TECHNICAL MEMORANDUM
2004 GROUNDWATER MONITORING AND TIDAL EFFECTS STUDY

REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
Stratford, Connecticut

September 2004

U.S. Army Assistant Chief Of Staff
For Installation Management
National Capital Region Field Office
Alexandria, Virginia

U.S. ARMY INSTALLATION SUPPORT MANAGEMENT AGENCY
NATIONAL CAPITAL REGION FIELD OFFICE
STRATFORD ARMY ENGINE PLANT
550 MAIN STREET
STRATFORD, CT 00615-7574

13 September 2004

Mr. Kenneth R. Feathers
Waste Management Bureau
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, Ct 06106-5127

Dear Mr. Feathers,

Enclosed for your review are two copies of the Technical Memorandum for the 2004 Groundwater Monitoring and Tidal Effects Study at the Stratford Army Engine Plant. The memorandum includes results of the groundwater monitoring for volatile organics and inorganics and the tidal effects study that incorporated tidal flat piezometers. Fieldwork was conducted in May and June of 2004. Previous groundwater monitoring results are included for comparison.

Please contact Mr. Wes LaParl at (203) 385-4316 if you have any questions.

PETER W. SZYMANSKI
Installation Manager
Stratford Army Engine Plant

TECHNICAL MEMORANDUM
2004 GROUNDWATER MONITORING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	INTRODUCTION	1-1
1.1	PURPOSE	1-1
1.2	SITE DESCRIPTION	1-1
1.3	BACKGROUND	1-1
2.0	MNA GROUNDWATER SAMPLING	2-1
2.1	OBJECTIVE	2-1
2.2	FIELD SAMPLING ACTIVITIES	2-1
2.3	ANALYTICAL RESULTS	2-1
3.0	TIDAL EFFECTS STUDY	3-1
3.1	OBJECTIVE	3-1
3.2	FIELD ACTIVITIES	3-1
3.3	DATA PROCESSING	3-2
3.4	RESULTS	3-3

ACRONYMS

REFERENCES

APPENDICES

APPENDIX A	2004 Tidal Flats Piezometer Construction Diagrams
APPENDIX B	Groundwater Sampling Field Data Records
APPENDIX C	2004 MNA Groundwater Data Validation Report
APPENDIX D	Tidal Effects Study Hydrographs
APPENDIX E	Tidal Effects Study Data Filtering Graphs

TECHNICAL MEMORANDUM
2004 GROUNDWATER MONITORING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT

LIST OF FIGURES

Figure No.	Title
1-1	Facility Location
1-2	Site Map
2-1	2004 MNA Groundwater Monitoring Locations
3-1	Tidal Effects Study Monitoring Locations
3-2	Interpretive Shallow Groundwater Elevation Contour Map – June 2004

TECHNICAL MEMORANDUM
2004 GROUNDWATER MONITORINGAND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT

LIST OF TABLES

Table No.	Title
2-1	2004 MNA Groundwater Sampling Locations and Analyses
2-2	2004 MNA Groundwater Sampling Results
2-3	2004 MNA Groundwater Sampling Hach Field Test Data
2-4	Comparison of 2004 and Previous Groundwater Analytical Results
3-1	2004 Tidal Effects Study Monitoring Locations
3-2	2004 Tidal Effects Study Computed Mean Groundwater Elevations

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Technical Memorandum is to present the results of the field activities conducted in May and June of 2004. Field activities included groundwater monitoring and a tidal effects study required to finalize the Stratford Army Engine Plant (SAEP) Remedial Investigation (RI).

1.2 SITE DESCRIPTION

SAEP is located on approximately 124 acres in Stratford, Connecticut, on the Stratford Point peninsula in the southeast corner of Fairfield County (see Figure 1-1). SAEP was used to develop, manufacture and test turbine engines. The property consists of 49 buildings, paved roadways and grounds, and five paved parking lots. The U.S. Army owns all land and buildings (see Figure 1-2).

1.3 BACKGROUND

Several data gaps were identified following submittal of the Draft RI Report in January 2003. The Final Sampling and Analysis Plan (SAP) (ACSIM, 2004) presents the activities to address these data gaps, including the groundwater sampling and tidal effects study.

2.0 GROUNDWATER MONITORING

2.1 OBJECTIVE

The objective of the groundwater monitoring was to obtain current concentrations of VOCs and hexavalent chromium to compare to previous results and evaluate contaminate migration and attenuation. Groundwater monitoring of inorganics was conducted to confirm previous RI results and to evaluate potential releases other then hexavalent chromium.

2.2 FIELD SAMPLING ACTIVITIES

Groundwater sampling was conducted in accordance with the final SAP, except where noted otherwise. Groundwater samples were collected from 77 monitoring wells and piezometers during the period of May 17 through June 8, 2004. Figure 2-1 shows the monitoring locations, and Table 2-1 presents the wells/piezometers and the analytical methods performed on the groundwater samples.

The number of wells/piezometers sampled in May and June 2004 differs from the SAP due to field circumstances that arose after the SAP was issued. Following mobilization it was found that tidal flat piezometers PZ-TF-01B through PZ-TF-10B had been destroyed by ice during the previous winter. Subsequently, eight of these wells were replaced: PZTF-04-02A/B, PZTF-04-03A/B, PZTF-04-07A/B, and PZTF-04-09A/B. Monitoring well construction diagrams for the replacement tidal flats piezometers, and four shallow replacement piezometers located in the tidal flats adjacent to the Dike, are included as Appendix A. Additionally, wells LNAP-04-14, MWCD-99-02B, and WC-2D were added to the groundwater sampling program at the request of SAEP. These wells were analyzed for the parameters listed on Table 2-1.

Monitoring wells were sampled using low-stress purging and sampling methods for the collection of groundwater samples, and generally followed the USEPA Region 1 Standard Operating Procedure (SOP), Revision Number 2, July 30, 1996 (USEPA, 1996). Procedures for groundwater sampling are outlined in the SAP (. Data generated during groundwater sampling were recorded on Groundwater Sample Field Data Records (Appendix B). To the extent practical, sampling of groundwater wells proceeded from the upgradient (background) wells to the more contaminated wells, based on previous analytical data. Monitoring well sampling was performed no earlier than 14 days following well development of newly installed wells. Groundwater samples were sent to CompuChem Laboratory in Cary, NC for analyses.

2.3 ANALYTICAL RESULTS

Following analyses by CompuChem, the analytical data was sent in hardcopy and electronic form to MACTEC for data validation. The data validation report is presented in Appendix C. The most significant outcome of the data validation process is that the

result for hexavalent chromium in the sample from WC-5S is qualified as uncertain (N), and represents a probable false positive.

The 2004 groundwater results are presented in Table 2-2. Results from Hach field tests for carbon dioxide and ferrous iron are presented in Table 2-3. A comparison of 2004 VOC and inorganics analytical results to previous groundwater analytical results is presented in Table 2-4. Comparisons made in Table 2-4 include only those instances where analytes were detected in the same well/piezometer in 2004 and previous data.

3.0 TIDAL EFFECTS STUDY

The following subsections present the objective, field activities, and results of the 2004 Tidal Effects Study.

3.1 OBJECTIVE

A tidal study consisting of long-term groundwater and surface water level monitoring was conducted to evaluate mean groundwater elevations and hydraulic gradients. The objective of this study was to conduct a tidal study that included monitoring wells and piezometers beneath Building B-2 and in the tidal flats which were not present during the previous tidal study. Monitoring water levels in these wells provided information on hydraulic gradients in the aquifer beneath the central part of the site and in the off shore tidal area.

3.2 FIELD ACTIVITIES

The tidal effects study consisted of 72-hour groundwater level recording of monitoring wells, piezometers, and surface water stilling wells to collect data for evaluation of mean groundwater elevations and hydraulic gradients. The planned monitoring locations used for the tidal study versus those that were ultimately used are presented in Table 3-1, with locations shown in Figure 3-1. Due to field conditions encountered during attempted installation of monitoring equipment, the final number of locations monitored was 61 wells/piezometers and stilling wells, versus the proposed number of 68 locations indicated in Table 3-1. The 61 locations were monitored for a total of 72 consecutive hours between June 11 and June 14, 2004.

As part of the tidal study, two stilling wells were installed to monitor surface water levels and tidal variations in comparison to groundwater levels at SAEP. The wells were placed in the Housatonic River at the end of the Causeway and the Outfall 008 Drainage Channel (see Figure 3-1). The stilling wells were used to minimize surface water fluctuation effects on pressure transducer measurements. Stilling wells consisted of hand-driven, 1.5-inch diameter polyvinyl chloride (PVC) pipe. The deepest section of each well consisted of a blank length of PVC pipe which acted as an anchor for the well assembly. A 3-foot section of 0.010-inch slotted PVC screen was attached above this anchor. The uppermost section of the well assembly consisted of a second blank length of PVC pipe. The length of this section was such that at high tide, surface water was unable to infiltrate into the stilling well (e.g., approximately 2 feet above the high tide level). The entire well assembly was driven into the sediment by hand at the monitoring point location such that the screened portion of the well was entirely within the surface water column during the monitoring period.

Groundwater and surface water measurements were collected at all locations utilizing In-Situ® Troll® pressure transducers and data loggers. An electric water level meter was

used to record water levels in each well/piezometer prior to installation of the transducers. The transducers were then suspended from the top of the well/piezometer risers to a depth within each well adequate to monitor water levels for the duration of the test. The transducers were programmed to collect a time, temperature, and pressure head reading once every 15 minutes during the monitoring period. The data loggers are self-contained and incorporate a pressure/level and a temperature sensor within a housing diameter of 0.72 inches. The transducers were programmed to start and end at the same specified times, and were left in place until the end of the test. At the end of the 72-hour monitoring period, manual water level measurements were obtained at each well/piezometer prior to turning off and removing the transducers and data loggers. Subsequently, all monitoring data was downloaded to a computer at the field office.

3.3 DATA PROCESSING

Tidal fluctuations in surface water bodies produce progressive pressure waves in adjacent aquifers. As these pressure waves propagate inland, groundwater levels and hydraulic gradients continuously fluctuate, creating a situation where a single set of water level measurements cannot be used to accurately characterize groundwater flow. At any point where groundwater tidally fluctuates, the magnitude and direction of the hydraulic gradient fluctuates about the mean or regional hydraulic gradient. The net effect of these fluctuations on groundwater flow can be determined using the mean hydraulic gradient which is calculated by filtering the groundwater level measurements to obtain a mean groundwater elevation. Filtering methods using 71 consecutive hourly water level observations to accurately determine the mean level were utilized in the tidal study (Serfes, 1991).

The filtering method detailed in Serfes, 1991, is used to effectively remove all diurnal and semidiurnal lunar and solar harmonics from 71 consecutive hourly observations. Using moving averages it yields a filtered mean level for the median time of the 71 hours. First, a sequence of mean is computed for 24 observations, starting with observation one for the first mean and observation 48 for the last, yielding a total of 48 means. Second, a similar series of means is computed for 24 of those means yielding 25 means. Last, the mean of those 25 means is computed yielding the mean level at hour 36.

The filtering method can be expressed mathematically as:

Let the consecutive hourly water level values be O(1), O(2), O(3), ..., O(71):

The first sequence of means (X_i) is

$$X_i = \sum_{K=0}^{23} \frac{O(K+i)}{24} \quad \text{where i} = 1, 2, 3, \ldots, 49;$$

the second sequence of means (Y_j) is

$$Y_j = \sum_{i=0}^{23} \frac{X_i + j}{24} \quad \text{where j} = 1, 2, 3, \ldots, 25;$$

then the mean level (M) at hour 36 is

$$M = \sum_{J=1}^{25} \frac{Y_J}{25}$$

The groundwater level monitoring raw data recorded by the data logger was converted into elevations and statistically filtered using the process described above.

3.4 RESULTS

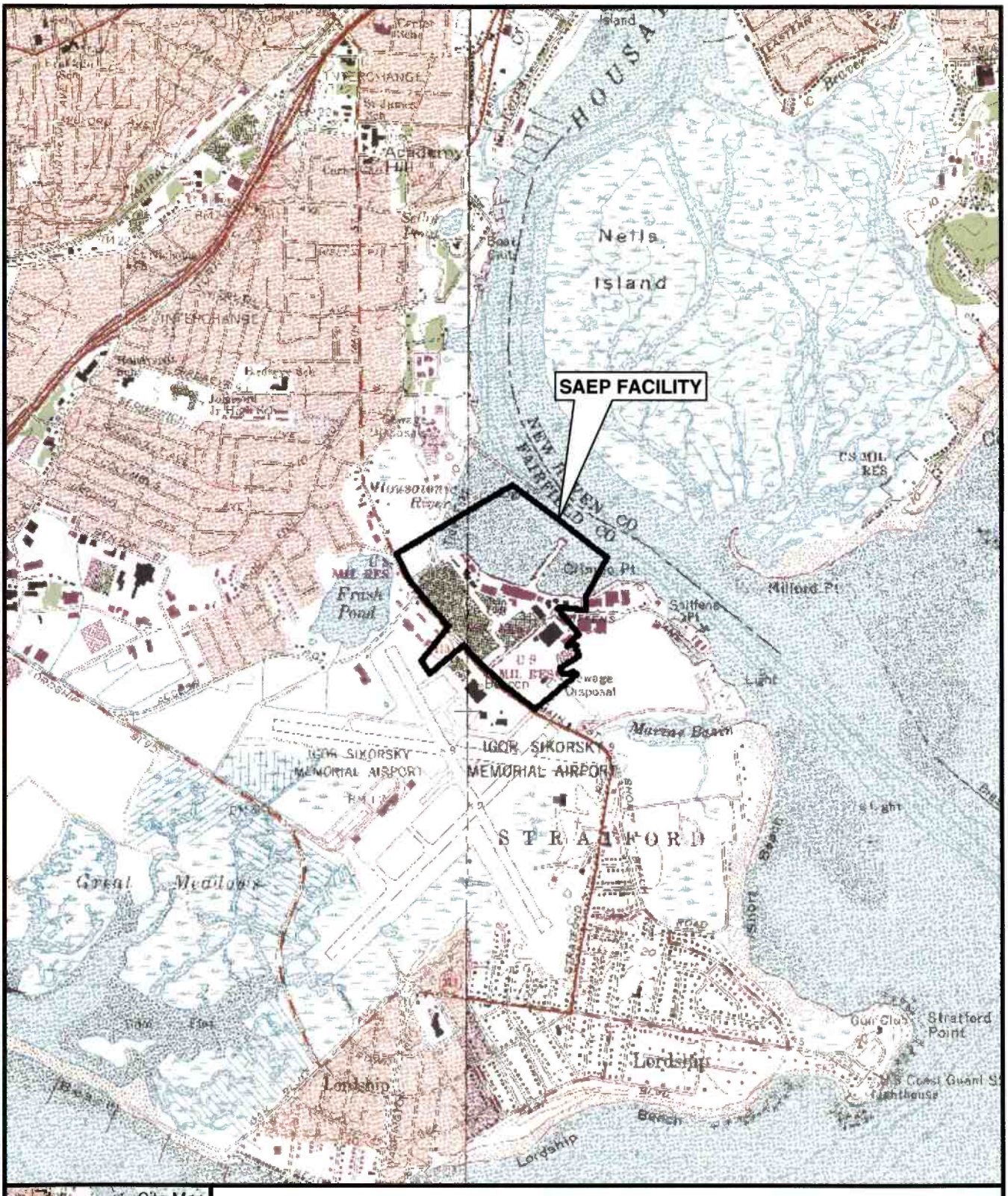
Table 3-2 presents the computed mean groundwater elevations. The mean groundwater elevations were used to construct an interpretive groundwater elevation contour map for the shallow aquifer, which is presented as Figure 3-2. Hydrographs of all monitoring locations are presented in Appendix D. Appendix E contains graphs that depict the data filtering process for each well/piezometer included in the tidal study.

ACSIM	U.S. Army Assistant Chief of Staff for Installation Management
AFCEE	Air Force Center for Environmental Excellence
bgs	below ground surface
BRAC	Base Closure and Realignment Act
DO	dissolved oxygen
ID	inside diameter
MACTEC	MACTEC Engineering and Consulting, Inc.
MNA	monitored natural attenuation
MSL	mean sea level
OD	outside diameter
PVC	polyvinyl chloride
RI	remedial investigation
SAEP	Stratford Army Engine Plant
SAP	Sampling and Analysis Plan
SOP	standard operating procedure
TAL	target analyte list
TCL	target compound list
TOC	total organic carbon
USEPA	U.S. Environmental Protection Agency

U.S. Army Assistant Chief Of Staff for Installation Management (ACSIM), 2004, Sampling and Analysis Plan, Remedial Investigation, Stratford Army Engine Plant, Stratford, CT. March 2004.

U.S. Environmental Protection Agency (USEPA), 1996, Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, Region I (SOP #GW0001). July 1996.

FIGURES



Map Source:
Bridgeport and Milford, CT USGS Quadrangle Map, 1970 and 1980, Photorevised 1984

N

0 1,000 2,000 Feet

Prepared by FJB | Checked by DRP

Figure 1-1
Facility Location

Technical Memorandum
2004 Groundwater Sampling and Tidal Effects Study
Stratford Army Engine Plant
Stratford, Connecticut

MACTEC Engineering and Consulting

Document: P:\Projects\AFCEE\4P Plus AE\SAEP\GIS\MapDocuments\SAEP_RI_WorkPlan_8x11.mxd PDF: P:\Projects\AFCEE\4P Plus AE\SAEP\Field Investigations\GW Sampling & Tidal Study Technical Memorandum\Figures\Figure 1-1.pdf 08/17/2004 3:09 PM FBOETTNER

Site Map

N

0 150 300 Feet

Prepared by FJB | Checked by DRP

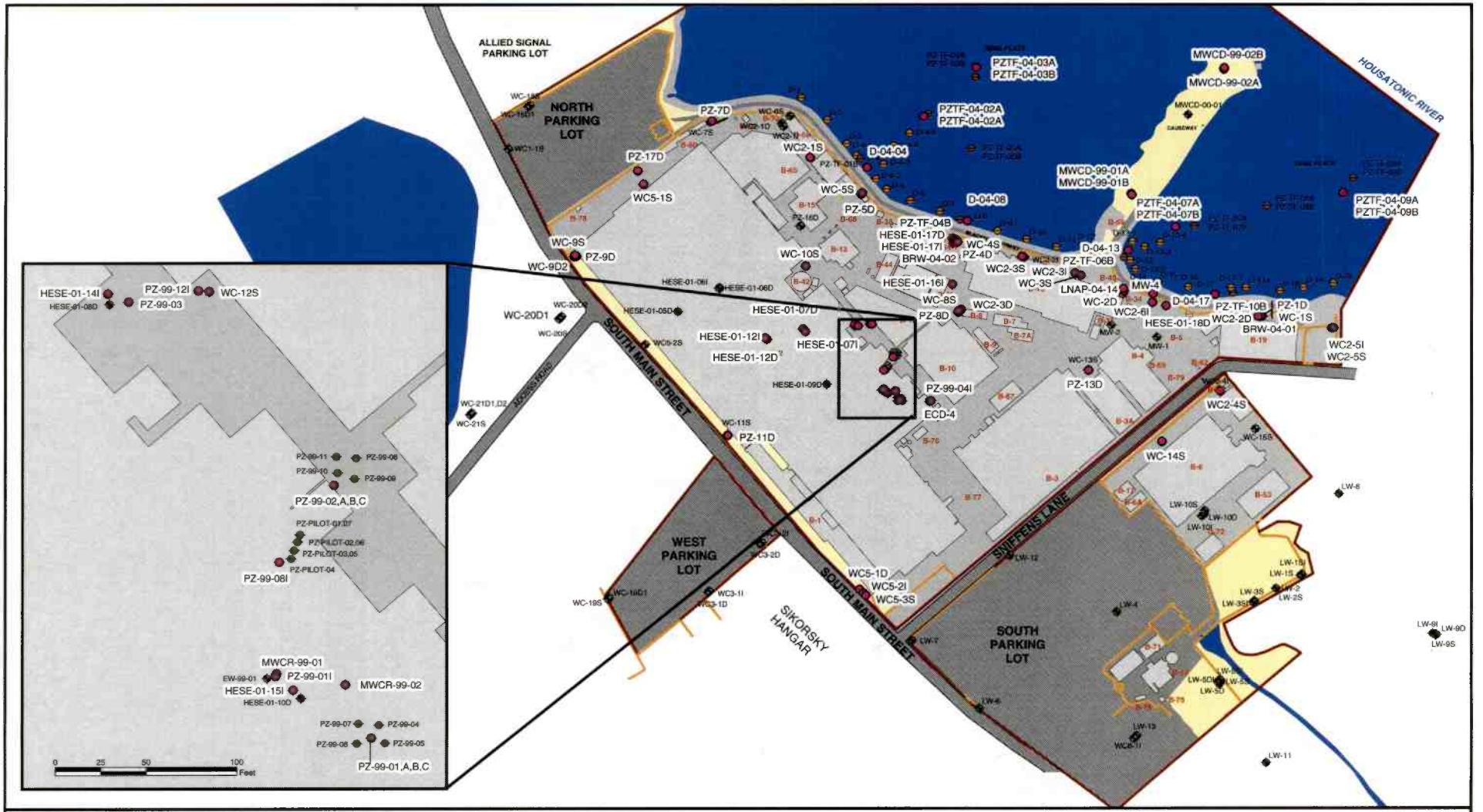
Legend

Building, Riprap
Former Building
Drainage Channel, Pond
Fence
Road
Boundary
Open Paved/Concrete Area
Open Grassed Area
Road/Parking Lot
Water
Building

Figure 1-2
Site Map

Technical Memorandum
2004 Groundwater Sampling and Tidal Effects Study
Stratford Army Engine Plant
Stratford, Connecticut
MACTEC Engineering and Consulting

Document: P:\Projects\AFCEE\4P Plus AE\SAEP\GIS\MapDocuments\SAEP_RI_WorkPlan.mxd PDF: P:\Projects\AFCEE\4P Plus AE\SAEP\Field Investigations\GW Sampling & Tidal Study Technical Memorandum\Figures\Figure 1-2.pdf 08/17/2004 3:19 PM FBOETTNER



Site Map

N

0 150 300 Feet

Prepared by FJB | Checked by DRP

Legend

- 2004 MNA Groundwater Monitoring Location
- Harding ESE Piezometer
- NAE Tidal Flats Piezometer
- Harding ESE Tidal Flats Piezometer
- URSGWC Monitoring Wells/Piezometer
- RCRA Lagoon Closure Monitoring Well
- Misc. Monitoring Well
- 2001 Harding ESE Monitoring Well
- Causeway and Dike Monitoring Well
- Chromium Plating Facility Monitoring Well

Figure 2-1
2004 MNA Groundwater Monitoring Locations

Technical Memorandum
2004 Groundwater Sampling and Tidal Effects Study
Stratford Army Engine Plant
Stratford, Connecticut
MACTEC Engineering and Consulting

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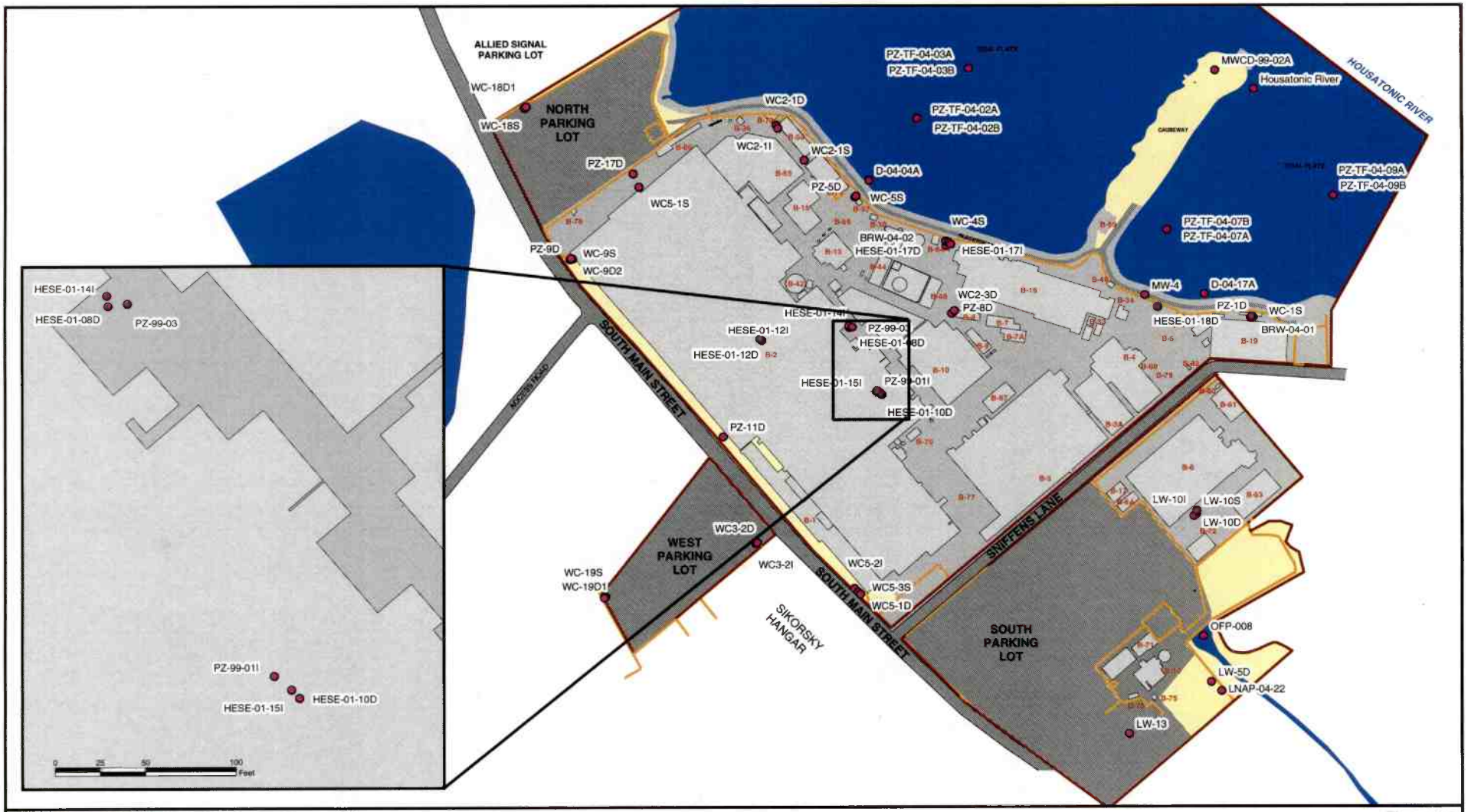

Site Map

Legend

- 2004 Tidal Effects Study Monitoring Locations

N

0 150 300 Feet

Prepared by FJB | Checked by DRP

Figure 3-1
Tidal Effects Study Monitoring Locations

Technical Memorandum
2004 Groundwater Sampling and Tidal Effects Study
Stratford Army Engine Plant
Stratford, Connecticut
MACTEC Engineering and Consulting

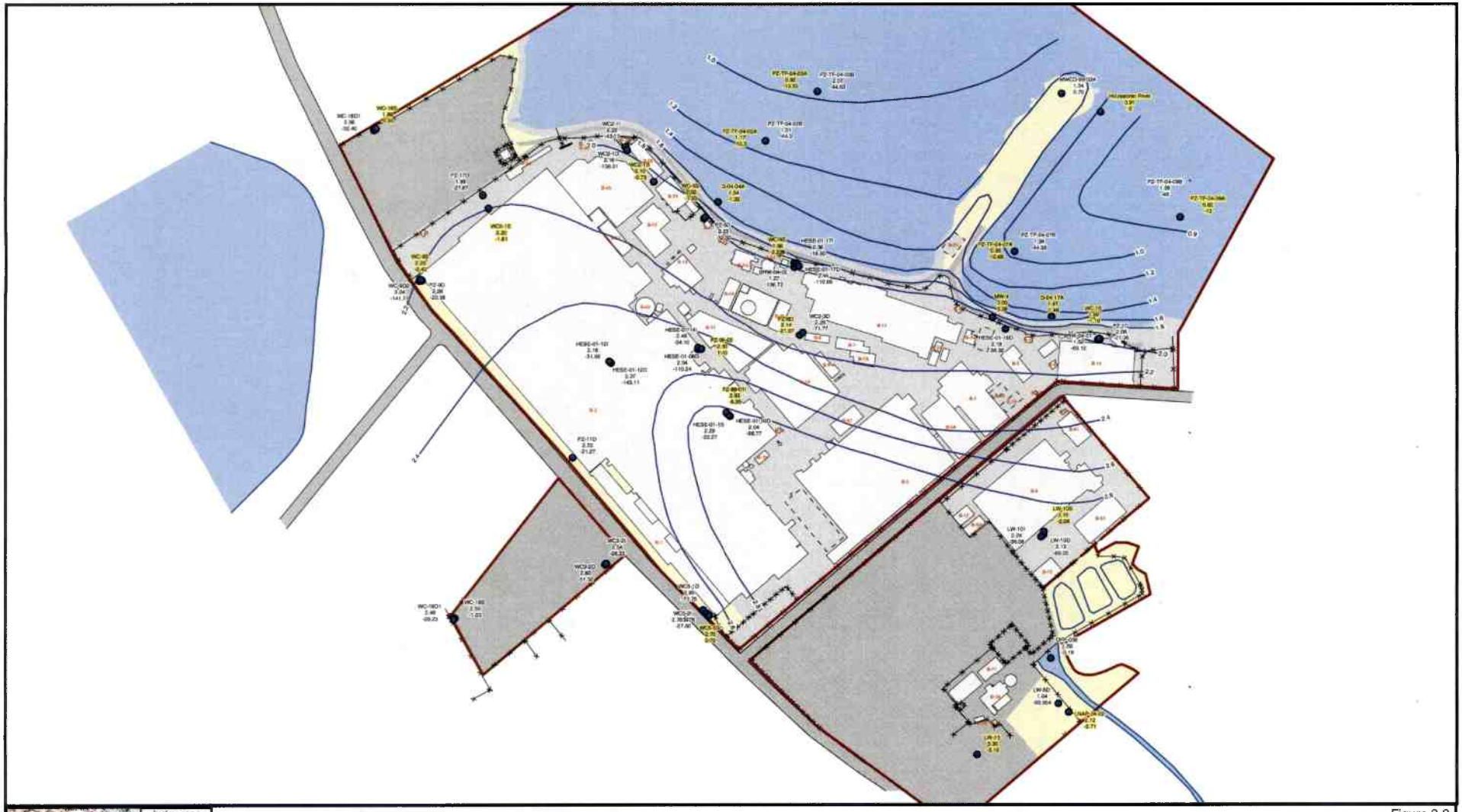

Figure 3-2
Interpretive Shallow Groundwater Elevation Contour Map
June 2004

Technical Memorandum
2004 Groundwater Sampling and Tidal Effects Study
Stratford Army Engine Plant
Stratford, Connecticut

MACTEC Engineering and Consulting, Inc.

