FINAL
BUILDING 95
MONITORING EVENT 21 SUMMARY REPORT
APRIL 2005

Naval Air Station
Brunswick, Maine

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

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

January 2006
Revised: June 2006

Prepared by

ECC
50 D'Angelo Drive
Marlborough, MA 01752

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Darren M. Gainer P.G. — 6-15-06
Project Manager — Date

Patrick Scher P.G. — 6-9-06
Science and Engineering Manager — Date

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LIST OF ABBREVIATIONS AND ACRONYMS

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

1.0 PROJECT ACTIVITIES AND MONITORING EVENT RESULTS

Naval Facilities Engineering Command contracted with ECC to perform long-term monitoring at Building 95 Site, Naval Air Station (NAS), Brunswick, Maine (Figure 1-1). Under Contract Number N62472-02-D-0810, Contract Task Order No. 007, Engineering Field Activity Northeast,

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) at Building 95, the Site (Figure 1-2),. The Building 95 long-term monitoring plan well designation and sample parameters are summarized in Table 1-1.

Groundwater samples were collected from monitoring wells MW-NASB-067, MW-NASB-097, and MW-NASB-098 during the April 2005 monitoring event. This report provides a short summary of the monitoring and sampling completed during Monitoring Event 21 (April 2005). An annual report, written after the Monitoring Event 22 (September 2005), will provide a more detailed examination of the 2005 data.

1.1 Measurement of Water Level Elevations

Water level measurements were obtained on 5 April 2005 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) at the Old Navy Fuel Farm. These water levels are provided for reference only in this report. There is a one-month difference in monitoring the Building 95 monitoring wells and the Old Navy Fuel Farm monitoring wells. Water level gauging data are summarized in Table 1-2. Only the Building 95 gauging locations were used to interpret the groundwater potentiometic surface elevations for the Building 95 Site (Figure 1-3). The Old Navy Fuel Farm Potentiometric Surface Map dated March 7, 2005 is provided in this report for comparison purposes (Figure 1-4).

1.2 Groundwater Monitoring, Sampling, and Analysis

The groundwater sampling program was performed on 5 April 2005. The sample cooler was delivered by laboratory sample courier to Northeast Laboratory Services (located in Winslow, Maine). Groundwater samples were collected and submitted for analysis of LTMP Target Compound List pesticides and other reportable pesticides by U.S. Environmental Protection Agency (EPA) Method 8081A.

Water quality indicator parameters, were monitored and recorded to ensure stabilization of water quality prior to sample collection on 5 April 2005 (Table1-3).

Table 1-4 provides a summary of analytical results for groundwater samples collected at the Building 95 Site on 5 April 2005. The data obtained during the April 2005 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).

Chemicals of Concern for the Building 95 site are highlighted in bold type. One field duplicate sample was collected and analyzed (BN-95-21-XD1) as a field quality control sample.

2.0 TEMPORAL TRENDS AND OBSERVATIONS

The results of the groundwater level gauging program (Table 1-2) indicate that the groundwater flow direction in the immediate area of the Building 95 Site is generally towards the southeast (Figure 1-3). The hydraulic gradient between wells MW-NASB-066 and MW-NASB-098 is approximately 0.00714 (0.00386 for September 2004). In general, the hydraulic gradient across the Building 95 Site is relatively flat. The groundwater levels were the highest since Monitoring Event 18.

2.1 Field Water Quality Parameters

Water quality parameters, including pH, specific conductance, oxidation-reduction potential, temperature, dissolved oxygen, and turbidity, were measured during well purging. Table 1-3 lists the results of field water quality measurements. For all three wells the oxidation-reduction potential values were high but no trend has been noted.

2.2 Analytical Results

Appendix B provides trend graphs of analytical results. All pesticide results for this sampling event were non-detect.

- **Monitoring Well MW-NASB-067** – Dichlorodiphenyltrichloroethane (4,4'-DDT) had been detected in events 17 through 20 at levels below the Maine Maximum Exposure guideline (MEG).

- **Monitoring Well MW-NASB-097** – Historically, heptachlor epoxide and alpha-chlordane had exceeded the State MEG at this well (0.04 µg/L and 0.27 µg/L, respectively). After the September 2003 sampling event, heptachlor epoxide no longer exceeded the State MEG and decreased to non-detect during Monitoring Event 21. In addition, alpha-chlordane which reached a maximum observed concentration of 0.72 µg/L in October 2001 has shown a steadily decreasing trend below the State MEG and was non-detect during this monitoring event. 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.

  Although there are no State MEGs or Federal Maximum Contaminant Levels for dichlorodiphenyldichloroethane (4,4'-DDD) and no detections of 4,4'-DDD were noted for this monitoring event there have been previous detections of this compound. During monitoring event 18 concentrations for 4,4'-DDD were detected at 0.071 µg/L, during monitoring event 19 concentrations for 4,4'-DDD were detected at 0.11 J µg/L, and finally during monitoring event 20 concentrations for 4,4'-DDD were detected at 0.022 J µg/L.

- **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.*

  Heptachlor epoxide and alpha-chlordane have exceeded the State MEGs in the past in one site well (MW-NASB-097). Heptachlor epoxide fell below the State MEG (0.04 µg/L) during Monitoring Event 19 and alpha-chlordane has been below the State MEG (0.27 µg/L) since Monitoring Event 17. Since these events, heptachlor epoxide and alpha-chlordane, have noted a relatively stable decreasing concentration trend. Neither compound was detected for the April 2005 monitoring events.

  4,4'-DDT at monitoring well, MW-NASB-067, had shown a continuing upward concentration trend since April 2003 but was non-detect for Monitoring Event 21. 4,4'-DDT will continue to be monitored.

- ***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. The Navy will investigate the soil north and south of Avenue B. Depending on results the Navy will re-evaluate the need for continued LTMP groundwater sampling.

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.

4.0 REFERENCES

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

ABB-ES. 1994. *Final Long-Term Monitoring Plan Building 95, Sites 1 and 3 and Eastern Plume.* August.

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

EA. 2000. *Final Long-Term Monitoring Plan, Building 95, Naval Air Station, Brunswick, Maine*. May.

EA. 2002. *Technical Memorandum for Reduction in Long-Term Monitoring Sample Analysis at Building 95, Naval Air Station Brunswick, Maine*. April.

EA. 2004. *Revised Proposal for Optimizing Groundwater Samples Collected as Part of Long-Term Monitoring, Naval Air Station, Brunswick, Maine.* November.

Maine Department of Environmental Protection (MEDEP). 2001. *Confirmation Letter regarding Building 95 – Avitrol, Naval Air Station, Brunswick to Mr. Orlando J. Monaco, Department of the Navy, Engineering Field Activity Northeast.* 19 July.

MEDEP. 2002. *Correspondence from Claudia Sait to the Department of the Navy concerning reduction in long-term monitoring sample analysis*. 16 September.

U.S. Environmental Protection Agency. 2002. *Correspondence from Michael Barry to Department of the Navy concerning Building 95 Long-Term Monitoring Plan*. 13 September.

TABLES

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

Well Designation	Sample Parameters			
	Sampling Frequency[a]	Target Compound List Pesticides[b]	Bi-Annual Gauging	Field Parameters[c]
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[d]	Bi-Annual	NR	X	NR
MW-NASB-209R[d]	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 $ORP_{Ag/AgCl}$, are also recorded.
(d) MW-NASB-210 and MW-NASB-209R are located at the Old Navy Fuel Farm and were gauged 7 March 2005.

NOTE: NR = Not required

TABLE 1-2 MONITORING WELL GAUGING SUMMARY, APRIL 2005

Well Designation	Well Riser Elevation (feet AMSL)	Depth to Well Bottom (feet below top of PVC well riser)	Monitoring Event 21 Gauging Data (5 April 2005)	
			Depth to Water (feet below top of PVC well riser)	Water Table Elevation (feet above AMSL)
Building 95				
MW-NASB-065[a]	74.29	15.50	1.75	72.54
MW-NASB-066[a]	78.79	19.79	5.65	73.14
MW-NASB-067[a]	74.30	15.00	1.62	72.68
MW-NASB-068[a]	74.86	15.05	2.51	72.35
MW-NASB-097[a]	73.41	11.05	1.26	72.15
MW-NASB-098[a]	76.53	16.00	5.83	70.70
MW-NASB-210[b]	72.94	10.02	8.13	64.81
MW-NASB-209R[b]	77.55	16.71	5.37	72.18

(a) These wells were gauged and sampled on 5 April 2005.
(b) These wells were gauged on 7 March 2005 and are presented here for potentiometric surface contour map interpretation.

NOTE: AMSL = Above Mean Sea Level
PVC = polyvinyl chloride

TABLE 1-3 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUNDWATER SAMPLES, APRIL 2005

Well Designation	pH	Temperature (°C)	Specific Conductance (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	$ORP_{Ag.AgCl}$ (mV)
MW-NASB-067	5.15	8.12	156	0.26	5	205.1
MW-NASB-097	4.61	7.41	173	5.49	7	477.3
MW-NASB-098	5.45	9.28	92	2.05	8	264.3

NOTE: NTU = nephelometric turbidity unit
$ORP_{Ag.AgCl}$ = Oxidation/Reduction Potential
°C = degrees Celsius
µmhos/cm = microohms per centimeter
mV = millivolt
mg/L = milligram per liter

TABLE 1-4 SUMMARY OF GROUNDWATER ANALYTICAL RESULTS PESTICIDES, BUILDING 95, APRIL 2005

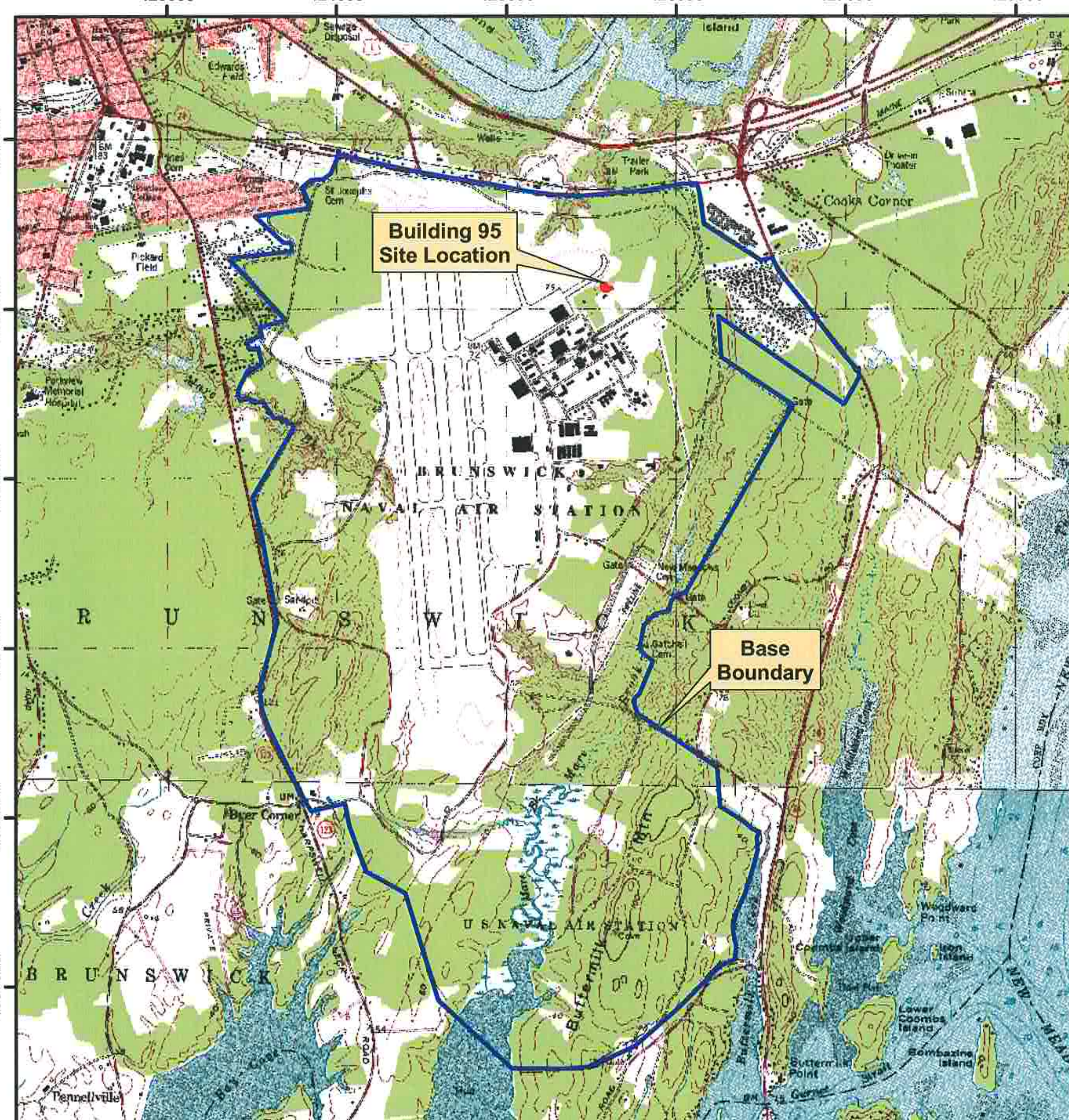
			MW-NASB-067	MW-NASB-097	MW-NASB-097 (Dup)	MW-NASB-098
			Ground Water	Ground Water	Ground Water	Ground Water
			Low-Flow Sample	Low-Flow Sample	Low-Flow Sample	Low-Flow Sample
Compound/Element	**MEG (a)**	**MCL (b)**				
4,4'-DDD	NC	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
4,4'-DDT	0.83	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Heptachlor Epoxide	0.04	0.2	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
4,4'-DDE	NC	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Aldrin	NC	NC	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
alpha-BHC	NC	NC	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
beta-BHC	NC	NC	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
Chlordane	NC	NC	(<0.5U)	(<0.5U)	(<0.5U)	(<0.5U)
delta-BHC	NC	NC	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
Dieldrin	0.02	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Endosulfan I	NC	NC	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
Endosulfan II	NC	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Endosulfan Sulfate	NC	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Endrin	2	2	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Endrin Aldehyde	NC	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Endrin Ketone	NC	NC	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
gamma-BHC (Lindane)	NC	NC	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
Heptachlor	0.08	0.4	(<0.05U)	(<0.05U)	(<0.05U)	(<0.05U)
Methoxychlor	100	40	(<0.5U)	(<0.5U)	(<0.5U)	(<0.5U)
Toxaphene	0.3	3	(<1U)	(<1U)	(<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:
Units are micrograms per liter (µg/L).
NC = Criteria not applicable.
(Dup) indicates duplicate sample.
U = Not detected at or above the sample quantitation limit. Shown as (<____U).

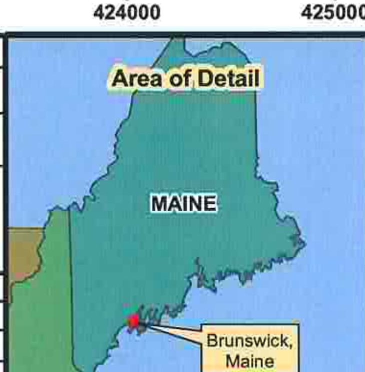
Refer to data Quality Review section (Appendix D) for Method Detection Limits for referenced analytical methods.

Chemicals of Concern listed in the Final Long-Term Monitoring Plan (EA 2000) appear in bold type at the top of the list.



Contract No.	N62472-02-D-0810
Description	Building 95 Site Location
Coordinate system	NAD 1983, UTM, Zone 19 N in meter
Sources	Naval Base Boundary provided by ME GIS. Orrs Island (1978) and Brunswick (1980) 7.5 minute quadrangles provided by USGS.

Date	06-JUN-2006	Rev.	Date	App. By
DB	C. Guido			
CB	N. Williams			
AB				



Legend

- Building 95 Site Location
- NASB Brunswick Boundary

Figure 1-1

**Building 95
Site Location Map
Naval Air Station
Brunswick, Maine**

**Engineering Field Activity
Northeast Naval Facilities
Engineering Command**
Naval Air Station
Brunswick, Maine

ECC GIS
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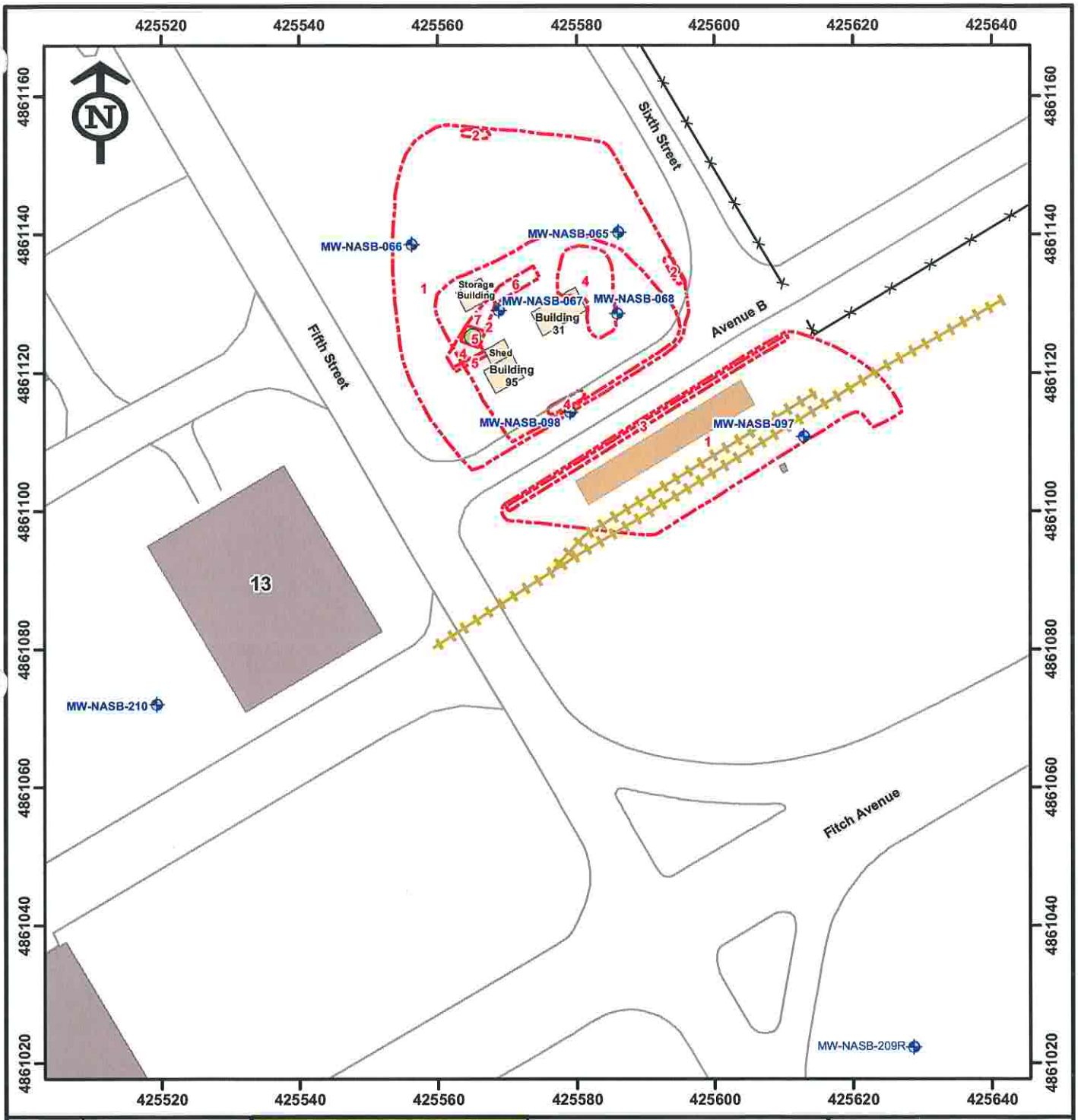
0 1,000 2,000 4,000 Feet



Contract No.	N62472-02-D-0810
Description	Building 95 Site Map
Coordinate system	NAD 1983, UTM, Zone 19 N in meter
Sources	Roads, waterways and Naval Base Boundary provided by ME GIS.

