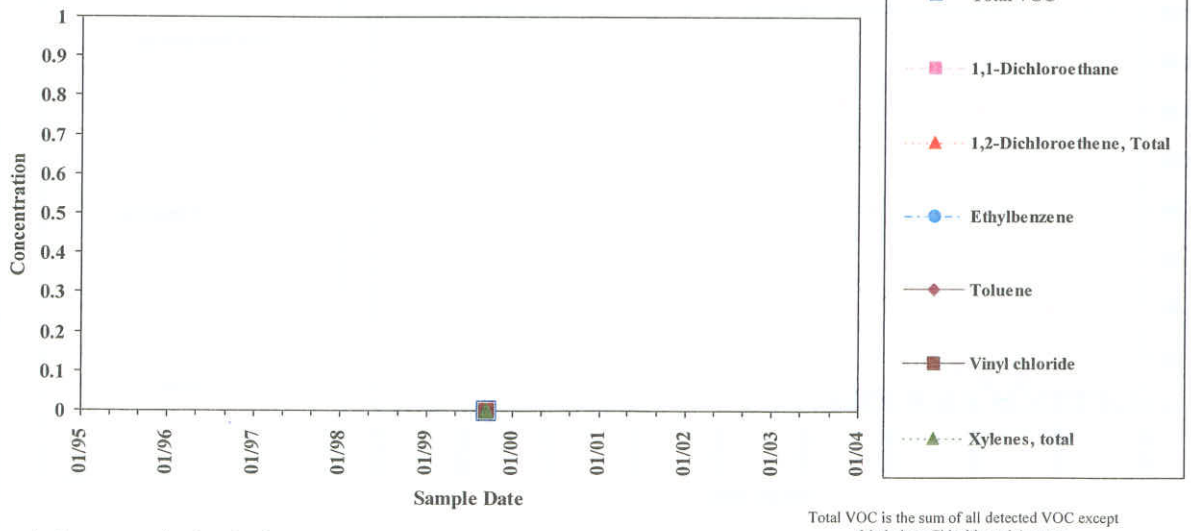
Sample Location:

MW-NASB-008

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 4 of 77

Sample Location:

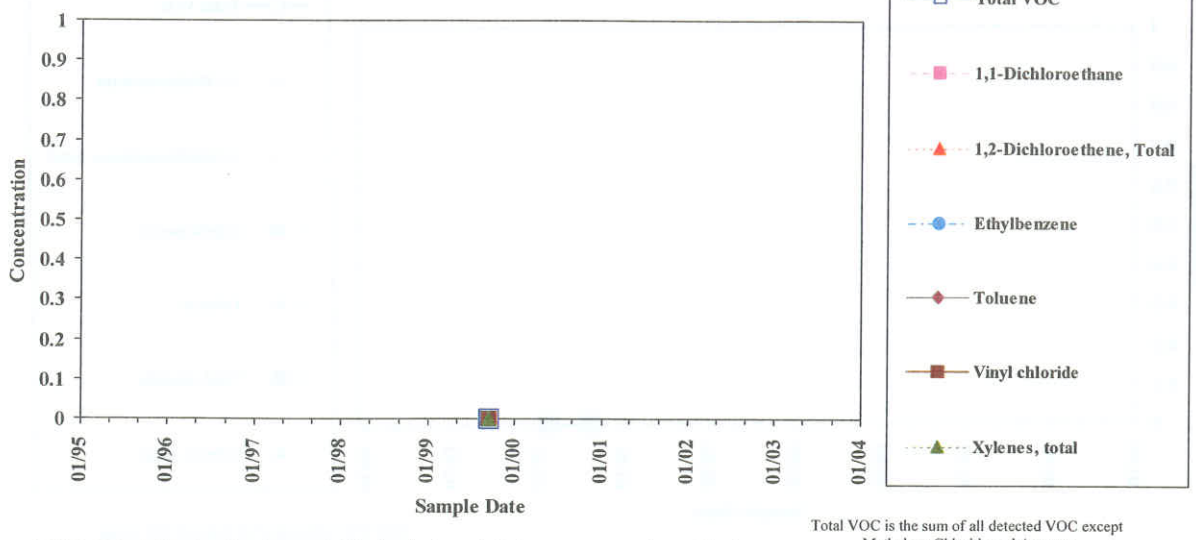
MW-NASB-009

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

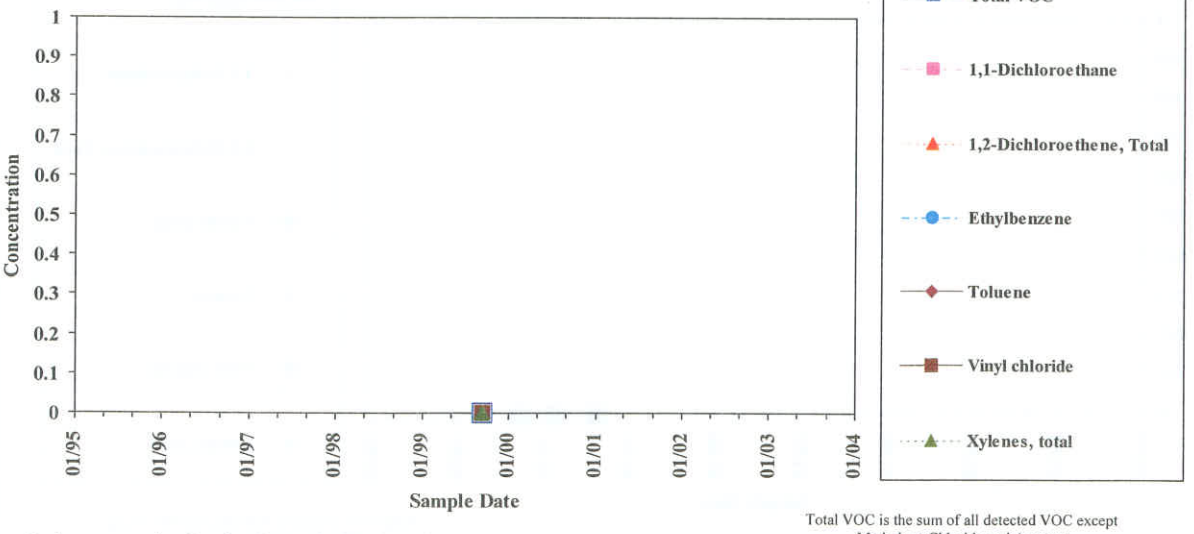
MW-NASB-010

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

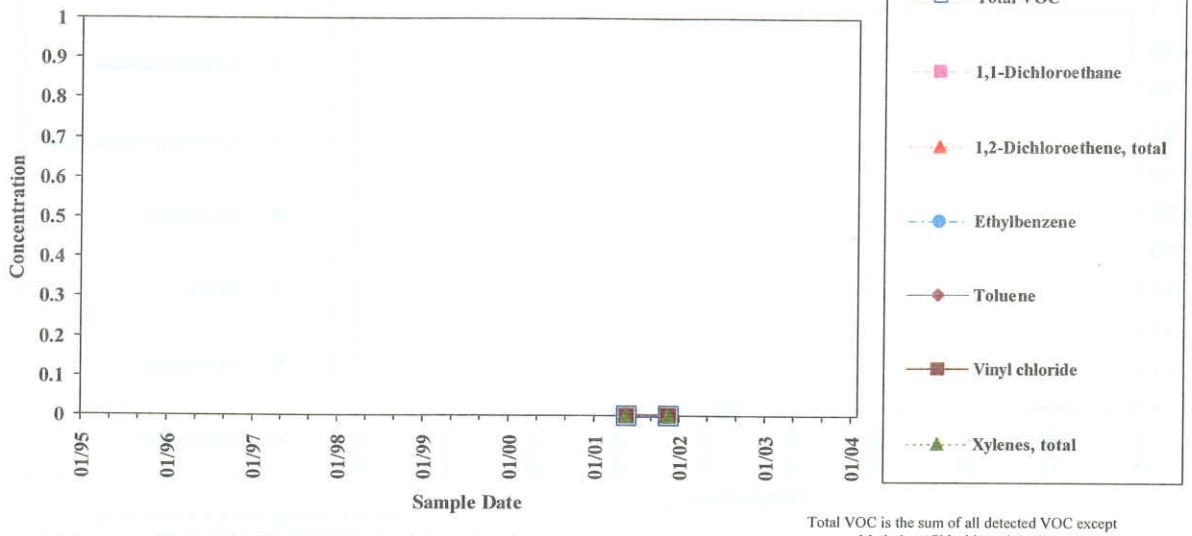
Sample Location:

MW-NASB-021

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 7 of 77

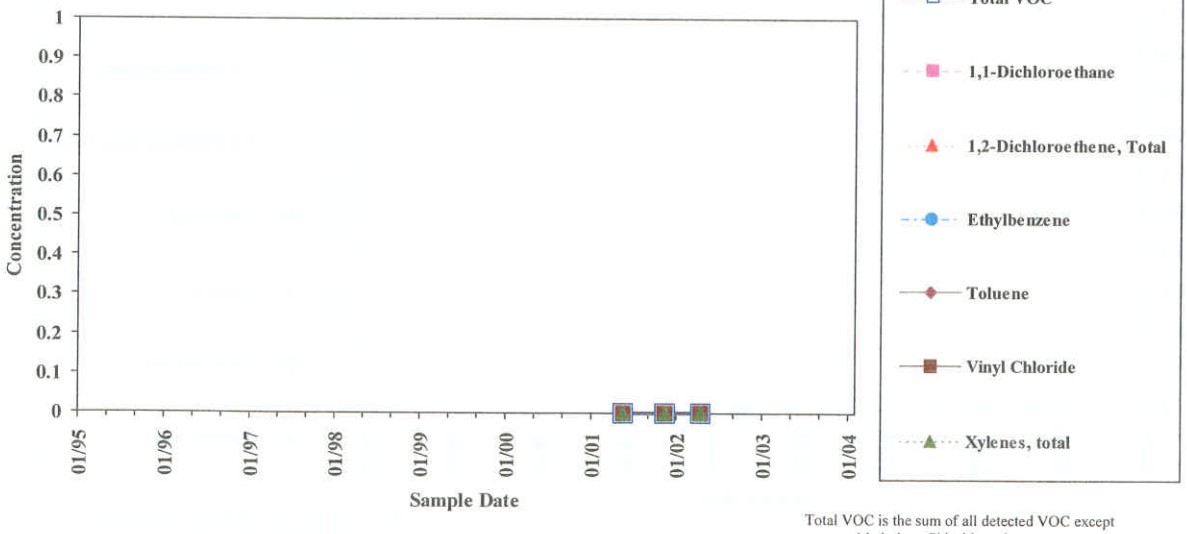
Sample Location:

MW-NASB-021

Shallow Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

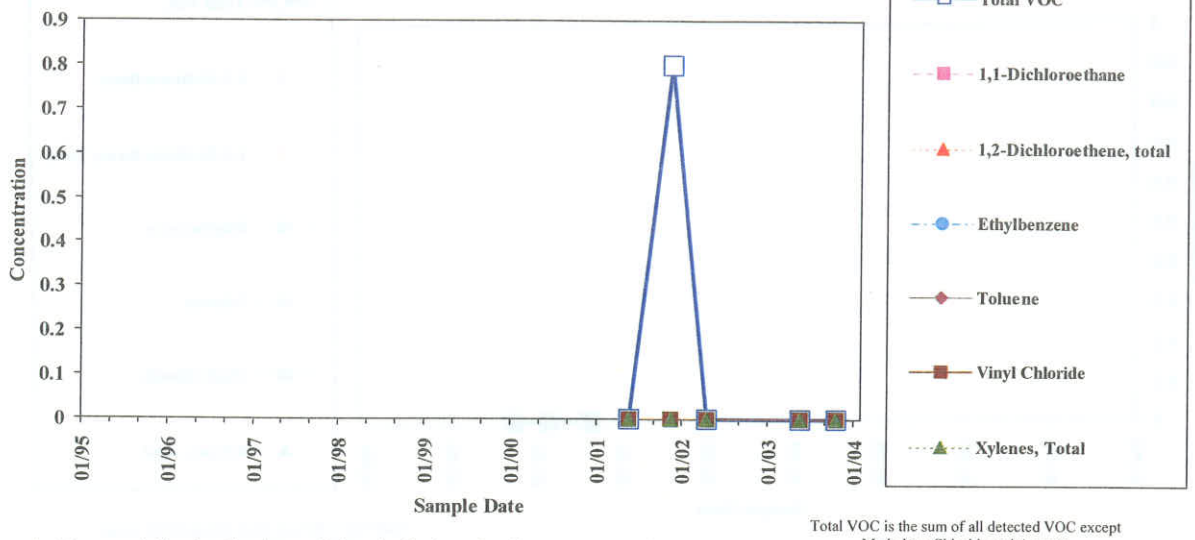
1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 8 of 77

Sample Location:

MW-NASB-021 Deep Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

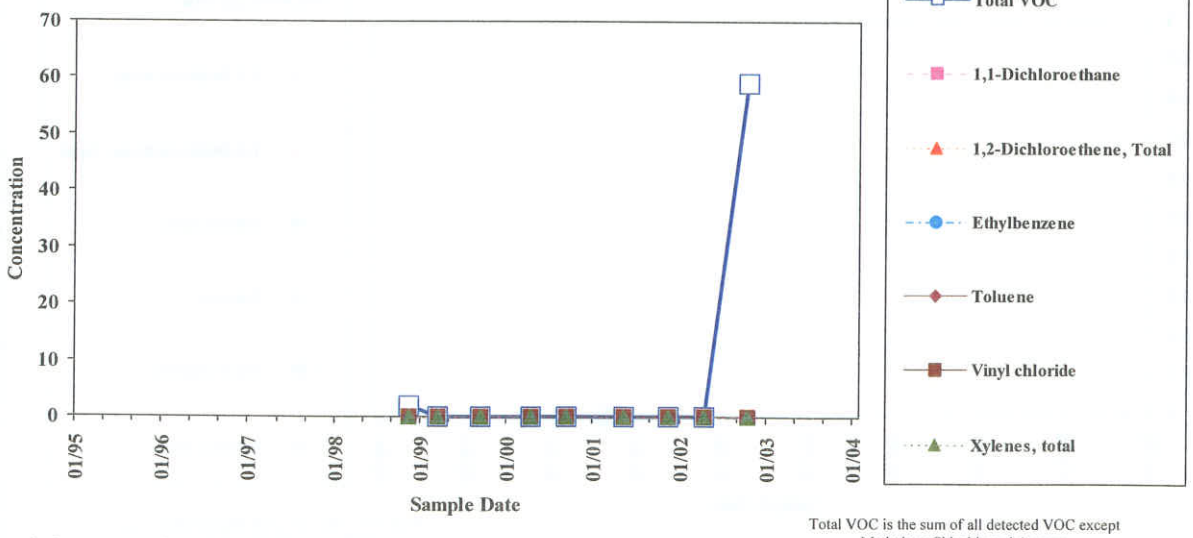
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-022 Low-flow Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

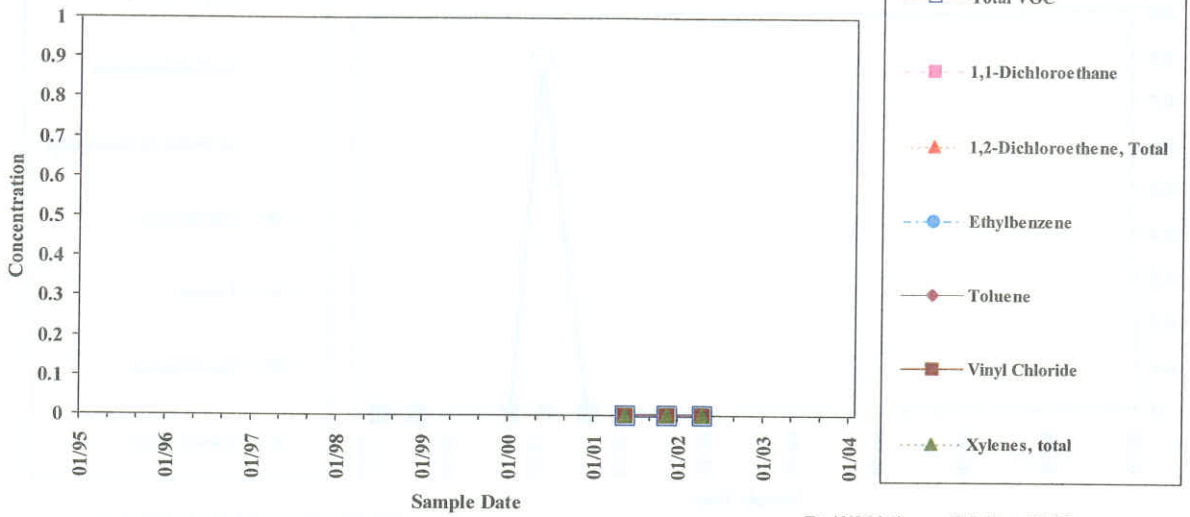
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-022 Shallow Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

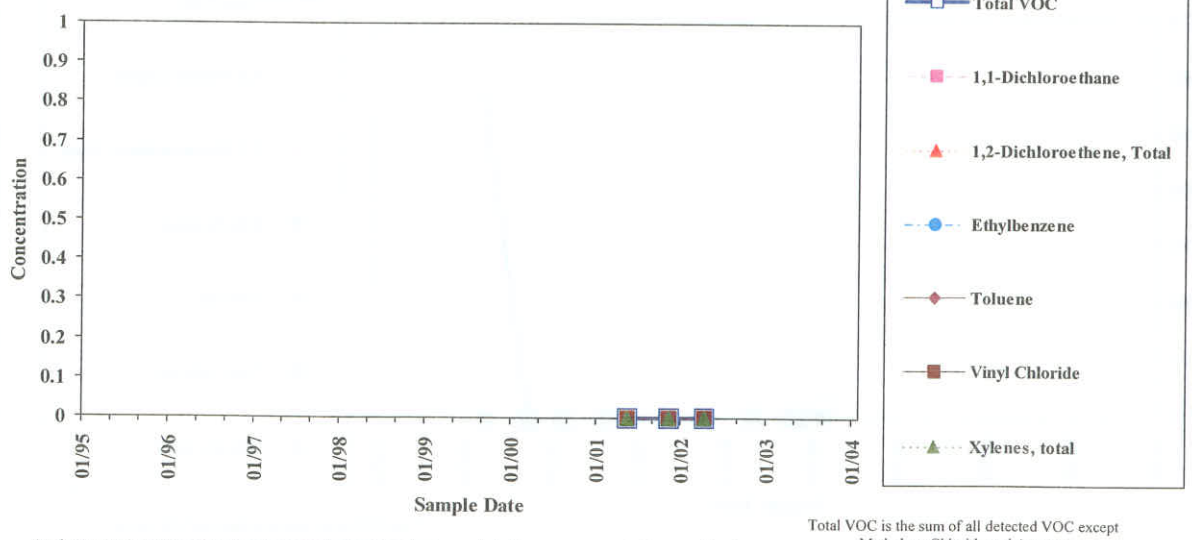
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-022 Mid-depth Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

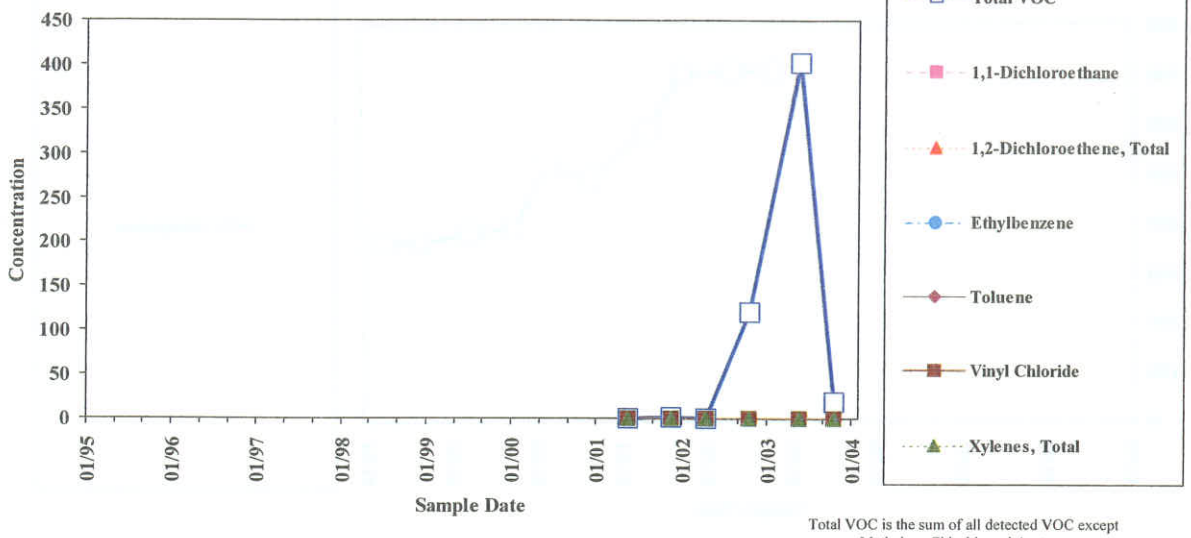
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-022 Deep Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

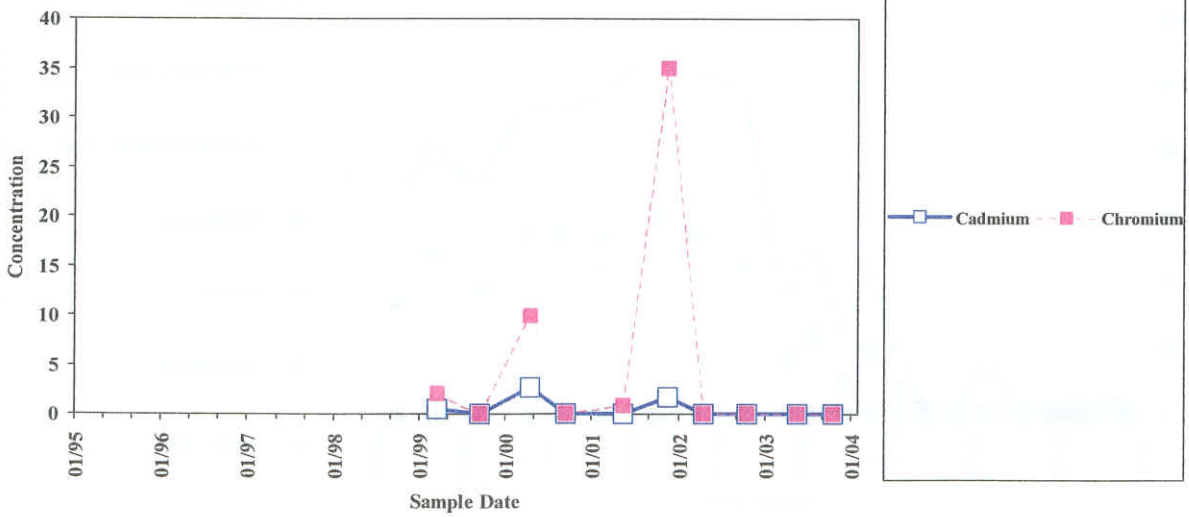
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-069 Low-flow Sample Site 9 Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

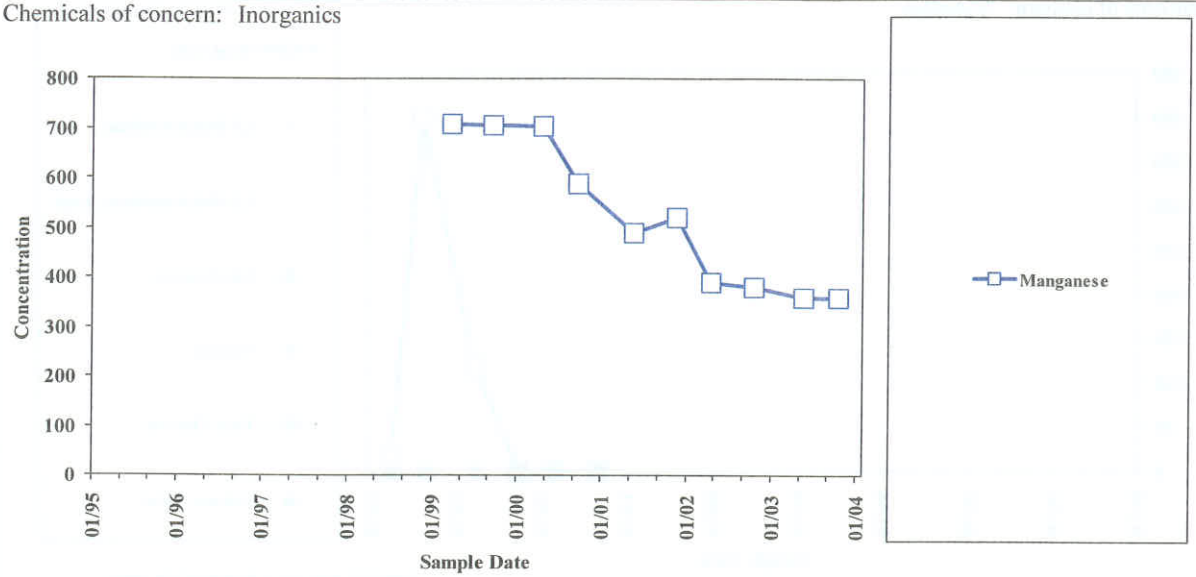
Sample Location:

MW-NASB-069

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

Figure 15 of 77

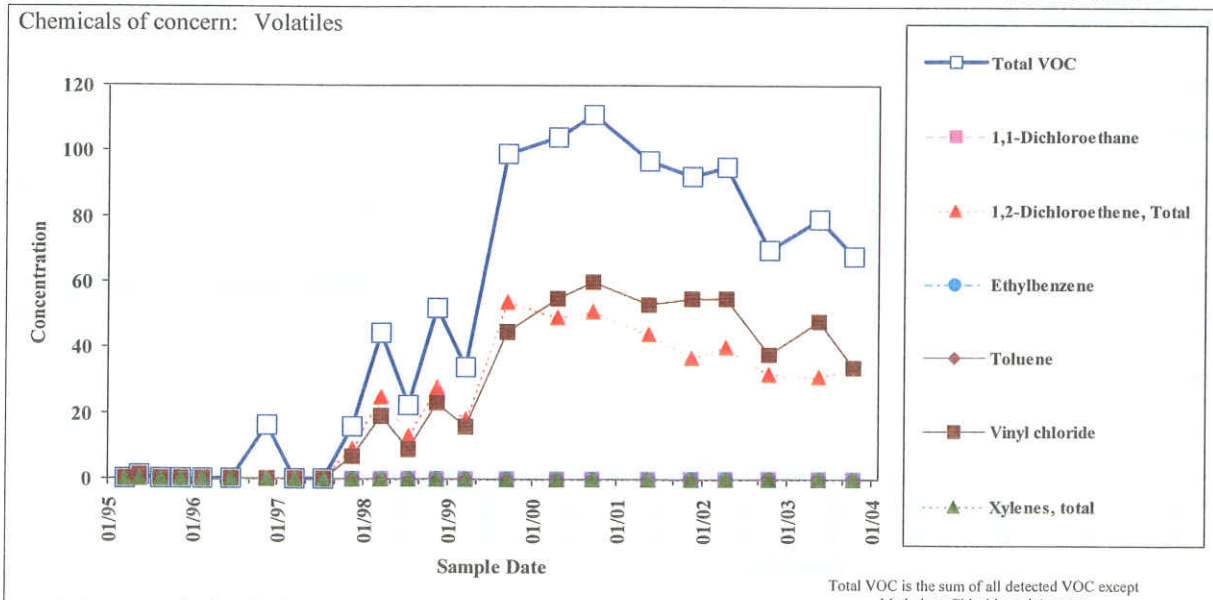
Sample Location:

MW-NASB-069

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 16 of 77

Sample Location:

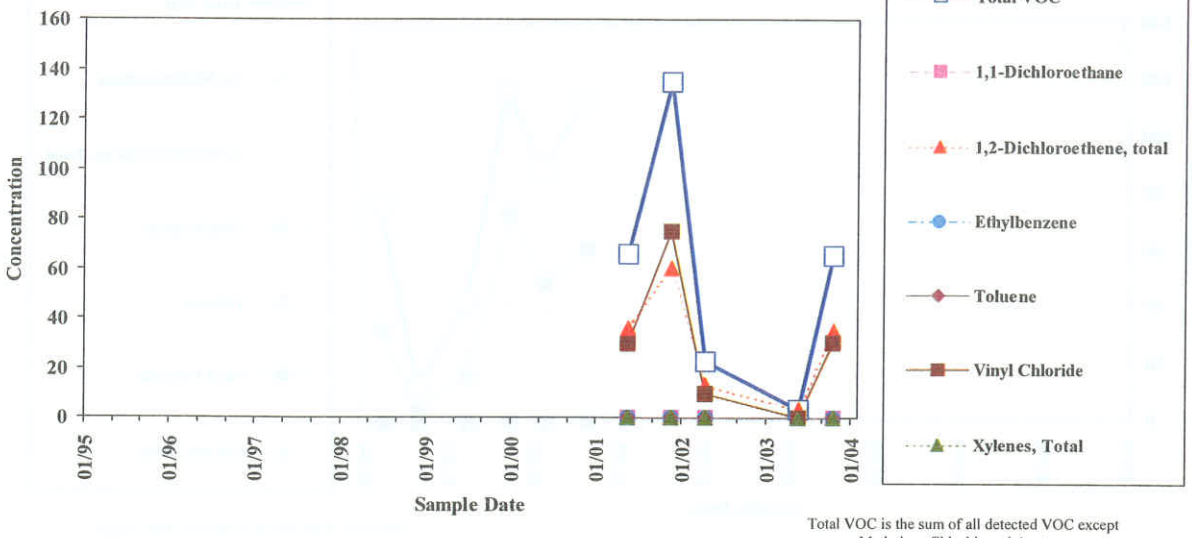
MW-NASB-069

Shallow Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

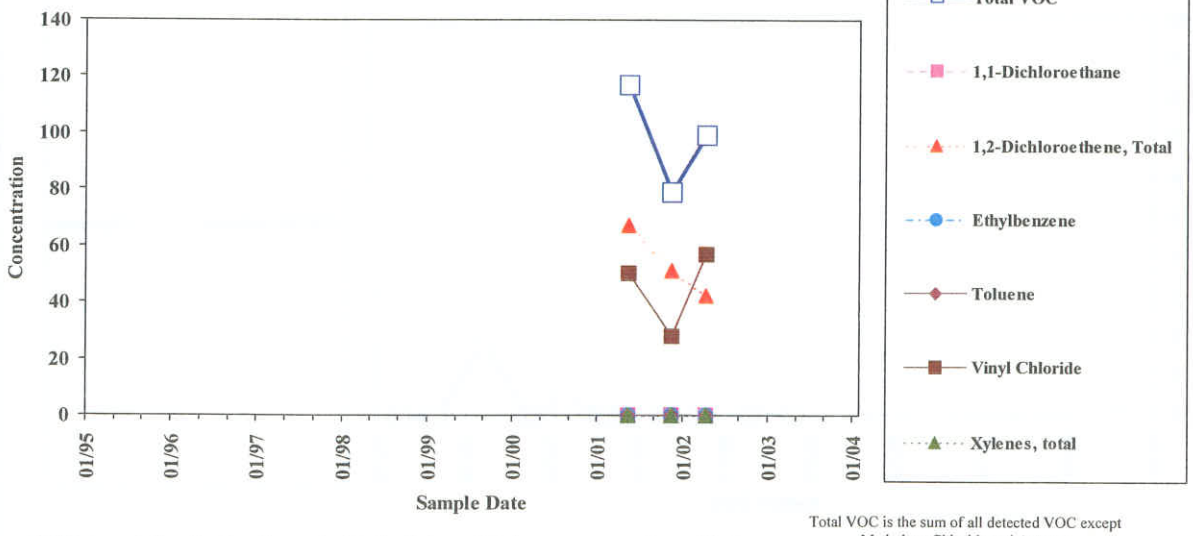
MW-NASB-069

Mid-depth Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

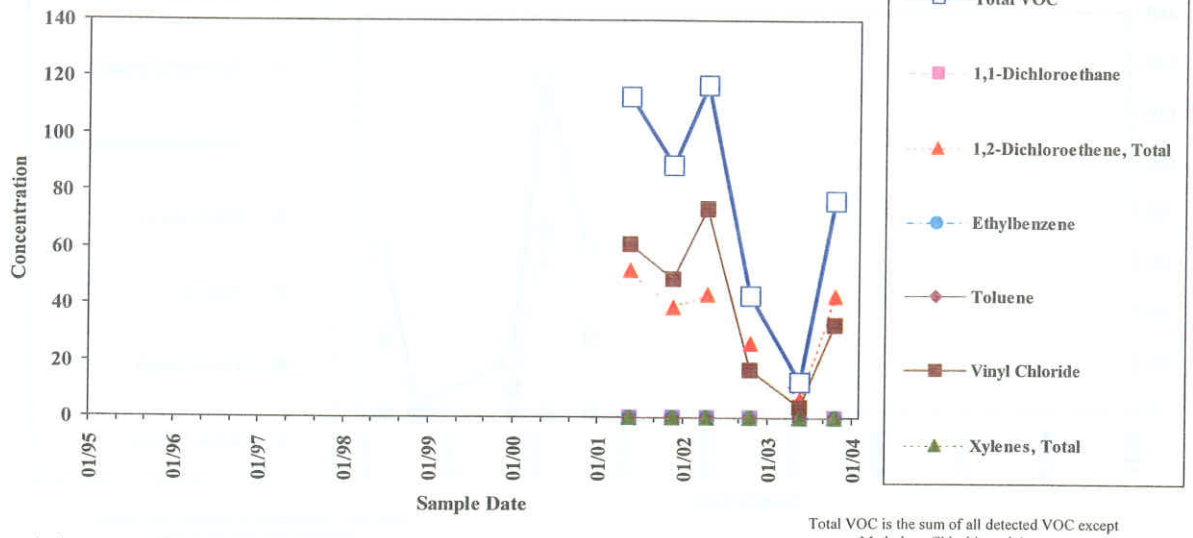
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-069 Deep Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

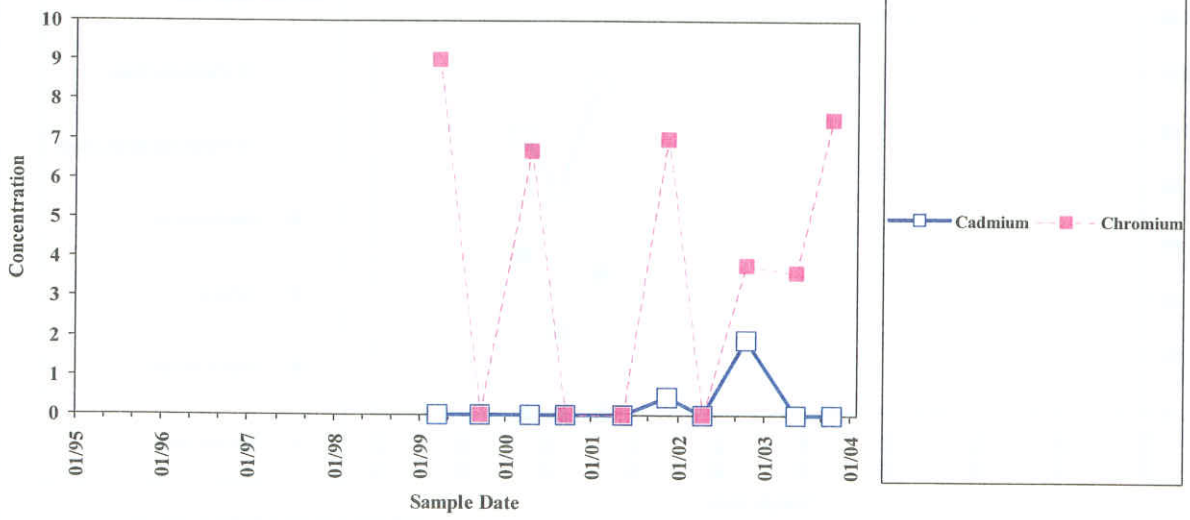
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-070 Low-flow Sample Site 9 Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