TABLES

TABLE 2-1
2004 MNA GROUNDWATER SAMPLING LOCATIONS AND ANALYSES

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	OFF-SITE LABORATORY ANALYSES AND METHODS													HACH Field Tests	
	TCL VOA (8260B)	Vinyl Chloride (Mod. 8260B)	TAL Metals & Mercury Dissolved (Filtered) (7470A)	TAL Metals & Mercury - Total (7470A)	Total Suspended Solids (TSS) (160.2)	Cyanide - Total (9012A)	Hexavalent Chromium - Total (3500-Cr B/D)	Total Organic Carbon (9060)	Nitrate /Nitrite (300)	Sulfate (300)	Alkalinity (310.1)	Methane, Ethane, Ethene (RSK-175)	Dissolved Manganese (6010B) Field Filtered	Chemical Oxygen Demand (410.4)	Ferrous Iron	CO2
BRW-04-01	X				X			X	X	X	X	X	X	X	X	X
BRW-04-02	X							X	X	X	X	X	X	X	X	X
D-04-13	X		X	X				X	X	X	X	X	X	X		
D-04-17	X		X	X				X	X	X	X	X	X	X	X	X
D-04-4	X		X	X				X	X	X	X	X	X	X	X	X
D-04-8	X							X	X	X	X	X	X	X	X	X
ECD-4						X	X									
HESE-01-07D														X		
HESE-01-07I														X		
HESE-01-12D	X		X	X	X			X	X	X	X	X		X	X	X
HESE-01-12I	X		X	X	X			X	X	X	X	X		X	X	X
HESE-01-14I	X		X	X	X	X	X	X	X	X	X	X		X	X	X
HESE-01-15I	X		X	X	X	X	X	X	X	X	X	X		X	X	X
HESE-01-16I	X		X	X	X	X	X	X	X	X	X	X		X	X	X
HESE-01-17D	X		X	X	X			X	X	X	X	X		X	X	X
HESE-01-17I	X		X	X	X			X	X	X	X	X		X	X	X
HESE-01-18D	X		X	X	X			X	X	X	X	X		X	X	X
LNAP-04-14	X		X	X	X			X	X	X	X	X		X	X	X
MW-4	X		X	X	X			X	X	X	X	X		X	X	X
MWCD-99-01A			X	X	X											
MWCD-99-01B	X							X	X	X	X	X	X	X	X	X
MWCD-99-02A			X	X	X											
MWCD-99-02B			X	X	X											
MWCR-99-01						X	X									
MWCR-99-02						X	X									
PZ-11D	X		X	X	X			X	X	X	X	X		X	X	X
PZ-13D			X	X	X									X		
PZ-17D			X	X	X											
PZ-1D	X		X	X	X			X	X	X	X	X		X	X	X
PZ-4D			X	X	X											
PZ-5D			X	X	X											
PZ-7D	X		X	X	X			X	X	X	X	X		X	X	X
PZ-8D	X		X	X	X	X	X	X	X	X	X	X		X	X	X
PZ-99-01A						X	X									
PZ-99-01B						X	X									
PZ-99-01C						X	X									
PZ-99-01I						X	X									
PZ-99-02A						X	X									
PZ-99-02B	X					X	X	X	X	X	X	X	X	X	X	X
PZ-99-02C						X	X									
PZ-99-03	X					X	X	X	X	X	X	X	X	X	X	X
PZ-99-04I	X					X	X	X	X	X	X	X	X	X	X	X

TABLE 2-1
2004 MNA GROUNDWATER SAMPLING LOCATIONS AND ANALYSES

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LOCATION ID	OFF-SITE LABORATORY ANALYSES AND METHODS														HACH Field Tests	
	TCL VOA (8260B)	Vinyl Chloride (Mod. 8260B)	TAL Metals & Mercury Dissolved (Filtered) (7470A)	TAL Metals & Mercury - Total (7470A)	Total Suspended Solids (TSS) (160.2)	Cyanide - Total (9012A)	Hexavalent Chromium - Total (3500-Cr B/D)	Total Organic Carbon (9060)	Nitrate /Nitrite (300)	Sulfate (300)	Alkalinity (310.1)	Methane, Ethane, Ethene (RSK-175)	Dissolved Manganese (6010B) Field Filtered	Chemical Oxygen Demand (410.4)	Ferrous Iron	CO2
PZ-99-08I						X	X									
PZ-99-12I						X	X									
PZ-9D	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-02A	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-02B	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-03A	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-03B	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-07A	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-07B	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-09A	X		X	X	X			X	X	X	X	X		X	X	X
PZTF-04-09B	X		X	X	X			X	X	X	X	X		X	X	X
WC-10S			X	X	X									X		
WC-12S			X	X	X	X	X									
WC-14S			X	X	X											
WC-1S	X		X	X	X			X	X	X	X	X		X	X	X
WC-2D	X				X			X	X	X	X	X		X	X	X
WC2-1S			X	X	X											
WC2-2D	X		X	X	X			X	X	X	X	X		X	X	X
WC2-3D	X		X	X	X			X	X	X	X	X		X	X	X
WC2-3I	X		X	X	X			X	X	X	X	X		X	X	X
WC2-3S			X	X	X											
WC2-4S			X	X	X											
WC2-5I	X							X	X	X	X	X	X	X	X	X
WC2-5S	X		X	X	X			X	X	X	X	X		X	X	X
WC2-6I	X		X	X	X			X	X	X	X	X		X	X	X
WC-3S			X	X	X											
WC-4S	X		X	X	X			X	X	X	X	X		X	X	X
WC5-1D	X		X	X	X			X	X	X	X	X		X	X	X
WC5-1S			X	X	X											
WC5-2I	X		X	X	X			X	X	X	X	X		X	X	X
WC5-3S	X		X	X	X			X	X	X	X	X		X	X	X
WC-5S			X	X	X	X	X									
WC-8S						X	X									
WC-9D2	X	X	X	X	X			X	X	X	X	X		X	X	X
WC-9S	X		X	X	X			X	X	X	X	X		X	X	X
SUBTOTALS	47	1	54	54	53	21	21	47	47	47	47	47	11	51	46	46
DUPLICATES	5		4	4	4	2	2	5	5	5	5	5	0	5		
MS/MSDs	10		10	10	10	4	4	10	10	10	10	10	0	10		
TOTALS	62	1	68	68	67	27	27	62	62	62	62	62	11	66	46	46

Notes:
Field-Measured

MS/MSD = matrix spike/matrix spike duplicate

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	BRW-04-01		BRW-04-02		D-04-13		D-04-17		D-04-4		D-04-8		HESE-01-12D		HESE-01-12I	
	SAMP_ID	BRW040104XX		BRW040204XX		D041304XX		D041704XX		D04404XX		D804XX		HESE0112D04XX		HESE-0112I04XX	
	SAMPLE DATE	5/25/04		5/26/04		5/24/04		5/25/04		6/8/04		5/26/04		5/18/04		5/18/04	
PARAMETER	UNITS																
1,1,1-Trichloroethane	UG/L	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	140000	J	350000	
1,1,2,2-Tetrachloroethane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
1,1,2-Trichloroethane	UG/L	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
1,1-Dichloroethane	UG/L	3.9		0.5	U	0.43	J	0.48	J	0.39	J	0.14	J	3100	U	13000	U
1,1-Dichloroethene	UG/L	0.75		0.5	U	0.5	U	0.5	U	0.5	U	0.13	J	6100	J	41000	
1,2,4-Trichlorobenzene	UG/L	0.5	U	0.1	J	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
1,2-Dibromo-3-chloropropane	UG/L		R		R		R		R	0.5	UJ		R		R		R
1,2-Dibromoethane	UG/L	0 5	U	0.5	U	0.5	U	0 5	U	0 5	U	0.5	U	3100	U	13000	U
1,2-Dichlorobenzene	UG/L	0.5	U	0.5	U	0.5	U	0 5	U	7.2		0.5	U	3100	U	13000	U
1,2-Dichloroethane	UG/L	0.5	U	0.5	U	0 5	U	0.5	U	0 5	U	0.5	U	3100	U	13000	U
1,2-Dichloropropane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
1,3-Dichlorobenzene	UG/L	0.5	U	0.5	U	0.39	J	0.5	U	0.14	J	0.5	U	3100	U	13000	U
1,4-Dichlorobenzene	UG/L	0.5	U	0.5	U	0.22	J	0.5	U	1 3		0.5	U	3100	U	13000	U
Acetic acid, methyl ester	UG/L		R		R		R		R	0.5	U		R		R		R
Acetone	UG/L		R		R		R		R		R		R		R		R
Benzene	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	5.9		0.5	U	3100	U	13000	U
Bromodichloromethane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0 5	U	3100	U	13000	U
Bromoform	UG/L	0.5	U	0.5	U	0 5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
Carbon disulfide	UG/L	0.24	J	0.45	J	0 18	J	0.52		0.18	J	0.5	U	700	J	13000	U
Carbon tetrachloride	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0 5	U	0.5	U	3100	U	13000	U
Chlorobenzene	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	8		0.5	U	3100	U	13000	U
Chlorodibromomethane	UG/L	0.5	U	0 5	U	0.5	U	0 5	U	0.5	U	0 5	U	3100	U	13000	U
Chloroethane	UG/L	0 5	U	0.5	U	0.5	U	0.5	U	460		0.5	U	3100	U	13000	U
Chloroform	UG/L	0.21	J	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
Cis-1,2-Dichloroethene	UG/L	3.8		0 5	U	0.5	U	6.4		44		2.9		3100	U	13000	U
Cis-1,3-Dichloropropene	UG/L	0.5	U	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
Cyclohexane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	3 5	J	0.5	U	3100	U	13000	U
Dichlorodifluoromethane	UG/L	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	UJ	3100	UJ	13000	U
Ethyl benzene	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	23		0.5	U	3100	U	13000	U
Meta Xylene	UG/L	1	U	1	U	1	U	1	U	4 6		1	U	6300	U	25000	U
Methyl bromide	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	UJ
Methyl butyl ketone	UG/L	2.5	U		R	2.5	U	2.5	U	2.5	U		R	16000	U	63000	U
Methyl chloride	UG/L	0.5	U	0 5	U	0.5	U	0.5	U	0 5	U	0.5	U	3100	U	13000	U
Methyl cyclohexane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	2.5		0.5	U	3100	U	13000	U
Methyl ethyl ketone	UG/L		R		R		R		R		R		R		R		R
Methyl isobutyl ketone	UG/L	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	16000	U	63000	U
Methyl Tertbutyl Ether	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.15	J	0.17	J	3100	U	13000	U
Methylene chloride	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0 77	U	0 59	U	3100	U	13000	U
Styrene	UG/L	0.5	U	0.5	U	0.5	U	0 5	U	0.5	U	0.5	U	3100	U	13000	U
Tetrachloroethene	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
Toluene	UG/L	0.5	U	0.52	U	0 5	U	0.5	U	2		0.5	U	3100	U	13000	U
trans-1,2-Dichloroethene	UG/L	0 5	U	0.5	U	0.5	U	0.11	J	1.6		0.5	U	3100	U	13000	U
trans-1,3-Dichloropropene	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
Trichloroethene	UG/L	1.1	U	0.5	U	0.5	U	1.7	U	0 5	U	5 5		16000	J	47000	U
Trichlorofluoromethane	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3100	U	13000	U
Vinyl chloride	UG/L	0.5	U	0.5	U	0.5	U	3.2		29		0.18	J	3100	U	13000	U
Xylene, Ortho	UG/L	0.5	U	0.5	U	0.5	U	0.5	U	2		0 5	U	3100	U	13000	U
Xylenes, Total	UG/L	0 5	U	0 5	U	0.5	U	0.5	U	6 9		0 5	U	3100	U	13000	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	HESE-01-14I		HESE-01-15I		HESE-01-16I		HESE-01-17D		HESE-01-17I		HESE-01-18D		LNAP-04-14		MW-4	
	SAMP_ID	HESE0114I04XX		HESE0115I04XX		HESE0116I04XX		HESE0117D04XX		HESE0117I04XX		HESE0118D04XX		MW0304XX		MW404XX	
	SAMPLE DATE	5/20/04		5/24/04		5/19/04		5/18/04		5/18/04		5/18/04		5/26/04		5/20/04	
PARAMETER	UNITS																
1,1,1-Trichloroethane	UG/L	500	U	3100	U	510	J	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,1,2,2-Tetrachloroethane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	500	U	3100	U	120	J	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,1,2-Trichloroethane	UG/L	500	U	3100	U	63	J	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,1-Dichloroethane	UG/L	500	U	3100	U	240	J	0.5	UJ	0.91	J	180	U	2.5	UJ	8.7	
1,1-Dichloroethene	UG/L	1600		3100	U	1900	J	0.82	J	0.31	J	83	J	2.5	UJ	11	
1,2,4-Trichlorobenzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,2-Dibromo-3-chloropropane	UG/L		R		R		R		R		R		R		R		R
1,2-Dibromoethane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,2-Dichlorobenzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,2-Dichloroethane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,2-Dichloropropane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,3-Dichlorobenzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
1,4-Dichlorobenzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Acetic acid, methyl ester	UG/L		R		R		R		R		R		R		R		R
Acetone	UG/L		R		R		R		R		R		R		R		R
Benzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	4.7	J	3.9	
Bromodichloromethane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Bromoform	UG/L	500	U	3100	U	130	UJ	0.5	U	0.5	U	180	U	2.5	UJ	1.6	U
Carbon disulfide	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.29	J	68	J	2.5	UJ	1.6	U
Carbon tetrachloride	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Chlorobenzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Chlorodibromomethane	UG/L	500	U	3100	U	130	UJ	0.14	J	0.5	U	180	U	2.5	UJ	1.6	U
Chloroethane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	1.6	J	1.6	U
Chloroform	UG/L	500	U	3100	U	96	J	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Cis-1,2-Dichloroethene	UG/L	500	U	3100	U	3300	J	170	J	0.33	J	540	J	2.5	UJ	46	
Cis-1,3-Dichloropropene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Cyclohexane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	94	J	5	
Dichlorodifluoromethane	UG/L	500	UJ	3100	U	130	UJ	0.5	UJ	0.5	UJ	180	UJ	2.5	UJ	1.6	UJ
Ethyl benzene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	0.52	J	1.6	U
Meta Xylene	UG/L	1000	U	6300	U	250	UJ	1	UJ	1	U	360	U	5	UJ	3.1	U
Methyl bromide	UG/L	500	UJ	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	UJ
Methyl butyl ketone	UG/L	2500	U	16000	U	630	UJ	2.5	UJ	2.5	U	890	U		R	7.8	U
Methyl chloride	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Methyl cyclohexane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	36	J	1.8	
Methyl ethyl ketone	UG/L		R		R		R		R		R		R		R		R
Methyl isobutyl ketone	UG/L	2500	U	16000	U	630	UJ	2.5	UJ	2.5	U	890	U	13	UJ	7.8	U
Methyl Tertbutyl Ether	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Methylene chloride	UG/L	500	UJ	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	UJ
Styrene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Tetrachloroethene	UG/L	500	U	3100	U	280	J	0.43	J	0.5	U	430	J	2.5	UJ	1.6	U
Toluene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	0.65	UJ	1.6	U
trans-1,2-Dichloroethene	UG/L	1200		3100	U	130	UJ	0.36	J	0.5	U	180	U	2.5	UJ	0.8	J
trans-1,3-Dichloropropene	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Trichloroethene	UG/L	17000		140000		40000	J	260	J	0.5	U	6100	J	2.5	UJ	0.93	J
Trichlorofluoromethane	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Vinyl chloride	UG/L	500	U	3100	U	730	J	1.9	J	0.5	U	180	U	2.5	UJ	48	
Xylene, Ortho	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U
Xylenes, Total	UG/L	500	U	3100	U	130	UJ	0.5	UJ	0.5	U	180	U	2.5	UJ	1.6	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	MWCD-99-01B		PZ-11D		PZ-1D		PZ-1D		PZ-7D		PZ-8D		PZ-99-02B		PZ-99-03	
	SAMP_ID	MWCD9901B04XX		PZ11D04XX		PZ1D04XD		PZ1D04XX		PZ7D04XX		PZ8D04XX		PZ9902B04XX		PZ990304XX	
	SAMPLE DATE	5/19/04		5/20/04		5/20/04		5/20/04		5/21/04		5/20/04		5/24/04		5/24/04	
PARAMETER	UNITS																
1,1,1-Trichloroethane	UG/L	0.5	UJ	4.5		170	U	180	U	4.2	U	2		310	U	1400	
1,1,2,2-Tetrachloroethane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.4	J	310	U	42	U
1,1,2-Trichloroethane	UG/L	0.5	UJ	0.27	J	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,1-Dichloroethane	UG/L	0.5	UJ	19		85	J	86	J	160	J	1.4		310	U	75	
1,1-Dichloroethene	UG/L	0.24	J	140	J	82	J	82	J	11	J	18		310	U	420	
1,2,4-Trichlorobenzene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,2-Dibromo-3-chloropropane	UG/L		R		R		R		R	4.2	U		R		R		R
1,2-Dibromoethane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,2-Dichlorobenzene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,2-Dichloroethane	UG/L	0.5	UJ	22	J	170	U	180	U	4.2	U	0.3	J	310	U	42	U
1,2-Dichloropropane	UG/L	0.5	UJ	0.23	J	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,3-Dichlorobenzene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
1,4-Dichlorobenzene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Acetic acid, methyl ester	UG/L		R	0.5	UJ		R		R	4.2	U		R		R		R
Acetone	UG/L		R		R		R		R		R		R		R		R
Benzene	UG/L	0.5	UJ	3.3		170	U	180	U	4.2	U	0.5	U	310	U	42	U
Bromodichloromethane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Bromoform	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Carbon disulfide	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Carbon tetrachloride	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Chlorobenzene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Chlorodibromomethane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Chloroethane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.14	J	310	U	42	U
Chloroform	UG/L	0.5	UJ	0.54		170	U	180	U	4.2	U	0.5	U	310	U	42	U
Cis-1,2-Dichloroethene	UG/L	28	J	13		270		270		66	J	2.7		99	J	43	
Cis-1,3-Dichloropropene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Cyclohexane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Dichlorodifluoromethane	UG/L	0.5	UJ	0.5	UJ	170	UJ	180	UJ	4.2	U	0.5	UJ	310	U	42	U
Ethyl benzene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Meta Xylene	UG/L	1	UJ	1	U	330	U	360	U	8.3	U	1	U	630	U	83	U
Methyl bromide	UG/L	0.5	UJ	0.5	UJ	170	UJ	180	UJ	4.2	U	0.5	UJ	310	U	42	U
Methyl butyl ketone	UG/L	2.5	UJ	2.5	U	830	U	890	U	21	U	2.5	U	1600	U	210	U
Methyl chloride	UG/L	0.1	J	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Methyl cyclohexane	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Methyl ethyl ketone	UG/L		R		R		R		R	21	U		R		R		R
Methyl isobutyl ketone	UG/L	2.5	UJ	2.5	U	830	U	890	U	21	U	2.5	U	1600	U	210	U
Methyl Tertbutyl Ether	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Methylene chloride	UG/L	4.5	U	0.5	U	170	UJ	180	UJ	4.2	U	0.5	UJ	310	U	42	U
Styrene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Tetrachloroethene	UG/L	0.5	UJ	190	J	380		360		4.2	U	0.82		310	U	42	U
Toluene	UG/L	0.5	U	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
trans-1,2-Dichloroethene	UG/L	0.12	J	0.12	J	59	J	180	U	4.2	U	0.5	U	310	U	42	U
trans-1,3-Dichloropropene	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Trichloroethene	UG/L	9.3	J	120	J	6100		6000		4.2	U	17		10000		68	U
Trichlorofluoromethane	UG/L	0.23	J	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Vinyl chloride	UG/L	0.32	J	3.7		170	U	180	U	23	J	0.15	J	310	U	42	U
Xylene, Ortho	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U
Xylenes, Total	UG/L	0.5	UJ	0.5	U	170	U	180	U	4.2	U	0.5	U	310	U	42	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	PZ-99-04I		PZ-9D		PZTF-04-02A		PZTF-04-02B		PZTF-04-03A		PZTF-04-03B		PZTF-04-07A		PZTF-04-07B	
	SAMP_ID	PZ9904I04XX		PZ9D04XX		PZTF0402A04XX		PZTF0402B04XX		PZTF0403A04XX		PZTF0403B04XX		PZTF0407A04XX		PZTF0407B04XX	
	SAMPLE DATE	5/19/04		5/21/04		5/25/04		5/25/04		5/25/04		5/25/04		5/25/04		5/25/04	
PARAMETER	UNITS																
1,1,1-Trichloroethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	110	J	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	UG/L	130	U	23	J	0.5	U	0.5	U	0.11	J	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	UG/L	270		64		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	UG/L		R	25	U		R		R	0.5	U		R		R		R
1,2-Dibromoethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	UG/L	130	UJ	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Acetic acid, methyl ester	UG/L	130	UJ	25	U		R		R		R		R		R		R
Acetone	UG/L		R		R		R		R		R		R		R		R
Benzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	UG/L	130	U	25	U	0.22	J	0.14	J	0.44	J	0.11	J	0.5	U	0.5	U
Carbon tetrachloride	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorodibromomethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	UG/L	61	J	25	U	0.11	J	0.5	U	0.88		0.5	U	0.5	U	0.5	U
Cis-1,2-Dichloroethene	UG/L	83	J	1200		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cis-1,3-Dichloropropene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	UG/L	130	UJ	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethyl benzene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Meta Xylene	UG/L	250	U	50	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl bromide	UG/L	130	UJ	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl butyl ketone	UG/L	630	U	130	U	2.5	U	2.5	U		R	2.5	U	2.5	U	2.5	U
Methyl chloride	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl cyclohexane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl ethyl ketone	UG/L		R	130	U		R		R		R		R		R		R
Methyl isobutyl ketone	UG/L	630	U	130	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl Tertbutyl Ether	UG/L	130	U	25	U	0.5	U	0.22	J	0.5	U	0.25	J	0.5	U	0.5	U
Methylene chloride	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	UG/L	130		25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	UG/L	100000		1200		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene, Ortho	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylenes, Total	UG/L	130	U	25	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	PZTF-04-09A		PZTF-04-09B		WC-1S		WC-2D		WC-2D		WC-4S		WC-9D2		WC-9S	
	SAMP_ID	PZTF0409A04XX		PZTF0409B04XX		WC1S04XX		WC2D04XD		WC2D04XX		WC4S04XX		WC9D204XX		WC9S04XX	
	SAMPLE DATE	5/26/04		5/26/04		5/20/04		5/26/04		5/26/04		5/19/04		5/21/04		5/21/04	
PARAMETER	UNITS																
1,1,1-Trichloroethane	UG/L	0.5	U	0.5	U	0.91		100	U	130	U	18		0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	UG/L	0.5	U	0.5	U	0 5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0.5	U	0.5	U	23	J	100	U	130	U	2.6	J	0.5	U	0 5	U
1,1,2-Trichloroethane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
1,1-Dichloroethane	UG/L	0.21	J	0.16	J	3 7	J	130		140		17		0.5	U	0.5	U
1,1-Dichloroethene	UG/L	0.24	J	0.33	J	0.99		470		510		130		0.5	U	0.16	J
1,2,4-Trichlorobenzene	UG/L	0.5	U	0.37	J	0.5	U	100	U	130	U	4 2	UJ	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	UG/L		R	0.28	J	0.5	U		R		R		R	0.5	U	0.5	U
1,2-Dibromoethane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
1,2-Dichlorobenzene	UG/L	0.5	U	0.16	J	0.1	J	100	U	130	U	4.2	U	0.5	U	0 5	U
1,2-Dichloroethane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	2	J	0.5	U	0.5	U
1,2-Dichloropropane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
1,3-Dichlorobenzene	UG/L	0.5	U	0.18	J	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
1,4-Dichlorobenzene	UG/L	0.5	U	0.23	J	0.5	U	100	U	130	U	4.2	U	0 5	U	0.5	U
Acetic acid, methyl ester	UG/L		R		R	0.5	U		R		R		R	0.5	U	0.5	U
Acetone	UG/L		R		R		R		R		R		R		R		R
Benzene	UG/L	0.5	U	0.5	U	0 11	J	100	U	130	U	4 2	U	0.5	U	0.5	U
Bromodichloromethane	UG/L	0.5	U	0.5	U	0 5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Bromoform	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Carbon disulfide	UG/L	0.34	J	0.19	J	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Carbon tetrachloride	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	2.8	J	0.5	U	0.5	U
Chlorobenzene	UG/L	0.5	U	0.1	J	0.5	U	100	U	130	U	4 2	U	0.5	U	0.5	U
Chlorodibromomethane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Chloroethane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Chloroform	UG/L	0.27	J	0.11	J	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Cis-1,2-Dichloroethene	UG/L	0.43	J	2 8		10	J	3600	J	5100	J	120		0 31	J	0.5	U
Cis-1,3-Dichloropropene	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Cyclohexane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Dichlorodifluoromethane	UG/L	0.5	UJ	0.5	UJ	0.48	J	100	UJ	130	UJ	4.2	UJ	0.5	U	0.5	U
Ethyl benzene	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Meta Xylene	UG/L	1	U	0.21	J	1	U	200	U	250	U	8.3	U	1	U	1	U
Methyl bromide	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U		R	0.5	U	0.25	J
Methyl butyl ketone	UG/L		R		R	2.5	U		R		R	21	U	2.5	U	2.5	U
Methyl chloride	UG/L	0 5	U	0.5	U	0 5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Methyl cyclohexane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4 2	U	0.5	U	0.5	U
Methyl ethyl ketone	UG/L		R		R	2.5	U		R		R		R	2.5	U	2.5	U
Methyl isobutyl ketone	UG/L	2.5	U	2.5	U	2.5	U	500	U	630	U	21	U	2.5	U	2.5	U
Methyl Tertbutyl Ether	UG/L	0.12	J	0.23	J	0.5	U	100	U	130	U	4 2	UJ	0.5	U	0 34	J
Methylene chloride	UG/L	0.5	U	0 58	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Styrene	UG/L	0 5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Tetrachloroethene	UG/L	0 5	U	0.5	U	2.2		100	U	130	U	4.2	U	0.5	U	0.16	J
Toluene	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0 5	U
trans-1,3-Dichloropropene	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4 2	UJ	0 5	U	0.5	U
Trichloroethene	UG/L	2.2		0.5	U	2.8	J	120	U	130	U	4.1	U	1.5	U	0.9	U
Trichlorofluoromethane	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	1.2	J	0.5	U	0.5	U
Vinyl chloride	UG/L	0.5	U	0.32	J	1.4		1300		1400		32		0.5	U	0.5	U
Xylene, Ortho	UG/L	0.5	U	0.5	U	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U
Xylenes, Total	UG/L	0.5	U	0.22	J	0.5	U	100	U	130	U	4.2	U	0.5	U	0.5	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	WC2-2D		WC2-3D		WC2-3I		WC2-5I		WC2-5S		WC2-6I		WC5-1D		WC5-2I	
	SAMP_ID	WC22D04XX		WC23D04XX		WC23I04XX		WC25I04XX		WC25S04XX		WC26I04XX		WC51D04XX		WC52I04XX	
	SAMPLE DATE	5/20/04		5/19/04		5/18/04		5/19/04		5/19/04		5/18/04		5/20/04		5/20/04	
PARAMETER	UNITS																
1,1,1-Trichloroethane	UG/L	0.5	UJ	0.38	J	31	U	12	J	0.5	U	84	U	0 5	UJ	0.42	J
1,1,2,2-Tetrachloroethane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0.5	UJ	0.37	J	31	U	23		0.5	U	84	U	0.5	UJ	0.5	U
1,1,2-Trichloroethane	UG/L	0.21	J	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
1,1-Dichloroethane	UG/L	3 5	J	2.1	J	21	J	380		0.23	J	84	U	0.5	UJ	1.8	
1,1-Dichloroethene	UG/L	0.31	J	15	J	49		170		0.5	U	29	J	0.5	UJ	1.2	
1,2,4-Trichlorobenzene	UG/L	0 5	UJ	1 6	UJ	31	UJ	13	U	0.5	UJ	84	UJ	0.5	UJ	0.5	U
1,2-Dibromo-3-chloropropane	UG/L		R		R		R	13	U		R		R		R		R
1,2-Dibromoethane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
1,2-Dichlorobenzene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
1,2-Dichloroethane	UG/L	0.16	J	1 6	UJ	31	U	3	J	0.5	U	84	U	0.5	UJ	0.5	UJ
1,2-Dichloropropane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
1,3-Dichlorobenzene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0 5	U	84	U	0.5	UJ	0.5	U
1,4-Dichlorobenzene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0 5	UJ	0.5	U
Acetic acid, methyl ester	UG/L	0.5	UJ		R		R	13	U		R		R		R	0.5	UJ
Acetone	UG/L		R		R		R		R		R		R		R		R
Benzene	UG/L	0 5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Bromodichloromethane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Bromoform	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Carbon disulfide	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Carbon tetrachloride	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Chlorobenzene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Chlorodibromomethane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0 5	U	84	U	0.5	UJ	0.13	J
Chloroethane	UG/L	0.5	UJ	1.6	UJ	8.6	J	18		0.5	U	84	U	0.5	UJ	0.5	U
Chloroform	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Cis-1,2-Dichloroethene	UG/L	3.2	J	45	J	300		230		0.23	J	260		0.5	UJ	0.19	J
Cis-1,3-Dichloropropene	UG/L	0 5	UJ	1 6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Cyclohexane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Dichlorodifluoromethane	UG/L	0.5	UJ	1.6	UJ	31	UJ	13	U	0.5	UJ	84	UJ	0.5	UJ	0.5	UJ
Ethyl benzene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Meta Xylene	UG/L	1	UJ	3.1	UJ	63	U	25	U	1	U	170	U	1	UJ	1	U
Methyl bromide	UG/L	0.5	UJ	1.6	UJ		R	13	U		R		R	0.5	U	0.5	UJ
Methyl butyl ketone	UG/L	2.5	UJ	7.8	UJ	160	U	63	U	2.5	U	420	U	2.5	UJ	2.5	U
Methyl chloride	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.11	J	84	U	0.1	J	0.17	J
Methyl cyclohexane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0 5	U
Methyl ethyl ketone	UG/L		R		R		R	63	U		R		R		R		R
Methyl isobutyl ketone	UG/L	2.5	UJ	7 8	UJ	160	U	63	U	2.5	U	420	U	2.5	UJ	2.5	U
Methyl Tertbutyl Ether	UG/L	0.5	UJ	1.6	UJ	31	UJ	13	U	0.5	UJ	84	UJ	0.5	UJ	0.5	U
Methylene chloride	UG/L	0.5	UJ	1.6	UJ	31	U	3 4	U	0.55	U	84	U	0.5	UJ	0.5	U
Styrene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0 5	U	84	U	0.5	UJ	0 5	U
Tetrachloroethene	UG/L	0.5	UJ	6.1	J	46		6.8	J	0.23	J	280		0.5	UJ	0.57	
Toluene	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
trans-1,2-Dichloroethene	UG/L	1.3	J	1.6	UJ	31	U	13	U	0 5	U	84	U	0.5	UJ	0.5	U
trans-1,3-Dichloropropene	UG/L	0.5	UJ	1.6	UJ	31	UJ	13	U	0.5	UJ	84	UJ	0.5	UJ	0.5	U
Trichloroethene	UG/L	1.6	U	100		920		220		1.3	U	2500		0.5	UJ	0.5	U
Trichlorofluoromethane	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0.54		84	U	0.5	UJ	0.5	U
Vinyl chloride	UG/L	0.74	J	1.4	J	12	J	73		0.5	U	84	U	0.5	UJ	0.39	J
Xylene, Ortho	UG/L	0.5	UJ	1 6	UJ	31	U	13	U	0.5	U	84	U	0.5	UJ	0.5	U
Xylenes, Total	UG/L	0.5	UJ	1.6	UJ	31	U	13	U	0 5	U	84	U	0.5	UJ	0.5	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	WC5-3S	
	SAMP_ID	WC53S04XX	
	SAMPLE DATE	5/20/04	
PARAMETER	UNITS		
1,1,1-Trichloroethane	UG/L	0.19	J
1,1,2,2-Tetrachloroethane	UG/L	0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0.17	J
1,1,2-Trichloroethane	UG/L	0.5	U
1,1-Dichloroethane	UG/L	0.2	J
1,1-Dichloroethene	UG/L	0.11	J
1,2,4-Trichlorobenzene	UG/L	0.5	U
1,2-Dibromo-3-chloropropane	UG/L	0.5	U
1,2-Dibromoethane	UG/L	0.5	U
1,2-Dichlorobenzene	UG/L	0.5	U
1,2-Dichloroethane	UG/L	0 5	U
1,2-Dichloropropane	UG/L	0.5	U
1,3-Dichlorobenzene	UG/L	0 5	U
1,4-Dichlorobenzene	UG/L	0.5	U
Acetic acid, methyl ester	UG/L	0 5	U
Acetone	UG/L		R
Benzene	UG/L	0.5	U
Bromodichloromethane	UG/L	0.5	U
Bromoform	UG/L	0.5	U
Carbon disulfide	UG/L	0 5	U
Carbon tetrachloride	UG/L	0.5	U
Chlorobenzene	UG/L	0 5	U
Chlorodibromomethane	UG/L	0.5	U
Chloroethane	UG/L	0 5	U
Chloroform	UG/L	0.5	U
Cis-1,2-Dichloroethene	UG/L	0.5	U
Cis-1,3-Dichloropropene	UG/L	0.5	U
Cyclohexane	UG/L	0.5	U
Dichlorodifluoromethane	UG/L	0.5	U
Ethyl benzene	UG/L	0.5	U
Meta Xylene	UG/L	1	U
Methyl bromide	UG/L	0.5	U
Methyl butyl ketone	UG/L	2.5	U
Methyl chloride	UG/L	0 5	U
Methyl cyclohexane	UG/L	0.5	U
Methyl ethyl ketone	UG/L	2.5	U
Methyl isobutyl ketone	UG/L	2.5	U
Methyl Tertbutyl Ether	UG/L	0 5	U
Methylene chloride	UG/L	0.5	U
Styrene	UG/L	0.5	U
Tetrachloroethene	UG/L	1.6	
Toluene	UG/L	0.5	U
trans-1,2-Dichloroethene	UG/L	0.5	U
trans-1,3-Dichloropropene	UG/L	0.5	U
Trichloroethene	UG/L	0.5	U
Trichlorofluoromethane	UG/L	0.5	U
Vinyl chloride	UG/L	0.5	U
Xylene, Ortho	UG/L	0.5	U
Xylenes, Total	UG/L	0.5	U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	BRW-04-01		BRW-04-02		D-04-13		D-04-13		D-04-17		D-04-17		D-04-4		D-04-8	
		SAMP_ID	BRW040104XX		BRW040204XX		D041304X2		D041304XX		D041704X2		D041704XX		D04404XX		D804XX	
		SAMPLE DATE	5/25/04		5/26/04		6/8/04		5/24/04		6/8/04		5/25/04		6/8/04		5/26/04	
FRACTION	PARAMETER	UNITS																
Dissolved	Aluminum	UG/L					27.7	U			27.7	U						
Dissolved	Antimony	UG/L					1.9	U			1.9	U						
Dissolved	Arsenic	UG/L					2.5	U			2.5	U						
Dissolved	Barium	UG/L					34.9	J			5.2	J						
Dissolved	Beryllium	UG/L					0.3	U			0.3	U						
Dissolved	Cadmium	UG/L					0 4	U			0.4	U						
Dissolved	Calcium	UG/L					213000				42700							
Dissolved	Chromium	UG/L					0.8	U			0 8	U						
Dissolved	Cobalt	UG/L					0.91	U			2	U						
Dissolved	Copper	UG/L					1.3	U			1.3	U						
Dissolved	Iron	UG/L					267				29 1	U						
Dissolved	Lead	UG/L					1.3	U			1.3	U						
Dissolved	Magnesium	UG/L					559000				126000							
Dissolved	Manganese	UG/L	5020		4040		238				232				2190		112	
Dissolved	Nickel	UG/L					32 1	J			9.7	J						
Dissolved	Potassium	UG/L					196000				64400							
Dissolved	Selenium	UG/L					5	X			2.4	UJ						
Dissolved	Silver	UG/L					0.4	U			0.52	X						
Dissolved	Sodium	UG/L					5290000				1150000							
Dissolved	Thallium	UG/L					3.2	U			3.2	U						
Dissolved	Vanadium	UG/L					0.4	U			0.77	U						
Dissolved	Zinc	UG/L					1.6	U			6.5	U						
Dissolved	Mercury	UG/L					0.45	N			0.1	U						
Total	Chromium, Hexavalent	UG/L																
Total	Total Suspended Solids	MG/L	12.4						0.05	U			0.05	U	0	U	0.05	UJ
Total	Nitrate as N	MG/L	0.05	U	0.05	UJ				R				R	0	U		R
Total	Nitrite as N	MG/L		R		R			834				1180		81.9		1840	J
Total	Sulfate	MG/L	1590		1410	J			104				95.3		165		73.3	
Total	Alkalinity, as CaCO3	MG/L	171		218				5	U			5	U	11.7		5	U
Total	Carbon	MG/L	6.41		21.3				49 3				435		276		1480	
Total	Chemical Oxygen Demand	MG/L	1080		1260										232	U		
Total	Aluminum	UG/L					92.7	U			96.4	U			5	U		
Total	Antimony	UG/L					1 6	U			1.6	U			3.4	U		
Total	Arsenic	UG/L					3.4	U			5 2	J			226			
Total	Barium	UG/L					32.9	J			0.78	X			0.88	X		
Total	Beryllium	UG/L					0.83	X			0.3	U			0.3	U		
Total	Cadmium	UG/L					0.3	U			41100				231000			
Total	Calcium	UG/L					207000				1	U			4	U		
Total	Chromium	UG/L					47.5				1.7	U			2.7	U		
Total	Cobalt	UG/L					1.1	U			2.3	X			2.2	X		
Total	Copper	UG/L					0 7	U			48.5	J			16200			
Total	Iron	UG/L					926				2 4	J			3.3			
Total	Lead	UG/L					2.9	J			123000				585000			
Total	Magnesium	UG/L					594000				223				2030			
Total	Manganese	UG/L					242				9.7	J			19 6	J		
Total	Nickel	UG/L					52.5				63400				274000			
Total	Potassium	UG/L					292000				4.1	X			5.9	X		
Total	Selenium	UG/L					3.3	U			0 8	U			0.8	U		
Total	Silver	UG/L					0 8	U			1130000				5200000			
Total	Sodium	UG/L					5440000				4	U			4	U		
Total	Thallium	UG/L					4	U			1	U			0.97	U		
Total	Vanadium	UG/L					0.93	U			2.4	U			2.4	U		
Total	Zinc	UG/L					2.4	U			0.1	U			0.1	U		
Total	Mercury	UG/L					0.1	U										
Total	Cyanide, Total	UG/L																
Total	Total Organic Carbon	mg/L																