Date	06-JUN-2006	Rev.	Date	App. By
DB	C. Guido			
CB	N. Williams			
AB				

Legend

- Former Location of Septic Tank
- Monitoring Well
- Rail Road Track (Abandoned)
- Fence
- Road
- Former Building
- Building
- Soil Relocation Area (Approximate)
- Excavation Boundary (Approximate)
- 1 Soil Excavation Depth Limits (ft)

Figure 1-2

Building 95 Site Map Naval Air Station Brunswick, Maine

Engineering Field Activity Northeast Naval Facilities Engineering Command
Naval Air Station
Brunswick, Maine

ECC Marlborough, MA
GIS C:\NAVY_GIS\TO07_Brunswick\Bldg95\MapDocuments\Fig1-2_Bldg95_SiteMap.mxd

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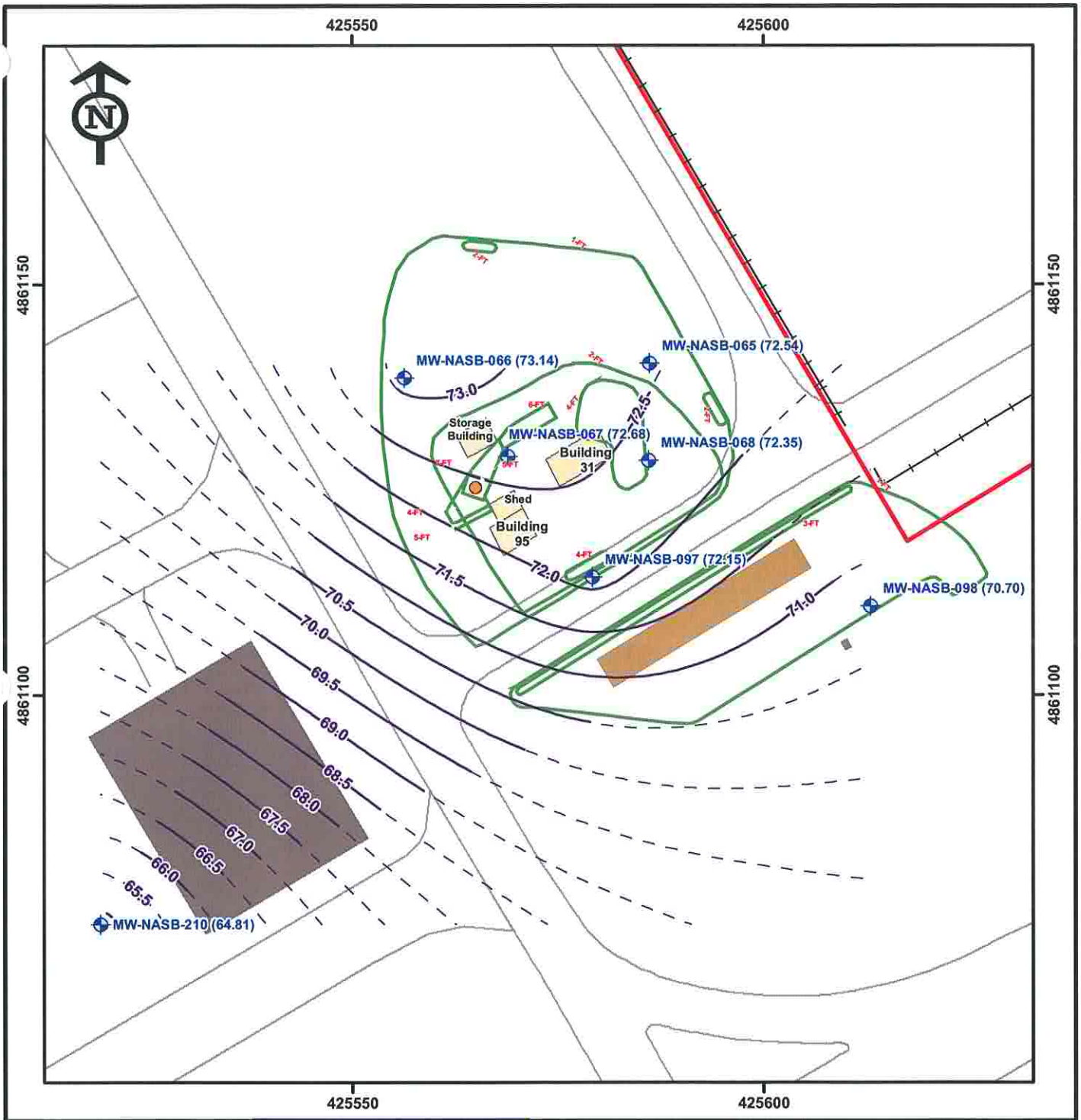

Contract No.	N62472-02-D-0810
Description	Building 95 Groundwater Contour Map
Coordinate system	NAD 1983, UTM, Zone 19 N in meters
Sources	Roads and Naval Base Boundary provided by ME GIS.

Date	2-JUN-2006	Rev.	Date	App. By
DB	C. Guido			
CB	N. Williams			
AB				

Legend

- Monitoring Well
- Former Location of Septic Tank
- Fence
- Interpreted Groundwater Contour
- Inferred Groundwater Contour
- Building
- Former Building
- Soil Relocation Area (Approx)
- Old Navy Fuel Farm (ONFF) Boundary
- Building 95 Excavation Boundary
- 1 FT Soil Excavation Depth Limits (Approx)

Figure 1-3

Building 95 Interpreted Groundwater Potentiometric Surface Contour Map, April 2005

Engineering Field Activity Northeast Naval Facilities Engineering Command
Naval Air Station
Brunswick, Maine

ECC Marlborough, MA
GIS C:\NAVY_GIS\1007_Brunswick\Bldg95\MapDocuments\FigX_Bldg95_GWcontours.mxd

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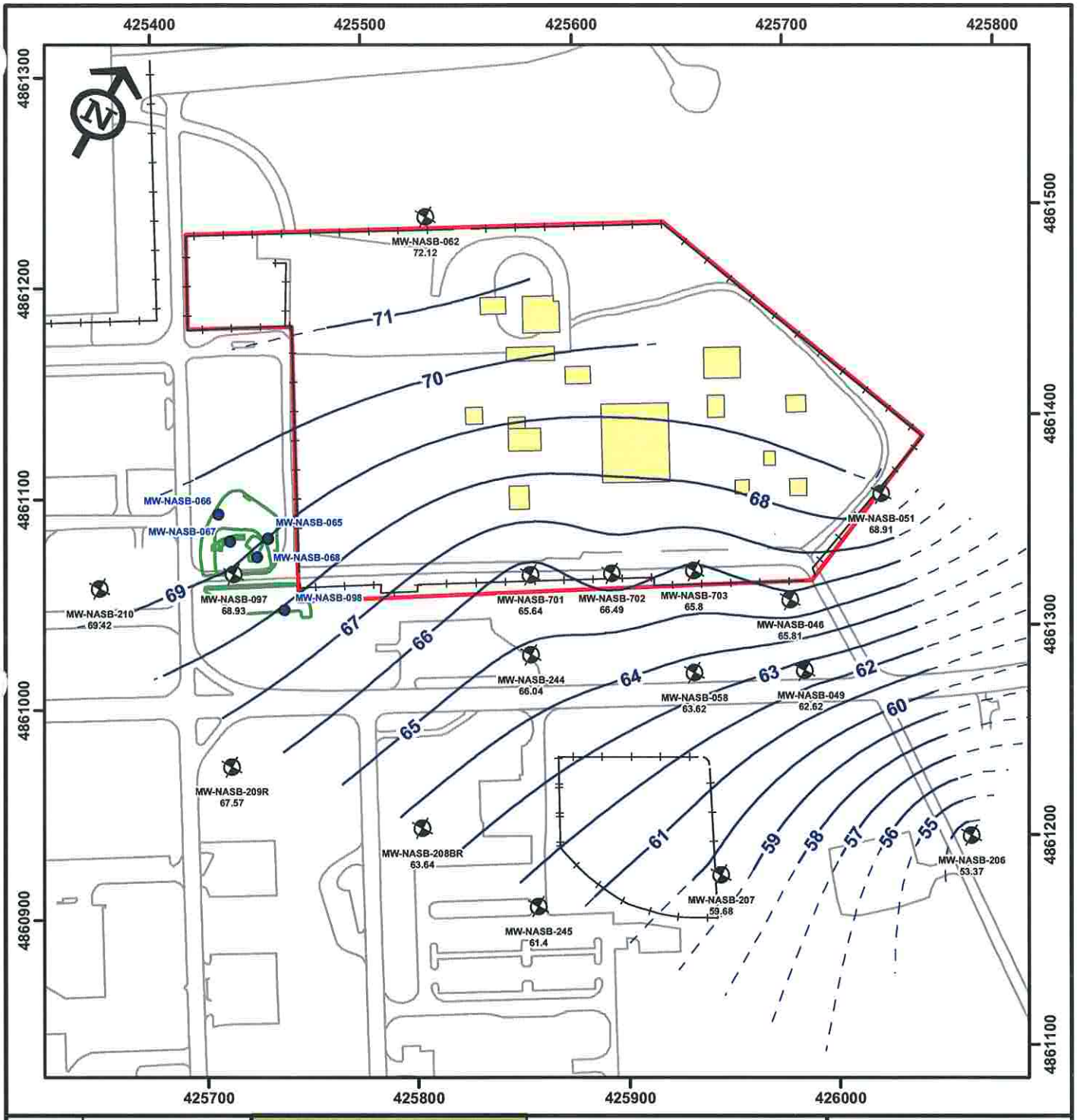


Contract No.	N62472-02-D-0810
Description	Old Navy Fuel Farm (ONFF) Groundwater Contour Map
Coordinate system	NAD 1983, UTM, Zone 19 N in meters
Sources	Roads and Naval Base Boundary provided by ME GIS.

Date	2-JUN-2006	Rev.	Date	App. By
DB	C. Guido			
CB	N. Williams			
AB				

Legend

- Monitoring Well
- Monitoring Well (Not Measured)
- Interpreted Groundwater Contour
- Inferred Groundwater Contour
- Fence
- Road
- Old Navy Fuel Farm (ONFF) Boundary
- ONFF Extent of Excavation
- Building 95 Excavation Boundary

Figure 1-4

Old Navy Fuel Farm (ONFF) Interpreted Groundwater Potentiometric Surface Contour Map, March 2005

Engineering Field Activity Northeast Naval Facilities Engineering Command
Naval Air Station
Brunswick, Maine

ECC Marlborough, MA
GIS C:\NAVY_GIS\TO16_ONFF\MapDocuments\ONFF_Fig1-4_GWcontour.mxd

Feet
0 55 110 220 330

APPENDICES

APPENDIX A

Response to Comments from the Regulators on the Draft Report

(to be provided with the Final Report)

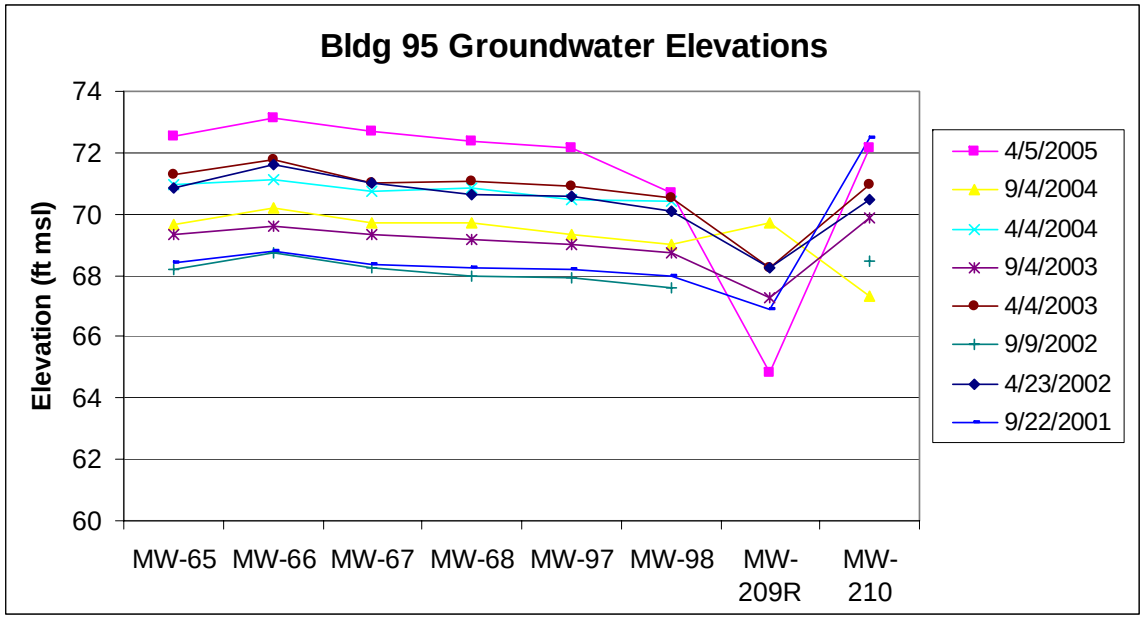
Responses to MEDEP Comments
Building 95
Regulator Draft Monitoring Event 21 Report, April 2005
Naval Air Station, Brunswick, Maine

Reviewer: Clauda Sait
Date: November 7, 2005 (Additional Comments May 25, 2006)
Respondent: ECC
Date: December 7, 2005

Comment #	Location	Comment	Response
1	General	The overall organization and presentation of the data, trend charts and other appendices was logical and consistent with suggested corrections from past reviews. There are no indications of sampling or analytical issues that compromised the data. The review process would be greatly improved with access to the site data in database or spreadsheet form to allow additional comparison of various compounds of interest, water elevations and historical field and lab parameters. (RR)	**Noted.** Once the database is transitioned to ECC, an updated database will be submitted to the shareholders. The database will be provided in its current format.
2	General	MEDEP noted the non-detects for all three wells down from the elevated levels seen in 2003 and 2004 at MW-NASB-067 and MW-NASB-097. This round was notable as having the highest water elevations of any of the last 8 rounds (see attached graphic). Water elevations at this site, like many others, are rebounding from the drought conditions that persisted 2000 to 2001. (NR)	**Noted.**
3	Section 1.1 Page 1-1 and Figure 1-3	The tables and figure note gauging for MW-209R and MW-210 was performed one month before the gauging for the Building 95 wells. MW-209R and MW-210 must be gauged at the same time as the other wells for the water elevations to be meaningful for interpretation of the water table around the Building 95 site, particularly with its relatively flat gradient. The reported water elevation at MW-210 is 7 feet lower than the majority of Building 95 wells this round, indicating the conditions changed significantly from March to April, limiting the interpretive value of the data from this well and MW-209R. If the wells cannot be gauged during the Building 95 program, the water elevation map from the Old Navy Fuel Farm monitoring could be provided for reference, as in some past Building 95 reports. (RR) **Additional Comment**: Insert an additional figure for the Old Navy Fuel Farm showing groundwater flow contours to Building 95 (2 figures total).	**Noted.** MW-209R and MW-210 were gauged during the Old Navy Fuel Farm (ONFF) sampling event in March, and these water levels were provided for reference in the report. The Building 95 wells were gauged during the April sampling event. MW-209R and MW-210 are not in the Building 95 LTMP, but these wells are in the ONFF LTMP. The ONFF sampling must be in March per its LTMP and the Bldg 95 sampling must be in April per its LTMP. The one-month difference in the water levels is due to the scheduling at these two sites.

Comment #	Location	Comment	Response
4	Section 2.1 and 2.2 Page 2-1	(a) As noted above, MEDEP's review would be improved by submission of a copy of the analytical database so trends and relation of field and analytical parameters can be evaluated. Future data submissions from the Navy must include an electronic data deliverable (EDD), preferably in the MEDEP EDD format. If the Navy or the laboratory need an updated EDD template MEDEP can provide one. (See general comment 1 above.) (b) The non-detect analytical results are the first monitoring event since April 2002 (ME-15) in which no pesticides were detected. It is unclear why concentrations fell to non-detect in ME-15 and then rebounded in 2003 – 2004. This monitoring event and ME-15 had high water elevations, but in ME-17 the water table was high and pesticides were detected in both MW-NASB-067 and MW-NASB-097. It is possible the flowpath from the soils identified by ABB as a potential source area does not intersect the downgradient wells under certain conditions, or alternatively the source may be degrading and attenuating such that even when the water table intersects residuals in soil there is insufficient mass to exceed groundwater criteria. The planned/proposed soil sampling would support a determination of sources remaining at the site. (NR)	a) **Noted.** Once the database is transitioned to ECC, an updated database will be submitted to the shareholders in its current format. b) **Noted.**
5	Section 2.2 Page 2-1	(a) In the first sentence MEDEP suggests substituting "at levels" for "... but had been ..." (ED) (b) MEDEP notes there have been detections at MW-NASB-097 of 4,4' DDD, which does not have a MEG or MCL., however both the Region III's Risk Based Concentration and the Region IX's Preliminary Remediation Goal for 4,4' DDD in residential water/tap water is 0.28 µg/L.. This number is based on a risk level of 10^{-6} and are calculated using age adjusted factors. Age adjusted factors integrate exposure from birth to age 30. They combine contact rates, body weights, and exposure durations for small children (ages 1- 6 years) and adults. Please add a reference to the 4,4' DDD detections. (ED)	a) **Concur.** Sentence will read, "Dichlorodiphenyltrichloroethane (4,4'-DDT) had been detected in events 17 through 20 at levels below the Maine maximum exposure guideline (MEG)." b) **Concur.** The 4,4 DDD detections will be noted in the report.
6	Section 3.1, Page 3-1, 1st Bullet	"The concentrations of pesticides indicate that no further groundwater degradation is occurring in or around Building 95." There are a multiple working hypotheses (see comment 4.b above) and this statement is inappropriate in this section and must be deleted. (ED) **Additional Comment**: Move pesticide statement to Section 2.2 or just delete.	**Concur.** The concentrations of pesticides this round were all non-detect, and in the past 3 MEs pesticides were not exceeding MCL/MEGs. Pesticides are not impacting groundwater quality. However, the question remains as to the mechanism for this occurrence, which most likely is natural attenuation.