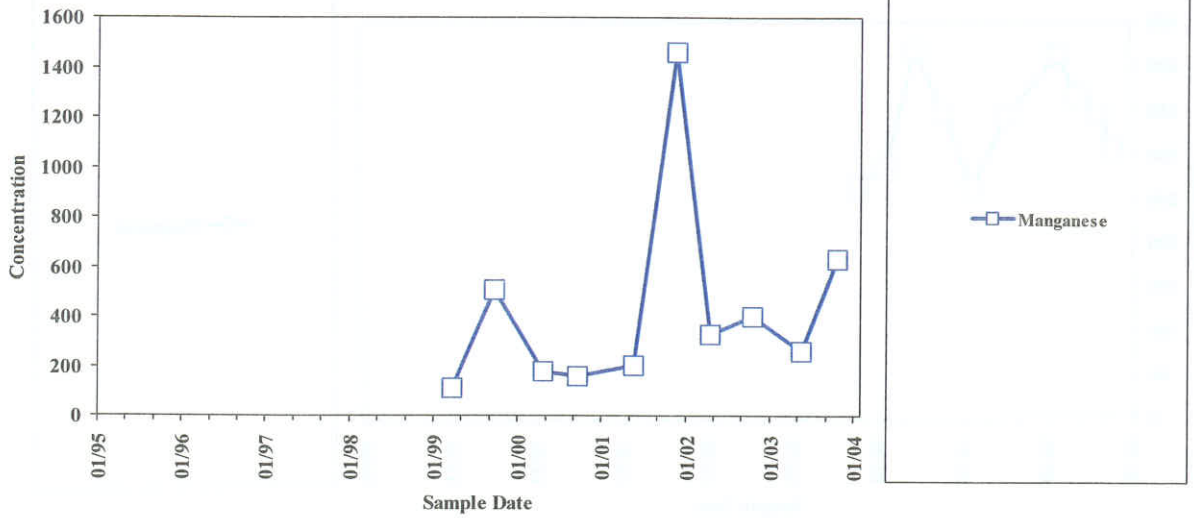
Sample Location:

MW-NASB-070

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

Figure 21 of 77

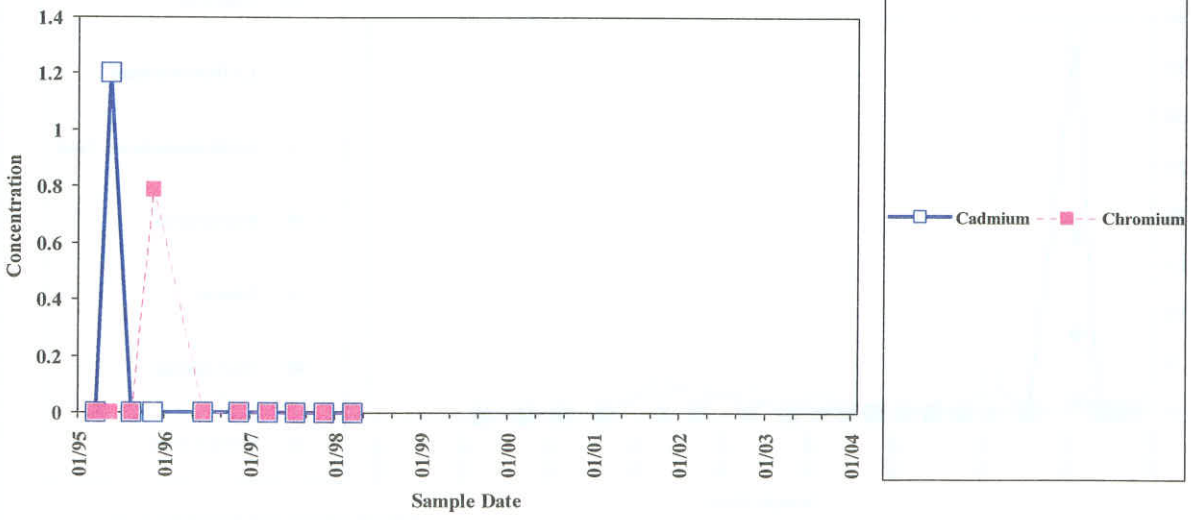
Sample Location:

MW-NASB-071

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

Figure 22 of 77

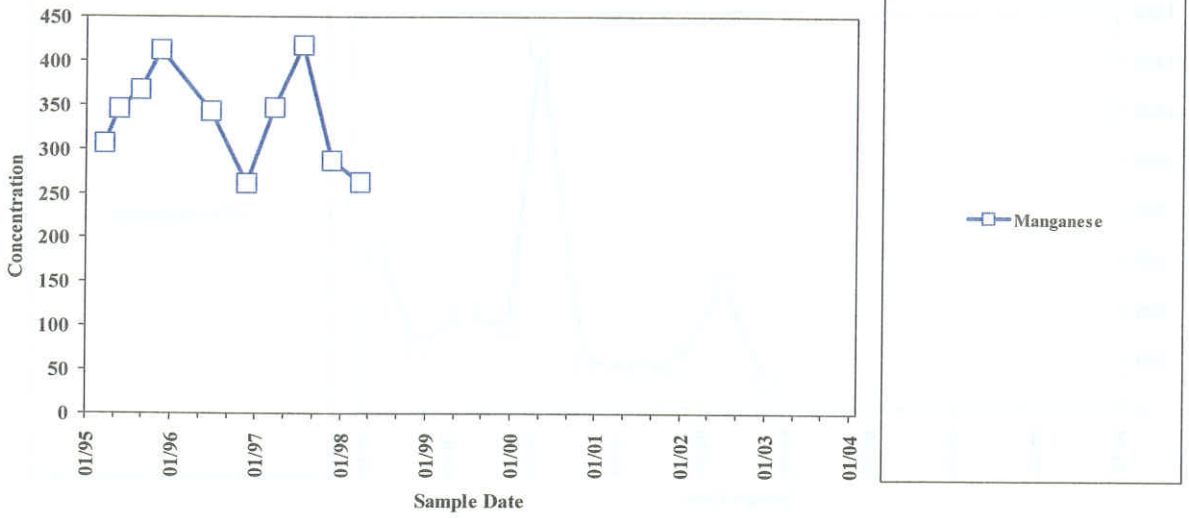
Sample Location:

MW-NASB-071

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

Figure 23 of 77

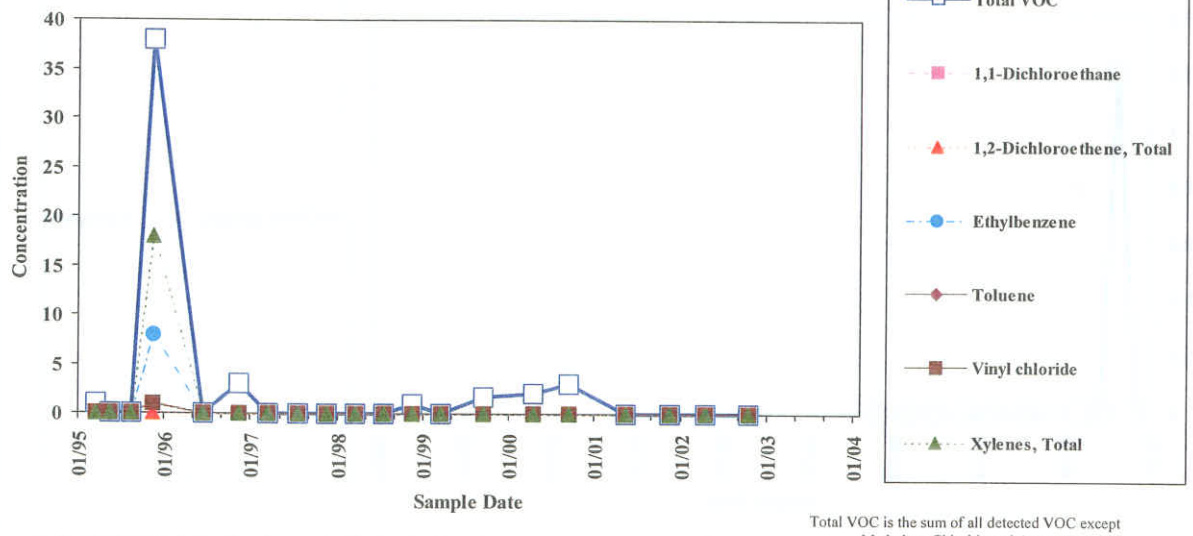
Sample Location:

MW-NASB-071

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

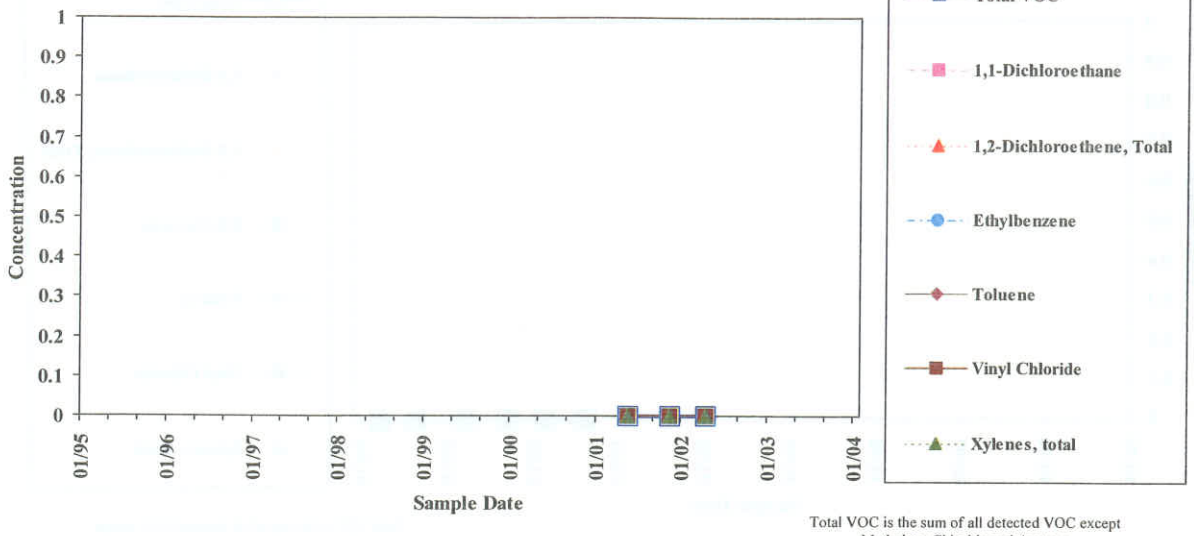
1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 24 of 77

Sample Location:

MW-NASB-071 Shallow Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

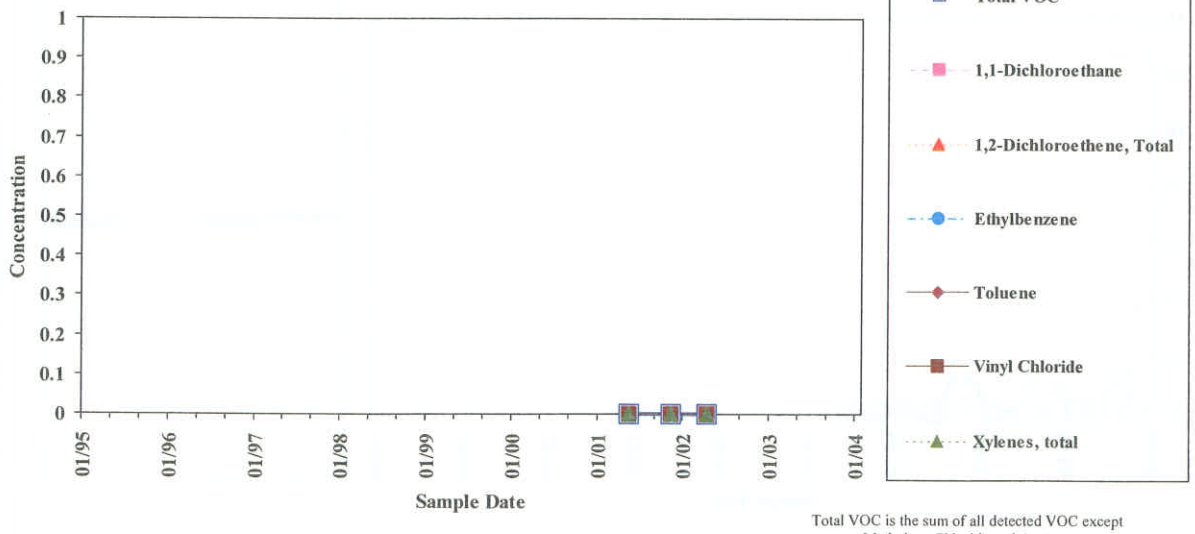
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-071 Mid-depth Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

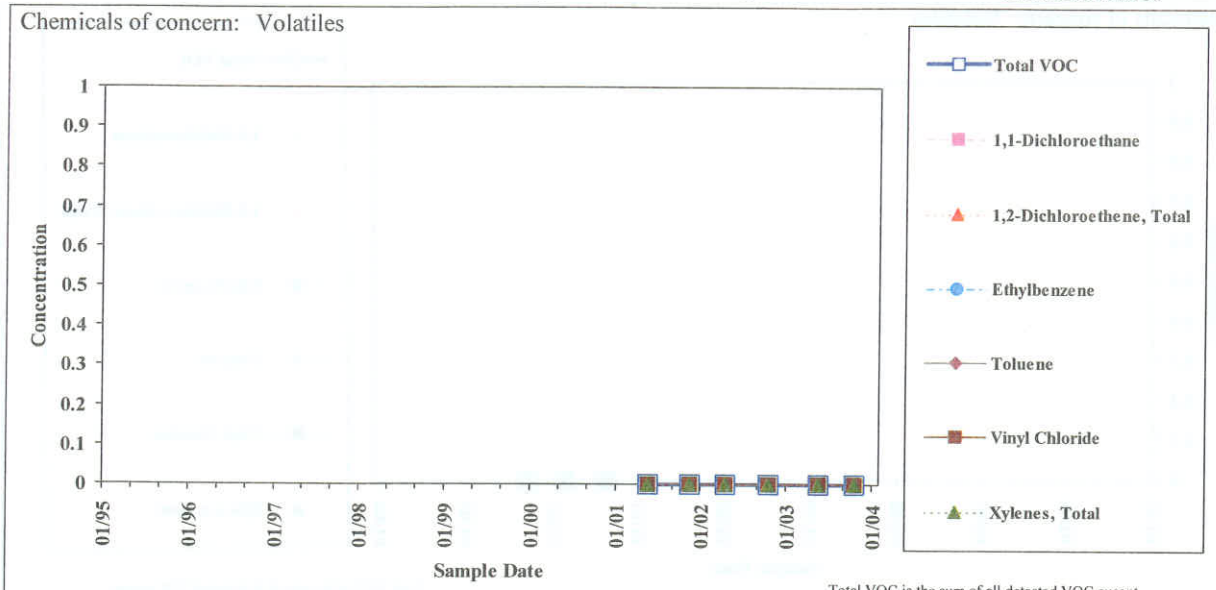
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-071 Deep Diffusion Sample Site 9 Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

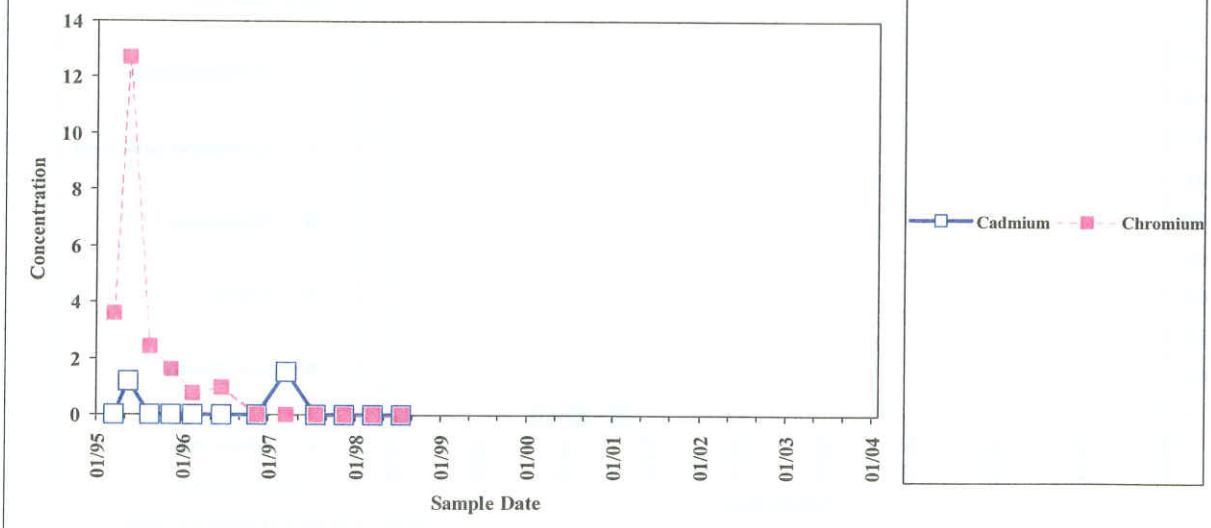
Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

MW-NASB-072 Low-flow Sample Site 9 Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

Sample Location:

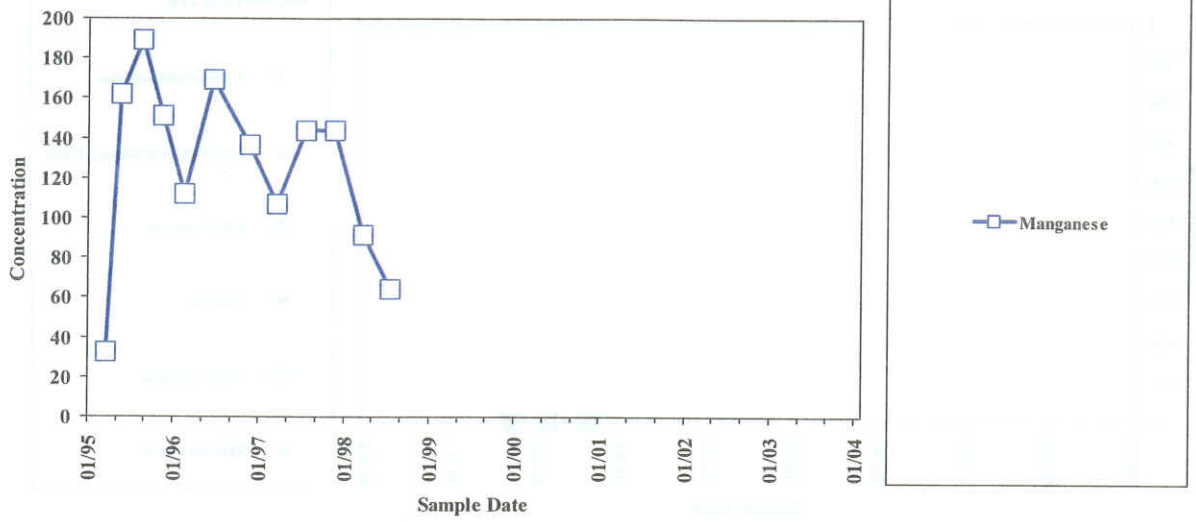
MW-NASB-072

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

Figure 29 of 77

Sample Location:

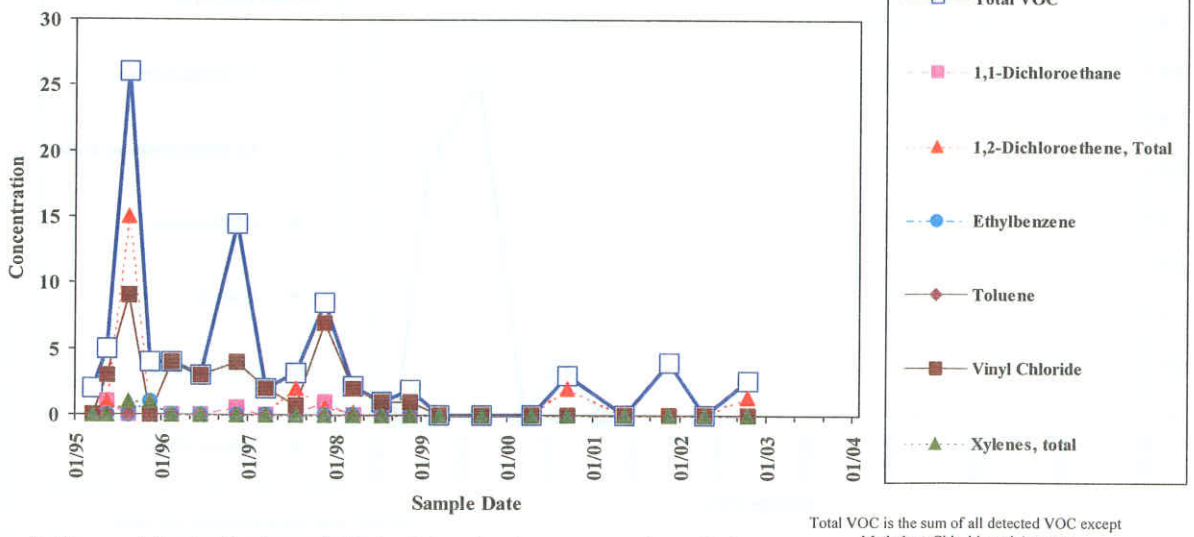
MW-NASB-072

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 30 of 77

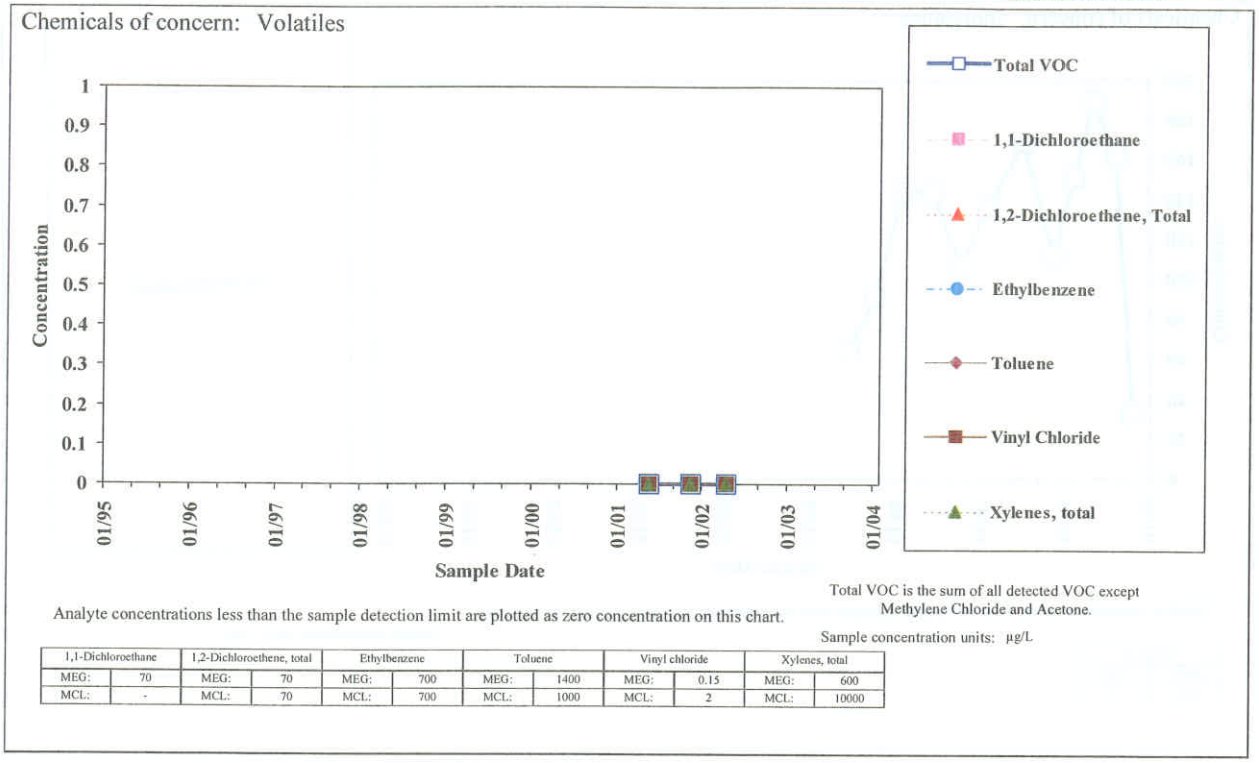
Sample Location:

MW-NASB-072

Shallow Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

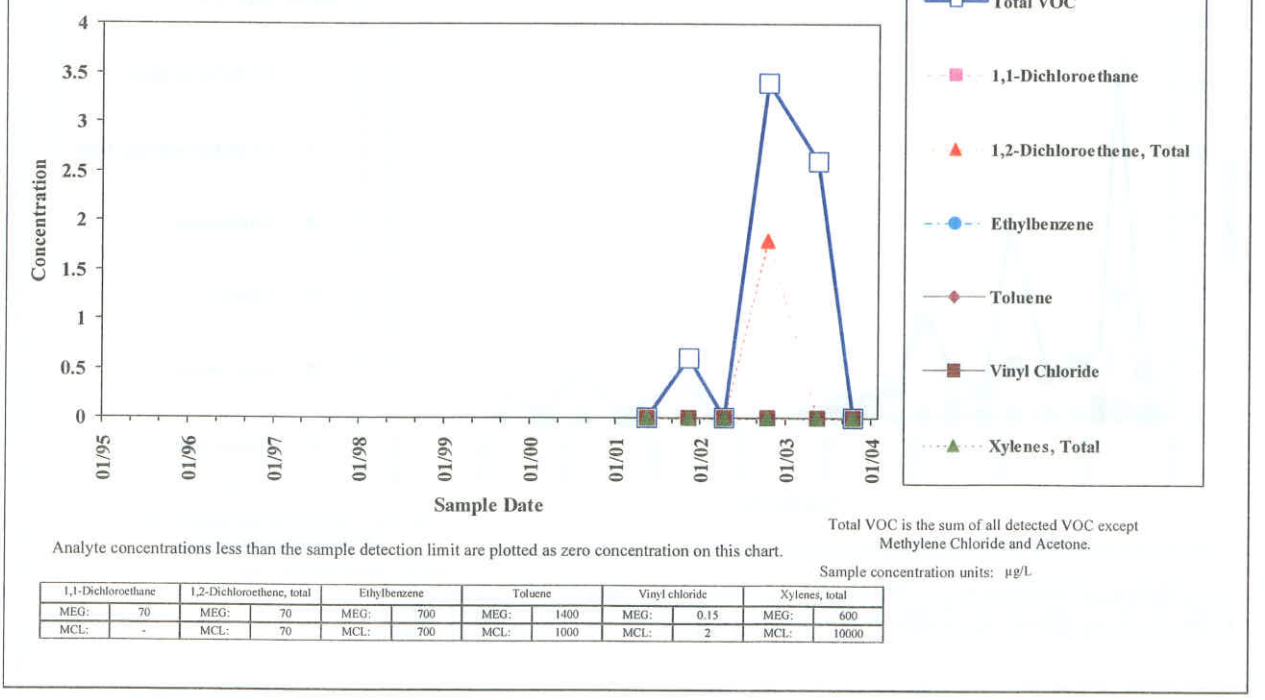
Sample Location:

MW-NASB-072

Deep Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

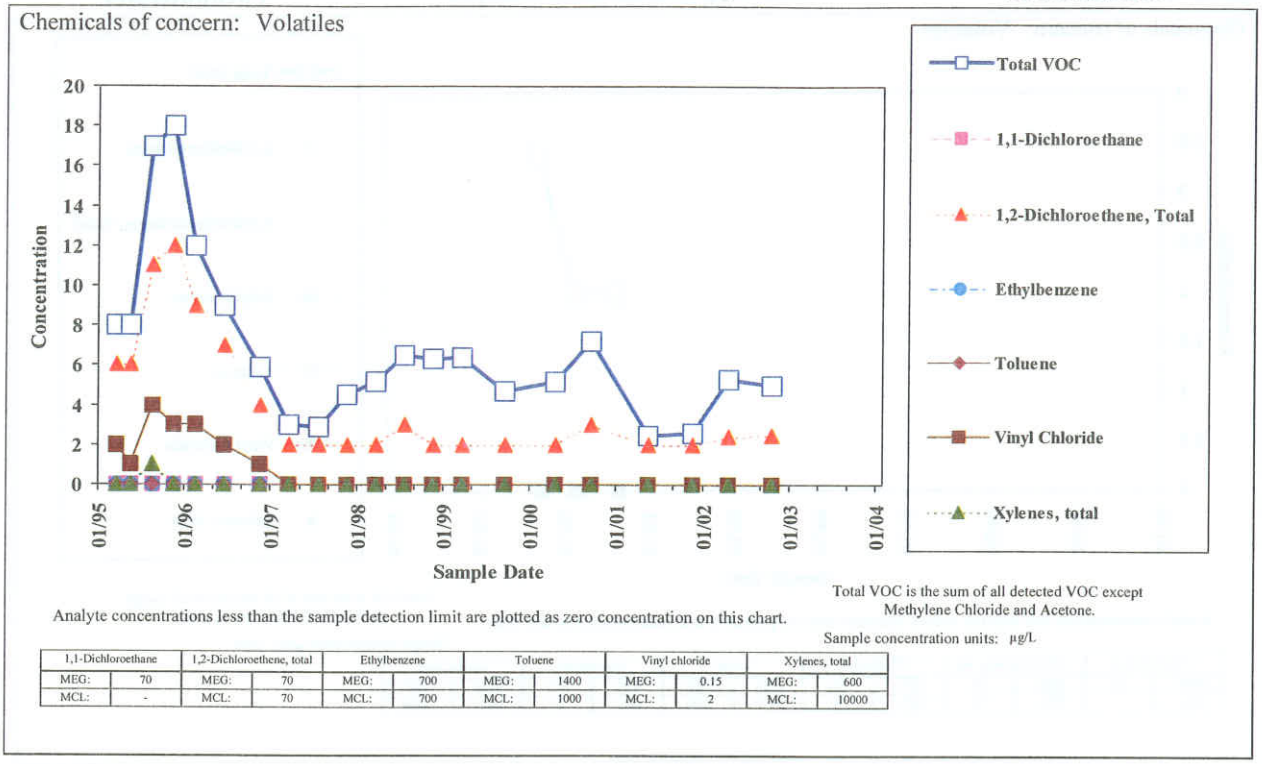
Sample Location:

MW-NASB-074

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

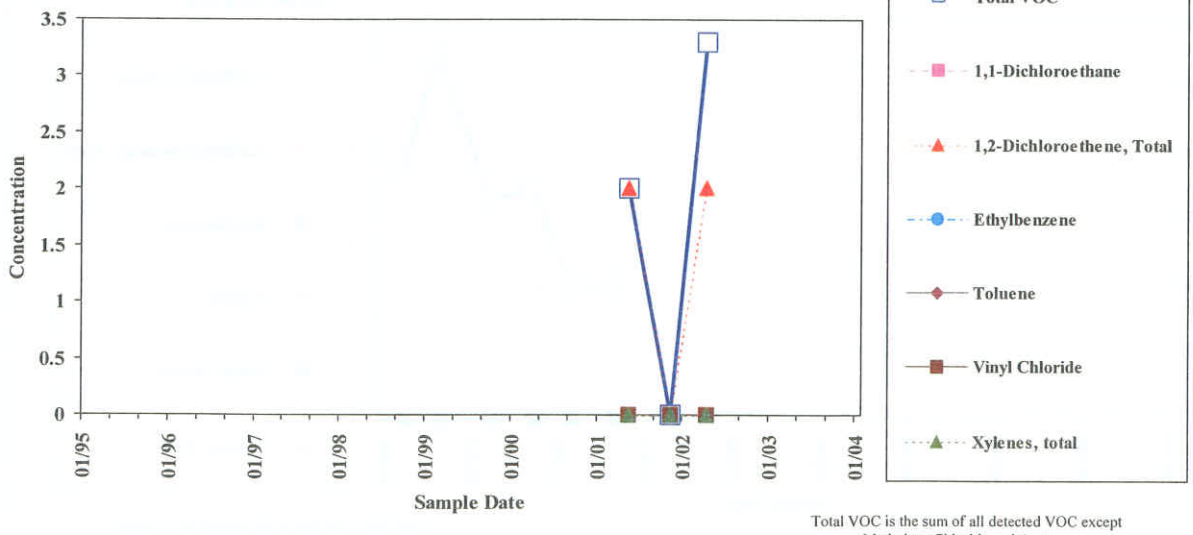
Sample Location:

MW-NASB-074

Shallow Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

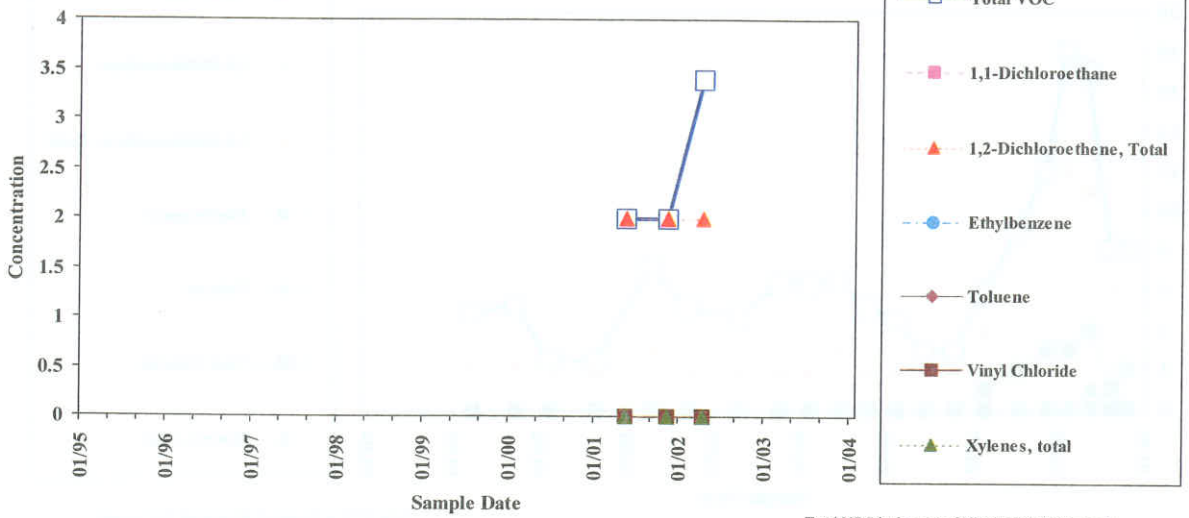
Sample Location:

MW-NASB-074

Mid-depth Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

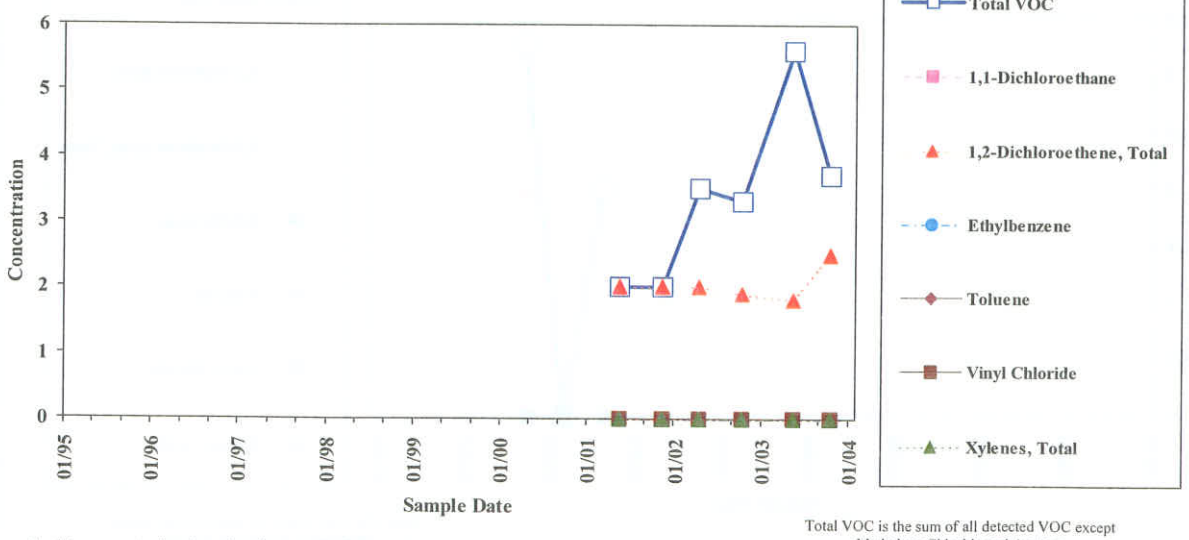
Sample Location:

