



**Final  
Building 95  
Monitoring Event 20 Report  
September 2004**

Contract No. N62472-02-D-0810  
Contract Task Order No. 007

**Naval Air Station  
Brunswick, Maine**

Prepared by:



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Prepared for:



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



**May 2005**

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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>4,4'-DDT</b>	dichlorodiphenyltrichloroethane
<b>4,4'-DDD</b>	dichlorodiphenyldichloroethane
<b>°C</b>	degrees Celsius
<b>EPA</b>	U.S. Environmental Protection Agency
<b>LTMP</b>	Long-Term Monitoring Plan
<b>MEDEP</b>	Maine Department of Environmental Protection
<b>MEG</b>	maximum exposure guideline
<b>µg/L</b>	micrograms per liter
<b>µmhos/cm</b>	micromhos per centimeter
<b>mg/L</b>	milligrams per liter
<b>mV</b>	millivolt
<b>NAS</b>	Naval Air Station
<b>NTU</b>	nephelometric turbidity units
<b>ORP</b>	oxidation reduction potential
<b>QAPP</b>	Quality Assurance Project Plan
<b>TCL</b>	target compound list

## **1.0 PROJECT ACTIVITIES AND MONITORING EVENT RESULTS**

This section describes the Naval Air Station (NAS) Brunswick, Maine project background; long-term monitoring plan; measurement of water level elevations; and groundwater monitoring, sampling, and analysis. It also describes project visual inspections, quality assurance and quality control processes, and an analytical data review.

### **1.1 Introduction**

Under Contract Number N62472-02-D-0810, Contract Task Order No. 007, Engineering Field Activity Northeast, Naval Facilities Engineering Command contracted with ECC to perform long-term monitoring at Building 95, NAS, Brunswick, Maine. NAS Brunswick is located south of the Androscoggin River between Brunswick and Bath, Maine (Figure 1). Figure 2 provides a site plan for the Building 95 site.

At the Building 95 site, the Navy is currently performing long-term monitoring, maintenance, and corrective measures as part of the long-term remedial actions required by the Action Memorandum dated April 1993 (ABB-ES 1993), and in accordance with the May 2000 Long-Term Monitoring Plan (LTMP) (EA 2000). During November-December 1994, corrective measures were taken at the site by ABB-ES following the completion of a baseline risk assessment. The remedial measures included: excavation of the upper 1-7 feet of soil, placement of permeable geotextile liner at the bottom of the excavation to act as a marker of the limit of excavation, and the addition of clean backfill. Figure 2 delineates the areas and depths of soil that were excavated. See Appendix G for a historical summary of the Building 95 site. In 2000 the LTMP was revised based upon a review of data from previous sampling events, and based on discussions with Maine Department of Environmental Protection (MEDEP), United States Environmental Protection Agency (EPA), and other Restoration Advisory Board Members (EA 2000). The LTMP document establishes the requirements for monitoring and sampling to be conducted on a periodic basis. The Building 95 long-term monitoring plan well designation and sample parameters are summarized in Table 1.

Groundwater samples were collected from monitoring wells MW-NASB-067, MW-NASB-097, and MW-NASB-098 during the September 2004 monitoring event.

This report provides the results of the monitoring and sampling completed during Monitoring Event 20 (September 2004). Section 1.0 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 2.0. Long-term monitoring objectives and recommendations are provided in Section 3.0 and references used for this report are presented in Section 4.0. Appendix A provides response to comments on the draft report (to be provided with final report). Appendix B provides temporal trend graphs of contaminant concentrations. Appendix C provides an analytical data quality review. Appendix D provides analytical report Form I data sheets. Appendix E provides field monitoring and sampling forms. Appendix F provides the engineering site inspection report. Appendix G provides a historical summary of the Building 95 site.

Beginning with the September 2003 long-term monitoring event, the Navy tasked ECC with gauging, collecting, and analyzing samples from the Building 95 site as per the LTMP. Beginning with the April 2004 long-term monitoring event, ECC completed the data quality review screening of the analytical data and generation of the monitoring event report. The Navy tasked EA Engineering, Science, and Technology, Inc. with continued database and graphic support for the monitoring event report.

## **1.2 Project Background**

Due to the reported low detections of contaminants of concern at this site, the sampling frequency was reduced from quarterly to tri-annual in June 1996 following approval by the MEDEP and EPA Region 1. Monitoring Event 9 (EA 1997) began the initiation of annual sampling at this site. Beginning in 2000, the sampling frequency was modified to two rounds per year (April and September). The monitoring program was re-assessed based on the results of the two sampling events in 2000, and monitoring well MW-NASB-067 was returned to the long-term monitoring sampling program as of April 2001. It was agreed upon by the Navy and MEDEP that samples collected during Monitoring Event 13 (May 2001) would be analyzed for volatile organic compounds and pesticides, including the pesticide rotenone. Maleic hydrazide was added to the contaminants of concern during the Fall 2001 sampling event after the Navy discussed the April/May 2001 monitoring event results with MEDEP and EPA.

Based upon site historical information and laboratory data issued to MEDEP by the Navy on 3 July 2001, and discussions between MEDEP and the Navy, MEDEP agreed to remove avitrol as a potential second round analyte from the groundwater sampling program at Building 95 (MEDEP 2001). Beginning with the September 2001 sampling event, the Navy agreed to analyze groundwater samples for the pesticide rotenone (fourth round of rotenone data) by EPA Method 635, and for maleic hydrazide (third and fourth rounds of maleic hydrazide data, including the April and September 2002 sampling events) by EPA Method 632 Modified. Groundwater samples were collected from monitoring wells MW-NASB-067, MW-NASB-097, and MW-NASB-098. Beginning in April 2002, it was agreed between the Navy, EPA, and MEDEP that the following groundwater sample analytical parameters for would be eliminated from the sampling program:

- Target Compound List volatile organic compounds by EPA Method 8260B;
- Target Compound List semivolatile organic compounds by EPA Method 8270C;
- Target Analyte List metals by EPA Method 6000/7000 Series; and
- Rotenone by EPA Method 635.

Additional details are provided in the Technical Memorandum issued to MEDEP for reduction in long-term monitoring sample analysis at Building 95 on 2 April 2002 for rationale (EA 2002).

The Navy recommended that, beginning with the September 2002 sampling event (Monitoring Event 16), maleic hydrazide by EPA Method 632 Modified be eliminated from the sampling program for groundwater samples collected at the Building 95 site (see Technical Memorandum issued to MEDEP for reduction in long-term monitoring sample analysis at

Building 95 on 30 August 2002 for rationale [EA 2002]). EPA concurred with the elimination of maleic hydrazide for the LTMP (U.S. EPA 2002), however, MEDEP did not agree with the Navy's request to eliminate maleic hydrazide from the Long-Term Monitoring Program (MEDEP 2002); therefore, samples were analyzed for maleic hydrazide during Monitoring Event 16. On 5 September 2003, the Navy requested that maleic hydrazide be eliminated from the sampling program at Building 95. MEDEP agreed to eliminate maleic hydrazide from the Building 95 LTMP on 16 September 2003.

### **1.3 Long-Term Monitoring Program**

The LTMP document, which is comprised of a Long-Term Monitoring Program and the Quality Assurance Project Plan (QAPP, EA 2000), establishes the requirement for monitoring, sampling, and analysis of groundwater. The most recent LTMP for Building 95 was finalized in November 2004.

The objective of the Long-Term Monitoring Program is to obtain data necessary to monitor the long-term effectiveness of the remedial action (i.e., Minimal Remedial Action) conducted at Building 95. Monitoring and sampling data are being collected to satisfy the objectives of the Long-Term Monitoring Program, which include the following:

- Monitor and assess trends in groundwater quality with emphasis on contaminants of concern to verify that soil and debris removal action was effective;
- Assess the potential for adverse environmental impacts by monitoring for evidence of stressed vegetation; and
- Monitor and maintain the structural integrity of the groundwater monitoring wells.

### **1.4 Measurement of Water Level Elevations**

Water level measurements were obtained on 13 September 2004 at six groundwater monitoring wells located at the Building 95 site and two groundwater monitoring wells located south of the Building 95 site (MW-NASB-210 and MW-NASB-209R). These two wells are used to help directionally orient the groundwater elevation contours with reference to an area larger than the small Building 95 site. Monitoring wells included in the gauging program are listed in Table 2. These well locations for Building 95 are provided on Figure 2. Well gauging methods are detailed in the Final LTMP (EA 2004a). These gauging locations were used to interpret the groundwater potentiometric surface elevations for the Building 95 site.

Water level gauging data are summarized in Table 2. Groundwater level measurement sheets are provided in Appendix E.1. Field Record of Well Purging and Sampling forms are provided in Appendix E.2. Figure 3 provides the interpreted groundwater potentiometric map and direction of groundwater flow for the water elevation data collected on 13 September 2004.

## **1.5 Groundwater Monitoring, Sampling, and Analysis**

The groundwater sampling program was performed on 15 September 2004. On 15 September 2004, the sample cooler was shipped to Accutest (located in Marlborough, Massachusetts) and was received on 15 September 2004.

Previously installed dedicated Grundfos Redi-Flo2 stainless steel and Teflon<sup>®</sup> submersible pumping systems were utilized for the sample collection. Groundwater samples were collected from three monitoring wells (MW-NASB-067, MW-NASB-097, and MW-NASB-098) at the Building 95 site using the EPA Region I low-flow sampling technique, in compliance with the Final LTMP (EA 2004a). The remaining five onsite monitoring wells are used for gauging purposes only.

Water quality indicator parameters, including pH, specific conductance, temperature, dissolved oxygen, oxidation-reduction potential, and turbidity, were monitored and recorded to ensure stabilization of water quality prior to sample collection on 15 September 2004 (Table 3). Stabilization of water quality indicator parameters was achieved when measurements agreed to within approximately 10 percent over three successive readings. Turbidity readings at or below  $\pm 10$  nephelometric turbidity units (NTUs) are considered stabilized. Although not required by the current LTMP, oxidation-reduction potential was recorded for informational purposes.

During the 15 September 2004 sample collection, water quality indicator parameters stabilized prior to sampling at all three wells as per the LTMP. The Field Record of Well Purging, and Sampling forms completed during the sampling event are provided in Appendix E.2.

Groundwater samples were collected and submitted for analysis of LTMP Target Compound List pesticides and other reportable pesticides by EPA Method 8081A on 15 September 2004.

Table 4 provides a summary of analytical results for groundwater samples collected at the Building 95 site on 15 September 2004. Form I data summary sheets in Appendix D for the analyses completed and Appendix E contains the Chain-of-Custody records. Figure 2 provides the location of the groundwater monitoring wells.

## **1.6 Visual Inspection**

Site inspection activities were completed in accordance with the Final LTMP (EA 2000) on 15 September 2004 (Appendix F). Inspection of the area confirmed no exposures of the geotextile marker fabric at the ground surface. Six groundwater monitoring wells were found to be adequately labeled, capped, and locked. Monitoring well MW-NASB-097 was completed as a flush-mounted roadbox and has a bolted cover. There was no indication of vandalism of any of the six onsite wells. Vegetation was healthy, well watered, and not stressed.

## **1.7 Quality Assurance and Quality Control**

A rigorous quality assurance/quality control program is required to meet the data quality objectives of the groundwater sampling program, as outlined in the QAPP contained in the Final LTMP (EA 2000). The data obtained during the September 2004 sampling event were determined to be of sufficient quality to be used to evaluate groundwater quality at the Building 95 site (all pesticide data are usable, as qualified). One field duplicate sample was collected and analyzed (BN-95-20-XD1) as a field quality control sample. The results of the duplicate sample are summarized in Table 4.

## **1.8 Analytical Data Quality Review**

As required by the Final LTMP (EA 2000), a review of laboratory data was performed on selected quality control parameters to evaluate precision, accuracy (bias), completeness, comparability, and data quality objective requirements. A summary of the analytical data quality review is provided in Appendix C. Method detection limits for aqueous media are also included in Appendix C.

The analytical data were validated and determined to be of acceptable analytical quality. The field sampling procedures were overseen and/or evaluated by the Field Team Leader and determined to be acceptable. Project analytical quality and field quality were evaluated and the pesticide data are considered overall usable, as qualified, to evaluate the long-term effectiveness of the remedial action (i.e., Minimal Remedial Action).

## 2.0 TEMPORAL TRENDS AND OBSERVATIONS

This section describes observations and trends in site water-level gauging results, field monitoring results, and laboratory analytical results.

### 2.1 Water Level Gauging Program

The results of the groundwater level gauging program (Table 2) conducted on 15 September 2004 indicate that the groundwater flow direction in the immediate area of the Building 95 site is generally towards the southeast (Figure 3). The hydraulic gradient between wells MW-NASB-066 and MW-NASB-209R is approximately 0.00386. Based on the dominant flow patterns observed at the site, monitoring well MW-NASB-066 is located hydraulically upgradient of the former building locations, while the remainder of the site wells are located hydraulically downgradient or crossgradient of the former building locations. In general, the hydraulic gradient across the Building 95 site is relatively flat. These results are consistent with previous gauging results.

### 2.2 Groundwater Monitoring and Sampling Program

The following two sections describe the results of measuring water quality parameters in the field, and summarize the analytical results of Monitoring Event 20.

#### 2.2.1 Field Water Quality Parameters

Water quality parameters, including pH, specific conductance, temperature, dissolved oxygen, and turbidity, were measured during well purging on 15 September 2004. Although not required by the final LTMP, oxidation-reduction potential was recorded. Table 3 lists the results of field water quality measurements. MW-NAS-067 and MW-NAS-098 results are similar to historical and seasonal values. MW-NAS-097 dissolved oxygen and oxidation-reduction potential values were high but no trend has been noted.

#### 2.2.2 Analytical Results

Appendix B provides trend graphs of analytical results. A review of the temporal trends in groundwater conducted at Building 95 between 1995 and the present indicates the following:

- **Monitoring Well MW-NASB-067** – During the September 2004 sampling event, pesticide dichlorodiphenyltrichloroethane (4,4'-DDT) was detected at a concentration of 0.083 J (estimated concentration) micrograms per liter ( $\mu\text{g/L}$ ) versus a detection of 0.032  $\mu\text{g/L}$  for April 2004. This continues an upward trend for 4,4'-DDT first seen in April 2003. Pesticide dichlorodiphenyldichloroethane (4,4'-DDD) was detected at an estimated concentration of 0.051 J  $\mu\text{g/L}$  in April 2004 but returned to non-detect during the September 2004 sampling event. No State Maximum Exposure Guideline (MEG) or Federal Maximum Contaminant Level has been established for 4,4'-DDD; however, 4,4'-DDT has a MEG of 0.83  $\mu\text{g/L}$ .

Historically, 4,4'-DDD and 4,4'-DDT were not detected in monitoring events 13 through 16, but have been detected in the last four events (4,4'-DDD was not detected during this monitoring event). All detections of 4,4'-DDT have been below the MEG.

- **Monitoring Well MW-NASB-097** – The concentration for heptachlor epoxide (0.016 J µg/L) did not exceed the State MEG (0.04 µg/L) during the September 2004 sampling event, although an exceedance was registered in the September/October 2003 sampling event. During the September 2004 sampling event, 4,4'-DDD and 4,4'-DDT were detected at concentrations of 0.022 J µg/L and 0.017 J µg/L, respectively. There are no Maine MEGs or Federal Maximum Contaminant Levels for 4,4'-DDD. The Maine MEG for 4,4'-DDT is 0.83 µg/L. Endosulfan-II was detected at a concentration of 0.0043 J µg/L during the April 2004 monitoring event but not detected in September 2004.

Historically, pesticide concentrations have ranged from not detected to approximately 0.75 µg/L at this well (alpha-chlordane). Heptachlor epoxide has exceeded the State MEG (0.04 µg/L) for seven of the last ten sampling events with concentrations ranging from 0.013 J µg/L (Monitoring Event 19) to 0.157 µg/L (Monitoring Event 16). Alpha-chlordane exceeded the State MEG (0.27 µg/L) twice (Monitoring Events 14 and 16) during the last ten sampling events at Building 95. Since its maximum observed concentration of 0.72 µg/L observed in October 2001, alpha-chlordane has shown a decreasing trend. Other pesticide compound results have been non-detect or below corresponding MEGs and Maximum Contaminant Levels since the well was installed and first sampled in March 2000, with the exceptions of alpha-chlordane and heptachlor epoxide.

A duplicate sample was analyzed for this well location. Assessment of this duplicate analysis can be found in Appendix C, Section C.2.1.2, Field Precision Assessment.

- **Monitoring Well MW-NASB-098** – Pesticide concentrations remained similar to results from the last monitoring event (not detected), except 4,4'-DDT which was detected at an estimated concentration of 0.0090 J µg/L during April 2004 but returned to not detect during the September 2004 monitoring event.

### 3.0 LONG-TERM MONITORING OBJECTIVES AND RECOMMENDATIONS

The following lists the objectives specified in the Building 95 LTMP, and provides conclusions as to whether the long-term monitoring event was successful in achieving these objectives or whether changes to the monitoring program are recommended.

#### 3.1 Long-Term Monitoring Objectives

- **LTMP Objective**—*Monitor and assess trends in the groundwater quality with emphasis on contaminants of concern to verify that the soil and debris removal action was effective.*

The concentrations of pesticides indicate that no further groundwater degradation of the area, or the surrounding area to Building 95, is occurring. The concentrations of pesticides are in the low parts per billion range, which is consistent with the site's former use as a pesticide storage, mixing, and distribution point that served the entire NAS Brunswick base. Pesticides exceeding State MEGs have been detected in one site well in the past (MW-NASB-097). These two pesticide compounds, heptachlor epoxide and alpha-chlordane, have noted a relatively stable concentration trend which has exceeded State MEGs in past monitoring events; however, alpha-chlordane has shown a decreasing trend since October 2001. Neither compound exceeded the State MEGs (0.27 µg/L for alpha chlordane and 0.04 µg/L for heptachlor epoxide) for the September 2004 monitoring events.

4,4'-DDT at monitoring well, MW-NASB-067, has had a continuing upward concentration trend since April 2003. A peak concentration of 0.083 µg/L for Monitoring Event 20 is still below the State MEG of 0.83 µg/L. 4,4'-DDT will continue to be monitored, but at this time no conclusion can be made as to the reason or source of the increasing concentration.

- **LTMP Objective**—*Assess the potential for adverse environmental impacts by monitoring for evidence of stressed vegetation.*

No stressed vegetation was observed at the Building 95 site during this monitoring event.