Comment #	Location	Comment	Response
7	Section 3.2, Page 3-1	According to the Long-Term Monitoring Plan for the site, revisions will be based on trends in groundwater concentrations, not on soil values. However if the groundwater data remains non-detect for multiple rounds and the soils are below appropriate criteria for groundwater protection, then re-evaluation of the Long Term Monitoring Program would be appropriate. (NR)	**Concur.**
8	Section 3.2, Page 3-2	If the consensus statement will rely on all the current stakeholders, the schedule for EFANE would appear to put a very short timeline on this item. (NR)	**Noted.**
END OF COMMENTS			



APPENDIX B

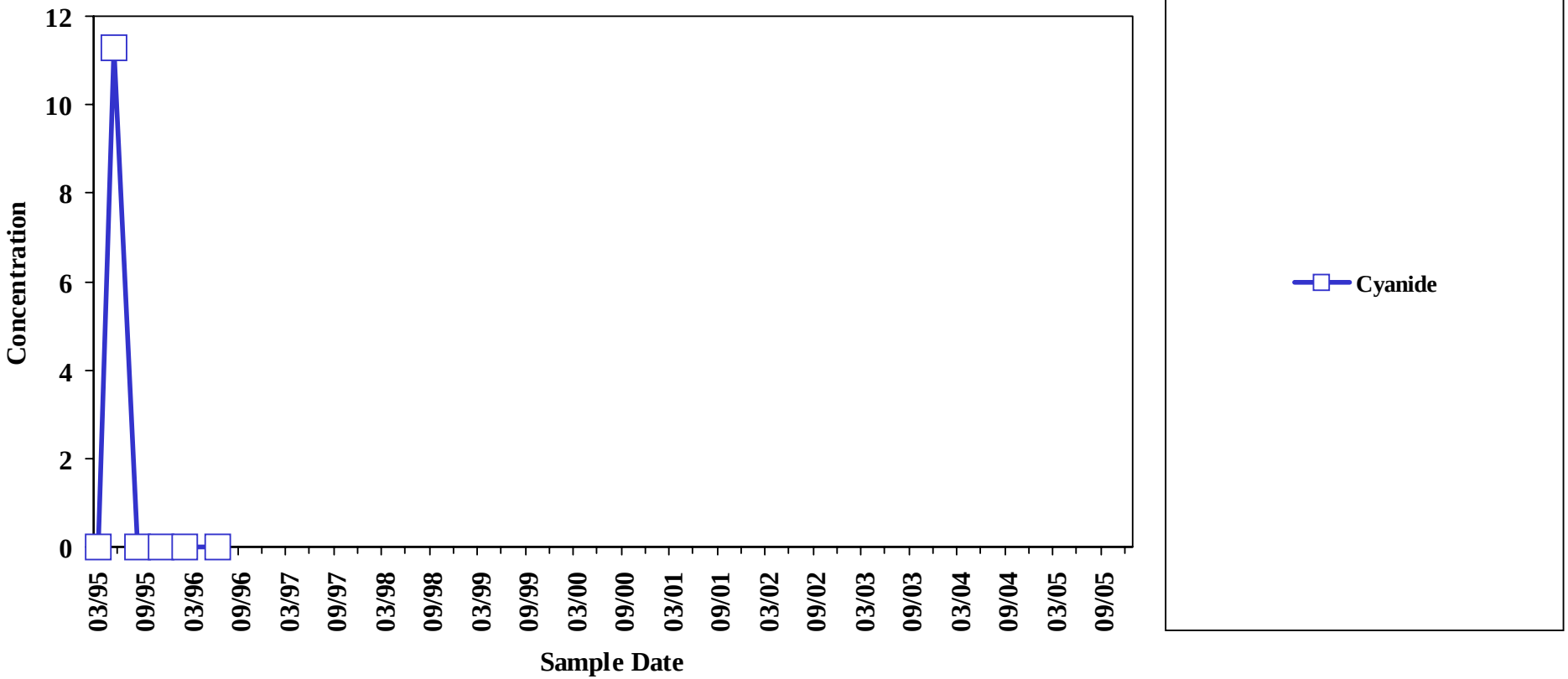
Temporal Trend Graphs

Sample Location:

MW-NASB-065

Building 95
Groundwater

Contaminants of Concern Inorganics



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

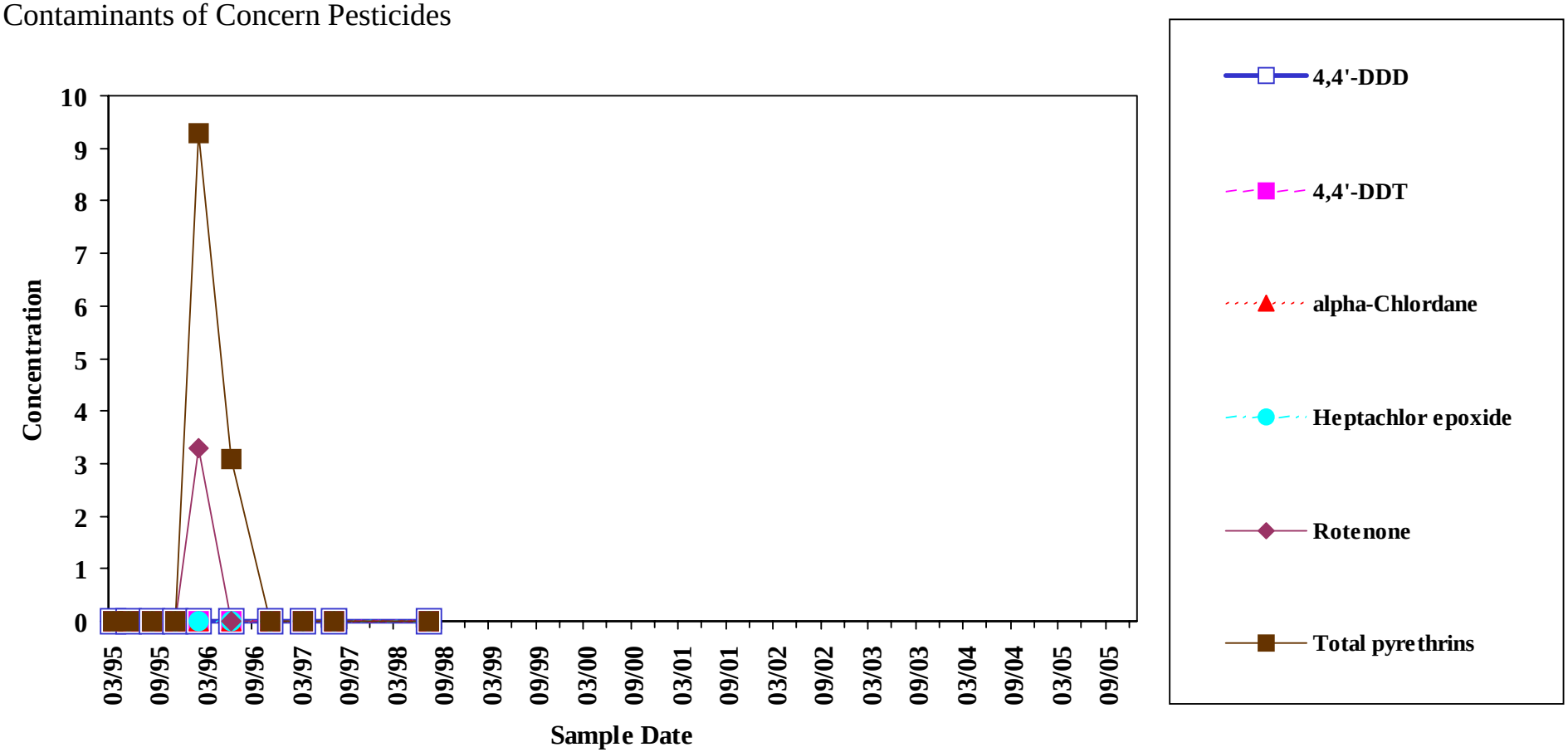
Sample concentration units: mg/L

Sample Location:

MW-NASB-065

Building 95
Groundwater

Contaminants of Concern Pesticides



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

Results from October 2003 should be considered estimates due to sample temperatures upon receipt at the laboratory.

Sample concentration units: µg/L

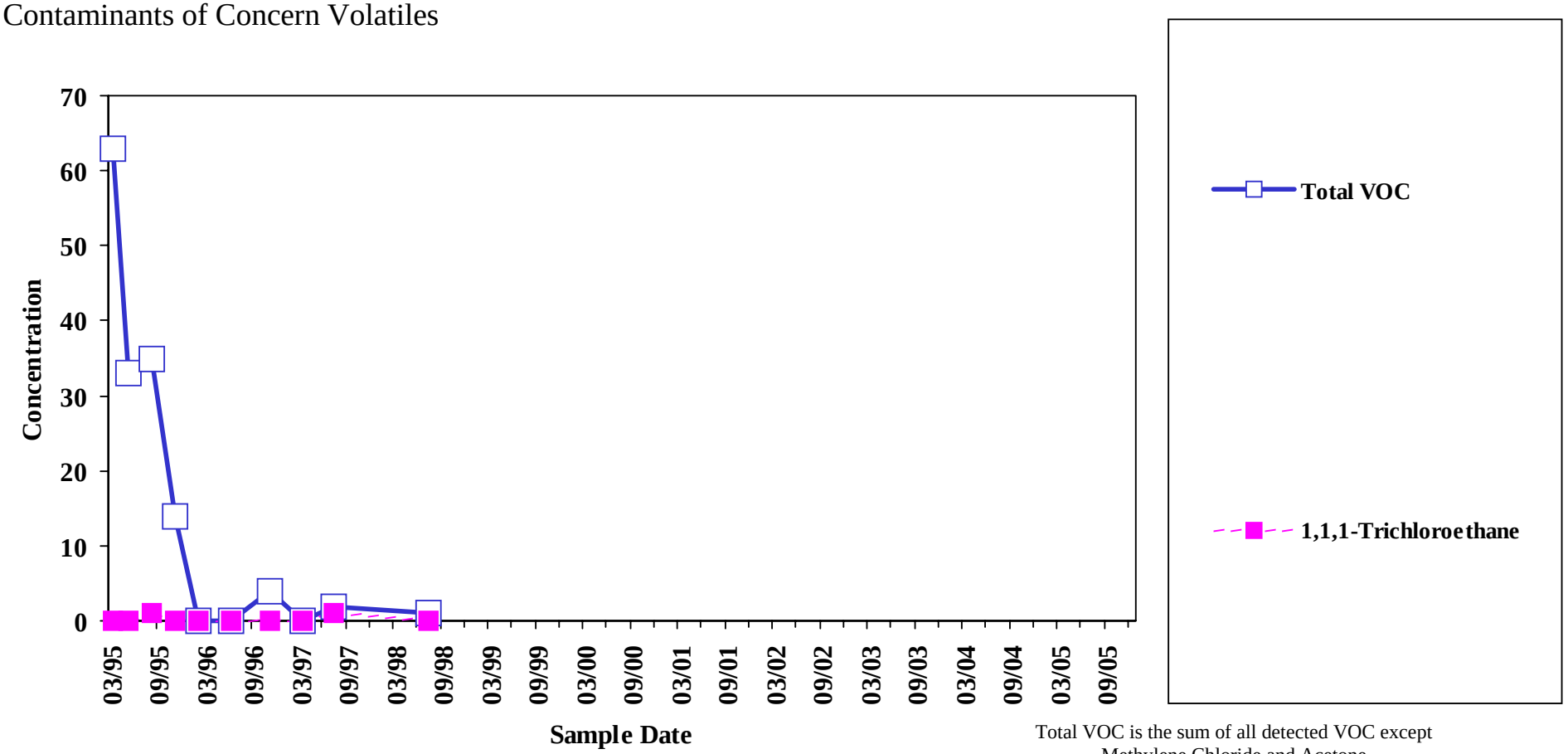
4,4'-DDD		4,4'-DDT		alpha-Chlordane		Heptachlor Epoxide		Rotenone		Total pyrethrins	
MEG:	-	MEG:	0.83	MEG:	0.27	MEG:	0.04	MEG:	4	MEG:	-
MCL:	-	MCL:	-	MCL:	-	MCL:	0.2	MCL:	-	MCL:	-

Sample Location:

MW-NASB-065

Building 95
Groundwater

Contaminants 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

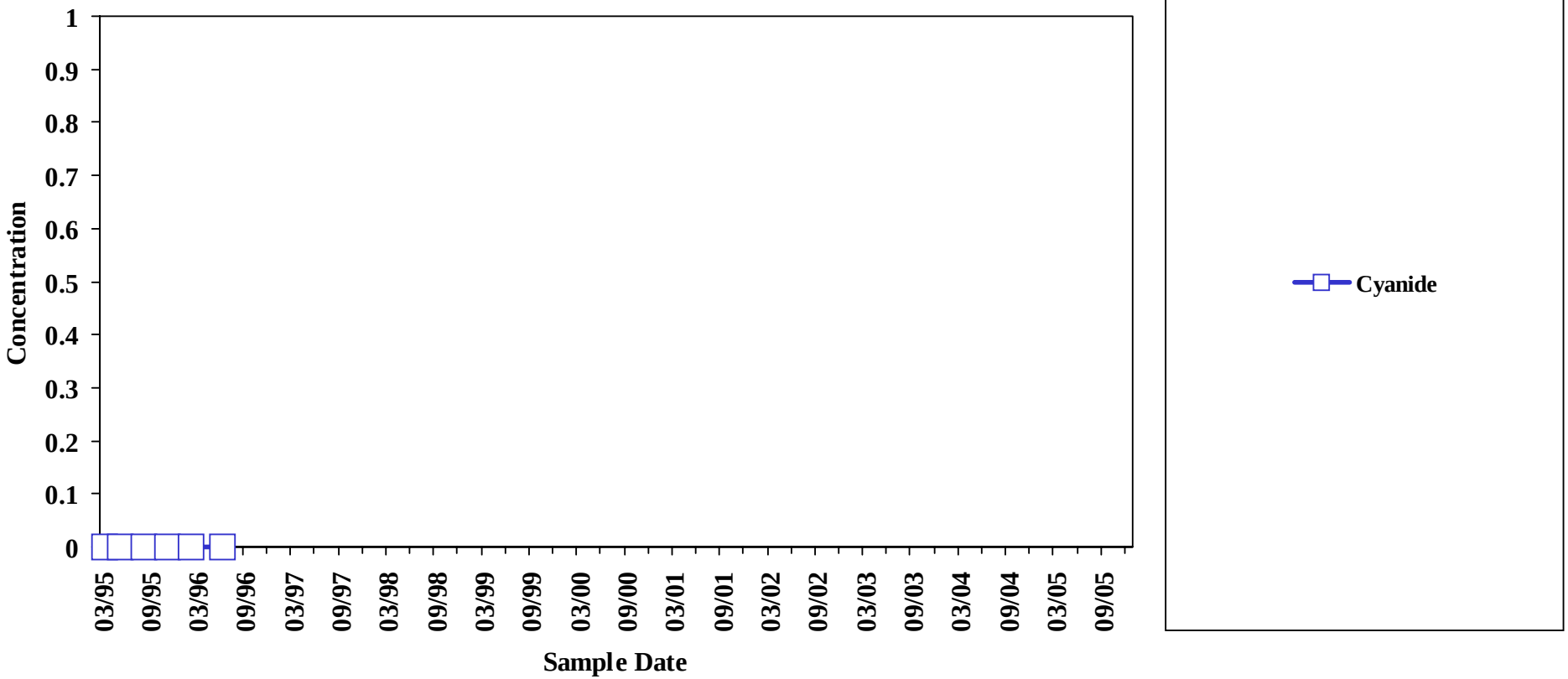
1,1,1-Trichloroethane	
MEG:	200
MCL:	200

Sample Location:

MW-NASB-066

Building 95
Groundwater

Contaminants of Concern Inorganics



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

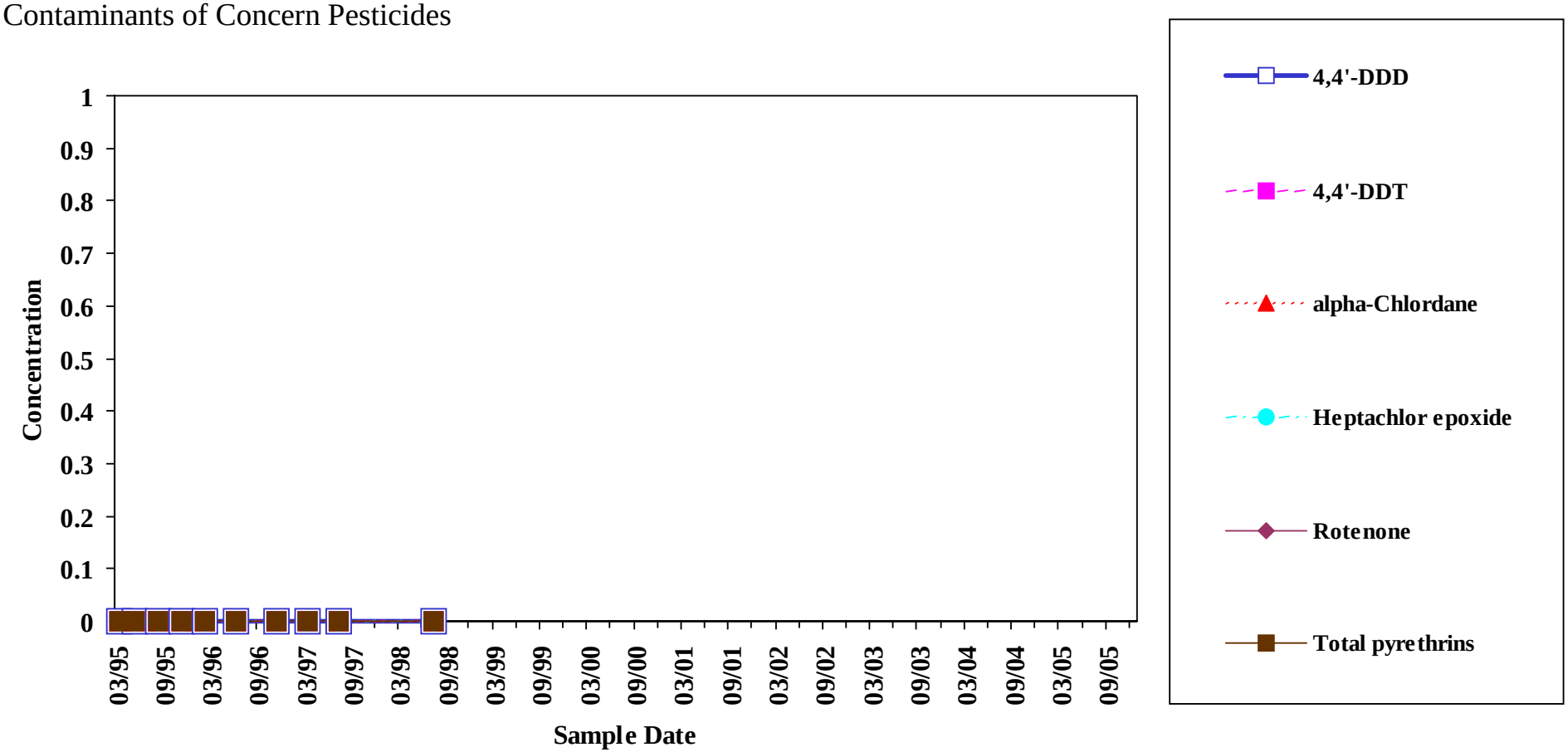
Sample concentration units: mg/L

Sample Location:

MW-NASB-066

Building 95
Groundwater

Contaminants of Concern Pesticides



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

Results from October 2003 should be considered estimates due to sample temperatures upon receipt at the laboratory.