MW-NASB-074

Deep Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

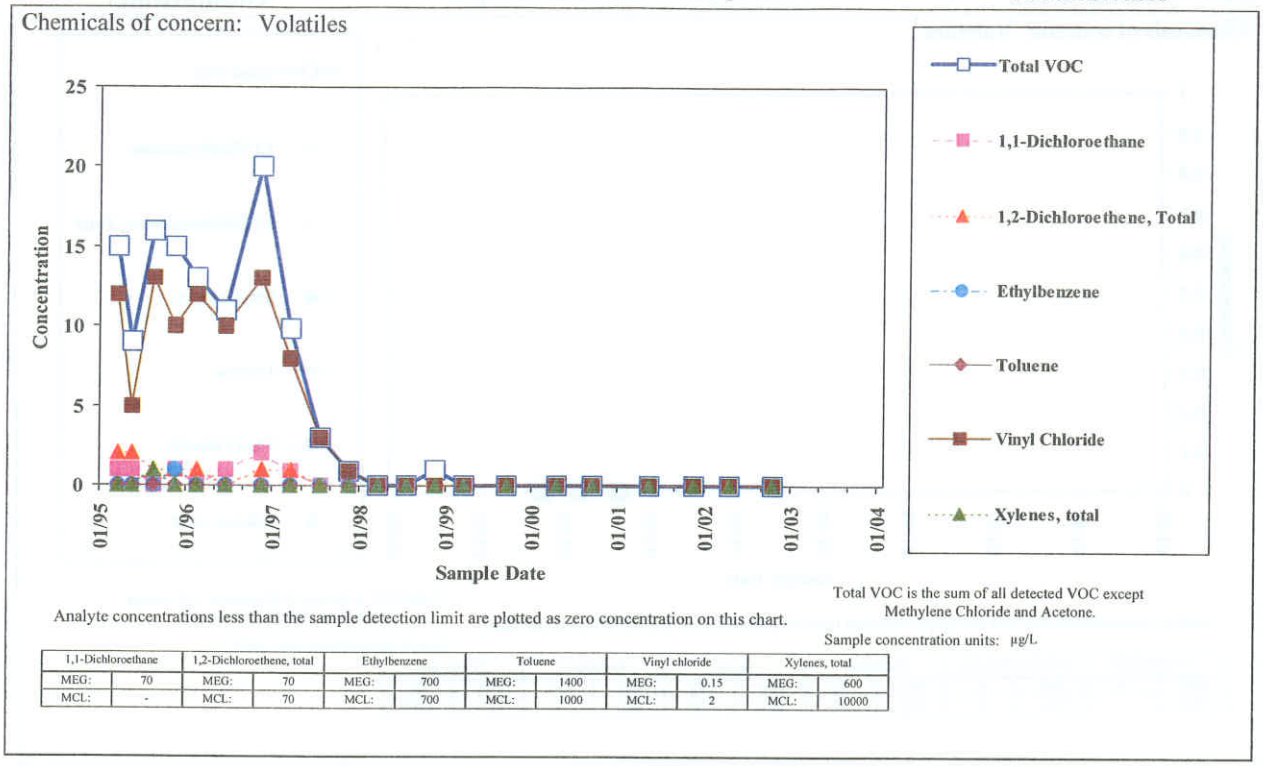
Sample Location:

MW-NASB-075

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

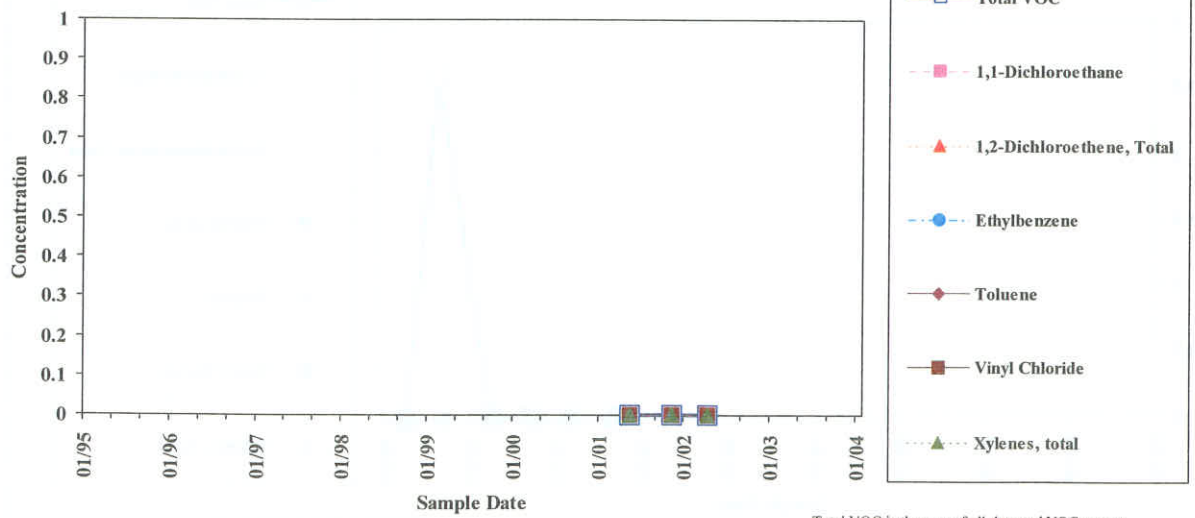
Sample Location:

MW-NASB-075

Shallow Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

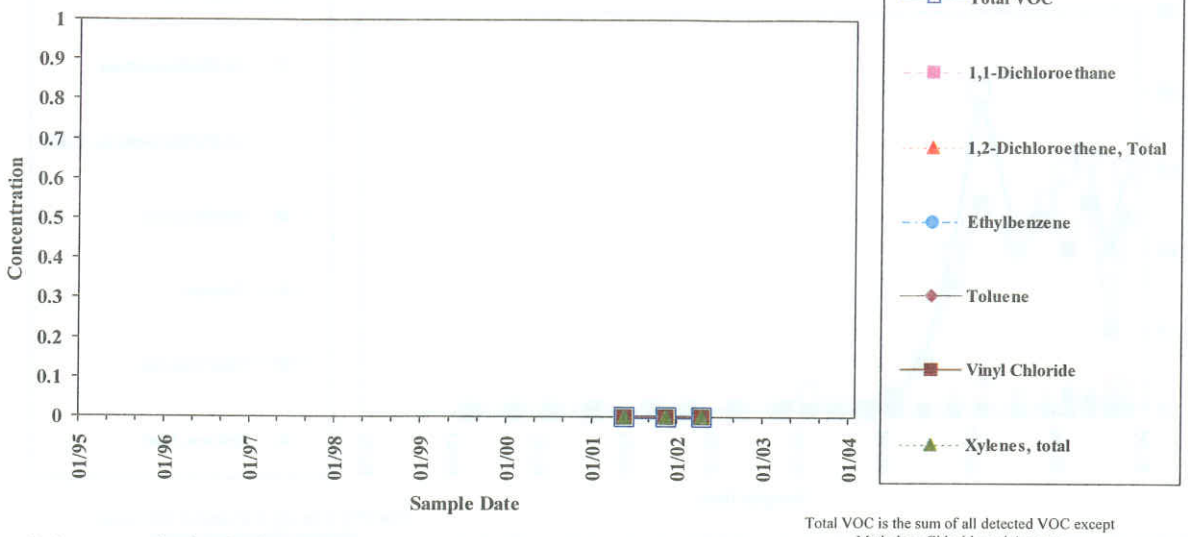
Sample Location:

MW-NASB-075

Mid-depth Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

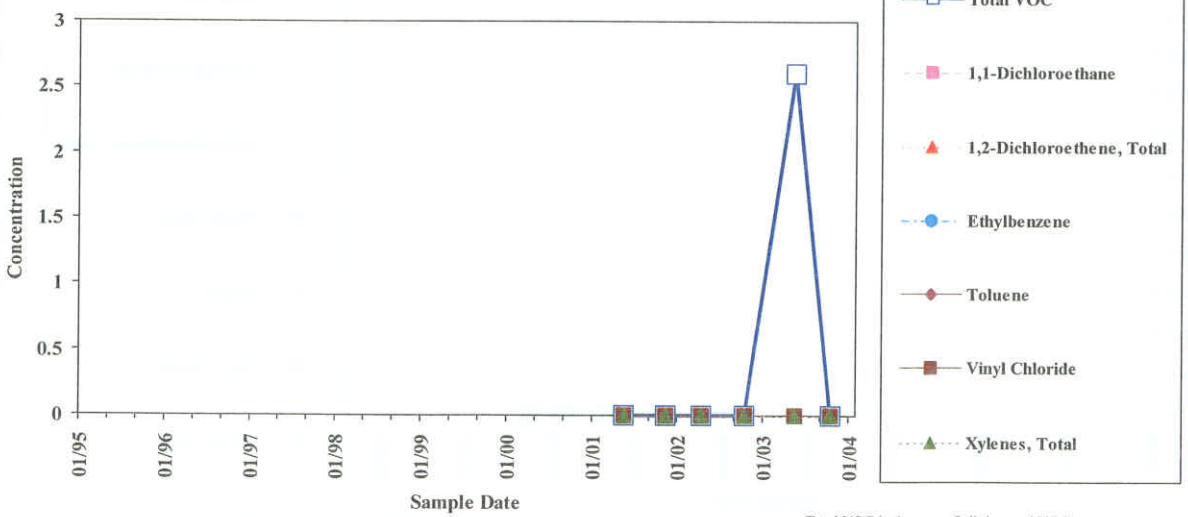
Sample Location:

MW-NASB-075

Deep Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

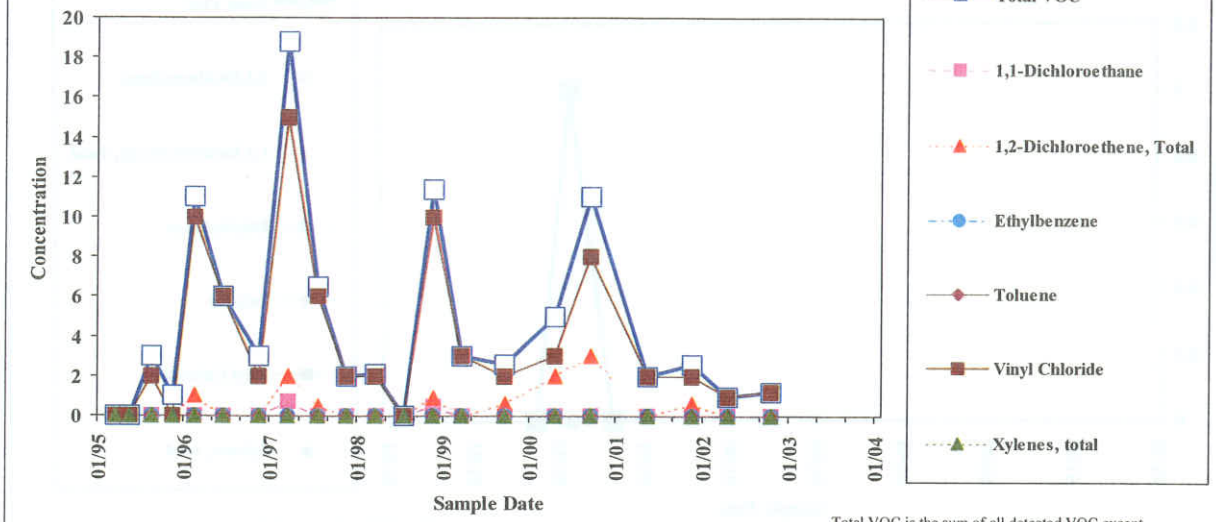
MW-NASB-076

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

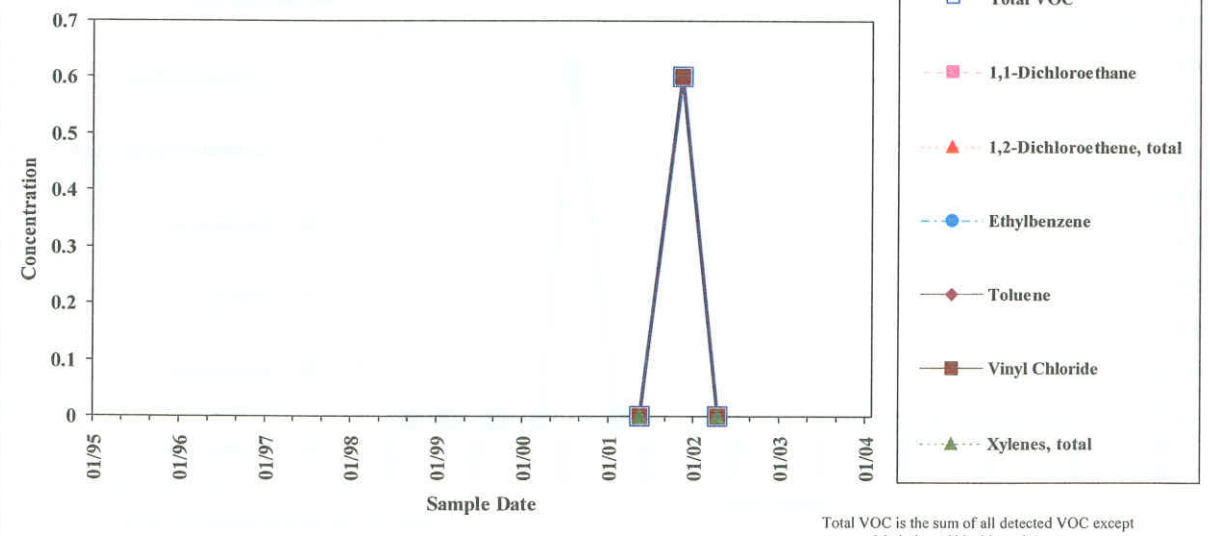
MW-NASB-076

Shallow Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

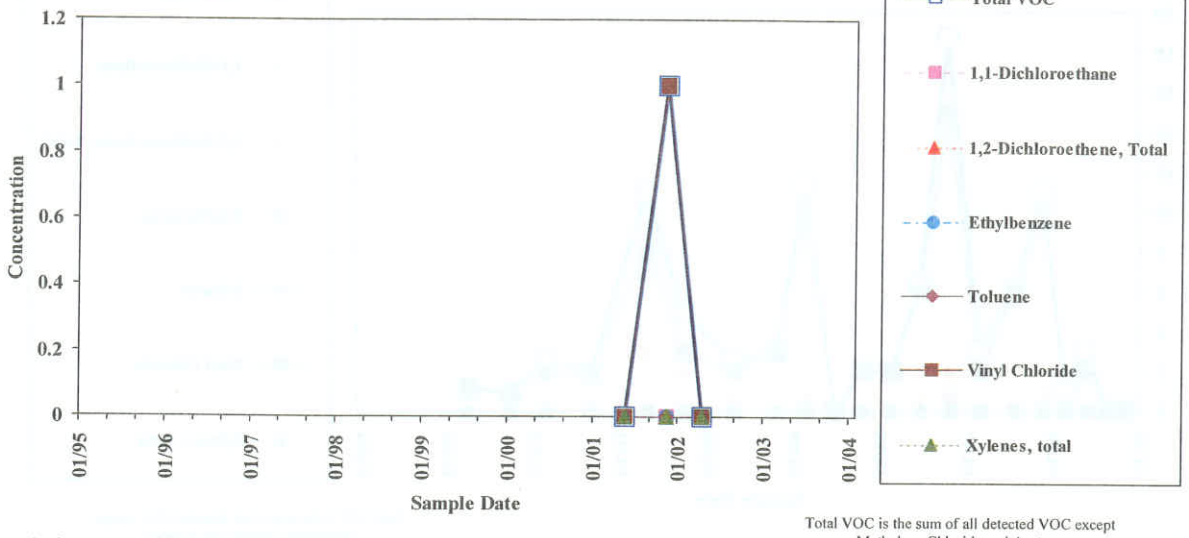
Sample Location:

MW-NASB-076

Mid-depth Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

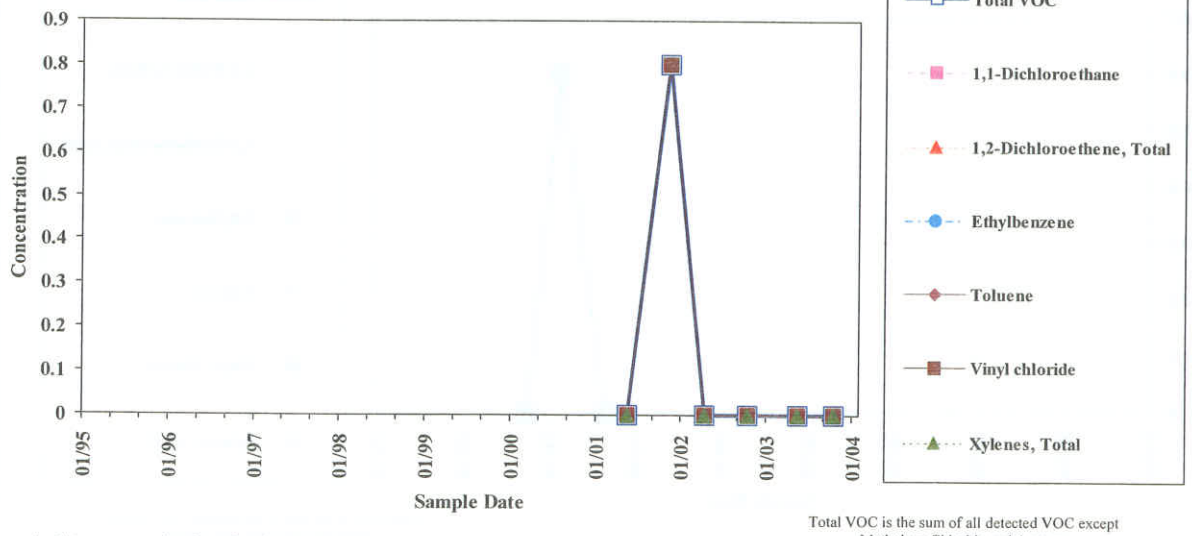
Sample Location:

MW-NASB-076

Deep Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

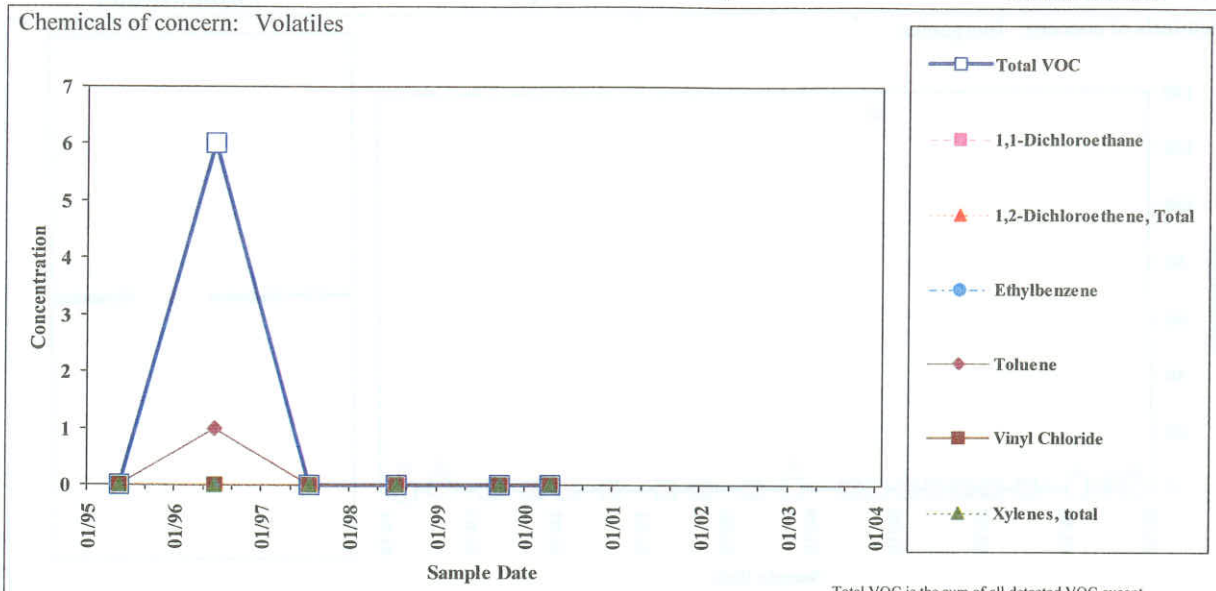
Sample Location:

MW-NASB-077

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

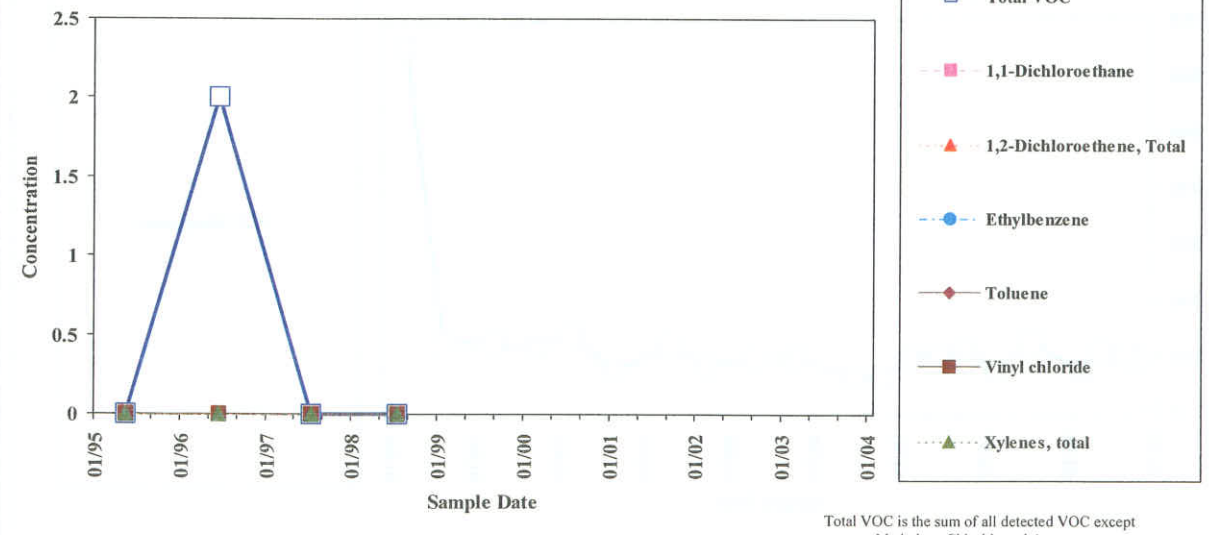
Sample Location:

MW-NASB-078

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

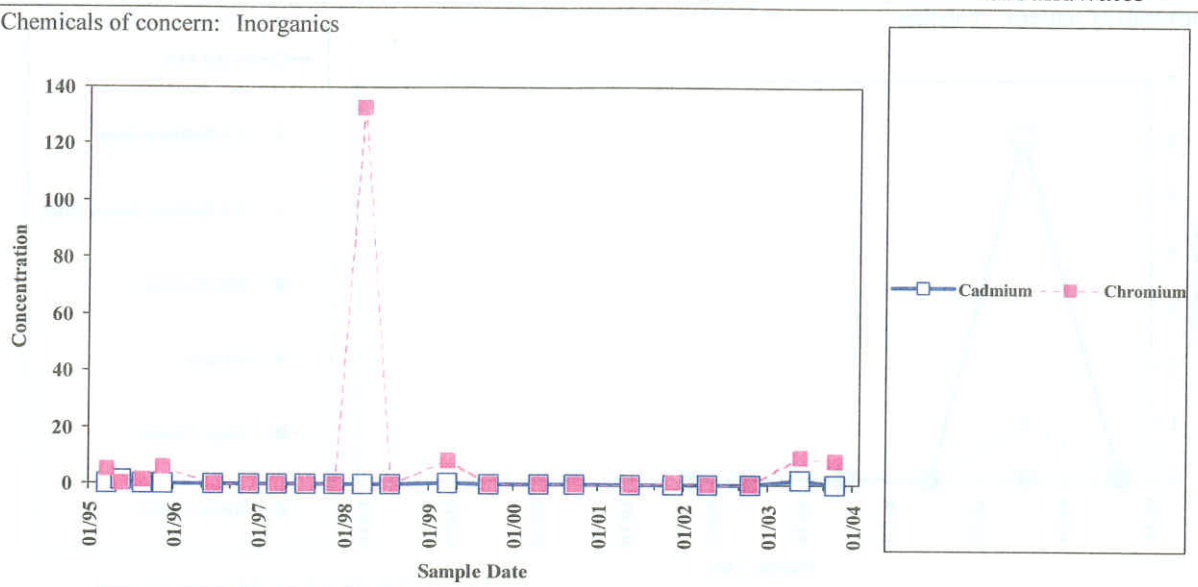
Sample Location:

MW-NASB-079

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

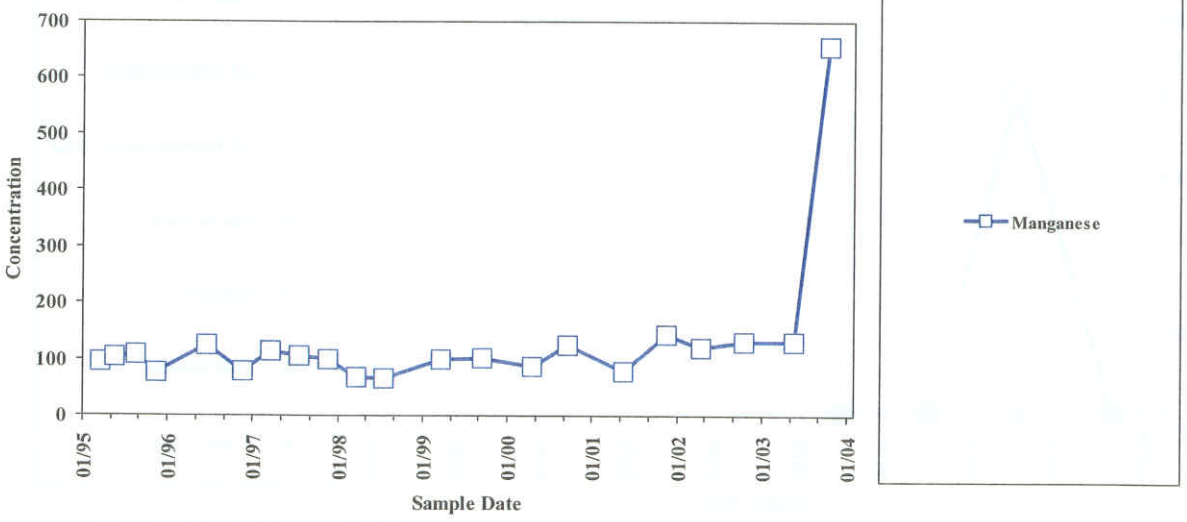
Sample Location:

MW-NASB-079

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

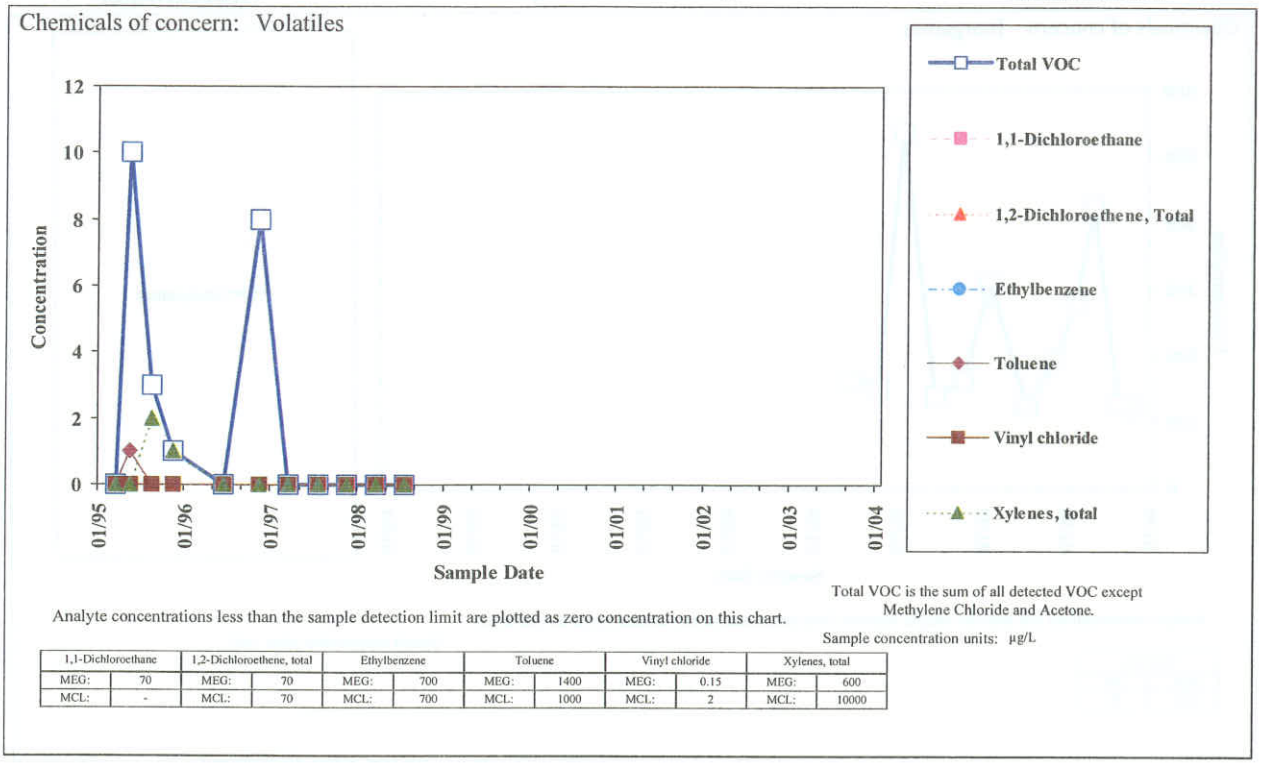
Sample Location:

MW-NASB-079

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

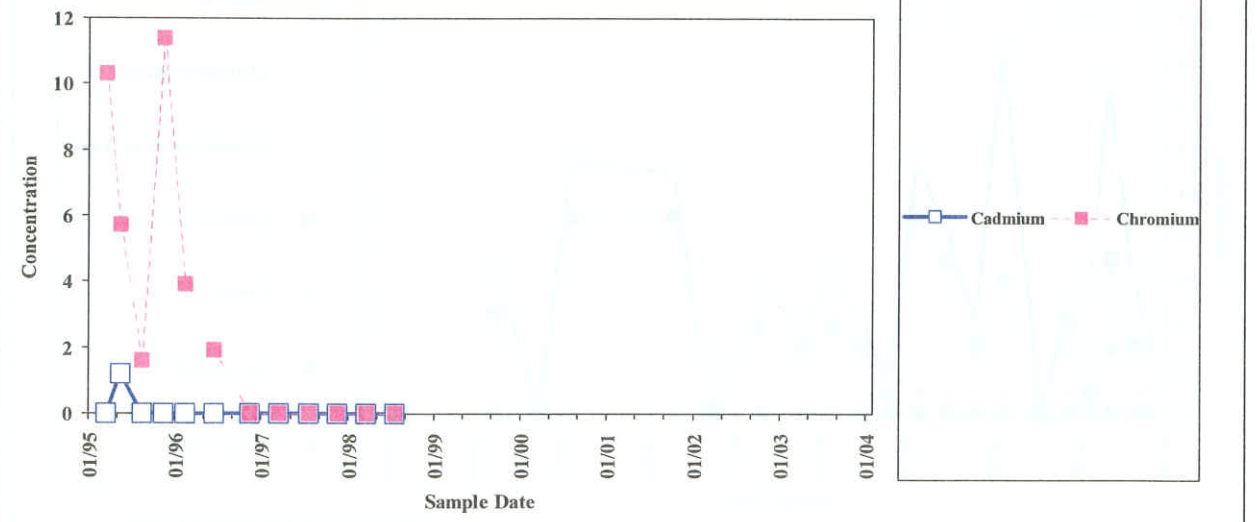
Sample Location:

MW-NASB-080

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

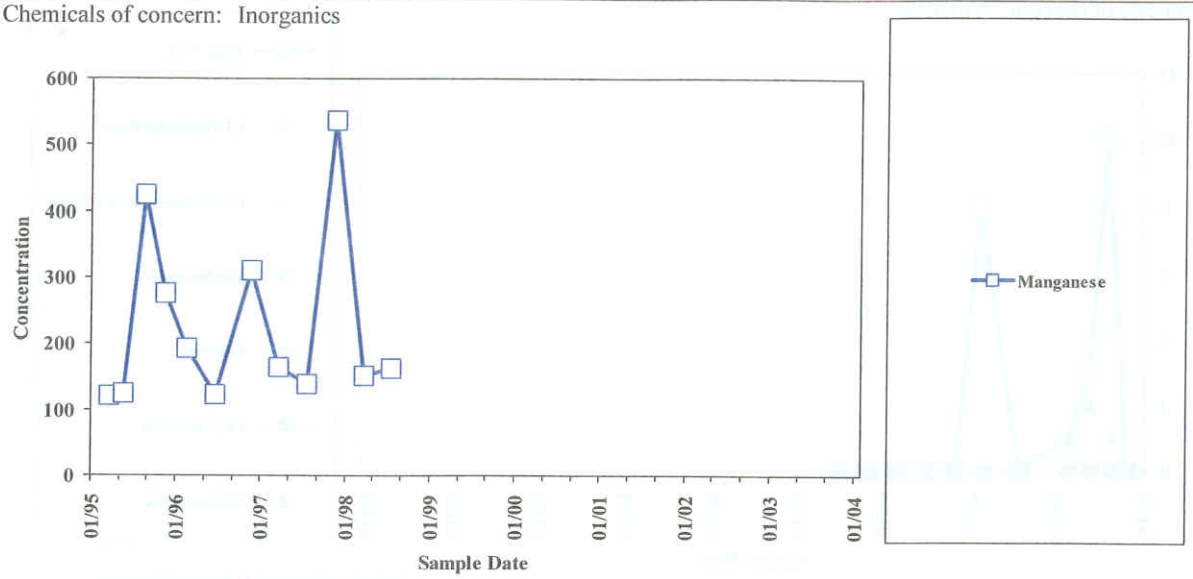
Sample Location:

MW-NASB-080

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

Figure 51 of 77

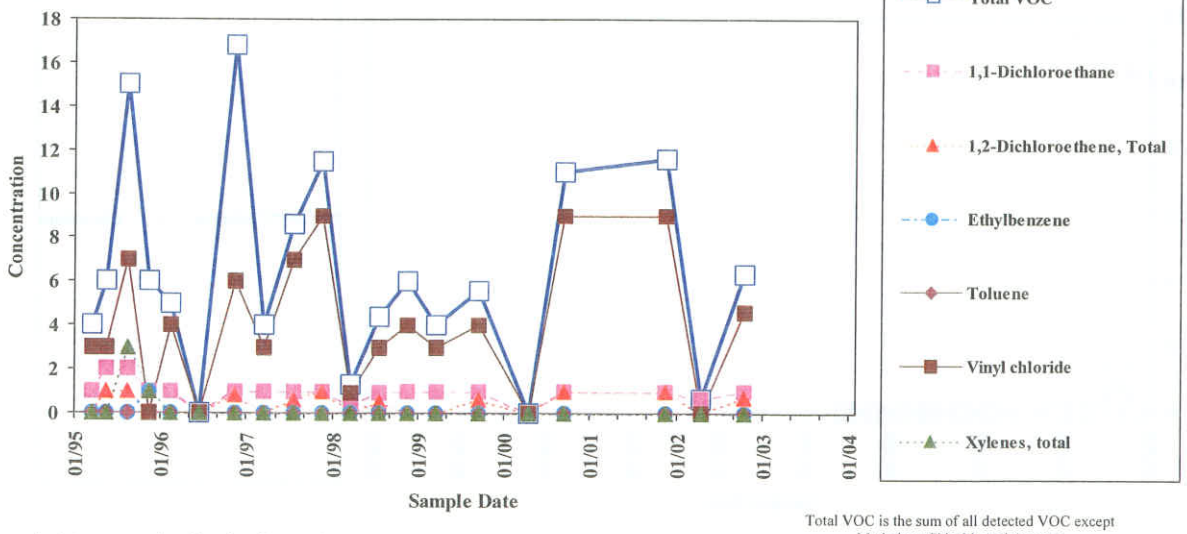
Sample Location:

MW-NASB-080

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 52 of 77

Sample Location:

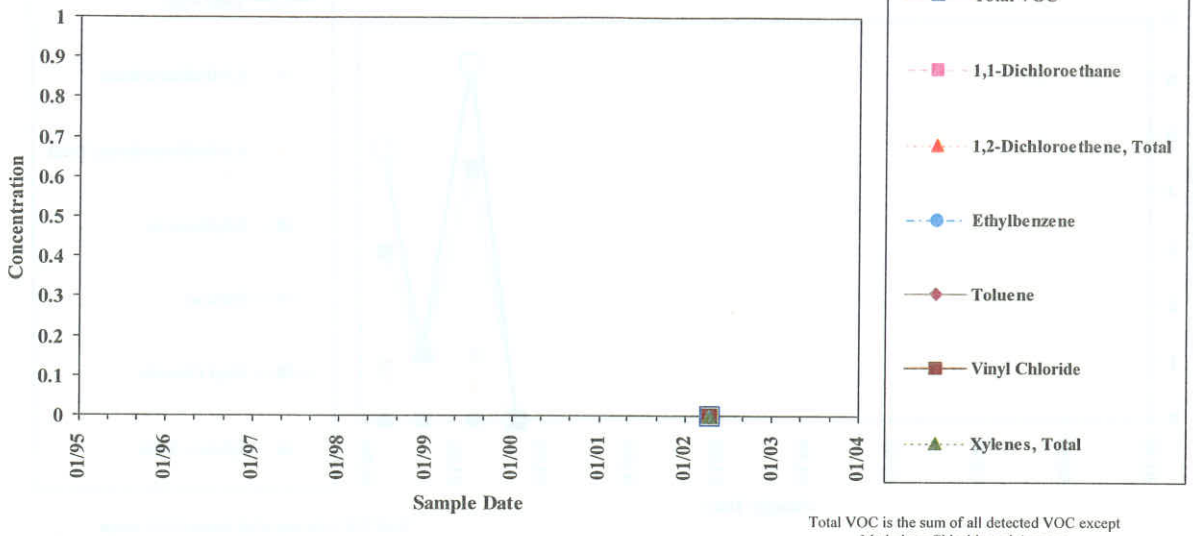
MW-NASB-080

Shallow Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

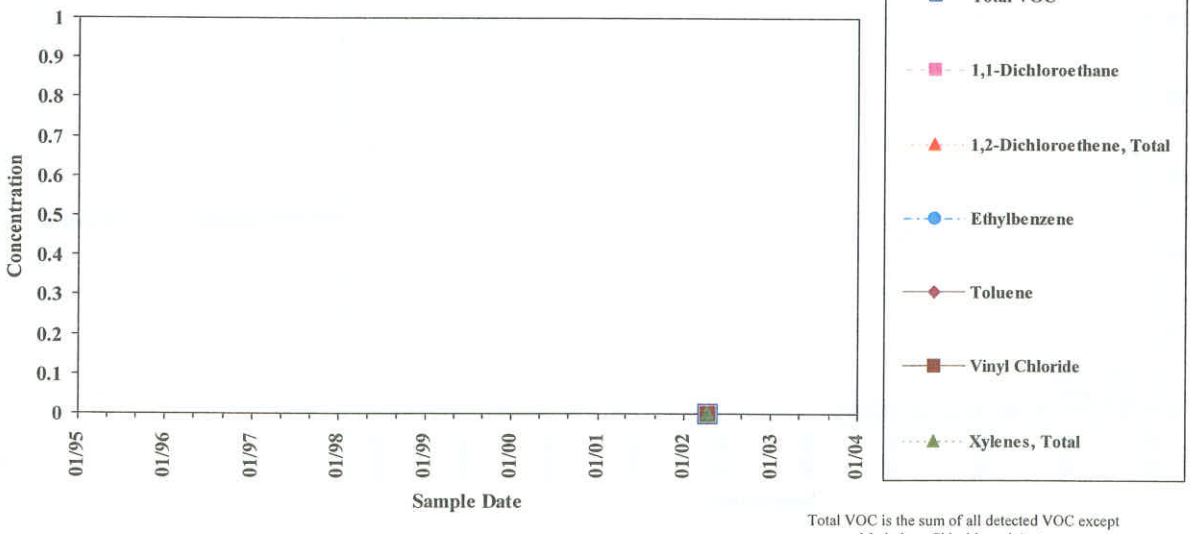
MW-NASB-080

Mid-depth Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

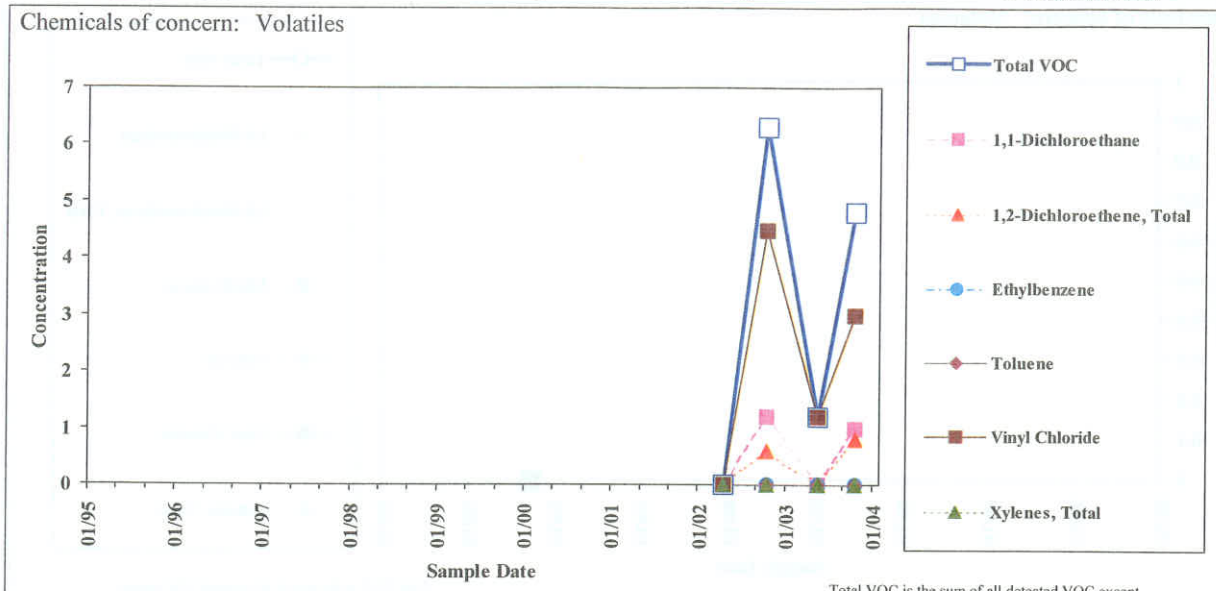
Sample Location:

MW-NASB-080

Deep Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

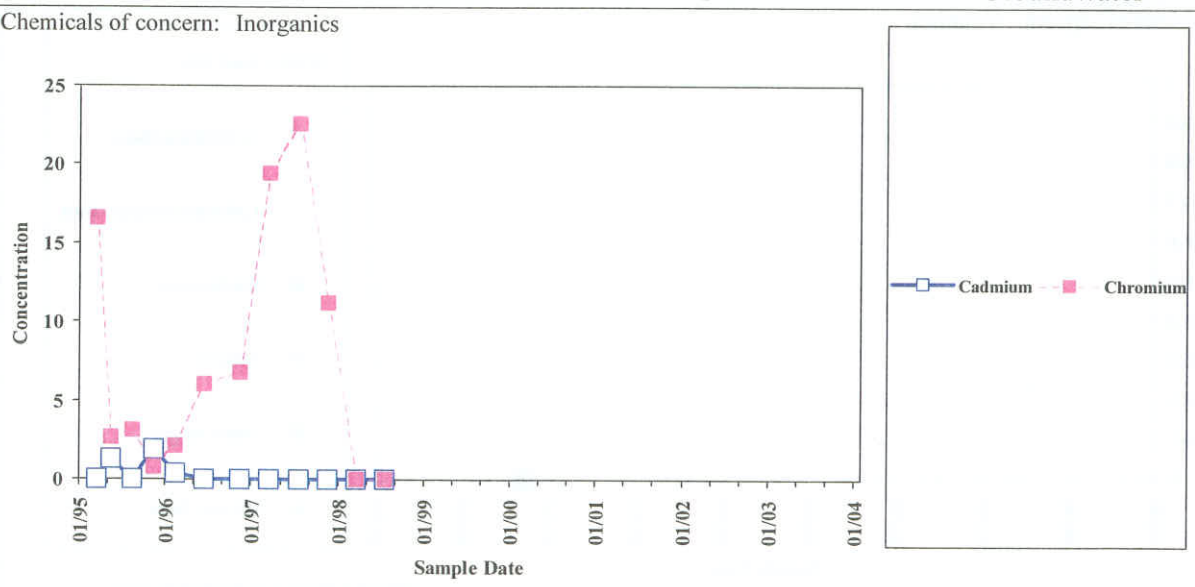
Sample Location:

MW-NASB-081

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Cadmium		Chromium	
MEG:	5	MEG:	100
MCL:	5	MCL:	100

Sample Location:

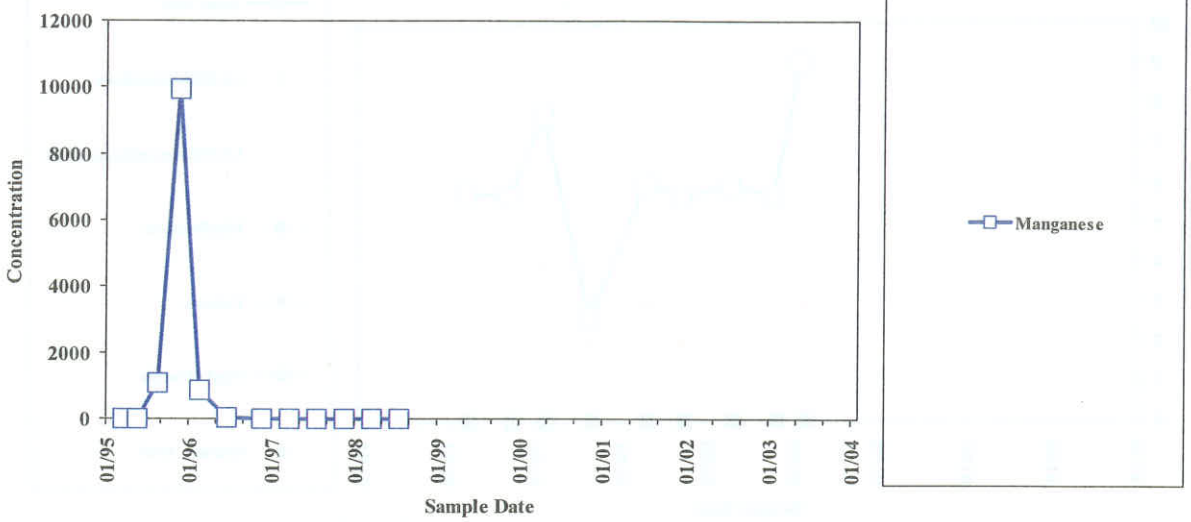
MW-NASB-081

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

Manganese	
MEG:	200
MCL:	50

Figure 57 of 77

Sample Location:

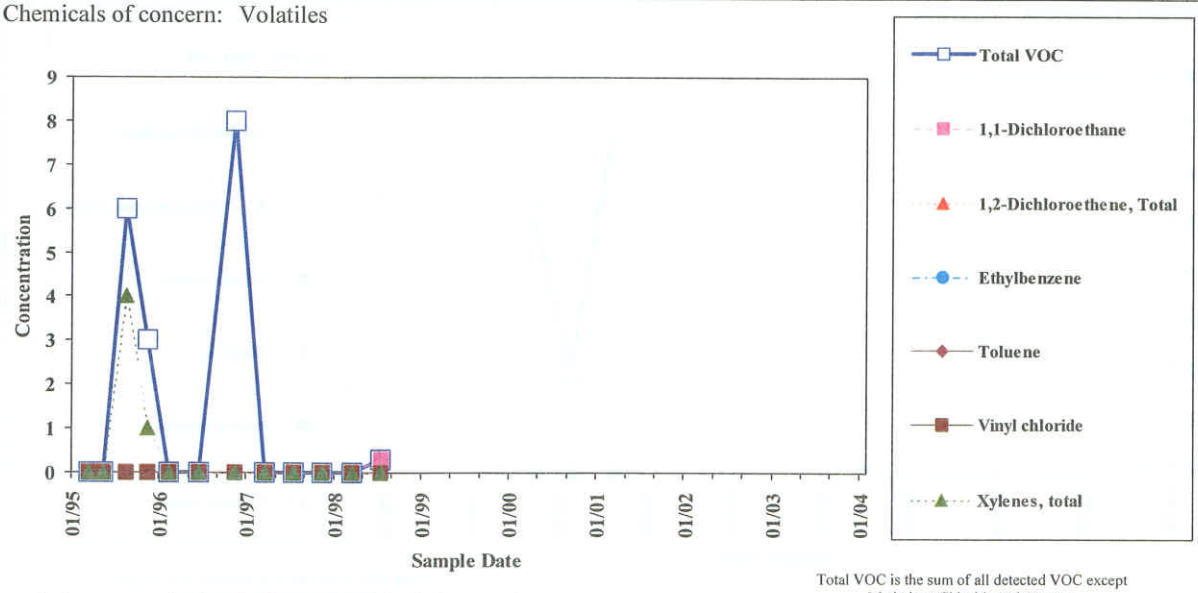
MW-NASB-081

Low-flow Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Figure 58 of 77

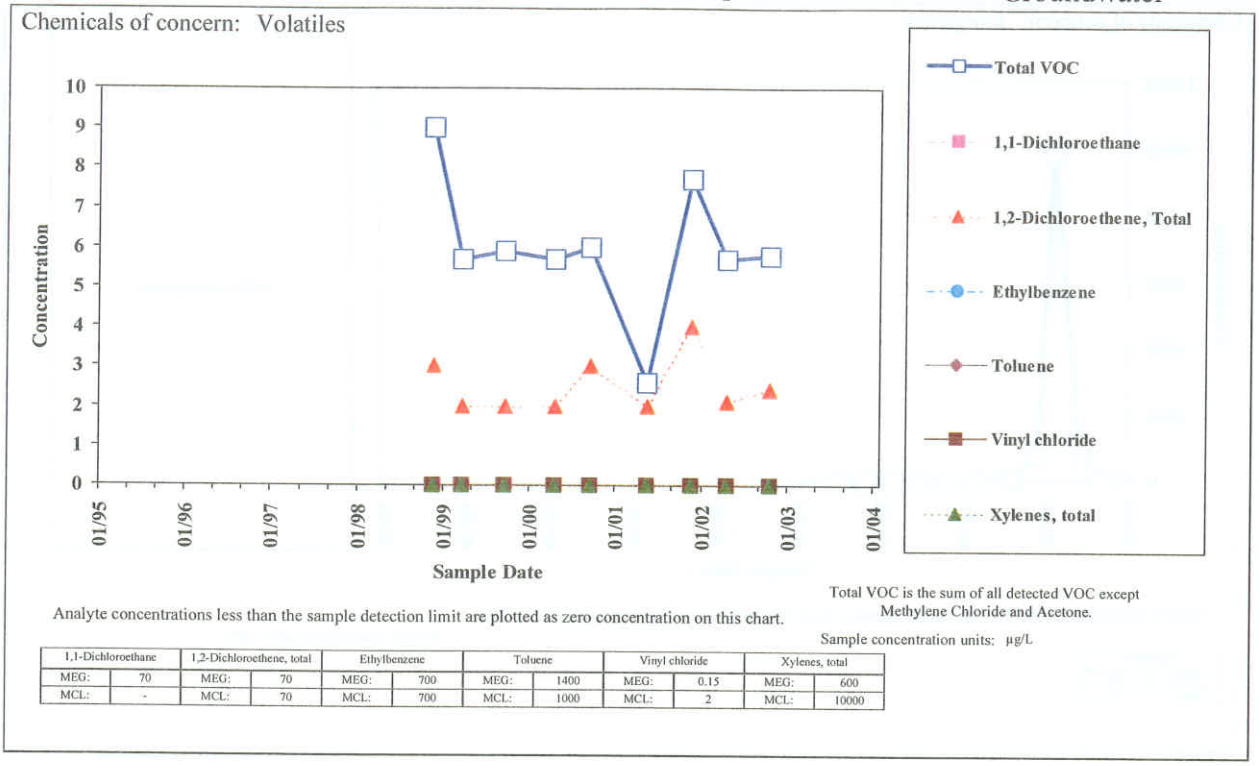
Sample Location:

MW-NASB-227

Low-flow Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

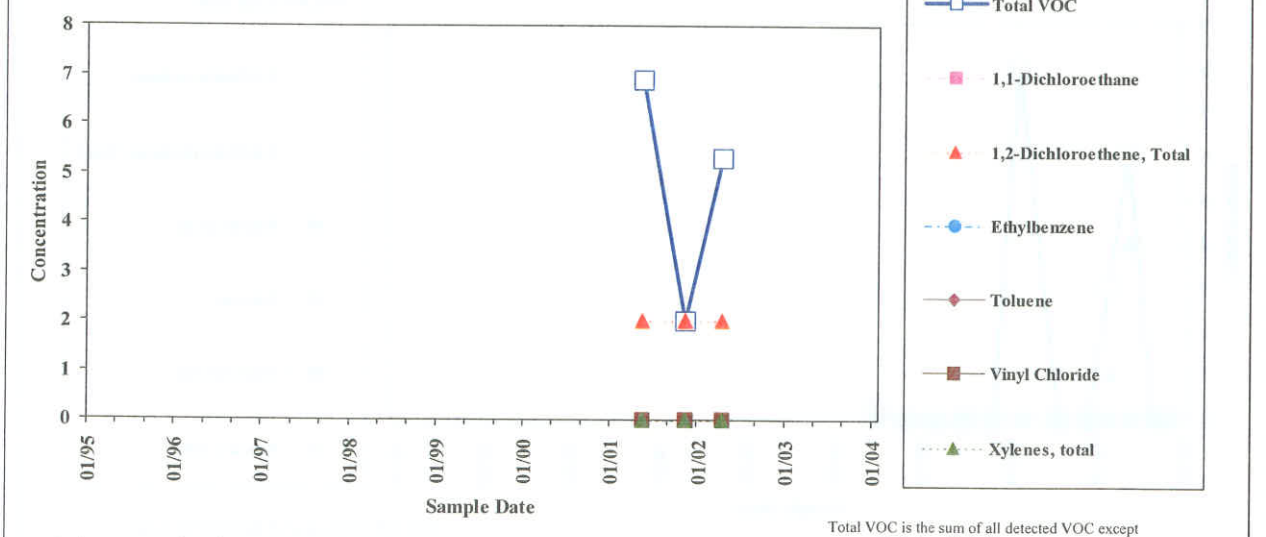
Sample Location:

MW-NASB-227

Shallow Diffusion Sample

Site 9
Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

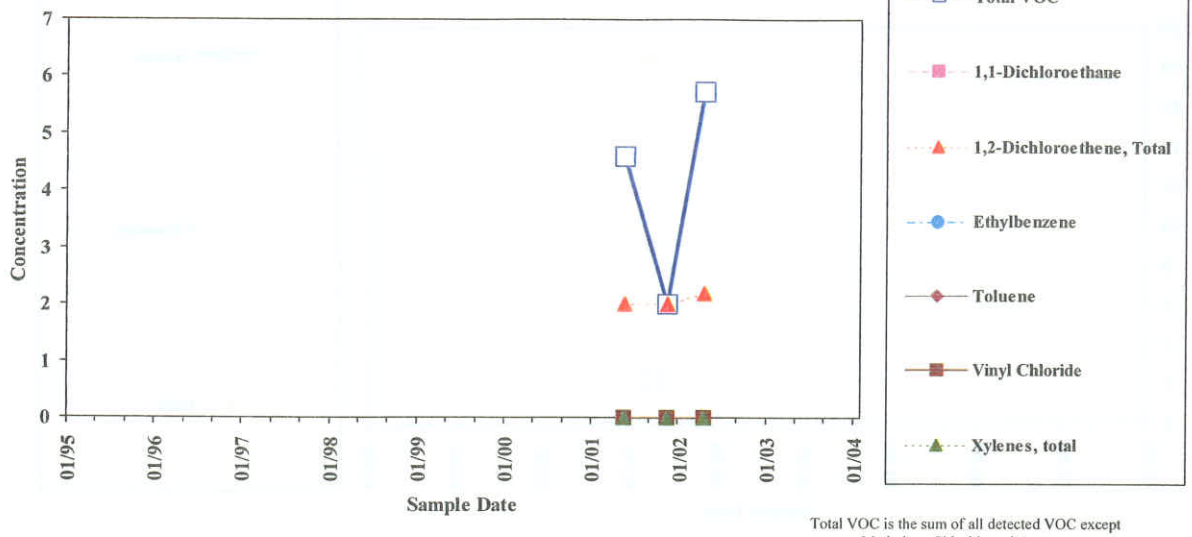
MW-NASB-227

Mid-depth Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

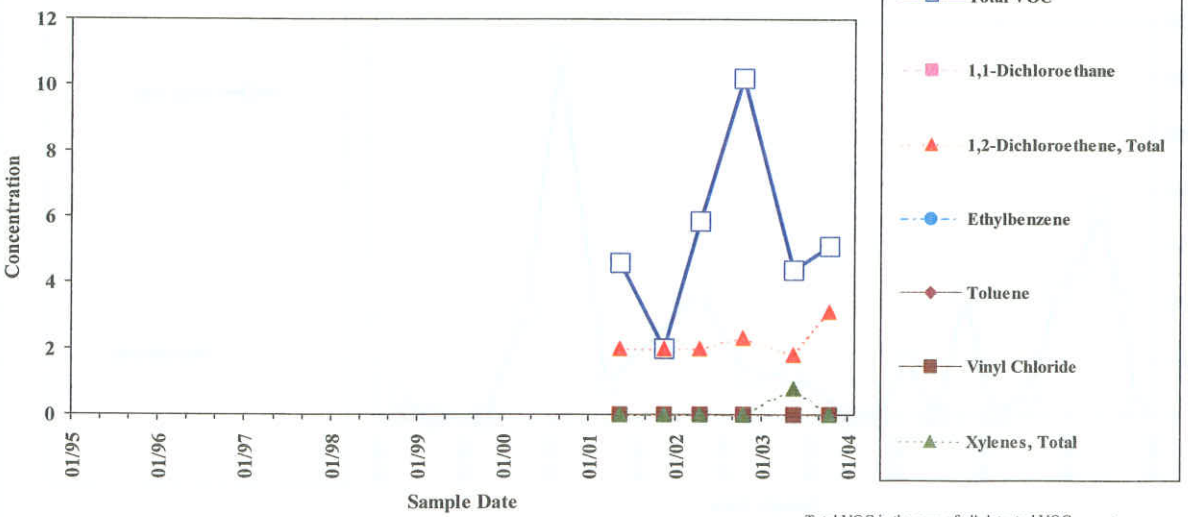
MW-NASB-227

Deep Diffusion Sample

Site 9

Groundwater

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

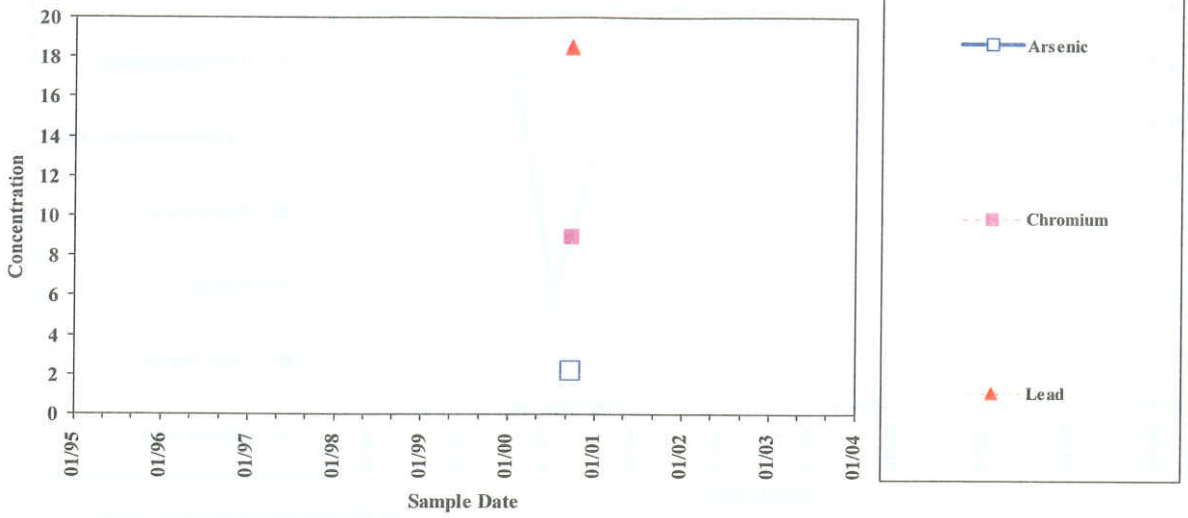
1,1-Dichloroethane		1,2-Dichloroethene, total		Ethylbenzene		Toluene		Vinyl chloride		Xylenes, total	
MEG:	70	MEG:	70	MEG:	700	MEG:	1400	MEG:	0.15	MEG:	600
MCL:	-	MCL:	70	MCL:	700	MCL:	1000	MCL:	2	MCL:	10000

Sample Location:

SED-10

Site 9
Sediment

Chemicals of concern: Inorganics



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Sample concentration units: mg/Kg

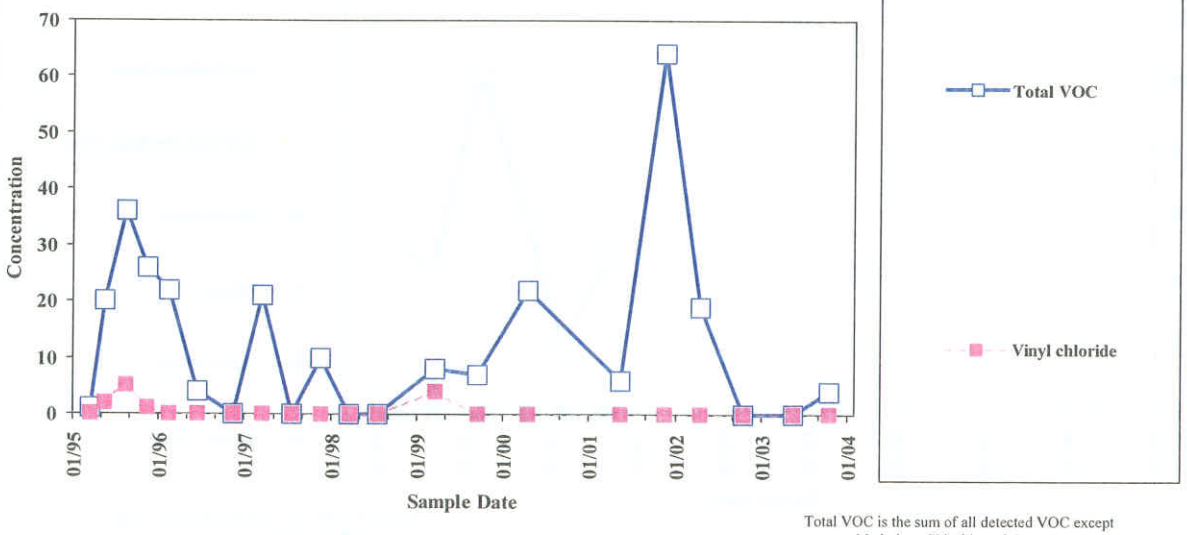
Figure 63 of 77

Sample Location:

SED-10

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/Kg

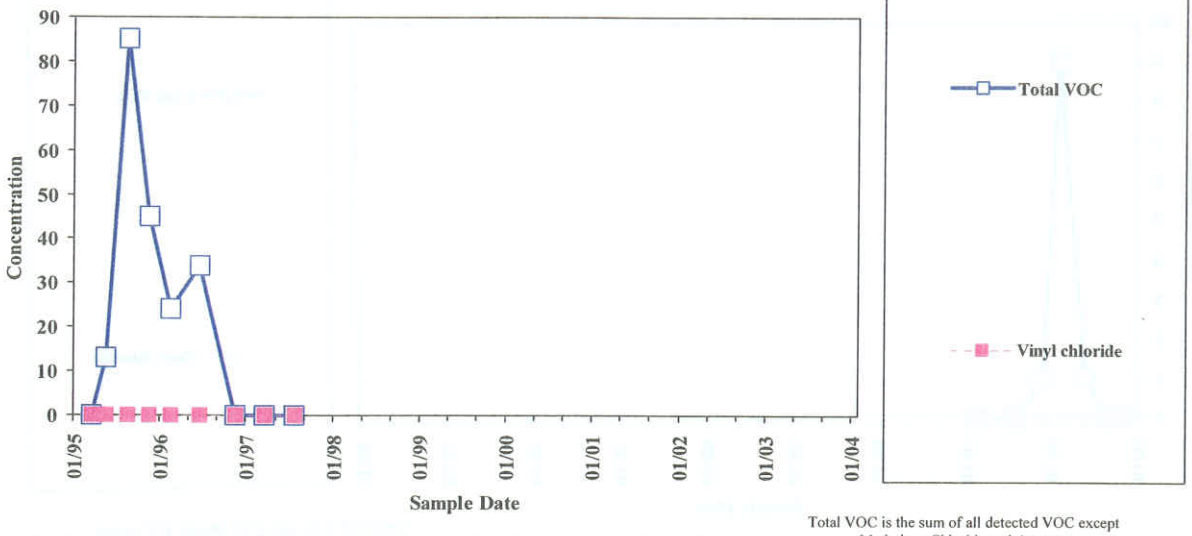
Figure 64 of 77

Sample Location:

SED-11

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/Kg

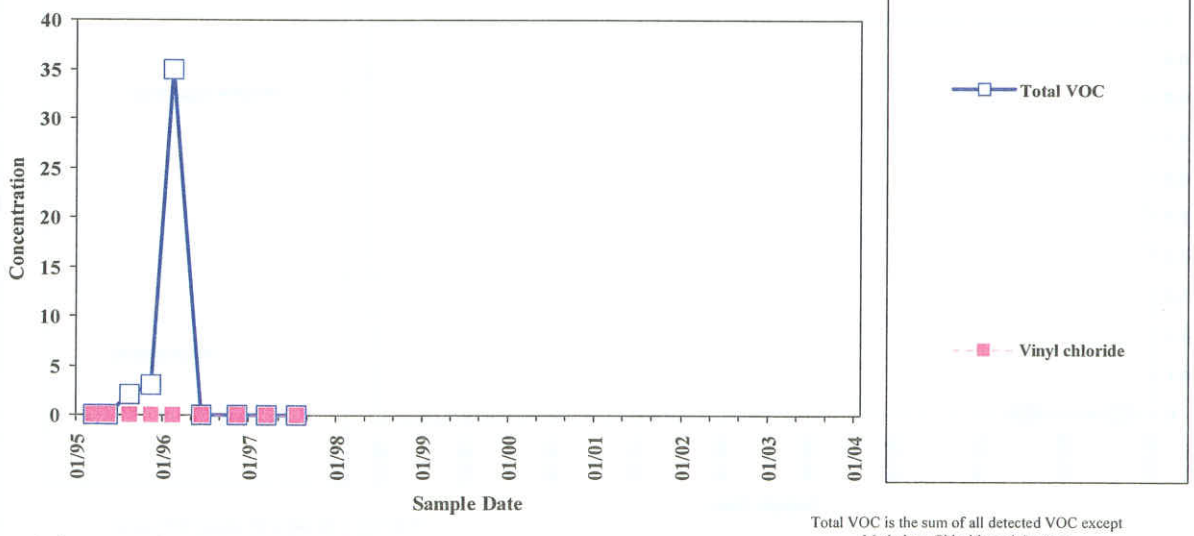
Figure 65 of 77

Sample Location:

SED-12

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/Kg

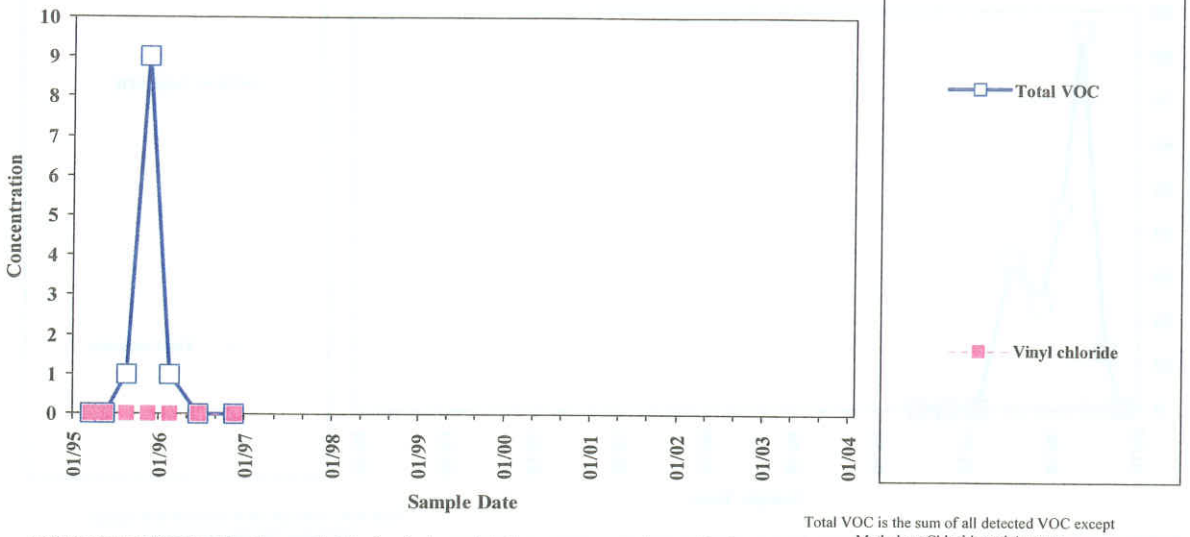
Figure 66 of 77

Sample Location:

SED-915

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

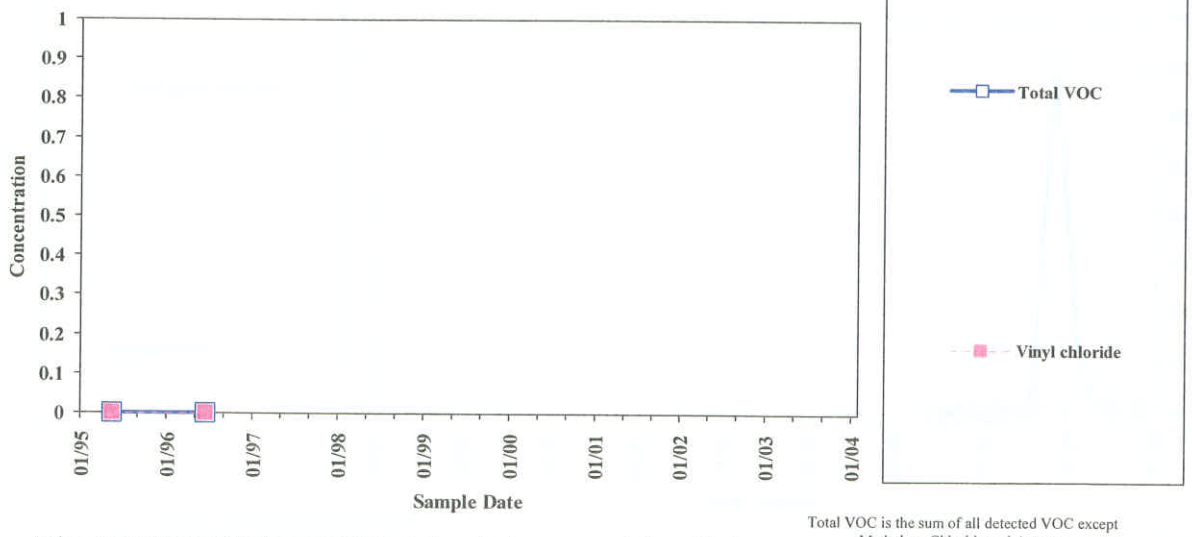
Sample concentration units: µg/Kg

Sample Location:

SED-916

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

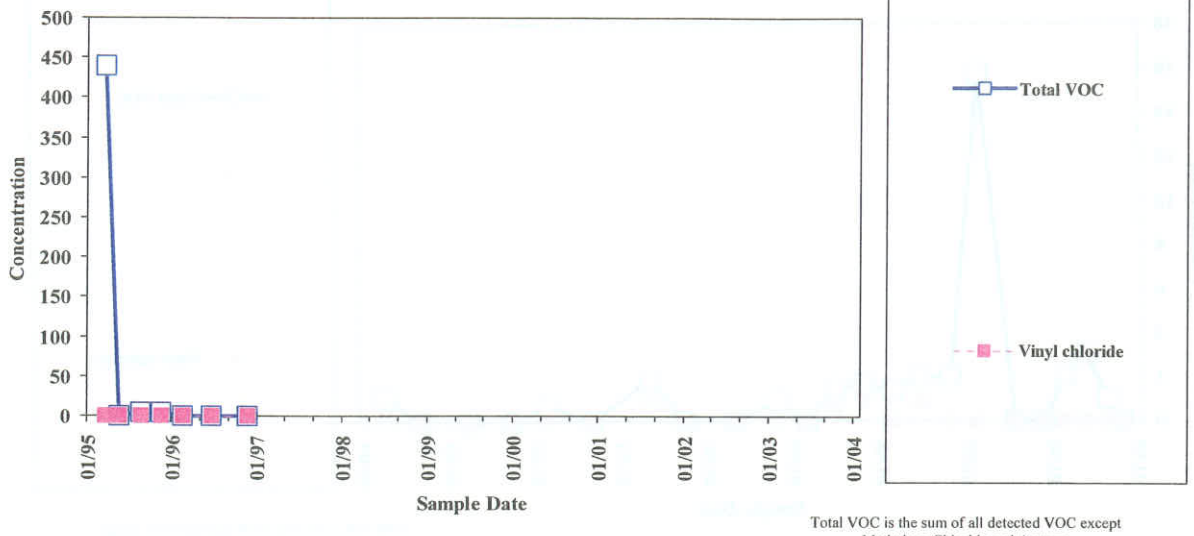
Sample concentration units: µg/Kg

Sample Location:

SED-919

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

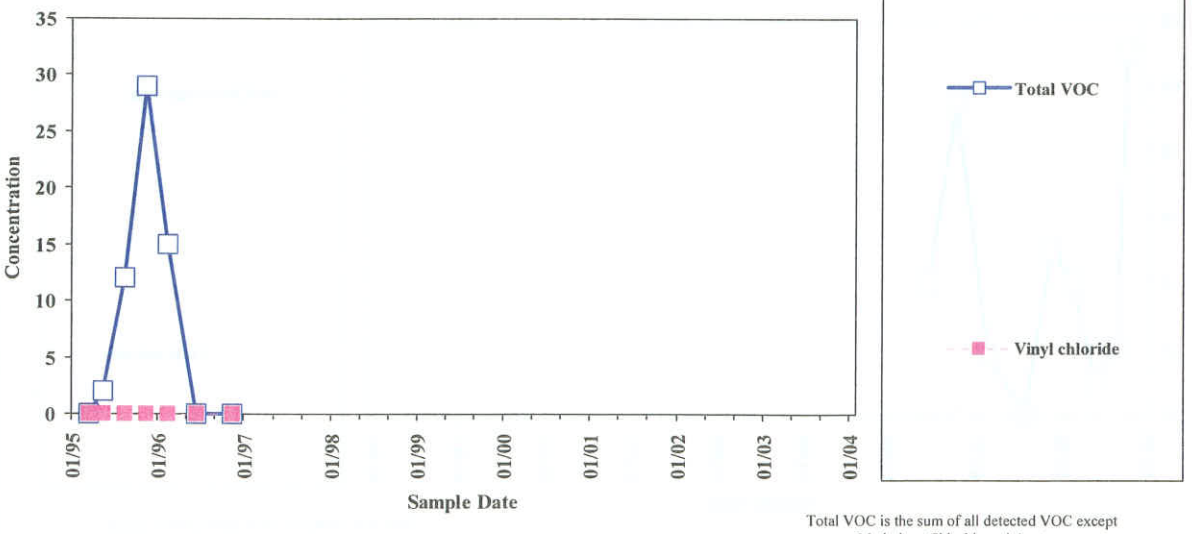
Sample concentration units: µg/Kg

Sample Location:

SED-922

Site 9
Sediment

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

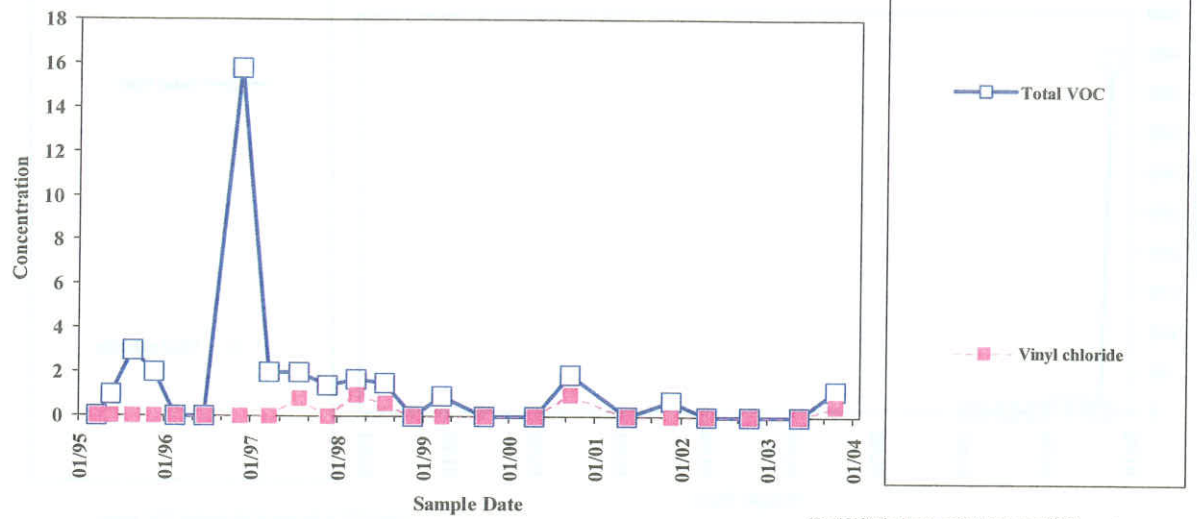
Sample concentration units: µg/Kg

Sample Location:

SW-010

Site 9
Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

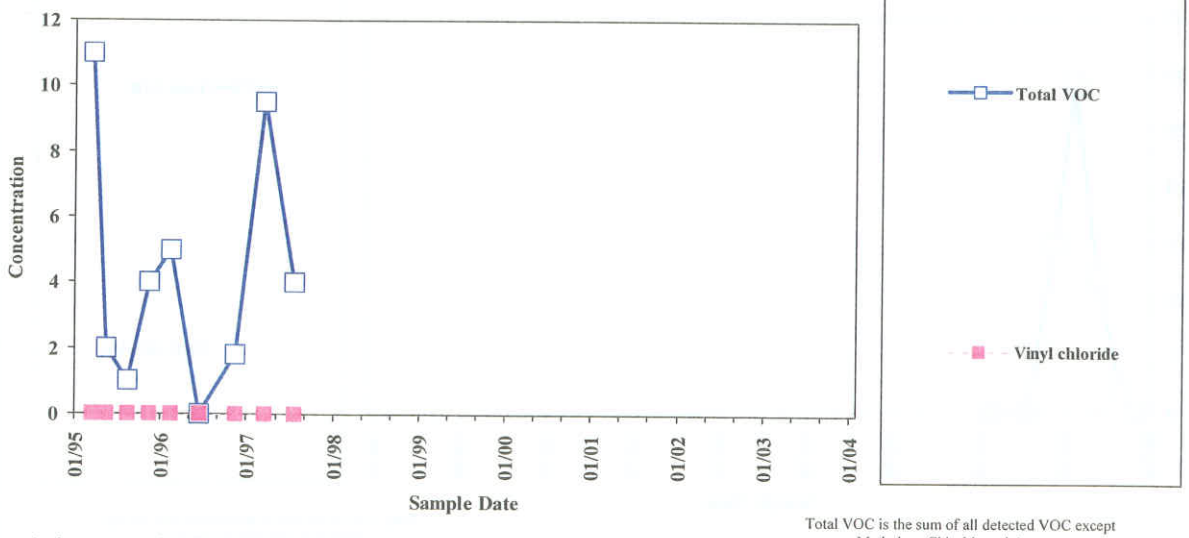
Sample concentration units: µg/L

Sample Location:

SW-011

Site 9
Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

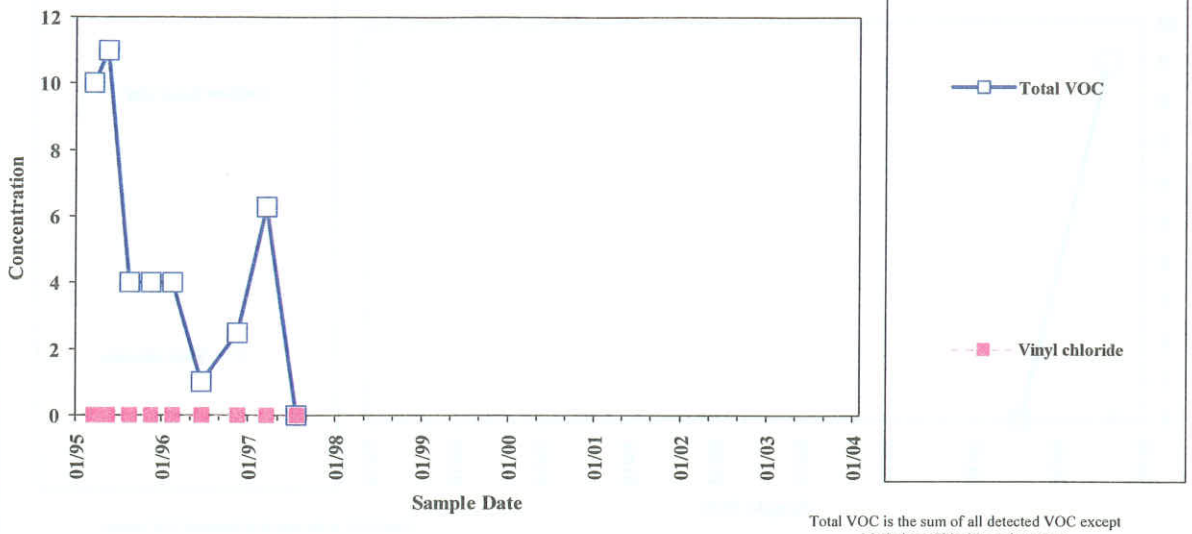
Sample Location:

SW-012

Site 9

Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

Figure 73 of 77

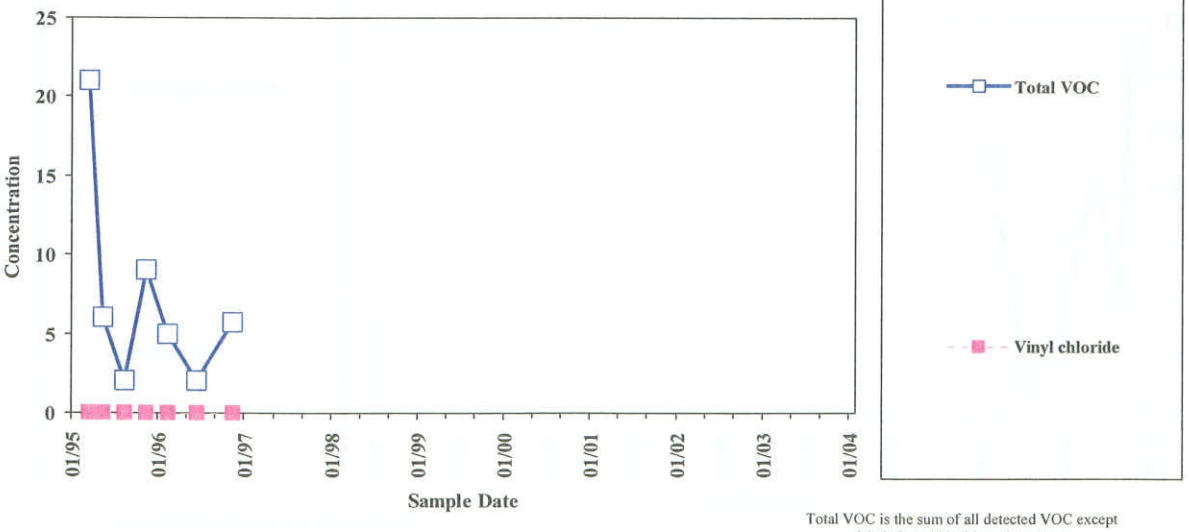
Sample Location:

SW-915

Site 9

Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

Figure 74 of 77

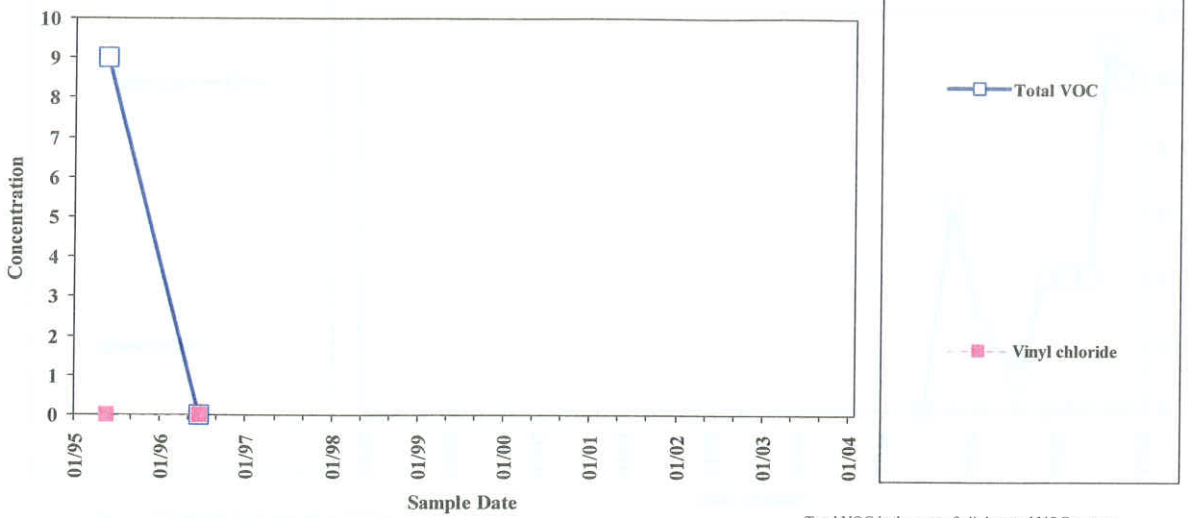
Sample Location:

SW-916

Site 9

Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

Figure 75 of 77

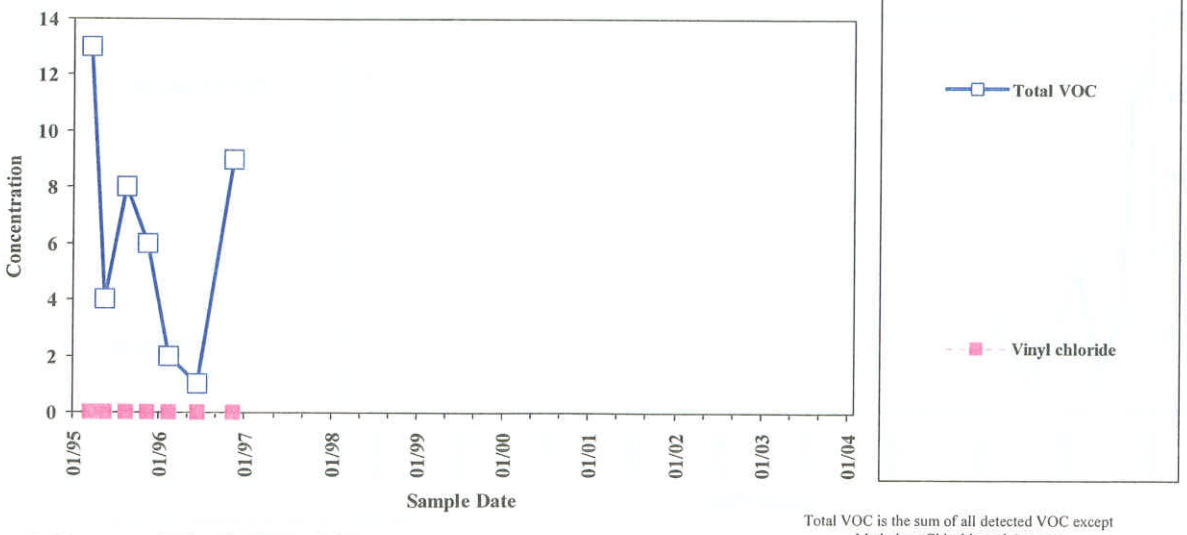
Sample Location:

SW-919

Site 9

Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

Figure 76 of 77

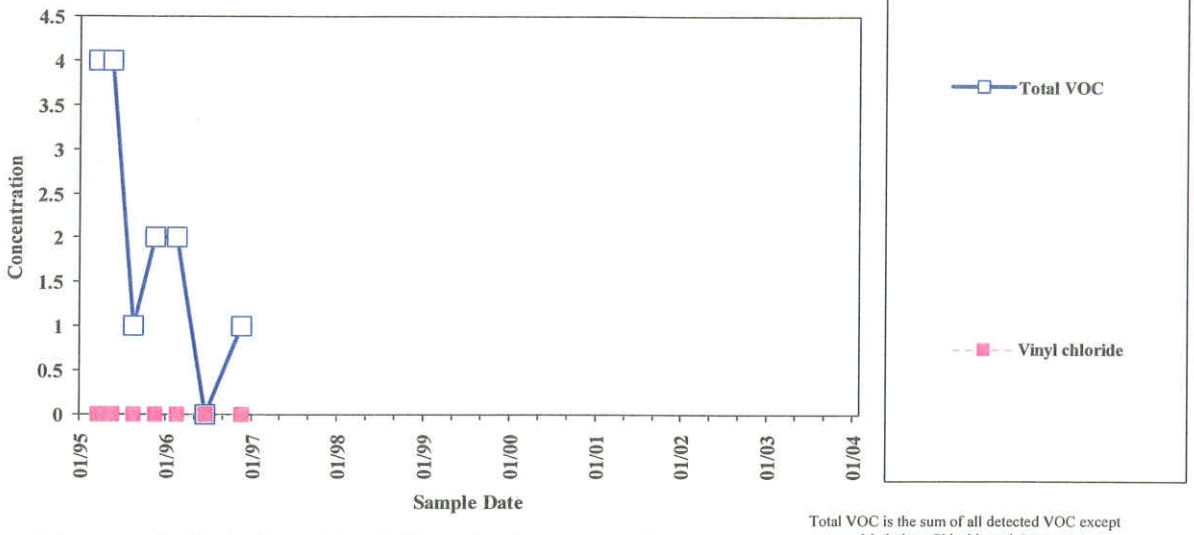
Sample Location:

SW-922

Site 9

Surface Water

Chemicals of concern: Volatiles



Analyte concentrations less than the sample detection limit are plotted as zero concentration on this chart.

Total VOC is the sum of all detected VOC except Methylene Chloride and Acetone.

Sample concentration units: µg/L

Appendix D

Analytical Data Quality Review

D.1 Method Detection Limits for Sediment and Aqueous Samples

APPENDIX D – CONTENTS

APPENDIX D
ANALYTICAL DATA QUALITY REVIEW

D.1 INTRODUCTION

This project utilized both field and analytical laboratory quality control measures to ensure that the data quality objectives presented in the base-wide Quality Assurance Project Plan (QAPP) (in progress) were met.

The sampling program consisted of 21 aqueous samples of groundwater, surface water, diffusion, and leachate seep (of which 5 were field duplicates), and 2 sediment samples (of which 1 was a field duplicate) collected from Site 9. Mitkem Corporation was provided with 1 sediment and 3 aqueous sample delivery groups (SDGs) that included 2 aqueous quality control samples (1 trip blank and 1 rinsate blank). Sample duplicates, rinsate blanks, and trip blanks were collected at the frequency required by the base-wide QAPP.

Analytical quality control was reviewed for compliance against data quality objectives for precision and accuracy for each sample and analysis type, including field quality control blanks (i.e., trip blanks) and field sample duplication. Analytical precision was based upon the mean relative percent difference (RPD) of the matrix spike/matrix spike duplicate (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 standards (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 LCS recoveries. MS/MSD and SMC recoveries measure the effect of the sample matrix on sample preparation and measurement methodology. During the MS/MSD process, 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. SMCs, 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.

Field completeness was quantified by comparing the number of samples specified in the final Long-Term Monitoring Plan (EA 1991) to the number of samples actually collected during Monitoring Event 23. Data completeness was quantified by reviewing the number of usable results to the number of results reported.

1. EA Engineering, Science, and Technology, Inc. 1999. Final Long-Term Monitoring Plan, Site 9: Neptune Drive Disposal Site, Naval Air Station, Brunswick, Maine. August.

For clarity, the following definitions are given for use throughout this review:

- ***Instrument Detection Limit (IDL)***—Defined as the lowest concentration level that can be determined to be statistically different from instrument background noise (instrument blank).

- ***Method Detection Limit***—Refers to 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 limits for sediment and aqueous media are summarized in Appendix D.1.

- ***Contract Required Detection Limit/Contract Required Quantitation Limit (CRDL/CRQL)***—Refers to the 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 IDL 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.

D.1.1 Precision

Precision is evaluated by comparing the RPD of the MS/MSD sample pairs to the laboratory-established RPD control limits. If the RPD is outside the quality control acceptance criteria, the positive detect or non-detect is estimated for the affected compound in the unspiked sample (U.S. EPA 1996)[2].

D.1.2 Accuracy

Accuracy is evaluated by comparing MS/MSD recoveries, surrogate spike recoveries, and LCS recoveries to laboratory-established control limits.

2. U.S. Environmental Protection Agency (U.S. EPA)–New England. 1996. Data Validation Functional Guidelines for Evaluating Environmental Analyses. Revised December.

D.1.2.1 Evaluating Matrix Spike/Matrix Spike Duplicate Recoveries for Accuracy

Generally, no action is taken based on the MS/MSD data alone to qualify an entire SDG. The qualification is limited to the unspiked sample associated with the MS/MSD. However, professional judgment may be used to qualify samples across a particular SDG (i.e., all associated samples).

- If the spike recovery is greater than the upper control limit, then the positive detects are estimated and the non-detects are not affected for the affected compounds in the unspiked sample.

- If the spike recovery is greater than or equal to 10 percent but less than the lower control limit, then the positive detects are estimated and the non-detects are estimated for the affected compounds in the unspiked sample.

- If the spike recovery is less than 10 percent, then the positive detects are estimated and the non-detects are rejected for the affected compounds in the unspiked sample.

D.1.2.2 Evaluating Surrogate Recoveries for Accuracy

- If the surrogate recovery is greater than the upper limit, the positive detects are estimated and the non-detects are not affected (U.S. EPA 1996).

- If the surrogate recovery is greater than or equal to 10 percent but less than the lower control limit, then the positive detects are estimated and the non-detects are estimated.

- If the surrogate recovery is less than 10 percent, then the positive detects are estimated and the non-detects are rejected.

  NOTE: If a sample has more than one surrogate recovery out of the control limits and the laboratory fails to re-analyze the sample which is outside the control limits, then the sample data should be qualified according to the above-mentioned guidelines for surrogate recoveries. If the sample was re-analyzed and the same surrogate recovery problems exist, this confirms that the non-compliance was due to sample matrix effects rather than poor laboratory performance and no qualification is needed for the sample.

D.1.2.3 Evaluating Laboratory Control Sample Recoveries for Accuracy

- If the LCS recovery is greater than the upper control limit, the positive detects are estimated and the non-detects are not affected (U.S. EPA 1996).

- If the LCS recovery is greater than or equal to 10 percent, but less than the lower control limit, the positive detects are estimated and the non-detects are estimated.

- If the LCS recovery is less than 10 percent, the positive detects are estimated and the non-detects are rejected.

The following table summarizes the findings for the data quality review performed and presented in detail in this appendix:

Data Quality Review		Holding Time	Field Method Blank[a] Cont.	Precision		Accuracy			Completeness	
				Laboratory	Field	SMC	MS/MSD	LCS	Analytical	Field
Aqueous Matrix	VOC	✓	✓B	✓	✓J	✓	✓J	✓	100%✓	100%✓
	Metals	✓	✓	✓	✓	NA	✓	✓	100%✓	100%✓
	SVOC	✓	✓	✓	✓	✓	✓	✓	100%✓	100%✓
Sediment Matrix	VOC	✓	✓	✓	✓J	✓	✓J	✓	100%✓	100%✓

(a) Field, source, trip, and rinsate blanks.

NOTE: VOC = Volatile organic compound.
✓ = The data are usable as reported based on the data quality review of this quality measurement.
✓B = The data have been affected by field blank/laboratory contamination; false-positives may exist.
✓J = The data are usable, however, some analyte concentrations should be considered estimates of the true concentrations.
NA = The quality measurement does not apply to this matrix or analytical methodology.
SVOC = Semivolatile organic compound.

All volatile organic compound (VOCs), metal, and semivolatile organic compound (SVOCs) data for Site 9 are usable as reported based on the accuracy and precision review provided herein. Minor sample biases are identified and a detailed description of field/laboratory blank contamination (Section D.6), precision issues (Section D.7), and accuracy issues (Section D.4) are provided below.

D.1.3 Field Sampling Program Quality Control

Field sampling quality control was acceptable and conducted according to the base-wide QAPP (in progress). Field duplicate samples were collected for each matrix (i.e., sediment, groundwater, and leachate seep) 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 assessed by trip blanks which were shipped with each sample cooler containing aqueous samples. The trip blanks were analyzed for VOCs by EPA SW-846 Method 8260B (gas chromatograph/mass spectrometry). To document the effectiveness of decontamination protocols, rinsate blank samples were collected by running de-ionized water through decontaminated sampling equipment and into the appropriate sample containers, and analyzing for the same parameters as the samples.

D.1.4 Laboratory Analytical Quality Control Program

The precision and accuracy objectives and reporting requirements identified in the Long-Term Monitoring Plan were met. Groundwater, diffusion, surface water, and leachate seep samples were collected for analysis of Target Compound List VOCs by EPA Method 8260B (gas chromatograph/mass spectrometry), and 4 groundwater samples (including 1 duplicate sample)

were also analyzed for both Target Analyte List elements by EPA Methods 6010B and 7000 series and Target Compound List SVOCs by EPA Method 8270C. Sediment samples were collected for analysis of Target Compound List VOCs by EPA Method 8260B.

D.2 SAMPLE HOLDING TIMES

The holding times were met for all method and sample matrixes. Holding times (from date of sample collection to date of sample preparation/analysis) were compared against the maximum holding times identified in the quality control requirements of the referenced analytical methods.

D.3 PRECISION

D.3.1 Volatile Organic Compounds

Five VOCs were used to quantify the MS/MSD RPDs. The control limits identified in the QAPP were used to evaluate the data. The MS/MSD analyses were performed on 4 samples (SW-010, MW-NASB-069 [deep], MW-NASB-069, LT-901, and SD-010). The surface water, leachate seep, diffusion, and monitoring well sample MS/MSD RPDs were within the established control limits, therefore, analytical precision was determined to be acceptable and the usability of the data are unaffected.

The monitoring well sample MS/MSD RPDs were within the established control limits in sample MW-NASB-069 with the exception of methylene chloride (23 percent). The data user should note that the result for methylene chloride in sample MW-NASB-069 was considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

D.3.2 Target Analyte List Metals

The diffusion laboratory duplicate precision measurements were within the laboratory control limits, therefore, the diffusion metals data are considered usable based on the review of analytical precision. All 23 analytes were used to quantify the laboratory duplicate RPD. The control limits identified in the QAPP were used to evaluate the sediment duplicate RPD for Target Analyte List metals. The laboratory replicated the analyses of MW-NASB-069 and MW-NASB-079.

D.3.3 Semivolatile Organic Compounds

Eleven SVOCs were used to quantify the MS/MSD RPD. The aqueous control limits identified in the QAPP were used to qualify the MS/MSD RPD. The MS/MSD analysis was performed on sample MW-NASB-069.

D.4 ACCURACY

D.4.1 Volatile Organic Compounds

The surface water, leachate seep, diffusion, sediment, and low-flow groundwater sample SMC recoveries were within established control limits; therefore, the analytical results are usable as reported. Four SMCs are used to measure the ability of the laboratory to purge the target analytes from the environmental samples. The SMC control limits for the aqueous and sediment samples are identified in the QAPP.

Five VOCs were used to quantify MS/MSD recoveries against QAPP established control limits. The recovery limits reported by the laboratory were different than those identified in the QAPP. The samples chosen for MS/MSD are identified in Section D.3.1.

The low-flow groundwater sample MS/MSD recoveries were within the QAPP control limits with the exception of methylene chloride (58 and 46 percent) in sample MW-NASB-069. The data user should note that the results for methylene chloride in sample MW-NASB-069 was considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

The surface water sample MS/MSD recoveries were within the QAPP control limits; the sample results are usable as reported.

The diffusion sample MS/MSD recoveries were within the QAPP control limits; the sample results are usable as reported.

The sediment sample MS/MSD recoveries were within the QAPP recovery limits with the exception of acetone (51 percent) and 4-methyl-2-pentanone (143 percent) in sample SD-010.

The result for 4-methyl-2-pentanone was not detected in sample SD-010, therefore, the high MS/MSD recovery does not affect the sample result; the sample result for 4-methyl-2-pentanone is usable as reported. The non-detect result for acetone in sample SD-010 should be considered estimated bias low.

The leachate seep sample MS/MSD recoveries were within the QAPP recovery limits with the exception of hexachlorobutadiene (74 and 73 percent) in sample LT-901. The non-detect result for hexachlorobutadiene in sample LT-901 should be considered estimated bias low.

Five VOCs were used to quantify the LCS recoveries against laboratory established control limits. The sediment, surface water, monitoring well, diffusion, and leachate seep LCS recoveries were compliant. The LCS recoveries are within both the QAPP and laboratory established control limits, confirming the laboratory's purging efficiency for both aqueous and solid matrices.

D.4.2 Target Analyte List Metals

Nineteen Target Analyte List analytes were used to quantify MS recoveries for aqueous samples. Calcium, magnesium, potassium, and sodium are not required as spiking compounds due to the potential for these compounds to be present in the environmental samples at high concentrations.

The MS/MSD samples were analyzed at the correct frequency, and the accuracy control limits used to evaluate the data were taken from the QAPP.

The laboratory performed an MS on the sample identified in Section D.3.2. The groundwater MS recoveries were within the established control limits, therefore, the data are usable as reported.

All 23 Target Analyte List analytes were used to quantify LCS recoveries against laboratory established control limits. The aqueous control limits identified in the QAPP were used to qualify the LCS recoveries. The aqueous LCS recoveries were compliant. All aqueous data are usable based on the review of the LCS accuracy.

D.4.3 Semivolatile Organic Compounds

Semivolatile data are usable as reported based on the review of analytical accuracy for SMCs. Six SMCs were used to measure the ability of the laboratory to extract the target compounds from the environmental samples. The aqueous sample SMC recoveries were within the established control limits.

Eleven compounds were used to qualify the MS/MSD recoveries. The control limits stated in the QAPP were used to evaluate the data. The monitoring well sample MS/MSD recoveries met acceptance criteria with the exception of 4-nitroaniline (120 and 120 percent) in sample MW-NASB-069. The result for 4-nitroaniline was not detected in sample MW-NASB-069, therefore, the high MS/MSD recovery does not affect the sample result; the sample result for 4-nitroaniline is usable as reported.

Eleven SVOCs were used to quantify the LCS recoveries against laboratory established control limits. The monitoring well LCS recoveries were within the control limits with the exception of dibenzo(a,h)anthracene (58 percent) and benzo(g,h,i)perylene (56 percent). The results for dibenzo(a,h)anthracene and benzo(g,h,i)perylene were not detected in the monitoring well samples, therefore, the data are usable based on the review of the LCS accuracy.

D.5 COMPLETENESS

Usable analytical data were available for all analytes/compounds for all field samples, and total analytical completeness is 100 percent.

Twenty-one of the planned 21 aqueous field samples were collected, resulting in a field completeness level of 100 percent, and 2 of 2 sediment field samples were collected, resulting in a field completeness level of 100 percent.

The field quality control blanks were collected at the proper frequency. One trip blank was collected for Site 9. There was a rinsate blank collected (associated with the sediment samples) for Site 9 in compliance with the QAPP.

Analytical completeness was quantitated by comparing the number of acceptable analytical results to the total number of analytical results.

D.6 FIELD QUALITY CONTROL BLANKS

Monitoring well, surface water, diffusion, sediment, and rinsate blank samples contained analytical results that are considered false-positives based on both field and method blank contamination. Field quality control rinsate blanks were collected to evaluate the potential for contamination that may have been introduced during the field sampling activities. Trip blanks were collected to assess the potential for cross-contamination of VOCs 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 a trip blank and an equipment rinsate blank. The rinsate blank (QS-001) is associated with the collection of sediment sampling.

D.6.1 Laboratory Method Blanks

Method blank results were reviewed and the VOC detected was methylene chloride and the SVOC detected was bis(2-ethylhexyl)phthalate. The methylene chloride results in 21 samples (SW-10, SW-10 DUP, QS-001, SD-010, SD-010 DUP, MW-NASB-069 [shallow], MW-NASB-069 [deep], LT-901, LT-901 DUP, MW-NASB-069 DUP, MW-NASB-069 [deep] DUP, MW-NASB-075 [deep], MW-NASB-072 [deep], MW-NASB-074 [deep], MW-NASB-076 [deep], MW-NASB-022 [deep], MW-NASB-227 [deep], MW-NASB-021 [deep], MW-NASB-080 [deep], MW-NASB-076 DUP, and MW-NASB-069) should be considered false-positive due to method blank contamination.

The data user should note that the sample results associated with the bis(2-ethylhexyl)phthalate method blank contamination are non-detect, therefore, the associated results are usable as reported.

D.6.2 Trip Blanks

The field quality control blank collected for this site was a trip blank (QT-02). The trip blank was analyzed for VOCs, and no VOCs were reported with the exception of methylene chloride.

Methylene chloride was previously considered false-positive in the trip blank (QT-02) and in the associated environmental samples due to method blank contamination. There was no cross-contamination of VOCs during sample shipment.