- **LTMP Objective**—*Monitor and maintain the structural integrity of the groundwater monitoring wells.*

The integrity of the groundwater monitoring wells was evaluated during this monitoring event. No issues concerning integrity of the monitoring wells were identified.

### 3.2 Recommendations

Based on an analysis of the data collected at the Building 95 site as part of the Long-Term Monitoring Program, the following recommendations are provided:

- Continue to perform long-term monitoring as necessary to provide additional data to identify groundwater trends and to assess the effectiveness of the 1994 soil removal actions at the site. Re-evaluate the need for continued sampling after the next monitoring event (Monitoring Event 21).
- Continue with the LTMP (November 2004), as revised, to reflect the current analytical requirements for this site, which includes EPA CLP Target Compound List pesticides by EPA Method 8081A.
- Generate a consensus statement on the Building 95 site in order to document the changes to the site to date. The consensus statement would document the history of the site, long-term monitoring decisions, regulatory decisions based on new data collected, and related activities such as new well installations, so that future site decision-makers have a complete understanding of site management by the current project stakeholders.
- According to the *Revised Proposal for Optimizing Groundwater Samples Collected as Part of Long-Term Monitoring, Naval Air Station, Brunswick, Maine* dated 4 November 2004, Building 95 sampling will remain unchanged at this time.

#### 4.0 REFERENCES

- ABB Environmental Services (ABB-ES). 1993. *Action Memorandum, Building 95*. April.
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## **TABLES**

**TABLE 1 SUMMARY OF THE LONG-TERM MONITORING PROGRAM  
AT BUILDING 95**

Well Designation	Sample Parameters			
	Sampling Frequency <sup>(a)</sup>	Target Compound List Pesticides <sup>(b)</sup>	Bi-Annual Gauging	Field Parameters <sup>(c)</sup>
MW-NASB-065	Bi-Annual	NR	X	NR
MW-NASB-066	Bi-Annual	NR	X	NR
MW-NASB-067	Bi-Annual	X	X	X
MW-NASB-068	Bi-Annual	NR	X	NR
MW-NASB-097	Bi-Annual	X	X	X
MW-NASB-098	Bi-Annual	X	X	X
MW-NASB-210 <sup>(d)</sup>	Bi-Annual	NR	X	NR
MW-NASB-209R <sup>(d)</sup>	Bi-Annual	NR	X	NR

(a) Bi-annual samples are collected in April and September of each year.  
(b) Pesticide Target Compound List (TCL) for SW-846 8081A: Lindane and 4,4'-DDT (LTMP 2004); however, other non-TCL SW-846 Method 8081A pesticides are reported  
(c) Determination of field parameters in accordance with U.S. Environmental Protection Agency/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 oxidation-reduction potential (ORP), as ORP<sub>Ag/AgCl</sub>, are also recorded.

NOTE: NR = Not required.

**TABLE 2 MONITORING WELL GAUGING SUMMARY, SEPTEMBER 2004**

Well Designation	Well Riser Elevation (feet MSL)	Depth to Well Bottom (feet below top of PVC well riser)	Monitoring Event 20 Gauging Data (13 September 2004)	
			Depth to Water (feet below top of PVC well riser)	Water Table Elevation (feet above MSL)
<b>Building 95</b>				
MW-NASB-065 <sup>(a)</sup>	74.29	15.50	4.63	69.66
MW-NASB-066 <sup>(a)</sup>	78.79	19.79	8.57	70.22
MW-NASB-067 <sup>(a)</sup>	74.30	15.00	4.61	69.69
MW-NASB-068 <sup>(a)</sup>	74.86	15.05	5.40	69.46
MW-NASB-097 <sup>(a)</sup>	73.41	11.05	4.07	69.34
MW-NASB-098 <sup>(a)</sup>	76.53	16.00	7.53	69.00
MW-NASB-210 <sup>(b)</sup>	72.94	10.02	5.60	67.34
MW-NASB-209R <sup>(b)</sup>	77.55	16.71	7.82	69.73
(a) These wells were gauged and sampled on 13 September 2004.				
(b) Wells gauged for potentiometric surface contour map interpretation.				
NOTE: MSL= Mean sea level. PVC= Polyvinyl chloride.				

**TABLE 3 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS  
MEASURED IN GROUNDWATER SAMPLES, SEPTEMBER 2004**

Well Designation	pH	Temperature (°C)	Specific Conductance (µmhos/cm)	Dissolved Oxygen	Turbidity (NTU)	ORP <sub>Ag,AgCl</sub> (mV)
MW-NASB-067	5.77	17.31	307	0.25 mg/L	2	-20.0
MW-NASB-097	5.78	17.72	229	2.61 mg/L*	1	124.8
MW-NASB-098	5.86	16.15	280	0.22 mg/L*	4	-35.0

NOTE: NTU = Nephelometric turbidity unit.  
 ORP<sub>Ag,AgCl</sub> = Oxidation/Reduction Potential  
 °C = degrees Celsius  
 µmhos/cm = microohms per centimeter  
 mV = millivolt  
 mg/L = milligram per liter  
 \* = Dissolved oxygen readings for MW-NASB-097 and MW-NASB-098 returned to historical values. Readings for April 2004 were higher because of a possible meter malfunction although the meters used for this event calibrated correctly.

**TABLE 4 SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
PESTICIDES, BUILDING 95, SEPTEMBER 2004**

			MW-NASB-067	MW-NASB-097	MW-NASB-097 (Dup)	MW-NASB-098
			Groundwater	Groundwater	Groundwater	Groundwater
			Low-Flow Sample	Low-Flow Sample	Low-Flow Sample	Low-Flow Sample
<b>Compound/Element</b>	<b>MEG (a)</b>	<b>MCL (b)</b>				
4,4'-DDD	NC	NC	(<0.051U)	0.022J	0.025J	(<0.052U)
4,4'-DDE	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
4,4'-DDT	0.83	NC	0.083J	0.017J	(<0.05UJ)	(<0.052UJ)
Aldrin	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
alpha-BHC	NC	NC	(<0.051UJ)	(<0.052UJ)	(<0.05UJ)	(<0.052UJ)
alpha-Chlordane	0.27	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
beta-BHC	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
delta-BHC	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Dieldrin	0.02	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Endosulfan I	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Endosulfan II	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Endosulfan Sulfate	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Endrin	2	2	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Endrin Aldehyde	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Endrin Ketone	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
gamma-BHC (Lindane)	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Gamma-chlordane	NC	NC	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Heptachlor	0.08	0.4	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Heptachlor Epoxide	0.04	0.2	(<0.051U)	0.016J	0.023J	(<0.052U)
Methoxychlor	100	40	(<0.051U)	(<0.052U)	(<0.05UJ)	(<0.052U)
Toxaphene	0.3	3		(<2.6U)		(<2.6U)

(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:**

Units are micrograms per liter ( $\mu\text{g/L}$ ).

NC = Criteria not applicable.

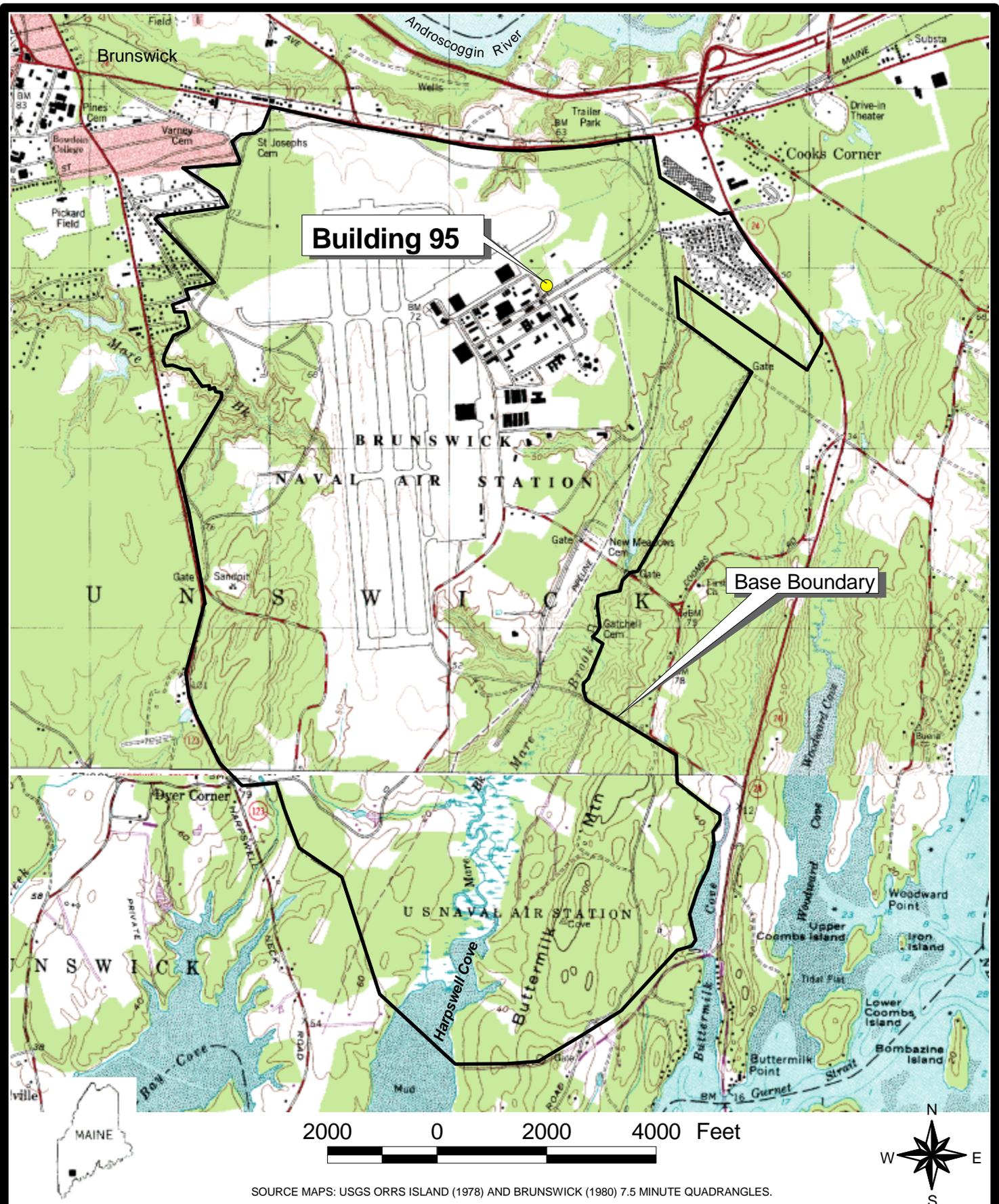
(Dup) indicates duplicate sample.

U = Not detected at or above the sample quantitation limit. Shown as (<\_\_U).

J = Estimated concentration.

Refer to data Quality Review section (Appendix D) for Method Detection Limits for referenced analytical methods.

## **FIGURES**



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



NAVAL AIR STATION  
BRUNSWICK, MAINE

FIGURE 1  
SITE LOCATION MAP  
BUILDING 95

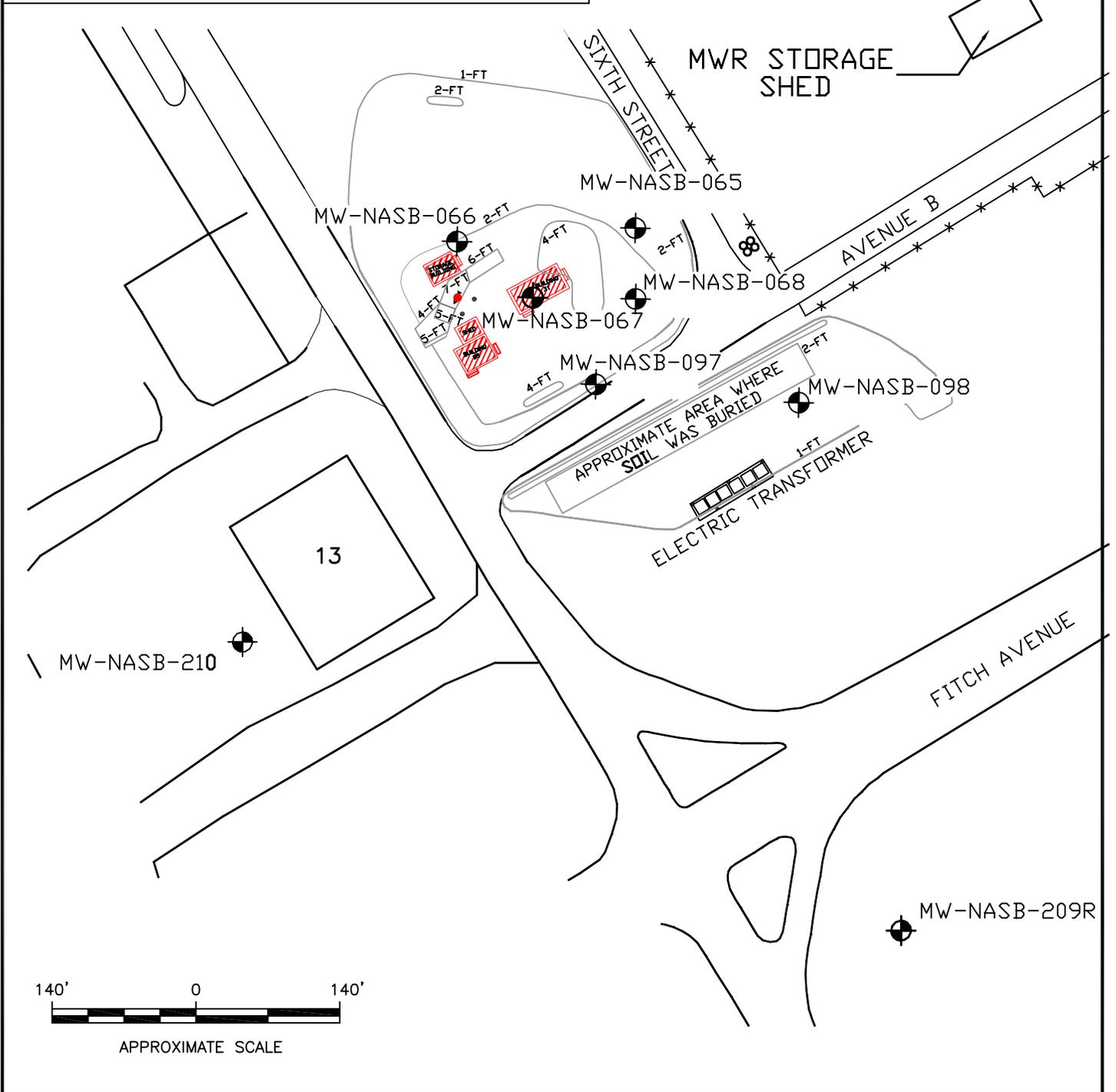
PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT No	FILE No
ACE	DC	DC	PLN	AS SHOWN	30 DEC 2003	29600.47	I:\NASB_GIS NAVY.APR

**LEGEND**

-  MW-NASB-065 MONITORING WELL LOCATION
-  ABB26 CONFIRMATORY SOIL SAMPLE LOCATION
-  CONFIRMATORY SOIL SAMPLING LOCATION
-  CONFIRMATORY GROUNDWATER SAMPLING LOCATION
-  FORMER BUILDINGS
-  1-FT APPROXIMATE SOIL EXCAVATION LIMITS (DEPTHS AS SHOWN IN FEET BELOW GRADE)

**NOTES:**

1. DETAILS OF SOIL REMOVAL CAN BE FOUND IN THE HARDING LAWSON ASSOCIATES (HLA). 1998. DRAFT FINAL CLOSURE REPORT, BUILDING 95. AUGUST.