Sample concentration units: µg/L

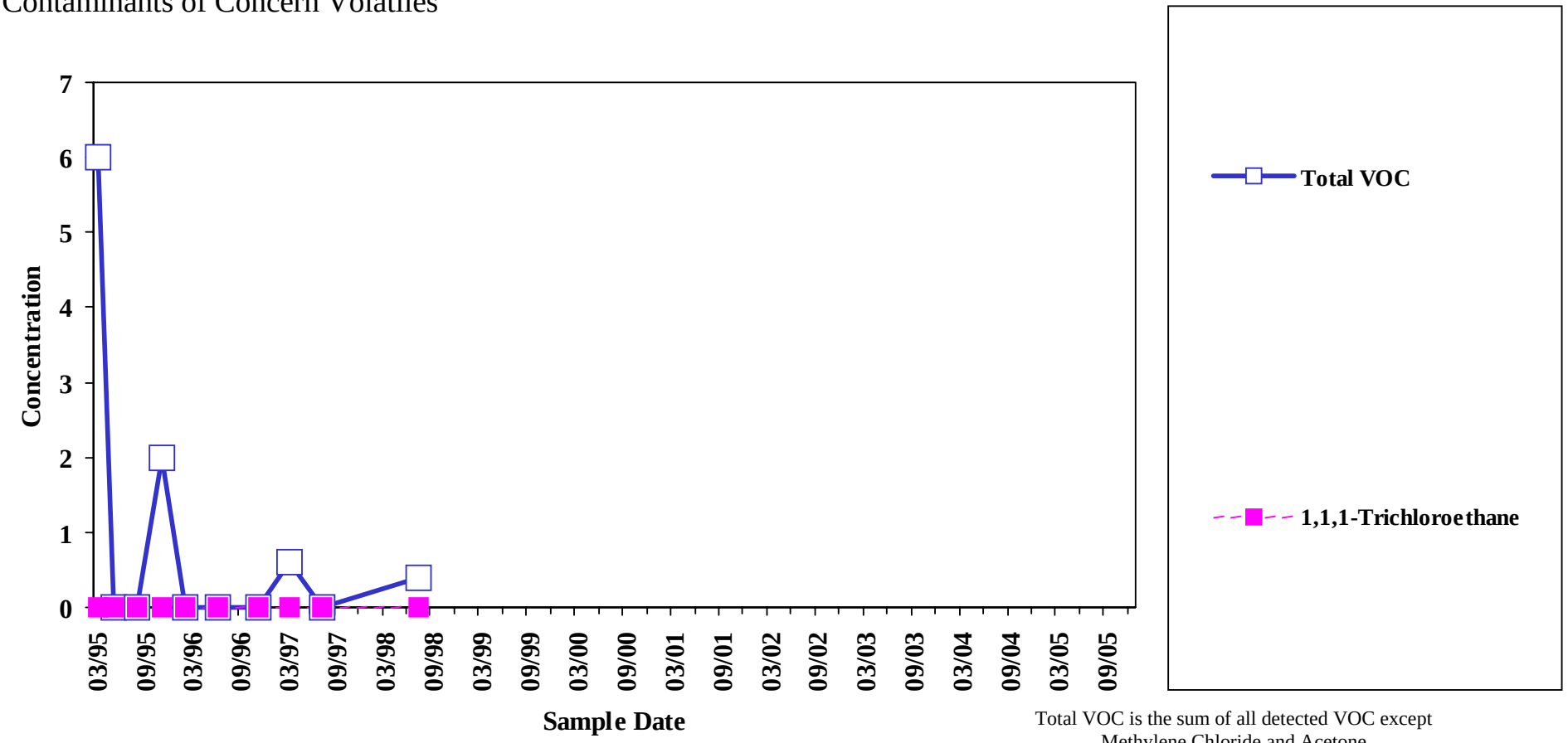
4,4'-DDD		4,4'-DDT		alpha-Chlordane		Heptachlor Epoxide		Rotenone		Total pyrethrins	
MEG:	-	MEG:	0.83	MEG:	0.27	MEG:	0.04	MEG:	4	MEG:	-
MCL:	-	MCL:	-	MCL:	-	MCL:	0.2	MCL:	-	MCL:	-

Sample Location:

MW-NASB-066

Building 95
Groundwater

Contaminants 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

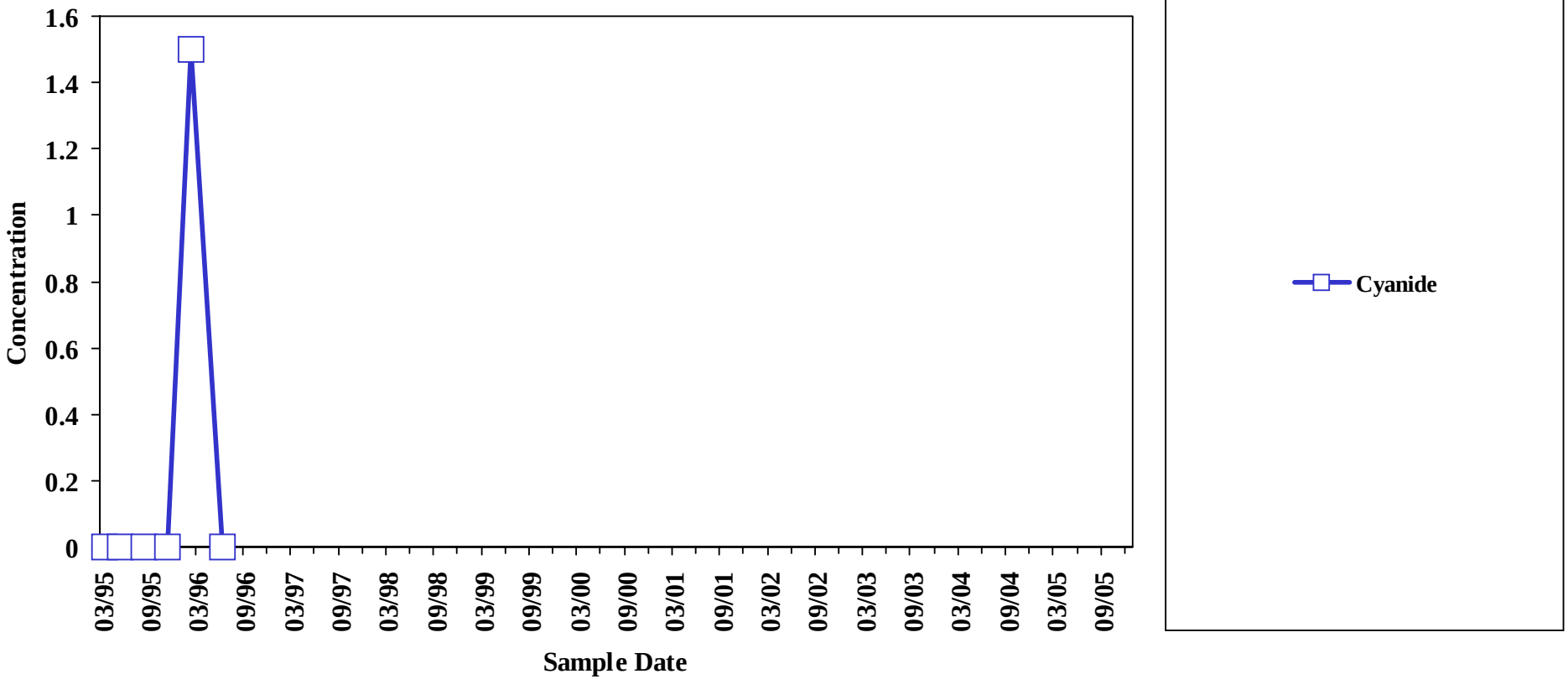
1,1,1-Trichloroethane	
MEG:	200
MCL:	200

Sample Location:

MW-NASB-067

Building 95
Groundwater

Contaminants of Concern Inorganics



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

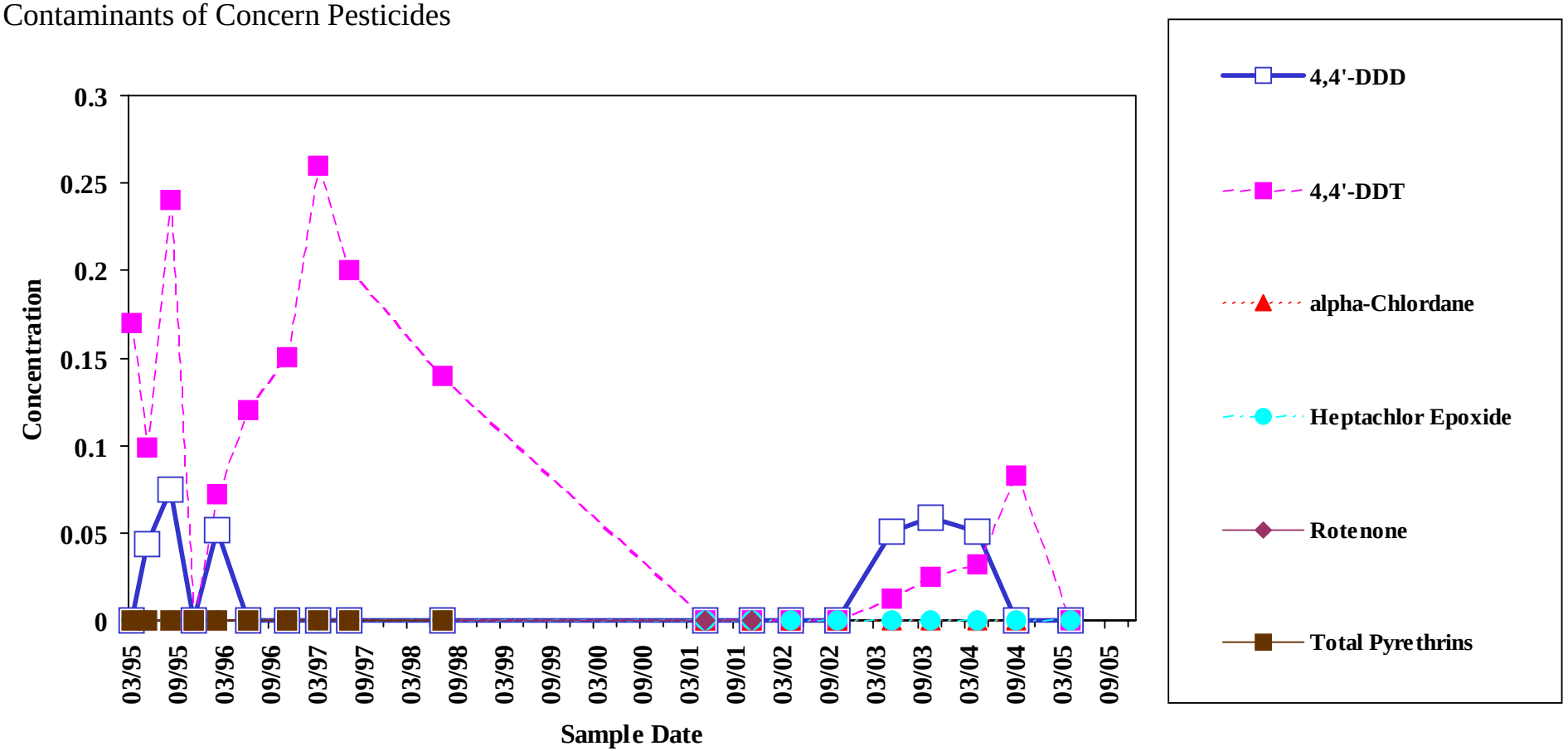
Sample concentration units: mg/L

Sample Location:

MW-NASB-067

Building 95
Groundwater

Contaminants of Concern Pesticides



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

Results from October 2003 should be considered estimates due to sample temperatures upon receipt at the laboratory.

Sample concentration units: µg/L

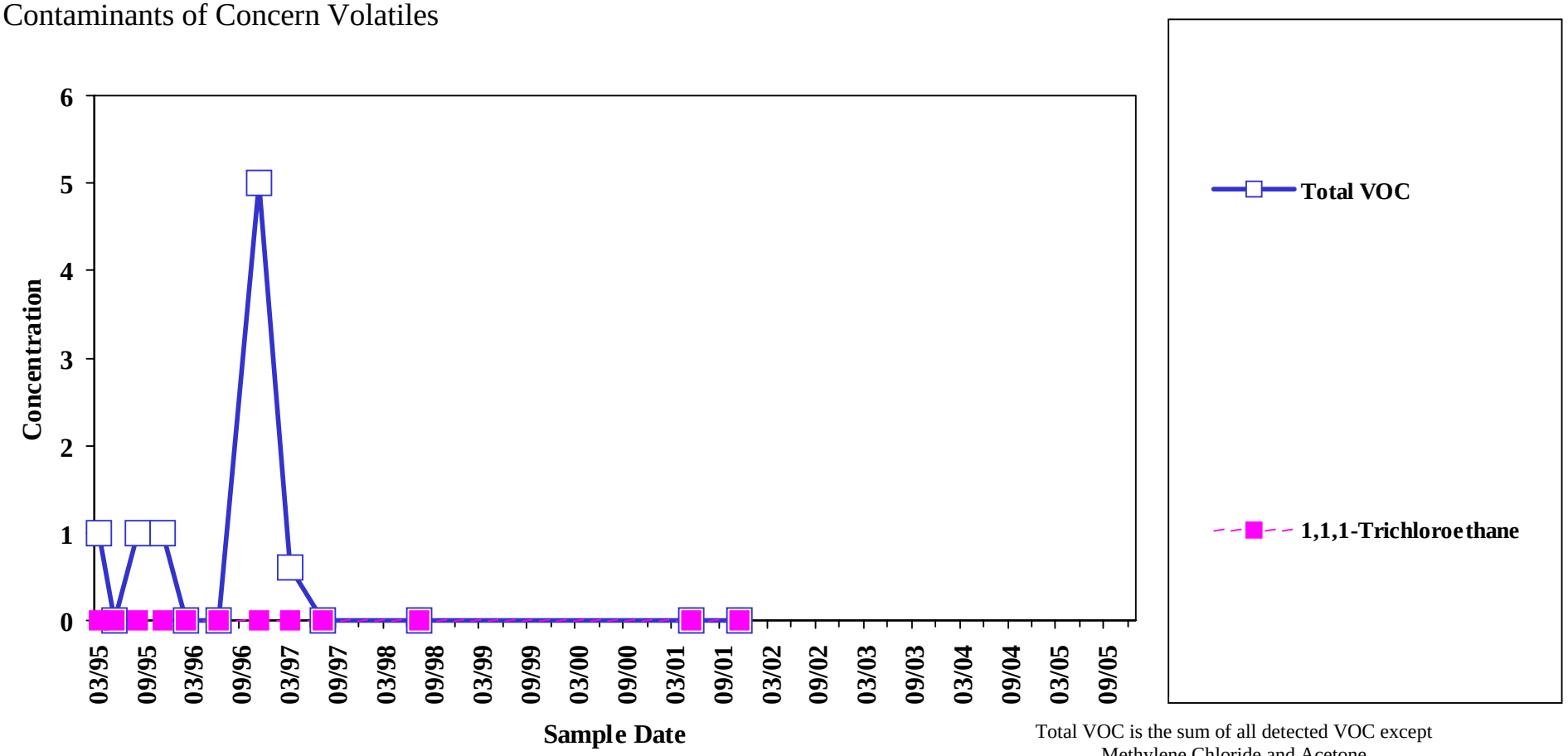
4,4'-DDD		4,4'-DDT		alpha-Chlordane		Heptachlor Epoxide		Rotenone		Total pyrethrins	
MEG:	-	MEG:	0.83	MEG:	0.27	MEG:	0.04	MEG:	4	MEG:	-
MCL:	-	MCL:	-	MCL:	-	MCL:	0.2	MCL:	-	MCL:	-

Sample Location:

MW-NASB-067

Building 95
Groundwater

Contaminants 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

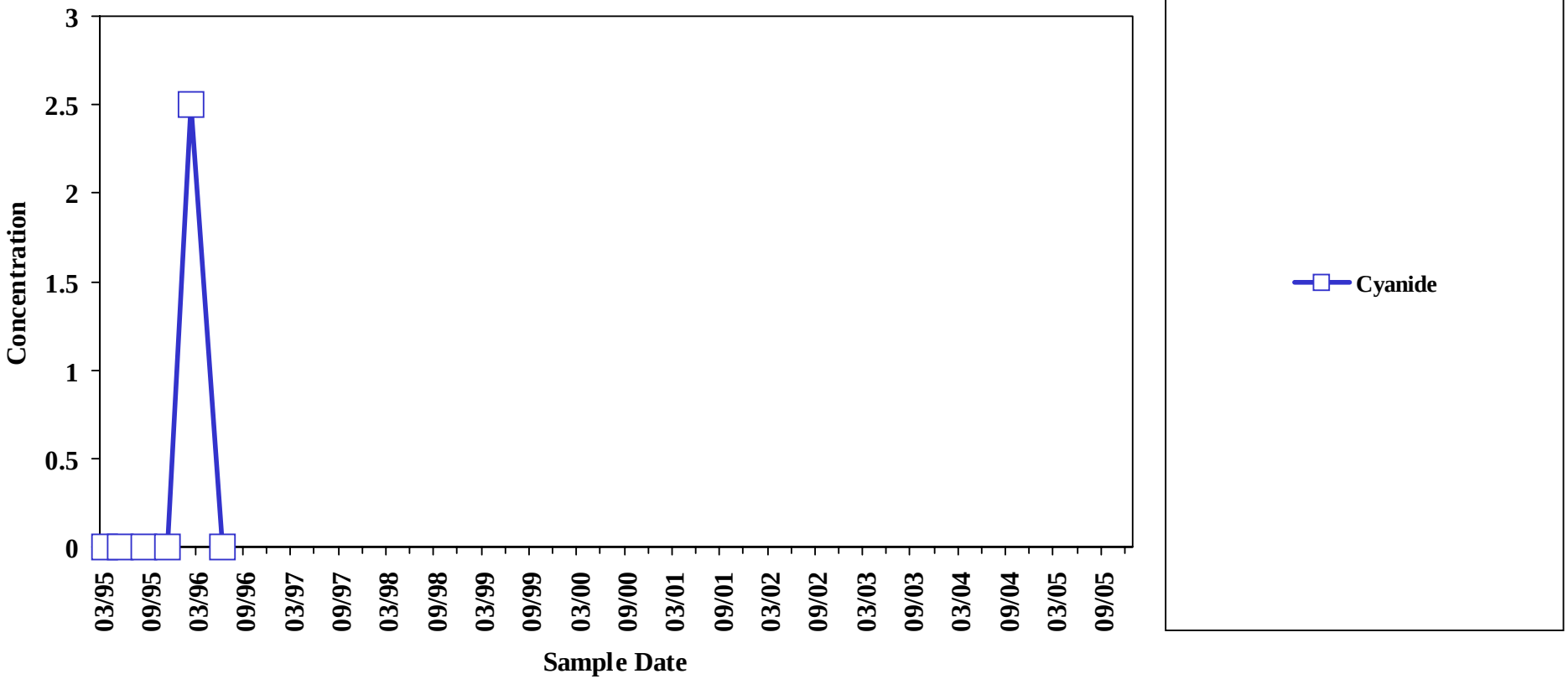
1,1,1-Trichloroethane	
MEG:	200
MCL:	200

Sample Location:

MW-NASB-068

Building 95
Groundwater

Contaminants of Concern Inorganics



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

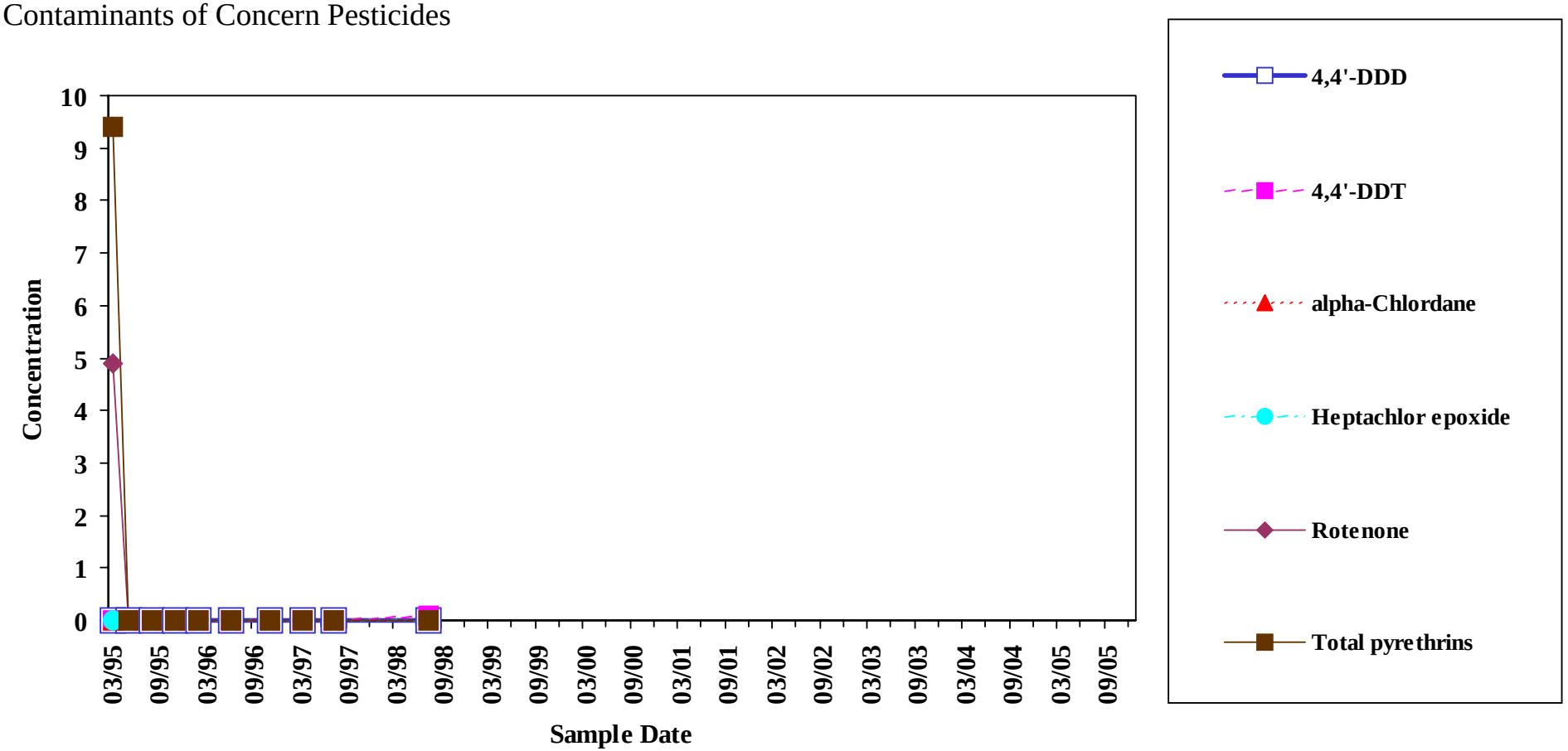
Sample concentration units: mg/L

Sample Location:

MW-NASB-068

Building 95
Groundwater

Contaminants of Concern Pesticides



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

Results from October 2003 should be considered estimates due to sample temperatures upon receipt at the laboratory.

Sample concentration units: µg/L

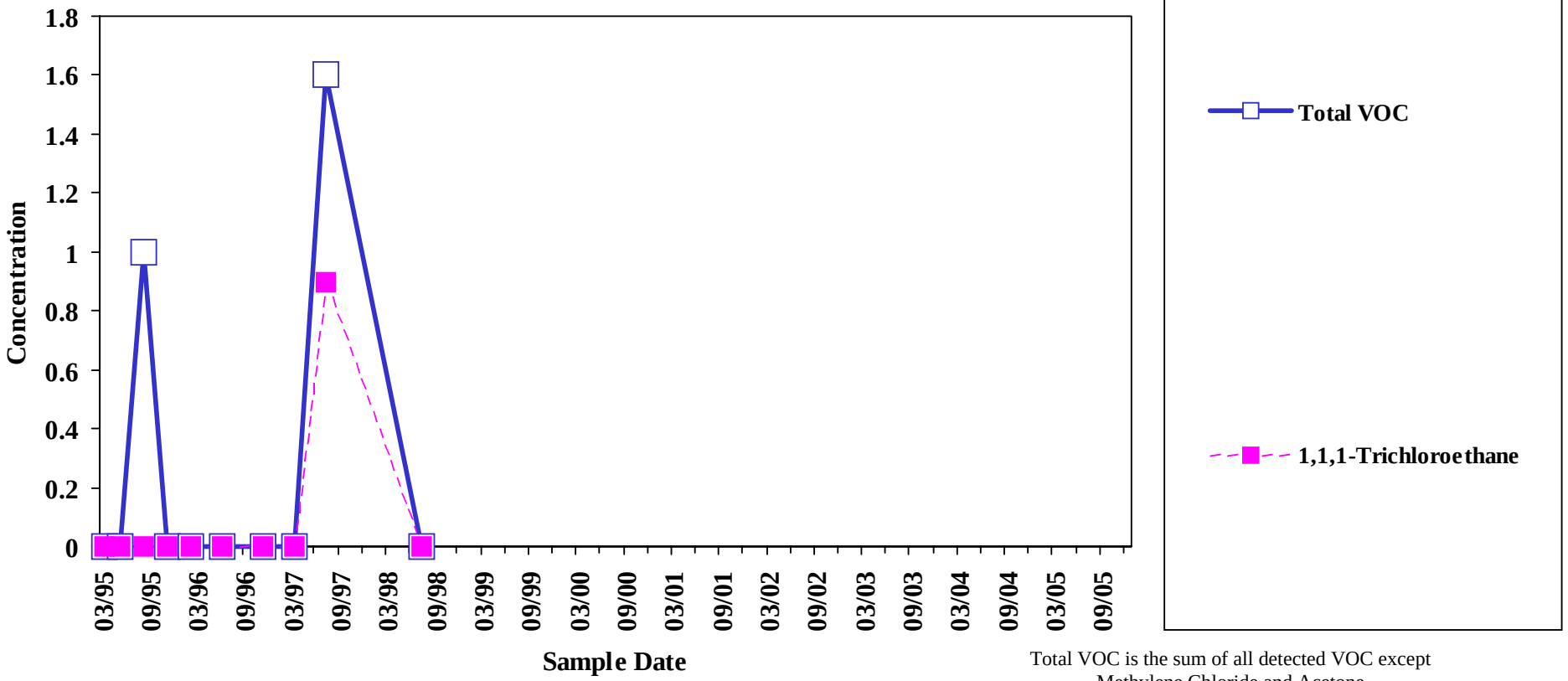
4,4'-DDD		4,4'-DDT		alpha-Chlordane		Heptachlor Epoxide		Rotenone		Total pyrethrins	
MEG:	-	MEG:	0.83	MEG:	0.27	MEG:	0.04	MEG:	4	MEG:	-
MCL:	-	MCL:	-	MCL:	-	MCL:	0.2	MCL:	-	MCL:	-

Sample Location:

MW-NASB-068

Building 95
Groundwater

Contaminants 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

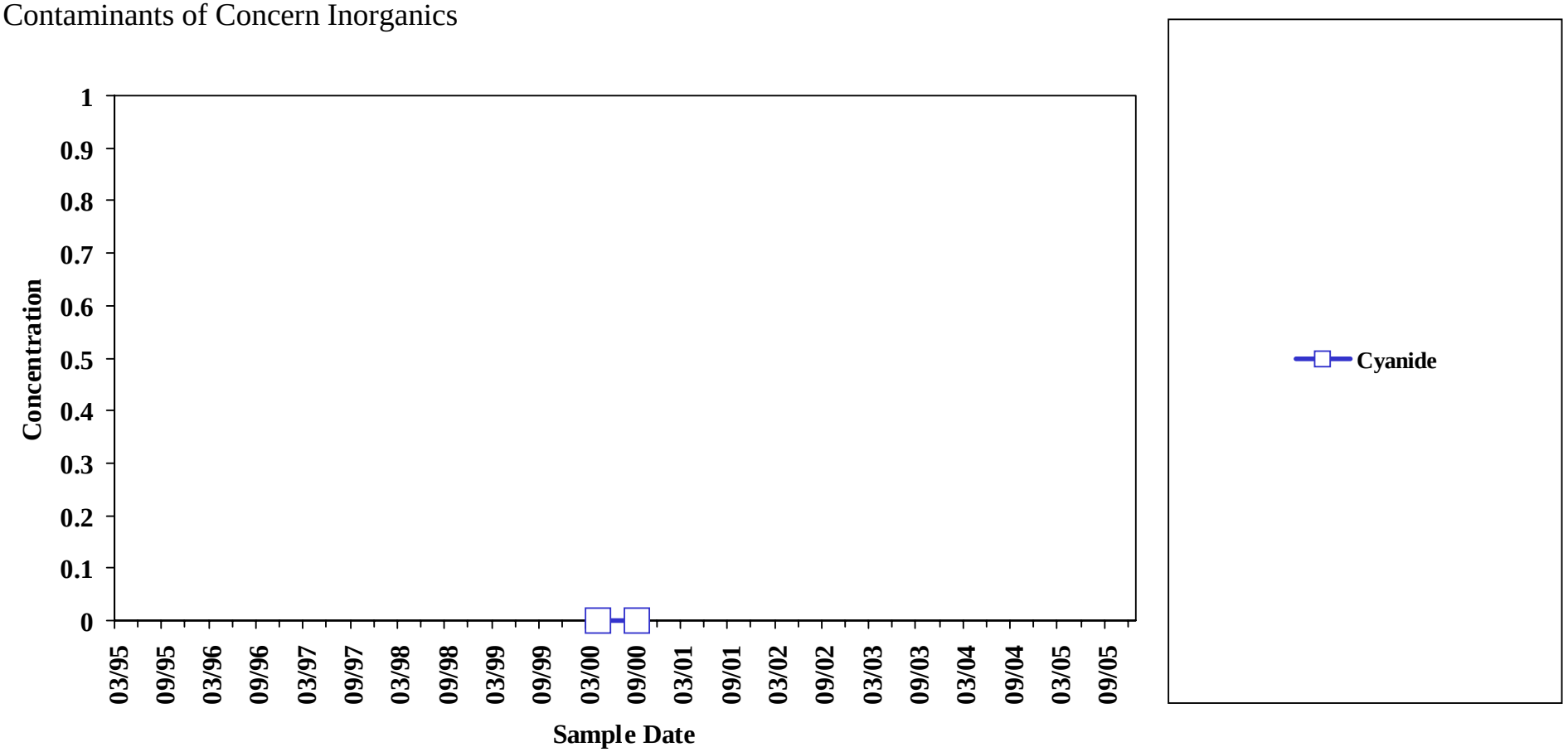
1,1,1-Trichloroethane	
MEG:	200
MCL:	200

Sample Location:

MW-NASB-097

Building 95
Groundwater

Contaminants of Concern Inorganics



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

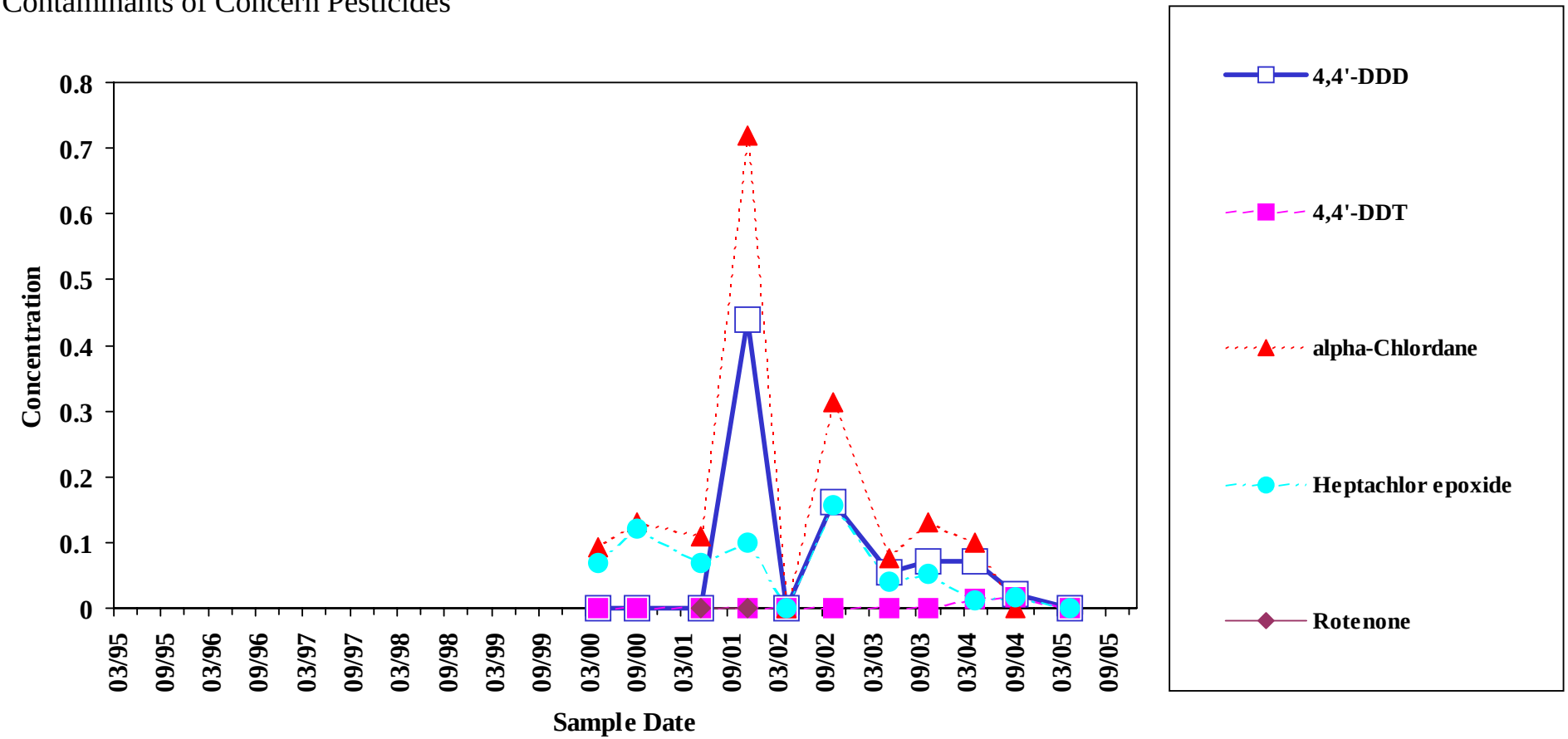
Sample concentration units: mg/L

Sample Location:

MW-NASB-097

Building 95
Groundwater

Contaminants of Concern Pesticides



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

Results from October 2003 should be considered estimates due to sample temperatures upon receipt at the laboratory.