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	ECD-4		HESE-01-07D		HESE-01-07I		HESE-01-12D		HESE-01-12D		HESE-01-12I		HESE-01-12I		HESE-01-14I		HESE-01-14I	
		SAMP_ID	ECD404XX		HESE0107D04X2		HESE-0107I04X2		HESE0112D04X2		HESE0112D04XX		HESE-0112I04X2		HESE-0112I04XX		HESE0114I04X2		HESE0114I04XX	
		SAMPLE DATE	5/19/04		6/7/04		6/7/04		6/7/04		5/18/04		6/7/04		5/18/04		6/7/04		5/20/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L									20.1	UJ			331	UJ			20.1	U
Dissolved	Antimony	UG/L									2.5	UJ			1.6	UJ			2.1	UJ
Dissolved	Arsenic	UG/L									47.7	J			6.9	X			3.4	UJ
Dissolved	Barium	UG/L									56.8	J			54.8	J			34.3	J
Dissolved	Beryllium	UG/L									0.2	U			0.29	X			0.2	UJ
Dissolved	Cadmium	UG/L									1.2	X			6.1				0.66	X
Dissolved	Calcium	UG/L									338000				130000				70400	
Dissolved	Chromium	UG/L									1	U			1.3	U			1	U
Dissolved	Cobalt	UG/L									7.1				44.5				14.7	J
Dissolved	Copper	UG/L									0.7	U			4	X			1.2	X
Dissolved	Iron	UG/L									20400				303				11.6	U
Dissolved	Lead	UG/L									1.7	X			2.7	X			1.7	U
Dissolved	Magnesium	UG/L									763000				133000				119000	
Dissolved	Manganese	UG/L									2840								7300	
Dissolved	Nickel	UG/L									1.5	U			70.1				6.3	J
Dissolved	Potassium	UG/L									287000	J			16200	J			21500	
Dissolved	Selenium	UG/L									3.3	U			10.4	X			3.3	U
Dissolved	Silver	UG/L									0.8	U			1	X			0.8	U
Dissolved	Sodium	UG/L									6220000				1270000				1440000	
Dissolved	Thallium	UG/L									6.8	X			4	UJ			4	U
Dissolved	Vanadium	UG/L									0.4	U			0.4	U			0.4	UJ
Dissolved	Zinc	UG/L									1670				37.3				2.4	U
Dissolved	Mercury	UG/L									0.1	U			0.1	U			0.1	U
Total	Chromium, Hexavalent	UG/L	199	J															7	J
Total	Total Suspended Solids	MG/L									61.6				5.2				6.6	
Total	Nitrate as N	MG/L									0.05	U			0.05	U			17.4	
Total	Nitrite as N	MG/L									5	U			5	U				R
Total	Sulfate	MG/L									1600	J			360	J			488	
Total	Alkalinity, as CaCO3	MG/L									262				68				88.6	
Total	Carbon	MG/L									16.97				50.17				5	U
Total	Chemical Oxygen Demand	MG/L									1012				365				24.8	
Total	Aluminum	UG/L									20.1	U			282	U			47.5	UJ
Total	Antimony	UG/L									1.6	U			1.6	U			2.3	UJ
Total	Arsenic	UG/L									43.2				3.4	U			3.4	U
Total	Barium	UG/L									60.1	J			59.6	J			34.3	J
Total	Beryllium	UG/L									0.2	U			0.2	U			0.26	X
Total	Cadmium	UG/L									1	X			4.9	J			0.39	X
Total	Calcium	UG/L									320000				123000				68500	
Total	Chromium	UG/L									1	U			1	U			1	U
Total	Cobalt	UG/L									6.2				42.2				14.1	
Total	Copper	UG/L									0.91	X			2.7	X			0.7	U
Total	Iron	UG/L									19700				319				11.6	UJ
Total	Lead	UG/L									1.7	UJ			2.1	J			1.7	U
Total	Magnesium	UG/L									779000				131000				116000	
Total	Manganese	UG/L									2780				56200				7230	J
Total	Nickel	UG/L									2.7	U			62.8				6.4	J
Total	Potassium	UG/L									258000				15700				18700	
Total	Selenium	UG/L									3.3	UJ			6	X			3.3	U
Total	Silver	UG/L									0.8	U			2.5	X			0.8	U
Total	Sodium	UG/L									5920000				3340000				1490000	
Total	Thallium	UG/L									4	UJ			4	UJ			4	UJ
Total	Vanadium	UG/L									0.4	U			0.4	U			0.4	UJ
Total	Zinc	UG/L									757				30.5				3.2	U
Total	Mercury	UG/L									0.1	U			0.1	U			0.1	U
Total	Cyanide, Total	UG/L	0.6	UJ															2.4	X
Total	Total Organic Carbon	mg/L			2.6	J	15		6.6				49				2.4	J		

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	HESE-01-15I		HESE-01-16I		HESE-01-17D		HESE-01-17I		HESE-01-18D		LNAP-04-14		MW-4		MWCD-99-01A		MWCD-99-01B	
		SAMP_ID	HESE0115I04XX		HESE0116I04XX		HESE0117D04XX		HESE0117I04XX		HESE0118D04XX		MW0304XX		MW404XX		MWCD9901A04XX		MWCD9901B04XX	
		SAMPLE DATE	5/24/04		5/19/04		5/18/04		5/18/04		5/18/04		5/26/04		5/20/04		5/19/04		5/19/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L	20.1	U	20.1	UJ	39.1	UJ	33 2	UJ	86.1	UJ	20.1	U	20.1	U	98.8	UJ		
Dissolved	Antimony	UG/L	1.6	U	1.6	UJ	1.6	UJ	1.6	UJ	1.6	UJ	1.6	U	1.6	UJ	1.6	UJ		
Dissolved	Arsenic	UG/L	3.4	UJ	3.6	X	20	J	6.7	X	88.2	J	4.5	X	3.4	UJ	3.6	X		
Dissolved	Barium	UG/L	48.7	J	52	J	36.9	J	137	J	75.2	J	275		88.9	J	87.2	J		
Dissolved	Beryllium	UG/L	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	UJ	0.2	U		
Dissolved	Cadmium	UG/L	1.5	X	0.3	U	1.2	X	0.3	U	0.62	X	0.45	X	0.3	U	0.3	U		
Dissolved	Calcium	UG/L	50800		18200		348000		317000		102000		63700		31100		172000			
Dissolved	Chromium	UG/L	1	U	1	U	1	U	1.3	U	1	U	1	U	1	U	1	U		
Dissolved	Cobalt	UG/L	8.7		3 4	U	4.3	J	0.7	U	5.5		0.6	U	0.6	UJ	0 6	U		
Dissolved	Copper	UG/L	4.5	X	1.6	X	0.7	U	0 96	X	1.1	X	4.4	X	0.7	UJ	0.7	U		
Dissolved	Iron	UG/L	11.6	U	341		16200		11.6	U	9830		15400		448		987			
Dissolved	Lead	UG/L	1.7	U	1.7	UJ	2.7	X	2	X	2.8	X	1.7	U	1.7	U	1.7	UJ		
Dissolved	Magnesium	UG/L	58800		18800		775000		368000		216000		19800		13800		319000			
Dissolved	Manganese	UG/L	5140		5870		5000		4440		8110		1160		900		302		12700	
Dissolved	Nickel	UG/L	6	J	3.3	U	7.7	J	0.7	U	6.6	J	0.76	U	0.8	U	0.7	U		
Dissolved	Potassium	UG/L	7860		20700	J	261000	J	132000	J	114000	J	15900	J	16500		153000	J		
Dissolved	Selenium	UG/L	5.5	X	6.1	X	5	X	24.7	X	8.1	X	2.4	U	3.3	U	3.3	U		
Dissolved	Silver	UG/L	1.6	X	0.8	U	0 8	U	0.8	U	0.8	U	1.4	X	0.8	U	0 8	U		
Dissolved	Sodium	UG/L	748000		330000		6080000		2940000		1840000		131000		151000		2790000			
Dissolved	Thallium	UG/L	4	UJ	4	UJ	4	UJ	4.8	X	5 2	X	4	U	4	U	5.3	X		
Dissolved	Vanadium	UG/L	0 4	U	0.4	U	0.4	U	2.7	U	0.4	U	0.4	U	0 47	UJ	40 8			
Dissolved	Zinc	UG/L	2.4	UJ	112		2.4	U	2.4	U	135		2.4	U	2.4	U	2.4	U		
Dissolved	Mercury	UG/L	0 1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0 1	U	0.1	U		
Total	Chromium, Hexavalent	UG/L	8 08	J	3.01	J														
Total	Total Suspended Solids	MG/L	14		2.73		58 4		17.6		13.8		28.4		1	U	8.2			
Total	Nitrate as N	MG/L	21 6		0.05	U	0.05	U	0.05	U	0.05	U	0 05	UJ	0.05	U			0 05	U
Total	Nitrite as N	MG/L	0.05	U	0 08	J	5	U	5	U	5	U	0.05	U	0 055				0 1	U
Total	Sulfate	MG/L	205		93 4	J	1460	J	18 3	J	597	J	5	UJ	26.3				492	
Total	Alkalinity, as CaCO3	MG/L	99.8		193		321		397		151		289		196				170	
Total	Carbon	MG/L	7.65		11.4		6.95		12.06		5.94		17.33		10.69					
Total	Chemical Oxygen Demand	MG/L	39.1		18.6		933		449		41.4		36.2		10	U			53.1	
Total	Aluminum	UG/L	20.1	UJ	20.1	U	20.1	U	20 1	U	20.1	U	27.7	U	52.3	UJ	126	UJ		
Total	Antimony	UG/L	1.6	UJ	1 6	U	1.6	U	1.6	U	1.6	U	4	U	1.6	UJ	1.6	UJ		
Total	Arsenic	UG/L	3.4	U	3 4	U	14.3	X	3.4	U	74		2.8	X	3.4	U	3.4	U		
Total	Barium	UG/L	48.9	J	59 8	J	40.3	J	144	J	80.7	J	278		97.1	J	88.1	J		
Total	Beryllium	UG/L	0.2	UJ	0.2	U	0.2	U	0.2	U	0.2	U	0.3	U	0.2	UJ	0.36	X		
Total	Cadmium	UG/L	1	X	0.3	U	0.43	X	0.3	U	0.3	U	0 4	U	0 3	U	0.3	U		
Total	Calcium	UG/L	48700	J	17200		329000		294000		90900		55300		32300		163000			
Total	Chromium	UG/L	1	U	1	U	1	U	1	U	1	U	1.6	U	1	U	1	U		
Total	Cobalt	UG/L	8.1		2 6	J	3.3	U	0.6	U	4.3	J	0.7	U	0 6	U	0.6	U		
Total	Copper	UG/L	4.5	X	0.75	X	0.7	U	1.6	X	0.8	X	1.3	U	0.92	X	0.7	U		
Total	Iron	UG/L	26.1	U	331		15400		393		9080		13600		498	J	1100	J		
Total	Lead	UG/L	1.7	UJ	1 7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.3	U	1.7	U	1.7	U		
Total	Magnesium	UG/L	56700	J	18600		815000		352000		203000		17500		14400		302000			
Total	Manganese	UG/L	4990		5860		4800		4260		7680		1030		948	J	294	J		
Total	Nickel	UG/L	5.1	J	3.3	U	7	J	0.7	U	5 5	J	0 7	U	1.2	U	0.86	U		
Total	Potassium	UG/L	6330	J	17200		234000		119000		101000		12000		14500		136000			
Total	Selenium	UG/L	6.7	X	3.3	UJ	3 3	UJ	3.3	UJ	4.7	X	2.4	U	3.3	U	3.3	U		
Total	Silver	UG/L	0.8	U	1.9	X	0.8	U	2.2	X	1.7	X	0.56	X	0.8	U	0.8	U		
Total	Sodium	UG/L	710000		375000		6420000		3210000		2040000		119000		158000		2330000			
Total	Thallium	UG/L	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	3.2	U	4	UJ	4	UJ		
Total	Vanadium	UG/L	0.4	UJ	0.4	U	0 4	U	2.2	U	0.4	U	0.61	U	0.4	UJ	44.9	J		
Total	Zinc	UG/L	2.4	U	93		2.4	U	154		96.1		3.7	U	2.5	U	2 4	UJ		
Total	Mercury	UG/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Total	Cyanide, Total	UG/L	12.5	X	0.6	UJ														
Total	Total Organic Carbon	mg/L																		

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	MWCD-99-02A		MWCD-99-02B		MWCR-99-01		MWCR-99-02		PZ-11D		PZ-11D		PZ-13D		PZ-13D		PZ-17D	
		SAMP_ID	MWCD9902A04XX		MWCD9902B04XX		MWCR990104XX		MWCR990204XX		PZ11D04X2		PZ11D04XX		PZ13D04X2		PZ13D04XX		PZ17D04XX	
		SAMPLE DATE	5/19/04		5/19/04		5/25/04		5/25/04		6/8/04		5/20/04		6/7/04		5/18/04		5/21/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L	20.1	UJ	76.1	UJ							20.1	U			70.5	UJ	20.1	U
Dissolved	Antimony	UG/L	1.6	UJ	1.6	UJ							3	UJ			1.6	UJ	1.6	UJ
Dissolved	Arsenic	UG/L	3.4	UJ	5.1	X							3.4	X			3.4	UJ	5.7	X
Dissolved	Barium	UG/L	33.4	J	146	J							20.6	J			16.7	J	42.1	J
Dissolved	Beryllium	UG/L	0.2	U	2.1	X							0.2	UJ			0.2	U	0.3	X
Dissolved	Cadmium	UG/L	0.36	X	0.3	U							0.3	U			0.3	U	2.9	J
Dissolved	Calcium	UG/L	225000		341000								5250				9050		245000	
Dissolved	Chromium	UG/L	3.8	U	1	U							1	U			1	U	1	U
Dissolved	Cobalt	UG/L	0.61	U	1.2	U							0.99	U			0.92	U	8.1	J
Dissolved	Copper	UG/L	2.6	X	0.7	U							2.1	X			1	X	0.7	UJ
Dissolved	Iron	UG/L	11.6	U	3590								11.6	U			11.6	U	11.6	U
Dissolved	Lead	UG/L	1.7	UJ	1.7	UJ							1.7	U			1.7	UJ	1.7	U
Dissolved	Magnesium	UG/L	607000		270000								5060				8520		401000	
Dissolved	Manganese	UG/L	1	U	12800								5.1	J			160		16800	
Dissolved	Nickel	UG/L	1.7	U	0.76	U							0.7	U			1	U	4.7	J
Dissolved	Potassium	UG/L	250000	J	30500	J							3530	J			8440	J	31800	
Dissolved	Selenium	UG/L	3.3	U	9.7	X							3.3	U			3.3	U	4.5	X
Dissolved	Silver	UG/L	0.8	U	0.8	U							0.8	U			0.8	U	0.8	U
Dissolved	Sodium	UG/L	4680000		1380000								277000				113000		2680000	
Dissolved	Thallium	UG/L	5.1	X	4	UJ							4	U			5.9	X	4	U
Dissolved	Vanadium	UG/L	12	U	0.4	U							1.5	UJ			0.89	U	0.4	UJ
Dissolved	Zinc	UG/L	2.4	U	19	J							2.9	U			2.9	U	2.4	U
Dissolved	Mercury	UG/L	0.1	U	0.1	U							0.1	U			0.1	U	0.1	U
Total	Chromium, Hexavalent	UG/L					10	U	41.9											
Total	Total Suspended Solids	MG/L	13.4		21.2								1				39.6		4.4	
Total	Nitrate as N	MG/L									0	U								
Total	Nitrite as N	MG/L									0	U								
Total	Sulfate	MG/L									16									
Total	Alkalinity, as CaCO3	MG/L											137							
Total	Carbon	MG/L											6.47							
Total	Chemical Oxygen Demand	MG/L											10	U						
Total	Aluminum	UG/L	55.3	UJ	292	UJ							43.9	UJ			1690		20.1	UJ
Total	Antimony	UG/L	1.6	UJ	2.4	UJ							2.1	UJ			1.6	U	1.6	UJ
Total	Arsenic	UG/L	3.4	U	3.8	X							3.4	U			3.4	U	3.4	UJ
Total	Barium	UG/L	34.5	J	153	J							17.9	J			27.9	J	45.7	J
Total	Beryllium	UG/L	0.2	UJ	0.3	X							0.2	UJ			0.2	U	0.2	UJ
Total	Cadmium	UG/L	0.3	U	0.3	U							0.3	U			0.3	U	2.6	J
Total	Calcium	UG/L	217000		334000								4390	J			8830		256000	
Total	Chromium	UG/L	5.2	U	1	U							1	U			1	U	1	U
Total	Cobalt	UG/L	0.6	U	1.3	U							0.6	U			0.89	U	8.2	J
Total	Copper	UG/L	4	X	0.7	U							1.5	X			5.5	X	1.8	X
Total	Iron	UG/L	16.8	UJ	4430	J							34.7	UJ			2240		11.6	U
Total	Lead	UG/L	1.7	U	1.7	U							1.7	U			5.2	J	1.7	UJ
Total	Magnesium	UG/L	591000		257000								4620	J			9040		417000	
Total	Manganese	UG/L	1.2	UJ	12800	J							28.7	J			447		17700	
Total	Nickel	UG/L	2.8	U	1.2	U							0.7	U			3.6	U	4.3	J
Total	Potassium	UG/L	232000		25900								2770	J			7210		32500	
Total	Selenium	UG/L	3.3	U	6	X							3.3	U			3.3	UJ	3.3	U
Total	Silver	UG/L	0.8	U	0.8	U							0.8	U			2.3	X	0.8	U
Total	Sodium	UG/L	4520000		1420000								256000				115000		3200000	
Total	Thallium	UG/L	4	UJ	4	UJ							4	UJ			4	UJ	4	UJ
Total	Vanadium	UG/L	11.3	J	0.4	UJ							0.96	UJ			3.4	J	0.4	UJ
Total	Zinc	UG/L	2.4	UJ	25.3	J							5.4	U			31.1		2.4	UJ
Total	Mercury	UG/L	0.1	U	0.1	U							0.1	U			0.1	U	0.1	U
Total	Cyanide, Total	UG/L					0.96	X	0.6	U										
Total	Total Organic Carbon	mg/L													1.4	J				

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	PZ-1D		PZ-4D		PZ-5D		PZ-7D		PZ-8D		PZ-99-01A		PZ-99-01B		PZ-99-01C		PZ-99-01I	
		SAMP_ID	PZ1D04XX		PZ4D04XX		PZ5D04XX		PZ7D04XX		PZ8D04XX		PZ9901A04XX		PZ9901B04XX		PZ9901C04XX		PZ9901I04XX	
		SAMPLE DATE	5/20/04		5/19/04		5/18/04		5/21/04		5/20/04		5/19/04		5/19/04		5/19/04		5/25/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L	20.1	U	134	UJ	20 1	UJ	20.1	U	20.1	U								
Dissolved	Antimony	UG/L	1.6	UJ	1 6	UJ	1.6	UJ	1.6	U	1 6	UJ								
Dissolved	Arsenic	UG/L	6 6	X	8.2	X	48.5	J	3.7	X	3.4	UJ								
Dissolved	Barium	UG/L	56.8	J	62 6	J	689	J	29.8	J	5.1	J								
Dissolved	Beryllium	UG/L	0.2	UJ	2.2	X	0.2	U	0.2	U	0.2	UJ								
Dissolved	Cadmium	UG/L	0.3	U	0.3	U	2	X	0.3	UJ	0.3	U								
Dissolved	Calcium	UG/L	62900		69700		185000		42500		26300									
Dissolved	Chromium	UG/L	1	U	1	U	1	U	1	U	1	U								
Dissolved	Cobalt	UG/L	2.4	U	0.6	U	1.3	U	0.6	U	0 6	UJ								
Dissolved	Copper	UG/L	0.7	UJ	0.7	U	0.7	U	2.5	X	5.7	X								
Dissolved	Iron	UG/L	4690		97.5	U	67000		1190		11.6	U								
Dissolved	Lead	UG/L	1.7	U	1.7	UJ	3.5	X	1.7	U	1.7	U								
Dissolved	Magnesium	UG/L	141000		99800		149000		106000		1090	J								
Dissolved	Manganese	UG/L	3280		2910		16300		794		4.6	J								
Dissolved	Nickel	UG/L	4.5	J	0.7	U	0.7	U	0 7	U	0.7	U								
Dissolved	Potassium	UG/L	67000		46800	J	64300	J	67300		3350	J								
Dissolved	Selenium	UG/L	3.3	U	15.4	X	7.6	X	3.3	UJ	3.3	U								
Dissolved	Silver	UG/L	0.8	U	0 8	U	0.8	U	0.8	U	0.8	U								
Dissolved	Sodium	UG/L	864000		1070000		1300000		1240000		7650									
Dissolved	Thallium	UG/L	4	U	4	UJ	4	UJ	4	UJ	4	U								
Dissolved	Vanadium	UG/L	0 4	UJ	0 4	U	0.4	U	0.4	U	1.9	UJ								
Dissolved	Zinc	UG/L	36.7		2.4	U	2.4	U	2.4	UJ	4.1	U								
Dissolved	Mercury	UG/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U								
Total	Chromium, Hexavalent	UG/L									5 35	J	99.7	J	248	J	9.01	J	10	U
Total	Total Suspended Solids	MG/L	13.6		5.2		65 2		9.8		3.6				1	U				
Total	Nitrate as N	MG/L	0.05	U					0.05	UJ	0.935									
Total	Nitrite as N	MG/L	0.05	U					0 05	U	0.115									
Total	Sulfate	MG/L	271						279	J	39.2									
Total	Alkalinity, as CaCO3	MG/L	153						198		47.6									
Total	Carbon	MG/L	32.44	J					14.54	J	5	U			7.12					
Total	Chemical Oxygen Demand	MG/L	27.4						24.6		10	U								
Total	Aluminum	UG/L	125	UJ	191	UJ	20.1	U	337	U	320	UJ								
Total	Antimony	UG/L	1.9	UJ	1.6	UJ	1.6	U	2.1	UJ	4	UJ								
Total	Arsenic	UG/L	4.9	X	3.4	U	35		4.1	X	3.4	U								
Total	Barium	UG/L	58 9	J	69.5	J	748		31.2	J	5.3	J								
Total	Beryllium	UG/L	0.33	X	0.2	UJ	0 2	U	0.29	X	0.2	UJ								
Total	Cadmium	UG/L	0.3	U	0.3	U	3.2	J	0.3	U	0.3	U								
Total	Calcium	UG/L	63100		71900		174000		40100		22500									
Total	Chromium	UG/L	1	U	1	U	1	U	1	U	1	U								
Total	Cobalt	UG/L	2 3	U	0.6	U	0.61	U	0 6	UJ	0.6	U								
Total	Copper	UG/L	1.4	X	1	X	2.4	X	0 7	UJ	11.9	X								
Total	Iron	UG/L	5000	J	252	J	61700		1260		306	J								
Total	Lead	UG/L	1.7	U	1.7	U	1.9	J	1.7	UJ	5.4									
Total	Magnesium	UG/L	141000		101000		145000		100000		991	J								
Total	Manganese	UG/L	3360	J	3150	J	16400		847		9.9	J								
Total	Nickel	UG/L	5.2	J	0.7	U	0.7	U	0.7	UJ	0 85	U								
Total	Potassium	UG/L	59800		41700		58600		58500		2580	J								
Total	Selenium	UG/L	3 3	U	3.3	U	6.2	X	3 3	U	3.3	U								
Total	Silver	UG/L	0.8	U	0.8	U	2 9	X	0 8	U	0 8	U								
Total	Sodium	UG/L	875000		1100000		1470000		1150000		6550									
Total	Thallium	UG/L	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ								
Total	Vanadium	UG/L	0.4	UJ	0.4	UJ	0.4	U	0.57	UJ	2.3	UJ								
Total	Zinc	UG/L	45.4	J	223	J	15.9	U	2.4	UJ	10.3	U								
Total	Mercury	UG/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U								
Total	Cyanide, Total	UG/L									0.6	UJ	58.5	J			3.9	X	0.6	U
Total	Total Organic Carbon	mg/L																		

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	PZ-99-02A		PZ-99-02B		PZ-99-02C		PZ-99-03		PZ-99-03		PZ-99-04I		PZ-99-08I		PZ-99-12I		PZ-9D	
		SAMP_ID	PZ9902A04XX		PZ9902B04XX		PZ9902C04XX		PZ990304X2		PZ990304XX		PZ9904I04XX		PZ9908I04XX		PZ9912I04XX		PZ9D04XX	
		SAMPLE DATE	5/20/04		5/24/04		5/24/04		6/7/04		5/24/04		5/19/04		5/24/04		5/25/04		5/21/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L																	20.1	U
Dissolved	Antimony	UG/L																	1.6	UJ
Dissolved	Arsenic	UG/L																	3.4	UJ
Dissolved	Barium	UG/L																	68 3	J
Dissolved	Beryllium	UG/L																	0.2	UJ
Dissolved	Cadmium	UG/L																	0.3	U
Dissolved	Calcium	UG/L																	28900	
Dissolved	Chromium	UG/L																	1	U
Dissolved	Cobalt	UG/L																	0.6	UJ
Dissolved	Copper	UG/L																	4.7	X
Dissolved	Iron	UG/L																	11.6	U
Dissolved	Lead	UG/L																	1.7	U
Dissolved	Magnesium	UG/L																	53200	
Dissolved	Manganese	UG/L			54200						301		2550						746	
Dissolved	Nickel	UG/L																	0.7	U
Dissolved	Potassium	UG/L																	21900	
Dissolved	Selenium	UG/L																	3 3	U
Dissolved	Silver	UG/L																	0.8	U
Dissolved	Sodium	UG/L																	698000	
Dissolved	Thallium	UG/L																	4	U
Dissolved	Vanadium	UG/L																	1.1	UJ
Dissolved	Zinc	UG/L																	4 1	U
Dissolved	Mercury	UG/L																	0.1	U
Total	Chromium, Hexavalent	UG/L	129	J	3.66	J	5300	J			79 3	J	6 43	J	6480	J	45.6			
Total	Total Suspended Solids	MG/L																	11	
Total	Nitrate as N	MG/L			3 82						0 55		21.3						0.05	UJ
Total	Nitrite as N	MG/L			0.05	U					0 05	U	8 73						0 05	U
Total	Sulfate	MG/L			1010						16 4		254						269	J
Total	Alkalinity, as CaCO3	MG/L			10	U					65 1		215						102	
Total	Carbon	MG/L			5.2						7 49		21 59						8 94	
Total	Chemical Oxygen Demand	MG/L			14 8						10	U							10.6	
Total	Aluminum	UG/L																	33 3	UJ
Total	Antimony	UG/L																	2	UJ
Total	Arsenic	UG/L																	3.4	UJ
Total	Barium	UG/L																	68	J
Total	Beryllium	UG/L																	0.2	UJ
Total	Cadmium	UG/L																	0.3	U
Total	Calcium	UG/L																	26900	
Total	Chromium	UG/L																	1	U
Total	Cobalt	UG/L																	0 6	UJ
Total	Copper	UG/L																	1.8	X
Total	Iron	UG/L																	64.6	U
Total	Lead	UG/L																	1.7	UJ
Total	Magnesium	UG/L																	50000	
Total	Manganese	UG/L																	746	
Total	Nickel	UG/L																	0.7	UJ
Total	Potassium	UG/L																	18400	
Total	Selenium	UG/L																	3.3	U
Total	Silver	UG/L																	0.8	U
Total	Sodium	UG/L																	786000	
Total	Thallium	UG/L																	4	UJ
Total	Vanadium	UG/L																	1 3	UJ
Total	Zinc	UG/L																	3 3	UJ
Total	Mercury	UG/L																	0 1	U
Total	Cyanide, Total	UG/L	0.6	U	0 6	U	3.1	X			0.6	U	873	J	3.1	X	8 1	X		
Total	Total Organic Carbon	mg/L							1.2	J										

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	PZTF-04-02A		PZTF-04-02B		PZTF-04-03A		PZTF-04-03B		PZTF-04-07A		PZTF-04-07B		PZTF-04-09A		PZTF-04-09B		WC-10S	
		SAMP_ID	PZTF0402A04XX		PZTF0402B04XX		PZTF0403A04XX		PZTF0403B04XX		PZTF0407A04XX		PZTF0407B04XX		PZTF0409A04XX		PZTF0409B04XX		WC10S04X2	
		SAMPLE DATE	5/25/04		5/25/04		5/25/04		5/25/04		5/25/04		5/25/04		5/26/04		5/26/04		6/7/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L	20.1	U	20.1	U	20.1	U	65.9	U	25 8	U	76 2	U	46.1	U	145	U		
Dissolved	Antimony	UG/L	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1 6	U	1.6	U		
Dissolved	Arsenic	UG/L	3.4	UJ	3.4	UJ	6	X	3.4	UJ	3.4	UJ	3.4	UJ	4.5	X	3 6	X		
Dissolved	Barium	UG/L	123	J	70	J	60.4	J	59.9	J	34.5	J	11 3	J	27.2	J	12 1	J		
Dissolved	Beryllium	UG/L	0 2	U	0 2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U		
Dissolved	Cadmium	UG/L	0.3	UJ	0.3	UJ	0.3	UJ	2 5	X	2.7	J	0.3	UJ	0.3	UJ	0 3	UJ		
Dissolved	Calcium	UG/L	277000		298000		266000		243000		309000		250000		262000		261000			
Dissolved	Chromium	UG/L	1	U	1	U	1	U	1	U	6.7	U	1	U	1	U	1	U		
Dissolved	Cobalt	UG/L	0.6	U	3.4	U	0.6	U	0.6	U	2.3	U	0.6	U	0.6	U	0.6	U		
Dissolved	Copper	UG/L	2	X	3.1	X	0.85	X	3 7	X	3.9	X	4.6	X	0.7	U	2.8	X		
Dissolved	Iron	UG/L	3360		736		765		119	U	66200		63.5	J	1140		351			
Dissolved	Lead	UG/L	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U		
Dissolved	Magnesium	UG/L	569000		849000		740000		657000		942000		739000		821000		851000			
Dissolved	Manganese	UG/L	1210		1110		2880		1940		2830		39.3		330		28.3			
Dissolved	Nickel	UG/L	0.7	U	3 8	U	1.6	U	0.7	U	10.9	J	0.94	U	1 4	U	3 5	U		
Dissolved	Potassium	UG/L	257000		350000		297000	J	247000		399000		303000		335000	J	354000	J		
Dissolved	Selenium	UG/L	4.8	X	3.9	X	3.8	X	3.3	UJ	3.3	UJ	3.3	UJ	3.3	U	3.3	U		
Dissolved	Silver	UG/L	0.8	U	0.8	U	0.8	U	0 8	U	0.8	U	0.8	U	0.8	U	0.8	U		
Dissolved	Sodium	UG/L	4730000		6750000		8640000		5180000		7770000		6090000		7000000		6830000			
Dissolved	Thallium	UG/L	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	5.4	X	6 7	X		
Dissolved	Vanadium	UG/L	0.4	U	0.4	U	0 4	U	0.4	U	0 4	U	0.4	U	0.4	U	0.48	U		
Dissolved	Zinc	UG/L	2.4	UJ	2.4	UJ	2 4	UJ	2.4	UJ	2 4	UJ	2.4	UJ	2.4	UJ	2 4	UJ		
Dissolved	Mercury	UG/L	0.1	U	0 1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Total	Chromium, Hexavalent	UG/L																		
Total	Total Suspended Solids	MG/L	172		94		30		98		93		53		50.4		36			
Total	Nitrate as N	MG/L	0.05	U	0 05	U	0.05	UJ	0.05	U	0.05	U	0.05	U	0.05	UJ	0.05	UJ		
Total	Nitrite as N	MG/L		R		R		R		R		R		R		R		R		
Total	Sulfate	MG/L	749		1540		1580	J	1080		1780		1680		1710	J	1940	J		
Total	Alkalinity, as CaCO3	MG/L	464		90.5		181		84.7		10	U	85		80.7		79.9			
Total	Carbon	MG/L	24.5		5	U	22 55		5	U	5	U	5.01		10.65		7.07			
Total	Chemical Oxygen Demand	MG/L	889		1350		774		390		636		1320		1200		1280			
Total	Aluminum	UG/L	4420	J	1600	J	343	U	95.2	UJ	20.1	UJ	139	UJ	231	U	27.7	U		
Total	Antimony	UG/L	1.6	UJ	1.6	UJ	3.1	U	1.6	UJ	1 6	UJ	1.6	UJ	2.9	U	2 2	U		
Total	Arsenic	UG/L	4.5	X	3 4	U	2.5	UJ	3.4	U	3.4	U	3 4	U	2.5	UJ	2.5	UJ		
Total	Barium	UG/L	126	J	63.5	J	53.9	J	29.5	J	13.8	J	10.9	J	41.4	J	10.6	J		
Total	Beryllium	UG/L	0.2	UJ	0 2	UJ	0 3	U	0 2	UJ	0 2	UJ	0.2	UJ	0.3	U	0.3	U		
Total	Cadmium	UG/L	0.48	X	0.3	UJ	0.4	U	0.3	UJ	0 53	X	0.3	UJ	0.4	U	0.4	U		
Total	Calcium	UG/L	275000	J	266000	J	252000		196000	J	308000	J	250000	J	275000		243000			
Total	Chromium	UG/L	10	U	13.8		1.2	U	1	U	1	U	1	U	0.83	U	0.8	U		
Total	Cobalt	UG/L	3 4	U	1.1	U	0 7	U	0.6	U	0.78	U	0.6	U	0.7	U	0.7	U		
Total	Copper	UG/L	15.6	X	32.1	J	3.2	X	6.1	X	2 1	X	3.7	X	1.3	U	1.3	U		
Total	Iron	UG/L	11400		3650		2240		1260		14000		48	U	3450		194			
Total	Lead	UG/L	2 5	J	5	J	1.3	U	1.7	UJ	1 7	UJ	1.7	UJ	1 3	U	1 3	U		
Total	Magnesium	UG/L	613000	J	773000	J	601000		560000	J	942000	J	748000	J	792000		791000			
Total	Manganese	UG/L	1220		765		2470		586		1010		33.8		533		0.1	U		
Total	Nickel	UG/L	10 7	J	4.7	J	2.4	U	0 8	U	3.6	U	0.7	U	1.7	U	0.7	U		
Total	Potassium	UG/L	242000	J	310000	J	270000		202000	J	400000	J	306000	J	321000		339000			
Total	Selenium	UG/L	3.6	X	3 8	X	2.5	X	3.9	X	3.3	UJ	3.3	UJ	2 4	U	2.8	X		
Total	Silver	UG/L	0.8	U	0.8	U	0.41	X	0.8	U	0.8	U	0.8	U	0.53	X	0.73	X		
Total	Sodium	UG/L	4710000		5300000		5750000		4000000		6850000		6060000		6620000		6510000			
Total	Thallium	UG/L	4	UJ	4	UJ	3.2	U	4	UJ	4	UJ	4	UJ	3.2	U	3 2	U		
Total	Vanadium	UG/L	9 1	J	3.8	J	0.68	U	0.4	UJ	0.4	UJ	0.4	UJ	0.64	U	0.58	U		
Total	Zinc	UG/L	5 4	U	2.4	U	11.1	U	2.4	U	2.4	U	2.4	U	11.6	U	4.8	U		
Total	Mercury	UG/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Total	Cyanide, Total	UG/L																	1.7	J
Total	Total Organic Carbon	mg/L																		