ENVIRONMENTAL CHEMICAL CORPORATION  
50 D'ANGELO DRIVE  
MARLBOROUGH, MA 01752

NAVAL AIR STATION  
BRUNSWICK, MAINE

FIGURE 2  
SITE PLAN  
LTM SAMPLING LOCATIONS  
BUILDING 95

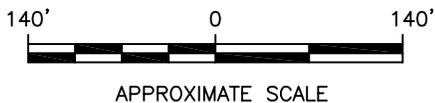
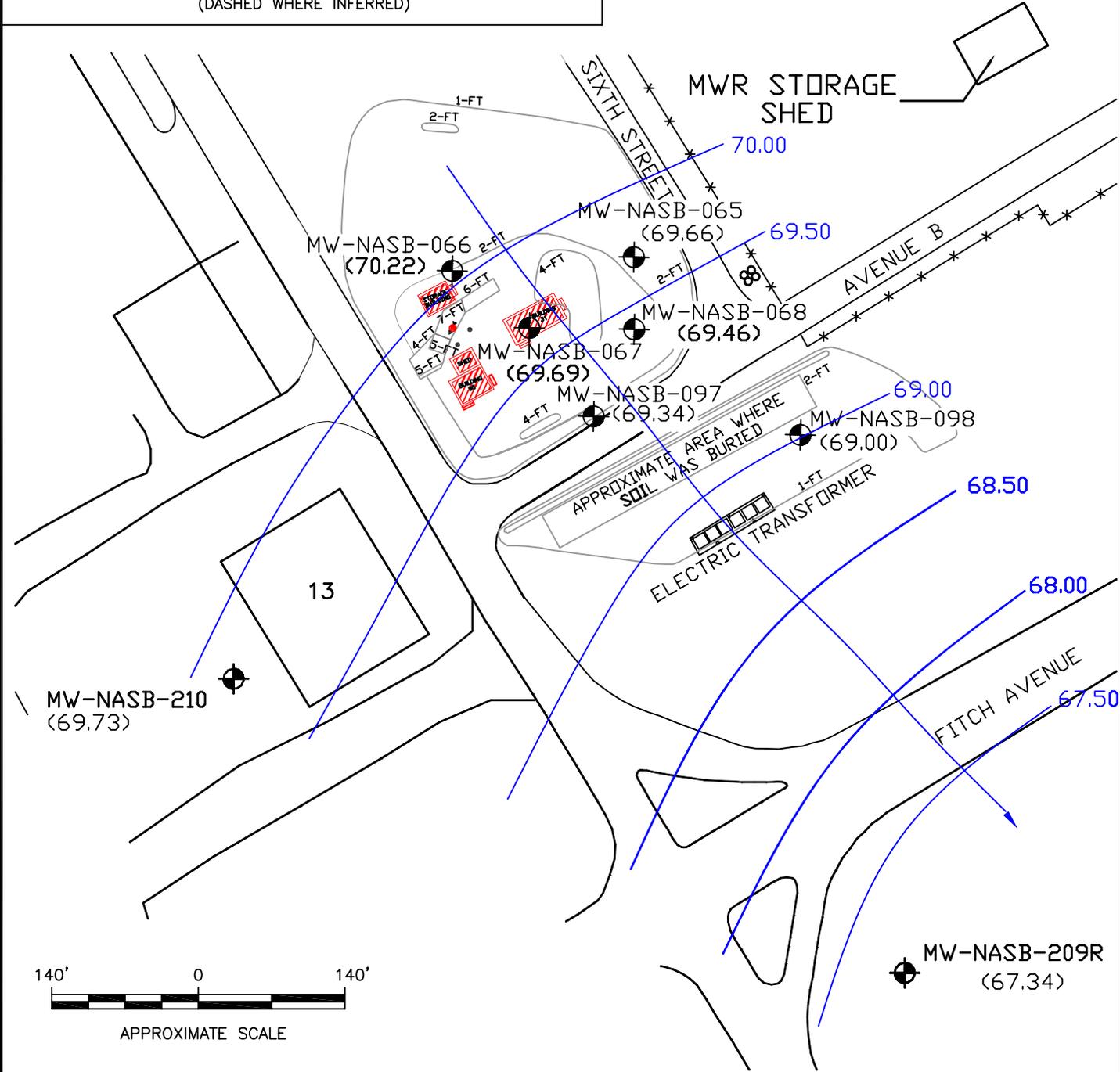
PROJECT MGR DG	DESIGNED BY EA	DRAWN BY NW	CHECKED BY PS	SCALE AS SHOWN	DATE 15 NOVEMBER 2004	PROJECT NO 5700.007	FILE No. BLDG 95
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**LEGEND**

-  MW-NASB-065 (69.36) MONITORING WELL LOCATION (WATER TABLE ELEVATION, FT MSL)
-  ABB26 CONFIRMATORY SOIL SAMPLE LOCATION ABOVE SOIL TO GROUNDWATER PATHWAY CRITERIA
-  CONFIRMATORY SOIL SAMPLING LOCATION
-  CONFIRMATORY GROUNDWATER SAMPLING LOCATION
-  FORMER BUILDINGS
-  1-FT APPROXIMATE SOIL EXCAVATION LIMITS (DEPTHS AS SHOWN IN FEET BELOW GRADE)
-  INTERPRETED DIRECTION OF GROUNDWATER FLOW
-  69 INTERPRETED POTENTIOMETRIC SURFACE (DASHED WHERE INFERRED)

**NOTES:**

1. WATER LEVEL DATA COLLECTED 13 SEPTEMBER 2004.
2. CONTOURS SHOWN REPRESENT OUR EVALUATION OF THE PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. SOME VARIATION FROM THOSE CONDITIONS SHOULD BE EXPECTED.
3. DETAILS OF SOIL REMOVAL CAN BE FOUND IN THE HARDING LAWSON ASSOCIATES (HLA). 1998. DRAFT FINAL CLOSURE REPORT, BUILDING 95. AUGUST.



**FIGURE 3**  
 INTERPRETED GROUNDWATER  
 POTENTIOMETRIC SURFACE CONTOUR MAP  
 SEPTEMBER 2004



ENVIRONMENTAL CHEMICAL CORPORATION  
 50 D'ANGELO DRIVE  
 MARLBOROUGH, MA 01752

NAVAL AIR STATION  
 BRUNSWICK, MAINE

PROJECT MGR DG	DESIGNED BY EA	DRAWN BY NW	CHECKED BY PS	SCALE AS SHOWN	DATE 15 NOVEMBER 2004	PROJECT NO 5700.007	FILE No. BLDG 95
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**APPENDIX A**

Response to Comments from the Regulators on the Draft Report

(to be provided with the Final Report)

**Responses to MEDEP Comments**  
**Building 95**  
**Draft Final Monitoring Event 20 Report, September 2004**  
**Naval Air Station, Brunswick, Maine**

Reviewer: Claudia Sait  
Date: January 7, 2005 (received at ECC) [Additional Comments: January 26, 2005](#)  
Respondent: ECC  
Date: January 10, 2005 ([January 26, 2005](#))

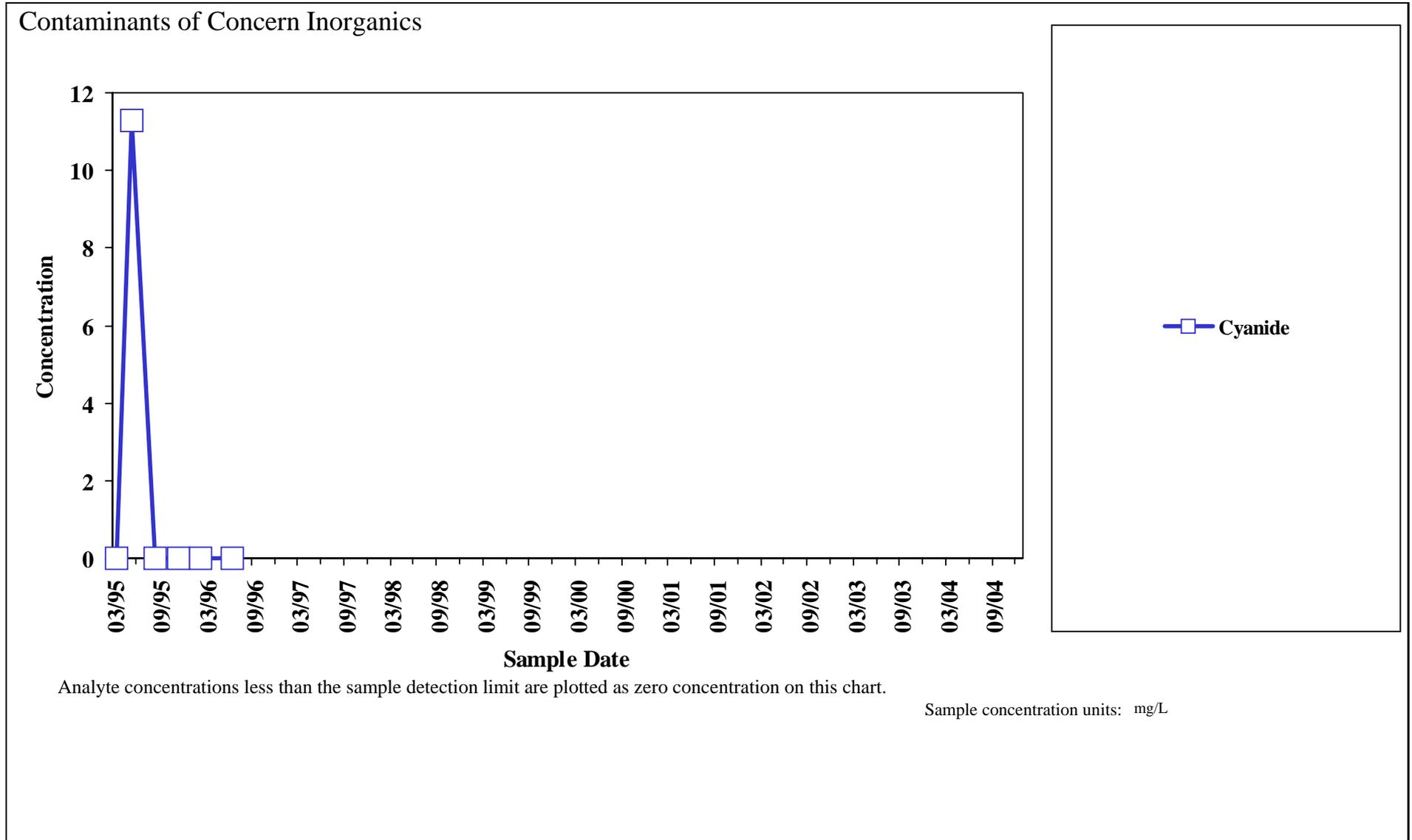
Comment #	Location	Comment	Response
1	General	Please be sure that the final version of this and all other “geology” reports are stamped and signed by a Maine certified geologist as required by State of Maine Department of Professional and Financial Regulations, Title 32, Chapter 73 which prohibits the practice of geology or soil science without a certification.	<b>Noted.</b> All final versions, titled “Final Report,” will be signed by a Maine certified geologist.
2	Section 1.1, Page 1-1, Paragraph 2	<p>“A Long-Term Monitoring Plan (LTMP) was established pursuant to the Record of Decision (ABB-ESS 1994).</p> <p>MEDEP is unaware of a Record of Decision for Building 95. Please check your source and revise this statement as necessary.</p>	<p><b>Noted.</b> Reference to the ROD will be removed, because Bldg 95 (Site 17) does not have a ROD.</p> <p>Text to be added, “At the Building 95 site, the Navy is currently performing long-term monitoring, maintenance, and corrective measures as part of the long-term remedial actions required by the Action Memorandum dated April 1993 (ABB-ES 1993), and in accordance with the May 2000 Long-Term Monitoring Plan (LTMP) (EA 2000). “</p> <p>Text Deleted: “At the Building 95 site, the Navy is performing long-term monitoring, maintenance, and corrective measures as part of the long-term remedial actions required by the Action Memorandum dated 1993 (ABB-ES 1993). A Long-Term Monitoring Plan (LTMP) was established pursuant to the Record of Decision (ABB-ESS 1994)”.</p>

Comment #	Location	Comment	Response
3	Section 1.6, Page 1-4	<p>It appears from references within this document that it was done in accordance with the November 2004 LTMP. If that is the case then the visual inspection section must include an inspection of the area for soil disturbance, new structures, or the removal and use of groundwater to ensure compliance with the institutional controls for this site (LTMP Section 3.1.5). Since there is a new kennel adjacent to the Building 95 site this should be noted in the document and possibly photographed for future reference. If ECC has not revised their field inspection forms to ensure compliance with institutional controls, it is recommended that they do so.</p> <p><b>Additional Comment (1/26/2004):</b> Section 1.6, Visual Inspection section states: Site inspection activities were completed in accordance with the Final LTMP (EA 2004a) ...” MEDEP confusion is that it is unaware of any Final LTMP for Building 95 dated May 2004; if the November 2004 LTMP was not used, then LTMP in effect as of the September monitoring event was <u>May 2000</u> (with revisions). Please recheck your source.</p>	<p><b>Concur.</b> Even though the May 2000 Final LTMP does not list for documentation compliance with land use requirements, ECC did inspect the Bldg 95 site for any land use violations, as part of the site inspection.</p> <p>Please note that the Final LTMP (Nov 2004) post dates the ME-20 (Sept 2004) report, and it could not be used for the ME-20 sampling nor cited in the Bldg 95 ME-20 Report. Also please note that the Draft Final January 2004 LTMP had the Site Inspection Form from the <u>May 2000</u> <del>May 2004</del> Final LTMP, which did not require documentation of land use control.</p> <p>Future ME’s and Site Inspections will be based upon the Final LTMP (Nov 2004), and ECC will use the updated Site Inspection Form to document compliance with land use controls.</p>
<b>END OF COMMENTS</b>			