Sample concentration units: µg/L

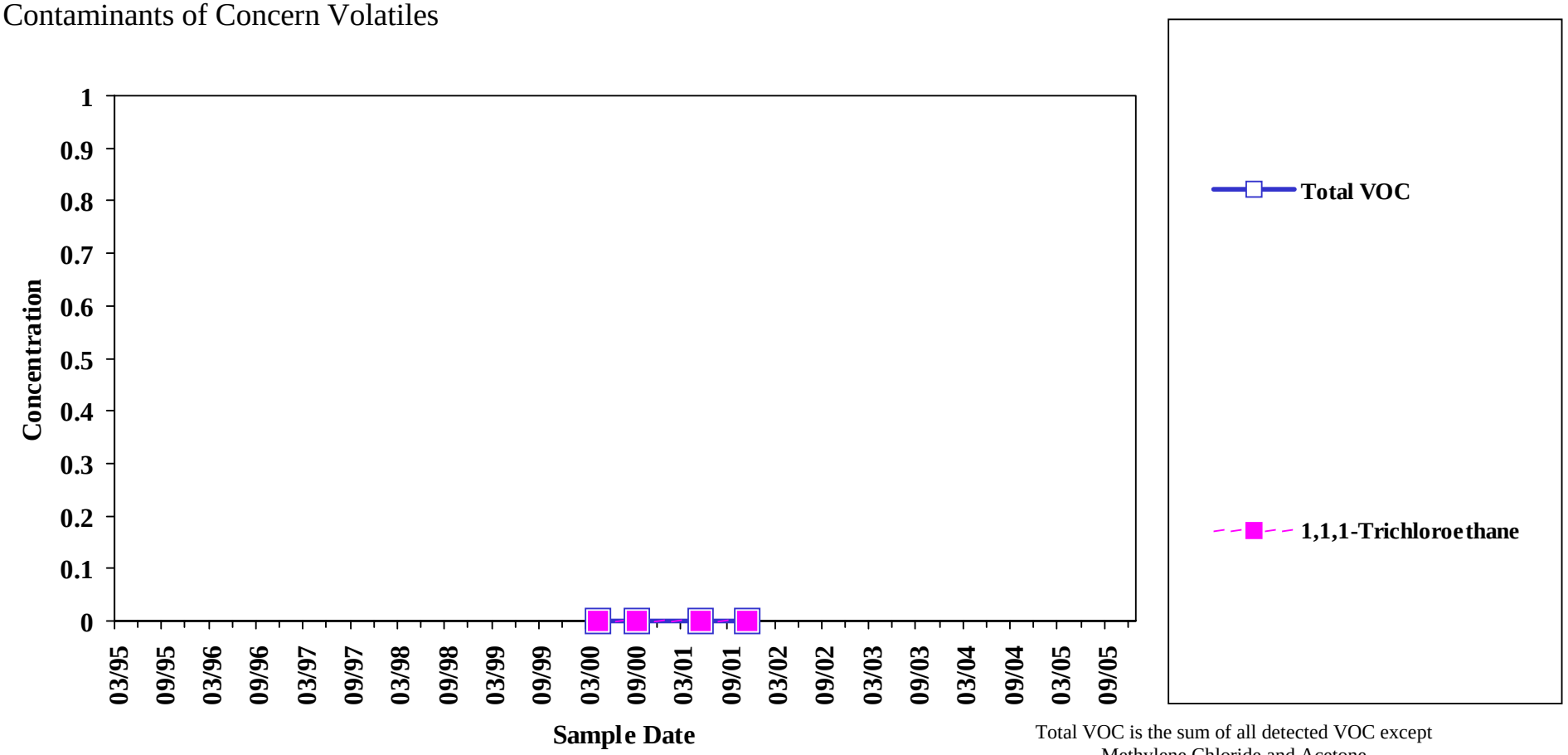
4,4'-DDD		4,4'-DDT		alpha-Chlordane		Heptachlor Epoxide		Rotenone		Total pyrethrins	
MEG:	-	MEG:	0.83	MEG:	0.27	MEG:	0.04	MEG:	4	MEG:	-
MCL:	-	MCL:	-	MCL:	-	MCL:	0.2	MCL:	-	MCL:	-

Sample Location:

MW-NASB-097

Building 95
Groundwater

Contaminants 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

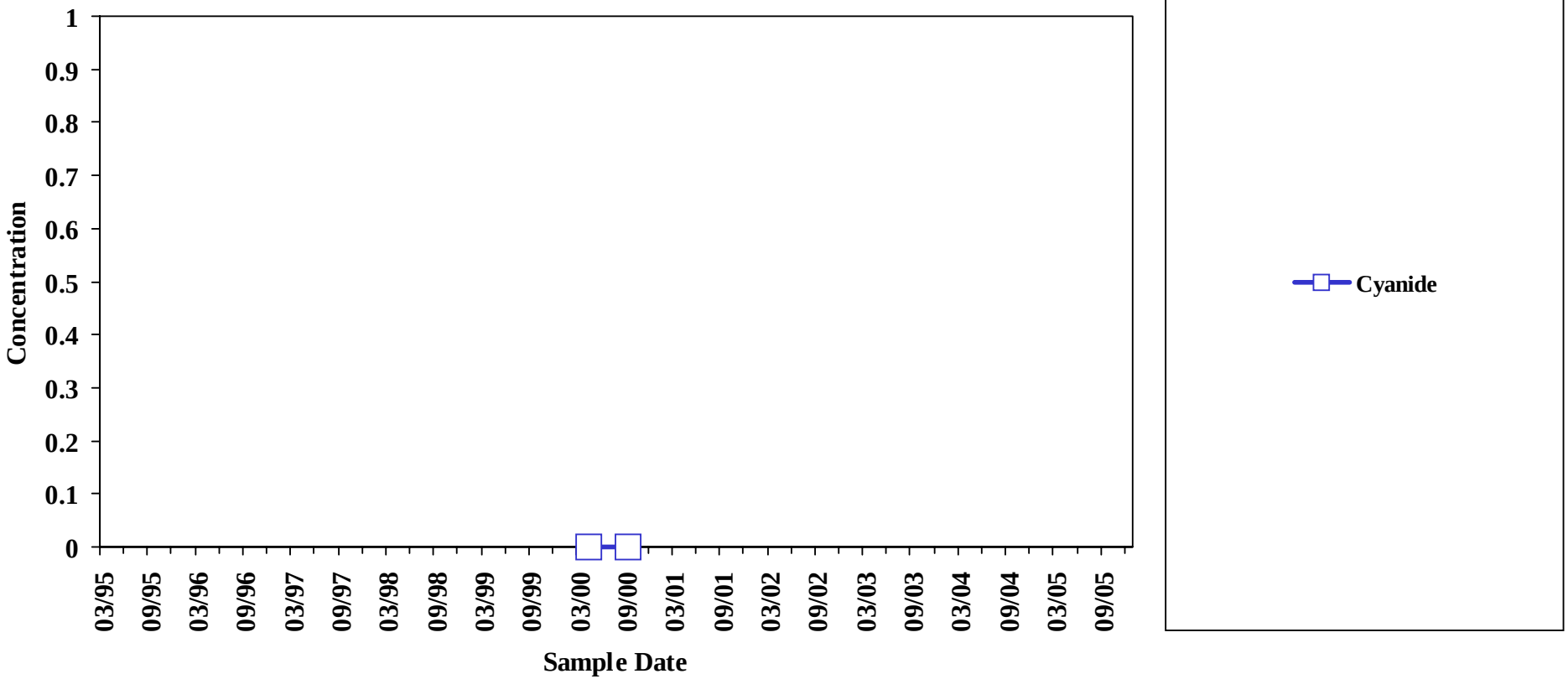
1,1,1-Trichloroethane	
MEG:	200
MCL:	200

Sample Location:

MW-NASB-098

Building 95
Groundwater

Contaminants of Concern Inorganics



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

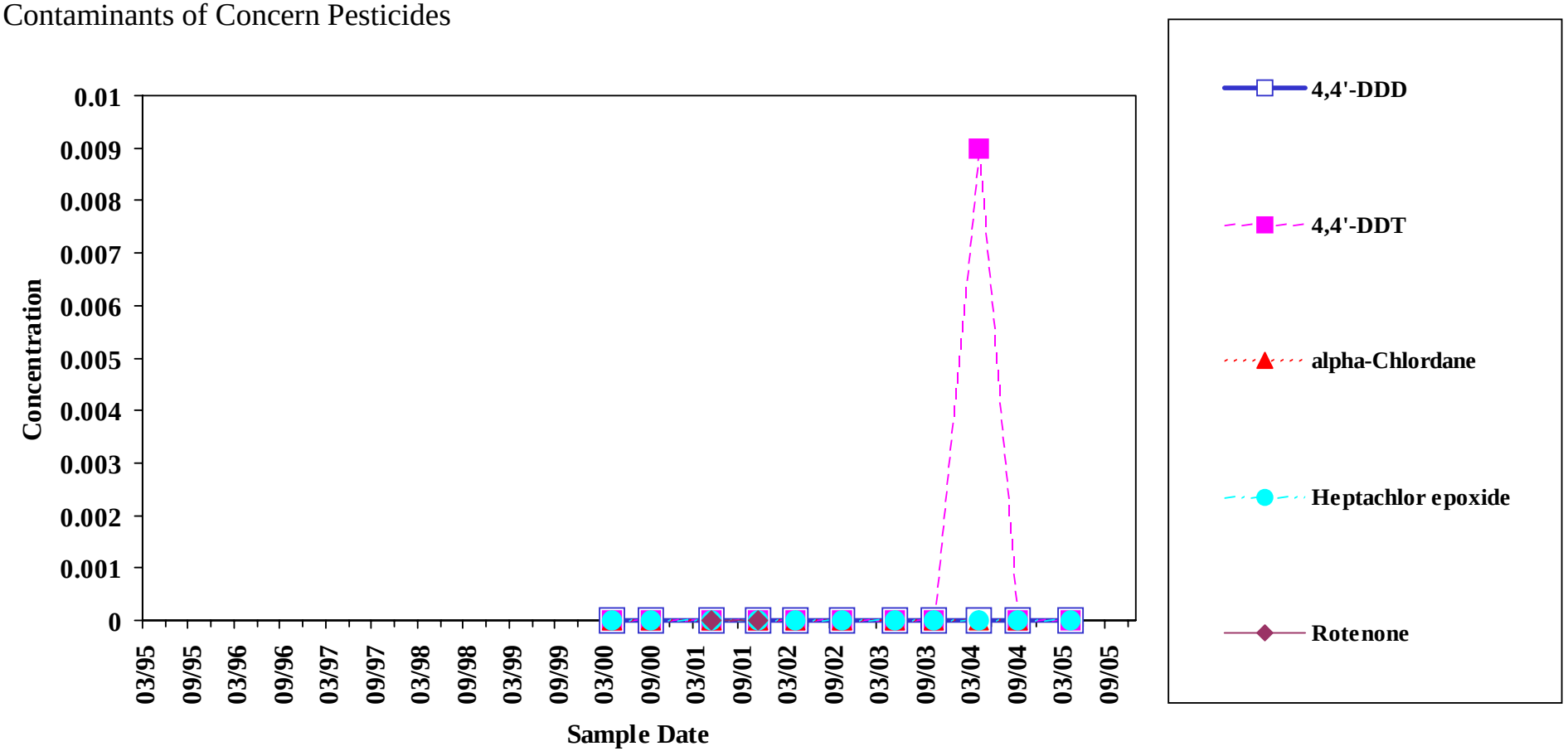
Sample concentration units: mg/L

Sample Location:

MW-NASB-098

Building 95
Groundwater

Contaminants of Concern Pesticides



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

Results from October 2003 should be considered estimates due to sample temperatures upon receipt at the laboratory.

Sample concentration units: µg/L

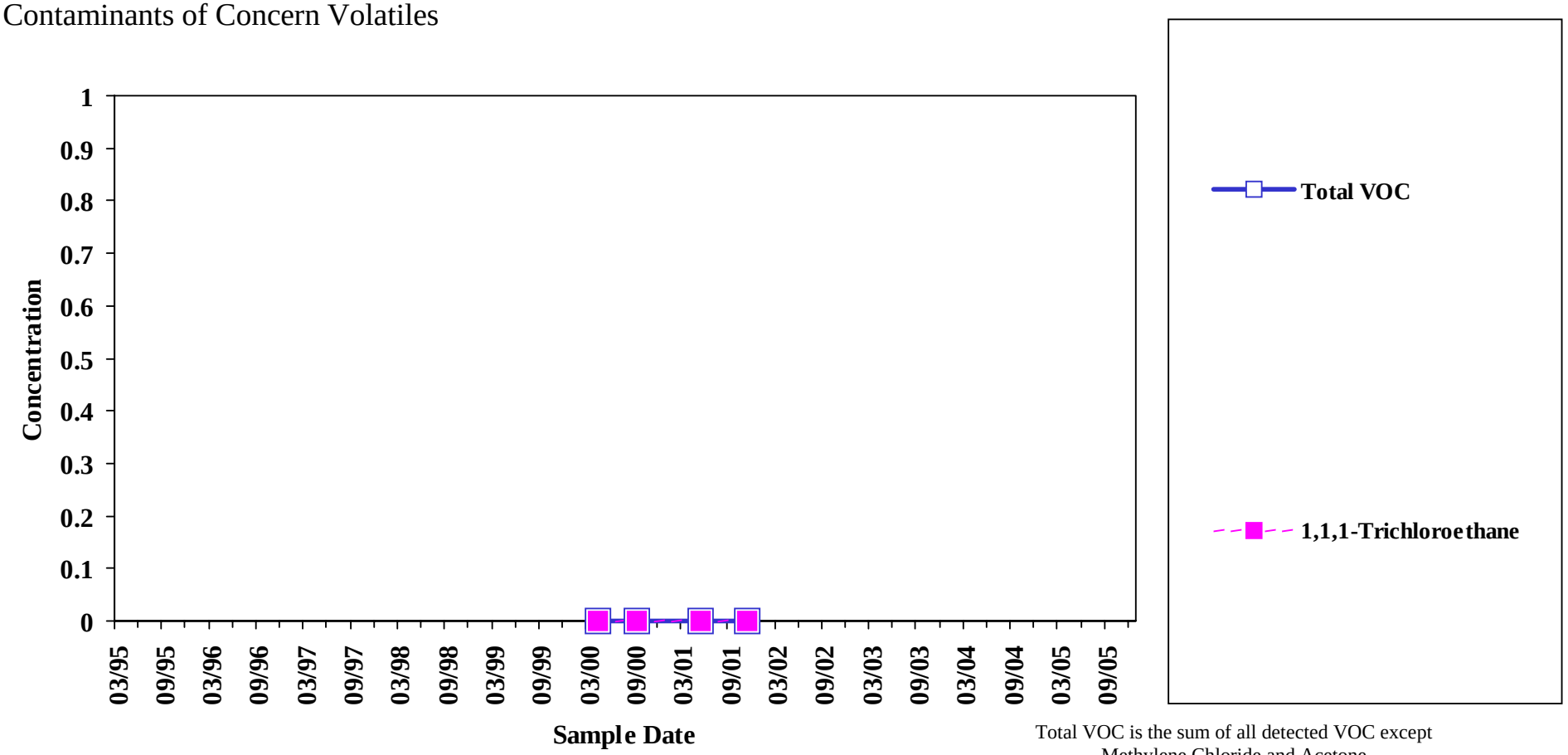
4,4'-DDD		4,4'-DDT		alpha-Chlordane		Heptachlor Epoxide		Rotenone		Total pyrethrins	
MEG:	-	MEG:	0.83	MEG:	0.27	MEG:	0.04	MEG:	4	MEG:	-
MCL:	-	MCL:	-	MCL:	-	MCL:	0.2	MCL:	-	MCL:	-

Sample Location:

MW-NASB-098

Building 95
Groundwater

Contaminants 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

1,1,1-Trichloroethane	
MEG:	200
MCL:	200

APPENDIX C
Analytical Data Quality Review

APPENDIX C

ANALYTICAL DATA QUALITY REVIEW
MONITORING EVENT 21

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 5 April 2005 from the Building 95 site, which were provided to Northeast Laboratory Services (Winslow, Maine) for pesticide analysis. Samples included three monitoring wells and one field duplicate. The field quality control sample (field duplicate) was 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 duplicate (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 and other 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.

MS/MSD: All LTMP TCL compounds and others were used to assess the MS/MSD recoveries. The MS recoveries were within MPC. The MS/MSD recoveries for 4,4'-DDT and methoxychlor were greater than the upper control limit, but all sample results for these compounds were non-detects. No sample qualifications were assigned.

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.

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

Accuracy Summary: Overall the laboratory accuracy is acceptable, and the data are usable as qualified.

C.1.4 LABOROATORY 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-95-21-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 associated field sample to determine field sampling and overall 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 were 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-95-21-MW-XD1.

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

Compound	Units	MW-NASB-097	MW-NASB-097 DUP	RPD%
4,4'-DDD	µg/L	0.1	0.1	--
4,4'-DDT	µg/L	0.1	0.1	--
Heptachlor Epoxide	µg/L	0.05	0.05	--
NOTE: Results in bold indicate an exceedance of the precision requirements.				

Precision requirements were met.

C.2.2 FIELD ACCURACY EVALUATION

Rinsate blanks are not collected as dedicated equipment is used for sample collection. Field accuracy is acceptable, and there is 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	✓	✓	✓	✓	✓	✓	✓	100%	100%
NOTE: ✓ = The data are usable as reported based on the data quality review of this quality measurement.										

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	0.0059	ug/l
alpha-BHC	0.0142	ug/l
beta-BHC	0.0078	ug/l
delta-BHC	0.0121	ug/l
gamma-BHC (Lindane)	0.0073	ug/l
Chlordane (alpha and gamma)	0.21	ug/l
Dieldrin	0.0149	ug/l
4,4'-DDD	0.0059	ug/l
4,4'-DDE	0.0156	ug/l
4,4'-DDT	0.0156	ug/l
Endrin	0.0062	ug/l
Endosulfan sulfate	0.0116	ug/l
Endrin aldehyde	0.0075	ug/l
Endrin ketone	0.0068	ug/l
Endosulfan-I	0.0088	ug/l
Endosulfan-II	0.0111	ug/l
Heptachlor	0.0089	ug/l
Heptachlor epoxide	0.0083	ug/l
Methoxychlor	0.0079	ug/l
Toxaphene	0.678	ug/l

DATA VALIDATION MEMORANDUM
NAS BRUNSWICK SITE BLDG 95
APRIL 2005 SAMPLING ROUND 21 (SDG M050305)

TO: ENGINEERING FACILITY COMMAND NORTHEAST

FROM: JACKSON KIKER, ECC SENIOR CHEMIST, MARLBOROUGH, MA

SUBJECT: NAS BRUNSWICK SITE BLDG 95 MONITORING EVENT 21

DATE: 6/9/2005

Project data were validated using the following Validation Functional Guidelines, as modified for non-CLP methods and project-specific QAPP measurement performance criteria (MPC):

1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluation of Environmental Analyses (Dec, 1996),

2. National Functional Guidelines for Evaluation Inorganic Analysis (1988), and

3. National Functional Guidelines for Evaluation Organic Analysis (October 1999).

The data were assessed against the MPC listed in the approved Bldg 95 LTMP QAPP (May 2000). The QAPP MPC and validation guideline exceedences are assessed and documented on the method/QAPP specific data validation worksheets. On these data validation worksheets the data quality acceptance criteria are presented, analytes requiring qualification based on MPC and/or validation guidance criteria exceedences are listed, assigned qualifiers, qualifying rationale is documented, and any potential bias noted. The overall evaluation of the data generated by a method is presented in the data validation worksheet.