D.6.3 Rinsate Blanks

The analytical results for the rinsate blank associated with the sediment collected at Site 9 was analyzed for VOCs, and no VOCs were reported with the exception of methylene chloride. The data user should note that the results for methylene chloride in rinsate blank QS-001 were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion). The results are usable as reported.

D.7 DUPLICATE FIELD SAMPLES

All precision requirements were met for the organic results for the duplicate samples (MW-NASB-069, MW-NASB-069 DUP, MW-NASB-069 [deep], MW-NASB-069 [deep] DUP, MW-NASB-076 [deep], MW-NASB-076 [deep] DUP, SW-010, SW-010 DUP, LT-901, LT-901 DUP, SED-010, and SED-010 DUP), therefore, the sample results are usable as reported. 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 1 criteria for evaluating field duplicates, the following guidelines were used to review the field duplicates taken during the sampling event. The overall precision of organic compounds was evaluated as the RPD (non-detects were defined as one-half the reporting limit) and was considered acceptable at an RPD of less than 30 percent for water samples and 50 percent for soil samples. Overall precision for inorganic analytes was evaluated by reviewing the difference of the field duplicate for analytes with concentrations less than 5 times the reporting limit (the difference cannot be greater than ±2 times the reporting limit for water samples or cannot be greater than ±4 times the reporting limit for soil samples), and by the RPD (less than 30 percent for water samples or 50 percent for soil samples) for the analytes greater than 5 times the reporting limit. Non-detects were defined as one-half the reporting limit for difference measurements. The reporting limits used to evaluate the data are based on those presented in the QAPP.

Duplicate field samples were collected during the monitoring well groundwater sampling program, diffusion sampling program, and leachate seep sampling program. The sample locations of the field duplicated samples were not identified to the laboratory. The precision measurements for all analytes reported above the CRQL/CRDL are defined in the tables below.

The following table shows the first set of field duplicate groundwater sample results that are associated with SDG 923MW69:

Compound	Units	MW-NASB-069	MW-NASB-069 DUP	RPD%	Difference
Vinyl chloride	µg/L	34	34	0	---
Methylene chloride	µg/L	2B	0.9BJ	**75.9**	---
Total 1,2-dichloroethene	µg/L	34	34	0	---
Aluminum	µg/L	40.8B*	74.2B*	NA	33.4
Barium	µg/L	6.6B*	10.4B*	NA	3.8
Calcium	µg/L	4,680	5,350	13.3	NR
Chromium	µg/L	(<0.60U)	1.3B*	NA	1
Cobalt	µg/L	(<0.90U)	1.3B*	NA	0.85
Copper	µg/L	(<4.0U)	5.2B*	NA	3.2
Iron	µg/L	231	255	NA	24
Magnesium	µg/L	2,230	2,350	NA	120
Manganese	µg/L	360	404	11.5	NR
Nickel	µg/L	0.90B*	2.1B*	NA	1.2
Potassium	µg/L	1,620	1,440	NA	180
Sodium	µg/L	54,000	55,800	3.3	NR
Vanadium	µg/L	1.2B*	1.7B*	NA	0.5
Zinc	µg/L	9.0B*	8.3B*	NA	0.7

NOTE: B = Compound detected in associated method blank.
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5 times the reporting limit.
NR = Not required; analyte concentration was greater than 5 times the reporting limit and, therefore, the RPD was applied.
U = Not detected. Sample quantitation limits are shown as (<__U).
Dashes (---) indicate this column does not apply to organic analysis.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the exception of methylene chloride. The data user should note that the results for methylene chloride in sample MW-NASB-069 were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

The following table shows the first set of field duplicate diffusion sample results that are associated with SDG 923MW69DSS:

Compound	Units	MW-NASB-069 (deep)	MW-NASB-069 DUP (deep)	RPD%
Vinyl chloride	µg/L	33	36	8.7
Methylene chloride	µg/L	0.8BJ	2B	**85.7**
2-Butanone	µg/L	0.7J	(<5U)	**112.5**
Total 1,2-dichloromethene	µg/L	43D	46D	3.66.7

NOTE: B = Compound detected in associated method blank.
J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<__U).
D = Analysis at a secondary dilution factor.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the exception of methylene chloride and 2-butanone. The results for 2-butanone should be considered estimated in MW-NASB-069 (deep). The data user should note that the results for methylene chloride in samples MW-NASB-069 (deep) and MW-NASB-069 (deep) DUP were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

The following table shows the second set of field duplicate diffusion sample results that are associated with SDG 923MW021DSD:

Compound	Units	MW-NASB-076 (deep)	MW-NASB-076 DUP (deep)	RPD%
Methylene chloride	µg/L	1B	2B	**66.7**

NOTE: B = Compound detected in associated method blank.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the exception of methylene chloride. The data user should note that the results for methylene chloride in samples MW-NASB-076 (deep) and MW-NASB-076 (deep) DUP were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

The following table shows the field duplicate surface water sample results that are associated with SDG 923SW10:

Compound	Units	SW-10	SW-10 DUP	RPD%
Vinyl chloride	µg/L	0.5J	0.5J	0
Methylene chloride	µg/L	0.9BJ	2B	**75.9**
Total 1,2-dichloroethene	µg/L	0.7J	0.7J	0

NOTE: J = Estimated concentration below detection limit.
B = Compound detected in associated method blank.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the exception of methylene chloride. The data user should note that the results for methylene chloride in samples SW-10 and SW-10 DUP were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

The following table shows the field duplicate leachate seep sample results that are associated with SDG 923LT901:

Compound	Units	LT-901	LT-901 DUP	RPD%
Methylene chloride	µg/L	0.6BJ	0.5BJ	18.2

NOTE: B = Compound detected in associated method blank.
J = Estimated concentration below detection limit.

All precision requirements were met for the field duplicate analyses; the results are usable as reported. The data user should note that the results for methylene chloride in samples LT-901 and LT-901 DUP were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

The following table shows the field duplicate sediment sample results that are associated with SDG 923SDQS1:

Compound	Units	SED-010	SED-010 DUP	RPD%
Acetone	µg/L	12	14	15.4
Carbon disulfide	µg/L	1J	(<5U)	**85.7**
Methylene chloride	µg/L	4BJ	4BJ	0
Toluene	µg/L	1J	(<5U)	**85.7**
Total xylene	µg/L	2J	2J	0

NOTE: J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<__U).
B = Compound detected in associated method blank.
Results in bold indicate an exceedance of the precision requirements.

All precision requirements were met for the field duplicate analyses with the exception of carbon disulfide and toluene. The results for carbon disulfide and toluene should be considered estimated in SED-010. The data user should note that the results for methylene chloride in samples SED-10 and SED-10 DUP were considered false-positive due to method blank contamination (see Section D.6.1 for further discussion).

D.8 METHOD DETECTION LIMITS FOR SEDIMENT AND AQUEOUS SAMPLES

Appendix D.1 provides the method detection limits for sediment and aqueous samples. 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.

Appendix D.1

Method Detection Limits for Sediment and Aqueous Samples

8260_AQ_5 ml. Purge METHOD DETECTION LIMIT SUMMARY REPORT Instrument ID: V2

Compounds	MDL (ug/L)	Spiking Level (ug/L)	3-5 X	< 10X	< 20X
1 Dichlorodifluoromethane	0.25	1.0	Y		
116 Freon114	0.25	1.0	Y		
2 Chloromethane	0.22	1.0	Y		
3 Vinyl Chloride	0.10	1.0		Y	
4 Bromomethane	0.54	1.0		Y	
5 Chloroethane	0.33	1.0	Y		
6 Trichlorofluoromethane	0.13	1.0		Y	
7 Acrolein	5.36	25	Y		
8 1,1-Dichloroethene	0.32	1.0	Y		
9 Acetone	4.58	5.0		Y	
111 1,1,2-Trichlo-1,2,2-trifluoroethane	0.38	1.0		Y	
10 Iodomethane	0.31	1.0	Y		
11 Carbon Disulfide	0.32	1.0	Y		
12 Acetonitrile	16.41	50	Y		
13 Allyl Chloride	0.27	1.0	Y		
14 Methylene Chloride	1.26	5.0	Y		
15 Acrylonitrile	2.73	25		Y	
16 trans-1,2-Dichloroethene	0.21	1.0	Y		
112 Methyl Acetate	1.01	5.0	Y		
17 Methyl tert-butyl ether	0.18	1.0		Y	
18 1,1-Dichloroethane	0.12	1.0		Y	
19 Vinyl acetate	1.92	5.0		Y	
20 2-Chloro-1,3-Butadiene	0.42	5.0	Y		
23 cis-1,2-Dichloroethene	0.16	1.0		Y	
24 2,2-Dichloropropane	0.21	1.0	Y		
22 2-Butanone	0.28	1.0	Y		
25 Propionitrile	11.46	50	Y		
26 Methacrylonitrile	10.30	50	Y		
27 Bromochloromethane	0.51	5.0		Y	
29 Tetrahydrofuran	0.71	5.0		Y	
28 Chloroform	0.09	0.5		Y	
31 1,1,1-Trichloroethane	0.23	1.0	Y		
113 Cyclohexane	0.16	1.0		Y	
32 1,1-Dichloropropene	0.30	1.0	Y		
33 Carbon Tetrachloride	0.16	1.0		Y	
34 Isobutyl Alcohol	25.81	100	Y		
37 Benzene	0.21	1.0	Y		
36 1,2-Dichloroethane	0.10	0.5	Y		
39 Trichloroethene	0.24	1.0	Y		
M 21 1,2-Dichloroehtene (Total)	0.36	2.0		Y	
114 Methylcyclohexane	0.26	1.0	Y		
40 1,2-Dichloropropane	0.09	1.0			Y
42 Dibromomethane	0.10	0.5	Y		
41 Methyl Methacrylate	0.88	5.0		Y	
43 Bromodichloromethane	0.11	1.0		Y	
44 2-Chloroethyl vinyl ether	0.18	5.0		Y	
45 cis-1,3-Dichloropropene	0.16	1.0		Y	
46 4-Methyl-2-pentanone	0.22	1.0	Y		

8260_AQ_5 mL Purge METHOD DETECTION LIMIT SUMMARY REPORT Instrument ID: '

Compounds	MDL (ug/L)	Spiking Level (ug/L)	3-5 X	< 10X	< 20X
48 Toluene	0.11	0.5	Y		
49 trans-1,3-Dichloropropene	0.19	1.0		Y	
50 Ethyl Methacrylate	0.80	1.0		Y	
51 1,1,2-Trichloroethane	0.17	1.0		Y	
53 Tetrachloroethene	0.21	1.0	Y		
52 1,3-Dichloropropane	0.15	1.0		Y	
54 2-Hexanone	0.33	1.0	Y		
55 Dibromochloromethane	0.12	1.0		Y	
56 1,2-Dibromoethane	0.18	1.0		Y	
115 1-Chlorohexane	0.18	1.0		Y	
58 Chlorobenzene	0.11	1.0		Y	
59 1,1,1,2-Tetrachloroethane	0.20	1.0	Y		
60 Ethylbenzene	0.20	1.0	Y		
61 m,p-Xylene	0.25	0.5	Y		
62 o-Xylene	0.12	0.5	Y		
64 Styrene	0.11	0.5	Y		
65 Bromoform	0.27	1.0	Y		
66 Isopropylbenzene	0.13	1.0		Y	
69 1,1,2,2-Tetrachloroethane	0.51	1.0		Y	
70 Bromobenzene	0.21	1.0	Y		
67 trans-1,4-Dichloro-2-butene	0.69	1.0		Y	
71 1,2,3-Trichloropropane	0.30	1.0	Y		
72 n-Propylbenzene	0.30	1.0	Y		
73 2-Chlorotoluene	0.21	1.0	Y		
74 1,3,5-Trimethylbenzene	0.20	1.0	Y		
75 4-Chlorotoluene	0.23	1.0	Y		
76 tert-Butylbenzene	0.29	1.0	Y		
77 1,2,4-Trimethylbenzene	0.14	0.5	Y		
78 sec-Butylbenzene	0.16	1.0		Y	
80 1,3-Dichlorobenzene	0.22	1.0	Y		
79 4-Isopropyltoluene	0.27	1.0	Y		
82 1,4-Dichlorobenzene	0.20	1.0	Y		
M 63 Xylene (Total)	0.37	1.5	Y		
84 1,2-Dichlorobenzene	0.22	1.0	Y		
83 n-Butylbenzene	0.25	1.0	Y		
85 Hexachloroethane	0.95	1.0		Y	
86 1,2-Dibromo-3-chloropropane	0.66	1.0		Y	
87 1,2,4-Trichlorobenzene	0.28	1.0	Y		
88 Hexachlorobutadiene	0.47	1.0		Y	
89 Naphthalene	0.24	1.0	Y		
90 1,2,3-Trichlorobenzene	0.33	1.0	Y		
$ 30 Dibromofluoromethane	0.15	1.0		Y	
$ 35 1,2-Dichloroethane-d4	0.34	1.0		Y	
$ 47 Toluene-d8	0.23	1.0	Y		
$ 68 Bromofluorobenzene	0.36	1.0		Y	
117 1,4-Dioxane	10.53	100.0		Y	
		Total :	54	39	1

8260_SL_5035 METHOD DETECTION LIMIT SUMMARY REPORT Instrument ID: V1

Compounds	MDL (ug/Kg)	Spiking Level (ug/Kg)	3-5 X	< 10 X	< 20 X
1 Dichlorodifluoromethan	0.23	1.0	Y		
2 Chloromethane	0.55	1.0		Y	
3 Vinyl Chloride	0.30	1.0	Y		
4 Bromomethane	1.04	5.0	Y		
5 Chloroethane	0.77	5.0		Y	
6 Trichlorofluoromethane	0.20	1.0	Y		
8 1,1-Dichloroethene	0.20	1.0	Y		
9 Acetone	1.49	5.0	Y		
111 1,1,2-Trichlc-1,2,2-trifloroethane	0.19	1.0		Y	
10 Iodomethane	1.01	5.0	Y		
11 Carbon Disulfide	0.23	1.0	Y		
112 Methyl Acetate	0.91	5.0		Y	
14 Methylene Chloride	4.91	5.0		Y	
116 Acrylonitrile	5.25	25	Y		
16 trans-1,2-Dichloroethe	0.17	0.5	Y		
17 Methyl tert-butyl ethe	1.06	5.0	Y		
18 1,1-Dichloroethane	0.13	1.0		Y	
19 Vinyl acetate	0.30	1.0	Y		
23 cis-1,2-Dichloroethene	0.11	1.0		Y	
22 2-Butanone	1.48	5.0	Y		
29 Tetrahydrofuran	0.51	1.0		Y	
24 2,2-Dichloropropane	0.23	1.0	Y		
27 Bromochloromethane	0.16	1.0		Y	
28 Chloroform	0.20	1.0	Y		
$ 30 Dibromofluoromethane	0.10	0.5	Y		
31 1,1,1-Trichloroethane	0.14	1.0		Y	
113 Cyclohexane	0.12	0.5	Y		
32 1,1-Dichloropropene	0.17	0.5	Y		
33 Carbon Tetrachloride	0.14	1.0		Y	
$ 35 1,2-Dichloroethane-d4	0.39	1.0		Y	
37 Benzene	0.06	0.5		Y	
36 1,2-Dichloroethane	0.15	1.0		Y	
39 Trichloroethene	0.10	1.0		Y	
114 Methylcyclohexane	0.16	1.0		Y	
40 1,2-Dichloropropane	0.19	0.5		Y	
42 Dibromomethane	0.12	1.0		Y	
43 Bromodichloromethane	0.16	1.0		Y	
45 cis-1,3-Dichloropropen	0.18	1.0		Y	
46 4-Methyl-2-pentanone	0.34	1.0	Y		
$ 47 Toluene-d8	0.10	0.5	Y		
48 Toluene	0.11	0.5	Y		
49 trans-1,3-Dichloroprop	0.11	1.0		Y	
51 1,1,2-Trichloroethane	0.25	1.0	Y		
53 Tetrachloroethene	0.12	0.5	Y		
52 1,3-Dichloropropane	0.19	1.0		Y	
54 2-Hexanone	0.57	1.0		Y	
55 Dibromochloromethane	0.12	1.0		Y	
56 1,2-Dibromoethane	0.10	0.5	Y		

8260_SL_5035 METHOD DETECTION LIMIT SUMMARY REPORT Instrument ID: V1

Compounds	MDL (ug/Kg)	Spiking Level (ug/Kg)	3-5 X	< 10 X	< 20 X
115 1-Chlorohexane	0.32	1.0	Y		
58 Chlorobenzene	0.13	1.0		Y	
59 1,1,1,2-Tetrachloroeth	0.17	1.0		Y	
60 Ethylbenzene	0.16	1.0		Y	
61 m,p-Xylene	0.28	2.0		Y	
62 o-Xylene	0.10	1.0		Y	
64 Styrene	0.10	0.5	Y		
65 Bromoform	0.14	1.0		Y	
66 Isopropylbenzene	0.19	1.0		Y	
$ 68 Bromofluorobenzene	0.40	1.0		Y	
69 1,1,2,2-Tetrachloroeth	0.17	1.0		Y	
70 Bromobenzene	0.11	0.5	Y		
71 1,2,3-Trichloropropane	0.23	1.0	Y		
72 n-Propylbenzene	0.18	1.0		Y	
73 2-Chlorotoluene	0.12	0.5	Y		
74 1,3,5-Trimethylbenzene	0.20	1.0	Y		
75 4-Chlorotoluene	0.25	1.0	Y		
76 tert-Butylbenzene	0.16	1.0	Y		
77 1,2,4-Trimethylbenzene	0.24	1.0	Y		
78 sec-Butylbenzene	0.22	1.0	Y		
80 1,3-Dichlorobenzene	0.28	1.0	Y		
79 4-Isopropyltoluene	0.31	1.0	Y		
82 1,4-Dichlorobenzene	0.29	1.0	Y		
83 n-Butylbenzene	0.11	0.5	Y		
84 1,2-Dichlorobenzene	0.11	0.5	Y		
M 63 Xylene (Total)	0.37	3.0		Y	
86 1,2-Dibromo-3-chloropr	1.46	5.0	Y		
87 1,2,4-Trichlorobenzene	0.14	0.5	Y		
88 Hexachlorobutadiene	0.32	1.0	Y		
89 Naphthalene	0.48	5.0			Y
90 1,2,3-Trichlorobenzene	0.82	1.0		Y	
		Total:	42	36	1

Report Date : 07-Jan-2003 10:01

AQ

Spiked @ 0.5ppb

Without Appar Compounds

Mitkem Corporation
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL\v28260.m
Batch File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL
Inst ID: v2.i

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07
FILENAME:	V2F4703	V2F4704	V2F4705	V2F4706	V2F4707	V2F4708	V2F4709
INJ.DATE:	06-JAN-2003	06-JAN-2003	06-JAN-2003	06-JAN-2003	06-JAN-2003	06-JAN-2003	06-JAN-2003
INJ.TIME:	16:19	16:47	17:15	17:43	18:10	18:38	19:06

	Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
1	Dichlorodifluoromethan	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
116	Freon114	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
2	Chloromethane	0.56	0.52	0.54	+++++	0.53	0.49	0.53	0.53	0.02	0.08
3	Vinyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
4	Bromomethane	1.75	1.32	1.71	1.46	1.29	1.18	0.91	1.37	0.30	0.93
5	Chloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
6	Trichlorofluoromethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
7	Acrolein	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
8	1,1-Dichloroethene	0.46	0.54	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
9	Acetone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.50	0.05	N/A
111	1,1,2-Trichlo-1,2,2-tr	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
10	Iodomethane	0.39	0.43	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
11	Carbon Disulfide	0.69	0.50	+++++	+++++	+++++	+++++	+++++	0.41	0.02	N/A
12	Acetonitrile	+++++	6.81	+++++	+++++	+++++	+++++	+++++	0.59	0.14	N/A
13	Allyl Chloride	0.03	+++++	+++++	+++++	+++++	+++++	+++++	6.81	6.81	N/A
14	Methylene Chloride	1.11	1.06	0.84	1.04	0.88	0.96	0.99	0.03	0.03	N/A
15	Acrylonitrile	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.98	0.10	0.31
									+++++	+++++	+++++

Reviewer 1 Yibas Diaz Date: 01/07/03

Reviewer 2 _____ Date: _____

Report Date : 07-Jan-2003 10:01

Mitkem Corporation
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL\v28260.m
Batch File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL
Inst ID: v2.i

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
16 trans-1,2-Dichloroethe	0.63	0.47	0.48	0.50	0.53	0.41	0.49	0.50	0.07	0.22
112 Methyl Acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
17 Methyl tert-butyl ethe	0.54	+++++	+++++	+++++	+++++	+++++	+++++	0.54	0.54	N/A
18 1,1-Dichloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
19 Vinyl acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
20 2-Chloro-1,3-Butadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
23 cis-1,2-Dichloroethene	0.43	0.33	0.37	0.31	0.33	0.32	0.33	0.35	0.04	0.13
24 2,2-Dichloropropane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
22 2-Butanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
25 Propionitrile	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
26 Methacrylonitrile	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
27 Bromochloromethane	0.38	0.39	0.25	0.38	0.43	0.39	0.41	0.37	0.06	0.18
29 Tetrahydrofuran	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
28 Chloroform	0.53	0.53	0.49	0.52	0.55	0.57	0.56	0.54	0.03	0.09
30 Dibromofluoromethane	55.62	57.88	57.99	59.35	58.11	60.02	60.57	58.50	1.65	5.20
31 1,1,1-Trichloroethane	0.41	0.39	0.36	0.40	0.41	0.43	+++++	0.40	0.02	0.08
113 Cyclohexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
32 1,1-Dichloropropene	0.19	+++++	+++++	+++++	+++++	+++++	+++++	0.19	0.19	N/A
33 Carbon Tetrachloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
34 Isobutyl Alcohol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
35 1,2-Dichloroethane-d4	55.51	57.44	57.06	58.36	57.36	59.19	58.66	57.65	1.22	3.84
37 Benzene	0.50	0.47	0.43	0.43	0.43	0.44	0.43	0.45	0.03	0.09

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Mitkem Corporation
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL\v28260.m
Batch File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL
Inst ID: v2.i

	Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
	36 1,2-Dichloroethane	1.95	1.95	1.94	1.89	1.87	1.90	1.93	1.92	0.03	0.10
*	38 Fluorobenzene	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	0.00	0.00
	39 Trichloroethene	0.59	0.40	0.38	0.36	0.39	0.41	0.38	0.42	0.08	0.24
M	21 1,2-Dichloroethene (To	1.06	0.80	0.85	0.81	0.86	0.73	0.83	0.85	0.10	0.33
	114 Methylcyclohexane	0.33	+++++	+++++	+++++	+++++	+++++	+++++	0.33	0.33	N/A
	40 1,2-Dichloropropane	0.37	+++++	+++++	+++++	0.35	+++++	+++++	0.36	0.01	N/A
	42 Dibromomethane	0.35	0.41	0.43	0.39	0.42	0.44	0.37	0.40	0.03	0.10
	41 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	43 Bromodichloromethane	0.46	0.46	0.45	0.44	0.46	0.46	0.50	0.46	0.02	0.05
	44 2-Chloroethyl vinyl et	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	45 cis-1,3-Dichloropropen	0.28	+++++	+++++	+++++	+++++	+++++	+++++	0.28	0.28	N/A
	46 4-Methyl-2-pentanone	0.83	0.79	0.85	0.78	0.83	0.73	0.75	0.80	0.05	0.14
$	47 Toluene-d8	56.29	57.02	56.72	57.29	57.03	57.15	56.74	56.89	0.34	1.06
	48 Toluene	0.47	0.41	0.38	0.37	0.40	0.41	0.37	0.40	0.04	0.11
	49 trans-1,3-Dichloroprop	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	50 Ethyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	51 1,1,2-Trichloroethane	0.45	0.46	0.50	0.45	0.53	0.48	0.48	0.48	0.03	0.09
	53 Tetrachloroethene	0.48	0.39	0.30	0.37	0.29	0.39	0.30	0.36	0.07	0.22
	52 1,3-Dichloropropane	0.38	0.34	0.33	0.35	0.36	+++++	+++++	0.35	0.02	0.08
	54 2-Hexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	55 Dibromochloromethane	0.40	0.40	0.37	0.36	0.38	0.39	0.39	0.38	0.01	0.05
	56 1,2-Dibromoethane	0.38	0.33	0.28	0.35	0.34	0.33	0.36	0.34	0.03	0.09
*	57 Chlorobenzene-d5	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	0.00	0.00
	115 1-Chlorohexane	0.66	0.59	0.55	0.54	0.57	0.55	0.45	0.56	0.06	0.19

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Mitkem Corporation
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL\v28260.m
Batch File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL
Inst ID: v2.i

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
58 Chlorobenzene	0.53	0.51	0.47	0.48	0.54	0.53	0.51	0.51	0.03	0.08
59 1,1,1,2-Tetrachloroeth	0.49	0.53	0.46	0.42	0.56	0.54	0.48	0.50	0.05	0.15
60 Ethylbenzene	0.32	0.23	0.17	0.11	0.19	0.19	0.13	0.19	0.07	0.22
61 m,p-Xylene	0.52	0.40	0.39	0.32	0.36	0.29	0.31	0.37	0.08	0.25
62 o-Xylene	0.21	0.14	0.12	0.10	0.13	0.12	0.09	0.13	0.04	0.12 ✓
64 Styrene	0.22	0.14	0.15	0.11	0.13	0.14	0.12	0.14	0.03	0.11 ✓
65 Bromoform	0.37	+++++	+++++	+++++	+++++	+++++	+++++	0.37	0.37	N/A
66 Isopropylbenzene	0.23	+++++	+++++	+++++	+++++	+++++	+++++	0.23	0.23	N/A
68 Bromofluorobenzene	49.45	49.78	49.16	49.54	48.75	49.11	47.80	49.08	0.66	2.07
69 1,1,2,2-Tetrachloroeth	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
70 Bromobenzene	0.41	0.33	0.39	0.33	0.38	0.33	0.34	0.36	0.03	0.11
67 trans-1,4-Dichloro-2-b	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
71 1,2,3-Trichloropropane	0.36	21.92	22.17	21.38	0.35	21.74	0.33	12.61	11.47	36.06
72 n-Propylbenzene	0.25	0.22	0.17	0.12	0.14	0.13	0.14	0.17	0.05	0.16
73 2-Chlorotoluene	0.27	0.14	0.15	0.14	0.16	0.15	0.17	0.17	0.04	0.14
74 1,3,5-Trimethylbenzene	0.26	0.19	0.17	0.15	0.15	0.14	0.12	0.17	0.04	0.14
75 4-Chlorotoluene	0.25	0.21	0.14	0.13	0.16	0.16	0.17	0.17	0.04	0.13
76 tert-Butylbenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
77 1,2,4-Trimethylbenzene	0.25	0.17	0.15	0.15	0.15	0.12	0.12	0.16	0.04	0.14 ✓
78 sec-Butylbenzene	0.30	+++++	+++++	+++++	+++++	+++++	+++++	0.30	0.30	N/A
80 1,3-Dichlorobenzene	0.41	0.32	0.28	0.29	0.25	0.54	0.28	0.34	0.10	0.32
79 4-Isopropyltoluene	0.41	0.26	0.24	0.20	0.22	+++++	+++++	0.27	0.09	0.32
81 1,4-Dichlorobenzene-d4	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	0.00	0.00

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Mitkem Corporation
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL\v28260.m
Batch File: \\AVOGADRO\USERDATA\Organic\voa\v2.i\030106.B\MDL
Inst ID: v2.i

	Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
	82 1,4-Dichlorobenzene	0.63	0.50	0.50	0.50	0.56	0.51	0.51	0.53	0.05	0.15
M	83 Xylene (Total)	0.73	0.54	0.51	0.42	0.49	0.41	0.40	0.50	0.12	0.37
	84 1,2-Dichlorobenzene	0.39	0.31	0.27	0.27	0.28	0.29	0.26	0.30	0.04	0.14
	85 Hexachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	86 1,2-Dibromo-3-chloropr	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	87 1,2,4-Trichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	88 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	89 Naphthalene	0.20	0.09	0.10	0.06	0.06	0.07	0.06	0.09	0.05	0.15
	90 1,2,3-Trichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

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(s10H
Report Date : 10-Jun-2003 15:47

Mitkem Corporation
SW8270 METHOD DETECTION LIMIT SUMMARY REPORT Aqueous

Method File: \\AVOGADRO\USERDATA\Organic\svoa\s2.l\030317a.b\s2_8270C.m
Batch File: \\AVOGADRO\USERDATA\Organic\svoa\s2.l\030317a.b
Inst ID: s2.i
(s16.6H
Units: ug/L

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07			
FILENAME:	S2D2667	S2D2668	S2D2669	S2D2670	S2D2671	S2D2672	S2D2673			
INJ.DATE:	17-MAR-2003	18-MAR-2003	18-MAR-2003	18-MAR-2003	18-MAR-2003	18-MAR-2003	18-MAR-2003			
INJ.TIME:	23:58	00:38	01:18	01:58	02:39	03:19	04:00			

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	STD DEV	MDL	MRL
97 Azobenzene	0.83	0.92	0.84	0.82	0.89	0.86	0.88	0.04	0.11	10
7 Aniline	0.55	0.57	0.75	0.62	0.67	0.68	0.63	0.07	0.21	10
8 bis(2-Chloroethyl)Ether	0.88	0.97	0.8	0.79	0.86	0.82	0.96	0.07	0.22	10
10 2-Chlorophenol	0.75	0.79	0.76	0.73	0.75	0.74	0.83	0.04	0.11	10
11 1,3-Dichlorobenzene	0.63	0.74	0.78	0.77	0.82	0.84	0.84	0.08	0.24	10
13 1,4-Dichlorobenzene	0.75	0.87	0.93	0.84	0.92	0.87	0.9	0.06	0.19	10
15 Benzyl Alcohol	0.79	0.34	0.32	0.31	0.31	0.18	0.29	0.2	0.62	10
16 1,2-Dichlorobenzene	0.65	0.86	0.85	0.82	0.87	0.84	0.88	0.08	0.25	10
17 2-Methylphenol	0.56	0.57	0.54	0.54	0.45	0.48	0.59	0.05	0.16	10
18 2,2'-oxybis(1-Chloropropane	0.86	1.03	0.96	0.93	0.99	0.99	1.08	0.07	0.23	10
20 4-Methylphenol	0.15	0.28	0.19	0.28	0.29	0.14	0.31	0.07	0.23	10
19 N-Nitroso-di-n-propylamine	0.95	1.05	0.95	0.95	0.96	0.91	1.12	0.07	0.23	10
21 Hexachloroethane	0.61	0.76	0.82	0.82	0.85	0.83	0.76	0.08	0.26	10
24 Isophorone	0.79	0.91	0.83	0.8	0.87	0.86	0.91	0.05	0.16	10
27 bis(2-Chloroethoxy)methane	0.71	0.87	0.8	0.73	0.7	0.59	0.82	0.09	0.29	10
30 1,2,4-Trichlorobenzene	0.66	0.74	0.85	0.76	0.79	0.81	0.84	0.07	0.21	10

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	STD DEV	MDL	MRL
32 Naphthalene	0.78	0.84	0.9	0.89	0.89	0.89	0.96	0.06	0.18	10
33 4-Chloroaniline	0.45	0.42	0.72	0.27	0.4	0.29	0.29	0.16	0.49	10
34 Hexachlorobutadiene	0.69	0.76	0.81	0.77	0.81	0.77	0.8	0.04	0.14	10
35 4-Chloro-3-Methylphenol	0.49	0.26	0.56	0.42	0.49	0.61	0.39	0.11	0.36	10
36 2-Methylnaphthalene	0.68	0.78	0.73	0.74	0.71	0.78	0.74	0.04	0.12	10
39 2,4,6-Trichlorophenol	0.67	0.63	0.63	0.62	0.41	0.51	0.64	0.09	0.29	10
40 2,4,5-Trichlorophenol	0.61	0.58	0.57	0.57	0.37	0.47	0.58	0.08	0.27	20
43 2-Nitroaniline	0.65	0.65	0.54	0.23	0.35	0.64	0.42	0.17	0.53	20
45 2,6-Dinitrotoluene	0.77	0.83	0.86	0.8	0.74	0.82	0.83	0.04	0.13	10
46 Acenaphthylene	0.85	0.94	0.91	0.88	0.91	0.88	0.95	0.03	0.11	10
49 Acenaphthene	0.86	0.92	0.95	0.9	0.93	0.9	0.99	0.04	0.13	10
53 2,4-Dinitrotoluene	0.71	0.8	0.73	0.53	0.59	0.57	0.69	0.1	0.3	10
52 Dibenzofuran	0.86	0.96	0.93	0.86	0.93	0.9	0.94	0.04	0.12	10
54 Diethylphthalate	0.99	1.02	1.02	0.98	0.97	1	1.05	0.03	0.08	10
55 Fluorene	0.93	0.93	0.91	0.88	0.95	0.92	0.96	0.03	0.08	10
56 4-Chlorophenyl-phenylether	0.87	0.93	0.94	0.89	0.95	0.92	0.97	0.03	0.1	10
59 N-Nitrosodiphenylamine	0.98	1.07	1.07	0.98	1.11	1.1	1.11	0.06	0.18	10
61 4-Bromophenyl-phenylether	0.87	0.89	0.86	0.81	0.87	0.86	0.94	0.04	0.12	10
62 Hexachlorobenzene	0.93	0.92	0.98	0.88	0.97	0.96	1.04	0.05	0.16	10
65 Phenanthrene	0.95	1.01	0.97	0.93	0.97	1.04	0.99	0.04	0.11	10
66 Anthracene	0.89	0.95	0.99	0.84	0.9	1	0.89	0.06	0.18	10
67 Carbazole	1.13	1.13	1.1	1.01	1.01	1.01	1.07	0.06	0.18	10
68 Di-n-butylphthalate	0.94	1.03	0.96	0.91	0.91	0.97	0.97	0.04	0.14	10
69 Fluoranthene	0.96	1.03	1.01	0.97	0.93	0.98	1	0.03	0.1	10
71 Pyrene	0.95	0.98	0.96	0.89	0.9	0.94	0.97	0.03	0.11	10
73 Butylbenzylphthalate	0.86	0.92	0.91	0.78	0.82	0.85	0.87	0.05	0.15	10
74 3,3'-Dichlorobenzidine	0.62	0.64	0.64	0.64	0.49	0.62	0.65	0.06	0.18	10
75 Benzo(a)anthracene	1.04	1.06	1.07	0.98	0.95	1	1.05	0.04	0.13	10
77 Chrysene	1	1.01	1	0.99	0.94	0.94	0.99	0.03	0.09	10
78 bis(2-Ethylhexyl)phthalate	1.05	1.04	1.04	1	0.92	1	1	0.04	0.14	10
79 Di-n-octylphthalate	0.8	0.82	0.83	0.77	0.78	0.8	0.8	0.02	0.07	10
80 Benzo(b)fluoranthene	0.87	0.83	0.8	0.78	0.83	0.82	0.86	0.03	0.1	10

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	STD DEV	MDL	MRL
81 Benzo(k)fluoranthene	1.16	1.34	1.3	1.16	1.18	1.19	1.15	0.07	0.23	10
82 Benzo(a)pyrene	0.91	0.94	0.91	0.87	0.85	0.87	0.91	0.03	0.1	10
84 Indeno(1,2,3-cd)pyrene	0.82	0.83	0.8	0.7	0.73	0.76	0.69	0.06	0.17	10
85 Dibenzo(a;h)anthracene	0.77	0.82	0.77	0.7	0.72	0.75	0.7	0.04	0.14	10
86 Benzo(g,h,i)perylene	0.84	0.83	0.82	0.74	0.8	0.77	0.81	0.04	0.12	10

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	STD DEV	MDL
2-Chloronaphthalene	8.36	9.33	5.4	8.71	8.76	8.49	8.16	7.9	1.19	3.56
Acenaphthylene	8.84	10.01	5.53	9.15	9.32	8.94	8.67	8.4	1.33	4
Pentachlorophenol	4.19	6.05	2.01	4.74	5.01	4.75	4.64	4.39	1.14	3.41