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	WC-10S		WC-12S		WC-14S		WC-1S		WC-2D		WC-2D		WC-3S		WC-4S		WC-5S	
		SAMP_ID	WC10S04XX		WC12S04XX		WC14S04XX		WC1S04XX		WC2D04XD		WC2D04XX		WC3S04XX		WC4S04XX		WC5S04XX	
		SAMPLE DATE	5/18/04		5/24/04		5/19/04		5/20/04		5/26/04		5/26/04		5/18/04		5/19/04		5/20/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L	22 8	UJ	20 1	U	20.1	U	20.1	U					82.7	UJ	20.1	U	20.1	U
Dissolved	Antimony	UG/L	1.6	UJ	1.6	U	1.6	UJ	1 6	U					1.6	UJ	1.6	UJ	1.6	UJ
Dissolved	Arsenic	UG/L	3.4	UJ	3.4	UJ	3.4	UJ	3.4	UJ					6.2	X	6.1	X	7.6	X
Dissolved	Barium	UG/L	6.3	J	19.5	J	1.6	U	4.1	J					71	J	63.7	J	148	J
Dissolved	Beryllium	UG/L	0 2	U	0.2	U	0.2	UJ	0.2	U					0.2	U	0.2	UJ	0.2	UJ
Dissolved	Cadmium	UG/L	0.81	X	0.3	UJ	0.3	U	0.3	UJ					0.3	U	0.3	U	0.35	X
Dissolved	Calcium	UG/L	55300		41700		10200		17900						152000		26900		56600	
Dissolved	Chromium	UG/L	14.4		667		1	U	1	U					1.2	U	1	U	1.6	U
Dissolved	Cobalt	UG/L	0.6	U	0.6	U	0.6	UJ	1 5	U					0.6	U	0.6	UJ	0.6	UJ
Dissolved	Copper	UG/L	2.4	X	4.9	X	0 7	UJ	3.2	X					0.81	X	0.7	UJ	0.7	UJ
Dissolved	Iron	UG/L	11.6	U	79.4	J	51.9	U	1270						41.1	U	1130		21000	
Dissolved	Lead	UG/L	1.7	UJ	1.7	U	1.7	U	1.7	U					1.7	UJ	1.7	U	1.7	U
Dissolved	Magnesium	UG/L	7940		4520	J	2940	J	4330	J					336000		4700	J	5990	
Dissolved	Manganese	UG/L	0.2	U	2.4	U	31.4		460						194		280		770	
Dissolved	Nickel	UG/L	0.7	U	2.5	U	0.7	U	0.98	U					0.7	U	1.6	U	0.88	U
Dissolved	Potassium	UG/L	9160	J	12900		3360	J	7100						182000	J	7450		11100	
Dissolved	Selenium	UG/L	3.3	U	5.1	X	3.3	UJ	3 3	UJ					9.3	X	3.3	U	3 3	U
Dissolved	Silver	UG/L	0.8	U	1.3	X	0.8	U	1.1	X					0.8	U	0.8	U	0.8	U
Dissolved	Sodium	UG/L	33300		61900		18600		58700						2710000		32800		33400	
Dissolved	Thallium	UG/L	4 4	X	4	UJ	4	U	5.3	X					5.6	X	4	U	4	U
Dissolved	Vanadium	UG/L	1.3	U	8.2	J	1.2	UJ	0.4	U					3.3	U	0 43	UJ	1 2	UJ
Dissolved	Zinc	UG/L	5.7	U	3.4	U	2.4	U	2.5	U					2 4	U	198		2 4	U
Dissolved	Mercury	UG/L	0.1	U	0.1	U	0.1	U	0.1	U					0.1	U	0.1	U	0.1	U
Total	Chromium, Hexavalent	UG/L			695	J													62.5	J
Total	Total Suspended Solids	MG/L	1	U	3		1	U	21.2		2.83		1.8		6 2		2.8		23	
Total	Nitrate as N	MG/L							0.1	J	0.05	UJ	0.05	UJ			0.05	U		
Total	Nitrite as N	MG/L							0.05	J	0 05	U	0.05	U			0.05	U		
Total	Sulfate	MG/L							16.2	J	155	J	153	J			25.3	J		
Total	Alkalinity, as CaCO3	MG/L							78.7		190		191				86.1			
Total	Carbon	MG/L							17.09		5	U	5	U			6.46			
Total	Chemical Oxygen Demand	MG/L							10	U	16.4		13 5				10	U		
Total	Aluminum	UG/L	20.1	U	20.1	UJ	119	UJ	20.1	UJ					20.1	U	20.1	U	154	UJ
Total	Antimony	UG/L	1.6	U	1.6	UJ	2.5	UJ	2.6	UJ					1 6	U	1 6	U	1.6	UJ
Total	Arsenic	UG/L	3.4	U	3.4	U	3.7	X	4.1	X					3.4	U	4	X	3.4	UJ
Total	Barium	UG/L	7.5	J	18.9	J	1.7	U	4.4	J					72.6	J	69.8	J	150	J
Total	Beryllium	UG/L	0.2	U	0 2	UJ	0.2	UJ	0.2	UJ					0.2	U	0.2	U	0.2	UJ
Total	Cadmium	UG/L	0.37	X	0.3	UJ	0.3	U	0.3	U					0.3	U	0.3	U	0.3	U
Total	Calcium	UG/L	53600		39200	J	9950		17300						134000		25000		55800	
Total	Chromium	UG/L	12.6	U	638		1	U	1	U					1	U	1	U	2.2	U
Total	Cobalt	UG/L	0.6	U	0.6	U	0 6	U	1.1	U					0.6	U	0.6	U	0.6	UJ
Total	Copper	UG/L	4.2	X	5.4	X	2.5	X	1 8	X					2.4	X	3.3	X	1.7	X
Total	Iron	UG/L	26.1	U	133	U	320	J	1530						408		1550		20800	
Total	Lead	UG/L	1.7	UJ	1.7	UJ	1.7	U	1.7	UJ					1.7	UJ	1.7	UJ	1.7	UJ
Total	Magnesium	UG/L	8110		4280	J	2790	J	4280	J					310000		4590	J	5800	
Total	Manganese	UG/L	8.2	J	31 4		31.9	J	494						165		296		773	
Total	Nickel	UG/L	0.7	U	1.9	U	0.7	U	0 7	UJ					0 7	U	1.2	U	0.7	UJ
Total	Potassium	UG/L	7590		10000	J	2660	J	5810						162000		5880		9060	
Total	Selenium	UG/L	3 3	UJ	3.3	UJ	3.3	U	3.3	U					3.3	UJ	3 3	UJ	3.3	U
Total	Silver	UG/L	2.4	X	0.8	U	0.8	U	0.8	U					0.95	X	2.3	X	0.8	U
Total	Sodium	UG/L	34700		56700		17200		58900						3110000		32600		33400	
Total	Thallium	UG/L	4	UJ	4	UJ	4	UJ	4	UJ					4	UJ	4	UJ	4	UJ
Total	Vanadium	UG/L	1.2	U	8.4	J	1.9	UJ	0.4	UJ					2.8	J	0.4	U	1	UJ
Total	Zinc	UG/L	5.7	U	2.4	U	2.7	U	2 9	UJ					2.4	U	193		3.4	UJ
Total	Mercury	UG/L	0 1	U	0.1	U	0.1	U	0.1	U					0.1	U	0.1	U	0.1	U
Total	Cyanide, Total	UG/L			253														8.6	X
Total	Total Organic Carbon	mg/L																		

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	WC-8S		WC-9D2		WC-9S		WC2-1S		WC2-2D		WC2-3D		WC2-3I		WC2-3S		WC2-4S	
		SAMP_ID	WC8S04XX		WC9D204XX		WC9S04XX		WC21S04XX		WC22D04XX		WC23D04XX		WC23I04XX		WC23S04XX		WC24S04XX	
		SAMPLE DATE	5/20/04		5/21/04		5/21/04		5/18/04		5/20/04		5/19/04		5/18/04		5/18/04		5/19/04	
FRACTION	PARAMETER	UNITS																		
Dissolved	Aluminum	UG/L			20.1	U	20.1	U	23.6	UJ	30.5	U	20.1	U	133	UJ	54.1	UJ	20 1	U
Dissolved	Antimony	UG/L			1.6	U	1.6	U	1.6	UJ	2.8	UJ	1.6	UJ	4.5	UJ	2.9	UJ	2 4	UJ
Dissolved	Arsenic	UG/L			84 1	J	3.4	UJ	3.4	UJ	35.7	J	9.9	X	6.6	X	3.4	UJ	3.4	UJ
Dissolved	Barium	UG/L			61.1	J	9.5	J	28.5	J	97.2	J	43.2	J	45.6	J	128	J	6.1	J
Dissolved	Beryllium	UG/L			0.2	U	0.2	U	0.2	U	0.33	X	0.2	UJ	0.2	U	0.2	U	0.2	UJ
Dissolved	Cadmium	UG/L			2 2	X	0.3	UJ	0.3	U	1	X	0.3	U	0.3	U	0.3	U	0.3	U
Dissolved	Calcium	UG/L			351000		22200		32200		259000		155000		118000		131000		21200	
Dissolved	Chromium	UG/L			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dissolved	Cobalt	UG/L			33.7		0 6	U	0.6	U	0.81	U	42.7	J	13 4		0.63	U	0 6	UJ
Dissolved	Copper	UG/L			2.2	X	3.2	X	6	X	0.7	UJ	0.7	UJ	0.7	U	1.3	X	0.7	UJ
Dissolved	Iron	UG/L			59000		19.6	U	1660		31700		1380		1210		1020		11.6	U
Dissolved	Lead	UG/L			1.7	U	1.7	U	3.9	X	1.7	U	1.7	U	2 6	X	1.7	UJ	1.7	U
Dissolved	Magnesium	UG/L			752000		6220		4490	J	628000		386000		207000		300000		3230	J
Dissolved	Manganese	UG/L			5830		68 5		119		1280		7590		10900		261		1.9	U
Dissolved	Nickel	UG/L			0.7	U	0.7	U	0.7	U	0.87	U	25.7	J	17.8	J	0.7	U	0.7	U
Dissolved	Potassium	UG/L			203000		6290		11400	J	259000		174000		78300	J	131000	J	5550	
Dissolved	Selenium	UG/L			4 1	X	3.3	UJ	3.3	U	3.3	U	7.5	X	6.2	X	3.3	U	3.3	U
Dissolved	Silver	UG/L			0 8	U	0 96	X	0.8	U	0 8	U	0.8	U	0.8	U	0.8	U	0.8	U
Dissolved	Sodium	UG/L			5510000		32700		29000		4980000		3270000		1740000		2210000		17100	
Dissolved	Thallium	UG/L			4	UJ	4	UJ	4 4	X	4	U	4	U	5.2	X	5.6	X	4	U
Dissolved	Vanadium	UG/L			0.4	U	0.4	U	1.7	U	1.3	UJ	0.4	UJ	0 4	U	0.85	U	0.4	UJ
Dissolved	Zinc	UG/L			126	J	2 4	UJ	6 8	U	1590		191		51.6		2.4	U	2.4	U
Dissolved	Mercury	UG/L			0 1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0 1	U
Total	Chromium, Hexavalent	UG/L	128	J																
Total	Total Suspended Solids	MG/L			18		15 6	J	2		81 2		6.4		5 6		9.2		1	U
Total	Nitrate as N	MG/L			0.05	UJ	0 27	J			0.05	U	0 05	U	0.05	U				
Total	Nitrite as N	MG/L				R	0 05	U				R	5	U	5	U				
Total	Sulfate	MG/L			1380	J	23.9	J			1270		862	J	368	J				
Total	Alkalinity, as CaCO3	MG/L			231		64.5				202		102		175					
Total	Carbon	MG/L			33.11		5	U			8.06		9.46		5	U				
Total	Chemical Oxygen Demand	MG/L			847		10	U			564		295		35.9					
Total	Aluminum	UG/L			139	UJ	88.1	UJ	20.1	U	410	UJ	20.1	U	20.1	U	20.1	U	20.1	U
Total	Antimony	UG/L			3.1	UJ	2.9	UJ	1.6	U	2.5	UJ	1.6	U	1.6	U	1.6	U	1.6	U
Total	Arsenic	UG/L			85 4	J	3 4	UJ	3 4	U	31		4.1	X	5.3	X	3.4	U	3.4	U
Total	Barium	UG/L			62.6	J	10 4	J	32.7	J	101	J	47.1	J	46 6	J	138	J	6 8	J
Total	Beryllium	UG/L			0.32	X	0.2	UJ	0.2	U	0.36	X	0 2	U	0.2	U	0.2	U	0.2	U
Total	Cadmium	UG/L			1.7	X	0 3	U	0.3	U	1.2	X	0.3	U	0.3	U	0.3	U	0.3	U
Total	Calcium	UG/L			342000		21600		30600		262000		149000		102000		125000		19800	
Total	Chromium	UG/L			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total	Cobalt	UG/L			32 6	J	0.6	UJ	0.6	U	0.76	U	42.5		11.4		0.6	U	0.6	U
Total	Copper	UG/L			0.7	UJ	1.1	X	1 5	X	0.7	U	1.4	X	0.97	X	2.1	X	1.6	X
Total	Iron	UG/L			58200		59.5	U	1700		32500	J	1530		1100		350		55.3	U
Total	Lead	UG/L			1.7	UJ	1.7	UJ	1.7	UJ	1.7	U	2.4	J	1.7	UJ	1 7	UJ	1 7	UJ
Total	Magnesium	UG/L			778000		6100		4420	J	638000		386000		189000		305000		3090	J
Total	Manganese	UG/L			5900		71 3		116		1310	J	7510		9770		62.4		13.6	
Total	Nickel	UG/L			0.7	UJ	0.7	UJ	0.7	U	1.3	U	25.1	J	15.6	J	1.1	U	0.7	U
Total	Potassium	UG/L			203000		5270		9400		256000		167000		66100		129000		4300	J
Total	Selenium	UG/L			3.3	U	3.3	U	3.3	UJ	3.3	U	3.7	X	3.9	X	3.3	UJ	3.3	UJ
Total	Silver	UG/L			0.8	U	0.8	U	2 3	X	0 8	U	0 8	U	1.3	X	1.6	X	2.3	X
Total	Sodium	UG/L			5940000		31800		28300		4720000		3740000		1920000		2230000		16300	
Total	Thallium	UG/L			4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ
Total	Vanadium	UG/L			0.4	UJ	0.9	UJ	1.3	U	1.9	UJ	0.4	U	0 4	U	0.54	U	0 4	U
Total	Zinc	UG/L			132	J	2.4	UJ	8.5	U	1640	J	145		2.4	U	2.4	U	2.9	U
Total	Mercury	UG/L			0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Total	Cyanide, Total	UG/L	9 3	X																
Total	Total Organic Carbon	mg/L																		

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

		LOC_ID	WC2-5I		WC2-5S		WC2-6I		WC5-1D		WC5-1S		WC5-2I		WC5-3S	
		SAMP_ID	WC25I04XX		WC25S04XX		WC26I04XX		WC51D04XX		WC51S04XX		WC52I04XX		WC53S04XX	
		SAMPLE DATE	5/19/04		5/19/04		5/18/04		5/20/04		5/21/04		5/20/04		5/20/04	
FRACTION	PARAMETER	UNITS														
Dissolved	Aluminum	UG/L			20.1	U	55 6	UJ	20 1	U	20.1	U	20.1	U	20.1	U
Dissolved	Antimony	UG/L			1.6	UJ	1.6	UJ	1 6	U	1.6	U	1.6	UJ	1.6	UJ
Dissolved	Arsenic	UG/L			3.4	UJ	4.3	X	15.7	J	3.4	UJ	4.3	X	3.4	UJ
Dissolved	Barium	UG/L			2.9	J	40 6	J	68.8	J	5.9	J	33.5	J	14.4	J
Dissolved	Beryllium	UG/L			0 2	UJ	0.2	U	0.2	U	0.2	U	0.2	UJ	0.2	UJ
Dissolved	Cadmium	UG/L			0.3	U	0.3	U	0 32	X	0.3	UJ	0.3	U	0.3	U
Dissolved	Calcium	UG/L			12500		97900		829000		21600		26100		14500	
Dissolved	Chromium	UG/L			1	U	1	U	1	U	1	U	1	U	1	U
Dissolved	Cobalt	UG/L			0.6	UJ	6.8		40.5		0.6	U	0.6	UJ	0 6	UJ
Dissolved	Copper	UG/L			0.7	UJ	0.7	U	0 7	U	2.8	X	1.5	X	1.1	X
Dissolved	Iron	UG/L			11 6	U	783		23300		11.6	U	11.6	U	11 6	U
Dissolved	Lead	UG/L			1.7	U	2.2	X	1.7	U	1.7	U	1.7	U	1.7	U
Dissolved	Magnesium	UG/L			1880	J	246000		1000000		8590		11000		2950	J
Dissolved	Manganese	UG/L	2310		0 34	U	5960		4760		0.2	U	740		3	J
Dissolved	Nickel	UG/L			0 7	U	9.7	J	5.9	J	0.7	U	0 7	U	0.7	U
Dissolved	Potassium	UG/L			2760	J	131000	J	306000	J	8020		12800		5000	
Dissolved	Selenium	UG/L			3.3	U	4.2	X	3.3	U	6 4	X	3.3	U	3.3	U
Dissolved	Silver	UG/L			0 8	U	0.8	U	0.8	U	0 95	X	0.8	U	0 8	U
Dissolved	Sodium	UG/L			18900		2280000		6850000		37600		155000		80500	
Dissolved	Thallium	UG/L			4	U	4	UJ	5.5	X	4	UJ	4	U	4	U
Dissolved	Vanadium	UG/L			0.4	UJ	0 4	U	0.4	U	3.1	J	0 4	UJ	0.4	UJ
Dissolved	Zinc	UG/L			2.4	U	133		199	J	2.4	UJ	104		2 5	U
Dissolved	Mercury	UG/L			0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Total	Chromium, Hexavalent	UG/L														
Total	Total Suspended Solids	MG/L	17.2		1	U	12		95		11		1	U	8	
Total	Nitrate as N	MG/L	0 05	UJ	2.12	J	0.05	U	0 05	U			0 05	U	1.6	J
Total	Nitrite as N	MG/L		R	0 05	U	5	U		R			0.065		0.05	J
Total	Sulfate	MG/L	1000	J	9.32	J	556	J	1850				25.7		26.3	J
Total	Alkalinity, as CaCO3	MG/L	102		34.5		163		193				186		49	
Total	Carbon	MG/L	5	U	6.78		14.19		11.31				9.9		5.45	
Total	Chemical Oxygen Demand	MG/L	108		10	U	45		496				10	U	10	U
Total	Aluminum	UG/L			20.1	U	20.1	U	105	UJ	303	U	63 5	UJ	160	UJ
Total	Antimony	UG/L			1.6	U	1.6	U	1.6	UJ	1.6	UJ	2.6	UJ	1.6	UJ
Total	Arsenic	UG/L			3.4	U	3.4	U	13.1	X	3.4	UJ	3 9	X	3 4	UJ
Total	Barium	UG/L			3.6	J	45 8	J	68.6	J	7.3	J	34 8	J	15.4	J
Total	Beryllium	UG/L			0.2	U	0.2	U	0.2	UJ	0.24	X	0.2	UJ	0.2	UJ
Total	Cadmium	UG/L			0.3	U	0.3	U	0.76	X	0.3	U	0 3	U	0.3	U
Total	Calcium	UG/L			12700		90800		832000	J	21200		25400		14700	
Total	Chromium	UG/L			1	U	1	U	1	U	1	U	1	U	1	U
Total	Cobalt	UG/L			0.6	U	5.4		42		0.6	UJ	0.6	U	0.6	UJ
Total	Copper	UG/L			1 4	X	1.2	X	1.8	X	1	X	1.9	X	0.7	UJ
Total	Iron	UG/L			16.6	U	889		23400		142		41.5	UJ	39.6	U
Total	Lead	UG/L			1 7	UJ	1 7	UJ	1.7	UJ	1.7	UJ	1.7	U	1.7	UJ
Total	Magnesium	UG/L			2000	J	242000		991000	J	8460		10600		2960	J
Total	Manganese	UG/L			5.3	J	5770		4850		16.2		758	J	5	J
Total	Nickel	UG/L			0 7	U	8.6	J	5.5	J	0.79	U	0.7	U	0.7	UJ
Total	Potassium	UG/L			2310	J	123000		294000	J	6760		10600		4300	J
Total	Selenium	UG/L			3.7	X	3.3	UJ	4 2	X	3 3	U	3.3	U	3.3	U
Total	Silver	UG/L			2	X	0.99	X	0.8	U	0.8	U	0 8	U	0.8	U
Total	Sodium	UG/L			20100		2620000		5430000		36800		153000		81000	
Total	Thallium	UG/L			4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ
Total	Vanadium	UG/L			0.4	U	0.4	U	0.4	UJ	4.1	J	0.4	UJ	0 4	UJ
Total	Zinc	UG/L			2.4	U	121		183		5.9	UJ	91.4	J	6	UJ
Total	Mercury	UG/L			0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0 1	U
Total	Cyanide, Total	UG/L														
Total	Total Organic Carbon	mg/L														

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	BRW-04-01	BRW-04-02	D-04-13	D-04-17	D-04-4	D-04-8	HESE-01-12D	HESE-01-12I	HESE-01-14I
	SAMP_ID	BRW040104XX	BRW040204XX	D041304XX	D041704XX	D04404XX	D804XX	HESE0112D04XX	HESE-0112I04XX	HESE0114I04XX
SAMPLE DATE		5/25/04	5/26/04	5/24/04	5/25/04	6/8/04	5/26/04	5/18/04	5/18/04	5/20/04
PARAMETER	UNITS									
Ethane	UG/L	2 U	2 UJ	2 U	2 U	3 U	2 UJ	1 UJ	2 U	2 U
Ethene	UG/L	2 U	2 UJ	2 U	2 U	1 U	2 UJ	2 U	1 U	2 U
Methane	UG/L	2 U	2 UJ	1 U	14	37 J	2 UJ	2 U	2 U	2 U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	HESE-01-15I	HESE-01-16I	HESE-01-17D	HESE-01-17I	HESE-01-18D	LNAP-04-14	MW-4	MWCD-99-01B	PZ-11D
	SAMP_ID	HESE0115I04XX	HESE0116I04XX	HESE0117D04XX	HESE0117I04XX	HESE0118D04XX	MW0304XX	MW404XX	MWCD9901B04XX	PZ11D04XX
SAMPLE DATE		5/24/04	5/19/04	5/18/04	5/18/04	5/18/04	5/26/04	5/20/04	5/19/04	5/20/04
PARAMETER	UNITS									
Ethane	UG/L	2 U	1 UJ	2 U	1 UJ	1 UJ	2 UJ	1 UJ	2 U	2 UJ
Ethene	UG/L	2 U	12	2 U	2 U	2 U	2 UJ	3 U	2 U	2 UJ
Methane	UG/L	3 U	45 J	2 U	440	25	120 J	45	8	2 UJ

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	PZ-1D	PZ-7D	PZ-8D	PZ-99-02B	PZ-99-03	PZ-99-04I	PZ-9D	PZTF-04-02A	PZTF-04-02B
	SAMP_ID	PZ1D04XX	PZ7D04XX	PZ8D04XX	PZ9902B04XX	PZ990304XX	PZ9904I04XX	PZ9D04XX	PZTF0402A04XX	PZTF0402B04XX
SAMPLE DATE		5/20/04	5/21/04	5/20/04	5/24/04	5/24/04	5/19/04	5/21/04	5/25/04	5/25/04
PARAMETER	UNITS									
Ethane	UG/L	2 U	2 UJ	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Ethene	UG/L	2 U	2 UJ	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Methane	UG/L	38 J	51 J	2 U	12	1 U	2 U	3 UJ	84	35 UJ

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	PZTF-04-03A	PZTF-04-03B	PZTF-04-07A	PZTF-04-07B	PZTF-04-09A	PZTF-04-09B	WC-1S	WC-2D	WC-4S
	SAMP_ID	PZTF0403A04XX	PZTF0403B04XX	PZTF0407A04XX	PZTF0407B04XX	PZTF0409A04XX	PZTF0409B04XX	WC1S04XX	WC2D04XX	WC4S04XX
SAMPLE DATE		5/25/04	5/25/04	5/25/04	5/25/04	5/26/04	5/26/04	5/20/04	5/26/04	5/19/04
PARAMETER	UNITS									
Ethane	UG/L	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U
Ethene	UG/L	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	4 U	2 U
Methane	UG/L	50 J	15	18	20	69 J	2 UJ		230 J	2 U

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	WC-9D2	WC-9S	WC2-2D	WC2-3D	WC2-3I	WC2-5I	WC2-5S	WC2-6I	WC5-1D
	SAMP_ID	WC9D204XX	WC9S04XX	WC22D04XX	WC23D04XX	WC23I04XX	WC25I04XX	WC25S04XX	WC26I04XX	WC51D04XX
	SAMPLE DATE	5/21/04	5/21/04	5/20/04	5/19/04	5/18/04	5/19/04	5/19/04	5/18/04	5/20/04
PARAMETER	UNITS									
Ethane	UG/L	2 UJ	2 UJ	2 U	2 U	1 UJ	2 UJ	2 U	1 UJ	2 UJ
Ethene	UG/L	2 UJ	2 UJ	2 U	2 U	2 U	3 UJ	2 U	2 U	2 UJ
Methane	UG/L	2 UJ	2 UJ	7	5	26 UJ	23 J	2 U	18	1 UJ

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	WC5-2I		WC5-3S	
	SAMP_ID	WC52I04XX		WC53S04XX	
SAMPLE DATE		5/20/04		5/20/04	
PARAMETER	UNITS				
Ethane	UG/L	2	U	2	UJ
Ethene	UG/L	2	U	2	UJ
Methane	UG/L	3	U	2	UJ

TABLE 2-2
2004 MNA GROUNDWATER SAMPLING RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

	LOC_ID	HESE-01-07D		HESE-01-07I		HESE-01-12D		HESE-01-12I		HESE-01-14I		PZ-13D		PZ-99-03		WC-10S	
	SAMP_ID	HESE0107D04X2		HESE-0107I04X2		HESE0112D04X2		HESE-0112I04X2		HESE0114I04X2		PZ13D04X2		PZ990304X2		WC10S04X2	
SAMPLE DATE		6/7/04		6/7/04		6/7/04		6/7/04		6/7/04		6/7/04		6/7/04		6/7/04	
PARAMETER	UNITS																
Acetic Acid	mg/L	0.652	J	38.9	J	7.52	J	120	J	0.2	U	0.2	U	0.2	U	0.2	U
Butyric acid	mg/L	0.1	U	10	U	0.1	U	10	U	0.1	U	0.1	U	0.1	U	0.1	U
Hexanoic Acid	mg/L	0.2	U	20	U	0.2	U	20	U	0.2	U	0.2	U	0.2	U	0.2	U
i-Hexanoic Acid	mg/L	0.1	U	10	U	0.1	U	10	U	0.1	U	0.1	U	0.1	U	0.1	U
i-Pentanoic Acid	mg/L	0.07	U	7	U	0.07	U	7	U	0.07	U	0.07	U	0.07	U	0.07	U
Lactic Acid and HIBA	mg/L	0.07	U	7	U	0.434		7	U	0.07	U	0.07	U	0.07	U	0.07	U
Pentanoic Acid	mg/L	0.07	U	7	U	0.07	U	7	U	0.07	U	0.07	U	0.07	U	0.07	U
Propionic acid	mg/L	0.033	J	7	U	0.541	J	7	U	0.07	U	0.07	U	0.07	U	0.07	U
Pyruvic acid	mg/L	0.07	U	7	U	0.07	U	7	U	0.07	U	0.07	U	0.07	U	0.07	U

TABLE 2-3
2004 MNA GROUNDWATER SAMPLING HACH FIELD TEST DATA

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	SAMPLE DATE	CARBON DIOXIDE (Detection Limit = 1 mg/L)	FERROUS IRON (Detection Limit = 0.2 mg/L)
BRW-04-01	5/25/2004	160	1.6
BRW-04-02	5/26/2004	300	2
D-04-17	5/25/2004	76	0.2 U
D-04-4	6/8/2004	170	2.8
D-04-8	5/26/2004	120	0.2 U
HESE-01-12D	5/18/2004	400	6
HESE-01-12I	5/18/2004	160	0.6
HESE-01-14I	5/20/2004	24	0.2 U
HESE-01-15I	5/24/2004	62	0.2 U
HESE-01-16I	5/19/2004	83	0.8
HESE-01-17D	5/18/2004	280	8.4
HESE-01-17I	5/18/2004	510	0.4
HESE-01-18D	5/18/2004	130	4
LNAP-04-14	5/26/2004	160	1.6
MW-4	5/20/2004	48	0.6
MWCD-99-01B	5/19/2004	160	4.4
PP-99-03	5/24/2004	52	0.2 U
PZ-11D	5/20/2004	20	0.2 U
PZ-1D	5/20/2004	74	3
PZ-7D	5/21/2004	38	1.4
PZ-8D	5/20/2004	10	0.2 U
PZ-99-02B	5/24/2004	510	3.6
PZ-99-04I	5/19/2004	88	0.2
PZ-9D	5/21/2004	14	0.2 U
PZTF-04-02A	5/25/2004	550	1.5
PZTF-04-02B	5/25/2004	130	0.7
PZTF-04-03A	5/25/2004	78	0.2 U
PZTF-04-03B	5/25/2004	120	0.2 U
PZTF-04-07A	5/25/2004	97	1
PZTF-04-07B	5/25/2004	74	0.2 U
PZTF-04-09A	5/26/2004	89	0.2 U
PZTF-04-09B	5/26/2004	110	0.2 U
WC-1S	5/19/2004	20	0.8
WC2-2D	5/20/2004	180	8
WC2-3D	5/19/2004	100	1.4
WC2-5I	5/19/2004	110	3.8
WC2-5S	5/19/2004	32	0.2 U
WC2-6I	5/18/2004	120	1.4
WC-2D	5/26/2004	120	0.2 U
WC2-3I	5/18/2004	300	14
WC-4S	5/19/2004	52	1
WC5-1D	5/20/2004	200	8

TABLE 2-3
2004 MNA GROUNDWATER SAMPLING HACH FIELD TEST DATA

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	SAMPLE DATE	CARBON DIOXIDE (Detection Limit = 1 mg/L)	FERROUS IRON (Detection Limit = 0.2 mg/L)
WC5-2I	5/20/2004	50	0.2 U
WC5-3S	5/20/2004	20	0.2 U
WC-9D2	5/21/2004	112	6.2
WC-9S	5/21/2004	15	0.2 U

TABLE 2-4
COMPARISON OF 2004 AND PREVIOUS GROUNDWATER ANALYTICAL RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	2004 SAMPLE DATE	PREVIOUS SAMPLE DATE	FRACTION	PARAMETER	UNITS	2004 RESULT (MG/L)	2004 FINAL QUAL	PREVIOUS RESULT (MG/L)	PREVIOUS FINAL QUAL	PERCENT DIFFERENCE
PZ-99-03	5/24/2004	5/2/2002	N	1,1,1-Trichloroethane	MG/L	1.4		30		-95%
PZ-11D	5/20/2004	5/2/2002	N	1,1,1-Trichloroethane	MG/L	0.0045		0.036		-88%
WC-4S	5/19/2004	4/25/2002	N	1,1,1-Trichloroethane	MG/L	0.018		0.11		-84%
WC-1S	5/20/2004	5/1/2002	N	1,1,1-Trichloroethane	MG/L	0.00091		0.003		-70%
HESE-01-12I	5/18/2004	4/23/2002	N	1,1,1-Trichloroethane	MG/L	350		680	J	-49%
WC2-5I	5/19/2004	4/30/2002	N	1,1,1-Trichloroethane	MG/L	0.012	J	0.014		-14%
HESE-01-12D	5/18/2004	4/23/2002	N	1,1,1-Trichloroethane	MG/L	140	J	23	J	509%
WC2-5S	5/19/2004	4/30/2002	N	1,1-Dichloroethane	MG/L	0.00023	J	0.003		-92%
PZ-99-03	5/24/2004	5/2/2002	N	1,1-Dichloroethane	MG/L	0.075		0.58	J	-87%
WC-4S	5/19/2004	4/25/2002	N	1,1-Dichloroethane	MG/L	0.017		0.12		-86%
WC5-3S	5/20/2004	5/6/2002	N	1,1-Dichloroethane	MG/L	0.0002	J	0.001		-80%
HESE-01-17I	5/18/2004	4/25/2002	N	1,1-Dichloroethane	MG/L	0.00091	J	0.003		-70%
PZ-11D	5/20/2004	5/2/2002	N	1,1-Dichloroethane	MG/L	0.019		0.042		-55%
PZ-1D	5/20/2004	5/1/2002	N	1,1-Dichloroethane	MG/L	0.086	J	0.14	J	-39%
WC5-2I	5/20/2004	5/6/2002	N	1,1-Dichloroethane	MG/L	0.0018		0.002		-10%
WC2-5I	5/19/2004	4/30/2002	N	1,1-Dichloroethane	MG/L	0.38		0.38		0%
WC2-2D	5/20/2004	5/1/2002	N	1,1-Dichloroethane	MG/L	0.0035	J	0.003		17%
PZ-9D	5/21/2004	5/6/2002	N	1,1-Dichloroethane	MG/L	0.023	J	0.015		53%
WC-1S	5/20/2004	5/1/2002	N	1,1-Dichloroethane	MG/L	0.0037	J	0.002		85%
WC-2D	5/26/2004	5/3/2002	N	1,1-Dichloroethane	MG/L	0.14		0.062		126%
WC2-3I	5/18/2004	5/6/2002	N	1,1-Dichloroethane	MG/L	0.021	J	0.007		200%
WC2-3D	5/19/2004	5/3/2002	N	1,1-Dichloroethane	MG/L	0.0021	J	0.0005		320%
MW-4	5/20/2004	4/25/2002	N	1,1-Dichloroethane	MG/L	0.0087		0.0008		988%
PZ-99-03	5/24/2004	5/2/2002	N	1,1-Dichloroethene	MG/L	0.42		3.5		-88%
HESE-01-18D	5/18/2004	4/25/2002	N	1,1-Dichloroethene	MG/L	0.083	J	0.38		-78%
WC2-2D	5/20/2004	5/1/2002	N	1,1-Dichloroethene	MG/L	0.00031	J	0.001		-69%
PZ-11D	5/20/2004	5/2/2002	N	1,1-Dichloroethene	MG/L	0.14	J	0.43		-67%
PZ-99-04I	5/19/2004	5/2/2002	N	1,1-Dichloroethene	MG/L	0.27		0.48	J	-44%
PZ-1D	5/20/2004	5/1/2002	N	1,1-Dichloroethene	MG/L	0.082	J	0.12	J	-32%
WC-4S	5/19/2004	4/25/2002	N	1,1-Dichloroethene	MG/L	0.13		0.19		-32%
HESE-01-12D	5/18/2004	4/23/2002	N	1,1-Dichloroethene	MG/L	6.1	J	8.9		-31%
HESE-01-12I	5/18/2004	4/23/2002	N	1,1-Dichloroethene	MG/L	41		42		-2%
WC2-6I	5/18/2004	4/25/2002	N	1,1-Dichloroethene	MG/L	0.029	J	0.021		38%
WC-1S	5/20/2004	5/1/2002	N	1,1-Dichloroethene	MG/L	0.00099		0.0006	J	65%
WC2-5I	5/19/2004	4/30/2002	N	1,1-Dichloroethene	MG/L	0.17		0.09		89%