Standard EPA Region I data qualifiers are used to denote the assessment of data quality. The final and ranking assigned data qualifier for an analyte is presented in the data summary table. Ancillary qualifiers are noted on the data validation worksheets.

The USEPA Region I Organic Regional Data Assessment (ORDA) sheet displays the summarized results of the data validation assessment for all analytical methods reported in the SDG.

ACRONYMS AND ABBREVIATIONS

Following is a list of acronyms and abbreviations that may be used in the data validation reports.

Acronym or Abbreviation	Definition
%D	Percent difference
%R	Percent recovery
Ug/L	Microgram per liter
BD	Breakdown
BEHP	2-bis(ethylhexyl)phthalate
BFB	Bromofluorobenzene
CCB	Continuing calibration Blank
CCC	Continuing Check Compound
CCV	Continuing Calibration Verfication
COC	Chain of custody
CRI	standard at RL for ICP
CVAA	Cold vapor atomic absorption
DFTPP	Decafluorotriphenylphosphine
DQO	Data quality objective
EB	Equipment blank
EPA	Environmental Protection Agency
FD	Field duplicate
GC	Gas Chromatography
GC/MS	Gas chromatography/mass spectrometry
HT	Holding time
ICAL	Initial calibration
ICS-A/AB	Interelement check standard A or AB
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standards
LCL	Lower control limit
LCS	Laboratory control sample
LTMP	Long term monitoring plan
MeCl	Methylene chloride
MS	Matrix spike
MSD	Matrix spike duplicate
MPC	Measurement performance criteria

Acronym or Abbreviation	Definition
NA	Not applicable
NC	Not calculated.
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyls
PQL	Practical quantitation limit
QAPP	Quality Assurance Project Plan
QC	Quality control
RF	Response Factor
RPD	Relative percent difference
RRF	Relative response factor
RSD	Relative standard deviation
RT	Retention time
SDG	Sample Delivery Group
SOP	Standard Operation Procedure
SVOC	Semi-volatile organic compound
SPCC	System performance check compound
SQL	Sample Quantitation Limit
TB	Tripblank
TCX	Tetrachloro-m-xylene
TIC	Tentatively identified compound
UCL	Upper control limit
VOC	Volatile organic compound

DATA QUALIFIER REFERENCE TABLE

Data validation reports will summarize the samples reviewed, elements reviewed, any nonconformances with the established criteria, validation actions (including data qualifiers). Data qualifiers will be consistent with EPA Region I – New England guidelines and will consist of the following:

USEPA Region I – Data Qualifier	USEPA Region I – Qualifier Definition
J	The analyte was positively identified; the associated numerical value 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 reporting limit.
R	The sample result is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified

Region I, EPA-NE ORGANIC REGIONAL DATA ASSESSMENT

LAB NAME: NorthEast Laboratory
SDG #:__M050305
EPA-NE DV TIER LEVEL:___II___
SITE NAME: NAS Brunswick – BLDG 95

# of SAMPLES/MATRIX: BLD 95: 3 groundwater, 1 FD.
VALIDATION CONTRACTOR:__ECC
VALIDATOR'S NAME: Guru Ranganathan
DV Completion Date:_June 08, 2005
Date Sampled__April 5, 2005

ANALYTICAL DATA QUALITY SUMMARY

	Review Item	Pesticide
1	Preservation and HT	O
2	Instrument Performance Check	O
3	Initial Calibration:	O
4	Continuing Calibration:	O
5	Blanks:	O
6	Surrogate Compounds:	O
7	Internal Standards	-
8	Matrix Spike/Matrix Spike Duplicate:	M
9	Sensitivity Check:	O
10	PE Samples- Accuracy Check	O
11	Target Compound Identification:	O
12	Compound Quantitation and Reported QLs	O
13	Tentatively Identified Compounds:	-
14	Semivolatile/Pesticide/PCB Cleanup:	-
15	Data Completeness	O
16	Overall Evaluation of Data:	O

O = Data had no problems or were qualified due to minor contractual problems; M = Data were qualified due to major/systemic MPC exceedences: Z = Data were rejected as unusable due to major contractual problems.

ACTION ITEMS: (Z items): None

AREAS OF CONCERN: (M items):

Pesticide: High MS/MSD recoveries for 4,4'-DDT and methoxychlor but all sample results for the compounds were non-detects – so no qualifications.

COMMENTS: None.

Data Summary Table for Pesticide Data from
SDG 050305 Site Bldg 95
Sampling Round 21 - April 2005

Field Sample Name	Lab Sample ID	Method	Sample Date	Analysis Date	Dilution Factor	Analyte	Result	Units	Detect Y/N	Qualifier	MDL	MRL
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDD	0.1	ug/l	N	U	0.0059	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDE	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDT	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Aldrin	0.05	ug/l	N	U	0.0053	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Alpha-BHC	0.05	ug/l	N	U	0.0142	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Beta-BHC	0.05	ug/l	N	U	0.0078	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Chlordane	0.5	ug/l	N	U	0.21	0.5
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Delta-BHC	0.05	ug/l	N	U	0.0121	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Dieldrin	0.1	ug/l	N	U	0.0149	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan I	0.05	ug/l	N	U	0.0088	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan II	0.1	ug/l	N	U	0.0111	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan Sulfate	0.1	ug/l	N	U	0.0116	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Endrin	0.1	ug/l	N	U	0.0062	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Endrin Aldehyde	0.1	ug/l	N	U	0.0075	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Endrin Ketone	0.1	ug/l	N	U	0.0068	0.1
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Gamma-BHC (Lindane)	0.05	ug/l	N	U	0.0073	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor	0.05	ug/l	N	U	0.0089	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor Epoxide	0.05	ug/l	N	U	0.0083	0.05
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Methoxychlor	0.5	ug/l	N	U	0.0079	0.5
BN-95-21-MW067	AH02769	EPA 8081	4/5/2005	4/12/2005	1	Toxaphene	1	ug/l	N	U	0.678	1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDD	0.1	ug/l	N	U	0.0059	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDE	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDT	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Aldrin	0.05	ug/l	N	U	0.0053	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Alpha-BHC	0.05	ug/l	N	U	0.0142	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Beta-BHC	0.05	ug/l	N	U	0.0078	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Chlordane	0.5	ug/l	N	U	0.21	0.5
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Delta-BHC	0.05	ug/l	N	U	0.0121	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Dieldrin	0.1	ug/l	N	U	0.0149	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan I	0.05	ug/l	N	U	0.0088	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan II	0.1	ug/l	N	U	0.0111	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan Sulfate	0.1	ug/l	N	U	0.0116	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Endrin	0.1	ug/l	N	U	0.0062	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Endrin Aldehyde	0.1	ug/l	N	U	0.0075	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Endrin Ketone	0.1	ug/l	N	U	0.0068	0.1
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Gamma-BHC (Lindane)	0.05	ug/l	N	U	0.0073	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor	0.05	ug/l	N	U	0.0089	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor Epoxide	0.05	ug/l	N	U	0.0083	0.05
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Methoxychlor	0.5	ug/l	N	U	0.0079	0.5
BN-95-21-MW097	AH02770	EPA 8081	4/5/2005	4/12/2005	1	Toxaphene	1	ug/l	N	U	0.678	1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDD	0.1	ug/l	N	U	0.0059	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDE	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDT	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Aldrin	0.05	ug/l	N	U	0.0053	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Alpha-BHC	0.05	ug/l	N	U	0.0142	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Beta-BHC	0.05	ug/l	N	U	0.0078	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Chlordane	0.5	ug/l	N	U	0.21	0.5

Data Summary Table for Pesticide Data from
SDG 050305 Site Bldg 95
Sampling Round 21 - April 2005

Field Sample Name	Lab Sample ID	Method	Sample Date	Analysis Date	Dilution Factor	Analyte	Result	Units	Detect Y/N	Qualifier	MDL	MRL
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Delta-BHC	0.05	ug/l	N	U	0.0121	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Dieldrin	0.1	ug/l	N	U	0.0149	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan I	0.05	ug/l	N	U	0.0088	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan II	0.1	ug/l	N	U	0.0111	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan Sulfate	0.1	ug/l	N	U	0.0116	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Endrin	0.1	ug/l	N	U	0.0062	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Endrin Aldehyde	0.1	ug/l	N	U	0.0075	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Endrin Ketone	0.1	ug/l	N	U	0.0068	0.1
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Gamma-BHC (Lindane)	0.05	ug/l	N	U	0.0073	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor	0.05	ug/l	N	U	0.0089	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor Epoxide	0.05	ug/l	N	U	0.0083	0.05
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Methoxychlor	0.5	ug/l	N	U	0.0079	0.5
BN-95-21-MW098	AH02771	EPA 8081	4/5/2005	4/12/2005	1	Toxaphene	1	ug/l	N	U	0.678	1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDD	0.1	ug/l	N	U	0.0059	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDE	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	4,4-DDT	0.1	ug/l	N	U	0.0156	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Aldrin	0.05	ug/l	N	U	0.0053	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Alpha-BHC	0.05	ug/l	N	U	0.0142	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Beta-BHC	0.05	ug/l	N	U	0.0078	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Chlordane	0.5	ug/l	N	U	0.21	0.5
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Delta-BHC	0.05	ug/l	N	U	0.0121	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Dieldrin	0.1	ug/l	N	U	0.0149	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan I	0.05	ug/l	N	U	0.0088	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan II	0.1	ug/l	N	U	0.0111	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Endosulfan Sulfate	0.1	ug/l	N	U	0.0116	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Endrin	0.1	ug/l	N	U	0.0062	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Endrin Aldehyde	0.1	ug/l	N	U	0.0075	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Endrin Ketone	0.1	ug/l	N	U	0.0068	0.1
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Gamma-BHC (Lindane)	0.05	ug/l	N	U	0.0073	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor	0.05	ug/l	N	U	0.0089	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Heptachlor Epoxide	0.05	ug/l	N	U	0.0083	0.05
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Methoxychlor	0.5	ug/l	N	U	0.0079	0.5
BN-95-21-MW-XD1	AH02772	EPA 8081	4/5/2005	4/12/2005	1	Toxaphene	1	ug/l	N	U	0.678	1

ECC Region I Data Review Worksheet (rv 3) **Pesticides 3510C/3520C/8081A**
Project: NAS Brunswick ECC Job No. 5700 **Review Criteria: LTMP Bldg 95 (May 2000) & Region I Tier II Guidance/NFG**

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	**Ground water**	**-**	**Cooler Temp (°C): 4.1**	**NorthEast Laboratory, Waterville, ME**	**050305**

Field Identification of Samples Evaluated:

Field ID	Lab Sample Number
BN-95-21-MW067	AH02769
BN-95-21-MW097	AH02770
BN-95-21-MW098	AH02771
BN-95-21-MW-XD1	AH02772 field duplicate for AH02770

Note: Samples are described below in the data worksheets by reference to the last two digits of the Lab Sample Number

REVIEW ITEMS	MEASUREMENT PERFORMANCE CRITERIA (MPC)	SAMPLES AFFECTED	Inventory	QUAL	BIAS
COC	1)Unbroken custody (accept or if broken R) 2) Temp≤6° (Soil-J detects, R -nondetects 3) preserved per method (amber bottles, temperature. J, UJ, or R (function of HT and compound)	Cooler temperature < 6 °C. Sample preservation adequate. Sample custody transferred from Field Team Leader to lab sample courier. Unbroken Chain of Custody. Sample preservation within limits. No samples qualified.	X	-	
Holding Time	1) 7 Days water, 14 days soil (40 days for extract) 2) J –detects, UJ or R –nondetects (function of time)	Date Sampled: April 5, 2005. Extraction Date: April 8, 2005. Analysis Date: April 12, 2005. All samples extracted and analyzed within holding time. No samples qualified.	X	-	
% Solids Check (SOLIDS)	30%<Solids: if no sample weight adjustment made (no USACE) 1) <10% R entire sample 2) 10%.> and <30%; J-detects, NDs -R	Not applicable	-	-	
Results > Cal Range or <Cal Range	1) >Upper Cal Range J-detects - ensure instrument blank performed 2) <PQL but >MDL – J –detects (estimated)	Attached data summary table. No detected results below the calibration range.	X	-	
Equip Blank	< 5x (<10x common) contaminants for aq samples – for soil indicate EB (X rules don't apply)	Not collected/analyzed with this SDG as all the equipment were dedicated.	-	-	
Surrogates	Surrogate acceptance limits not specified in the LTMP. Use laboratory statistical limits. TMX 30-122% DCB 30-133% Qualification: >UCL J –detects, %R<10% J –detects, R –NDs, %R >10% but <60% J-detects, UJ NDs	All surrogate %R's within MPC limits No samples qualified.	X	-	
Lab Blanks (method blanks)	1) < 5x (<10x common) contaminants – U 2) analytes <lab PQL (contract lab)	No TCL pesticides detected in the associated MB sample. No samples qualified.	X	-	

ECC Region I Data Review Worksheet (rv 3) **Pesticides 3510C/3520C/8081A**
Project: NAS Brunswick ECC Job No. 5700 **Review Criteria: LTMP Bldg 95 (May 2000) & Region I Tier II Guidance/NFG**

REVIEW ITEMS	MEASUREMENT PERFORMANCE CRITERIA (MPC)	SAMPLES AFFECTED	Inven-tory	QUAL	BIAS
LCS Recovery	1) QAPP limits 10% and <LCL% J detects, UJ -NDs >UCL% J detects <10% R NDs, J-detects Attachment A-2 LTMP; Gamma-BHC (Lindane) 55-117% 4,4'-DDT 25-138% LCS/LCSD RPD <30%	All LCS recoveries within MPC limits. No samples qualified.	X	-	
MS/MSD Recovery	1) QAPP limits (if MS > 4X native levels) Qualification of MS sample: <10% J detects, R NDs >10% and <70% J detects, UJ -NDs >130% J detects Attachment A-2 LTMP; Gamma-BHC (Lindane) 55-117% 4,4'-DDT 25-138%	Native sample: sample AH2770. High MS/MSD recoveries for 4,4'-DDT and methoxychlor but all sample results for these compounds were non-detects – so no samples qualified.	X	-	
MS/MSD RPD	RPD = 30% J –detects in MS sample UJ-non detects	Native sample: sample AH2770. MS/MSD RPDs within MPC for all pesticides spiked – no samples qualified.	X	-	
Cleanup Performance Check (if performed)	%R< 10% NDs-R detections J %R>10% <LCL (80%GPC) –detections J, NDs UJ %R>UCL (120%) – detections J Retention Time shift <5%, symmetrical peakshape. GPC check with interferants. Good surrogate recovery, GPC blank check – no carryover.(VOA/SV-IX-I6). Sulfur and High MW compounds removed. SW-846 clean-up not required	NA	-	-	
Retention times	Within 3X standard deviation for each analyte from 72-hour study Exceeds: R qualify data	Within MPC limits. No samples qualified.	X	-	
Field Dup RPD	1) RPD = 50% soil and <30% waters for Results >2X PQL (FD pair only) J-detects (both > X PQL) 2) If one >2X PQL, other ND, J-detections, UJ non-detect Other conditions use judgement	Field sample AH2770/ field duplicate AH2772. All compounds were non-detects in both samples. Similar results – acceptable sampling precision. No samples qualified.	X	-	
Initial Cal (Linearity)	Correct calibration stds %RSD < 20% use average RF for calibration %RSD> 20% use least squares COD (r2) > 0.990 or correlation coefficient r> 0.995 or alternatively mean %RSD <20% for all target analytes, with no analyte %RSD>40%	Instrument ID: HP5890S Date: April 12, 2005. COD > 0.99 for both columns. Acceptable linearity. No samples qualified.	X	-	
DDT Degradation check	Degradation Breakdown (BD) Check every 12 hours and prior to sample analysis. DDT Breakdown: <20% for all checks associated with samples. Endrin Breakdown: <20% for check prior to sample analysis. Combined breakdown <30%. If BD>20% J detects Endrin/DDT. If BD>20% for a column, but DDT/Endrin not detected but breakdown products are detected, MRL not usable.	Instrument: HP5890S All DDT & endrin breakdown % within MPC limits in both columns. Combined breakdown was also within MPC limits for both columns. No samples qualified.	X	-	

ECC Region I Data Review Worksheet (rv 3) **Pesticides 3510C/3520C/8081A**
Project: NAS Brunswick ECC Job No. 5700 **Review Criteria: LTMP Bldg 95 (May 2000) & Region I Tier II Guidance/NFG**

REVIEW ITEMS	MEASUREMENT PERFORMANCE CRITERIA (MPC)	SAMPLES AFFECTED	Inven-tory	QUAL	BIAS
2nd Source ICV	%R (between ICV and Ical) analytes %D ≤ 15%, (+ or -) once per 5 pt cal Qualification: J detects, R or UJ NDs	Instrument: HP5890S Same as CCV. All %D's for both columns were within MPC limits. No sample qualifications.	X	-	
CCV	1) QAPP: 15% of initial calib. Curve (85%-115%) . J qualify data. 2) Qualification-J detects, R or UJ NDs	Instrument: HP5890S Same as ICV. All %D's for both columns were within MPC limits. No sample qualifications.	X	-	
Compound Quantitation	1) Check sensitivy (MDL< 1/3 PQL or per QAPP 2) %D <25% primary and secondary column identification and quantitation 3) Target compounds by 8081 Lindane PQL 0.05 ug/L MCL/MEG 0.2 4,4' DDT PQL 0.02 ug/L MEG/0.83	No detected results. Acceptable precision between the two columns. Acceptable sensitivity as all MDL < 1/3 RL. RL for 4,4'-DDT exceeded PQL but was well below the MEG for the compound. No action taken other than notation.	X	-	
Overall Evaluation of Data	1) Appropriate method 2) Evaluate any analytical problems 3) Evaluate sampling errors – field contamination, sample hold times	The laboratory results, as qualified, are usable for making project decisions. All surrogate and LCS recoveries within MPC limits. MS/MSD recoveries were high for 4,4'-DDT and methoxychlor but all sample results were non-detects. Method blank was non-detect for all pesticides of concern. ICAL had acceptable fit for all reported pesticides. ICV: Acceptable %D for all compounds. CCV: Same as ICV - acceptable. Sampling error – Field duplicate sample AH02772 was collected for native sample AH02770. All results non-detects in both samples. Acceptable sampling precision.	X	-	

*(Tier III check items) Completeness Check: Inventory Check Sheet_____X__ Sample Quantitation Calculations (TIER III ONLY):

CHAIN OF CUSTODY

ACCUTEST
495 Technology Center West
Building One, Marlbourough, MA 01752
508-481-6200 FAX: 508-481-7753

Accutest Job #:

Accutest Control #:

Client Information

ame: Environmental Chemical Corporation
ddress: 50 D'Angelo Drive
ty: Marlborough, MA State: 01752 Zip:
end Report to: Jackson Kiker
hone #: 508-229-2270

Facility Information

Project Name: **Building 95**
Location: **NASB Brunswick, Maine**
Project No.: **5700.007**
FAX #:

Analytical Information

Field ID / Point of Collection	Collection Date	Time	Sampled By	Matrix	# of bottles	Preservation VOC	NaOH	HNO3	H2SO4	None	Pesticides 8081A
N-95-21-MW067	4/5/05	1400	SW	GW	2					X	X
N-95-21-MW097 MS/MSD	4/5/05	1521	DC	GW	6					X	X
N-95-21-MW098	4/5/05	1231	SW	GW	2					X	X
N-95-21-MW-XD1	4/5/05	0000	DC	GW	2					X	X

AH02769
2770
2771
2772

Turnaround Information

- [ ] 21 Day Standard — Approved By:
- [ ] 14 Day
- [ ] 7 Days *EMERGENCY*
- [ ] Other _____ (Days)

RUSH TAT is for FAX data
Data unless previously approved.