**APPENDIX B**  
Temporal Trend Graphs

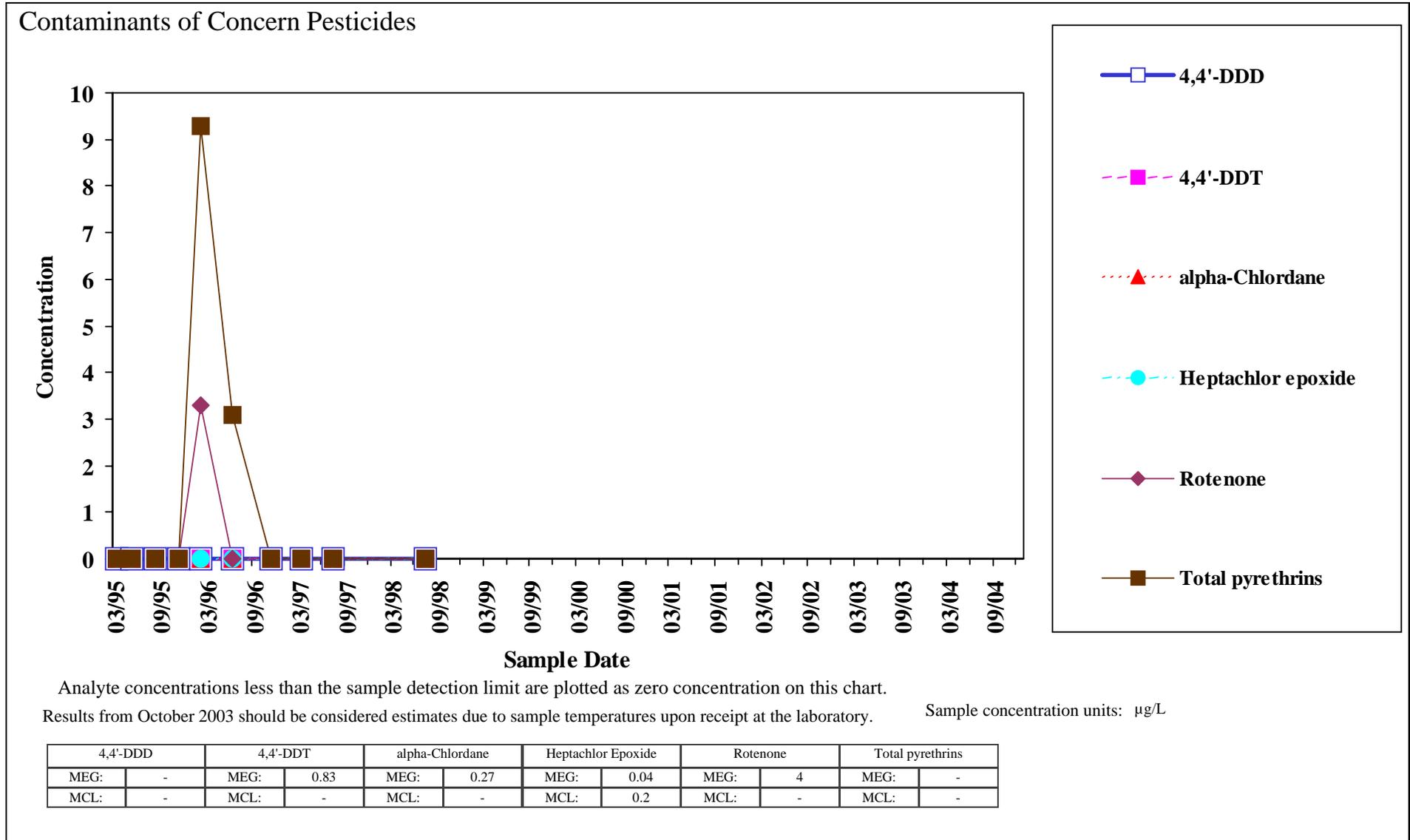
Sample Location:  
**MW-NASB-065**

Building 95  
Groundwater



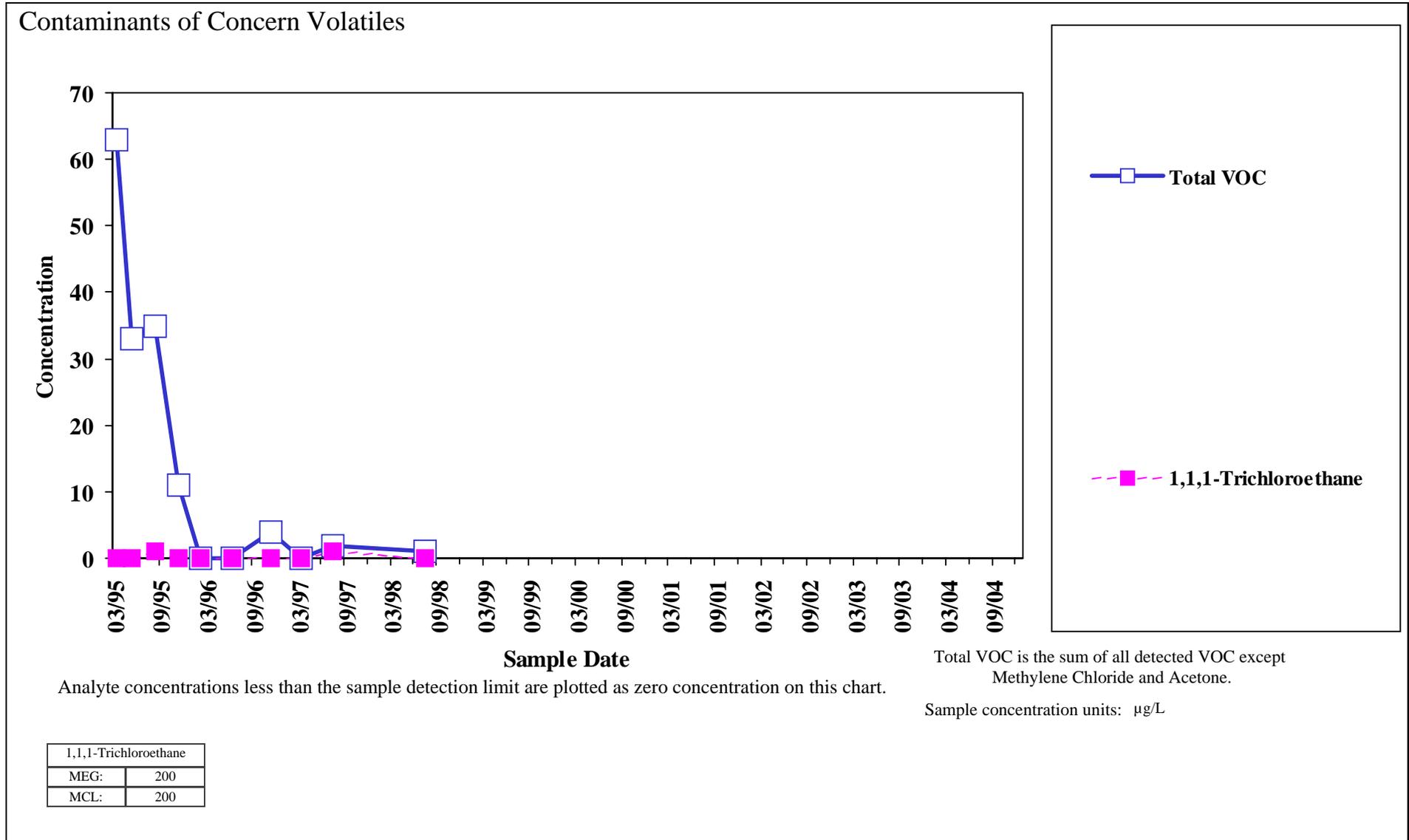
Sample Location:  
**MW-NASB-065**

**Building 95**  
**Groundwater**



Sample Location:  
**MW-NASB-065**

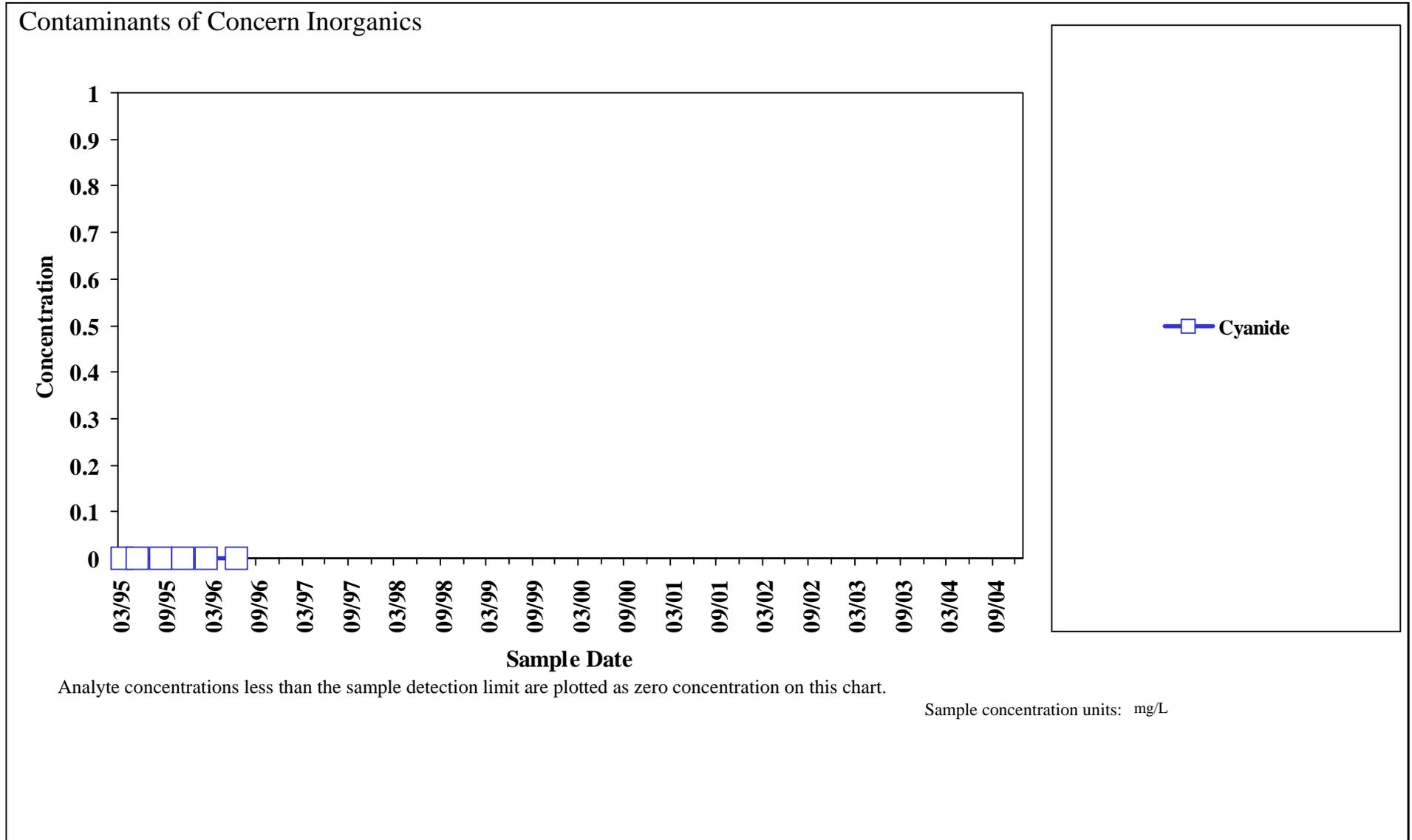
**Building 95**  
**Groundwater**



Sample Location:

**MW-NASB-066**

Building 95  
Groundwater



Sample Location:

**MW-NASB-066**

Building 95  
Groundwater

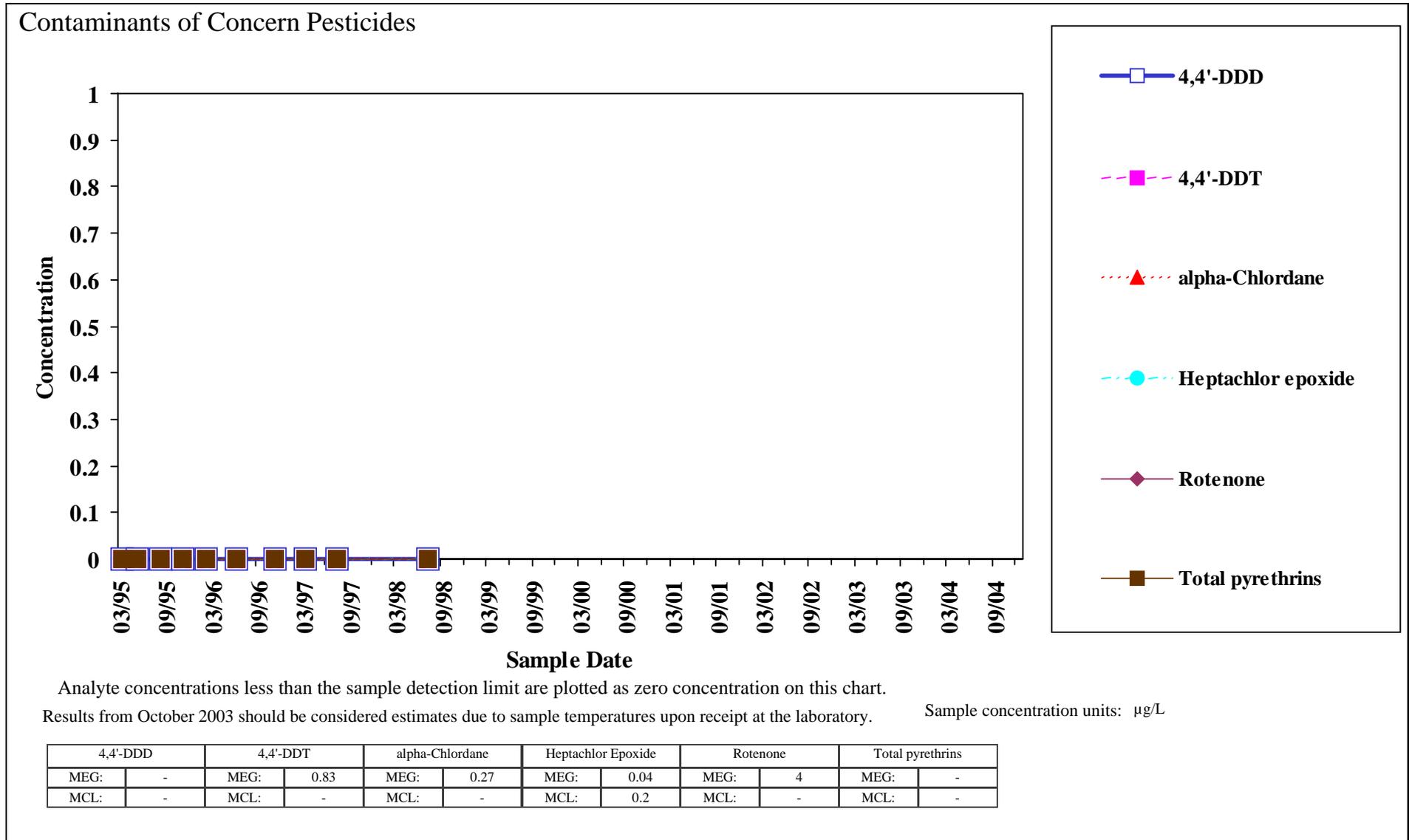
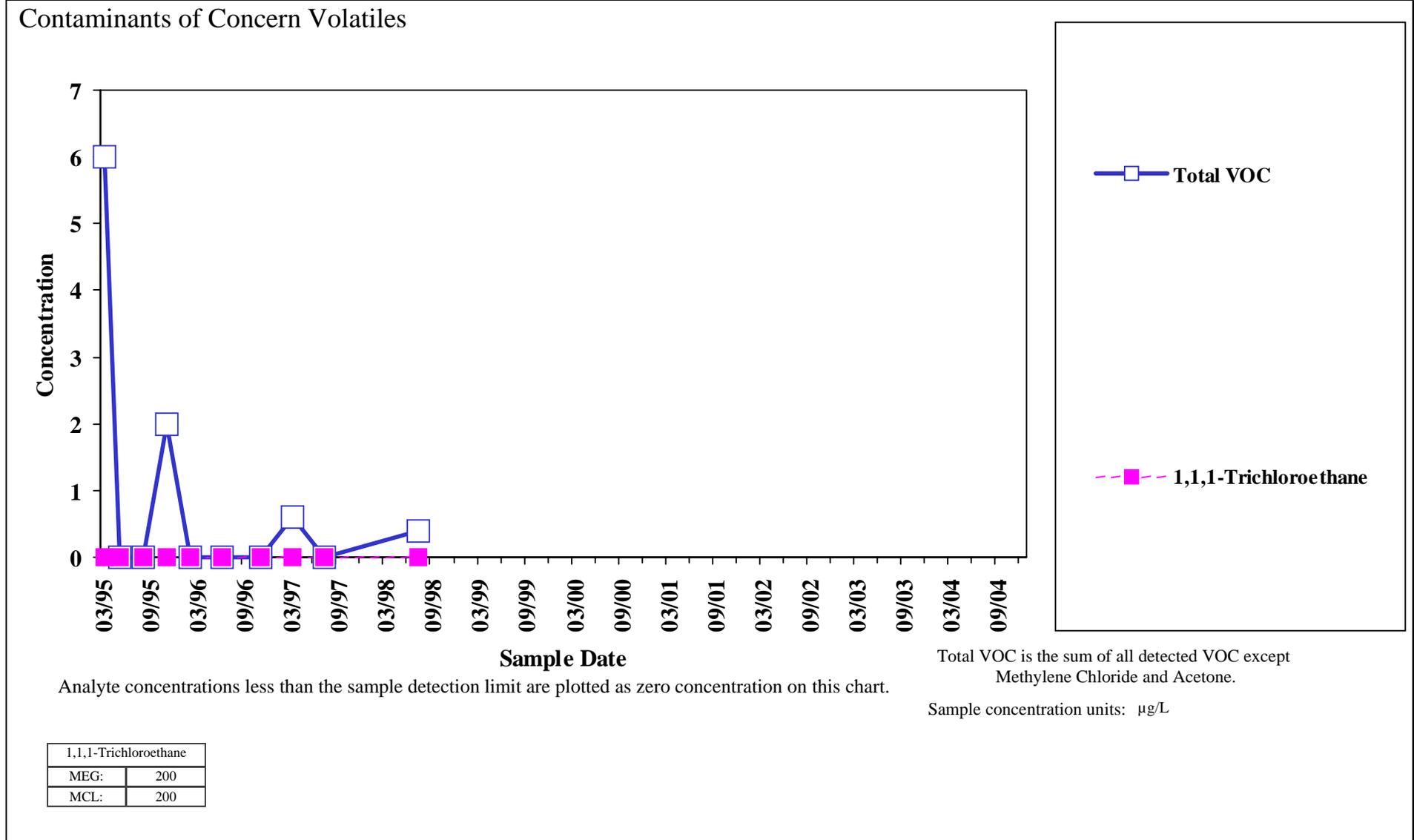


Figure 5 of 18

Sample Location:  
**MW-NASB-066**

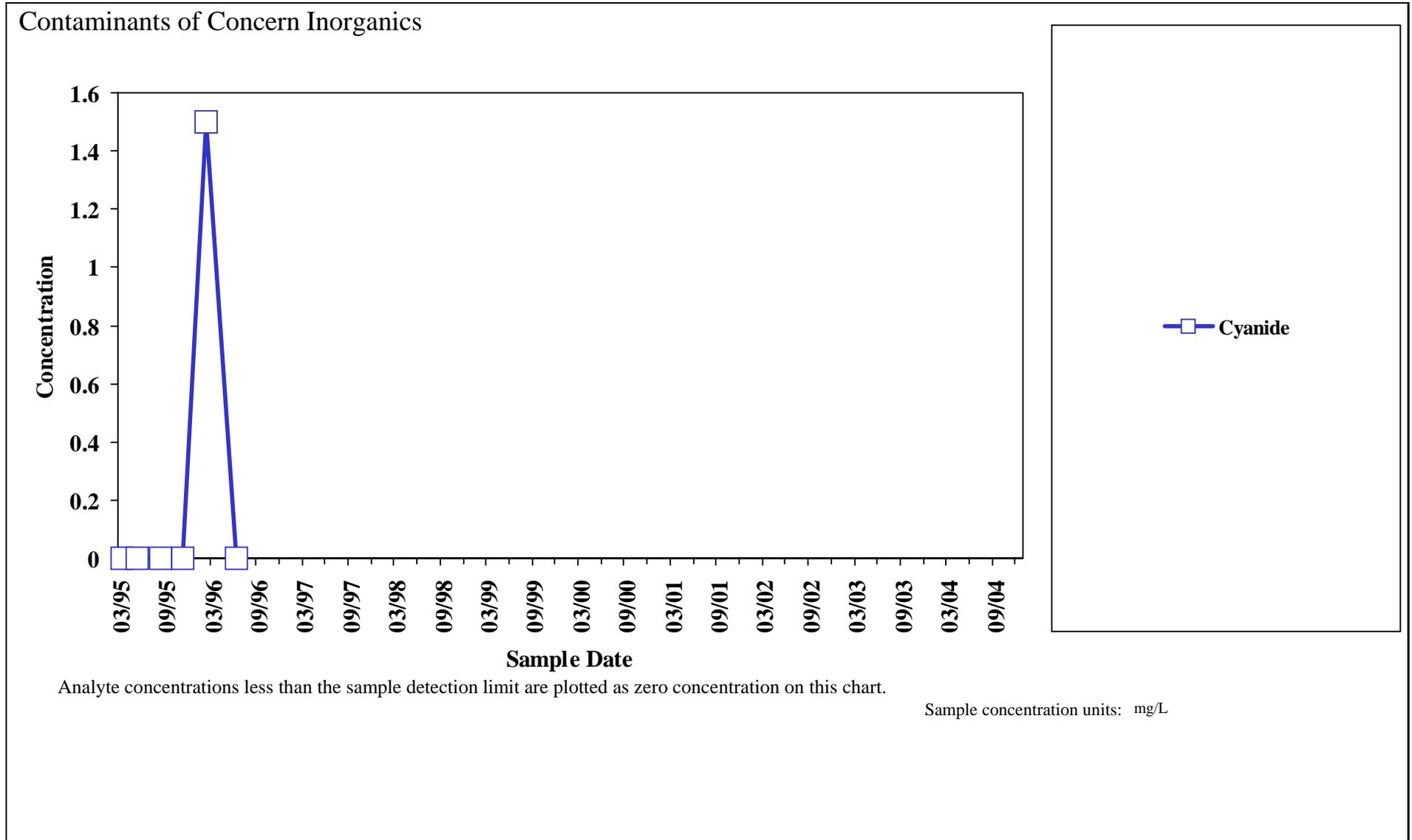
**Building 95**  
**Groundwater**



Sample Location:

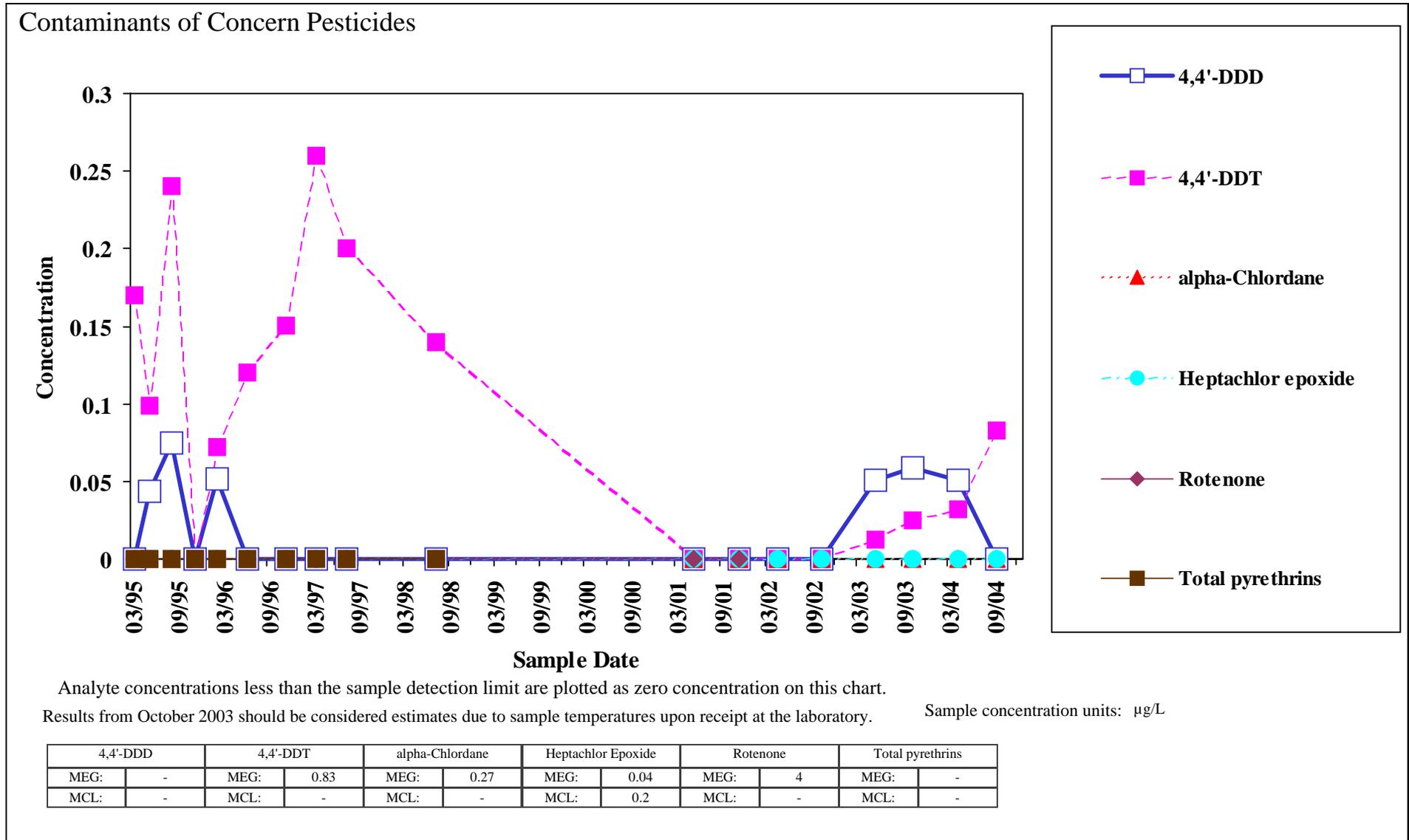
**MW-NASB-067**

Building 95  
Groundwater



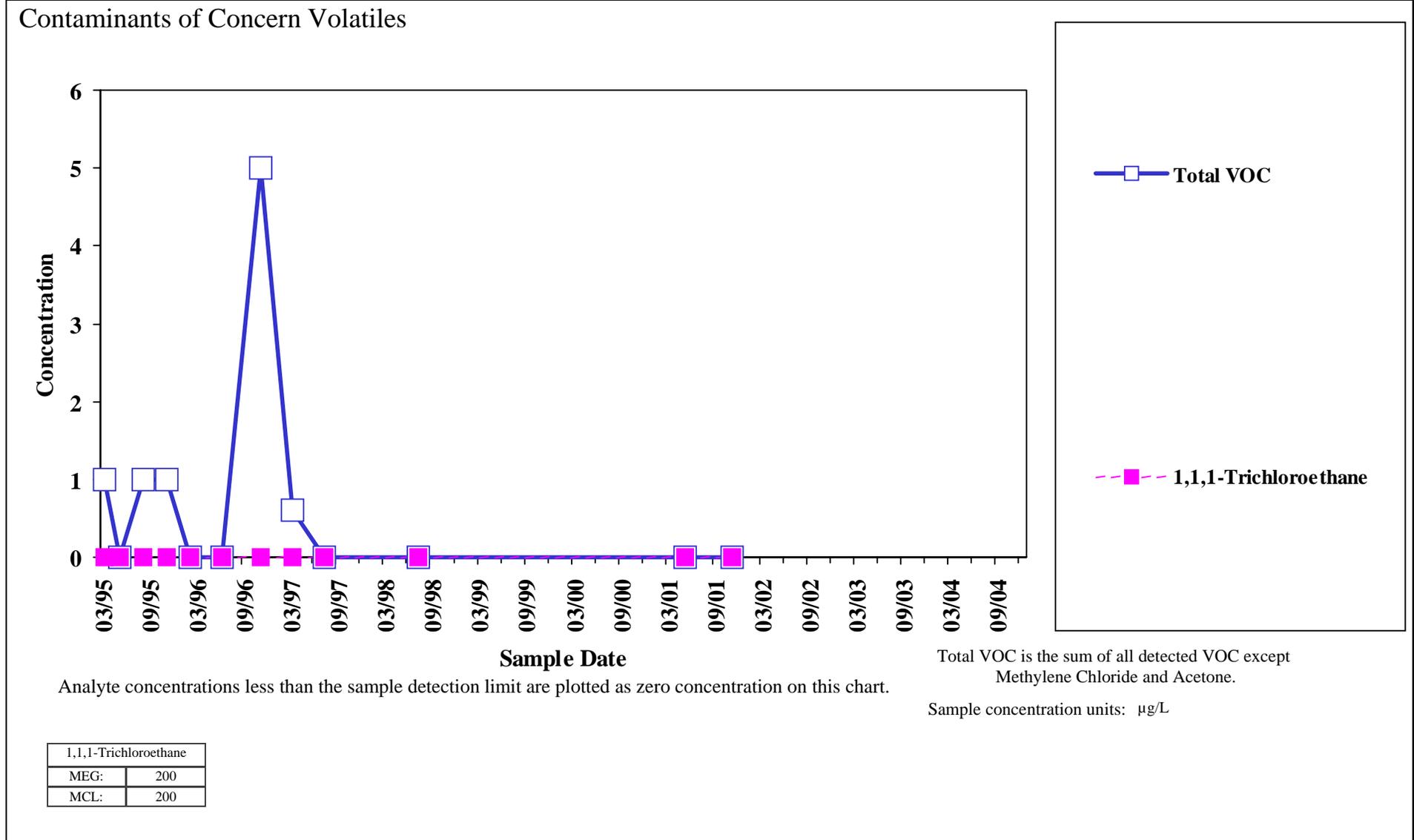
Sample Location:  
**MW-NASB-067**

**Building 95**  
**Groundwater**



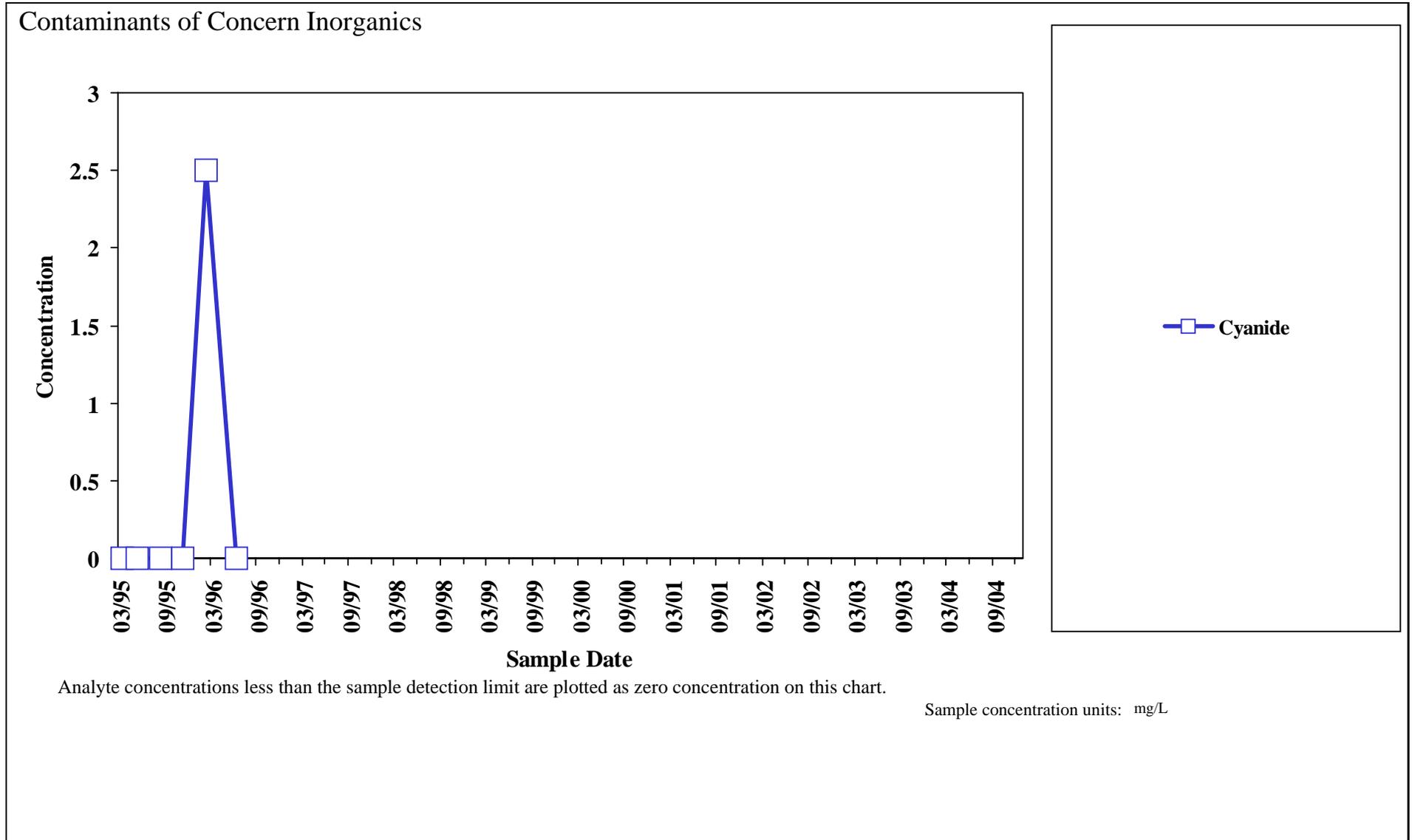
Sample Location:  
**MW-NASB-067**

**Building 95**  
**Groundwater**



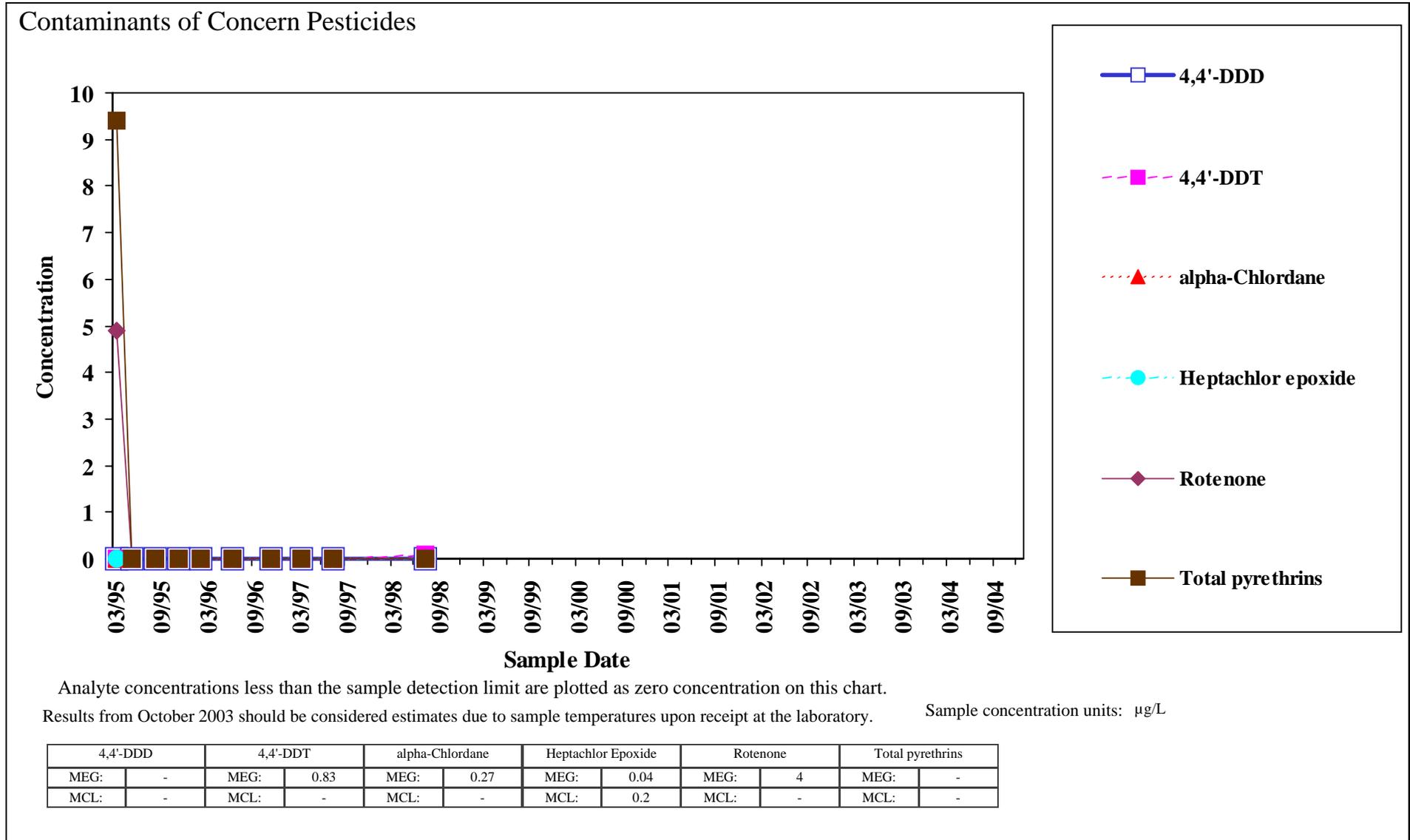
Sample Location:  
**MW-NASB-068**

**Building 95**  
**Groundwater**



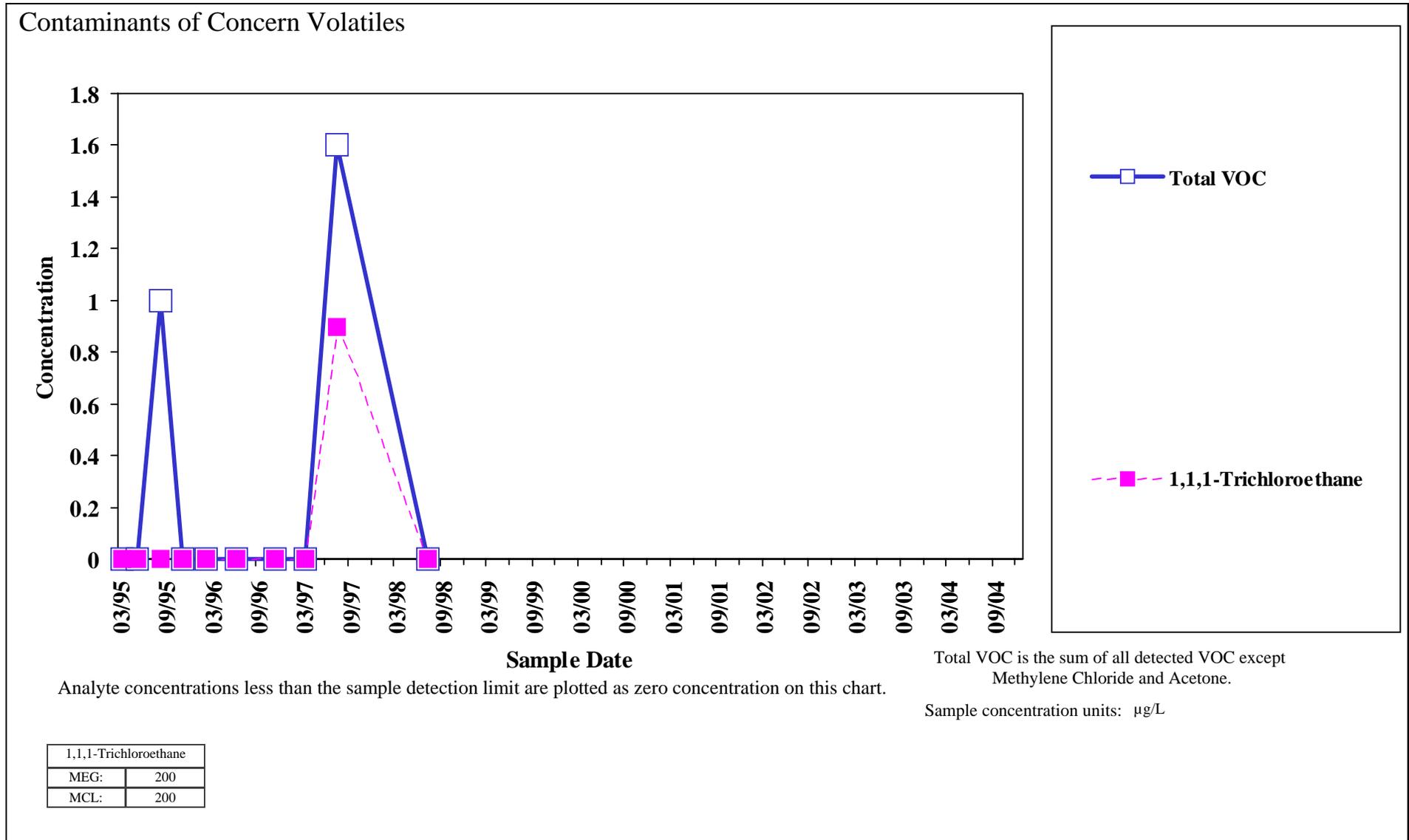
Sample Location:  
**MW-NASB-068**

Building 95  
 Groundwater



Sample Location:  
**MW-NASB-068**

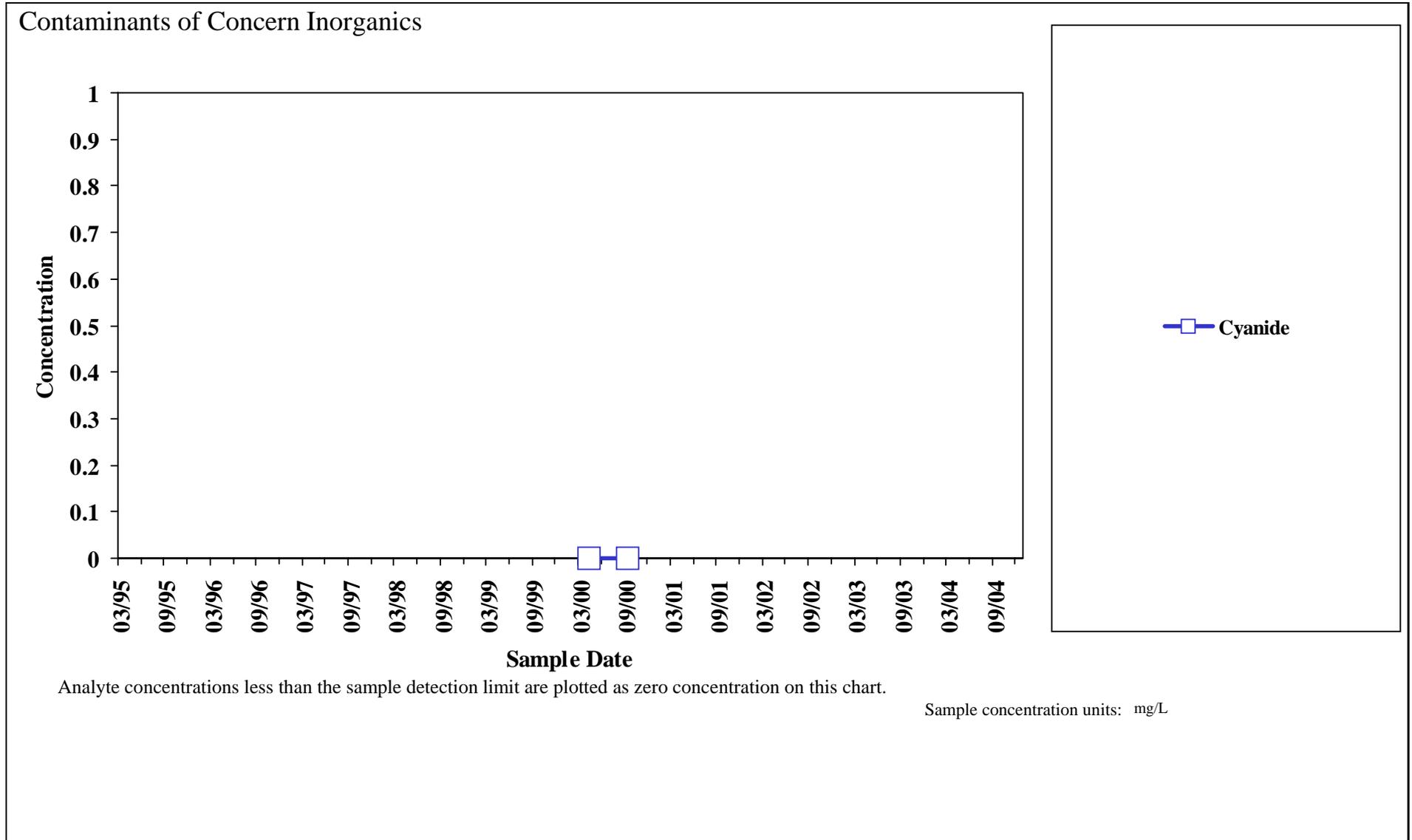
**Building 95**  
**Groundwater**



Sample Location:

**MW-NASB-097**

Building 95  
Groundwater



Sample Location:  
**MW-NASB-097**

**Building 95**  
**Groundwater**

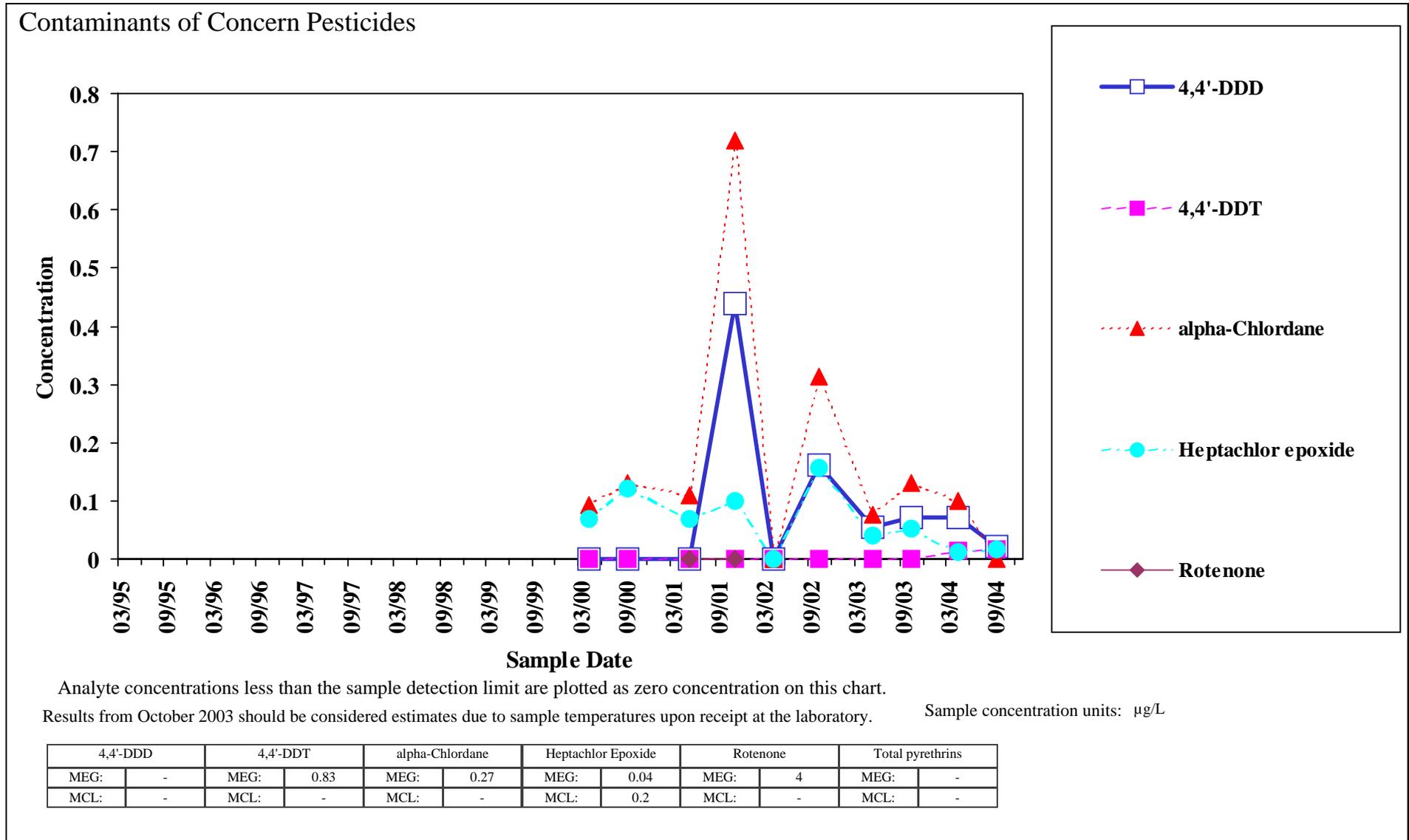
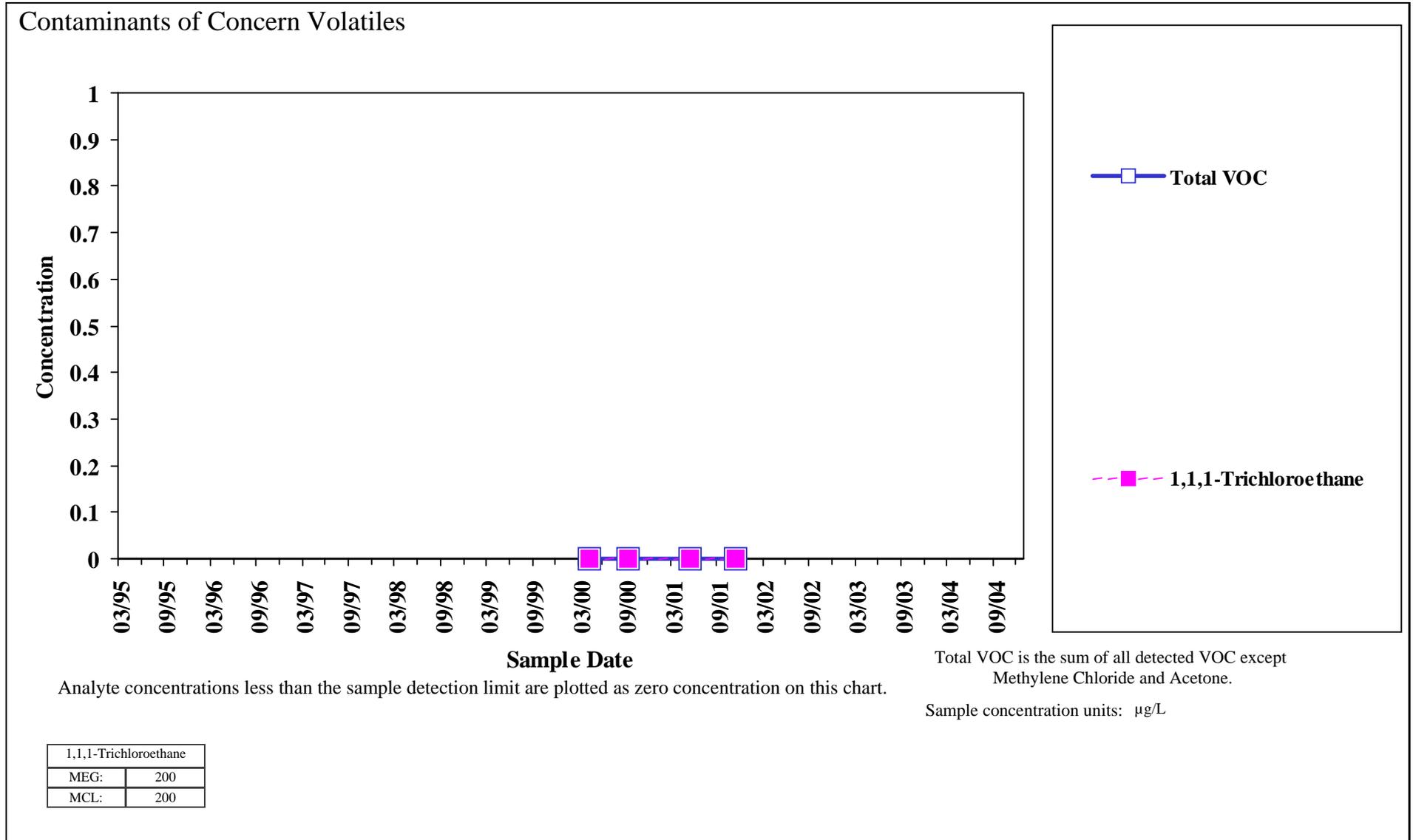


Figure 14 of 18

Sample Location:  
**MW-NASB-097**

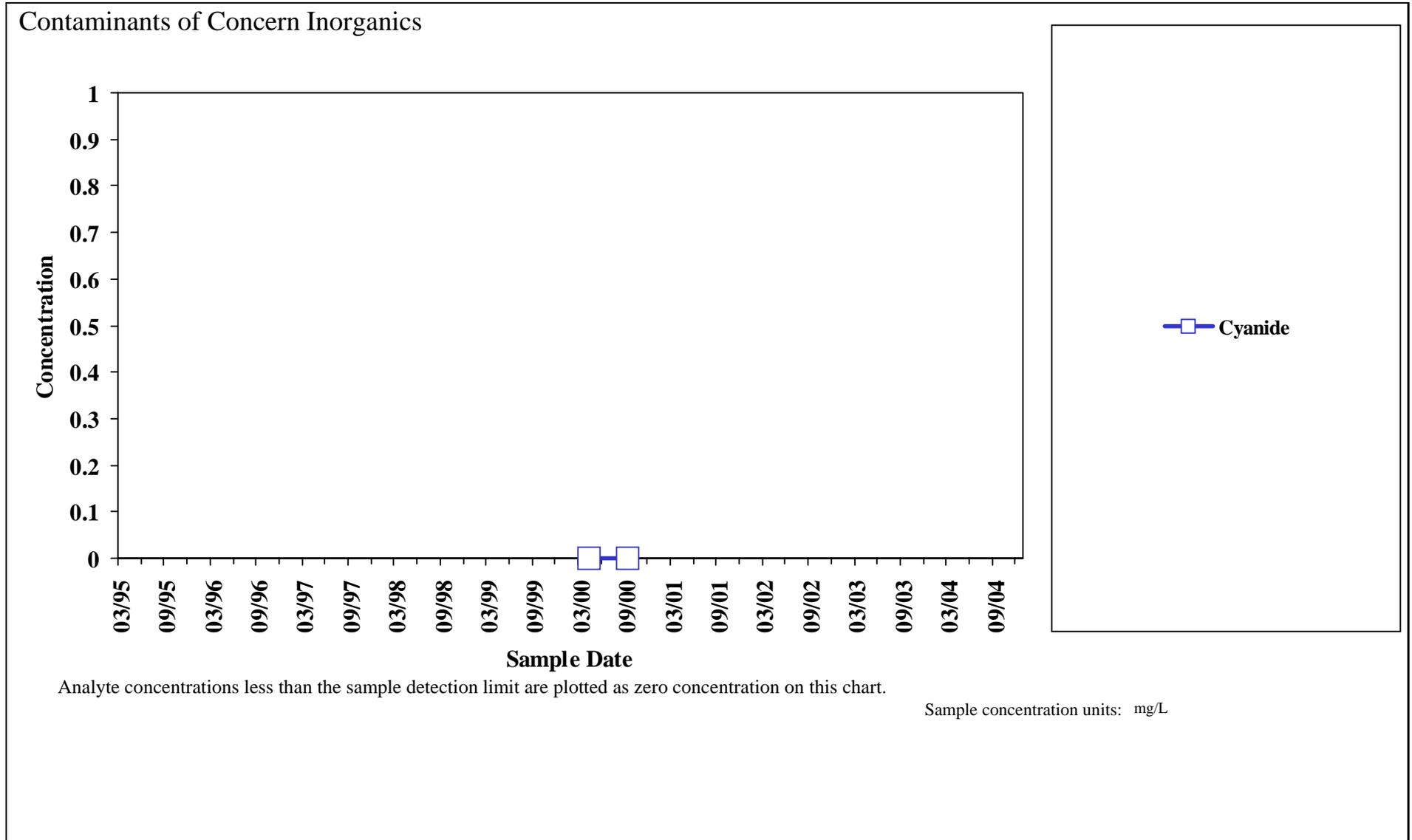
**Building 95**  
**Groundwater**



Sample Location:

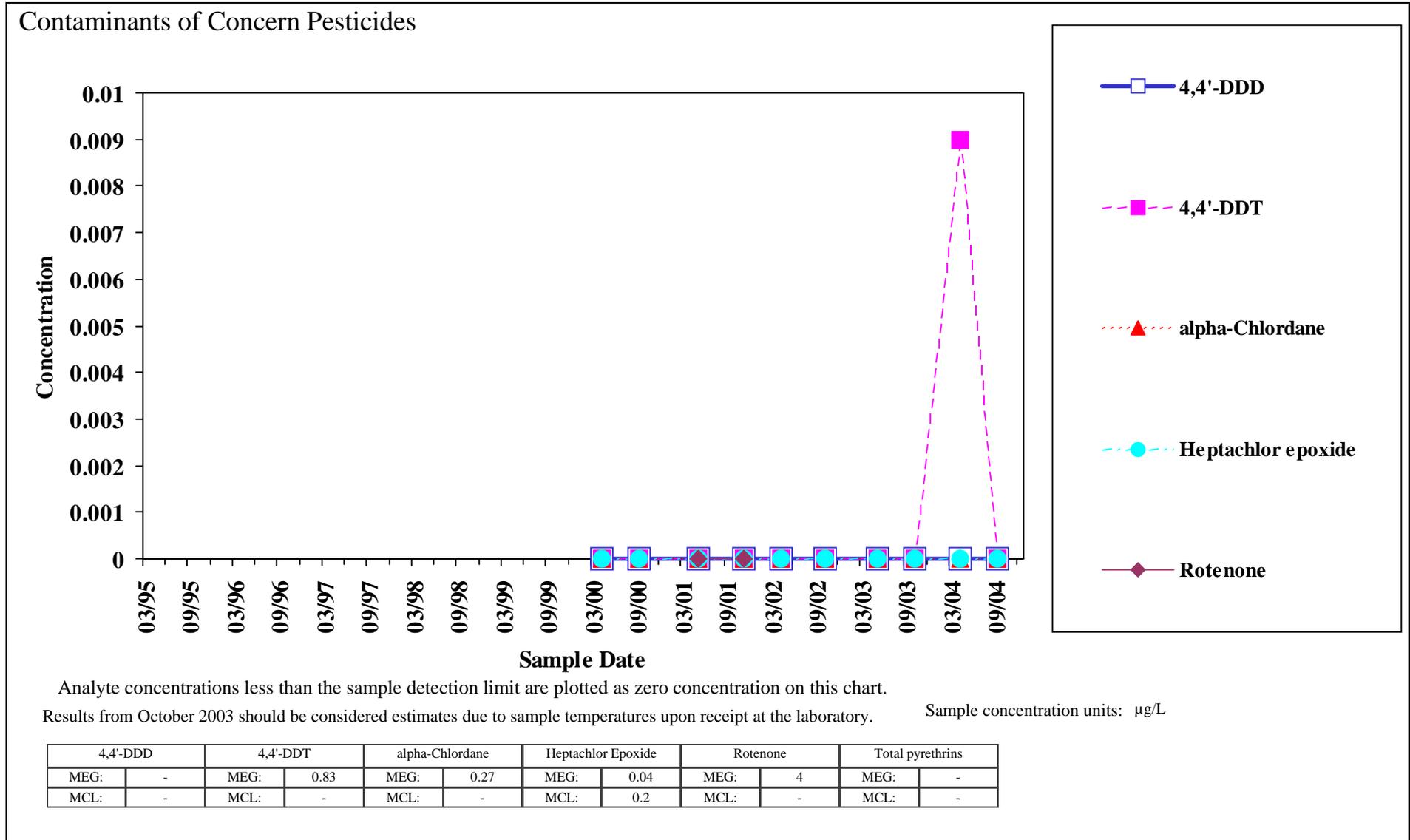
**MW-NASB-098**

Building 95  
Groundwater



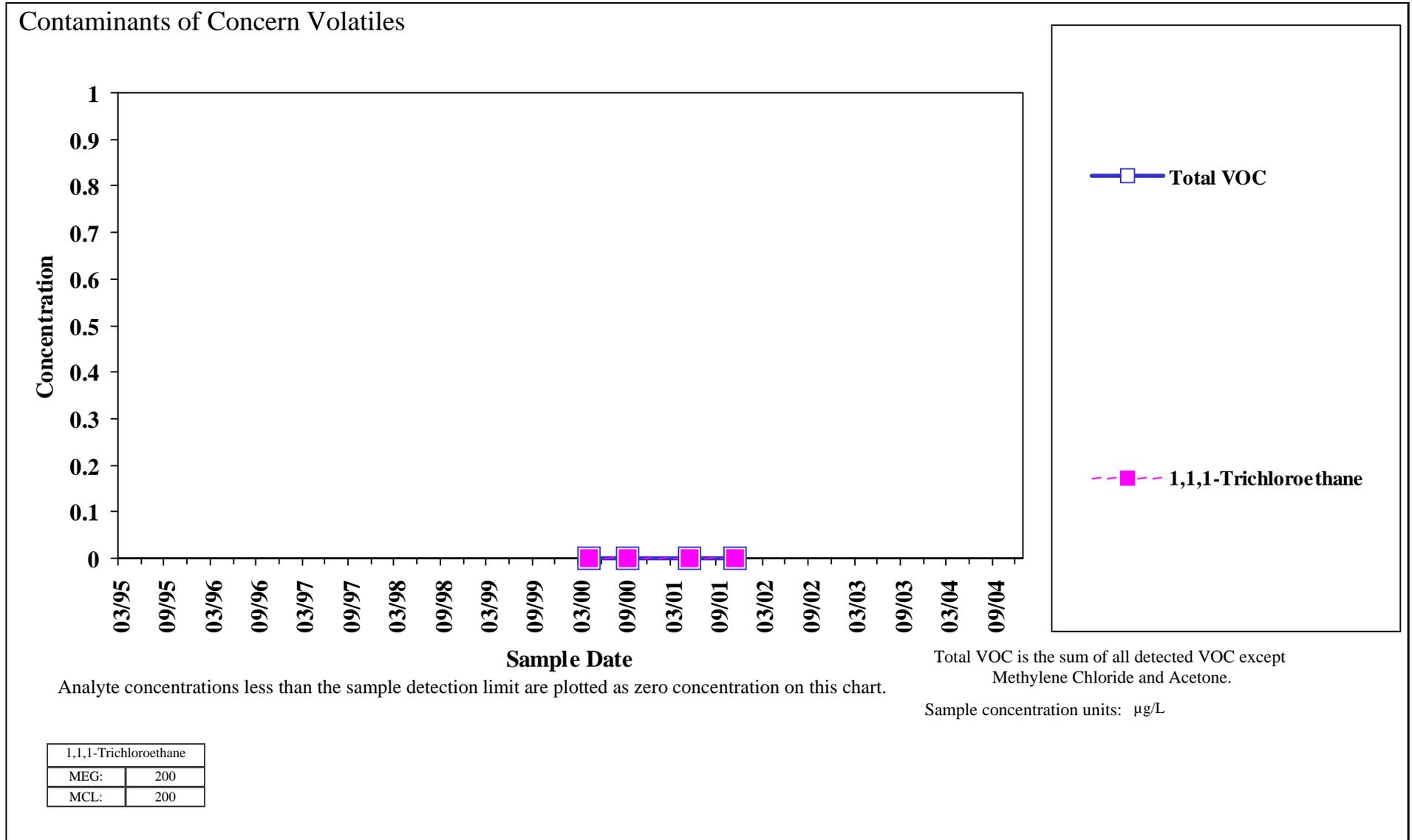
Sample Location:  
**MW-NASB-098**

**Building 95**  
**Groundwater**



Sample Location:  
**MW-NASB-098**

**Building 95**  
**Groundwater**



**APPENDIX C**  
Analytical Data Quality Review

## APPENDIX C

### ANALYTICAL DATA QUALITY REVIEW SAMPLING EVENT 20

#### C.1 INTRODUCTION

This project utilized both field and analytical laboratory quality control measures to ensure that the data quality objectives presented in the project-specific LTMP Quality Assurance Project Plan (QAPP) (EA 2000) were met.

The sampling program consisted of three aqueous samples collected on 15 September 2004 from the Building 95 site, which were provided to Accutest (Marlborough, Massachusetts) for pesticide analysis as one sample delivery group. Samples included three monitoring wells and one field duplicate. Field quality control samples (field duplicate) were collected at the frequency required by the QAPP. Equipment rinsate blanks were not required due to the use of dedicated pumping systems.

Analytical quality control was reviewed for compliance against the pesticide measurement performance criteria for precision and accuracy for each sample including the field sample duplicate, as presented in the LTMP QAPP. Analytical precision was based upon the relative percent difference (RPD) of the matrix spike/matrix spike duplicates (MS/MSD). Accuracy was based upon the reported spike recoveries for the laboratory control standards (LCS), MS/MSD, and surrogate recoveries.

The ability of the laboratory to extract compounds is confirmed by the recoveries of the surrogate spikes. MS/MSD and surrogate spike 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, and recoveries are used to measure potential bias due to matrix effects. The MS/MSD RPD is used to determine analytical precision, and the field duplicate RPD is used to determine overall precision. The accuracy of the LCS spike recoveries is used in conjunction with MS/MSD when evaluating organic analyses.

Field completeness was quantified by reviewing the LTMP planned number of samples for the collection to the number of samples actually collected. Data completeness was quantified by determining the ratio of the number of non-rejected analyte measurements to the total number of analyte measurements.

For clarity, the following terms are defined for use throughout this appendix:

- **Method Detection Limit** - Refers to the minimum concentration that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The method detection limits for aqueous media are summarized in the table at the end of this appendix.

- **Practical Quantitation Limit** - Defined as the lowest concentration that can be reasonably achieved within specified units of precision and accuracy during routine laboratory operating conditions.
- **Method Reporting Limit** - Defined as the Project Quantitation Limit adjusted for any necessary sample dilutions, percent moisture, sample volume deviations, and/or extract/digestate volume deviations.
- **Measurement Performance Criteria** - Define the acceptable performance for the data quality indicators- accuracy and precision. The LTMP QAPP specifies the project measurement performance criteria (MPC) for LCS, surrogates, MS/MSD, and MS/MSD RPD quality control checks.
- **Precision** - Precision is evaluated by comparing the relative percent difference (RPD) of the MS/MSD sample pairs to the QAPP RPD limits. If the RPD is outside the measurement performance criteria, the positive detect or non-detect is qualified for the affected compound in the unspiked sample. The overall precision is determined by comparing the field duplicate RPD to the QAPP RPD limits.
- **Accuracy** - Accuracy is evaluated by comparing MS/MSD recoveries, surrogate spike recoveries, and LCS recoveries to QAPP MPC.
- **J** – Data qualifier indicating that the analyte was positively identified; however, the analyte magnitude is the approximate concentration of the analyte in the sample.
- **UJ** - The analyte was not detected above the sample reporting limit, and the reporting limit is approximate.
- **U** - The sample was analyzed for, but was not detected above the sample MDL
- **R** - The sample result is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified

## C.2 LABORATORY ANALYTICAL QUALITY CONTROL PROGRAM

Aqueous samples collected from the monitoring wells were analyzed for LTMP Target Compound List (TCL) pesticides by EPA SW-846 Method 8081. The quality control measures specified in the EPA SW-846 methodology (MS/MSD, surrogates, and LCS), as well as those in the QAPP, were performed at the proper frequency by the laboratory and established proper analytical quality control. The range of results for the accuracy and precision data quality objectives are discussed in the subsections below.

## **C.2.1 LABORATORY ACCURACY EVALUATION**

The following four sections describe the criteria used and the guidelines employed to evaluate the accuracy of the laboratory results using MS/MSD, surrogate recoveries, LCS and laboratory method blank quality control sample results.

### **C.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 sample delivery group. 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 sample delivery group (i.e., all associated samples).

- If the matrix spike recovery is greater than the upper control limit, then corresponding analyte detects are qualified as estimated (J) and corresponding analytes with non-detects are not qualified in the unspiked sample.
- If the matrix spike recovery is greater than or equal to 10 percent, but less than the lower control limit, then corresponding analyte detects are qualified as estimated (J) and corresponding analytes with non-detects are qualified as non-detect with an estimated MRL (UJ) in the unspiked sample.
- If the matrix spike recovery is less than 10 percent for an analyte, then corresponding analyte detects are qualified as estimated (J) and corresponding analytes non-detects are qualified as unusable or rejected (R) in the unspiked sample.

### **C.1.2.2 Evaluating Surrogate Recoveries for Accuracy**

- If the surrogate recovery is greater than the upper limit, then all analyte detects are qualified as estimated (J) and analytes with non-detect results are not qualified.
- If the surrogate recovery is greater than or equal to 10 percent, but less than the lower control limit, then all analyte detects are qualified as estimated (J) and all analytes with non-detect results are qualified as non-detect with estimated MRLs (UJ).
- If the surrogate recovery is less than 10 percent, then all analyte detects are qualified as estimated (J) and all analytes with non-detect results are qualified as unusable (R).

### **C.1.2.3 Evaluating Laboratory Control Sample Recoveries for Accuracy**

- If the LCS recovery is greater than the upper control limit, then corresponding analyte detects are qualified as estimated (J) and analytes with non-detect results are not qualified.
- If the LCS recovery is greater than or equal to 10 percent, but less than the lower control limit, then corresponding analyte detects are qualified as estimated (J) and analytes with non-detect results are qualified as non-detect with estimated MRLs.
- If the LCS recovery is less than 10 percent, the corresponding analyte detects are qualified as estimated (J) and analyte non-detects are qualified as rejected (R).

#### **C.1.2.4 Evaluating Laboratory Method Blanks for Accuracy**

- Method blank results should not have any analyte detections greater than the MRL.

#### **C.1.3. LABORATORY ACCURACY ASSESSMENT**

**Surrogates:** Two surrogates were used to measure the ability of the laboratory to extract the target compounds from the environmental samples. The monitoring well sample surrogate recoveries were within the QAPP MPC except for sample BN-95-20-MW-XD1 which had low surrogate recoveries, and all results qualified estimated (J) for detects and UJ for non-detects.

**MS/MSD:** All LTMP TCL compounds and others were used to assess the MS/MSD recoveries. The MS recoveries were within MPC. The MSD for BN-95-20-MW097 had a low percent recovery for endrin aldehyde, and this pesticide was qualified UJ in field sample BN-95-20-MW097.

**LCS:** All of the LTMP TCL pesticide compounds and others were used to assess the LCS recoveries. Associated LCS samples had recoveries within measurement performance criteria except alpha-BHC and endrin aldehyde results. For all samples alpha-BHC and endrin aldehyde non-detects were qualified UJ due to low LCS recoveries.

**Method Blank:** Associated method blanks were non-detect for all reported pesticides.

**Accuracy Summary:** One sample had low surrogate recovery and the LCS recoveries for two pesticides were low. The matrix spike recovery for endrin aldehyde was low, which may indicate a potential matrix bias. Overall the laboratory accuracy is acceptable, and the data are usable as qualified.

#### **C.1.4 LABORATORY PRECISION EVALUATION**

Laboratory precision is evaluated and assessed in the following section.

**MS/MSD RPDs:** All QAPP pesticide compounds were used included in the MS/MSD, and the control limits identified in the QAPP were the same as those used by the laboratory. Field sample BN-95-20-MW097 was used for the MS/MSD. The MS/MSD RPDs for all reported pesticides were less than the MPC.

The MS/MSD RPDs for pesticide compounds were less than the RPD criteria. The laboratory precision is acceptable, as demonstrated by the acceptable MS/MSD RPDs.

#### **C.2 FIELD SAMPLING PROGRAM QUALITY CONTROL**

A field duplicate sample was collected and analyzed for the same parameters as the field samples to determine field sampling precision. An equipment rinsate blank was not required due to the use of dedicated pumping systems in each well.

## C.2.1 FIELD PRECISION EVALUATION

Field precision is evaluated and assessed in the following sections.

### C.2.1.1 Field Duplicate Sample Precision Evaluation

Field duplicate samples are used to evaluate the overall precision of both the field and laboratory. EPA Region 1 criteria for evaluating field duplicates was used to review the field duplicate collected and analyzed during the sampling event.

- Field sample and field duplicate sample results greater than twice the MRL were evaluated and a FD RPD was calculated.
- Results with a detect greater than the MRL in one but non-detect in another sample of the field duplicate pair were qualified as estimated for detects and non-detect results were qualified. estimated non-detect.
- The overall precision was evaluated as being acceptable if less than 30 percent.

### C.2.1.2 Field Precision Assessment

One duplicate sample was collected during monitoring well sampling. The field duplicate sample was collected from monitoring well MW-NASB-097 and labeled BN-95-20-MW-XD1.

The following table lists the set of field duplicate groundwater sample results that are associated with Sample Delivery Group BN-95-20-MW-NASB-97:

Compound	Units	MW-NASB-097	MW-NASB-097 DUP	RPD%
4,4'-DDD	µg/L	0.022	0.025	12.77
4,4'-DDT	µg/L	0.017	ND	--
Heptachlor Epoxide	µg/L	0.016	0.023	<b>35.90</b>
<b>NOTE: Results in bold indicate an exceedance of the precision requirements.</b>				

Precision requirements were not met for pesticide analysis of 4,4'-DDT and heptachlor epoxide. The field duplicate RPD was greater than the measurement performance criteria for heptachlor epoxide. 4,4 DDT was qualified as this pesticide was only detected in the field sample but not in the field duplicate. The compounds listed above were qualified as estimated (J for detects and UJ for nondetects) in the field duplicate pair.

## C.2.2 FIELD ACCURACY EVALUATION

Rinsate blanks are not collected as dedicated equipment is used for sample collection. Field accuracy is acceptable and no apparent possible cross-contamination.

### C.3 OVERALL EVALUATION OF DATA AND USABILITY RECOMMENDATION

The following is a summary table of the findings for the data quality review performed and discussed in detail in this appendix:

Data Quality Review		Holding Time	Field/Method Blank Contamination	Precision		Accuracy			Completeness	
				Laboratory	Field	Surrogate	MS/MSD	LCS	Analytical	Field
Aqueous Matrix	Pesticides	✓	✓	✓	J	J/UJ	UJ	UJ	100%	100%
NOTE: ✓ = The data are usable as reported based on the data quality review of this quality measurement. J = The data are usable; however, some analyte concentrations should be considered estimates of the true concentrations. UJ = The data are usable; however, the reporting limit should be considered approximate.										

Pesticides data are usable as qualified based on the quality review for precision and accuracy and reconciliation with project data quality objectives.

### C.4 COMPLETENESS

Analytes were reviewed for method and QAPP compliance, and the data were determined to be usable because no data were rejected for this sampling event. Therefore, the percent analytical completeness for field samples is 100 percent. The planned field samples and the corresponding quality control samples (duplicate) were collected, resulting in a percent field completeness of 100 percent.

### C.5 METHOD DETECTION LIMITS FOR AQUEOUS SAMPLES

The table below provides the method detection limit for 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.

Chemical_Name	Method_Detection_Limit	Units
Aldrin	0.0090	ug/l
alpha-BHC	0.0086	ug/l
beta-BHC	0.011	ug/l
delta-BHC	0.0091	ug/l
gamma-BHC (Lindane)	0.0095	ug/l
alpha-Chlordane	0.023	ug/l
gamma-Chlordane	0.012	ug/l
Dieldrin	0.011	ug/l
4,4'-DDD	0.012	ug/l
4,4'-DDE	0.013	ug/l
4,4'-DDT	0.014	ug/l
Endrin	0.013	ug/l
Endosulfan sulfate	0.012	ug/l

Chemical_Name	Method_Detection_Limit	Units
Endrin aldehyde	0.035	ug/l
Endrin ketone	0.013	ug/l
Endosulfan-I	0.024	ug/l
Endosulfan-II	0.013	ug/l
Heptachlor	0.014	ug/l
Heptachlor epoxide	0.012	ug/l
Methoxychlor	0.012	ug/l
Toxaphene	0.37	ug/l

**APPENDIX D**  
Analytical Report Form I Data Sheets

## Report of Analysis

<b>Client Sample ID:</b> BN-95-20-MW067	<b>Date Sampled:</b> 09/15/04
<b>Lab Sample ID:</b> M41852-1	<b>Date Received:</b> 09/15/04
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8081 SW846 3510C	
<b>Project:</b> Brunswick Naval Air Station, Brunswick, ME	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ22208.D	1	09/23/04	CZ	09/20/04	OP7724	GYZ908
Run #2							

Run #	Initial Volume	Final Volume
Run #1	980 ml	5.0 ml
Run #2		

### Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.051	0.0092	ug/l	
319-84-6	alpha-BHC	ND	0.051	0.0088	ug/l	
319-85-7	beta-BHC	ND	0.051	0.011	ug/l	
319-86-8	delta-BHC	ND	0.051	0.0093	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.051	0.0097	ug/l	
5103-71-9	alpha-Chlordane	ND	0.051	0.023	ug/l	
5103-74-2	gamma-Chlordane	ND	0.051	0.012	ug/l	
60-57-1	Dieldrin	ND	0.051	0.011	ug/l	
72-54-8	4,4'-DDD	ND	0.051	0.012	ug/l	
72-55-9	4,4'-DDE	ND	0.051	0.013	ug/l	
50-29-3	4,4'-DDT	0.083	0.051	0.014	ug/l	
72-20-8	Endrin	ND	0.051	0.013	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.051	0.012	ug/l	
7421-93-4	Endrin aldehyde	ND	0.051	0.035	ug/l	
53494-70-5	Endrin ketone	ND	0.051	0.013	ug/l	
959-98-8	Endosulfan-I	ND	0.051	0.025	ug/l	
33213-65-9	Endosulfan-II	ND	0.051	0.014	ug/l	
76-44-8	Heptachlor	ND	0.051	0.015	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.051	0.012	ug/l	
72-43-5	Methoxychlor	ND	0.051	0.012	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	31%		30-122%
877-09-8	Tetrachloro-m-xylene	31%		30-122%
2051-24-3	Decachlorobiphenyl	75%		30-133%
2051-24-3	Decachlorobiphenyl	76%		30-133%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> BN-95-20-MW097	<b>Date Sampled:</b> 09/15/04
<b>Lab Sample ID:</b> M41852-2	<b>Date Received:</b> 09/15/04
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8081 SW846 3510C	
<b>Project:</b> Brunswick Naval Air Station, Brunswick, ME	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ22209.D	1	09/23/04	CZ	09/20/04	OP7724	GYZ908
Run #2							

Run #	Initial Volume	Final Volume
Run #1	970 ml	5.0 ml
Run #2		

**Pesticide TCL List**

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.052	0.0093	ug/l	
319-84-6	alpha-BHC	ND	0.052	0.0089	ug/l	
319-85-7	beta-BHC	ND	0.052	0.011	ug/l	
319-86-8	delta-BHC	ND	0.052	0.0094	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.052	0.0098	ug/l	
5103-71-9	alpha-Chlordane	ND	0.052	0.024	ug/l	
5103-74-2	gamma-Chlordane	ND	0.052	0.012	ug/l	
60-57-1	Dieldrin	ND	0.052	0.012	ug/l	
72-54-8	4,4'-DDD	0.022	0.052	0.012	ug/l	J
72-55-9	4,4'-DDE	ND	0.052	0.013	ug/l	
50-29-3	4,4'-DDT	0.017	0.052	0.014	ug/l	J
72-20-8	Endrin	ND	0.052	0.013	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.052	0.012	ug/l	
7421-93-4	Endrin aldehyde	ND	0.052	0.036	ug/l	
53494-70-5	Endrin ketone	ND	0.052	0.013	ug/l	
959-98-8	Endosulfan-I	ND	0.052	0.025	ug/l	
33213-65-9	Endosulfan-II	ND	0.052	0.014	ug/l	
76-44-8	Heptachlor	ND	0.052	0.015	ug/l	
1024-57-3	Heptachlor epoxide	0.016	0.052	0.012	ug/l	J
72-43-5	Methoxychlor	ND	0.052	0.012	ug/l	
8001-35-2	Toxaphene	ND	2.6	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	58%		30-122%
877-09-8	Tetrachloro-m-xylene	58%		30-122%
2051-24-3	Decachlorobiphenyl	89%		30-133%
2051-24-3	Decachlorobiphenyl	94%		30-133%