TABLE 2-4
COMPARISON OF 2004 AND PREVIOUS GROUNDWATER ANALYTICAL RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	2004 SAMPLE DATE	PREVIOUS SAMPLE DATE	FRACTION	PARAMETER	UNITS	2004 RESULT (MG/L)	2004 FINAL QUAL	PREVIOUS RESULT (MG/L)	PREVIOUS FINAL QUAL	PERCENT DIFFERENCE
WC5-2I	5/20/2004	5/6/2002	N	1,1-Dichloroethene	MG/L	0.0012		0.0006		100%
PZ-9D	5/21/2004	5/6/2002	N	1,1-Dichloroethene	MG/L	0.064		0.031	J	106%
HESE-01-14I	5/20/2004	4/23/2002	N	1,1-Dichloroethene	MG/L	1.6		0.43	J	272%
HESE-01-16I	5/19/2004	4/25/2002	N	1,1-Dichloroethene	MG/L	1.9	J	0.51	J	273%
WC2-3D	5/19/2004	5/3/2002	N	1,1-Dichloroethene	MG/L	0.015	J	0.004		275%
WC2-3I	5/18/2004	5/6/2002	N	1,1-Dichloroethene	MG/L	0.049		0.01		390%
MW-4	5/20/2004	4/25/2002	N	1,1-Dichloroethene	MG/L	0.011		0.0005	J	2100%
WC-2D	5/26/2004	5/3/2002	N	1,1-Dichloroethene	MG/L	0.51		0.023		2117%
PZ-11D	5/20/2004	5/2/2002	N	1,2-Dichloroethane	MG/L	0.022	J	0.048		-54%
WC-4S	5/19/2004	4/25/2002	N	1,2-Dichloroethane	MG/L	0.002	J	0.002		0%
WC2-5I	5/19/2004	4/30/2002	N	1,2-Dichloroethane	MG/L	0.003	J	0.001		200%
PZ-11D	5/20/2004	5/2/2002	N	Benzene	MG/L	0.0033		0.001		230%
MW-4	5/20/2004	4/25/2002	N	Benzene	MG/L	0.0039		0.001		290%
PZ-17D	5/21/2004	11/9/1999	N	Cadmium	MG/L	0.0026	J	0.0025		4%
PZ-99-02B	5/24/2004	5/2/2002	N	Chemical Oxygen Demand	MG/L	14.8		36.3		-59%
WC5-1D	5/20/2004	5/6/2002	N	Chemical Oxygen Demand	MG/L	496		1190		-58%
HESE-01-16I	5/19/2004	4/25/2002	N	Chemical Oxygen Demand	MG/L	18.6		42		-56%
PZ-9D	5/21/2004	5/6/2002	N	Chemical Oxygen Demand	MG/L	10.6		17		-38%
HESE-01-14I	5/20/2004	4/23/2002	N	Chemical Oxygen Demand	MG/L	24.8		36		-31%
WC2-6I	5/18/2004	4/25/2002	N	Chemical Oxygen Demand	MG/L	45		62		-27%
WC2-3I	5/18/2004	5/6/2002	N	Chemical Oxygen Demand	MG/L	35.9		46		-22%
HESE-01-18D	5/18/2004	4/25/2002	N	Chemical Oxygen Demand	MG/L	41.4		53		-22%
MWCD-99-01B	5/19/2004	5/1/2002	N	Chemical Oxygen Demand	MG/L	53.1		64		-17%
WC2-2D	5/20/2004	5/1/2002	N	Chemical Oxygen Demand	MG/L	564		648		-13%
HESE-01-15I	5/24/2004	4/24/2002	N	Chemical Oxygen Demand	MG/L	39.1		44		-11%
WC2-5I	5/19/2004	4/30/2002	N	Chemical Oxygen Demand	MG/L	108		116		-7%
PZ-1D	5/20/2004	5/1/2002	N	Chemical Oxygen Demand	MG/L	27.4		26		5%
HESE-01-12I	5/18/2004	4/23/2002	N	Chemical Oxygen Demand	MG/L	365		234		56%
WC-2D	5/26/2004	5/3/2002	N	Chemical Oxygen Demand	MG/L	13.5		6.7		101%
WC-9D2	5/21/2004	5/6/2002	N	Chemical Oxygen Demand	MG/L	847		417		103%
HESE-01-17I	5/18/2004	4/25/2002	N	Chemical Oxygen Demand	MG/L	449		114		294%
HESE-01-12D	5/18/2004	4/23/2002	N	Chemical Oxygen Demand	MG/L	1012		225		350%
WC2-3D	5/19/2004	5/3/2002	N	Chemical Oxygen Demand	MG/L	295		56		427%
HESE-01-17D	5/18/2004	4/25/2002	N	Chemical Oxygen Demand	MG/L	933		146		539%
WC2-5I	5/19/2004	4/30/2002	N	Chloroethane	MG/L	0.018		0.043		-58%

TABLE 2-4
COMPARISON OF 2004 AND PREVIOUS GROUNDWATER ANALYTICAL RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	2004 SAMPLE DATE	PREVIOUS SAMPLE DATE	FRACTION	PARAMETER	UNITS	2004 RESULT (MG/L)	2004 FINAL QUAL	PREVIOUS RESULT (MG/L)	PREVIOUS FINAL QUAL	PERCENT DIFFERENCE
HESE-01-16I	5/19/2004	4/25/2002	N	Chloroform	MG/L	0.096	J	0.22	J	-56%
PZ-11D	5/20/2004	5/2/2002	N	Chloroform	MG/L	0.00054		0.001		-46%
PZ-99-04I	5/19/2004	5/2/2002	N	Chloroform	MG/L	0.061	J	0.052		17%
WC-12S	5/24/2004	11/17/1999	N	Chromium	MG/L	0.638		0.522		22%
ECD-4	5/19/2004	1/22/1999	N	Chromium, Hexavalent	MG/L	0.199	J	2.25		-91%
PZ-99-01B	5/19/2004	12/10/1999	N	Chromium, Hexavalent	MG/L	0.248	J	2.5		-90%
PZ-99-01A	5/19/2004	11/18/1999	N	Chromium, Hexavalent	MG/L	0.0997	J	0.2		-50%
HESE-01-18D	5/18/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	0.54	J	3.3		-84%
HESE-01-16I	5/19/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	3.3	J	14		-76%
PZ-99-03	5/24/2004	5/2/2002	N	Cis-1,2-Dichloroethene	MG/L	0.043		0.17	J	-75%
WC2-5S	5/19/2004	4/30/2002	N	Cis-1,2-Dichloroethene	MG/L	0.00023	J	0.0008		-71%
WC2-3D	5/19/2004	5/3/2002	N	Cis-1,2-Dichloroethene	MG/L	0.045	J	0.12		-63%
WC5-2I	5/20/2004	5/6/2002	N	Cis-1,2-Dichloroethene	MG/L	0.00019	J	0.0005	J	-62%
WC2-2D	5/20/2004	5/1/2002	N	Cis-1,2-Dichloroethene	MG/L	0.0032	J	0.008		-60%
HESE-01-17I	5/18/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	0.00033	J	0.0008		-59%
PZ-1D	5/20/2004	5/1/2002	N	Cis-1,2-Dichloroethene	MG/L	0.27		0.38		-29%
PZ-11D	5/20/2004	5/2/2002	N	Cis-1,2-Dichloroethene	MG/L	0.013		0.016		-19%
WC2-6I	5/18/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	0.26		0.25		4%
WC2-3I	5/18/2004	5/6/2002	N	Cis-1,2-Dichloroethene	MG/L	0.3		0.28		7%
PZ-99-02B	5/24/2004	5/2/2002	N	Cis-1,2-Dichloroethene	MG/L	0.099	J	0.091		9%
WC2-5I	5/19/2004	4/30/2002	N	Cis-1,2-Dichloroethene	MG/L	0.23		0.2		15%
PZ-9D	5/21/2004	5/6/2002	N	Cis-1,2-Dichloroethene	MG/L	1.2		0.96		25%
PZ-99-04I	5/19/2004	5/2/2002	N	Cis-1,2-Dichloroethene	MG/L	0.083	J	0.065		28%
WC-4S	5/19/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	0.12		0.043		179%
WC-1S	5/20/2004	5/1/2002	N	Cis-1,2-Dichloroethene	MG/L	0.01	J	0.002	J	400%
WC-2D	5/26/2004	5/3/2002	N	Cis-1,2-Dichloroethene	MG/L	5.1	J	1		410%
HESE-01-17D	5/18/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	0.17	J	0.032		431%
MW-4	5/20/2004	4/25/2002	N	Cis-1,2-Dichloroethene	MG/L	0.046		0.004		1050%
MWCD-99-01B	5/19/2004	5/1/2002	N	Cis-1,2-Dichloroethene	MG/L	0.028	J	0.001		2700%
PZ-4D	5/19/2004	7/6/1999	N	Copper	MG/L	0.001	X	0.041		-98%
PZ-1D	5/20/2004	7/6/1999	N	Copper	MG/L	0.0014	X	0.01	J	-86%
WC2-4S	5/19/2004	11/15/1999	N	Copper	MG/L	0.0016	X	0.0108		-85%
PZ-8D	5/20/2004	7/7/1999	N	Copper	MG/L	0.0119	X	0.011	J	8%
WC-5S	5/20/2004	7/8/1999	N	Cyanide, Total	MG/L	0.0086	X	0.013		-34%
WC-12S	5/24/2004	11/17/1999	N	Cyanide, Total	MG/L	0.253		0.221		14%

TABLE 2-4
COMPARISON OF 2004 AND PREVIOUS GROUNDWATER ANALYTICAL RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	2004 SAMPLE DATE	PREVIOUS SAMPLE DATE	FRACTION	PARAMETER	UNITS	2004 RESULT (MG/L)	2004 FINAL QUAL	PREVIOUS RESULT (MG/L)	PREVIOUS FINAL QUAL	PERCENT DIFFERENCE
PZ-8D	5/20/2004	7/7/1999	N	Lead	MG/L	0.0054		0.0086	J	-37%
WC-2D	5/26/2004	5/3/2002	N	Methane	MG/L	0.23	J	0.35		-34%
MWCD-99-01B	5/19/2004	5/1/2002	N	Methane	MG/L	0.008		0.012		-33%
WC2-6I	5/18/2004	4/25/2002	N	Methane	MG/L	0.018		0.012		50%
HESE-01-18D	5/18/2004	4/25/2002	N	Methane	MG/L	0.025		0.016		56%
HESE-01-17I	5/18/2004	4/25/2002	N	Methane	MG/L	0.44		0.28		57%
PZ-1D	5/20/2004	5/1/2002	N	Methane	MG/L	0.038	J	0.02		90%
WC2-5I	5/19/2004	4/30/2002	N	Methane	MG/L	0.023	J	0.012		92%
HESE-01-16I	5/19/2004	4/25/2002	N	Methane	MG/L	0.045	J	0.02		125%
WC2-3D	5/19/2004	5/3/2002	N	Methane	MG/L	0.005		0.001		400%
WC2-2D	5/20/2004	5/1/2002	N	Methane	MG/L	0.007		0.001		600%
WC5-1D	5/20/2004	7/13/1999	N	Nickel	MG/L	0.0055	J	0.063		-91%
PZ-17D	5/21/2004	7/2/1999	N	Nickel	MG/L	0.0043	J	0.013		-67%
PZ-1D	5/20/2004	7/6/1999	N	Nickel	MG/L	0.0052	J	0.011	J	-53%
WC2-3D	5/19/2004	7/7/1999	N	Nickel	MG/L	0.0251	J	0.012	J	109%
WC5-2I	5/20/2004	5/6/2002	N	Tetrachloroethene	MG/L	0.00057		0.004		-86%
PZ-11D	5/20/2004	5/2/2002	N	Tetrachloroethene	MG/L	0.19	J	0.43		-56%
WC2-5S	5/19/2004	4/30/2002	N	Tetrachloroethene	MG/L	0.00023	J	0.0005	J	-54%
WC2-5I	5/19/2004	4/30/2002	N	Tetrachloroethene	MG/L	0.0068	J	0.01		-32%
HESE-01-16I	5/19/2004	4/25/2002	N	Tetrachloroethene	MG/L	0.28	J	0.36	J	-22%
WC5-3S	5/20/2004	5/6/2002	N	Tetrachloroethene	MG/L	0.0016		0.002		-20%
PZ-1D	5/20/2004	5/1/2002	N	Tetrachloroethene	MG/L	0.36		0.44		-18%
PZ-8D	5/20/2004	5/3/2002	N	Tetrachloroethene	MG/L	0.00082		0.001		-18%
WC2-6I	5/18/2004	4/25/2002	N	Tetrachloroethene	MG/L	0.28		0.33		-15%
PZ-99-04I	5/19/2004	5/2/2002	N	Tetrachloroethene	MG/L	0.13		0.13		0%
WC2-3D	5/19/2004	5/3/2002	N	Tetrachloroethene	MG/L	0.0061	J	0.006		2%
HESE-01-18D	5/18/2004	4/25/2002	N	Tetrachloroethene	MG/L	0.43	J	0.4		8%
WC-1S	5/20/2004	5/1/2002	N	Tetrachloroethene	MG/L	0.0022		0.002	J	10%
WC2-3I	5/18/2004	5/6/2002	N	Tetrachloroethene	MG/L	0.046		0.024		92%
WC2-2D	5/20/2004	5/1/2002	N	trans-1,2-Dichloroethene	MG/L	0.0013	J	0.0007		86%
MW-4	5/20/2004	4/25/2002	N	Trichloroethene	MG/L	0.00093	J	0.026		-96%
HESE-01-16I	5/19/2004	4/25/2002	N	Trichloroethene	MG/L	40	J	130		-69%
HESE-01-17D	5/18/2004	4/25/2002	N	Trichloroethene	MG/L	0.26	J	0.77		-66%
PZ-11D	5/20/2004	5/2/2002	N	Trichloroethene	MG/L	0.12	J	0.28		-57%
PZ-9D	5/21/2004	5/6/2002	N	Trichloroethene	MG/L	1.2		2.5		-52%

TABLE 2-4
COMPARISON OF 2004 AND PREVIOUS GROUNDWATER ANALYTICAL RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	2004 SAMPLE DATE	PREVIOUS SAMPLE DATE	FRACTION	PARAMETER	UNITS	2004 RESULT (MG/L)	2004 FINAL QUAL	PREVIOUS RESULT (MG/L)	PREVIOUS FINAL QUAL	PERCENT DIFFERENCE
HESE-01-18D	5/18/2004	4/25/2002	N	Trichloroethene	MG/L	6.1	J	9.4		-35%
WC2-3D	5/19/2004	5/3/2002	N	Trichloroethene	MG/L	0.1		0.15		-33%
PZ-99-04I	5/19/2004	5/2/2002	N	Trichloroethene	MG/L	100		150		-33%
PZ-1D	5/20/2004	5/1/2002	N	Trichloroethene	MG/L	6		6.6		-9%
WC2-6I	5/18/2004	4/25/2002	N	Trichloroethene	MG/L	2.5		2.7		-7%
PZ-99-02B	5/24/2004	5/2/2002	N	Trichloroethene	MG/L	10		10	J	0%
HESE-01-14I	5/20/2004	4/23/2002	N	Trichloroethene	MG/L	17		15		13%
WC-1S	5/20/2004	5/1/2002	N	Trichloroethene	MG/L	0.0028	J	0.002	J	40%
WC2-3I	5/18/2004	5/6/2002	N	Trichloroethene	MG/L	0.92		0.53		74%
MWCD-99-01B	5/19/2004	5/1/2002	N	Trichloroethene	MG/L	0.0093	J	0.003		210%
WC2-5I	5/19/2004	4/30/2002	N	Trichloroethene	MG/L	0.22		0.054		307%
HESE-01-12D	5/18/2004	4/23/2002	N	Trichloroethene	MG/L	16	J	2.8		471%
PZ-8D	5/20/2004	5/3/2002	N	Trichloroethene	MG/L	0.017		0.0006		2733%
HESE-01-15I	5/24/2004	4/24/2002	N	Trichloroethene	MG/L	140		0.001	J	13999900%
WC-3S	5/18/2004	7/12/1999	N	Vanadium	MG/L	0.0028	J	0.026		-89%
WC-12S	5/24/2004	11/17/1999	N	Vanadium	MG/L	0.0084	J	0.0642		-87%
MWCD-99-02A	5/19/2004	11/11/1999	N	Vanadium	MG/L	0.0113	J	0.0142		-20%
MWCD-99-01A	5/19/2004	11/12/1999	N	Vanadium	MG/L	0.0449	J	0.0487		-8%
WC2-3D	5/19/2004	5/3/2002	N	Vinyl chloride	MG/L	0.0014	J	0.002		-30%
HESE-01-16I	5/19/2004	4/25/2002	N	Vinyl chloride	MG/L	0.73	J	0.98	J	-26%
WC-4S	5/19/2004	4/25/2002	N	Vinyl chloride	MG/L	0.032		0.032		0%
WC2-5I	5/19/2004	4/30/2002	N	Vinyl chloride	MG/L	0.073		0.054		35%
WC2-3I	5/18/2004	5/6/2002	N	Vinyl chloride	MG/L	0.012	J	0.007		71%
WC-2D	5/26/2004	5/3/2002	N	Vinyl chloride	MG/L	1.4		0.69		103%
PZ-13D	5/18/2004	11/16/1999	N	Zinc	MG/L	0.0311		0.035		-11%
PZ-4D	5/19/2004	7/6/1999	N	Zinc	MG/L	0.223	J	0.1	J	123%
PZ-1D	5/20/2004	7/6/1999	N	Zinc	MG/L	0.0454	J	0.0095	J	378%
WC-9D2	5/21/2004	7/1/1999	N	Zinc	MG/L	0.132	J	0.024		450%
WC-4S	5/19/2004	11/16/1999	N	Zinc	MG/L	0.193		0.0287		572%
WC5-2I	5/20/2004	6/30/1999	N	Zinc	MG/L	0.0914	J	0.01	J	814%
WC2-2D	5/20/2004	11/10/1999	N	Zinc	MG/L	1.64	J	0.126		1202%
WC2-3D	5/19/2004	11/12/1999	N	Zinc	MG/L	0.145		0.0105		1281%

Notes:

TABLE 2-4
COMPARISON OF 2004 AND PREVIOUS GROUNDWATER ANALYTICAL RESULTS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	2004 SAMPLE DATE	PREVIOUS SAMPLE DATE	FRACTION	PARAMETER	UNITS	2004 RESULT (MG/L)	2004 FINAL QUAL	PREVIOUS RESULT (MG/L)	PREVIOUS FINAL QUAL	PERCENT DIFFERENCE

J - The reported concentration is considered an estimated value

TABLE 3-1
2004 TIDAL EFFECTS STUDY MONITORING LOCATIONS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

PROPOSED MONITORING LOCATION ID	ACTUAL MONITORING LOCATION ID	COMMENTS
BRW-04-1	BRW-04-1	
BRW-04-2	BRW-04-2	
D-04-13	**NOT USED**	
D-04-17	**D-04-17A**	temporary larger diameter piezometer
D-04-4	**D-04-4A**	temporary larger diameter piezometer
Frash Pond	**NOT USED**	no access
HESE-01-08D	HESE-01-08D	
HESE-01-10D	HESE-01-10D	
HESE-01-12D	HESE-01-12D	
HESE-01-12I	HESE-01-12I	
HESE-01-14I	HESE-01-14I	
HESE-01-15I	HESE-01-15I	
HESE-01-17D	HESE-01-17D	
HESE-01-17I	HESE-01-17I	
HESE-01-18D	HESE-01-18D	
Housatonic River	Housatonic River	
LW-10D	LW-10D	
LW-10I	LW-10I	
LW-10S	LW-10S	
LW-13	LW-13	
LW-5D	LW-5D	
LW-5DI	**NOT USED**	wasps in well
LW-5S	**LNAP-04-22**	wasps in well
LW-5SI	**NOT USED**	wasps in well
MW-4	MW-4	
MWCD-99-02A	MWCD-99-02A	
MWCD-99-02B	MWCD-99-02B	
Outfall 008	OFP-008	
PZ-11D	PZ-11D	
PZ-17D	PZ-17D	
PZ-1D	PZ-1D	
PZ-5D	PZ-5D	
PZ-8D	PZ-8D	
PZ-99-01I	PZ-99-01I	
PZ-99-03	PZ-99-03	
PZ-9D	PZ-9D	
PZ-TF-04-02A	PZ-TF-04-02A	
PZ-TF-04-02B	PZ-TF-04-02B	
PZ-TF-04-03A	PZ-TF-04-03A	
PZ-TF-04-03B	PZ-TF-04-03B	
PZ-TF-04-07A	PZ-TF-04-07A	
PZ-TF-04-07B	PZ-TF-04-07B	
PZ-TF-04-09A	PZ-TF-04-09A	

TABLE 3-1
2004 TIDAL EFFECTS STUDY MONITORING LOCATIONS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

PROPOSED MONITORING LOCATION ID	ACTUAL MONITORING LOCATION ID	COMMENTS
PZ-TF-04-09B	PZ-TF-04-09B	
WC-11S	**NOT USED**	obstruction in well
WC-18D1	WC-18D1	
WC-18S	WC-18S	
WC-19D1	WC-19D1	
WC-19S	WC-19S	
WC-1S	WC-1S	
WC2-1D	WC2-1D	
WC2-1I	WC2-1I	
WC2-1S	WC2-1S	
WC2-2D	WC2-2D	
WC2-3D	WC2-3D	
WC-2D	WC-2D	
WC3-2D	WC3-2D	
WC3-2I	WC3-2I	
WC-4S	WC-4S	
WC5-1D	WC5-1D	
WC5-1S	WC5-1S	
WC5-2I	WC5-2I	
WC5-3S	WC5-3S	
WC-5S	WC-5S	
WC-6S	**NOT USED**	obstruction in well
WC-8S	**NOT USED**	questionable integrity
WC-9D2	WC-9D2	
WC-9S	WC-9S	
TOTAL: 68	**TOTAL: 61**	

TABLE 3-2
2004 TIDAL EFFECTS STUDY COMPUTED MEAN GROUNDWATER ELEVATIONS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

LOCATION ID	MEAN GROUNDWATER ELEVATION (FT,MSL)
BRW-04-01	1.52
BRW-04-02	1.27
D-04-17A	1.47
D-04-04A	1.46
HESE-01-08D	2.34
HESE-01-10D	2.04
HESE-01-12D	2.07
HESE-01-12I	2.16
HESE-01-14I	2.46
HESE-01-15I	2.29
HESE-01-17D	2.44
HESE-01-17I	2.36
HESE-01-18D	2.19
Housatonic River	-1.11
LNAP-04-22	2.12
LW-10D	2.13
LW-10I	2.24
LW-10S	3.15
LW-13	3.30
LW-5D	1.04
MW-4	3.00
MWCD-99-02A	1.40
OFP-008	1.59
PZ-11D	2.53
PZ-17D	1.98
PZ-1D	2.08
PZ-5D	2.33
PZ-8D	2.14
PZ-99-01I	2.93
PZ-99-03	2.50
PZ-9D	2.26
PZ-TF-04-02A	1.17
PZ-TF-04-02B	1.51
PZ-TF-04-03A	0.92
PZ-TF-04-03B	2.07
PZ-TF-04-07A	0.95
PZ-TF-04-07B	1.35
PZ-TF-04-09A	0.82
PZ-TF-04-09B	1.08
WC-18D1	2.06
WC-18S	1.89
WC-19D1	2.48

TABLE 3-2
2004 TIDAL EFFECTS STUDY COMPUTED MEAN GROUNDWATER ELEVATIONS

TECHNICAL MEMORANDUM
2004 GROUNDWATER SAMPLING AND TIDAL EFFECTS STUDY
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

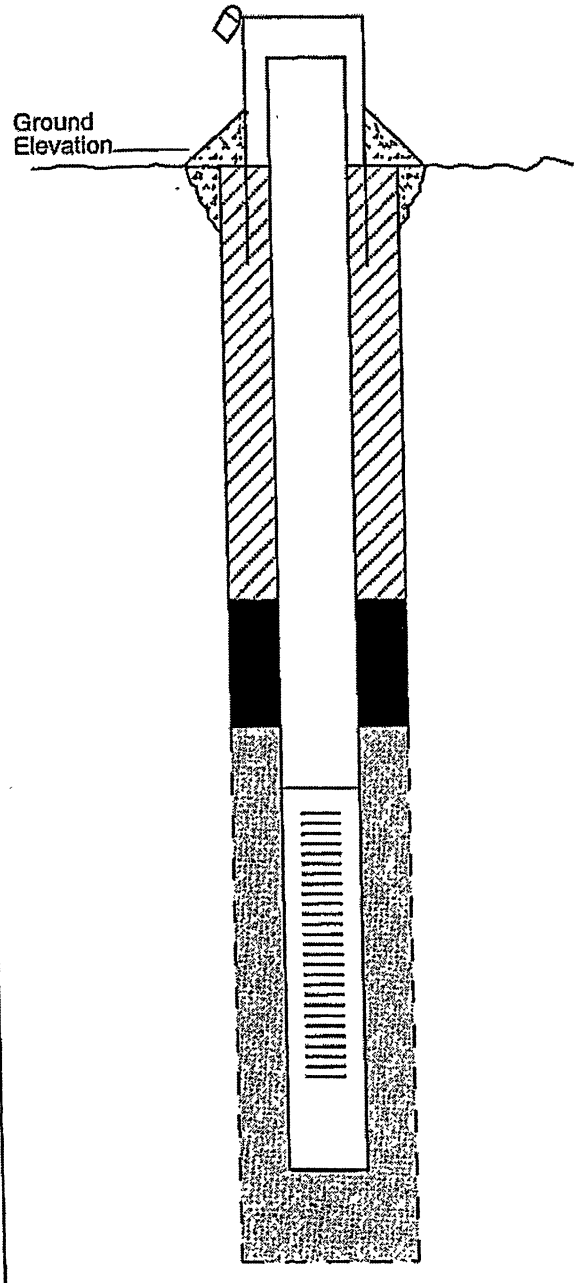
LOCATION ID	MEAN GROUNDWATER ELEVATION (FT,MSL)
WC-19S	2.53
WC-1S	1.98
WC2-1D	2.16
WC2-1I	2.22
WC2-1S	2.10
WC2-3D	2.28
WC3-2D	2.60
WC3-2I	2.54
WC-4S	1.96
WC5-1D	2.65
WC5-1S	2.20
WC5-2I	2.76
WC5-3S	2.70
WC-5S	2.02
WC-9D2	3.24
WC-9S	2.29

APPENDIX A

2004 TIDAL FLATS PIEZOMETER CONSTRUCTION DIAGRAMS

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: D-04-4
Date Installed: 5-11-04
Field Technician: Tom Longley
Driller: N/A
Drilling Method: Bucket Auger
Development Method: _____
Checked By: _____



Stick-up of Casing Above Ground Surface: N/A
Type of Surface Seal/Other Protection: N/A
Type of Surface Casing: N/A
ID of Surface Casing: N/A
Diameter of Borehole: 3"
Riser Pipe ID: 0.5"
Type of Riser Pipe: SCH 80 PVC
Type of Backfill: N/A
Depth of Top of Seal: 0"
Type of Seal: CAVE
Depth of Top of Sand: 2.6'
Depth of Top of Screen: 2.6'
Type of Screen: PVC SURROUNDED W/ S.S. MESH
Slot Size x Length: 0.010" X 3.8"
ID of Screen: 0.5"
Type of Sandpack: PRE-PACKED W/ SAND 20/40
Depth of Bottom of Screen: 2.9'
Depth of Sediment Sump with Plug: —
Depth of Bottom of Borehole: 3'

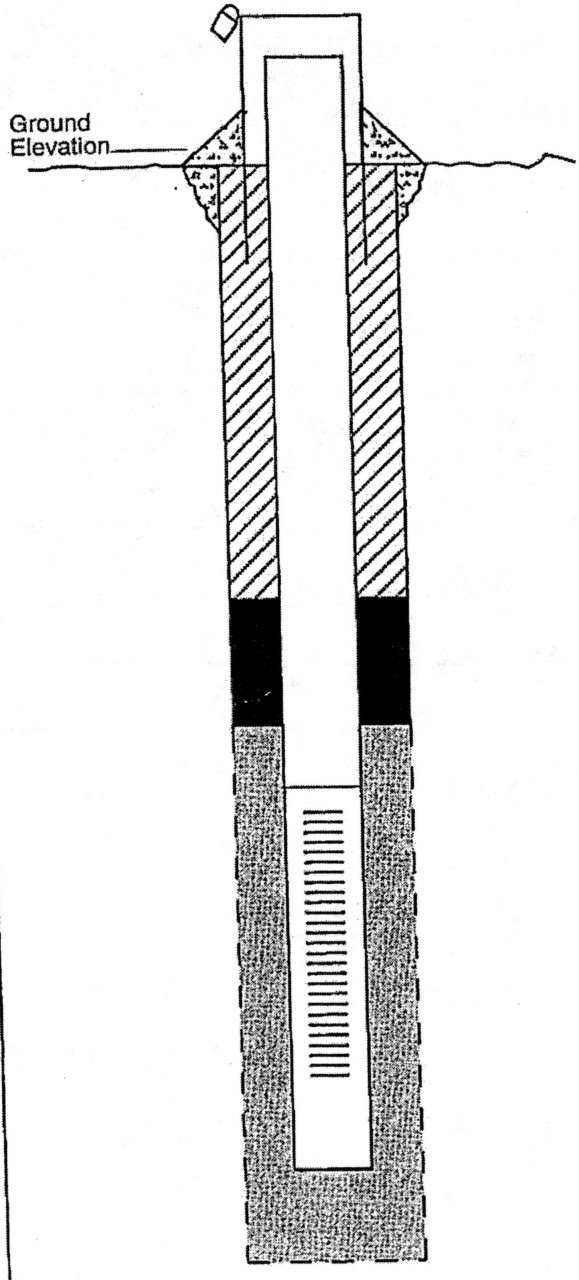
ALL MEASUREMENTS ARE APPROXIMATE

SCREEN = 1.4" OD
0.5" ID
COMES PREPACKED FROM GEOPROBE®

MACTEC, Inc.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: D-04-8
Date Installed: 5-11-04
Field Technician: TOM LONGLEY
Driller: N/A
Drilling Method: BUCKET AUGER
Development Method: _____
Checked By: _____



Stick-up of Casing Above Ground Surface: N/A
Type of Surface Seal/Other Protection: N/A
Type of Surface Casing: N/A
ID of Surface Casing: N/A
Diameter of Borehole: 3"
Riser Pipe ID: 0.5"
Type of Riser Pipe: SCH 80 PVC
Type of Backfill: N/A
Depth of Top of Seal: 0"
Type of Seal: CAVE
Depth of Top of Sand: 2.1'
Depth of Top of Screen: 2.1'
Type of Screen: PVC SURROUNDED W/S.S. MESH
Slot Size x Length: 0.010" x 3.8"
ID of Screen: 0.5"
Type of Sandpack: PRE PACKED W/ 20/40 SAND
Depth of Bottom of Screen: 2.4'
Depth of Sediment Sump with Plug: —
Depth of Bottom of Borehole: 2.5'

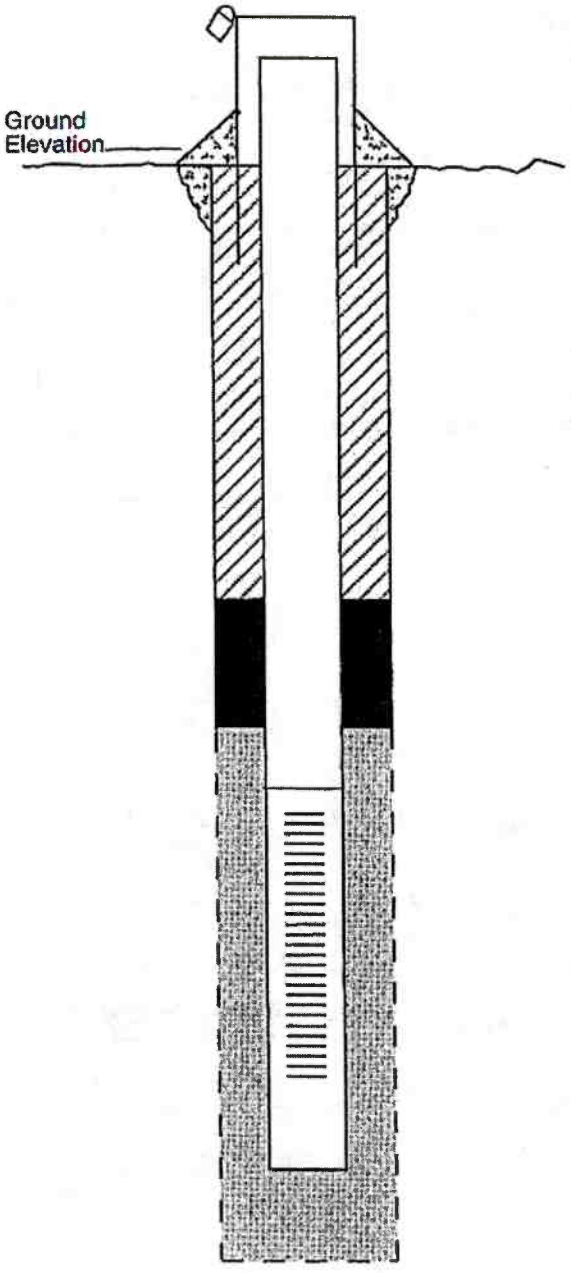
SCREEN = 1.4" O.D
0.5" ID
COMES PREPACKED FROM GEOPROBE®

ALL MEASUREMENTS ARE APPROX.