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Report Date : 10-Jun-2003 16:02

Mitkem Corporation
SW8270 METHOD DETECTION LIMIT SUMMARY REPORT AQUEOUS

Method File: \\AVOGADRO\USERDATA\Organic\svoa\s2.l\030317a.b\s2_8270C.m
Batch File: \\AVOGADRO\USERDATA\Organic\svoa\s2.l\030317a.b
Inst ID: s2.i
(s16.6H
Units: ug/L

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08			
FILENAME:	S2D2631	S2D2632	S2D2633	S2D2634	S2D2635	S2D2663	S2D2664	S2D2665			
INJ.DATE:	16-MAR-2003	16-MAR-2003	16-MAR-2003	16-MAR-2003	16-MAR-2003	17-MAR-2003	17-MAR-2003	17-MAR-2003			
INJ.TIME:	21:07	21:49	22:31	23:12	23:54	21:17	21:58	22:38			

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	STD DEV	MDL	MRL
1 N-Nitrosodimethylamine	2.14	1.89	2.21	2.03	2.18	2.28	2.19	1.75	0.18	0.54	10
2 Pyridine	1.39	1.44	1.76	1.25	1.99	1.46	1.58	1.55	0.23	0.7	10
6 Phenol	1.32	1.43	1.3	1.29	1.29	1.41	1.43	1.37	0.06	0.19	10
23 Nitrobenzene	3.83	4.11	4.13	3.49	4.12	4.06	4.01	4.24	0.24	0.71	10
25 2-Nitrophenol	3.43	3.64	3.68	2.93	3.63	3.98	3.75	3.51	0.3	0.91	10
26 2,4-Dimethylphenol	2.05	1.94	1.18	3.37	2.06	1.99	1.67	2.12	0.62	1.84	10
29 2,4-Dichlorophenol	3.38	3.58	3.54	2.91	3.46	3.73	3.66	3.6	0.26	0.77	10
38 Hexachlorocyclopentadiene	7	8.68	4.84	8.36	7.49	8.07	8	7.48	1.2	3.6	10
44 Dimethylphthalate	4.55	4.78	4.91	3.79	4.71	4.84	4.82	4.73	0.36	1.09	10
47 3-Nitroaniline	3.62	3.77	3.93	2.84	3.82	4	3.56	3.7	0.36	1.08	20
50 2,4-Dinitrophenol	1.64	3.97	1.07	2.48	2.51	3.7	3.74	2.93	1.04	3.12	20
51 4-Nitrophenol	1.43	1.78	0.68	1.16	0.68	1.47	1.33	1.03	0.39	1.16	20
57 4-Nitroaniline	3.09	2.75	3.55	2	3.18	2.5	3.53	2.9	0.52	1.57	20
58 4,6-Dinitro-2-methylphenol	0.58	0.66	0.89	0	0.7	1.99	1.74	1.49	0.58	1.81	20

* Needs higher spiking level

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Report Date : 10-Jun-2003 14:36

Mitkem Corporation
METHOD DETECTION LIMIT SUMMARY REPORT SOILS

Method File: \\AVOGADRO\USERDATA\Organic\svoa\s2.I\030316.B\s2_8270C.m
Batch File: \\AVOGADRO\USERDATA\Organic\svoa\s2.I\030316.B
Inst ID: s2.i
(s16.6H
Units: ug/Kg

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07
FILENAME:	S2D2620	S2D2621	S2D2622	S2D2623	S2D2624	S2D2625	S2D2626
INJ.DATE:	16-MAR-2003	16-MAR-2003	16-MAR-2003	16-MAR-2003	16-MAR-2003	16-MAR-2003	16-MAR-2003
INJ.TIME:	13:57	14:42	15:27	16:06	16:47	17:28	18:09

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	STD DEV	MDL	MRL
97 Azobenzene	24.03	21.5	24.8	28.96	23.54	25.76	23.13	2.37	7.43	330
6 Phenol	30.49	26.45	31.93	33.49	30.07	32.67	31.23	2.3	7.22	330
7 Aniline	26.64	24.39	26.6	26.92	25.6	29.93	23.97	1.97	6.2	330
8 bis(2-Chloroethyl)Ether	28.23	25.84	28.19	28.53	27.13	31.72	25.4	2.09	6.57	330
10 2-Chlorophenol	26.51	22.18	26.22	26.22	25.82	28.06	23.4	2.01	6.3	330
11 1,3-Dichlorobenzene	23.94	23.03	24.99	24.92	24.55	27.56	23.11	1.53	4.82	330
13 1,4-Dichlorobenzene	27.27	26.5	28.26	32.99	27.07	30.07	29.04	2.24	7.05	330
15 Benzyl Alcohol	8.78	13.44	26.87	9.54	7.94	11.11	23.11	7.53	23.67	330
16 1,2-Dichlorobenzene	27.2	23.86	28.11	28.5	25.77	28.19	24.88	1.82	5.73	330
17 2-Methylphenol	22.41	16.68	19.1	9.78	20.74	27.5	16.43	5.54	17.4	330
18 2,2'-oxybis(1-Chloropropane)	30.11	26.02	29.3	33.29	28.92	32.51	27.29	2.62	8.22	330
20 4-Methylphenol	19.5	15.97	12.17	10.25	15.09	11.31	11.36	3.32	10.44	330
19 N-Nitroso-di-n-propylamine	30.37	26.98	32.32	32.12	304.53	31.46	28.17	103.69	325.9	330
21 Hexachloroethane	26.69	22.27	24.46	26	25.72	26.49	22.91	1.76	5.54	330
24 Isophorone	24.94	22.44	23.87	28.91	24.19	28.23	24.12	2.4	7.55	330

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	STD DEV	MDL	MRL
27 bis(2-Chloroethoxy)methane	24.44	20.52	23.05	27.21	23.73	26.11	22.19	2.28	7.18	330
30 1,2,4-Trichlorobenzene	27.01	23.61	26.5	26.3	23.8	26.8	23.49	1.63	5.13	330
32 Naphthalene	29.39	24.97	26.22	30.25	26.6	30.23	26.42	2.17	6.82	330
34 Hexachlorobutadiene	26.69	22.67	27.14	27.66	25.86	26.51	23.87	1.83	5.75	330
35 4-Chloro-3-Methylphenol	11.68	19.26	20.19	24.86	15.25	19.95	12.65	4.7	14.79	330
36 2-Methylnaphthalene	27.2	22.96	24.71	26.07	23.82	26.12	21.72	1.95	6.12	330
40 2,4,5-Trichlorophenol	14.45	16.69	16.21	19.88	13.28	15.6	14.64	2.13	6.69	670
42 2-Chloronaphthalene	32.4	24.22	26.12	31.01	26	29.06	25.96	3.04	9.54	330
43 2-Nitroaniline	14.95	+++++	17.82	23.41	15.52	14.37	17.11	3.31	11.15	670
45 2,6-Dinitrotoluene	24.82	22.03	21.93	23.27	23.84	26.51	21.52	1.8	5.66	330
46 Acenaphthylene	29.95	25.72	26.14	26.97	26.11	29.35	24.74	1.94	6.08	330
49 Acenaphthene	29.18	26.88	26.59	30.48	26.9	28.88	26.45	1.59	4.99	330
53 2,4-Dinitrotoluene	16.04	18.04	18.13	24.34	18.11	18.72	17.63	2.62	8.23	330
52 Dibenzofuran	28.12	25.41	26.91	29.25	25.96	28.11	25.8	1.45	4.54	330
54 Diethylphthalate	30.03	27.81	29.02	33.16	30.27	30.93	28.68	1.75	5.5	330
55 Fluorene	27.45	25.91	26.68	30.77	26.76	29.63	26.34	1.83	5.76	330
56 4-Chlorophenyl-phenylether	26.98	25.76	25.99	30.98	27.64	30.86	24.8	2.46	7.72	330
59 N-Nitrosodiphenylamine	26.12	24.86	29.39	25.22	27.56	35.15	21.94	4.21	13.23	330
61 4-Bromophenyl-phenylether	26.48	22.75	27.03	27.72	25.03	25.72	24.57	1.68	5.26	330
62 Hexachlorobenzene	28.27	25.4	27.94	30.14	26.76	29.76	26.62	1.72	5.41	330
65 Phenanthrene	28.93	26.46	28.3	32.45	29.94	30.35	29.16	1.86	5.83	330
66 Anthracene	27.09	25.35	26.11	23.16	26.8	30.52	26.29	2.21	6.93	330
67 Carbazole	36.35	34.85	33.01	35.64	34.75	37	33.62	1.43	4.48	330
68 Di-n-butylphthalate	30.99	30.83	31.02	32.06	30.97	32.13	31.2	0.54	1.71	330
69 Fluoranthene	32.24	29.89	31.1	31.99	32.02	31.05	30.41	0.89	2.79	330
71 Pyrene	29.76	29.26	30.93	31.48	30.06	30.72	30.7	0.76	2.39	330
73 Butylbenzylphthalate	28.95	28.71	28.02	30.61	29.16	29.52	30.1	0.87	2.74	330
75 Benzo(a)anthracene	34.21	33.24	32.69	32.29	33.97	34.67	34.43	0.91	2.87	330
77 Chrysene	32.98	32.9	31.07	31.89	34.4	32.39	34.31	1.21	3.82	330
78 bis(2-Ethylhexyl)phthalate	35.52	31.82	33.04	33.39	32.67	33.46	33.47	1.13	3.55	330

79 Di-n-octylphthalate	28.02	28.63	28.61	28.64	26.93	27.96	26.67	0.82	2.58	330

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	STD DEV	MDL	MRL
80 Benzo(b)fluoranthene	27.94	28.87	25.84	29.16	26.55	27.99	27.34	1.2	3.76	330
81 Benzo(k)fluoranthene	42.93	40.58	40.13	39.12	39.92	41.01	44.11	1.77	5.58	330
82 Benzo(a)pyrene	27.47	28.52	26.53	17.31	27.37	29.26	25.84	4.02	12.63	330
70 Benzidine	1518.89	1539.94	1448.15	1544.95	1559.7	1598.52	1529.91	45.81	143.99	330
84 Indeno(1,2,3-cd)pyrene	28.96	28.47	27	27.82	27.12	28.35	28.55	0.75	2.35	330
85 Dibenzo(a,h)anthracene	29.33	28.28	27.24	27.45	26.7	27.48	28.02	0.85	2.69	330
86 Benzo(g,h,i)perylene	31.31	29.4	29.16	29.69	29.77	29.25	29.33	0.74	2.33	330

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	STD DEV	MDL
26 2,4-Dimethylphenol	215.13	211.6	217.62	248.39	244.66	211.97	273.87	253.64	23.62	70.8
Dimethylphthalate	217.79	235.69	262.62	277.53	294.79	265.26	289.15	276.57	25.83	77.43
3-Nitroaniline	272.4	287.68	307.39	353.22	331.47	316.53	390.12	341.17	37.57	112.64
3,3'-Dichlorobenzidine	190.76	173.57	202.49	224.85	234.12	247.78	291.05	229.63	36.46	109.31
50 2,4-Dinitrophenol	49.85	27.08	0	22.53	47.18	21.24	21.81	69.81	18.85	59.24
29 2,4-Dichlorophenol	196.5	203.39	215.31	245.63	249.64	213.22	246.04	223.02	19.59	20.65

MDL Summary Chart

Jan-03						
Element	Wavelength	Spk Lvl		MDL		3-5?
By SW6010B		in ug/L		in ug/L		
Aluminum	308	50	16.33	17.0		Y
Antimony	206	10	2.91	3.0		Y
Arsenic	188	10	2.48	3.0		Y
Barium	233	10	3.63	4.0		N
Beryllium	313	2	0.49	0.5		Y
Cadmium	226	2	0.67	0.7		N
Calcium	430	500	238.67	240.0		N
Chromium	267	2	0.59	0.6		Y
Cobalt	238	2	0.89	0.9		N
Copper	324	10	3.24	4.0		Y
Iron	273	100	25.20	26.0		Y
Lead	220	10	3.77	4.0		N
Magnesium	279.07	25	7.28	8.0		Y
Manganese	257	2	0.73	0.8		N
Nickel	231	2	0.74	0.8		N
Potassium	766	250	77.74	78.0		Y
Selenium	196	25	8.15	9.0		Y
Silver	338	10	1.41	2.0		N
Sodium	330	250	82.94	83.0		Y
Thallium	190	10	2.39	3.0		Y
Vanadium	292	2	0.62	0.7		Y
Zinc	206	25	6.52	7.0		Y
Boron	183	500	119.72	120.0		Y
Tin	242	100	13.24	14.0		N
Molybdenum	202	10	1.09	2.0		N
Mercury by SW7470A		0.2	0.044	0.05		Y

AQUEOUS METHOD DETECTION LIMITS

Date: January 2003
Analyst: EP
Units:ug/L
Prep Method: 3005A
Analysis Method: 6010B
Matrix: Aqueous

OPTIMA1

Element	WaveLength	Standard Conc. In ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Standard Deviation	MDL in ug/L	3-5?
Aluminum	308	50	48.9	50.3	56.3	48.7	43.4	39.9	47.8	5.2	16.33	Y
Antimony	206	10	10.8	11.9	10.9	11.0	11.3	12.1	13.4	0.9	2.91	Y
Arsenic	188	10	9.7	7.9	9.7	9.0	8.5	8.0	8.0	0.8	2.48	Y
Barium	233	10	14.1	13.5	12.2	11.7	12.2	10.9	11.3	1.2	3.63	N
Beryllium	313	2	2.1	2.1	2.1	2.1	2.3	2.1	1.9	0.1	0.36	N
Cadmium	226	2	2.0	1.9	2.2	1.9	1.8	1.9	1.8	0.1	0.43	Y
Calcium	430	500	611.0	621.5	455.1	567.7	548.0	612.8	700.8	76.0	238.67	N
Chromium	267	2	2.3	2.3	2.5	2.1	2.2	2.3	2.2	0.1	0.394	N
Cobalt	238	2	2.8	2.6	2.9	2.6	2.4	2.8	2.6	0.2	0.54	Y
Copper	324	25	25.8	25.2	25.2	24.4	23.4	24.2	24.2	0.8	2.55	N
Iron	273	100	125.7	113.3	129.8	109.5	127.0	117.1	118.0	7.6	23.81	Y
Lead	220	10	7.5	7.9	7.7	7.0	6.3	4.4	7.1	1.2	3.77	N
Magnesium	279.07	25	16.6	16.2	16.2	22.4	18.9	19.8	17.2	2.3	7.28	Y
Manganese	257	2	3.4	3.3	3.6	3.3	3.4	3.4	3.4	0.1	0.31	N
Nickel	231	2	2.8	2.3	2.1	2.1	2.3	2.4	2.3	0.2	0.74	N
Potassium-radial	766	250	253.7	210.5	247.2	194.0	242.1	261.0	220.6	24.8	77.74	Y
Selenium	196	25	21.7	22.2	16.7	22.8	21.8	18.0	17.4	2.6	8.15	Y
Silver	338	10	12.4	12.4	12.0	11.4	11.3	12.0	11.6	0.4	1.41	N
Sodium-radial	589	250	344.8	329.9	316.1	295.4	280.5	292.5	273.2	26.4	82.940	Y
Thallium	190	10	10.5	11.0	10.4	9.8	10.9	11.3	9.1	0.8	2.39	Y
Vanadium	292	2	2.6	2.7	2.6	2.4	2.5	2.9	2.4	0.2	0.56	Y

Zinc	206	25		28.3	24.3	23.5	22.9	22.5	22.2	23.3		2.1		6.52	Y		
Mercury	253	0.2		0.27	0.26	0.24	0.23	0.26	0.25	0.24		0.0		0.044	Y		

AQUEOUS METHOD DETECTION LIMITS

Date: January 2003
Analyst: EP
Units:ug/L
Prep Method: 3005A
Analysis Method: 6010B
Matrix: Aq

OPTIMA2

Element	WaveLength	Standard Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Conc. in ug/L	Standard Deviation	MDL in ug/L		
Aluminum	308	50	47.6	50.3	47.5	48.6	48.7	47.5	54.4	2.5	7.82	N	
Antimony	206	5	6.3	6.0	5.6	6.5	6.1	6.2	6.7	0.4	1.12	Y	
Arsenic	188	10	10.9	10.3	11.5	13.1	12.0	11.9	11.7	0.9	2.78	Y	
Barium	233	10	14.3	14.4	13.9	13.6	14.2	13.5	13.6	0.4	1.17	N	
Beryllium	313	2	2.1	2.0	2.1	2.2	2.1	1.9	2.4	0.2	0.49	Y	
Cadmium	226	2	2.1	2.2	2.1	2.3	2.2	1.8	2.5	0.2	0.671	N	
Calcium	430	500	656.5	714.9	688.6	647.3	611.8	660.3	600.8	40.0	125.65	Y	
Chromium	267	2	2.4	2.4	2.4	2.6	2.3	2.0	2.5	0.2	0.59	Y	
Cobalt	238	2	2.6	2.8	2.5	2.6	2.6	1.9	2.5	0.3	0.89	N	
Copper	324	10	13.1	12.4	11.3	11.0	10.6	10.3	10.7	1.0	3.24	Y	
Iron	273	100	114.5	117.0	108.6	130.7	110.5	109.7	107.8	8.0	25.20	Y	
Lead	220	2	2.4	1.9	2.0	2.2	2.3	2.5	2.2	0.2	0.66	Y	
Magnesium	279.07	50	54.0	53.0	54.1	55.9	53.4	56.2	53.2	1.3	4.05	N	
Manganese	257	2	3.6	3.6	4.2	3.6	3.7	3.7	3.5	0.2	0.73	N	
Nickel	231	2	2.4	2.1	2.2	2.1	2.0	2.2	1.8	0.2	0.59	Y	
Selenium	196	10	8.5	9.9	9.6	9.7	9.1	10.4	8.0	0.8	2.62	Y	
Silver	338	10	11.4	12.1	11.8	11.2	11.0	11.6	11.3	0.4	1.18	N	
Sodium	330	1000	800.6	832.3	697.3	639.2	667.3	706.9	697.6	70.2	220.55	Y	
Thallium	190	5	4.5	5.1	5.6	4.2	4.9	4.7	5.4	0.5	1.55	Y	
Vanadium	292	2	2.1	2.0	2.1	2.2	1.9	1.8	2.4	0.2	0.62	Y	
Zinc	206	25	26.4	23.2	22.8	22.2	25.1	21.7	23.0	1.7	5.24	Y	

Boron	183	500		518.8	521.1	512.9	473.4	597.7	498.8	524.1		38.1	119.72	Y	
Tin	242	100		96.4	103.4	96.3	101.4	103.7	96.7	106.7		4.2	13.24	N	
Molybdenum	202	10		11.3	10.8	10.8	10.6	10.4	10.4	10.3		0.3	1.09	N	

Appendix E

Field Monitoring and Sampling Forms

E.1 Field Record of Well Gauging Forms
E.2 Field Record of Well Gauging, Purging, and Sampling Forms
E.3 Field Record of Surface Water and Sediment Sampling Forms

Appendix E.1

Field Record of
Well Gauging Forms

FIELD RECORD OF WELL GAUGING

Project Name: NASB, ME LTM Site 9 Event 23
Project Number: 5700.007.1C1.002
ECC Personnel: MAC/ FS/ SW

Weather: Clear, warm
Sounding Method: Slope Indicator
Equipment: interface probe

Gauge Date: 9/30/2003
Gauge Time: PM

Well Identification Number	Well Lock Status	Stick Up or F.M.	Well Physical Condition	VOC Concentrations Ambient Air (ppm)	VOC Concentrations Well Mouth (ppm)	PVC Casing Elevation (ft)	Well Diameter (inches)	Total Depth of Well (ft)	Installed Depth of Well (ft)	Depth to Water Sep-02 (ft)	Depth to Water (ft)	Depth to to Liquid (ft)	Water Table Elevation (ft)	Dedicated Pump X = In Well O = In Plant
Site 9														
MW-NASB-069	Good	Stick Up	Good	ND	ND	57.35	2		42.42	11.45	11.32	ND	46.03	O
MW-NASB-070	Good	Stick Up	Good	ND	ND	58.26	2		27.32	12.41	12.34	ND	45.92	X
MW-NASB-071	Good	Stick Up	Good	ND	ND	46.25	2		21.54	2.64	2.48	ND	43.77	O
MW-NASB-072	Good	Stick Up	Good	ND	ND	49.81	2		14.63	9.76	9.27	ND	40.54	O
MW-NASB-073	Good	Stick Up	Good	ND	ND	51.71	2		32.12	8.86	8.63	ND	43.08	X
MW-NASB-074	Good	Stick Up	Good	ND	ND	51.68	2		27.12	9.96	9.72	ND	41.96	O
MW-NASB-075	Good	Stick Up	Good	ND	ND	54.91	2		21.22	13.91	13.48	ND	41.43	O
MW-NASB-076	Good	Stick Up	Good	ND	ND	52.79	2		19.94	11.69	11.20	ND	41.59	O
MW-NASB-077	Good	Stick Up	Good	ND	ND	58.89	2		37.29	16.41	16.24	ND	42.65	X
MW-NASB-078	Good	Stick Up	Good	ND	ND	53.74	2		14.93	11.50	10.06	ND	43.68	X
MW-NASB-079	Good	Stick Up	Good	ND	ND	58.15	2		18.92	12.39	16.58	ND	41.57	X
MW-NASB-080	Good	Stick Up	Good	ND	ND	58.51	2		19.04	11.74	11.45	ND	47.06	O
MW-NASB-081	Good	Stick Up	Good	ND	ND	58.22	2		18.85	11.51	11.44	ND	46.78	X
MW-NASB-021	Good	Stick Up	Good	ND	ND	57.35	2		50.30	X	11.98	ND	45.37	O
MW-NASB-022	Good	Stick Up	Good	ND	ND	59.52	2		17.97	10.50	10.47	ND	49.05	O
MW-NASB-204	Good	Stick Up	Good	ND	ND	62.09	2		17.93	10.09	9.69	ND	52.40	X
MW-NASB-227	Good	Stick Up	Good	ND	ND	58.39	2		40.60	10.29	10.19	ND	48.20	O
SG-1C	NA	NA	Good	NA	NA		NA		NA		5.23	NA		NA
SG-2	NA	NA	Good	NA	NA		NA		NA		2.30	NA		NA
NEX														
MW-NASB-008		F.M.	Good	ND	ND	59.22	2	BAILER		3.65	2.82		56.40	No
MW-NASB-009		F.M.	Good	ND	ND	59.00	2	BAILER		4.40	3.83		55.17	No
MW-NASB-010		F.M.	Good	ND	ND	62.03	2	12.48		6.92	6.56		55.47	No
MW-NASB-023		F.M.	Good	ND	ND	67.29	2	BAILER		8.08	8.05		59.24	No
MW-NASB-024		F.M.	Good	ND	ND	65.31	4	BAILER		6.89	6.85		58.46	No
MW-NASB-025		F.M.	Good	ND	ND	64.34	4	BAILER		6.91	6.88		57.46	No
MW-NASB-026		F.M.	Good	ND	ND	66.61	2	9.32		7.90	7.84		58.77	No
MW-NASB-225		F.M.	Good	ND	ND	64.61	2	14.20		6.87	6.81		57.80	No
MW-NASB-226		F.M.	Good	ND	ND	62.22	2	BAILER		5.11	5.15		57.07	No
MW-NASB-250		F.M.	Good	ND	ND		1	10.00		4.61	3.83			No
MW-NASB-251		F.M.	Good	ND	ND	62.39	1	8.55		4.46	4.44		57.95	No
MW-NASB-252		F.M.	Good	ND	ND	59.86	1	11.75		4.17	3.51		56.35	No

Comments: No product detected in any wells.

Appendix E.2

Field Record of Well Gauging, Purging, and Sampling Forms

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 4
Location: NASB
Well ID: BN9 23 MW 69

Date: 9.30.03
Sampler: Suzanne Whiteside
PID Reading: 0.0

Start Time: 13:30 End Time: 14:01
Well Construction: 2" PVC
Depth to water: 11.33
Well Depth:
Water Column:
Total Volume Removed (L) 1.0A

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	01B0583AP
YSI	Sonde	99A0644AA
Grundfos	BM1/MP1	8344

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
13:31	.04	200	11.35	16.68	6.38	0.378	5.26	110.9	23.4	clear
13:36	1	200	11.35	16.44	6.19	0.336	1.14	146.4	6.9	clear
13:41	1	200	11.34	17.40	6.20	0.327	0.98	161.7	6.0	clear
13:46	1	200	11.33	16.69	6.21	0.334	0.92	164.9	0.8	clear
13:51	1	200	11.33	16.63	6.23	0.338	0.88	163.3	0.4	clear
13:56	1	200	11.33	16.61	6.23	0.340	0.84	161.7	0.4	clear
14:01	1	200	11.33	16.60	6.23	0.340	0.80	159.6	0.3	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%	

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
14:01	BN9-23 MW69	40 ml vial	2	HCL	VOCs
14:01	BN9-23MW69	1 L Amber	1	None	SVOCs
14:01	BN9-23MW69	500 ml poly	1	HNO3	TAL Metals
14:01	BN9-23MW69MS				
14:01	BN9-23MW69MSD				
14:00	BN9-23-XD3				
13:00	BN9-23XD4	40 ml vial	2	Diff. dupe HCL	VOCs
13:00	BN9-23 MW69DSD	"	"	"	"
13:00	BN9-23 MW69DSDMS	"	"	"	"
13:00	BN9-23 MW69DSDMSD	"	"	"	"
13:00	BN9-23 MW69 DSS				

Comments

Suzanne Whiteside
Signature

9.30.03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: BNAS ME.
Well ID: MW-NASB-070

Date: 9/30/03
Sampler: David C.
PID Reading: ____

Start Time: 14:27 End Time: 15:13
Well Construction: 2" PVC
Depth to water: 12.30'
Well Depth: 23.65'
Water Column: 11.35'
Total Volume Removed (L) 6.48

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02E0534 AT
YSI	6920	04194
Slope Indicator		24414
Grundfos	controller	9503

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	Turbidity (NTU)	~~Salinity~~ (ppt)	color
14:33	1.68	280	12.63	13.77	4.48	0.104	1.97	441.3	1.6	-	clear
14:43	1.9	190	12.60	16.27	5.18	0.107	1.65	434.2	4.4	-	clear
14:53	0.7	70	12.39	17.47	5.28	0.108	1.58	446.1	4.2	-	clear
14:58	0.4	80	12.36	17.99	5.33	0.109	1.62	451.6	4.5	-	clear
15:03	0.65	130	12.38	17.94	5.33	0.107	1.71	455.4	4.5	-	clear
15:08	0.60	120	12.35	18.24	5.32	0.106	1.65	461.8	3.5	-	clear
15:13	0.55	110	12.36	18.69	5.30	0.103	1.70	460.8	2.5	-	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%		

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
~~15:13~~	~~BN-9-23-MW-NASB-070~~	~~1 liter amber~~	~~(1)~~	~~NONE~~	~~SVOC~~
15:13	BN-9-23-MW-NASB-070	1 liter amber	(1)	NONE	SVOC
15:13	BN-9-23-MW-NASB-070	500ml poly	(1)	HNO_3	TAL Metals

DJC

Comments

Signature

9/30/03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: Brunswick ME
Well ID: BN-9-23 MW71

Date: 10-01-03
Sampler: Suzanne Whiteside
PID Reading: 0.0

Start Time: _____ End Time: _____
Well Construction: _____
Depth to water: 2.47
Well Depth: _____
Water Column: _____
Total Volume Removed (L) _____

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02E0534 AT
YSI	Sonde	04194

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
10:32	—	—	—	12.28	6.74	0.317	0.51	-32.6	6.0	
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%	

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
10:32	BN-9-23-MW71 DSD	40 ml vial	2	HCL	VOCs

Comments

_____

_____

_____

Suzanne Whiteside
Signature

10-01-03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: NASB
Well ID: MW-NASB-07B

Date: 10/1/03
Sampler: MAC/SW
PID Reading: 0

Start Time: 11:30 End Time: —
Well Construction: 2" PVC
Depth to water: 9.30'
Well Depth: ~
Water Column:
Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI		01F0883AB

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm^c	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
11:30	—	—	—	11.23	6.23	0.155	1.28	178.7	5.8	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%	

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
11:30	BN9.23MW072DSP	40ml vial	2	HCL	VOCs

Comments

Signature

10-1-03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: NASB ME.
Well ID: MW-NASB-074

Date: 10/1/03
Sampler: David C
PID Reading: —

Start Time: — End Time: —
Well Construction: 2" PVC
Depth to water: 9.71'
Well Depth: —
Water Column: —
Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02B0644 AG
YSI	600 XLM	02H0893 AI
Slope	Indicator	24414

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm^C	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)	color
13:25	—	—	—	10.64	6.87	0.346	7.02	153.1	—	—	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%		

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
13:25	BN-9-23-MW-074-OSD	40ml vial	2	HCl	VOC

Comments

Signature

10/1/03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9 Date: 10·1·03

Location: New Brunswick ME Sampler: SW

Well ID: BN9·23·MW075 PID Reading: 0.0

Start Time: 12:50 End Time: —

Well Construction: _____

Depth to water: 13.46'

Well Depth: —

Water Column: —

Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI	MDS 650	01F0883AB
YSI	Sonde	

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
12:50	—	—	—	12.79	6.03	0.369	0.37	93.2	5.8	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%	

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
12:50	BN9·23MW075 DSP	40ml voa	2	HCL	VOCs

Comments

_____

_____

_____

Suzanne Whitesides
Signature

10·1·03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9 Date: 10/1/03

Location: NASB ME. Sampler: David C

Well ID: MW-NASB-076 PID Reading: -

Start Time: - End Time: -

Well Construction: 2" PVC

Depth to water: 11.24'

Well Depth: -

Water Column: -

Total Volume Removed (L) -

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02B0644 AG
YSI	600 XLM	02H0893 AI
Slope	Indicator	24414

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm C	DO (mg/L)	ORP (mV)	~~Turbidity~~ (NTU)	~~Salinity~~ (ppt)	color
13:00	-	-	-	13.69	6.06	0.315	5.69	315.3	-	-	clear
Acceptance Criteria:		< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%			

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
13:00	BN-9-23-MW-076-DSD	40ml vial	2	HCl	VOC
-	BN-9-23-DSXD-5	40ml vial	2	HCl	VOC

Comments

Signature

10/1/03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9 Date: 9/30/03

Location: BNAS, ME. Sampler: David C.

Well ID: MW-NASB-079 PID Reading: —

Start Time: 13:13 End Time: 13:52

Well Construction: 2" PVC

Depth to water: ~~16.58'~~ MAC 12.11

Well Depth: —

Water Column: —

Total Volume Removed (L) 5.19

Field Testing Equipment

Make	Model	Serial #
YSI	650MDS	02E0534 AT
YSI	6920	04194
Slope Indicator		24414
Grundfos	controller	9503

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	Turbidity (NTU)	~~Salinity (ppt)~~	color
13:17	1.84	460	16.59	16.92	6.15	0.302	1.00	-67.3	23.4	—	clear
13:27	1.9	190	16.59	18.90	6.46	0.285	0.47	-108.7	2.1	—	clear
13:37	1.0	100	16.59	19.88	6.63	0.290	0.38	-112.9	2.9	—	clear
13:42	1.05	210	16.59	22.00	6.71	0.271	0.42	-116.4	3.7	—	clear
13:47	1.25	250	16.59	21.62	6.72	0.271	0.41	-113.8	4.3	—	clear
13:52	1.15	230	16.59	21.72	6.72	0.270	0.40	-115.4	3.8	—	clear
			MAC 12.11						DTC		
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%		

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
13:52	BN-9-23-MW-NASB-079	40ml vial	(2)	HCl	VOC
13:52	BN-9-23-MW-NASB-079	1 Liter amber	(1)	NONE	SVOC
13:52	BN-9-23-MW-NASB-079	500 ml Poly	(1)	HNO_3	TAL Metals

Comments

Signature

9/30/03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: BNAS ME.
Well ID: MW-NASB-080

Date: 10/1/03
Sampler: David C.
PID Reading: —

Start Time: — End Time: —
Well Construction: 2" PVC
Depth to water: 11.45'
Well Depth: —
Water Column: —
Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02B06144 AG
YSI	600 XLM	02H0893 AI
Slope	Indicator	24414

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	~~Turbidity~~ (NTU)	~~Salinity~~ (ppt)	color
10:45	—	—	—	15.07	6.95	0.425	4.84	100.2	—	—	clear
Acceptance Criteria:		< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%			

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
10:45	B11-9-03-MW-080-DSD	40ml Vial	2	HCl	VOC

Comments

Signature

10/1/03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: NASB ME.
Well ID: MW-NASB-227

Date: 10/1/03
Sampler: David C
PID Reading: —

Start Time: — End Time: —
Well Construction: 2" PVC
Depth to water: 10.19'
Well Depth: —
Water Column: —
Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02B0644 AG
YSI	600 XLM	02H0893 AI
Slope	Indicator	24414

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm[C]	DO (mg/L)	ORP (mV)	~~Turbidity (NTU)~~	~~Salinity (ppt)~~	color
11:35	—	—	—	12.17	6.57	0.265	3.11	276.8	—	—	clear

Acceptance Criteria: < 0.3 ft | 3% | ± 0.1 | 3% | 10% | ±10mv | 10%

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
11:35	BN-9-23-MW-227-DSD	40ml vial	2	HCl	VOC

Comments

[signature] Signature

10/1/03 Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: BWAS MA.
Well ID: MW-NASB-021

Date: 10/1/03
Sampler: David C.
PID Reading: —

Start Time: — End Time: —
Well Construction: 2" PVC
Depth to water: 11.94'
Well Depth: —
Water Column: —
Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI	650MDS	02B0644 AG
YSI	600XL M.	02H0893 A1
Slope Indicator		24414

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	~~Turbidity~~ (NTU)	~~Salinity~~ (ppt)	color
10:55	—	—	—	13.71	6.55	0.273	5.70	119.5	—	—	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%		

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
10:55	BW-9-23-MW-021-DSD 40mL vial		2	HCl	VOC

Comments

D Comeau
Signature

10/1/03
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Site 9
Location: Brunswick ME
Well ID: MW-NASB-22

Date: 10-01-03
Sampler: D C
PID Reading: 0.0

Start Time: — End Time: —
Well Construction: 2" PVC
Depth to water: 10.45
Well Depth: —
Water Column: —
Total Volume Removed (L) —

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	02B06644 AG
YSI	600 XLM	02H0893 AI
Slope Indicator		24414

Time	volume removed (liters)	Flow Rate (ml/min)	drawdown (ft)	Temp (celsius)	pH (STD)	SPC mS/cm	DO (mg/L)	ORP (mV)	~~Turbidity~~ (NTU)	~~Salinity~~ (ppt)	color
10:07	—	—	—	12.32	6.49	0.523	3.57	325.9	—	—	clear
Acceptance Criteria:			< 0.3 ft	3%	± 0.1	3%	10%	±10mv	10%		

2" screen volume = 0.163 gal/ft or 616 ml per foot

Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
10:07	BN9-23 MW22DSD	40 ml vox	2	HCL	VOCs

Comments

Signature

10/1/03
Date

Appendix E.3

Field Record of Surface Water and Sediment Sampling Forms

Page 1 of 1

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Project Name: NASB, ME LTM
Site: Site 9
Project Number: 5700.007
Sample Location ID: SW/SED 10
Date / Time: 10/1/03 1114
EA Personnel: SW/MAC

SURFACE WATER / LEACHATE SEEP INFORMATION

Type of S.W. (X) Stream ( ) River ( ) Seep ( ) Pond ( ) Lake ( ) Estuary ( ) Ocean

Water Depth: 3"	Dissolved Oxygen (ppm): 6.67 mg/L	**Equip. used for Collection** ( ) None, Grab into Bottle ( ) Bomb Sampler ( ) Pump_____
Velocity of Water: 3" per second	ORP (mV) 136.4	
Temperature (C): 12.35°C	pH (units): 6.20	**Field Quality Control Data** Field Duplicate Collected ( ) Yes ( ) No Field Dup. ID_____
Conductivity (umos/cm): 0.277 mS/cm	Turbidity (NTU) 13.0	

Sample Observations:
( ) Odor None
( ) Color clear
( ) Other

SEDIMENT / LEACHATE SEEP SEDIMENT INFORMATION

Sed. Type: ( ) Organic ( ) Gravel ( ) Clay ( ) Silt (X) Sand ( ) Other _____
Type of Samp. Collected: (X) Discrete ( ) Composite

Equip. Used for Collection
( ) Gravity Core ( ) Aluminum Pans
( ) Stainless Stl. Split Spoon (X) Stainless Steel Bucket
( ) Dredge ( ) Mod. En-Core Sampler
(X) Hand Spoon Trowel ( ) Other_____

Field Quality Control Data
Field Duplicate Collected
( ) Yes (X) No
Field Dup. ID_____

Sample Observations:
( ) Odor
( ) Color
( ) Other

SAMPLES COLLECTED

Bottle / Sample Identification	Sample Location	Date / Time	Matrix Aqueous	Matrix Solid	Preservation Method	Required Volume
BN9-23SW10	site 9	10-1-03 11:14	X		HCL	40ml (6 NS)
BN9-23SWSD10	site 9	10-1-03 11:14		X	CH_3OH	5g (40ml vial)
BN9-23SWSD10	site 9	10-1-03 11:14		X	$NAHSO_4$	5g (40ml vial)
BN9-						

Notes / Comments:
BN-9-23-SWXD7 - ON SW-10
BN923SDQS1 Rinsate BL 12:50 10/1/03
BN-9-23-SDXD6 - ON SW/SD10

Page 1 of 1

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Project Name: NASB, ME LTM
Site: Site 9
Project Number: 5700.007
Sample Location ID: LT-901
Date / Time: 10/1/03
EA Personnel: SW/MAC

SURFACE WATER / LEACHATE SEEP INFORMATION

Type of S.W. ( ) Stream ( ) River (x) Seep ( ) Pond ( ) Lake ( ) Estuary ( ) Ocean

Water Depth: 1/2"	Dissolved Oxygen (ppm): 0.63	**Equip. used for Collection** (x) None, Grab into Bottle ( ) Bomb Sampler ( ) Pump Dedicated jar
Velocity of Water: 0	ORP (mV) −2.1	
Temperature (C): 12.9°C	pH (units): 6.13	**Field Quality Control Data** Field Duplicate Collected ( ) Yes (x) No
Conductivity (umos/cm): 375	Turbidity (NTU) 242	Field Dup. ID_____

Sample Observations:
( ) Odor – None
(x) Color Turbid brown
( ) Other

SEDIMENT / LEACHATE SEEP SEDIMENT INFORMATION

Sed. Type: ( ) Organic ( ) Gravel ( ) Clay ( ) Silt ( ) Sand ( ) Other _____
Type of Samp. Collected: ( ) Discrete ( ) Composite

Equip. Used for Collection
( ) Gravity Core ( ) Aluminum Pans
( ) Stainless Stl. Split Spoon ( ) Stainless Steel Bucket
( ) Dredge ( ) Mod. En-Core Sampler
( ) Hand Spoon Trowel ( ) Other_____

Field Quality Control Data
Field Duplicate Collected
( ) Yes ( ) No
Field Dup. ID_____

Sample Observations:
( ) Odor
( ) Color
( ) Other

SAMPLES COLLECTED

Bottle / Sample Identification	Sample Location	Date / Time	Matrix: Aqueous	Matrix: Solid	Preservation Method	Required Volume	
BN-9-23-LT-901	LT-901	10/1/03 1100	x		HCl	80 ML	MS/MC
BN-9-23-LTXD9	LT-901	10/1/03	x		HCl	80 ML	

Notes / Comments: Sheen on surface
Stormdrain flowing nearby

Appendix F

Site Inspection Report

Environmental Chemical Corporation
50 D'Angelo Drive
Marlborough, MA 01752

15 January, 2004

Site inspection activities at Site 9 were completed by an experienced field technician on 1 October, 2003 in accordance with the Final Long Term Monitoring Plan (1999b). There was no evidence of stressed vegetation. The site monitoring wells were observed to be capped, labeled, locked and in good condition.