ND = Not detected      MDL - Method Detection Limit      J = Indicates an estimated value  
 RL = Reporting Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> BN-95-20-MW098	<b>Date Sampled:</b> 09/15/04
<b>Lab Sample ID:</b> M41852-3	<b>Date Received:</b> 09/15/04
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8081 SW846 3510C	
<b>Project:</b> Brunswick Naval Air Station, Brunswick, ME	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ22210.D	1	09/23/04	CZ	09/20/04	OP7724	GYZ908
Run #2							

Run #	Initial Volume	Final Volume
Run #1	970 ml	5.0 ml
Run #2		

## Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.052	0.0093	ug/l	
319-84-6	alpha-BHC	ND	0.052	0.0089	ug/l	
319-85-7	beta-BHC	ND	0.052	0.011	ug/l	
319-86-8	delta-BHC	ND	0.052	0.0094	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.052	0.0098	ug/l	
5103-71-9	alpha-Chlordane	ND	0.052	0.024	ug/l	
5103-74-2	gamma-Chlordane	ND	0.052	0.012	ug/l	
60-57-1	Dieldrin	ND	0.052	0.012	ug/l	
72-54-8	4,4'-DDD	ND	0.052	0.012	ug/l	
72-55-9	4,4'-DDE	ND	0.052	0.013	ug/l	
50-29-3	4,4'-DDT	ND	0.052	0.014	ug/l	
72-20-8	Endrin	ND	0.052	0.013	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.052	0.012	ug/l	
7421-93-4	Endrin aldehyde	ND	0.052	0.036	ug/l	
53494-70-5	Endrin ketone	ND	0.052	0.013	ug/l	
959-98-8	Endosulfan-I	ND	0.052	0.025	ug/l	
33213-65-9	Endosulfan-II	ND	0.052	0.014	ug/l	
76-44-8	Heptachlor	ND	0.052	0.015	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.052	0.012	ug/l	
72-43-5	Methoxychlor	ND	0.052	0.012	ug/l	
8001-35-2	Toxaphene	ND	2.6	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		30-122%
877-09-8	Tetrachloro-m-xylene	70%		30-122%
2051-24-3	Decachlorobiphenyl	105%		30-133%
2051-24-3	Decachlorobiphenyl	106%		30-133%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> BN-95-20-MW-XD1	<b>Date Sampled:</b> 09/15/04
<b>Lab Sample ID:</b> M41852-4	<b>Date Received:</b> 09/15/04
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8081 SW846 3510C	
<b>Project:</b> Brunswick Naval Air Station, Brunswick, ME	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ22214.D	1	09/24/04	CZ	09/20/04	OP7724	GYZ908
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	5.0 ml
Run #2		

**Pesticide TCL List**

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.050	0.0090	ug/l	
319-84-6	alpha-BHC	ND	0.050	0.0086	ug/l	
319-85-7	beta-BHC	ND	0.050	0.011	ug/l	
319-86-8	delta-BHC	ND	0.050	0.0091	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.050	0.0095	ug/l	
5103-71-9	alpha-Chlordane	ND	0.050	0.023	ug/l	
5103-74-2	gamma-Chlordane	ND	0.050	0.012	ug/l	
60-57-1	Dieldrin	ND	0.050	0.011	ug/l	
72-54-8	4,4'-DDD	0.025	0.050	0.012	ug/l	J
72-55-9	4,4'-DDE	ND	0.050	0.013	ug/l	
50-29-3	4,4'-DDT	ND	0.050	0.014	ug/l	
72-20-8	Endrin	ND	0.050	0.013	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.050	0.012	ug/l	
7421-93-4	Endrin aldehyde	ND	0.050	0.035	ug/l	
53494-70-5	Endrin ketone	ND	0.050	0.013	ug/l	
959-98-8	Endosulfan-I	ND	0.050	0.024	ug/l	
33213-65-9	Endosulfan-II	ND	0.050	0.013	ug/l	
76-44-8	Heptachlor	ND	0.050	0.014	ug/l	
1024-57-3	Heptachlor epoxide	0.023	0.050	0.012	ug/l	J
72-43-5	Methoxychlor	ND	0.050	0.012	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	12% <sup>a</sup>		30-122%
877-09-8	Tetrachloro-m-xylene	11% <sup>a</sup>		30-122%
2051-24-3	Decachlorobiphenyl	96%		30-133%
2051-24-3	Decachlorobiphenyl	100%		30-133%

(a) Confirmed by reanalysis.

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

**APPENDIX E**  
Field Monitoring and Sampling Forms

**APPENDIX E.1**  
Groundwater Level Measurement Sheet

David C.

9/13/04

**BUILDING 95 MONITORING WELL GAUGING SUMMARY, SEPT 2004**

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of PVC well riser)	Monitoring Event 19 Gauging Data (6 April 2003) <i>Time</i>	
			Depth to Water (ft below top of PVC well riser)	Water Table Elevation (ft MSL)
<b>Building 95</b>				
MW-NASB-065 <sup>(a)</sup>	74.29	15.50	4.63'	12:20
MW-NASB-066 <sup>(a)</sup>	78.79	19.79	8.57'	12:13
MW-NASB-067 <sup>(a, b)</sup>	74.30	15.00	4.61'	11:48
MW-NASB-068 <sup>(a)</sup>	74.86	15.05	5.40'	11:56
MW-NASB-097 <sup>(a)</sup>	73.41	11.05	4.07'	11:50
MW-NASB-098 <sup>(a)</sup>	76.53	16.00	7.53'	9:41

(a) These wells were gauged and sampled on 6 April 2004.  
(b) Depth to water incorrectly annotated on the Groundwater Sampling Log; should be 3.53 feet, instead of 6.53 feet.

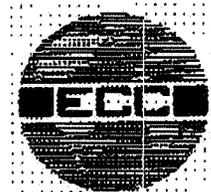
NOTE: MSL = Mean sea level.  
PVC = Polyvinyl chloride.

**APPENDIX E.2**  
Field Record of Well Purging and Sampling Forms

## Environmental Chemical Corporation Low Flow/Low Stress Groundwater Sampling Log

Project: Bldg 95  
 Location: NASB, Brunswick, ME  
 Well ID: MW 067

Date: 9.15.04  
 Sampler: Suzanne  
 PID Reading: 0.0



Start Time: 12:10 End Time: 1245  
 Well Construction: 2" PVC  
 Depth to water: 4.72  
 Well Depth: 10.06  
 Water Column: 5.34  
 Total Volume Removed (L) \_\_\_\_\_

### Field Testing Equipment

Make	Model	Serial #
YSI	1650 MDS	02J0183AG
YSI	600 XLM	00L1166AA
LaMotte	turbidimeter	3744.4602
Grundfos	BMI/MPL	9503

Time	volume removed (liters)	Flow Rate (m/min)	Depth To Water (ft)	Temp (celsius)	pH (STD)	SPC uS/cm <sup>c</sup>	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
12:11	.2	250	4.86	16.12	6.02	347	1.47	-25.0	3	clear
12:21	2.5	250	4.84	15.80	5.80	321	0.25	-25.9	2	clear
12:31	2.5	250	4.84	16.00	5.79	316	0.25	-23.5	2	clear
1236	<del>2.5</del>	280	4.84	16.58	5.77	310	0.25	-21.4	2	"
1241	1	200	4.84	16.94	5.77	309	0.25	-21.8	2	"
1244	0.6	200	4.84	17.31	5.77	307	0.25	-20.0	2	"

Acceptance Criteria: 10% 10% 10% 10% <10

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

### Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
1245	BN.95.20.MW067	1L-Amber	2	None	Pesticides

### Comments

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Suzanne Whitehead  
 Signature

9.15.04  
 Date

## Environmental Chemical Corporation Low Flow/Low Stress Groundwater Sampling Log

Project: Bldg 95  
 Location: NASB, Brunswick, ME  
 Well ID: MW-097

Date: 9.15.04  
 Sampler: Suzanne W.  
 PID Reading: 0.0



Start Time: 11:16 End Time: 12:08  
 Well Construction: 2" PVC  
 Depth to water: 4.21  
 Well Depth: 11.23  
 Water Column: 7.02  
 Total Volume Removed (L): 12.7

### Field Testing Equipment

Make	Model	Serial #
YSI	150 MDS	02J0183AG
YSI	600 XLM	00L1166AA
LaMotte	turbidimeter	3744-6602
Grundfos	BM1/MP1	9503

Time	volume removed (liters)	Flow Rate (ml/min)	Depth To Water (ft)	Temp (celsius)	pH (STD)	SPC (uS/cm <sup>2</sup> )	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
11:17	2	250	4.44	17.01	6.02	238	3.61	125.0	28	clear
11:27	2.5	250	4.46	16.37	5.79	234	2.44	97.9	2	clear
11:37	2.5	250	4.44	16.29	5.75	234	2.40	120.9	1	clear
11:47	2.5	250	4.40	17.49	5.75	231	2.25	124.2	1	clear
11:57	2.5	250	4.37	17.57	5.77	230	2.46	125.1	1	clear
12:02	1.75	250	4.37	17.69	5.78	229	2.62	124.6	1	clear
12:07	1.75	250	4.36	17.72	5.78	229	2.61	124.8	1	clear

Acceptance Criteria:

10%    10%    10%    10%    <10

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

### Sample Collection

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
12:08	BN-95-20-MW097	1L Amber	2	None	Pesticides
00:00	BN-95-20 MW-XD1	1L Amber	2	None	Pesticides
12:08	BN-95-20 MW097MISMSD	1L Amber	2+2	None	Pesticides

**Comments**

\_\_\_\_\_

\_\_\_\_\_

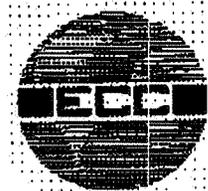
Suzanne Whiteside  
 Signature

9.15.04  
 Date

## Environmental Chemical Corporation Low Flow/Low Stress Groundwater Sampling Log

Project: Old Fuel Farm/Bldg 95  
 Location: NASB, Brunswick, ME  
 Well ID: MW098

Date: 9-15-04  
 Sampler: Suzanne  
 PID Reading: 0.0



Start Time: 9:20 End Time: 10:21  
 Well Construction: 2" PVC  
 Depth to water: 7.66  
 Well Depth: 15.72  
 Water Column: 8.06  
 Total Volume Removed (L) 15.1

**Field Testing Equipment**

Make	Model	Serial #
YSI	650 MDS	02J0183 AG
YSI	600 XLM	0011166 AA
LaMotte	turbidimeter	3744-4602
Grundfos	BMI/MP1	9503
Solinst	water level indicator	

Time	volume removed (liters)	Flow Rate (ml/min)	Depth To Water (ft)	Temp (celsius)	pH (STD)	SPC (uS/cm°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
9:21	.1	100	7.76	15.40	5.02	200	4.94	-35.2	34	clear
9:31	2.5	250	8.21	26.32	6.20	328	2.30	-81.0	31	clear
9:41	2.5	250	8.22	17.19	6.25	333	0.38	-90.2	12	clear
9:51	2.5	250	8.14	16.99	6.18	316	0.35	-83.1	8	clear
10:01	2.5	250	8.14	16.52	6.10	301	0.31	-52.0	6	clear
10:11	2.5	250	8.14	16.20	5.92	289	0.25	-40.3	5	clear
10:16	1.75	250	8.14	16.18	5.90	284	0.23	-36.9	4	clear
10:21	1.75	250	8.14	16.15	5.86	280	0.22	-35.0	4	clear

Acceptance Criteria:

10% 10% 10% 10% <10

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

10:22 BN-95:20-MW098 1L Am Sample Collection <sup>2</sup> None Pesticides

Time	Sample ID	Container	# of Bottles	Preservative	Analyses
10:22	AAW-NASB-098	1 L Amber	2	None	Pesticides
10:22	MW-NASB-098	40 ml vial	7	HCl	VOC, Methane, TOC
10:22	MW-NASB-098	950 ml poly	1	None	NO <sub>3</sub> , FE <sub>2</sub> , SO <sub>4</sub> , AIK
00:00	MW-NASB-DUP1				
10:22	MW-NASB-098	MS/MSD			same as above except pesticides

**Comments**

Pesticides for site Bldg 95 (No Dup)  
Other Analyses for Old Fuel Farm Site (Dup)  
two different labs

Suzanne Whitford  
 Signature

9-15-04  
 Date



**APPENDIX F**  
Engineering Inspection Report



**APPENDIX G**  
Historical Summary of Site

## **APPENDIX G**

### **HISTORICAL SUMMARY OF SITE**

#### **G.1 INTRODUCTION**

Building 95 and surrounding structures were the pesticide/herbicide storage area and distribution center for NAS Brunswick until 1985. These structures were demolished by the Navy, and currently the site is grassed over. The site has level topography and no surface water drainage features. Previous investigations identified the presence of several herbicides and pesticides, including 4,4'-DDT and pyrethrins (an insecticide), in the soil and on structures at the site. Additionally, in 1993, low concentrations of pesticides and inorganics were reported in groundwater samples (ABB-ES 1993<sup>1</sup>).

Site 17 (Building 95) is the designated tracking name for this former pesticide building. The site is not part of the National Priorities List and, therefore, is not subject to Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews. At the Building 95 site, the Navy is currently performing long-term monitoring, maintenance, and corrective measures as part of the long-term remedial actions required by the Action Memorandum dated April 1993 (ABB-ES 1993), and in accordance with the May 2000 Long-Term Monitoring Plan (LTMP) (EA 2000<sup>2</sup>).

In October 2003, under Contract No. N62472-02-D-0810, Contract Task Order No. 009, Environmental Chemical Corporation began to perform long-term monitoring at the Building 95 Site at Naval Air Station (NAS), Brunswick, Maine. Prior to October 2003 the Building 95 Site has been monitored since March 1995. NAS Brunswick is located south of the Androscoggin River between Brunswick and Cooks Corner, Maine.

#### **G.2 SITE BACKGROUND**

In 1994, a LTMP was established for Building 95 (ABB-ES 1994<sup>3</sup>). On 23 June 1994, the Navy received approval of the original LTMP from the U.S. Environmental Protection Agency (EPA) and State of Maine Department of Environmental Protection (MEDEP). During November-December 1994, corrective measures were taken at the site by ABB-ES following the completion of a baseline risk assessment. The remedial measures included: excavation of the upper 1-7 ft of soil, placement of permeable geotextile liner at the bottom of the excavation to act as a marker of the limit of excavation, and the addition of clean backfill.

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1. ABB Environmental Services (ABB-ES). 1993. Action Memorandum, Building 95. April.
  2. EA Engineering, Science, and Technology, Inc. 2000. Final Long-Term Monitoring Plan, Building 95, Naval Air Station, Brunswick, Maine. May.
  3. ABB-ES. 1994. Final Long-Term Monitoring Plan Building 95, Sites 1 and 3 and Eastern Plume. August.

In June 1996, due to the low detections of site contaminants, the sampling frequency was reduced from quarterly to tri-annual following approval by MEDEP and EPA (EA 1997<sup>4</sup>). Monitoring Event 9 began the initiation of annual sampling at this site.

In May 2000, the LTMP was revised based upon discussions with MEDEP, EPA, and members of the Restoration Advisory Board. The May 2000 LTMP addressed changes to the sampling locations, frequency of sample collection, collection method, and analytical methods, and the revisions were based on previously collected data; as a result, the sampling frequency was reduced based on results of the monitoring event data collected to date. The sampling frequency was changed to bi-annual sampling to occur in April and September of each year.

In April 2001, groundwater monitoring well MW-NASB-067 was returned to the long-term monitoring sampling program at the request of MEDEP. Beginning with Monitoring Event 13 (April 2001), rotenone was added to the LTMP analyte list.

In July 2001, MEDEP agreed to eliminate the pesticide avitrol as a potential second round analyte from the groundwater sampling program at Building 95 based on historical site information and analytical data (non-detect in groundwater and soil samples since 1992).

Beginning in April 2002, MEDEP and Navy agreed to eliminate Target Compound List volatile organic compounds by EPA Method 8260B, Target Compound List semivolatile compounds by EPA Method 8270C, Target Analyte List Metals by EPA Method 6000/7000 Series, and rotenone by EPA Method 635 from the groundwater monitoring program. The Navy would continue to collect and analyze groundwater samples for Target Compound List pesticides by EPA 8081A and maleic hydrazide by EPA Method 632 Modified.

In August 2002, the Navy made a request to MEDEP and EPA that the pesticide maleic hydrazide be eliminated from the LTMP at Building 95. On 13 September 2002, the EPA agreed to the elimination of maleic hydrazide from the Building 95 LTMP. However, MEDEP requested additional rounds of sampling for maleic hydrazide.

During the Fall 2002 Long-Term Monitoring Program, samples were collected and analyzed for maleic hydrazide from each of the three wells (MW-NASB-067, MW-NASB-097, and MW-NASB-098). No maleic hydrazide was detected in the samples collected from the Building 95 monitoring wells.

In Spring 2003, as a result of discussions between MEDEP and Navy, it was determined well MW-NASB-097 would be sampled for maleic hydrazide, but only after the water level had reached 71.5 ft mean sea level or higher elevation, which represented seasonal high groundwater conditions.

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4. EA Engineering, Science, and Technology, Inc. 1997. Final Monitoring Event 9 – August 1997, Building 95, Naval Air Station, Brunswick, Maine. November.

In April 2003, the water level had reached the 71.5 ft mean sea level and was sampled for maleic hydrazide at well MW-NASB-097. No maleic hydrazide was detected in the sample collected from well MW-NASB-097.

On 5 September 2003, the Navy issued a letter to MEDEP requesting that maleic hydrazide be eliminated from the LTMP at Building 95. MEDEP concurred to the Navy's 5 September 2003 request on 16 September 2003.