MACTEC, Inc.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: D-04-13
Date Installed: 5-11-04
Field Technician: TOM LONGLEY
Driller: N/A
Drilling Method: BUCKET AUGER
Development Method:
Checked By:



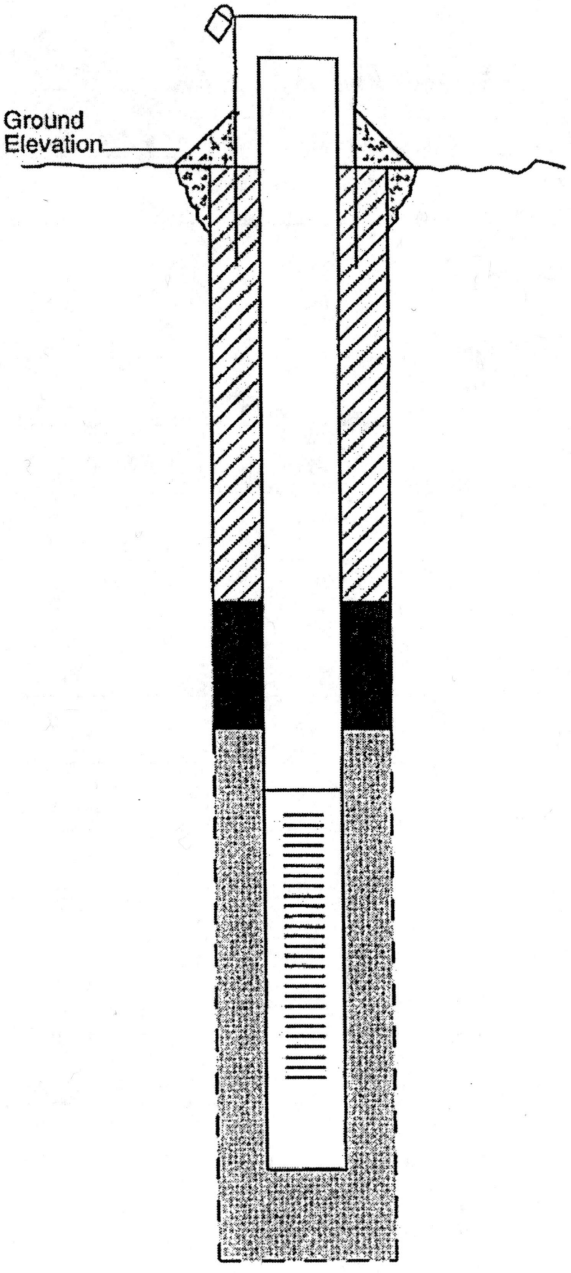
Stick-up of Casing Above Ground Surface: N/A
Type of Surface Seal/Other Protection: N/A
Type of Surface Casing: N/A
ID of Surface Casing: N/A
Diameter of Borehole: 3"
Riser Pipe ID: 0.5"
Type of Riser Pipe: SCH 80 PVC
Type of Backfill: N/A
Depth of Top of Seal: 0'
Type of Seal: CAVE
Depth of Top of Sand: 2.1'
Depth of Top of Screen: 2.1'
Type of Screen: PVC SURROUNDED W/ S.S. MESH
Slot Size x Length: 0.010" X 3.8"
ID of Screen: 0.5"
Type of Sandpack: PREPACKED W/ 20/40 SAND
Depth of Bottom of Screen: 2.4'
Depth of Sediment Sump with Plug: —
Depth of Bottom of Borehole: 2.5'

SCREEN = 1.4" OD
0.5" ID
COMES PREPACKED FROM GEOPROBE®

ALL MEASUREMENTS ARE APPROXIMATE

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: D-04-17
Date Installed: 5-11-04
Field Technician: TOM LONGLEY
Driller: N/A
Drilling Method: BUCKET AUGER
Development Method: _____
Checked By: _____



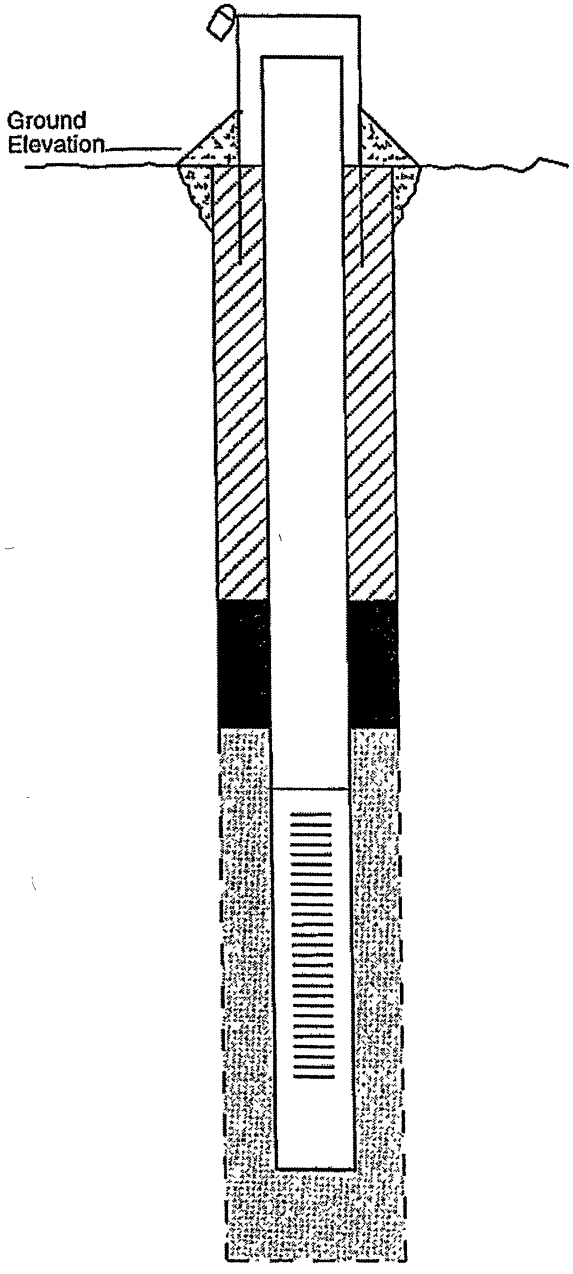
Stick-up of Casing Above Ground Surface: N/A
Type of Surface Seal/Other Protection: N/A
Type of Surface Casing: N/A
ID of Surface Casing: N/A
Diameter of Borehole: 3"
Riser Pipe ID: 0.5"
Type of Riser Pipe: SCH 80 PVC
Type of Backfill: N/A
Depth of Top of Seal: 0'
Type of Seal: CAVE
Depth of Top of Sand: 2.1'
Depth of Top of Screen: 2.1'
Type of Screen: PVC SURROUNDED W/ S.S. MESH
Slot Size x Length: 0.010" X 3.8"
ID of Screen: 0.5"
Type of Sandpack: PREPACKED W/ 20/40 SAND
Depth of Bottom of Screen: 2.4'
Depth of Sediment Sump with Plug: —
Depth of Bottom of Borehole: 2.5'

SCREEN = 1.4" OD
0.5" ID
COMES PREPACKED FROM GEOPROBE ®

ALL MEASUREMENTS ARE APPROXIMATE

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-02A
Date Installed: 5-6-04
Field Technician: Tom Longley
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____



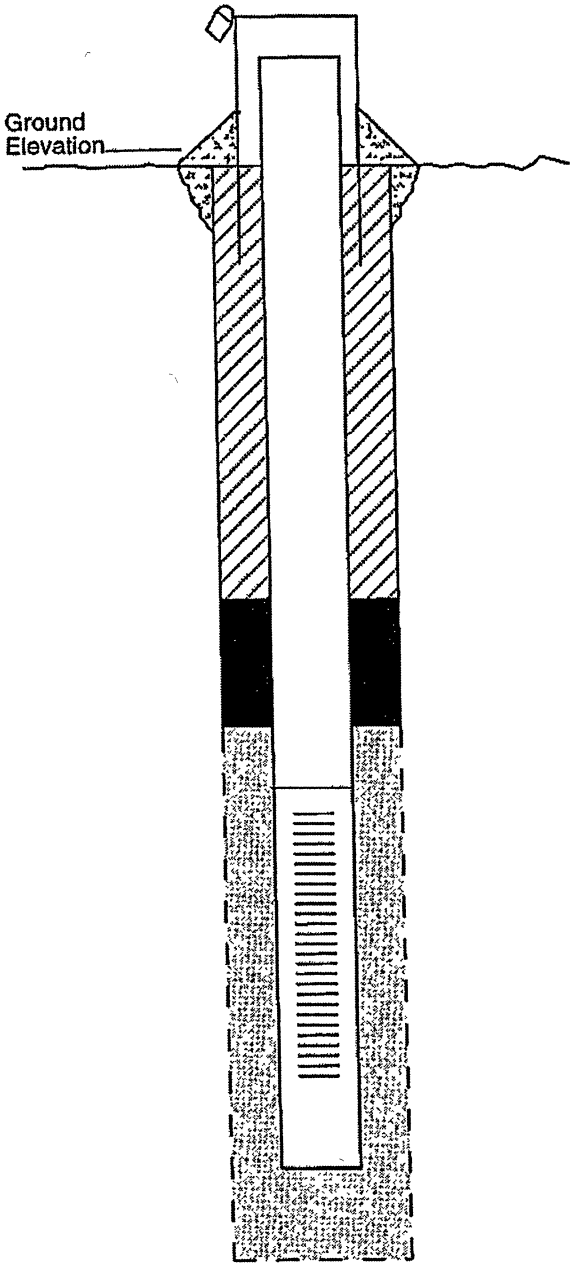
Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: CAVE
Depth of Top of Seal: 1.5'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 4'
Depth of Top of Screen: 5'
Type of Screen: SCH 40, PVC
Slot Size x Length: 0.010" X 10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 15' (BENT. 16'-15')
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-02A INSTALLED IN SAME BORING AS PZ-TF-04-02B

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-02B
Date Installed: 5-6-04
Field Technician: Tom Longley

Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH 4" CASING
Development Method: _____
Checked By: _____



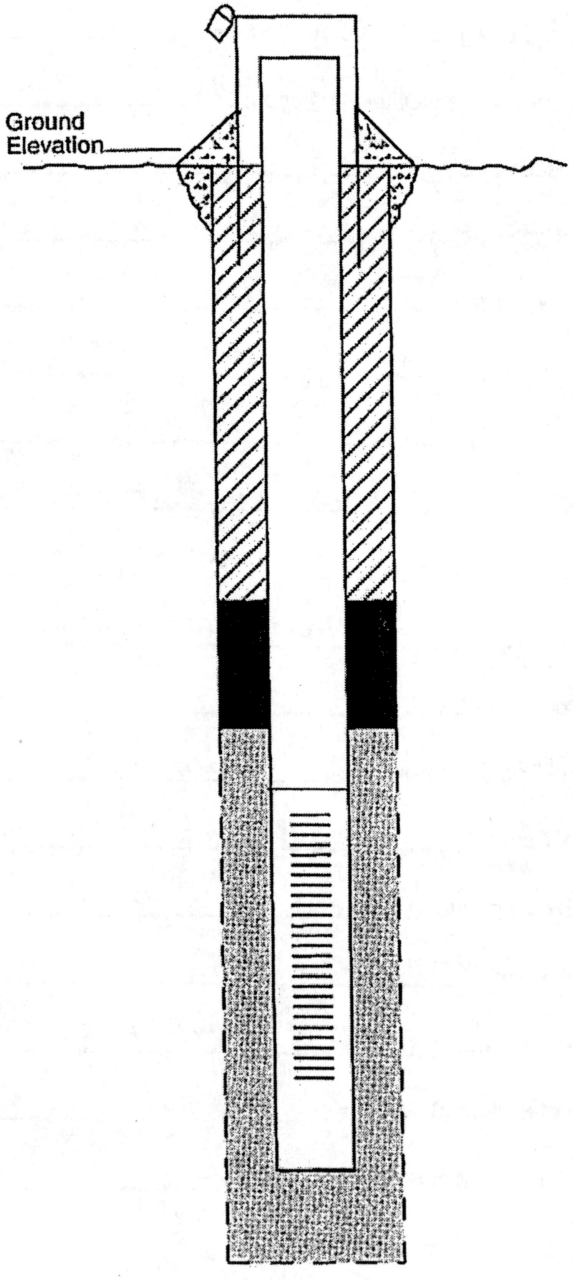
Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40 PVC
Type of Backfill: SAND/CAVE/CUTTINGS
Depth of Top of Seal: 29'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 34'
Depth of Top of Screen: 38'
Type of Screen: PVC SCH 40
Slot Size x Length: 0.010" X 10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 48'
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-02B INSTALLED IN SAME BORING AS PZ-TF-04-02A

MACTEC. Inc.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-03A
Date Installed: 5-7-04
Field Technician: TOM LONGLEY
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____



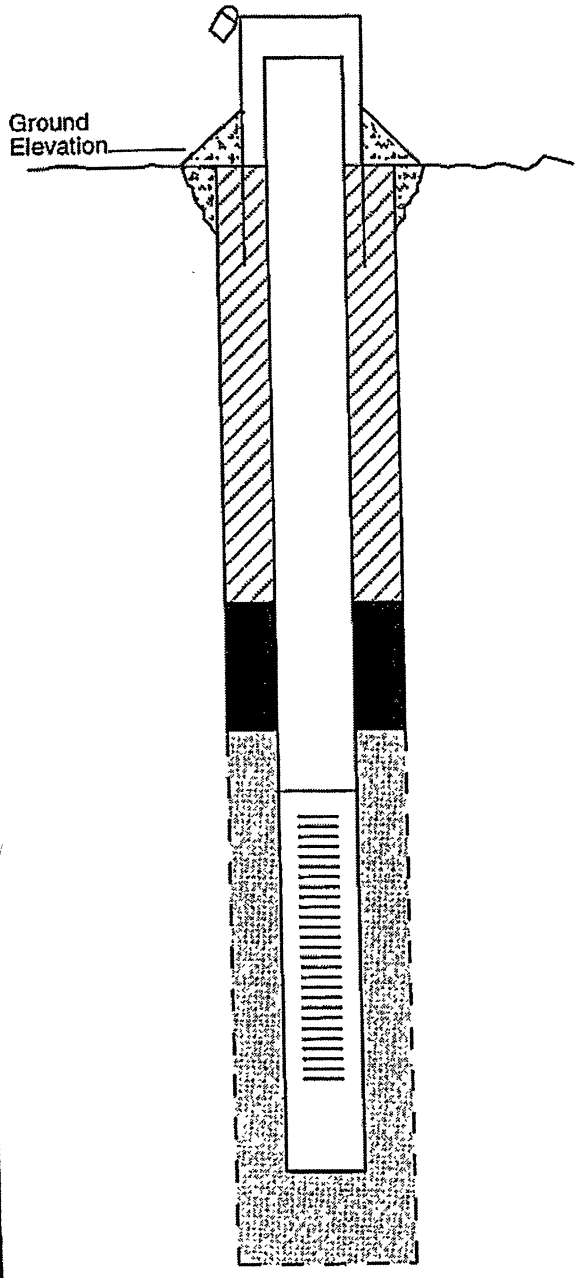
Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: CAVE
Depth of Top of Seal: 1'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 3'
Depth of Top of Screen: 5'
Type of Screen: SCH 40, PVC
Slot Size x Length: 0.010" x 10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 15' (BENT. 17'-15.5')
Depth of Sediment Sump with Plug: –
Depth of Bottom of Borehole: 50'

PZ-TF-04-03A INSTALLED IN SAME BORING AS PZ-TF-04-03B.

MACTEC, Inc.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-03B
Date Installed: 5-6-04
Field Technician: TOM LONGLEY
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____



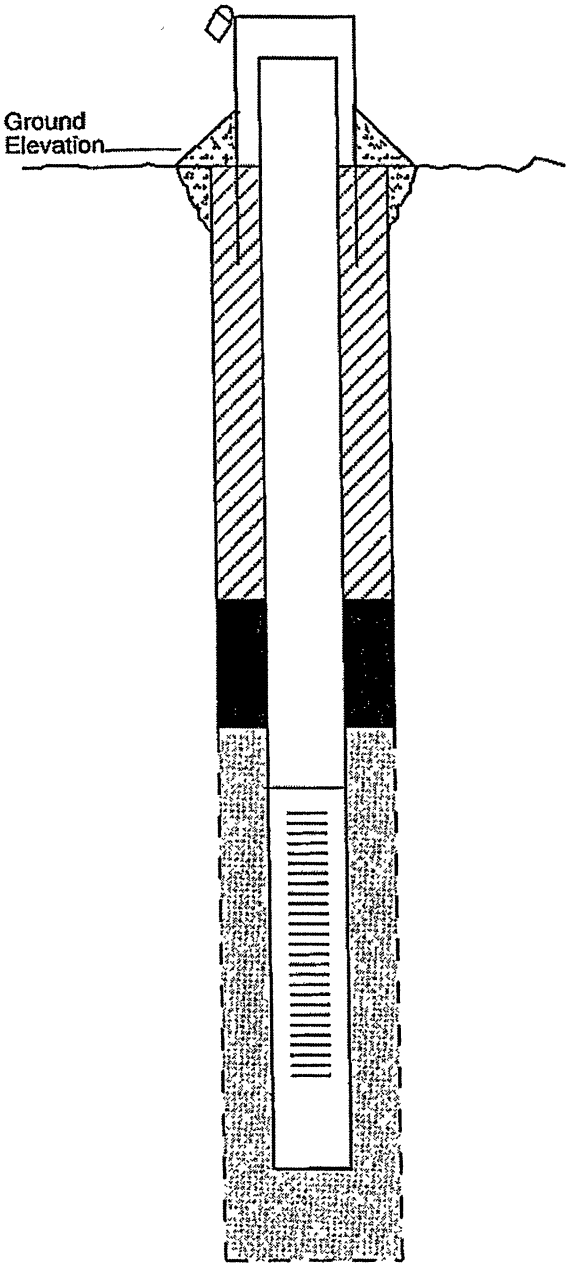
Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: SAND/CAVE/CUTTINGS
Depth of Top of Seal: 35'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 37'
Depth of Top of Screen: 40'
Type of Screen: SCH 40, PVC
Slot Size x Length: 0.010" X 10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 50'
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-03B INSTALLED IN SAME BORING AS PZ-TF-04-03A

MACTEC, Inc.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-07A
Date Installed: 5-10-04
Field Technician: TOM LONGLEY
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____

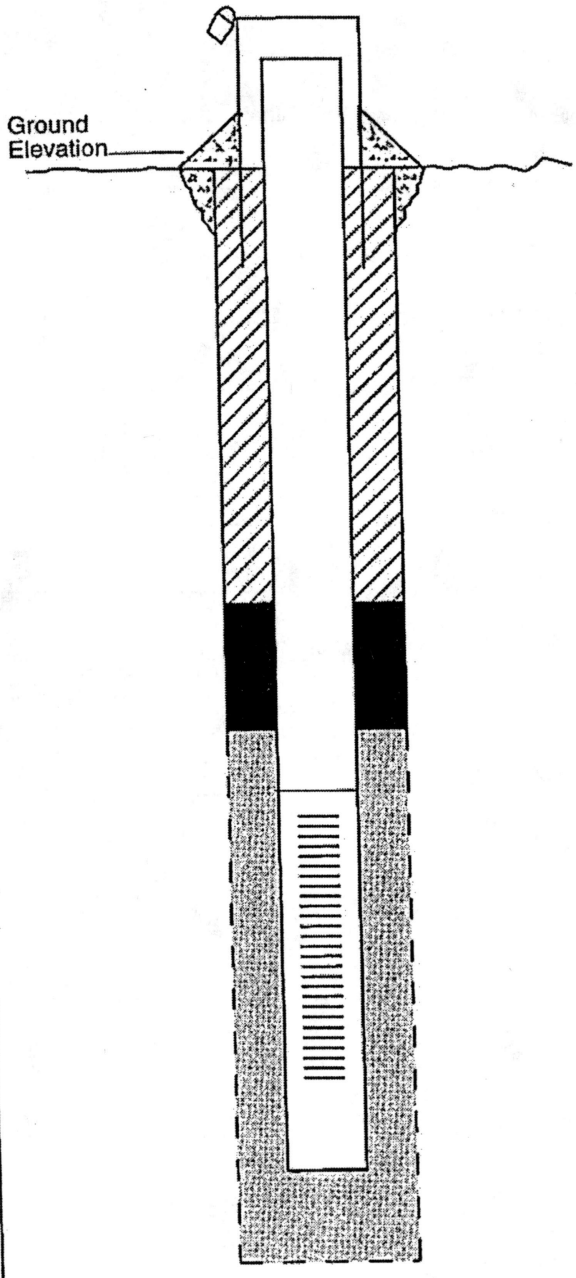


Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: CAVE
Depth of Top of Seal: 1'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 3'
Depth of Top of Screen: 5'
Type of Screen: SCH 40 PVC
Slot Size x Length: 0.010" X 10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 15' (BENT. 16'-15')
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-07A INSTALLED IN SAME BORING AS PZ-TF-04-07B

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-07B
Date Installed: 5-10-04
Field Technician: TOM LONGLEY
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____



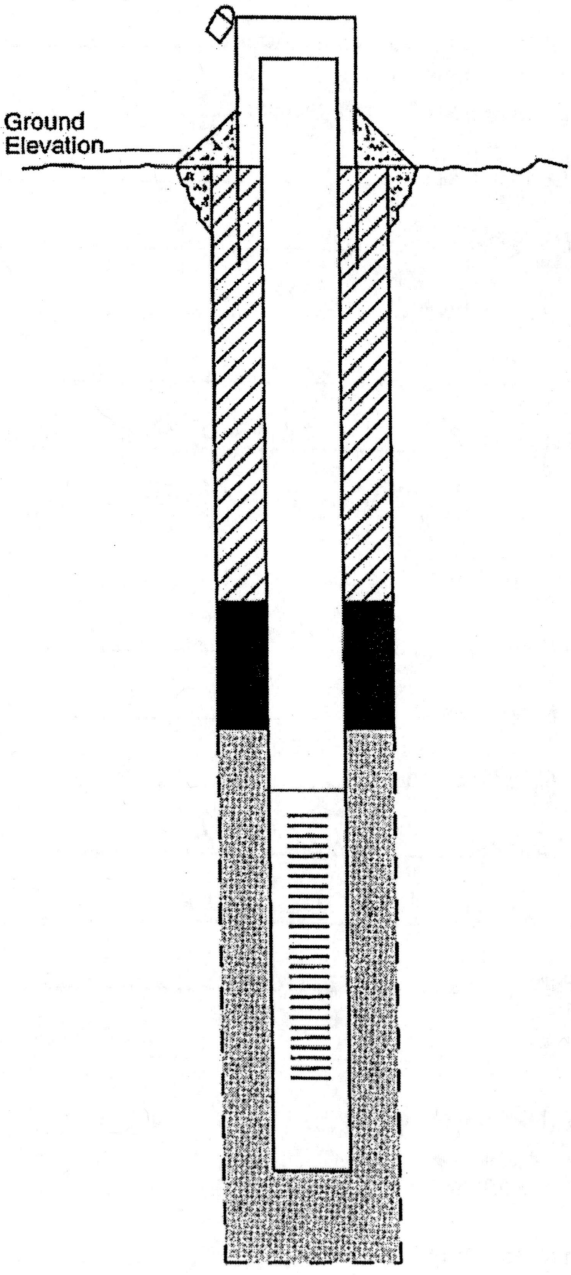
Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: CAVE/CUTTINGS
Depth of Top of Seal: 34.5'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 37'
Depth of Top of Screen: 40'
Type of Screen: SCH 40, PVC
Slot Size x Length: 0.010" X 10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 50'
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-07B INSTALLED IN SAME BORING AS PZ-TF-04-07A

MACTEC, Inc.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-09A
Date Installed: 5-10-04
Field Technician: TOM LONGLEY
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____

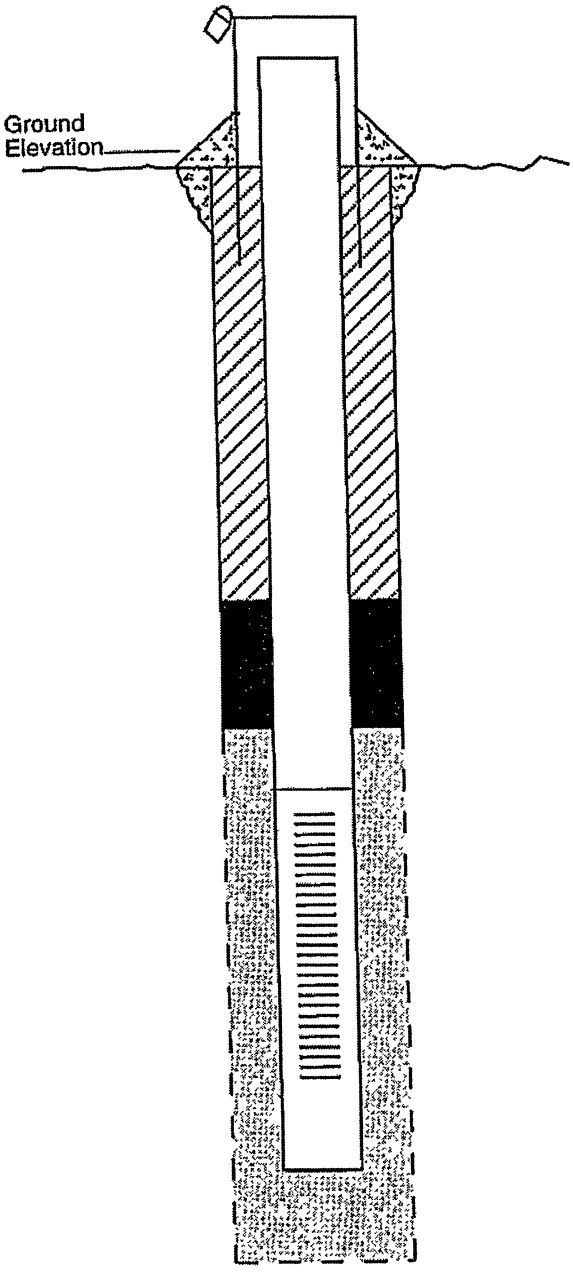


Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: CAVE
Depth of Top of Seal: 1'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 3'
Depth of Top of Screen: 5'
Type of Screen: SCH 40, PVC
Slot Size x Length: 0.010" X10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 15' (BENT 16'-15')
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-09A INSTALLED IN SAME BORING AS PZ-TF-04-09B.

MONITORING WELL CONSTRUCTION DIAGRAM

Project: Stratford Army Engine Plant
Project No.: 3618038008
Boring No.: PZ-TF-04-09B
Date Installed: 5-10-04
Field Technician: TOM LONGLEY
Driller: NEW HAMPSHIRE BORING
Drilling Method: DRIVE & WASH
Development Method: _____
Checked By: _____



Stick-up of Casing Above Ground Surface: _____
Type of Surface Seal/Other Protection: _____
Type of Surface Casing: _____
ID of Surface Casing: _____
Diameter of Borehole: 4"
Riser Pipe ID: 1.5"
Type of Riser Pipe: SCH 40, PVC
Type of Backfill: BENTONITE/CAVE/SAND
Depth of Top of Seal: 34'
Type of Seal: PEL-PLUG BENTONITE
Depth of Top of Sand: 37'
Depth of Top of Screen: 40'
Type of Screen: SCH 40, PVC
Slot Size x Length: 0.010" X10'
ID of Screen: 1.5"
Type of Sandpack: #1 WELL PACK
Depth of Bottom of Screen: 50'
Depth of Sediment Sump with Plug: -
Depth of Bottom of Borehole: 50'

PZ-TF-04-09B INSTALLED IN SAME BORING AS PZ-TF-04-09A

MACTEC. Inc.

APPENDIX B

GROUNDWATER SAMPLING FIELD DATA RECORDS

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5/25/04

MONITORING WELL ID: BRW-04-01 | ACTIVITY TIME: START 0755 END 0855 | BOTTLE TIME: 0845

LABEL SAMPLE ID: BRW040104XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☒

INITIAL DTW: 5.80 ft (TOR) | FINAL DTW: 8.03 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 036 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 2.7 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.13

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0755	5.80	250	Begin	purging						
0810	8.05	250	16.4	>99.9	8.1	0.1	17	-192	>4.0	
0817	8.03	200	16.4	>99.9	8.2	0.1	14	-179	>4.0	Reduced purge rate
0822	8.03	200	16.4	>99.9	8.2	0.1	11	-179	>4.0	to 200ml/min
0826	8.03	200	16.6	>99.9	8.0	0.1	7.9	-172	>4.0	
0830	8.03	200	16.6	>99.9	8.0	<0.02	6.8	-166	>4.0	
0833	8.03	200	16.5	>99.9	8.0	<0.02	6.4	-164	>4.0	
0836	8.03	200	16.4	>99.9	8.0	<0.02	6.5	-158	>4.0	
0840	8.03	200	16.3	>99.9	8.0	<0.02	6.5	-156	>4.0	
0843	8.03	200	16.4	>99.9	8.0	<0.02	6.6	-159	>4.0	
0845	Collect samples									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	☒
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	☒
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	☒
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☒
Com	☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com	☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	"
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	☐
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☒
Com	☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	☐
Com	☐	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	☐
F	X	Carbon Dioxide	Hach Method	N	None	NA	☒
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☒

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2}: 1.6 mg/L

CO_2: 159 mg/L

SIGNATURE: _____

RECEIVED BY: David Lineyer

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1302

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

5-26-04

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5-25-04

MONITORING WELL ID: BRW-04-02 | ACTIVITY TIME: START END | BOTTLE TIME: 0800

LABEL SAMPLE ID: BRW040204XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA Whale pump + Tubing w/ check valve + Bailer | BLADDER PUMP ☐ | PERISTALTIC PUMP ☐ | DRAWDOWN VOL

INITIAL DTW: 4.35 ft (TOR) | FINAL DTW: ft (TOR) | INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

	TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
5-25	0935	0.25		Begin purging. Water Level rose during pump deployment							
				Pump problem - stop purge - repair pump							
	0950	0.25		Begin purging							
	0953	2.60	200	15.6	51.3	7.60	0.84	24	113	3.33	
	0959	3.55	250	15.5	>99.9	7.51	0.90	20	54	>4.00	
				Begin increased pump rate to purge well dry as pump can not reach bottom of well, will than purge dry will bailer.							
	1010	DTS		cont - will allow recharge + than attempt Geopump.							
	1420	Return to well:		∇ ~ 48.50'			V. poor recharge.	Decide to bail dry and allow recharge overnite as Geopump will not work at this water level.			
	1715	Well purged dry using tubing w/ check valve + Bailer. Allow overnite recharge									
5-26	0742	44.05		Return to well to collect samples by bailer.							
	0800			Collect Samples							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} 2.0 mg/L

CO_2 304 mg/L

SIGNATURE: Jeff Hardiman

RECEIVED BY: David Lovejoy

VJD2

(3)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5-24-04

MONITORING WELL ID: D-04-13 | ACTIVITY TIME: START 1245 END 1315 | BOTTLE TIME: 1310

LABEL SAMPLE ID: ~~DOL D041704XX~~ D041304XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X | DRAWDOWN VOL

INITIAL DTW: 2.59 ft (TOR) | FINAL DTW: 2.59 ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 273 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1245	probe	350	17.69	25.3	8.95	6.14	3.4	-235	1.74	
1249	will		17.67	28.3	8.05	5.30	2.0	-232	1.75	
1253	not		17.70	28.3	8.20	5.31	0.2	-234	1.75	
1257	fitwl		17.71	28.4	8.21	5.30	0.1	-233	1.75	
1301	tubing		17.73	28.4	8.22	5.29	0.1	-232	1.75	
1305			17.74	28.4	8.22	5.28	0.1	-231	1.75	
1310			Sample	~~D-04-17~~ DOL 5/24		D-04-13				

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	X
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	X
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F		Carbon Dioxide	Hach Method	N	None	NA	
F		Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: _____

RECEIVED BY: _____

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v JDZ

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 6-8-04

MONITORING WELL ID: D-13 | ACTIVITY TIME: START 0805 END 0915 | BOTTLE TIME: 0840

LABEL SAMPLE ID: D041304XZ | ASSOCIATED TRIP BLANK: N/A | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 2.80 ft (TOR) | FINAL DTW: BOTTOM ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 0.26 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0.0 <1.0 (CO) ppmv 6/8/04

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0815	2.80	50								START PURGE
0825	BOTTOM	50	18	29.0	8.4	8.6	*	-270	1.9	
0830	BOTTOM	50	18	29.0	8.4	8.7	*	-270	1.8	
0835	BOTTOM	50	18	29.2	8.4	8.4	*	-270	1.8	
0840	BOTTOM	50	—	—	—	—	—	—	—	SAMPLE
										* TURBIDITY MALFUNCTION
										CORRECTING DISSOLVED
										AND TOTAL METALS
										TURBIDITY MEANS
										LOW.
										WELL RECHARGING
										SLOWLY - AIR IN
										DISCHARGE LINE

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOAs	SW 846 Modified Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: [signature] RECEIVED BY [signature]

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5-25-04

MONITORING WELL ID: D-04-17 | ACTIVITY TIME: START 0730 END 0825 | BOTTLE TIME: 0815

LABEL SAMPLE ID: D041704XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ✓

INITIAL DTW: 1.76 ft (TOR) | FINAL DTW: 1.79 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: ___ gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 5 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: ___

BLADDER PUMP SETTINGS: DISCHARGE ___ SEC | REFILL ___ SEC | PRESSURE ___ psi

PID AT WELLHEAD: Ø ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0730	1.76	350	15.62	28.2	7.28	0.62	32	129	1.73	tidal influence
0735	1.78	350	15.59	27.9	7.26	0.12	30	118	1.71	we ll
0740	1.79		15.41	27.5	7.16	0	10	88	1.69	
0745	1.79		15.38	27.5	7.13	0	8	84	1.68	
0750	↓		15.40	27.5	7.14	0	6	71	1.68	
0755			15.39	27.5	7.14	0	3	77	1.68	
0800			15.39	27.5	7.13	0	2	79	1.68	
0805			15.38	27.5	7.15	0	2	78	1.68	
0810			15.40	27.5	7.12	0	1	77	1.68	
0815	↓		Sample	D-04-17						
0825	end purging									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com	☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	☐
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	☐
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Mn < 0.1

Field Chemistry Results (ppm):

Fe^{+2} < 0.2 mg/L

CO_2 76 mg/L

SIGNATURE: ___

RECEIVED BY: ___

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 6-8-04

MONITORING WELL ID: D17 | ACTIVITY TIME: START 0920 END 1020 | BOTTLE TIME: 1015

LABEL SAMPLE ID: D041704X2 | ASSOCIATED TRIP BLANK: N/A | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA | BLADDER PUMP [ ] | PERISTALTIC PUMP [X]

INITIAL DTW: ~1.5 ft (TOR) | FINAL DTW: — ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 3.19 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0.0 4/10 ppmv

6/10/04

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0930	1.5	350	—	—	—	—	—	—	—	START PURGE
0935	—	350	15	9.9	7.1	<0.1	*	-43	0.5	
0940	—	350	15	9.3	7.0	<0.1	*	-47	0.5	
0945	—	350	15	8.63	7.0	<0.1	*	-53	0.5	
0950	—	350	15	8.46	7.0	<0.1	*	-53	0.5	
1000	—	350	15	7.63	7.1	<0.1	*	-55	0.4	
1005	—	350	15	7.36	7.1	<0.1	*	-56	0.4	* TURBIDITY MALFUNCTION
1010	—	350	15	7.17	7.1	<0.1	*	-56	0.4	COLLECT DUP +
1015	—	350	—	—	—	—	*	—	—	DISSOLVED METALS
										NITRATE LOW
										UNABLE TO TAKE
										WATER LEVEL
										MEASUREMENT
										WHILE PURGING
										1015 SAMPLE

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	[ ]	TCL VOAs	SW 846 Modified Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com	[ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com	[ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com	[ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com	[X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com	[X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com	[ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com	[ ]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	[ ]
Com	[ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com	[ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[ ]
Com	[ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly	[ ]
F	[ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F	[ ]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 0.22 mg/L

CO_2 76 mg/L

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5-26-04

MONITORING WELL ID: D-4 | ACTIVITY TIME: START END | BOTTLE TIME:

LABEL SAMPLE ID: D04404XX | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP:

INITIAL DTW: 1.92 ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0905	1.92	200								Tide going out
0906	—	—	Well went dry - not even enough recharge to fill Horiba cell for water quality measurements.							
			NO RECHARGE OF WELL							
			NO Samples collected							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

CO_2 _____

SIGNATURE: Jeff Hartman

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 6/8/04

MONITORING WELL ID: D-04-4 | ACTIVITY TIME: START 0930 END 1245 | BOTTLE TIME: 1200

LABEL SAMPLE ID: D04404XX | ASSOCIATED TRIP BLANK: TBK04108 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [✓]

INITIAL DTW: n/a ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: n/a gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: n/a | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: n/a

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: n/a ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
										Unable to collect parameters. Purged two volume from piezometer; allowing ~10 min recharge between purges

n/a 6/8/04

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOAs	SW 846 Modified Method 8260B	N	HCL / 4 Deg. C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	2- Serum 1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL (3) 6/9/04	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com		Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} 2.8 mg/L

CO_2 170 mg/L

SIGNATURE:

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5/26/04

MONITORING WELL ID: D-8 | ACTIVITY TIME: START ____ END ____ | BOTTLE TIME: 1050

LABEL SAMPLE ID: D804XX | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [ ]

INITIAL DTW ____ ft (TOR) | FINAL DTW ____ ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft ____ gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L ____ | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME ____

BLADDER PUMP SETTINGS: DISCHARGE ____ SEC; REFILL ____ SEC; PRESSURE ____ psi

PID AT WELLHEAD ____ ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
			Could not purge - could only collect enough water							
			to collect the Sample volumes							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	X
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	X
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} < 0.2 mg/L

CO_2 115 mg/L

SIGNATURE. ____

RECEIVED BY: David O Lovejoy

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.17.04

MONITORING WELL ID: ECD-4 | ACTIVITY TIME: START 1625 END 1714 | BOTTLE TIME: 1710

LABEL SAMPLE ID: ECD404XX | ASSOCIATED TRIP BLANK:

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 4.93 ft (TOR) | FINAL DTW: 5.47 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0.086 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 2.18 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.039

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 0 <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1625		200	Begin purging							
1632	5.44	200	18.3	3.35	7.45	6.16	50	140		little cloudy
1637	5.44	200	18.2	3.62	7.31	6.03	26	136		clearing
1642	5.45	200	18.3	3.70	7.30	5.15	15	134		"
1646	5.46	200	18.3	3.73	7.30	5.48	8.6	135		"
1650	5.46	200	18.2	3.74	7.28	5.53	6.3	136		"
1654	5.47	200	18.2	3.73	7.28	4.89	4.2	136		Clear
1658	5.47	200	18.2	3.72	7.29	4.05	3.2	136		"
1701	5.47	200	18.2	3.74	7.34	4.68	3.3	138		"
1704	5.47	200	18.2	3.69	7.34	4.59	3.2	139		"
1707	5.47	200	18.2	3.67	7.30	4.62	3.2	138		"
	Parameters stable									
1710	Collect samples									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	
Com	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly (solid color)	X
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	X
F	Carbon Dioxide	Hach Method	N	None	NA	
F	Fe^{2+}, Sulfite	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ Sulfide _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5-19-04

MONITORING WELL ID: ECD-4 | ACTIVITY TIME: START ~~13:44~~ 15:44 END 16:13 | BOTTLE TIME: 16:10

LABEL SAMPLE ID: ECD404XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ✓

INITIAL DTW: 5.30 ft (TOR) | FINAL DTW: 5.30 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: NA gal