Mary Kate Heller

Mary Kate Heller
Project Engineer

Appendix G

Analytical Report Data Tables

G.1 Groundwater Samples
G.2 Surface Water Samples
G.3 Sediment Samples
G.4 Leachate Station Seep Sample
G.5 Diffusion Samples

Appendix G.1

Groundwater Samples

APPENDIX G.1

SAMPLE KEY – SITE 9
NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	Sample Station
Monitoring Wells	
BN-9-23-MW69	MW-NASB-069
BN-9-23-XD3	MW-NASB-069 - Duplicate
BN-9-23-NASB070	MW-NASB-070
BN-9-23-NASB79	MW-NASB-079
Trip Blank	
BN-EP-23-QT2	Trip Blank (QT-02)

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508-229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1589
NAME Jackson Kiker	FAX	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NAS3 LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6-03	# OF CONTAINERS	SVOC	TAL Metals *	VOCs									COMMENTS
BN-9-23-NASB0709	9-30-03/15:13		X	X		*10	14	2	X	X										
BN-9-23 XD3	9-30-03 -		X	X		*11	15	4	X	X	X										dup
BN-9-23 NASB79	9-30-03/13:52		X	X		12	16	2	X	X											
BN-EP23-MW212 DSS	10-2-03/10:15		X	X			17	2			X										
BN-EP-23-P132 DSD	10-2-03/10:45		X	X			18	6			X										ms/msd
BN-EP23MW303 DSD	10-2-03/11:20		X	X			19	2			X										
BNEP23 DSXD8	10-2-03/ 0:00		X	X			20	2			X										dup
BNEP23-305 DSD	10-2-03/11:05		X	X			21	2			X										
BNEP23MW306DSD	10-2-03/ 09:55		X	X			22	2			X										
BNEP23MW323	10-1-03/15:59		X	X			23	2			X										
BNEP23MW1104 DSD	10-2-03/09:40		X	X			24	2			X										
BNEP23 QT2	10-3-03/10:00		X	X			25	2			X										TRIP

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark A Cr	10/03/03 1530	[signature]	10/3/03 3:50	Rad. OK	5°C
		/		/		
		/		/		

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

B1588

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE ~~508~~ 229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1585 cmw 10/6/03
NAME Jackson Kiker	FAX ~~508~~ 229-7737	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID - 03 10-10	# OF CONTAINERS	REQUESTED ANALYSES: VOC's	SVOC's	TAL Metals	COMMENTS
3N-9-23MW71DSD	10-1-03 10:32		X	X		13	06	2	X			~~MS/MSD~~ SW
3N-9-23MWXDUP	9-30-03		X	X		14	07	2	X			dup
3N-9-23MW075DSD	10-1-03 12:50		X	X		15	08	2	X			
3N-9-23MW072DSD	10-1-03 11:30		X	X		16	09	2	X			
3N-9-23MW074DSD	10-1-03 13:25		X	X		17	10	2	X			
3N-9-23MW076DSD	10-1-03 13:00		X	X		18	11	2	X			
3N-9-23MW22DSD	10-1-03 10:07		X	X		19	12	2	X			
3N9-23MW227DSD	10-1-03 11:35		X	X		20	13	2	X			
3N-9-23MW021DSD	10-1-03 10:55		X	X			14	2	X			
3N-9-23MW080DSD	10-1-03 10:45		X	X			15	2	X			
3N9-23DSXDUP	10-1-03 -		X	X			16	2	X			dup
3N-9-23 MW69	9-30-03 14:01		X	X			17	12	X	X	X	MS/MSD

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark Q. Cw	10/03/03 1530		10/3/03 3:50		5°C
		/		/		Rad - OK
		/		/		

WHITE: LABORATORY COPY YELLOW: ...ORT COPY PINK: CLIENT'S COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

923MW69

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1590

Matrix: (soil/water) WATER Lab Sample ID: B1590-04A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9250

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	34	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	2	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	34	
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923MW69

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1590

Matrix: (soil/water) WATER Lab Sample ID: B1590-04B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6497

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	20	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923MW69

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1590

Matrix: (soil/water) WATER Lab Sample ID: B1590-04B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6497

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

923MW69

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: B1590__

Matrix (soil/water): WATER_ Lab Sample ID: B1590-04C_____

Level (low/med): MED____ Date Received: 10/03/03____

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.8	B		P
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	6.6	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	4680			P
7440-47-3	Chromium	0.60	U		P
7440-48-4	Cobalt	0.90	U		P
7440-50-8	Copper	4.0	U		P
7439-89-6	Iron	231			P
7439-92-1	Lead	4.0	U		P
7439-95-4	Magnesium	2230			P
7439-96-5	Manganese	360			P
7439-97-6	Mercury	0.15	U		CV
7440-02-0	Nickel	0.90	B		P
7440-09-7	Potassium	1620			P
7782-49-2	Selenium	9.0	U		P
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	54000			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.2	B		P
7440-66-6	Zinc	9.0	B		P
	Cyanide				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

923XD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-11A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9238

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	34	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.9	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	34	
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923XD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-11B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6501

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	20	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923XD3

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-11B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6501

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

923XD3

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: B1588___

Matrix (soil/water): WATER_ Lab Sample ID: B1588-11C_____

Level (low/med): MED____ Date Received: 10/03/03____

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	74.2	B		P
7440-36-0	Antimony	3.0	U	*/E 10/23/03	P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	10.4	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	5350			P
7440-47-3	Chromium	1.3	B		P
7440-48-4	Cobalt	1.3	B		P
7440-50-8	Copper	5.2	B		P
7439-89-6	Iron	255			P
7439-92-1	Lead	4.0	U		P
7439-95-4	Magnesium	2350			P
7439-96-5	Manganese	404			P
7439-97-6	Mercury	0.14	U		CV
7440-02-0	Nickel	2.1	B		P
7440-09-7	Potassium	1440			P
7782-49-2	Selenium	9.0	U		P
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	55800		E	P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	B	*/E 10/23/03	P
7440-66-6	Zinc	8.3	B		P
	Cyanide				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923NASB070

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-10A

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6500

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	20	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923NASB070

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-10A

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6500

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

923NASB070

Lab Name: MITKEM_CORPORATION Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: B1588

Matrix (soil/water): WATER Lab Sample ID: B1588-10B

Level (low/med): MED Date Received: 10/03/03

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	161	B		P
7440-36-0	Antimony	5.3	B	✗ 10/23/03	P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	18.0	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	10100			P
7440-47-3	Chromium	7.5	B		P
7440-48-4	Cobalt	5.6	B		P
7440-50-8	Copper	19.7	B		P
7439-89-6	Iron	220			P
7439-92-1	Lead	4.0	U		P
7439-95-4	Magnesium	1190			P
7439-96-5	Manganese	630			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	716	B		P
7782-49-2	Selenium	9.0	U		P
7440-22-4	Silver	2.2	B		P
7440-23-5	Sodium	8490		E	P
7440-28-0	Thallium	3.0	U	✗	P
7440-62-2	Vanadium	1.3	B	✗ 10/23/03	P
7440-66-6	Zinc	7.0	U		P
	Cyanide				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923NASB79

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-12A

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6502

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	20	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

923NASB79

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-12A

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D6502

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/14/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

923NASB79

Lab Name: MITKEM_CORPORATION_____ Contract: _____

Lab Code: MITKEM Case No.: _____ SAS No.: _____ SDG No.: B1588___

Matrix (soil/water): WATER_ Lab Sample ID: B1588-12B_____

Level (low/med): MED____ Date Received: 10/03/03____

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	147	B		P
7440-36-0	Antimony	3.0	U	✗ 10/23/03	P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	17.4	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	10100			P
7440-47-3	Chromium	8.3	B		P
7440-48-4	Cobalt	5.4	B		P
7440-50-8	Copper	19.9	B		P
7439-89-6	Iron	245			P
7439-92-1	Lead	4.0	U		P
7439-95-4	Magnesium	1170			P
7439-96-5	Manganese	655			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	5.8	B		P
7440-09-7	Potassium	759	B		P
7782-49-2	Selenium	9.0	U		P
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	8870		E	P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	0.74	B	✗ 10/23/03	P
7440-66-6	Zinc	7.0	U		P
	Cyanide				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

_____

_____

_____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNEP23QT2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1591

Matrix: (soil/water) WATER Lab Sample ID: B1591-09A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9275

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/09/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	3	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

Appendix G.2

Surface Water Samples

APPENDIX G.2

SAMPLE KEY – SITE 9
NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	Sample Station
Surface Water Samples	
BN-9-23-SW10	SW-010
BN-9-23-SWXD-7	SW-010 - Duplicate
Trip Blank	
BN-EP-23-QT2	Trip Blank (QT-02)
Equipment Reinsert Blank	
BN-9-23-QS1	Rinsate Blank (QS-01)

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		LAB PROJECT #:
COMPANY ECC	PHONE 508 229-2270	COMPANY ECC	PHONE	B1584
NAME Jackson Kikes	FAX 508-229-7737	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough, MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-16 03	# OF CONTAINERS	Pesticides 8081A	VOCs 010 Solid	COMMENTS
BN-95-18-MWNASB97	9/30/03 /1932		X	X			-1	3	X		MS/MSD
~~BN-95-18-MWNASB~~	/										
BN-95-18-XD2	9/30/03 / —		X	X			-2	1	X		
BN-95-18-MWNASB57	/1047		X	X			-3	1	X		
BN-95-18-MWNASB098	/0958		X	X			-4	1	X		
BN-9-23-SW3/0 MS/MSD	10-1-03 / 11:14		X	X		01	-5	6		X	
BN-9-23-SWXD-7	10-1-03 /		X	X		02	-6	2		X	Dup
BN-9-23SDQS-1	10-1-03 / 12:50		(X)	X		03	-7	2		X	Rinsate
BN-9-23-SW5DUP MS/MSD	10-1-03 / 11:14		X	X	X	04	-8	9+1		X X	MS/MSD
BN-9-23-SDXD-6	10-1-03 / 0:00		X	X		05	-9	3		X	Dup
BN-9-23-MW6DSS	9-30-03 / 13:00		X	X		06	-10	2		X	
BN-9-23-MW6DSD	9-30-03 / 13:00		X	X		07	-11	6		X	MS/MSD

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
	Mark Co	10/3/03/1530	[signature]	10/3/03
		/		/
		/		/

ADDITIONAL REMARKS: Rad-OK

COOLER TEMP: 5°C

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508-229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1589
NAME Jackson Kiker	FAX	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NAS3 LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6-03	# OF CONTAINERS	SVOC	TAL Metals *	VOCs	COMMENTS
BN-9-23-NASB0709	9-30-03/15:13		X	X		*10	14	2	X	X		
BN-9-23 XD3	9-30-03 -		X	X		*11	15	4	X	X	X	dup
BN-9-23 NASB79	9-30-03/13:52		X	X		12	16	2	X	X		
BN-EP23-MW212 DSS	10-2-03/10:15		X	X			17	2			X	
BN-EP-23-P132-DSD	10-2-03/10:45		X	X			18	6			X	ms/msD
BN-EP23MW303 DSD	10-2-03/11:20		X	X			19	2			X	
BNEP23 DSXD8	10-2-03/ 0:00		X	X			20	2			X	dup
BNEP23-305 DSD	10-2-03/11:05		X	X			21	2			X	
BNEP23MW306DSD	10-2-03/ 09:55		X	X			22	2			X	
BNEP23MW323	10-1-03/15:59		X	X			23	2			X	
BNEP23MW1104 DSD	10-2-03/09:40		X	X			24	2			X	
BNEP23 QT 2	10-3-03/10:00		X	X			25	2			X	Trip

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark A	10/03/03 1530		10/3/03 3:30		5°C
		/		/		
		/		/	Rad OK	

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SW10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-01A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9215

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	0.5	J
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.9	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	0.7	J
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SWXD-7

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-02A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9223

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	0.5	J
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	2	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	0.7	J
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNEP23QT2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1591

Matrix: (soil/water) WATER Lab Sample ID: B1591-09A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9275

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/09/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	3	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SDQS-1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-03A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9224

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

Appendix G.3

Sediment Samples

APPENDIX G.3

SAMPLE KEY – SITE 9
NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	Sample Station
Sediment Samples	
BN-9-23-SWSD-10	SED-010
BN-9-23-SDXD6	SED-010 - Duplicate
Trip Blank	
BN-EP-23-QT2	Trip Blank (QT-02)
Equipment Rinsate Blank	
BN-9-23-QS1	Rinsate Blank (QS-01)

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		LAB PROJECT #:
COMPANY ECC	PHONE 508 229-2270	COMPANY ECC	PHONE	B1566
NAME Jackson Kikes	FAX 508-229-7737	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough, MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6603	# OF CONTAINERS	Pesticides 8081A	VOCs	O/G Solid	COMMENTS
	9/30/03											
BN-95-18-MWNASB97	/1932		X	X			-1	3	X			MS/MSD
~~BN-95-18-MWNASB~~	/											
BN-95-18-XD2	9/30/03/—		X	X			-2	1	X			
BN-95-18-MWNASB67	/1047		X	X			-3	1	X			
BN-95-18-MWNASB048	/0958		X	X			-4	1	X			
BN-9-23-SW10 MS/MSD	10-1-03/11:14		X	X			-5	6		X		
BN-9-23-SWXD-7	10-1-03/		X	X			-6	2		X		Dup
BN-9-23-SDQS-1	10-1-03/12:50		X	X			-7	2		X		Rinsate
BN-9-23-SW5DXD MS MSD	10-1-03/11:14		X	X	X		-8	9+1		X	X	MS/MSD
BN-9-23-SDXD-6	10-1-03/0:00		X	X			-9	3		X		Dup
BN-9-23-MW6DSS	9-30-03/13:00		X	X			-10	2		X		
BN-9-23-MW6DED	9-30-03/13:00		X	X			-11	6		X		MS/MSD

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
	Mark Co	10/3/03/1530	[signature]	10/3/03
		/		/
		/		/

ADDITIONAL REMARKS:

COOLER TEMP: 3°C

Rad-OK

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508.229.2270	COMPANY ECC	PHONE	LAB PROJECT #: B1589
NAME Jackson Kiker	FAX	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6-03	# OF CONTAINERS	SVOC	TAL Metals *	VOCs	COMMENTS
3N-9-23-NASB-0709	9-30-03/15:13		X	X		*10	14	2	X	X		
3N-9-23 XD3	9-30-03 -		X	X		*11	15	4	X	X	X	dup
3N-9-23 NASB 79	9-30-03/13:52		X	X		12	16	2	X	X		
3N-EP23-MW212 DSS	10-2-03/10:15		X	X			17	2			X	
3N-EP23-P132 DSD	10-2-03/10:45		X	X			18	6			X	MS/MSD
3N-EP23MW303 DSD	10-2-03/11:20		X	X			19	2			X	
NEP23 DSXD8	10-2-03/ 0:00		X	X			20	2			X	dup
NEP23-305 DSD	10-2-03/11:05		X	X			21	2			X	
NEP23MW306DSD	10-2-03/ 09:55		X	X			22	2			X	
NEP23MW323	10-1-03/15:59		X	X			23	2			X	
NEP23MW1104 DSD	10-2-03/09:40		X	X			24	2			X	
NEP23 QT 2	10-3-03/10:00		+	X			25	2			X	TSP

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark A Cox	10/03/03 1530	[signature]	10/3/03 3:30		5°C
		/		/		
		/		/	Rad. OK	

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SWSD10

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) SOIL Lab Sample ID: B1588-04C

Sample wt/vol: 5.5 (g/mL) G Lab File ID: V5E9389

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. 19 Date Analyzed: 10/13/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-35-4	1,1-Dichloroethene	6	U
67-64-1	Acetone	12	
75-15-0	Carbon Disulfide	1	J
75-09-2	Methylene Chloride	4	BJ
75-34-3	1,1-Dichloroethane	6	U
78-93-3	2-Butanone	6	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
107-06-2	1,2-Dichloroethane	6	U
71-43-2	Benzene	6	U
79-01-6	Trichloroethene	6	U
75-27-4	Bromodichloromethane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
108-10-1	4-Methyl-2-pentanone	6	U
108-88-3	Toluene	1	J
10061-02-6	trans-1,3-Dichloropropene	6	U
79-00-5	1,1,2-Trichloroethane	6	U
127-18-4	Tetrachloroethene	6	U
591-78-6	2-Hexanone	6	U
124-48-1	Dibromochloromethane	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
1330-20-7	Xylene (Total)	2	J
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
87-68-3	Hexachlorobutadiene	6	U
----------	1,2-dichloroethene, (Total)	6	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SDXD-6

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) SOIL Lab Sample ID: B1588-05B

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5E9388

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/13/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	14	
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	4	BJ
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	2	J
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
87-68-3	Hexachlorobutadiene	5	U
----------	1,2-dichloroethene, (Total)	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNEP23QT2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1591

Matrix: (soil/water) WATER Lab Sample ID: B1591-09A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9275

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/09/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	3	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SDQS-1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-03A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9224

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

Appendix G.4

Leachate Station Seep Sample

APPENDIX G.4

SAMPLE KEY – SITE 9
NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	Sample Station
LT-901 (Seep) Samples	
BN-9-23-LT901	LT-901
BN-9-23-LTXD9	LT-901 - Duplicate
Trip Blank	
BN-EP-23-QT2	Trip Blank (QT-02)
Equipment Rinsate Blank	
BN-9-23-QS1	Rinsate Blank (QS-01)

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508-229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1586
NAME Jackson Kiker	FAX	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOCs	COMMENTS
3N9-23LT901	10-1-03/11:00			X		08	-11	6	X	MS MSD
3N9-23LTXD9	10-1-03/ -			X		01	-13	2	X	dup
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark D. Co	10/3/03/1530	[signature]	10/3/03 330		3°C
		/		/		
		/		/	Rad-OK	

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MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508-229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1589
NAME Jackson Kiker	FAX	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NAS(B LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6-03	# OF CONTAINERS	SVOC	TAL Metals *	VOCs	COMMENTS
BN-9-23-NASB-0709	9-30-03/15:13		X	X		*10	14	2	X	X		
BN-9-23 XD3	9-30-03 -		X	X		*11	15	4	X	X	X	dup
BN-9-23 NASB79	9-30-03/13:52		X	X		12	16	2	X	X		
BN-EP23-MW212 DSS	10-2-03/10:15		X	X			17	2			X	
BN-EP-23-P132 DSD	10-2-03/10:45		X	X			18	6			X	ms/msd
BN-EP23MW303 DSD	10-2-03/11:20		X	X			19	2			X	
BNEP23 DSXD8	10-2-03/ 0:00		X	X			20	2			X	dup
BNEP23-305 DSD	10-2-03/11:05		X	X			21	2			X	
BNEP23MW306DSD	10-2-03/ 09:55		X	X			22	2			X	
BNEP 23MW323	10-1-03/15:59		X	X			23	2			X	
BNEP23MW1104 DSD	10-2-03/09:40		X	X			24	2			X	
BNEP23 QT2	10-3-03/10:00		X	X			25	2			X	TRIP

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark A Cramer	10/03/03 1530	[signature]	10/3/03 3:30		5°C
		/		/		
		/		/		

Rad. OK

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(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		LAB PROJECT #:
COMPANY ECC	PHONE 508 229-2270	COMPANY ECC	PHONE	B1584
NAME Jackson Kikec	FAX 508-229-7737	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marleborough, MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6-03	# OF CONTAINERS	Pesticides 8081A	VOCs 0/0 Solid	COMMENTS
BN-95-18-MWNASB97	9/30/03 /1932		X	X			-1	3	X		MS/MSD
~~BN-95-18-MWNASB~~	/										
BN-95-18-XD2	9/30/03 / —		X	X			-2	1	X		
BN-95-18-MWNASB67	/1047		X	X			-3	1	X		
BN-95-18-MWNASB098	/0958		X	X			-4	1	X		
BN-9-23-SW(MS/MSD)0	10-1-03 / 11:14		X	X		01	-5	6		X	
BN-9-23-SWXD-7	10-1-03 /		X	X		02	-6	2		X	Dup
BN-9-23SDQS-1	10-1-03 / 12:50		X	X		03	-7	2		X	Rinsate
BN-9-23-SW5SDXD(MS MSD)	10-1-03 / 11:14		X	X	X	04	-8	9+1		X X	ms/msd
BN-9-23-SDXD-6	10-1-03 / 0:00		X	X		05	-9	3		X	Dup
BN-9-23-MW6DSS	9-30-03 / 13:00		X	X		06	-10	2		X	
BN-9-23-MW6DSD	9-30-03 / 13:00		X	X		07	-11	6		X	MS/MSD

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
	Mark Co	10/3/03 / 1530	[signature]	10/3/03
		/		/
		/		/

ADDITIONAL REMARKS:

COOLER TEMP: 5°C

Rad-OK

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23LT901

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-08A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9229

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.6	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BN-9-23LTXD9

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-09A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9237

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.5	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNEP23QT2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1591

Matrix: (soil/water) WATER Lab Sample ID: B1591-09A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9275

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/09/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	3	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-SDQS-1

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-03A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9224

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

Appendix G.5

Diffusion Samples

APPENDIX G.5

SAMPLE KEY – SITE 9
NAVAL AIR STATION, BRUNSWICK

Sample Designation	Sample Station
Diffusion Samples	
BN-9-23-MW6DSS	MW-NASB-069 (shallow)
BN-9-23-MW69DSD	MW-NASB-069 (deep)
BN-9-23-MWXD4S	MW-NASB-069 (deep) –Duplicate
BN-9-23-MW71DSD	MW-NASB-071 (deep)
BN-9-23-MW072DSD	MW-NASB-072 (deep)
BN-9-23-MW074DSD	MW-NASB-074 (deep)
BN-9-23-MW075DSD	MW-NASB-075 (deep)
BN-9-23-MW076DSD	MW-NASB-076 (deep)
BN-9-23-DSXD5	MW-NASB-076 (deep) - Duplicate
BN-9-23-MW080DSD	MW-NASB-080 (deep)
BN-9-23-MW021DSD	MW-NASB-021 (deep)
BN-9-23-MW22DSD	MW-NASB-022 (deep)
BN-9-23-MW227DSD	MW-NASB-227 (deep)
Trip Blank	
BN-EP-23-QT2	Trip Blank (QT-02)

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE ~~508~~ 229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1566
NAME Jackson Kikec	FAX ~~508~~-229-7737	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough, MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6603 (W)	# OF CONTAINERS	Pesticides 8081A	VOCs 010 Solid	COMMENTS
BN-95-18-MWNASB97	9/30/03 /1932		X	X			-1	3	X		MS/MSD
~~BN-95-18-MWNASB~~	/										
BN-95-18-XD2	9/30/03 / —		X	X			-2	1	X		
BN-95-18-MWNASB57	/ 1047		X	X			-3	1	X		
BN-95-18-MWNASB098	/ 0958		X	X			-4	1	X		
BN-9-23-SW10 MS/MSD	10.1.03 / 11:14		X	X		01	-5	6		X	
BN-9-23-SWXD-7	10.1.03 /		X	X		02	-6	2		X	Dup
BN-9-23SDQS-1	10.1.03 / 12:50		(X)	X		03	-7	2		X	Rinsate
BN-9-23-SW5DD MS MSD	10.1.03 / 11:14		X	X	X	04	-8	9+1		X X	MS/MSD
BN-9-23-SDXD-6	10.1.03 / 0:00		X	X		05	-9	3		X	DUP
BN-9-23-MW6DSS	9.30.03 / 13:00		X	X		06	-10	2		X	
BN-9-23-MW6DSD	9.30.03 / 13:00		X	X		07	-11	6		X	MS/MSD

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark Co	10/3/03/1530	[signature]	10/3/03		5°C
		/		/		
		/		/	Rad-OK	

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

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email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508-229-2270	COMPANY ECC	PHONE	LAB PROJECT #: B1589
NAME Jackson Kiker	FAX	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700.007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID 10-6-03	# OF CONTAINERS	SVOC *	TAL Metals *	VOCs										COMMENTS
BN-9-23-NASB-0709	9-30-03/15:13		X	X		* 10	14	2	X	X											
BN-9-23 XD3	9-30-03 -		X	X		* 11	15	4	X	X	X										dup
BN-9-23 NASB79	9-30-03/13:52		X	X		12	16	2	X	X											
BN-EP23-MW212 DSS	10-2-03/10:15		X	X			17	2			X										
BN-EP-23-P132 DSD	10-2-03/10:45		X	X			18	6			X										MS/MSD
BN-EP23MW303 DSD	10-2-03/11:20		X	X			19	2			X										
BN-EP23 DSXD8	10-2-03/ 0:00		X	X			20	2			X										dup
BN-EP23-305 DSD	10-2-03/11:05		X	X			~~21~~	2			X										
BN-EP23MW306DSD	10-2-03/ 09:55		X	X			22	2			X										
BN-EP23MW323	10-1-03/15:59		X	X			23	2			X										
BN-EP23MW1104 DSD	10-2-03/09:40		X	X			24	2			X										
BN-EP23 QT 2	10-3-03/10:00		X	X			25	2			X										Trip

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark A Cox	10/03/03 1530	[signature]	10/3/03 3:30		5°C
		/		/	Rad. OK	
		/		/		

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email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

B1588

REPORT TO		INVOICE TO		
COMPANY ECC	PHONE 508.229.2270	COMPANY ECC	PHONE	LAB PROJECT #: B1588 10/6/03
NAME Jackson Kiker	FAX 508.229.7737	NAME	FAX	
ADDRESS		ADDRESS 50 D'Angelo Drive		TURNAROUND TIME:
CITY/ST/ZIP		CITY/ST/ZIP Marlborough MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NASB LTMP	5700-007	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID-03	# OF CONTAINERS	VOC's	SVOC's	TAL Metals	COMMENTS
BN-9-23-MW-71DSD	10-1-03 / 10:32		X	X		13	10	2	X			~~MS/MSD~~ SW
BN-9-23MW-XD-1D	9-30-03 / -		X	X		14	07	2	X			dup
BN-9-23-MW-075DSD	10-1-03 / 12:50		X	X		15	08	2	X			
BN-9-23-MW-072DSD	10-1-03 / 11:30		X	X		16	09	2	X			
BN-9-23-MW-074DSD	10-1-03 / 13:25		X	X		17	10	2	X			
BN-9-23-MW-076DSD	10-1-03 / 13:00		X	X		18	11	2	X			
BN-9-23-MW-22DSD	10-1-03 / 10:07		X	X		19	12	2	X			
BN-9-23-MW-227DSD	10-1-03 / 11:35		X	X		20	13	2	X			
BN-9-23-MW-021DSD	10-1-03 / 10:55		X	X			14	2	X			
BN-9-23-MW-080DSD	10-1-03 / 10:45		X	X			15	2	X			
BN-9-23-DSXDS	10-1-03 / -		X	X			16	2	X			dup
BN-9-23-MW-09	9-30-03 / 14:01		X	X			17	12	X	X	X	MS/MSD

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	Mark Q. Cw	10/03/03 1530		10/3/03 3:30		5°C
		/		/		Rod - OK
		/		/		

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW6DSS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-06A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9225

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	30	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	2	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	35	
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW69DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-07A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9226

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/07/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	33	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.8	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	0.7	J
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	43	
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW69DSDDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-07ADL

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9234

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 2.5

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	2	U
75-01-4	Vinyl Chloride	32	D
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	2	U
75-35-4	1,1-Dichloroethene	2	U
75-09-2	Methylene Chloride	3	DB
75-34-3	1,1-Dichloroethane	2	U
67-66-3	Chloroform	2	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
107-06-2	1,2-Dichloroethane	2	U
71-43-2	Benzene	2	U
79-01-6	Trichloroethene	2	U
75-27-4	Bromodichloromethane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
108-88-3	Toluene	2	U
10061-02-6	trans-1,3-Dichloropropene	2	U
79-00-5	1,1,2-Trichloroethane	2	U
127-18-4	Tetrachloroethene	2	U
124-48-1	Dibromochloromethane	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
1330-20-7	Xylene (Total)	2	U
100-42-5	Styrene	2	U
75-25-2	Bromoform	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
87-68-3	Hexachlorobutadiene	2	U
78-93-3	2-Butanone	12	U
108-10-1	4-Methyl-2-pentanone	12	U
----------	1,2-Dichloroethene (Total)	43	D
67-64-1	Acetone	12	U
591-78-6	2-Hexanone	12	U
75-15-0	Carbon Disulfide	2	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23MWXD4DS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-14A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9240

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	36	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	2	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	47	E
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23M
WXD4DSDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-14ADL

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9549

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/22/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 2.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	2	U
75-01-4	Vinyl Chloride	38	D
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	2	U
75-35-4	1,1-Dichloroethene	2	U
75-09-2	Methylene Chloride	2	D
75-34-3	1,1-Dichloroethane	2	U
67-66-3	Chloroform	2	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
107-06-2	1,2-Dichloroethane	2	U
71-43-2	Benzene	2	U
79-01-6	Trichloroethene	2	U
75-27-4	Bromodichloromethane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
108-88-3	Toluene	2	U
10061-02-6	trans-1,3-Dichloropropene	2	U
79-00-5	1,1,2-Trichloroethane	2	U
127-18-4	Tetrachloroethene	2	U
124-48-1	Dibromochloromethane	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
1330-20-7	Xylene (Total)	2	U
100-42-5	Styrene	2	U
75-25-2	Bromoform	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
87-68-3	Hexachlorobutadiene	2	U
78-93-3	2-Butanone	10	U
108-10-1	4-Methyl-2-pentanone	10	U
----------	1,2-Dichloroethene (Total)	46	D
67-64-1	Acetone	9	DJ
591-78-6	2-Hexanone	10	U
75-15-0	Carbon Disulfide	2	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW71DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-13A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9239

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW072DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-16A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9242

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.5	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW074DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-17A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9243

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.9	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	2	
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23-MW075DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-15A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9241

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.6	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23MW076DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-18A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9244

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

923DSXD5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1590

Matrix: (soil/water) WATER Lab Sample ID: B1590-03A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9249

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	2	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

923MW080DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1590

Matrix: (soil/water) WATER Lab Sample ID: B1590-02A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9248

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	3	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	B
75-34-3	1,1-Dichloroethane	1	
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	0.8	J
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

923MW021DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1590

Matrix: (soil/water) WATER Lab Sample ID: B1590-01A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9247

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23MW22DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-19A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9245

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	2	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BN-9-23MW22DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-19A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9245

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	75-69-4	TRICHLOROMONOFLUOROMETHANE	2.85	8	NJ ← ASTIC
2.				19	← AS TARGET
3.					
4.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BN-9-23MW227DSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1588

Matrix: (soil/water) WATER Lab Sample ID: B1588-20A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9246

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	0.9	BJ
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	2	
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	3	
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNEP23QT2

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1591

Matrix: (soil/water) WATER Lab Sample ID: B1591-09A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: V5E9275

Level: (low/med) LOW Date Received: 10/03/03

% Moisture: not dec. _____ Date Analyzed: 10/09/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	3	B
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
87-68-3	Hexachlorobutadiene	1	U
78-93-3	2-Butanone	5	U
108-10-1	4-Methyl-2-pentanone	5	U
----------	1,2-Dichloroethene (Total)	1	U
67-64-1	Acetone	5	U
591-78-6	2-Hexanone	5	U
75-15-0	Carbon Disulfide	1	U

EA Engineering, Science, and Technology, Inc.

LETTER OF TRANSMITTAL

Southborough Technology Park
333 Turnpike Road (Route 9)
Southborough, MA 01772
508-485-2982
508-485-5742

TO Engineering Field Activity Northeast
Naval Facilities Engineering Command
Code 182/LM
North Loop & American Way
Lester, Pennsylvania 19113-2090

DATE: 11/05/04	JOB NO.: 296.0047.1554
ATTENTION: Mr. Lonnie J. Monaco, P.E.	
RE: Contract No. N62472-92-D-1296	
CTO No. 0047	

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[ ] Shop drawings [ ] Prints [ ] Plans [ ] Samples [ ] Specifications

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