Data Deliverable Information

- [ ] NJ Reduced
- [ ] NJ Full
- [ ] FULL CLP
- [ ] Disk Deliverable
- [ ] Other (Specify) _____
- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] ASP Category B
- [ ] State Forms

Comments / Remarks

Sample Custody must be documented below each time samples change possesion, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	4/7/05 1445	1	2		2
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3	4/7/05 21:00	3	4		4
Relinquished by Sampler:	Date Time:	Received By:	Seal #	Preserved where applica	On Ice:
5		5		☐	☐

4/7/05 2245 4705 1610

APPENDIX D

Analytical Report Form I Data Sheets

Northeast Laboratory SERVICES

P.O. Box 788
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227 China Road
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Administrative Offices
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Fax: 207-873-7022

Customer Service
Phone: 820022478378
Fax: 207-873-7022

ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02769
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 02:00 PM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW067
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time		Analysis Date/Time		Analyst
EPA 8081 Pesticides in Water										
Aldrin	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Alpha-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Beta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Delta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Endosulfan I	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Gamma-BHC (Lindane)	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Heptachlor	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Heptachlor Epoxide	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
4,4-DDD	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
4,4-DDE	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
4,4-DDT	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Dieldrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Endosulfan II	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Endosulfan Sulfate	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Endrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Endrin Aldehyde	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Endrin Ketone	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Chlordane	0.50	U	ug/L	0.50	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Methoxychlor	0.50	U	ug/L	0.50	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Toxaphene	1.00	U	ug/L	1.00	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Decachlorobiphenyl (Surrogate)	108		%	25	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
2,4,5,6-Tetrachloro-m-xylene (Surrogate)	83		%	29	EPA 8081	04/08/2005	10:15	04/12/2005	15:52	KRN
Separatory Funnel-Pesticide Waters	Completed		Date		EPA 3510C	04/08/2005	10:15	04/08/2005	11:05	JNM

* *The "U" qualifier indicates the compound was analyzed for but not detected.*

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Customer Service
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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02769
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 02:00 PM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW067
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time	Analysis Date/Time	Analyst

Comments:

Results are reported on a wet weight basis.

Results meet the requirements of the NELAC standards unless otherwise noted above.

Reviewed By: Kelly A. Perkins **Review Date:** 05/03/2005

Kelly Perkins, Lab Manager

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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02770
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 03:21 PM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW097
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time		Analysis Date/Time		Analyst
EPA 8081 Pesticides in Water										
Aldrin	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Alpha-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Beta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Delta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Endosulfan I	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Gamma-BHC (Lindane)	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Heptachlor	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Heptachlor Epoxide	0.05	U	ug/L	0.05	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
4,4-DDD	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
4,4-DDE	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
4,4-DDT	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Dieldrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Endosulfan II	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Endosulfan Sulfate	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Endrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Endrin Aldehyde	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Endrin Ketone	0.10	U	ug/L	0.10	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Chlordane	0.50	U	ug/L	0.50	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Methoxychlor	0.50	U	ug/L	0.50	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Toxaphene	1.00	U	ug/L	1.00	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
Decachlorobiphenyl (Surrogate)	101		%	25	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN
2,4,5,6-Tetrachloro-m-xylene (Surrogate)	93		%	29	EPA 8081	04/08/2005	10:15	04/12/2005	16:15	KRN

** The "U" qualifier indicates the compound was analyzed for but not detected.*

Separatory Funnel-Pesticide Waters	Completed		Date		EPA 3510C	04/08/2005	10:15	04/08/2005	11:05	JNM

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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02770
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 03:21 PM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW097
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time	Analysis Date/Time	Analyst

Comments:

Results are reported on a wet weight basis.

Results meet the requirements of the NELAC standards unless otherwise noted above.

Reviewed By: Kelly A. Perkins **Review Date:** 05/03/2005

Kelly Perkins, Lab Manager

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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02771
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 12:31 PM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW098
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time	Analysis Date/Time	Analyst
EPA 8081 Pesticides in Water								
Aldrin	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Alpha-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Beta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Delta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Endosulfan I	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Gamma-BHC (Lindane)	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Heptachlor	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Heptachlor Epoxide	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
4,4-DDD	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
4,4-DDE	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
4,4-DDT	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Dieldrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Endosulfan II	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Endosulfan Sulfate	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Endrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Endrin Aldehyde	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Endrin Ketone	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Chlordane	0.50	U	ug/L	0.50	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Methoxychlor	0.50	U	ug/L	0.50	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Toxaphene	1.00	U	ug/L	1.00	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
Decachlorobiphenyl (Surrogate)	100		%	25	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN
2,4,5,6-Tetrachloro-m-xylene (Surrogate)	85		%	29	EPA 8081	04/08/2005 10:15	04/12/2005 17:23	KRN

** The "U" qualifier indicates the compound was analyzed for but not detected.*

Separatory Funnel-Pesticide Waters	Completed		Date		EPA 3510C	04/08/2005 10:15	04/08/2005 11:05	JNM

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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02771
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 12:31 PM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW098
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time	Analysis Date/Time	Analyst

Comments:

Results are reported on a wet weight basis.

Results meet the requirements of the NELAC standards unless otherwise noted above.

Reviewed By: Kelly A. Perkins **Review Date:** 05/03/2005

Kelly Perkins, Lab Manager

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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02772
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 12:00 AM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW-XD1
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time	Analysis Date/Time	Analyst
EPA 8081 Pesticides in Water								
Aldrin	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Alpha-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Beta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Delta-BHC	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Endosulfan I	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Gamma-BHC (Lindane)	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Heptachlor	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Heptachlor Epoxide	0.05	U	ug/L	0.05	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
4,4-DDD	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
4,4-DDE	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
4,4-DDT	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Dieldrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Endosulfan II	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Endosulfan Sulfate	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Endrin	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Endrin Aldehyde	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Endrin Ketone	0.10	U	ug/L	0.10	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Chlordane	0.50	U	ug/L	0.50	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Methoxychlor	0.50	U	ug/L	0.50	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Toxaphene	1.00	U	ug/L	1.00	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
2,4,5,6-Tetrachloro-m-xylene (Surrogate)	87		%	29	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN
Decachlorobiphenyl (Surrogate)	88		%	25	EPA 8081	04/08/2005 10:15	04/12/2005 17:45	KRN

* *The "U" qualifier indicates the compound was analyzed for but not detected.*

Separatory Funnel-Pesticide Waters	Completed		Date		EPA 3510C	04/08/2005 10:15	04/08/2005 11:05	JNM

Northeast Laboratory SERVICES

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ANALYSIS REPORT

Attention: JACKSON KIKER
ECC
50 D ANGELO DR
MARLBORO MA 01752

Lab ID Number: AH02772
Project Number: NASB Bldg 95
P.O. Number: 5700.007
Date Collected: 04/05/2005 12:00 AM
DateReceived: 04/07/2005 04:10 PM
Date Reported: 05/03/2005

Sample Matrix: G-WATER
Sample Description: BN-95-21-MW-XD1
Sample Type: Unknown

Parameter	Result	Qualifier	Unit	Detection Limit	Method	Preparation Date/Time	Analysis Date/Time	Analyst

Comments:

Results are reported on a wet weight basis.

Results meet the requirements of the NELAC standards unless otherwise noted above.

Reviewed By: Kelly A. Perkins **Review Date:** 05/03/2005

Kelly Perkins, Lab Manager

APPENDIX E
Field Monitoring and Sampling Forms

APPENDIX E.1

Groundwater Level Measurement Sheet

BUILDING 95 MONITORING WELL GAUGING SUMMARY, APRIL 2005

Well Designation	DATE	TIME	PID (ppm)	Depth to Water (ft below Top of PVC Riser)	COMMENTS
Building 95					
MW-NASB-065	4-5-05	1200	0	1.75	
MW-NASB-066	4-5-05	1150	0	5.65	
MW-NASB-067	4-5-05	1140	0	1.62	
MW-NASB-068	4-5-05	1205	0	2.51	
MW-NASB-097	4-5-05	1130	0	1.26	
MW-NASB-098	4-5-05	1113	0	5.83	

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

GROUNDWATER MEASUREMENTS FOR MARCH 2005 SAMPLING EVENT
OLD NAVY FUEL FARM
NAVAL AIR STATION, BRUNSWICK, MAINE

Date: 3/7/05 Instrument: Solinst Interface Meter 00606, P.I.D. ED FN 311

Weather: 20°, overcast Personnel: David Comeau

Well I.D.	Depth to Water (feet) *	Time	Well condition	P.I.D. Reading (ppm)	Comments
MW-NASB-046	5.49	1550	OK	0.0	
MW-NASB-049	5.67	1555	OK	0.0	
MW-NASB-051	4.50	1545	OK	0.0	
MW-NASB-058	6.18	1600	OK	0.0	
MW-NASB-062	8.61	1620	OK	0.0	
MW-NASB-098	7.60	1525	OK	0.0	
MW-NASB-206	5.64	1615	OK	0.0	
MW-NASB-207	6.54	1630	OK	0.0	
MW-NASB-208BR	6.21	1510	OK	0.0	Flush Mount
MW-NASB-209R	5.37	1500	OK	0.0	Flush Mount
MW-NASB-210	8.13	1530	OK	0.0	
MW-NASB-244	4.69	1610	OK	0.0	Flush Mount
MW-NASB-245	6.11	1515	OK	0.0	Flush Mount
MW-NASB-701	7.33	1520	OK	0.0	
MW-NASB-702	7.14	1535	OK	0.0	Broken cap
MW-NASB-703	7.17	1540	OK	0.0	

* Depth to water is the distance in feet from the measuring point (top of riser pipe) to the water.

APPENDIX E.2

Field Record of Well Purging and Sampling Forms

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Building 95 **Date:** 4-5-05
Location: NASB, Brunswick, ME **Sampler:** Suzanne W.
Well ID: MW 67 **PID Reading:** 0.0

Start Time: 13:05 **End Time:** 14:00
Well Construction: 2" PVC
Depth to water: 1.65
Well Depth: 10.42 Top of pump
Water Column: 8.77
Total Volume Removed (L) 7.6

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	04J15729 AF
YSI	600 XLM	01H10108 AB
LaMotte	turbidimeter	2738-2801
Grunfos		1465
Solinst	water level indicator	

Time	volume removed (liters)	Flow Rate (ml/min)	Depth To Water (ft)	Temp (celsius)	pH (STD)	SPC uS/cm c	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
13:09	.1	150	1.69	6.05	5.95	0.172	6.01	203.8	23	clear
13:19	1.5	150	1.69	7.21	5.03	0.161	0.54	181.1	16	clear
13:29	1.5	150	1.69	7.98	5.29	0.159	0.29	168.4	11	clear
13:39	1.5	150	1.69	8.01	5.14	0.159	0.25	191.8	8	clear
13:49	1.5	150	1.69	8.04	5.15	0.157	0.25	201.6	5	clear
13:54	.75	150	1.69	8.06	5.16	0.157	0.26	204.0	5	clear
13:59	.75	150	1.69	8.12	5.15	0.156	0.26	205.1	5	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
14:00	BN-95-21-MW067	1L-Amber	2	None	PEST

Comments

Suzanne Wetherbee
Signature

4-5-05
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Building 95 **Date:** 4.5.05
Location: NASB, Brunswick, ME **Sampler:** Suzanne W.
Well ID: MW 97 **PID Reading:** 0.0

Start Time: 14:09 **End Time:** 15:21
Well Construction: 2" PVC
Depth to water: 1.28 w/o pump
Well Depth: 11.31
Water Column: 10.03
Total Volume Removed (L) 10.6

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	04J15729 AF
YSI	600 XLM	07H1078 AB
LaMotte	turbidimeter	2738-2801
Grundfos		1465
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
14:10	.1	150	1.39	7.50	5.06	0.209	11.06	318.7	120	clear
14:20	1.5	150	1.39	6.98	4.57	0.241	9.96	428.1	101	clear
14:30	1.5	150	1.39	7.18	4.62	0.231	8.39	430.9	75	clear
14:40	1.5	150	1.39	7.31	4.73	0.201	7.04	425.8	49	clear
14:50	1.5	150	1.39	7.30	4.75	0.194	6.68	426.7	32	clear
15:00	1.5	150	1.39	7.35	4.72	0.185	5.96	446.7	21	clear
15:10	1.5	150	1.39	7.37	4.61	0.171	5.49	473.3	8	clear
15:15	.75	150	1.39	7.39	4.61	0.172	5.50	476.9	7	clear
15:20	.75	150	1.39	7.41	4.61	0.173	5.49	477.3	7	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
15:21	BN-95-21-MW097	1 L Amber	2	None	Pest
15:21	BN-95-21 MW097-MS-MSD	"	"	"	"
0:00	BN-95-21-MWXD1	"	"	"	"

Comments

Suzanne Whitcomb
Signature

4.5.05
Date

Environmental Chemical Corporation

Low Flow/Low Stress Groundwater Sampling Log

Project: Building 95 **Date:** 4-5-05
Location: NASB, Brunswick, ME **Sampler:** Suzanne W.
Well ID: MW 98 **PID Reading:** 0.0

Start Time: 11:19 **End Time:** 12:31
Well Construction: 2" PVC
Depth to water: 5.83 (No pump)
Well Depth: 15.81
Water Column: 9.98
Total Volume Removed (L) 9.7

Field Testing Equipment

Make	Model	Serial #
YSI	650 MDS	04J15729AF
YSI	600 XLM	01H1018AB
LaMotte	turbidimeter	2738-2801
Grundfos		1405
Solinst	water level indicator	

Time	volume removed (liters)	Flow Rate (ml/min)	Depth To Water w/pump (ft)	Temp (celsius)	pH (STD)	SPC uS/cm c	DO (mg/L)	ORP (mV)	Turbidity (NTU)	color
10:20	.2	200	5.23	7.78	5.78	0.099	6.85	183.1	101	clear
11:30	2	200	5.22	8.53	5.58	0.083	3.16	164.0	55	clear
11:40	2	200	5.18	9.13	5.57	0.086	2.65	193.6	33	clear
11:50	1.5	150	5.16	9.23	5.57	0.087	2.45	208.2	22	clear
12:00	1.5	150	5.16	9.33	5.52	0.089	2.41	230.9	19	clear
12:10	1.5	150	5.17	8.80	5.53	0.090	2.18	242.0	14	clear
12:20	1.5	150	5.17	9.22	5.49	0.091	2.09	257.9	9	clear
12:25	.75	150	5.16	9.25	5.46	0.092	2.06	259.4	9	clear
12:30	.75	150	5.16	9.28	5.45	0.092	2.05	264.3	8	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
12:31	BN-95-21-MW098	1 L Amber	2	None	PST

Comments

Suzanne Whitesell
Signature

4-5-05
Date

05/06

PAGE

ECC

5082297737

07/19/2005 13:41

CHAIN OF CUSTODY

ACCUTEST.

495 Technology Center West
Building One, Marlbourough, MA 01752
508-481-6200 FAX: 508-481-7753

Accutest Job #:

Accutest Control #:

Client Information

Name: Environmental Chemical Corporation
Address: 50 D'Angelo Drive
City: Marlborough State: MA Zip: 01752
Send Report to: Jackson Kiker
Phone #: 508-229-2270

Facility Information

Project Name: Building 96
Location: NASB Brunswick, Maine
Project No.: 5700.007
FAX #:

Analytical Information

Field ID / Point of Collection	Collection: Date	Time	Sampled By	Matrix	# of bottles	Preservation: Vial	NaOH	HNO3	H2SO4	None	Pesticides 8081A
BN-95-21-MW067	4/5/05	1400	SW	GW	2					X	X
BN-95-21-MW097 MS/MSD	4/5/05	1521	DC	GW	6					X	X
BN-95-21-MW098	4/5/05	1231	SW	GW	2					X	X
BN-95-21-MW-XD1	4/5/05	0000	DC	GW	2					X	X

Turnaround Information

- [ ] 21 Day Standard — Approved By:
- [ ] 14 Day
- [ ] 7 Days *EMERGENCY*
- [ ] Other _____ (Days)

RUSH TAT is for FAX data
Data unless previously approved.

Data Deliverable Information

- [ ] NJ Reduced
- [ ] NJ Full
- [ ] FULL CLP
- [ ] Disk Deliverable
- [ ] Other (Specify)
- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] ASP Category B
- [ ] State Forms

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	4/7/05 1445		2		2
3		3	4		4
5		5	Seal #	Preserved where applica ☐	On Ice: ☐

APPENDIX F
Engineering Inspection Report

Engineering Inspection Form

Site: Building 95 Event #: 21 Date: 4/5/2005 Personel: Fred Santos Weather: Partly Cloudy

Well ID	Condition	Locked	Labeled	Depth to Water	Total Depth of Well	Comments
MW-NASB-065	Good	Yes	Yes	1.75	15.50	
MW-NASB-066	Good	Yes	Yes	5.65	19.79	
MW-NASB-067	Good	Yes	Yes	1.62	15.00	
MW-NASB-068	Good	Yes	Yes	2.51	15.05	
MW-NASB-097	Good	Not Possible	No	1.26	11.05	Flush Mount…cover plate bolted in place
MW-NASB-098	Good	Yes	Yes	5.83	16.00	

Additional Comments:

1. Stressed Vegetation - Healthy, well watered, unstressed

2. Condition of Geo Textile - Buried, not visible.

3. Other -