TD= 18

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.638

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: <0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
15:44	5.30	Turn on		Pump - Low Flow						
15:47	5.30	300								
15:50	5.30	300	17.9	0.63	6.2	8.0	18	142	0.03	
15:55	5.30	300	17.8	0.65	6.2	7.9	4.2	154	0.03	
16:00	5.30	300	17.8	0.65	6.2	8.8	2.8	157	0.03	
16:05	5.30	300	17.8	0.66	6.2	8.5	1.6	161	0.03	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ☐	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	☐
Com ☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com ☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☐
Com ☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com ☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	☐
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com ☒	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	✓
Com ☒	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	✓
F ☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F ☐	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES

Com=Compuchem

F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

CO_2 _____

SIGNATURE: [signature]

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 6-7-04

MONITORING WELL ID: HESE-01-07D | ACTIVITY TIME: START 1620 END 1725 | BOTTLE TIME: 1715

LABEL SAMPLE ID: HESE0107D04X2 | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: DUPLICATE

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☑

INITIAL DTW	4.81 ft (TOR)	FINAL DTW	4.84 ft (TOR)	INITIAL - FINAL X 0.16 gal/ft	0.0048 gal

DRAWDOWN VOL

TOTAL VOLUME PURGED (L/m X minutes X 0 26 gal/L): 0.78

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0062

BLADDER PUMP SETTINGS

DISCHARGE	SEC
REFILL	SEC
PRESSURE	psi

PID AT WELLHEAD: 5.3 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1640	4.84	100	—	—	—	—	—	—	—	START PURGE
1645	4.85	100	21	27.6	6.8	0.8	75	-260	1.7	
1650	4.84	100	21	27.8	6.8	0.7	6.9	-250	1.7	
1700	4.84	100	21	28.0	6.8	0.1	3.5	-250	1.7	
1705	4.84	100	21	28.0	6.8	<0.1	2.9	-240	1.7	
1710	4.84	100	21	28.0	6.8	<0.1	2.0	-240	1.7	
1715	4.84	100	—	—	—	—	—	—	—	SAMPLE
										DUPLICATE TAKEN HESE0107D04ZD
										SULFUR SMELL

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 D	2-40 mL	☑
Com	☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com	☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	☐
Com	☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	☐
Com	☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	☐
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-250 mL Poly	☑
Com	☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	☐
F	☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F	☐	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: Bradley P. Lay

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 6/7/04

MONITORING WELL ID: HESE-01-07I | ACTIVITY TIME: START 1655 END 1755 | BOTTLE TIME: 1740

LABEL SAMPLE ID: HESE-0107I04X2 | ASSOCIATED TRIP BLANK: ~~TBK-04-107~~ | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☑

INITIAL DTW: 5.00 ft (TOR) | FINAL DTW: 5.04 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 0.98 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 12 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1710	5.00	125	21	1.3	4.6	4.5	1.7	148	0.1	
1715	5.00	125	21	1.3	4.5	2.2	1.6	143	0.1	
1720	5.00	125	21	1.2	4.6	1.8	1.6	137	0.1	
1725	5.00	125	21	1.2	4.6	1.6	1.5	135	0.1	
1730	5.00	125	21	1.2	4.6	1.5	1.6	132	0.1	
1735	5.00	125	21	1.2	4.7	1.4	1.6	128	0.1	
1740	5.00	125	21	1.2	4.7	1.3	1.6	125	0.1	Sample time

6/7/04

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 [	2-40 mL	☑
Com	☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com	☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	☐
Com	☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	☐
Com	☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com	☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com	☐	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	☐
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-250 mL Poly	☑
Com	☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	☐
Com	☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	☐
F	☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F	☐	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5/18/04

MONITORING WELL ID: HESE-01-12D | ACTIVITY TIME: START 1110 END 1430 | BOTTLE TIME: 1350

LABEL SAMPLE ID: HESE0112D04XX | ASSOCIATED TRIP BLANK: TBK-04-101

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.80 ft (TOR) | FINAL DTW: 4.85 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.008 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 8.58

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0009

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 70 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1205	4.81	300	20.60	35.7	6.86	4.93	5.80	-76	2.3	colorless
1215	4.82	300	20.57	35.7	6.87	5.11	3.40	-85	2.3	slight sulfur
1225	4.85	300	20.51	35.7	6.86	4.81	3.70	-87	2.3	smell when
1235	4.85	300	20.47	35.4	6.85	5.15	3.80	-90	2.2	first began
~~1245~~	4.85	300	20.45	35.8	6.85	4.35	5.75	-93	2.3	smell not strong
1310	4.85	300	20.41	35.3	6.85	3.59	2.40	-109	2.2	as continued
1320	4.85	300	20.40	35.4	6.84	3.47	2.10	-114	2.2	to purge.
1325	4.85	300	20.39	35.3	6.85	3.93	2.00	-117	2.2	
1330	4.85	300	20.38	35.4	6.85	3.90	1.70	-123	2.2	
1335	4.85	300	20.37	35.3	6.85	2.74	2.00	-121	2.2	
1340	4.85	300	20.36	35.1	6.85	3.11	2.10	-122	2.2	
1345	4.85	300	20.36	35.3	6.85	3.13	2.10	-122	2.2	
1350	sampling									

had to empty H2O collection and 1300

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [X]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL ✓	[✓]
Com [X]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL ✓	[✓]
Com [X]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg. C	1-1 Liter Poly ✓	[✓]
Com [X]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL ✓	[✓]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly ✓	[✓]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly ✓	[✓]
Com [X]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly ✓	[✓]
Com [X]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly ✓	[✓]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly (solid color)	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	[ ]
F [✓]	Carbon Dioxide	Hach Method	N	None	NA	[✓]
F [✓]	Fe^{2+}, Sulfite	Hach Method	N	None	NA	[✓]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): * Fe^{+2} 6.0 mg/L; * ~~Sulfide~~ CO_2 400 mg/L

SIGNATURE: Karen A Smith

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 6-7-04

MONITORING WELL ID: HESE-01-12D | ACTIVITY TIME: START 1505 END 1615 | BOTTLE TIME: 1605

LABEL SAMPLE ID: HESE0112D04XZ | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] | PERISTALTIC PUMP: [X]

INITIAL DTW: 4.75 ft (TOR) | FINAL DTW: 4.75 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 0.78 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 502 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1530	4.75	100	—	—	—	—	—	—	—	START PURGE
1540	4.75	100	21	29.4	6.7	2.4	1.8	-83	1.8	
1550	4.75	100	21	29.4	6.8	1.6	1.8	-94	1.8	
1555	4.75	100	21	29.4	6.8	1.5	1.8	-98	1.8	
1600	4.75	100	21	29.4	6.9	1.6	1.7	-100	1.8	
1605	4.75	100	—	—	—	—	—	—	—	SAMPLE
										SMELLS OF ORGANIC SOLVENT.

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	Volatile Fatty Acids	VFA AM23G	N	tconium chloride/ 4 [	2-40 mL	X
Com		Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg. C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-250 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F		Carbon Dioxide	Hach Method	N	None	NA	
F		Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: [signature] | RECEIVED BY: [signature]

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5/18/04

MONITORING WELL ID: HESE-01-121 | ACTIVITY TIME: START 0815 END 1100 | BOTTLE TIME: 1020

LABEL SAMPLE ID: HESE-01121041X | ASSOCIATED TRIP BLANK: TBK-04-101

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 5.10 ft (TOR) | FINAL DTW: 5.12 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.0032 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 5.46 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.000006

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 7.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0910	5.15	300	20.99	5.35	6.58	2.07	3.4	-78	0.3	PID readings
0920	5.15	300	20.89	5.79	6.53	1.57	5.0	-111	0.3	7.0ppmv @ wellhe
0930	5.15	300	20.88	5.77	6.50	1.37	7.0	-126	0.3	0.0ppmv @ sampling
0940	5.15	300	20.86	6.05	6.12	1.18	6.5	-103	0.3	location (breathing zon
0945	5.15	300	20.86	6.59	5.60	1.11	6.4	28	0.4	
0950	5.15	300	20.86	6.83	5.32	1.08	7.2	116	0.4	No odor or
0955 ~~1000~~	5.15	300	20.86	6.88	5.21	1.05	6.8	105	0.4	color
1000	5.15	300	20.86	7.00	5.15	1.03	5.7	98	0.4	
1005	5.15	300	20.86	6.95	5.13	1.05	5.1	94	0.4	
1010	5.15	300	20.86	7.09	5.11	1.03	5.1	90	0.4	
1015	5.15	300	20.86	7.02	5.10	1.03	3.6	89	0.4	
1020	Sampling									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL ✓	✓
Com X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL ✓	✓
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg. C	1-1 Liter Poly ✓	✓
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL ✓	✓
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly ✓	✓
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly ✓	✓
Com X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly ✓	✓
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly ✓	✓
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly (solid color)	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F X	Carbon Dioxide	Hach Method	N	None	NA	✓
F X	Fe^{2+}, Sulfite	Hach Method	N	None	NA	✓

NOTES Field Chemistry Results (ppm):

Com=Compuchem
F = Field

* Fe^{+2} 0.60 mg/L
* ~~Sulfide~~ CO_2 320 (M) ppm
160 mg/L

SIGNATURE: Lauren A Smith

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 6/7/04

MONITORING WELL ID: HESE-01-12I | ACTIVITY TIME: START 1535 END 1645 | BOTTLE TIME: 1635

LABEL SAMPLE ID: HESE-0112I04X2 | ASSOCIATED TRIP BLANK: ~~TBK-04-107~~ 6/7/04 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☑

INITIAL DTW: 4.95 ft (TOR) | FINAL DTW: 4.95 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: Ø gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.56 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: Ø

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 44 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1555	4.95	150	21	6.1	6.5	3.0	3.1	50	0.3	
1600	4.95	150	21	6.1	6.4	2.5	2.0	53	0.3	
1605	4.95	150	21	6.5	6.1	2.1	1.7	83	0.4	
1610	4.95	150	21	7.2	5.6	1.8	1.6	96	0.4	
1615	4.95	150	21	7.4	5.5	1.6	1.7	92	0.4	
1620	4.95	150	21	7.5	5.3	1.5	1.6	92	0.4	
1625	4.95	150	21	7.6	5.1	1.3	1.8	87	0.4	
1630	4.95	150	21	7.6	5.1	1.3	1.6	84	0.4	
1635	4.95	150	21	7.6	5.1	1.2	1.7	82	0.4	Collect Sample

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 D	2-40 mL	☑
Com ☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com ☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	☐
Com ☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	☐
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-250 mL Poly	☑
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com ☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	☐
F ☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F ☐	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: [signature] | RECEIVED BY: _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 05/20/04

MONITORING WELL ID: HESE-01-14I | ACTIVITY TIME: START 1445 END 1720 | BOTTLE TIME: 1600

LABEL SAMPLE ID: 124HESE01 14I 04XD | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: DUPLICATE

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: ✓

INITIAL DTW: 4.85 ft (TOR) | FINAL DTW: 5.03 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.029 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 3.51 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.008

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: <0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1515	4.92	250	21.55	8.05	6.76	1.55	2.7	47	0.4	water is
1525	4.94	250	21.52	7.99	6.74	1.17	2.1	56	0.4	colorless +
1535	4.94	250	21.29	7.92	6.71	1.04	1.8	68	0.4	odorless
1540	4.94	250	21.20	7.88	6.70	1.30	1.5	72	0.4	
1545	4.95	250	21.19	7.82	6.69	1.34	1.5	70	0.4	
1550	4.95	250	21.17	8.02	6.67	1.30	1.6	70	0.4	
1600	Sampling									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ✓	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com ✓	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	
Com ✓	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com ✓	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com ✓	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com ✓	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	✓
Com ✓	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com ✓	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	✓
Com ✓	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	✓
F ✓	Carbon Dioxide	Hach Method	N	None	NA	✓
F ✓	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} <0.2 mg/L

CO_2 24 mg/L

SIGNATURE: Lauren A Smith

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screen interval 36.9' - 46.9' bgs

✓202

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 6/7/04

MONITORING WELL ID: HESE-01-14I | ACTIVITY TIME: START 1405 END 1520 | BOTTLE TIME: 1505

LABEL SAMPLE ID: HESE01141I04X2 | ASSOCIATED TRIP BLANK: ~~TBK-04-107~~ (W) 6/7/04 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ✓

INITIAL DTW: 4.74 ft (TOR) | FINAL DTW: 4.85 ft (TOR)

DRAWDOWN VOL (W) 6/7/04

INITIAL - FINAL X 0.16 gal/ft: ~~0.176~~ 0.0176 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.6 gal

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.00011

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 1.7 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1435	4.85	200	22	8.0	6.6	4.4	5.4	132	0.4	
1440	4.85	200	22	8.1	6.7	3.4	4.6	112	0.4	
1445	4.85	200	22	8.1	6.7	3.1	4.6	105	0.4	
1450	4.85	200	22	8.1	6.7	2.6	3.9	97	0.4	
1455	4.85	200	22	8.1	6.7	2.3	2.6	92	0.4	
1500	4.85	200	22	8.0	6.7	2.2	2.5	90	0.4	
1505	4.85	200	22	8.0	6.7	2.0	2.4	86	0.4	Collect sample

6/7/04

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 [	2-40 mL	✓
Com		Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-250 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly	
F		Carbon Dioxide	Hach Method	N	None	NA	
F		Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: [signature] | RECEIVED BY: _____

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✓ JD2

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 5/24/04

MONITORING WELL ID: HSE-1-151 (HS36-01-151E) | ACTIVITY TIME: START 1615 END 1655 | BOTTLE TIME: 1655

LABEL SAMPLE ID: HSE0115I04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 5.27 ft (TOR) | FINAL DTW: 5.31 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.0064 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 4.095 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0015

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1615	5.29	350	20.91	4.08	6.63	~~47.41~~	54	128	0.22	
1620	5.29		20.86	4.36	6.62	0.91	51	130	0.23	
1625	5.29		20.87	4.48	6.62	0.08	40	131	0.24	
1630	5.30		20.71	4.64	6.62	0.10	12	132	0.24	
1635	5.30		20.65	4.66	6.62	0.01	10	134	0.24	
1640	5.31		20.63	4.65	6.62	0.01	9	133	0.24	
1645	5.31		20.65	4.64	6.62	0.01	9	132	0.24	
1655	5.31		Sample HSE-1-151							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	✓
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES

Com=Compuchem
F = Field

Field Chemistry Results (ppm):

Fe^{+2} 0.0 mg/L

CO_2 60 mg/L

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5-19-04

MONITORING WELL ID: HESE-01-16I | ACTIVITY TIME: START 1400 END 1650 | BOTTLE TIME: 1455

LABEL SAMPLE ID: HESE0116I04 | ASSOCIATED TRIP BLANK: TBK-04-10 | ASSOCIATED QC: MS/MSD

WATER LEVEL / PUMP DATA TD: 34.55' PVC | BLADDER PUMP: | PERISTALTIC PUMP: X | DRAWDOWN VOL

INITIAL DTW: 4.98 ft (TOR) | FINAL DTW: 5.20 ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: 0.0352 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 11.05 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0031

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1400	4.97	250	Begin purging							
1406	5.17	250	17.0	2.06	7.09	0.32	2.1	42	0.10	Clear to start
1411	5.17	250	16.8	1.88	7.09	0.58	2.0	32	0.09	
1415	5.17	250	16.8	1.90	7.10	0.38	2.0	22	0.09	
1419	5.19	250	16.8	1.89	7.11	0.29	2.0	14	0.09	
1423	5.20	250	16.8	1.92	7.11	0.28	2.0	2	0.09	
1427	5.20	250	16.8	2.04	7.12	0.00	2.0	-9	0.10	
1431	5.20	250	16.9	3.19	7.12	0.00	2.0	-27	0.14	
1435	5.20	250	16.9	40.2	7.11	0.00	2.0	-35	0.74	COND + SAL Increased
1440	5.20	250	16.9	83.5	7.08	0.00	2.0	-44	>4.00	"
1444	5.20	250	16.8	>100	7.07	0.00	2.0	-50	>4.00	"
1447	5.20	250	16.9	>100	7.08	0.28	2.0	-54	>4.00	"
1450	5.20	250	16.8	>100	7.08	0.27	2.0	-58	>4.00	"
1453	5.20	250	16.8	>100	7.09	0.27	2.0	-59	>4.00	"
			Parameters stable							
1455	Collect	Samples								

ANALYTICAL PARAMETERS + MS/MSD

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	X
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	X
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	X
Com X	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	X
F X	Carbon Dioxide	Hach Method	N	None	NA	X
F X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} 0.8 mg/L; CO_2 83 mg/L

SIGNATURE: Jeffrey K. Leuchman

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5/18/04

MONITORING WELL ID: MESE-01-17D | ACTIVITY TIME: START 0750 END 0940 | BOTTLE TIME: 0905

LABEL SAMPLE ID: MESE0117D04XX | ASSOCIATED TRIP BLANK:

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 3.83 ft (TOR) | FINAL DTW: 3.45 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: NA gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.16

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 2.2 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0830	Start purge @ 125 ml/min									clear, no odor
0835	3.64	125	14.9	35.0	6.6	8.3	5.8	-81		
0840	3.60	125	14.7	35.5	6.7	5.8	1.9	-51		
0845	3.58	125	14.6	35.5	6.7	5.3	1.2	-57		
0850	3.54	125	14.7	35.5	6.7	5.0	1.0	-60		
0855	3.51	125	14.6	35.5	6.7	4.7	1.0	-69		
0900	3.48	125	14.6	35.4	6.7	4.5	0.4	-72		
0905	3.45	125	14.6	35.5	6.7	4.5	0.5	-74		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	X
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	X
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	X
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	X
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly (solid color)	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F X	Carbon Dioxide	Hach Method	N	None	NA	X
F X	Fe^{2+}, Sulfite	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

* Fe^{+2} 8.4 mg/L
* CO_2 Sulfide 280 mg/L

SIGNATURE: David O. Lovejoy

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/18/04

MONITORING WELL ID: HESE-01-171 | ACTIVITY TIME: START 0945 END 1230 | BOTTLE TIME: 1120

LABEL SAMPLE ID: HESE01171I04XX | ASSOCIATED TRIP BLANK:

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 3.70 ft (TOR) | FINAL DTW: 11.52 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 1.25 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.71

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.73

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 87.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0955	Start purge @			125ml/min						clear
1005	5.45	125	14.9	20.1	6.7	<0.02	1.9	-360		sulfide odor
1015	6.42	100	15.1	20.0	6.7	<0.02	2.2	-359		↓ to 100 ml/min
1020	6.96	80	15.3	19.9	6.7	<0.02	2.1	-359		" " 80ml/min
1025	7.42	70	15.5	19.8	6.7	<0.02	2.6	-357		" " 70ml/min
1030	7.88	70	15.4	19.7	6.7	<0.02	2.7	-358		min. pump speed
1035	8.13	70	15.4	19.7	6.7	<0.02	2.6	-358		
1040	8.57	70	15.4	19.5	6.7	<0.02	2.8	-359		
1045	8.89	70	15.4	19.5	6.7	<0.02	3.0	-359		
1100	10.00	70	15.4	19.3	6.7	<0.02	13.9	-361		
1110	10.80	70	15.5	19.3	6.7	<0.02	14.1	-361		
1120	11.52	70	15.5	19.3	6.7	<0.02	14.3	-363		
	15.75	Final depth								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	X
Com X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	X
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	X
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly (solid color)	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F X	Carbon Dioxide	Hach Method	N	None	NA	X
F X	Fe^{2+}, Sulfite	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

X Fe^{+2} 0.40 mg/L

X ~~CO_2~~ Sulfide 510 mg/L

SIGNATURE: David O. Lovejoy

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NOTE: Needed to add weight to tubing to achieve desired depth at mid-screen (44'); used zinc plate bolt w/ washers + nut + hose clamp

15

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.18.04

MONITORING WELL ID: HESE-01-18D | ACTIVITY TIME: START 1034 END 1145 | BOTTLE TIME: 1120

LABEL SAMPLE ID: HESE0118D04 | ASSOCIATED TRIP BLANK: TBK-04-10 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.20 ft (TOR) | FINAL DTW: 4.11 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: N/A gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 4.61 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: N/A

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 3.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1034	4.20	250	Begin purging							Tidal Influence -
1040	4.17	250	16.4	16.0	7.08	3.56	15	-45		water level rising
1044	4.17	250	16.4	14.4	6.99	3.42	14	-39		"
1048	4.15	250	16.4	13.7	6.96	3.08	13	-33		"
1052	4.13	250	16.4	13.6	6.93	0.61	11	-29		"
1056	4.10	250	16.5	13.4	6.95	1.22	8.9	-28		"
1100	4.18	250	16.5	13.3	6.96	1.11	8.6	-25		
1104	4.11	250	16.5	13.2	6.97	1.01	6.1	-24		
1108	4.12	250	16.5	13.2	6.95	1.74	6.3	-23		
1111	4.11	250	16.5	13.1	6.97	1.64	5.8	-23		
1114	4.11	250	16.5	13.1	6.97	1.55	5.7	-22		
1117	4.11	250	16.5	13.1	6.97	1.50	5.7	-21		
			Parameters stable							
1120			Collect Samples							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	X
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} 4.0 mg/L

~~CO_2~~ ~~Sulfide~~ 130 mg/L

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 5/26/04

MONITORING WELL ID: ~~MW-3~~ LNAP-04-14 | ACTIVITY TIME: START 0800 END 0940 | BOTTLE TIME: 0940

LABEL SAMPLE ID: MW0304XX 9/10/04 | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: MS/MSD

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 4.29 ft (TOR) | FINAL DTW: 4.56 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.04 gal

DTB 12.65

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0805	4.33	250	14.59	1.48	7.02	1.26	13	-166	0.1	fuel-like odor
0815	4.34	250	14.48	1.48	7.02	1.06	4.7	-170	0.1	slight yellow
0820	4.34	250	14.45	1.48	7.02	0.94	3.8	-172	0.1	tint
0823	4.34	250	14.40	1.48	7.02	0.93	3.0	-173	0.1	
0826	4.34	250	14.36	1.48	7.02	0.90	2.8	-173	0.1	
0829	4.36	250	14.36	1.48	7.01	0.88	2.7	-174	0.1	
0840	Sampling									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} 1.6 mg/L

CO_2 164 mg/L

SIGNATURE: Lauren A Smith

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5/20/04

MONITORING WELL ID: MW-4 | ACTIVITY TIME: START 0800 END 0950 | BOTTLE TIME: 0935

LABEL SAMPLE ID: 16 MW404XX | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ PERISTALTIC PUMP: ☒

INITIAL DTW: 10.68 ft (TOR) | FINAL DTW: 10.90 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.035 gal

DTB 15.00ft

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 5.85

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.006

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0820	10.80	250	14.21	1.48	7.47	8.65	23	-113	0.1	Clear H_2O
0830	10.80	250	13.77	1.44	7.49	6.88	7.4	-131	0.1	Smells like
0840	10.80	250	13.87	1.40	7.49	8.38	3.9	-136	0.1	fuel
0845	10.80	250	13.75	1.39	7.46	7.37	2.6	-144	0.1	
0850	10.82	250	13.72	1.39	7.46	7.98	4.4	-144	0.1	
0855	10.82	250	13.68	1.38	7.45	7.72	1.4	-143	0.1	
0900	10.83	250	13.72	1.38	7.44	8.00	1.2	-140	0.1	
0905	10.83	250	13.76	1.39	7.43	7.82	1.0	-139	0.1	
0910	10.84	250	13.81	1.37	7.42	7.52	0.70	-137	0.1	
0915	10.84	250	13.80	1.38	7.43	6.90	0.65	-137	0.1	
0920	10.84	250	13.84	1.38	7.42	6.22	0.78	-135	0.1	
0923	10.84	250	13.84	1.37	7.41	7.43	0.75	-134	0.1	
0925	10.84	250	13.84	1.38	7.41	7.49	0.65	-133	0.1	
0928	10.84	250	13.84	1.38	7.41	7.43	0.68	-134	0.1	
0935	Sampling									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	☑ TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	☑
Com	☑ Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	☑
Com	☑ Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	☑
Com	☑ Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☑
Com	☑ Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☑
Com	☑ Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☑
Com	☑ Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	☑
Com	☑ Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	☑
Com	☐ Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com	☐ Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com	☐ Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	☐
F	☑ Carbon Dioxide	Hach Method	N	None	NA	☑
F	☑ ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☑

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2}: 0.00 mg/L

CO_2: 48 mg/L

SIGNATURE: Lauren C Smith

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5/19/04

MONITORING WELL ID: MWCD-99-01A | ACTIVITY TIME: START 1125 END 1245 | BOTTLE TIME: 1226

LABEL SAMPLE ID: MWCD9901A04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 8.21 ft (TOR) | FINAL DTW: 7.99 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.4 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~1001~~ 20.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1130	Start purge @	110 ml/min								Depth = 13.7
1140	8.18	110	12.2	16.0	8.0	6.1	17.7	-216	0.9	Incoming tide
1145	8.15	110	12.6	16.3	8.0	5.4	11.2	-216	0.9	Note tidal
1150	8.11	110	12.6	16.3	8.0	5.2	7.4	-217	0.9	influence
1156	8.09	110	12.7	16.2	8.0	4.9	5.6	-196	0.9	Sample clear,
1200	8.06	110	12.6	16.3	8.0	4.7	4.0	-219	0.9	no odor
1205	8.02	110	12.6	16.3	8.0	4.6	2.0	-220	0.9	
1210	8.00	110	12.7	16.3	8.0	4.5	1.6	-218	0.9	
1213	7.98	110	12.6	16.4	8.0	4.5	1.4	-217	0.9	
1216	7.96	110	12.5	16.4	8.0	4.5	1.3	-216	0.9	
1219	7.94	110	12.5	16.4	8.0	4.5	1.4	-217	0.9	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	X
Com	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: David Lovejoy

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5/19/04

MONITORING WELL ID: MWCD-99-01B | ACTIVITY TIME: START 0945 END ~~0~~ 1125 | BOTTLE TIME: 1055

LABEL SAMPLE ID: MWCD9901B04XX | ASSOCIATED TRIP BLANK: TBK-04-102 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] | PERISTALTIC PUMP: [X]

INITIAL DTW: 7.34 ft (TOR) | FINAL DTW: 6.47 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 2.03 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: ~~20.0~~ 20.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0955	Start purge @	130ml/min								Depth = 63.15
1005	7.03	130	13.6	15.0	6.6	6.6	36.4	-182	0.9	Incoming tide
1010	6.95	130	13.9	15.5	6.6	6.8	25.4	-131	0.9	Note tidal
1015	6.92	130	13.9	15.7	6.6	6.0	19.9	-111	0.9	influence
1020	6.85	130	14.1	15.7	6.6	5.8	11.7	-72	0.9	Sample clear,
1025	6.81	130	14.2	15.7	6.6	5.7	13.7	-61	0.9	no odor
1030	6.75	130	13.9	15.8	6.6	5.6	11.6	-43	0.9	
1035	6.68	130	14.1	15.8	6.6	5.4	8.0	-37	0.9	
1040	6.61	130	13.8	15.9	6.6	5.2	9.2	-28	0.9	
1045	6.56	130	13.7	15.9	6.6	5.3	6.8	-28	0.9	
1048	6.52	130	13.8	15.8	6.6	5.3	7.6	-36	0.9	
1051	6.50	130	13.7	15.9	6.6	5.2	6.9	-33	0.9	
1055	6.47	130	13.6	15.8	6.6	5.3	6.9	-34	0.9	

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	X
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	X
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2}: 4.4 mg/L

CO_2: 160 mg/L

SIGNATURE. Daryl Clovey

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 5/19/04

MONITORING WELL ID: MWCD-99-02A | ACTIVITY TIME: START 1255 END 1410 | BOTTLE TIME: 1345

LABEL SAMPLE ID: mwCD990204XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 7.57 ft (TOR) | FINAL DTW: 7.45 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: NA gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.5 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: ~~0.01~~ (IN) 0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1300	Start purge @	130 ml/min								Depth = 10.06
1320	7.45	130	9.6	32.4	8.5	13.0	2.4	-10	2.0	Rising tide
1325	7.45	130	9.9	32.2	8.5	11.6	0.6	-13	2.0	Note tidal
1330	7.45	130	10.0	32.1	8.6	10.5	0.2	-7	2.0	influence
1335	7.45	130	9.9	32.1	8.6	9.8	0.3	0	2.0	
1340	7.45	130	9.8	32.2	8.6	9.9	0.3	8	2.0	
1345	7.45	130	9.9	32.6	8.6	9.8	0.2	10	2.0	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	X
Com	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: David O. Lovejoy

RECEIVED BY: [signature]

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5/19/04

MONITORING WELL ID: MWCD-99-02B | ACTIVITY TIME: START 0745 END 0940 | BOTTLE TIME: 0905

LABEL SAMPLE ID: MWCD990203 04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 10.06 ft (TOR) | FINAL DTW: 8.77 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 2.5

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~0.07~~ <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0800	Start purge @ 150 ml/min									Depth c 92.1
0810	9.67	150	11.4	11.2	6.8	7.6	37.3	~150	0.7	incoming tide
0815	9.51	150	11.7	12.1	6.9	6.4	32.5	-173	0.7	Note tidal
0820	9.40	150	11.6	12.4	6.9	5.9	24.4	-178	0.7	influence
0825	9.31	150	11.7	12.5	6.8	5.5	13.7	-179	0.7	sample clear
0840	9.21	150	11.7	12.5	6.8	5.2	15.6	-179	0.7	no odor
0845	9.12	150	11.8	12.4	6.8	5.1	16.2	-175	0.7	light iron
0850	9.03	150	11.9	12.5	6.8	4.9	11.8	-175	0.7	floc on
0855	8.95	150	12.0	12.4	6.8	4.5	5.3	-176	0.7	initial purge
0900	8.85	150	12.2	12.4	6.8	4.3	5.7	-177	0.7	
0905	8.77	150	12.3	12.3	6.8	4.2	5.9	-176	0.7	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	[X]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: David O. Lovejoy

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5.25.04

MONITORING WELL ID: MWCR-99-01 | ACTIVITY TIME: START 1435 END 1510 | BOTTLE TIME: 1505

LABEL SAMPLE ID: MWCR990104XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP:

INITIAL DTW: 5.39 ft (TOR) | FINAL DTW: 6.39 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1435	5.41	300	20.01	0.401	6.14	0.4	12.4	52	0.02	Will head
1440	5.82		20.02	0.399	6.17	0	10.2	51	0.02	open (no dry)
1445	6.91		20.01	0.399	6.17	0	2.8	53	0.02	dark grey to
1450	6.07		20.01	0.398	6.16	0	1.0	54	0.02	black purge
1455	6.14		20.00	0.399	6.17	0	0.8	53	0.02	water initially
1500	6.21		20.00	0.399	6.16	0	0.7	52	0.02	
1505	6.34	Sample	MW-CR-99-01							
1510	6.39	End pumping								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	
Com	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	ex
Com X	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	ex
F	Carbon Dioxide	Hach Method	N	None	NA	
F	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE. _____

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5.25.04

MONITORING WELL ID: MWCR-99-02 | ACTIVITY TIME: START 1515 END 1600 | BOTTLE TIME: 1550

LABEL SAMPLE ID: MWCR990204XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP:

INITIAL DTW: 5.42 ft (TOR) | FINAL DTW: 5.61 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.17 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1515	5.45	300	19.67	0.359	6.51	1.84	550	102	0.01	no well plug
1520	5.50	↑	19.69	0.333	6.37	1.56	500	110	0.01	sediment from
1525	5.56		19.67	0.301	6.16	1.20	308	122	0.01	floor clearly
1530	5.59		19.67	0.295	6.11	0	20.4	128	0.01	washing into
1535	5.61		19.67	0.294	6.10	0	16.3	131	0.01	well. water
1546	5.61		19.67	0.295	6.11	0	6.2	130	0.01	very turbid
1545	5.61		19.66	0.295	6.16	0	6.1	~~tnf~~129	0.01	initially
1550	Sample MW-CR-99-02									
1600	End pumping									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	
Com	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	X
Com X	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	X
F	Carbon Dioxide	Hach Method	N	None	NA	
F	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: _____

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5-20-04

MONITORING WELL ID: PZ-11D | ACTIVITY TIME: START 10:52 END 12:47 | BOTTLE TIME: 12:00

LABEL SAMPLE ID: PZ11D04XX | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: MS/MSD

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☑

INITIAL DTW: 4.42 ft (TOR) | FINAL DTW: 4.62 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.032 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 286 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.011

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: NA ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
10:52	TUBE Pump on									
10:56		200								SCREEN ~24'-34'
11:00	4.64	↓	14.5	0.95	6.9	0.75	29 ⊛	109	0.04	BGS
11:05	4.63	200	14.5	0.95	6.9	0.67	39 ⊛	111	0.04	
11:10	4.63	200	14.5	0.95	6.9	0.77	6.9	112	0.04	INTAKE ~ 29'
11:15	4.63	200	14.5	0.95	6.9	0.77	5.0	113	0.04	
11:20	4.63	200	14.6	0.94	6.9	0.61	4.3	114	0.04	
11:25	4.63	200	14.6	0.95	6.8	0.84	4.4	115	0.04	
11:30	4.63	200	14.7	0.95	6.9	0.82	3.9	116	0.04	
12:47	Pump turned off									
	Collected		(1) Sample							
			(2) MS							
			(3) MSD							
							⊛ Taken w/ 11-22 = Others Taken w/ LAMOTTE NTU meter			

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ☑	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	☑
Com ☑	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☑
Com ☑	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	☑
Com ☑	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	☑
Com ☑	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☑
Com ☑	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☑
Com ☑	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	☑
Com ☑	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	☑
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	~~HNO3 / 4 Deg. C~~	~~1-1 Liter Poly~~	☐
Com ☐	Cyanide- 9010B	USEPA Method 9010B	N	~~NaOH / 4 Deg. C~~	~~1-1 Liter Poly~~	☐
Com ☐	Total Hexavalent Chromium	USEPA Method 218.4	N	~~4 Deg. C~~	~~1-500 mL Poly~~	☐
F ☑	Carbon Dioxide	Hach Method	N	None	NA	☑
F ☑	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☑

NOTES Field Chemistry Results (ppm):

Com=Compuchem
F = Field

Fe^{+2} < 0.2 mg/L

CO_2 20 mg/L

SIGNATURE: John D. Zuly

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 6-8-04

MONITORING WELL ID: PZ-11D | ACTIVITY TIME: START 1500 END 1615 | BOTTLE TIME: 1555

LABEL SAMPLE ID: PZ11D04XX | ASSOCIATED TRIP BLANK: N/A | ASSOCIATED QC: MS/MSD

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☒

INITIAL DTW: 4.40 ft (TOR) | FINAL DTW: 4.52 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.0192 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.755 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0109

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 2.6 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1505	4.53	150	—	—	—	—	—	—	—	START PURGE
1510	4.54	150	16	1.74	6.6	0.4	2.8	13	0.1	
1520	4.53	150	16	1.74	6.6	<0.1	2.6	10	0.1	
1525	4.52	150	16	1.74	6.6	<0.1	2.4	11	0.1	
1530	4.52	150	16	1.73	6.7	<0.1	2.5	-2	0.1	
1535	4.52	150	16	1.73	7.4	<0.1	2.4	-31	0.1	
1540	4.51	150	16	1.73	6.9	<0.1	2.9	-43	0.1	
1545	4.51	150	16	1.73	6.9	<0.1	2.9	-41	0.1	
1550	4.52	150	16	1.73	6.8	<0.1	2.7	-43	0.1	
1555	4.52	150	—	—	—	—	—	—	—	SAMPLE
										NITRATE/NITRITE w/ MS/MSD only

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOAs	SW 846 Modified Method 8260B	N	HCL / 4 Deg. C	3-40 mL	☐
Com X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	☒
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	☐
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com ☐	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	☐
Com X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	☐
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com ☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	☐
F X	Carbon Dioxide	Hach Method	N	None	NA	☐
F X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/18/04

MONITORING WELL ID: PZ-13D | ACTIVITY TIME: START 1245 END 1410 | BOTTLE TIME: 1340

LABEL SAMPLE ID: PZ13D04XX | ASSOCIATED TRIP BLANK: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.23 ft (TOR) | FINAL DTW: 4.25 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.003 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.74 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.002

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: (W) <0.0 ~~40.0~~ ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1300	Start purge @ 165 ml/min									Depth = 31.46
1310	4.25	165	17.5	0.675	6.5	5.9	31.2	-125		Sample clear
1315	4.25	165	17.9	0.659	6.5	5.2	20.9	-123		no odor
1320	4.25	165	17.8	0.646	6.5	5.0	18.6	-119		
1325	4.25	165	17.7	0.643	6.5	4.6	14.7	-116	0.0	
1330	4.25	165	17.7	0.649	6.5	4.3	18.3	-117		
1335	4.25	165	17.8	0.645	6.5	4.1	20.5	-115		
1340	4.25	165	17.7	0.654	6.5	4.3	21.6	-117	0.0	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	[X]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly (solid color)	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Fe^{2+}, Sulfite	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

Sulfide _____

SIGNATURE: David O. Lovejoy

RECEIVED BY: [signature]

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 6-7-04

MONITORING WELL ID: PZ-13D | ACTIVITY TIME: START 1200 END 1320 | BOTTLE TIME: 1315

LABEL SAMPLE ID: PZ13D04X2 | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 4.30 ft (TOR) | FINAL DTW: 4.30 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.17 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 1.2 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1240	4.30	150	—	—	—	—	—	—	—	1240 START PURGE
1245	4.30	150	18	0.99	6.3	<0.1	14	250	0.0	
1250	4.30	150	18	0.99	6.3	<0.1	14	250	0.0	
1300	4.30	150	18	1.00	6.3	<0.1	9.1	240	0.0	
1305	4.30	150	18	1.00	6.4	<0.1	7.2	230	0.0	
1310	4.30	150	18	1.00	6.4	<0.1	6.1	230	0.0	
1315	4.30	150	—	—	—	—	—	—	—	SAMPLE

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 D	2-40 mL	X
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	
Com X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-250 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	
F	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES Field Chemistry Results (ppm):

Com=Compuchem

F = Field

Fe^{+2} _____

CO_2 _____

SIGNATURE: Bradley B. Lyf

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/21/04

MONITORING WELL ID: PZ-17D | ACTIVITY TIME: START 1000 END 1125 | BOTTLE TIME: 1055

LABEL SAMPLE ID: PZ17D04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 3.53 ft (TOR) | FINAL DTW: 3.91 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.06 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.19

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.05

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: PID INST. ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1000	Start purge @ 90 ml/min									
1005	3.89	90	16.4	16.8	6.9	13.0	0.6	120	1.0	
1010	3.89	90	16.6	16.9	7.0	11.9	0.4	107	-	
1015	3.89	90	16.6	16.9	7.0	11.6	0.4	102	1.0	
1020	3.89	90	16.5	16.9	7.0	11.4	0.6	98	1.0	
1025	3.90	90	16.4	17.1	6.9	11.2	0.6	97	1.0	
1030	3.91	90	16.4	19.2	6.8	8.4	0.4	97	1.1	
1035	3.91	90	16.5	19.4	6.7	6.3	0.8	88	1.1	
1040	3.91	90	16.4	19.3	6.7	<0.02	0.8	84	1.1	*DO probe reading
1045	3.91	90	16.5	19.4	6.7	2.2	0.2	80	1.2	0.00 - suspect
1048	3.91	90	16.5	19.6	6.7	2.2	0.3	78	1.2	bad probe
1051	3.91	90	16.5	19.6	6.7	2.4	0.4	77	1.2	All other parameters stable

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [✓]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [✓]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	[X]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: David O. Lovejoy

RECEIVED BY: [signature]

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✓JW2

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5/20/04

MONITORING WELL ID: PZ-1D | ACTIVITY TIME: START 0740 END 0935 | BOTTLE TIME: 0845

LABEL SAMPLE ID: PZ1D04XX | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: ~~MS/MSD~~ ~~DUPLICATE~~ (5) Duplicate 5/20/04

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] | PERISTALTIC PUMP [X]

DRAWDOWN VOL

INITIAL DTW: 5.83 ft (TOR) | FINAL DTW: 5.82 ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: 0.0016 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.82

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.00088

BLADDER PUMP SETTINGS

DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 2.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0810	Start purge @			200 ml/min						clear
0820	5.85	200	16.9	6.26	6.5	7.1	1.5	-36	0.3	no odor
0825	5.84	200	16.8	6.35	6.5	6.7	1.9	-40	0.3	rising tide,
0830	5.84	200	16.9	6.34	6.6	6.4	1.0	-42	0.3	tidal influence
0835	5.84	200	16.9	6.32	6.6	6.3	1.1	-43	0.3	on this well
0840	5.83	200	16.9	6.30	6.6	6.1	1.1	-44	0.3	
0845	5.82	200	16.9	6.30	6.6	5.9	1.0	-45	0.3	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [X]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[X]
Com [X]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[X]
Com [X]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	[X]
Com [X]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[X]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[X]
Com [X]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[X]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[ ]
F [✓]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2}: 3.0 mg/L

CO_2: 74 mg/L

SIGNATURE: David O Lovejoy

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✓ JDZ

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

5.19.04

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5.19.04

MONITORING WELL ID: PZ-4D | ACTIVITY TIME: START 1121 END 1230 | BOTTLE TIME: 1220

LABEL SAMPLE ID: PZ4D04 | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA: TD: 38.20 TPVC | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 2.34 ft (TOR) | FINAL DTW: 2.80 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.0736 gal

TOTAL VOLUME PURGED (L/m X minutes X 0.26 gal/L): 4.485 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0164

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 0.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1121	2.30	250	Begin Purging							Sulfur-like odor
1127	2.75	250	15.3	7.84	7.12	0.57	34	-257	0.43	"
1131	2.77	250	15.2	7.89	7.13	0.62	27	-261	0.43	"
1135	2.78	250	15.3	7.83	7.15	0.83	16	-264	0.42	"
1143	2.79	250	15.5	7.74	7.15	0.58	12	-264	0.42	"
1147	2.79	250	15.3	7.79	7.16	0.53	9.7	-267	0.42	"
1151	2.80	250	15.2	7.72	7.16	0.49	6.8	-269	0.42	"
1155	2.80	250	15.2	7.70	7.16	0.46	7.5	-270	042	
1200	2.80	250	15.1	7.69	7.16	0.41	5.4	-270	0.42	
1204	2.80	250	15.1	7.68	7.16	0.40	4.7	-269	0.41	
1209	2.80	250	15.1	7.66	7.16	0.41	4.4	-269	0.41	
1212	2.80	250	15.2	7.64	7.16	0.39	4.3	-269	0.41	
1215	2.80	250	15.2	7.64	7.16	0.38	4.3	-269	0.41	
1218	2.80	250	15.2	7.64	7.16	0.38	4.2	-269	0.41	
	Parameters Stable									
1220	Collect Samples									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	JKH
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: Jeffrey K. Harshman

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 05/18/04

MONITORING WELL ID: PZ-5D | ACTIVITY TIME: START 1650 END 1825 | BOTTLE TIME: 1805

LABEL SAMPLE ID: PZ5D04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ✓

INITIAL DTW: 3.00 ft (TOR) | FINAL DTW: 3.15 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.021 gal

TOTAL VOLUME PURGED (L/m X minutes X 0.26 gal/L): 3.51 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.006

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 5.7 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1720	3.13	300	14.38	8.37	6.43	4.70	2.8	-132	0.5	no Color
1730	3.13	300	14.18	8.23	6.42	2.03	1.5	-134	0.4	no odor
1735	3.13	300	14.12	8.09	6.42	1.81	1.9	-136	0.4	
1740	3.13	300	14.20	8.06	6.46	1.27	1.9	-138	0.4	
1745	3.13	300	14.17	7.99	6.41	1.04	1.6	-141	0.4	
1750	3.13	300	14.11	7.98	6.43	1.04	1.00	-144	0.4	
1755	3.13	300	14.15	7.97	6.44	1.04	1.90	-144	0.4	
1800	3.13	300	14.35	7.89	6.49	1.37	1.80	-146	0.4	
1803	3.13	300	14.34	7.89	6.49	1.37	1.80	-145	0.4	
1805	Sampling									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ☐	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	☐
Com ☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com ☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☐
Com ☒	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com ☒	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com ☒	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	✓
Com ☐	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	☐
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	☐
F ☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F ☐	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES

Com=Compuchem
F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

Sulfide _____

SIGNATURE: Karen A Smith

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/21/04

MONITORING WELL ID: PZ-7D | ACTIVITY TIME: START 0800 END 1100 | BOTTLE TIME: 0950

LABEL SAMPLE ID: 29 PZ7D04XX | ASSOCIATED TRIP BLANK: TBK-04-104 | ASSOCIATED QC: DULICATE

WATER LEVEL / PUMP DATA 29 PZ7D04XD | BLADDER PUMP: | PERISTALTIC PUMP: ✓

INITIAL DTW: 4.30 ft (TOR) | FINAL DTW: 4.33 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.0048 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 5.07 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0009

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 20.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0835	4.32	300	13.82	6.97	6.78	1.12	3.9	1	0.4	Water is Clear
0845	4.33	300	13.48	6.86	6.81	0.81	2.5	-9	0.4	+ odorless
0855	4.33	300	13.53	6.86	6.81	0.74	1.2	-59	0.4	
0905	4.33	300	13.53	6.85	6.80	0.72	1.3	-91	0.4	
0915	4.33	300	13.53	6.86	6.79	0.70	1.1	-119	0.4	
0925	4.33	300	13.51	6.88	6.79	0.68	0.99	-138	0.4	
0930	4.33	300	13.53	6.88	6.79	0.66	1.3	-143	0.4	
0935	4.33	300	13.51	6.89	6.79	0.67	1.3	-147	0.4	
0940	4.33	300	13.51	6.90	6.78	0.66	1.2	-150	0.4	

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	✓	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	✓
Com	✓	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	✓	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	✓
Com	✓	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	✓
Com	✓	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	✓	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	✓	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	✓
Com	✓	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F	✓	Carbon Dioxide	Hach Method	N	None	NA	
F	✓	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 1.4 mg/L

CO_2 38 mg/L

SIGNATURE: Laurence Stull

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22' – 32' bgs ✓307 ~~136 WEG504~~

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5/20/04

MONITORING WELL ID: PZ-8D | ACTIVITY TIME: START 1350 END 1550 | BOTTLE TIME: 1520

LABEL SAMPLE ID: PZ8D04XX | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 4.33 ft (TOR) | FINAL DTW: 4.93 ft (TOR)

DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.1 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.95

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.05

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 40.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1405	Start purge @	100 ml/min								
1415	4.83	100	16.5	0.226	7.4	10.7	45.0	+25	0.0	
1420	4.88	100	16.3	0.215	7.4	9.7	13.8	28		
1425	4.91	100	16.4	0.186	7.4	8.6	9.1	30		
1430	4.92	100	16.2	0.201	7.3	7.7	8.6	33		
1435	4.94	100	16.3	0.159	7.4	6.6	6.8	33		
1450	4.95	100	16.1	0.167	7.4	6.3	5.0	38		
1455	4.94	100	16.0	0.161	7.4	6.1	4.7	37		
1500	4.94	100	16.3	0.149	7.4	5.7	4.6	35		
1505	4.93	100	16.4	0.149	7.3	5.3	3.2	39		
1510	4.93	100	16.6	0.149	7.4	4.9	3.9	40		
1515	4.93	100	16.5	0.146	7.4	4.8	3.3	41		
1520	4.93	100	16.3	0.147	7.4	4.7	3.6	42		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	✓
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	✓
Com	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	✓
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	✓
F	Carbon Dioxide	Hach Method	N	None	NA	✓
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} < 0.2 mg/L; CO_2 10 mg/L

SIGNATURE: David O. Lovejoy

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/17/04

MONITORING WELL ID: PZ9901A | ACTIVITY TIME: START 1410 END 1535 | BOTTLE TIME: 1530

LABEL SAMPLE ID: PZ9901A04XX | ASSOCIATED TRIP BLANK: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [✓]

INITIAL DTW: 5.00 ft (TOR) | FINAL DTW: 5.01 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.0016 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 3.90

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.00041

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1440	5.01	300	19.61	0.374	6.27	5.49	2.60	250	ø	no odor no color
1450	5.01	300	19.58	0.373	6.30	5.90	1.40	253	ø	no PID hits
1500	5.01	300	19.58	0.370	6.28	7.04	1.30	260	ø	
1510	5.01	300	19.58	0.366	6.27	8.21	2.40	266	ø	
1515	5.01	300	19.58	0.365	6.26	8.51	1.50	268	ø	
1520	5.01	300	19.57	0.363	6.25	7.96	1.40	271	ø	
1525	5.01	300	19.56	0.361	6.24	7.51	1.40	272	ø	
1530	sample									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[•]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly (solid color)	[✓]
Com [X]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	[✓]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Fe^{2+}, Sulfite	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} n/a; Sulfide n/a

SIGNATURE: Lauren A Smith

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5/19/04

MONITORING WELL ID: PZ-99-01A | ACTIVITY TIME: START 1430 END 1530 | BOTTLE TIME: 1515

LABEL SAMPLE ID: PZ9901A04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] PERISTALTIC PUMP: [X]

INITIAL DTW: 5.12 ft (TOR) | FINAL DTW: 5.12 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.37 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 35.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1440	Start	purge	@ 150 ml/min							clear, no odor
1445	5.12	150	19.2	0.505	6.6	11.4	2.7	80		
1450	5.12	150	19.3	0.394	6.4	11.8	2.3	90		
1455	5.12	150	19.3	0.361	6.4	11.6	1.3	99		
1500	5.12	150	19.4	0.374	6.5	11.5	0.8	105		
1505	5.12	150	19.4	0.360	6.5	11.1	0.6	109		
1510	5.12	150	19.4	0.356	6.5	11.0	0.6	113		
1515	5.12	150	19.4	0.354	6.5	10.9	0.5	115		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES

Com=Compuchem

F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

CO_2 _____

SIGNATURE: David O. Lovejoy

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5/17/04

MONITORING WELL ID: PZ9901B | ACTIVITY TIME: START 1420 END 1530 | BOTTLE TIME: 1520

LABEL SAMPLE ID: PZ9901B04XX | ASSOCIATED TRIP BLANK: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☒

INITIAL DTW: 5.11 ft (TOR) | FINAL DTW: 5.16 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.008 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.12 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.007

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~4.0~~ 20.1 @ ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1435	Start	purge @ 160 mL/min								
1445	5.16	160	20.2	3.77	6.4	8.0	25.2	103		
1450	5.16	160	20.2	3.87	6.5	7.4	13.5	75		
1455	5.16	160	20.2	3.89	6.5	7.1	10.8	61		
1500	5.16	160	20.2	3.89	6.5	6.9	6.7	59		
1505	5.16	160	20.2	3.89	6.5	7.0	5.2	55		
1510	5.16	160	20.2	3.89	6.5	6.9	4.1	55		
1515	5.16	160	20.2	3.89	6.5	6.7	4.0	55		
1520	5.16	160	20.2	3.88	6.5	6.8	3.7	53		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ☐	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	☐
Com ☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com ☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	☐
Com ☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☐
Com ☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	☐
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☒	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly (solid color)	☑
Com ☒	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly	☑
F ☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F ☐	Fe^{2+}, Sulfite	Hach Method	N	None	NA	☐

NOTES Field Chemistry Results (ppm):

Com=Compuchem
F = Field

Fe^{+2}: n/a

Sulfide: n/a

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5/19/04

MONITORING WELL ID: PZ-99-01B | ACTIVITY TIME: START 1530 END 1615 | BOTTLE TIME: 1605

LABEL SAMPLE ID: PZ9901B04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] PERISTALTIC PUMP: [X]

INITIAL DTW: 5.18 ft (TOR) | FINAL DTW: 5.23 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.05 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.17

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.04

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 463 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1535	Start purge @			150 ml/min						straw colored
1545	5.23	150	20.2	4.48	6.5	5.8	11.0	51		~~no odor~~ DOL 5/19
1550	5.23	150	20.5	4.47	6.5	5.0	7.7	47		alcohol-like odor
1555	5.23	150	20.5	4.47	6.5	4.6	4.9	47		
1600	5.23	150	20.5	4.46	6.5	4.4	4.8	47		
1605	5.23	150	20.5	4.45		4.3	4.5	47		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: David O Lovejoy

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5/17/04

MONITORING WELL ID: PZ99D1C | ACTIVITY TIME: START 1540 END 1645 | BOTTLE TIME: 1635

LABEL SAMPLE ID: PZ99D1C04KK | ASSOCIATED TRIP BLANK:

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: ✓

INITIAL DTW: 5.10 ft (TOR) | FINAL DTW: 5.15 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.008 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 3.90 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.002

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv ~~<0.1~~ <0.1

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1545	5.15	300	20.37	8.53	6.65	6.38	3.5	-227	0.5	Dark Purple/black
1555	5.15	300	20.38	8.47	6.60	7.68	1.9	-193	0.5	H_2O
1605	5.15	300	20.34	8.42	6.62	7.22	1.6	-185	0.5	Sulfur smell
1615	5.15	300	20.34	8.40	6.62	7.21	1.6	-183	0.5	* Cleared up to
1620	5.15	300	20.34	8.37	6.62	7.25	1.4	-177	0.5	only have slight
1625	5.15	300	20.33	8.37	6.62	7.00	1.4	-175	0.5	grey shade
1630	5.15	300	20.34	8.37	6.63	7.01	1.5	-174	0.5	still has sulfur
1635	Sampling									smell
										Sulfur smell
										persisted
										throughout sampling

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com		TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com		Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	
Com		Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	✓	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly (solid color)	✓
Com	✓	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	✓
F		Carbon Dioxide	Hach Method	N	None	NA	
F		Fe^{2+}, Sulfite	Hach Method	N	None	NA	

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

Sulfide _____

SIGNATURE: Lauren A Smith

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5/19/04

MONITORING WELL ID: PZ-99-01C | ACTIVITY TIME: START 1615 END 1705 | BOTTLE TIME: 1650

LABEL SAMPLE ID: PZ9901C04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 5.20 ft (TOR) | FINAL DTW: 5.30 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.016 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.17 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.014

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 70 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1620	Start	purge @	150 ml/	min						sample clear
1625	5.30	150	20.2	9.85	6.8	6.0	1.9	-176		musty odor
1630	5.30	150	20.2	9.93	6.8	4.7	0.9	-176		
1635	5.30	150	20.2	9.93	6.8	4.3	0.6	-177		
1640	5.30	150	20.2	9.92	6.8	4.1	0.6	-179		
1645	5.30	150	20.2	9.91	6.8	3.9	0.6	-180		
1650	5.30	150	20.2	9.90	6.8	3.8	0.5	-181		

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com		TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com		Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	
Com		Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	X
Com	X	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	X
F		Carbon Dioxide	Hach Method	N	None	NA	
F		ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: David O. Lovejoy

RECEIVED BY: [illegible]

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(34)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5/25/04

MONITORING WELL ID: PZ-99-01I | ACTIVITY TIME: START 1600 END 1650 | BOTTLE TIME: 1645

LABEL SAMPLE ID: PZ9901I04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 5.40 ft (TOR) | FINAL DTW: 5.43 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0.0048 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 2.67 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.002

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft) 5.40	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1603	~~250~~ 250	250	21.20	1.73	6.64	7.67	70	97	0.1	Slight yellow
1608	5.42	250	21.17	1.82	6.42	7.00	38	85	0.1	color - no
1613	5.42	250	21.16	1.87	6.32	5.69	14	80	0.1	odor
1618	5.42	250	21.15	1.88	6.28	4.76	8.2	76	0.1	
1623	5.43	250	21.15	1.88	6.25	3.08	8.7	72	0.1	
1627	5.43	250	21.14	1.88	6.24	2.81	5.1	70	0.1	
1632	5.43	250	21.14	1.88	6.24	2.71	4.2	69	0.1	
1635	5.43	250	21.13	1.88	6.22	2.60	3.1	68	0.1	
1638	5.43	250	21.13	1.88	6.22	2.53	3.3	67	0.1	
1641	5.43	250	21.13	1.88	6.22	2.48	3.1	66	0.1	
1645	Sampling									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[✓]
Com [X]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[✓]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: Lauren A Smith

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5/20/04

MONITORING WELL ID: PZ-99-02A | ACTIVITY TIME: START 1630 END 1740 | BOTTLE TIME: 1720

LABEL SAMPLE ID: PZ9902A04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.82 ft (TOR) | FINAL DTW: 5.05 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.04 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.8 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.02

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~0.01~~ <0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1635	Start purge @ 150ml/min									DO pale
1645	5.02	150	16.1	0.199	7.0	8.9	11.2	51		pale yellow color
1650	5.02	150	15.9	0.200	7.0	7.8	4.3	53		no odor
1655	5.04	150	15.7	0.202	7.0	6.8	2.0	54		
1700	5.05	150	15.7	0.204	7.0	6.2	1.2	56		
1705	5.05	150	15.7	0.205	7.0	5.8	1.0	57		
1710	5.05	150	15.7	0.207	7.0	5.4	1.1	58		
1715	5.05	150	15.6	0.209	7.0	5.2	1.2	58		
1720	5.05	150	15.6	0.209	7.0	5.1	1.1	58		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES Field Chemistry Results (ppm):

Com=Compuchem
F = Field

Fe^{+2} _____

CO_2 _____

SIGNATURE: David O. Lovejoy

RECEIVED BY: [signature]

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5/17/04

MONITORING WELL ID: PZ 9902A | ACTIVITY TIME: START 1535 END 1645 | BOTTLE TIME: 1630

LABEL SAMPLE ID: PZ9902A04XX | ASSOCIATED TRIP BLANK: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.81 ft (TOR) | FINAL DTW: 4.98 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.027 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.78 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.015

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~240~~ 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1545	Start purge @ 150 ml/min									
1555	4.98	150	15.8	0.187	7.0	5.1	26.9	58		
1600	4.98	150	15.6	0.183	7.0	4.2	16.3	60		
1605	4.98	150	15.6	0.182	7.0	3.9	13.7	61		
1610	4.98	150	15.5	0.183	7.0	3.8	10.8	61		
1615	4.98	150	15.5	0.184	7.0	3.8	3.6	62		
1620	4.98	150	15.4	0.185	7.0	3.6	2.9	63		
1625	4.98	150	15.5	0.186	7.0	3.4	2.4	64		
1630	4.98	150	15.4	0.186	7.0	3.4	2.1	64		clear, no color

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly (solid color)	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Fe^{2+}, Sulfite	Hach Method	N	None	NA	[ ]

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} n/a; Sulfide n/a

SIGNATURE: David O. Lovejoy

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5-24-04

MONITORING WELL ID: PZ-99-02B | ACTIVITY TIME: START 1230 END 1340 | BOTTLE TIME: 1310

LABEL SAMPLE ID: PZ9902B04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP [ ] | PERISTALTIC PUMP [X]

INITIAL DTW: 4.89 ft (TOR) | FINAL DTW: 5.03 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0.022 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 3.64 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.006

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1230	4.89	250	Begin purging							
1236	5.04	200	16.43	2.42	3.46	0.00	13	325	0.1	Decrease pump rate
1242	5.03	200	16.49	2.42	3.46	0.00	12	327	0.1	
1248	5.03	200	16.47	2.44	3.47	0.00	6.2	333	0.1	
1254	5.03	200	16.51	2.44	3.49	0.00	4.0	335	0.1	
1258	5.03	200	16.54	2.44	3.51	0.00	3.8	337	0.1	
1302	5.03	200	16.60	2.44	3.52	0.00	2.2	339	0.1	
1306	5.03	200	16.65	2.43	3.54	0.00	2.2	341	0.1	
1309	5.03	200	16.62	2.43	3.54	0.00	2.2	341	0.1	
		Parameters stable								
1310	Collect Samples									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
JKH Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	X JKH
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	X
Com	X	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	X
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 3.6 mg/L

CO_2 510/508 mg/L

SIGNATURE: Jeffrey K. Harshman

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 5.24.04

MONITORING WELL ID: PZ-99-02C | ACTIVITY TIME: START 1350 END 1425 | BOTTLE TIME: 1420

LABEL SAMPLE ID: PZ9902C04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.80 ft (TOR) | FINAL DTW: 4.84 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.011 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.82 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.006

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1350	4.80	200	Begin purging							Purge water Yellow
1356	4.84	200	16.78	6.02	5.95	0.00	60	236	0.3	
1401	4.84	200	16.85	6.23	5.94	0.00	60	234	0.3	
1404	4.84	200	16.85	6.22	5.94	0.00	60	234	0.3	
1407	4.84	200	16.89	6.29	5.94	0.00	40	233	0.3	
1410	4.84	200	16.90	6.37	5.94	0.00	30	233	0.3	
1413	4.84	200	16.91	6.38	5.94	0.00	28	233	0.3	
1416	4.84	200	16.92	6.42	5.94	0.00	28	233	0.3	
			Parameters stable.							
1420	Collect Samples									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: Jeffrey K. Harshman

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5/24/04

MONITORING WELL ID: PZ-99-03 | ACTIVITY TIME: START 1330 END 1445 | BOTTLE TIME: 1435

LABEL SAMPLE ID: PZ990304XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 4.90 ft (TOR) | FINAL DTW: 4.90 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.625 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1400	4.90	250	19.27	0.278	6.72	7.30	2.7	208	0.0	
1410	4.90	250	19.19	0.295	6.69	7.03	0.80	200	0.0	
1420	4.90	250	19.19	0.307	6.67	8.03	0.80	197	0.0	
1425	4.90	250	19.16	0.311	6.66	8.33	0.77	196	0.0	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	✓
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	✓
Com X	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	✓
F X	Carbon Dioxide	Hach Method	N	None	NA	✓
F X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} <0.2 mg/L; CO_2 52 mg/L

SIGNATURE: James A Smith

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 6-7-04

MONITORING WELL ID: PZ-99-03 | ACTIVITY TIME: START 1410 END 1450 | BOTTLE TIME: 1445

LABEL SAMPLE ID: PZ990304X2 | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.74 ft (TOR) | FINAL DTW: 4.78 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.0064 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.625 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0039

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 4.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1415	4.78	250	—	—	—	—	—	—	—	START PURGE
1420	4.78	250	20	0.196	6.8	7.7	1.6	230	0.0	
1430	4.78	250	20	0.209	6.7	6.8	0.9	250	0.0	
1435	4.78	250	20	0.211	6.7	6.8	1.0	250	0.0	
1440	4.78	250	20	0.213	6.8	6.8	1.1	250	0.0	
1445	4.78	250	—	—	—	—	—	—	—	SAMPLE

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 [	2-40 mL	X
Com		Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-250 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F		Carbon Dioxide	Hach Method	N	None	NA	
F		Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: Bradley B. Cl

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5-19-04

MONITORING WELL ID: PZ-99-04I | ACTIVITY TIME: START 13:56 END | BOTTLE TIME: 14:45

LABEL SAMPLE ID: PZ990410 4XX | ASSOCIATED TRIP BLANK: TBK-04-10 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [✓]

4.98 JDT

INITIAL DTW: ~~5.01~~ ft (TOR) | FINAL DTW: 5.32 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.0544 gal

TD = 33.2'

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.794 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.030

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: NA ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
13:56	THRU	on pump								
		180								
14:00	5.30	180					JDT			
14:05	5.31	200	18.6	5.0	7.0	6.6	~~105~~ 45	132	0.26	
14:10	5.31	200	18.6	5.0	7.0	5.4	40	128	0.26	
14:15	5.31	200	18.6	5.0	7.0	4.4	34	124	0.26	
14:20	5.32	200	18.6	4.9	7.0	4.0	32	120	0.26	
14:25	5.32	200	18.6	4.9	6.9	3.9	33	118	0.25	
14:30	5.32	200	18.6	4.8	6.9	3.1	33	116	0.25	DO VARIES
14:35	5.32	200	18.6	4.8	6.9	4.2	35	114	0.25	

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL ✓	
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL ✓	
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly ✓	
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL ✓	
~~Com~~		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	~~1-1 Liter Poly~~	
~~Com~~		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	~~1-1 Liter Poly~~	
~~Com~~		Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	~~1-1 Liter Poly~~	
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly ✓	
Com	X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly ✓	
Com	X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly ✓	
Com	X	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly ✓	
F	X	Carbon Dioxide	Hach Method	N	None	NA	
F	X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA } 1-500 Poly	

NOTES

Com=Compuchem
F = Field

Field Chemistry Results (ppm):

Fe^{+2} 0.2 mg/L

CO_2 88 mg/L

SIGNATURE: Thomas D. Jordy

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5-24-04

MONITORING WELL ID: PZ-99-08I | ACTIVITY TIME: START 1458 END 1605 | BOTTLE TIME: 1600

LABEL SAMPLE ID: PZ9908I04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.25 ft (TOR) | FINAL DTW: 4.65 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.064 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 3.484

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.018 ~~0.114~~ JCH

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1458	4.25	200	Begin purging							
1501	4.62	200								
1503	4.62	200	15.70	0.215	5.52	0.00	65	272	0.0	
1506	4.62	200	15.88	1.316	4.83	0.00	600	284	0.1	
1509	4.62	200	16.25	1.67	5.03	0.00	600	263	0.1	
1519	4.62	200	16.33	2.14	5.05	0.00	220	253	0.1	
1522	4.63	200	16.34	2.26	5.05	0.00	110	253	0.1	
1525	4.63	200	16.42	2.29	5.05	0.00	110	254	0.1	
1528	4.64	200	16.36	2.34	5.03	0.00	160	253	0.1	
1531	4.65	200	16.38	2.36	5.02	0.00	75	253	0.1	
1534	4.65	200	16.37	2.38	5.02	0.00	55	252	0.1	
1537	4.65	200	16.43	2.40	5.03	0.00	38	250	0.1	
1540	4.65	200	16.46	2.41	5.03	0.00	30	249	0.1	
1543	4.65	200	16.44	2.42	5.03	0.00	24	249	0.1	
1548	4.65	200	16.44	2.43	5.02	0.00	17	248	0.1	
1552	4.65	200	16.44	2.44	5.03	0.00	16	248	0.1	
1555	4.65	200	16.47	2.43	5.03	0.00	16	247	0.1	
1558	4.65	200	16.46	2.43	5.03	0.00	16	245	0.1	
		Parameters	stable							
1600		Collect	Samples							

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES Field Chemistry Results (ppm):

Com=Compuchem

F = Field

Fe^{+2} _____

CO_2 _____

SIGNATURE: Jeffrey K Harshman

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5.17.04

MONITORING WELL ID: PZ 9912I | ACTIVITY TIME: START 1431 END 1544 | BOTTLE TIME: 1540

LABEL SAMPLE ID: PZ9912I04 | ASSOCIATED TRIP BLANK: n/a

WATER LEVEL / PUMP DATA TD: 20.33' | BLADDER PUMP [ ] | PERISTALTIC PUMP [X]

INITIAL DTW: 5.13 ft (TOR) | FINAL DTW: 5.15 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.0032 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 3.38 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0009

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1431	5.13	Begin Purging.								cloudy to start
1435	5.14	200/m	16.7	0.656	6.27	0.88	95	169	0.03	
1440	5.14	"	16.5	0.663	6.18	0.36	40	172	0.03	slow clearing
1445	5.14	"	16.5	0.671	6.20	0.53	24	170	0.03	"
1450	5.14	"	16.4	0.677	6.17	0.29	17	170	0.03	"
1455	5.15	"	16.4	0.683	6.17	0.10	13	171	0.03	"
1500	5.15	"	16.4	0.688	6.27	0.00	9.0	167	0.03	"
1505	5.15	"	16.3	0.689	6.31	0.00	8.4	164	0.03	"
1510	5.15	"	16.3	0.692	6.29	0.00	6.6	166	0.03	"
1515	5.15	"	16.3	0.691	6.30	0.00	5.5	166	0.03	"
1520	5.15	"	16.3	0.693	6.35	0.00	4.7	164		clear
1525	5.15	"	16.2	0.695	6.37	0.00	4.1	164		Clear
1529	5.15	"	16.3	0.695	6.39	0.00	3.6	164		Clear
1532	5.15	"	16.2	0.695	6.39	0.00	3.1	163		"
1535	5.15	"	16.2	0.694	6.40	0.00	3.1	163		"
1538	5.15	"	16.2	0.694	6.40	0.00	3.1	163		"
		Parameters stable								
1540		Collect Samples								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [X]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly (solid color)	[X]
Com [X]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[X]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Fe^{2+}, Sulfite	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ Sulfide _____

SIGNATURE: Jeffrey K. Harshman

RECEIVED BY: _____

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/25/04

MONITORING WELL ID: PZ-99-12I | ACTIVITY TIME: START 1450 END 1520 | BOTTLE TIME: 1515

LABEL SAMPLE ID: PZ9912I04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 5.26 ft (TOR) | FINAL DTW: 5.28 ft (TOR)

DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED: L/m X minutes X 0.26 gal/L:

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1455	5.27	250	16.94	1.29	6.44	2.65	13	132	0.1	
1500	5.27	250	16.69	1.25	6.32	1.63	11	141	0.1	
1505	5.27	250	16.53	1.27	6.29	1.63	10	145	0.1	
1510	5.27	250	16.50	1.28	6.27	1.72	9.1	146	0.1	
1515	Sampling									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	
Com	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	✓
Com X	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	✓
F	Carbon Dioxide	Hach Method	N	None	NA	
F	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

CO_2 _____

SIGNATURE: Lauren A Smith

RECEIVED BY: _____

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Stratford Army Engine Plant — **CONSULTANT** MACTEC E & C — PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT — JOB NUMBER: 3618038008 07.09 3 — DATE: 5-21-04

MONITORING WELL ID: PZ-9D — ACTIVITY TIME: START 10:32 END 11:54 — BOTTLE TIME: 11:30

LABEL SAMPLE ID: PZ9D04XX — ASSOCIATED TRIP BLANK: TBK-04-104 — ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA — BLADDER PUMP [ ] — PERISTALTIC PUMP [✓]

INITIAL DTW: 5.33 ft (TOR) — FINAL DTW: 6.25 ft (TOR) — DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.1472 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 2.84

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.052

BLADDER PUMP SETTINGS: DISCHARGE ___ SEC; REFILL ___ SEC; PRESSURE ___ psi

PID AT WELLHEAD: 0.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
10:32	Turn on pump & adjust flow rate									
10:37	6.05	120								
10:40	6.17	120	16.8	5.1	7.0	4.2	6	121	0.26	
10:43	6.20	130	16.7	5.1	6.9	3.8	6	117	0.26	
10:46	6.22	130	16.6	5.1	6.9	3.4	7	113	0.27	
10:49	6.25	130	16.6	5.1	6.9	3.2	7	109	0.27	
10:55	6.25	130	16.7	5.1	6.9	2.7	6	106	0.27	
11:00	6.25	150	16.7	5.1	6.9	2.3	5	105	0.27	
11:03	6.22	150	16.7	5.1	6.9	2.1	7	104	0.27	
11:06	6.21	150	16.8	5.1	6.9	1.8	3	103	0.26	
11:09	6.22	150	16.9	5.1	6.9	1.6	5	103	0.26	
11:12	6.26	150	16.9	5.0	6.9	1.4	3	102	0.26	
11:15	6.29	150	17.0	5.0	6.9	1.3	3	101	0.26	
11:18	6.29	150	17.0	4.9	6.9	1.2	3	101	0.26	
11:54	6.25									
		TURN OFF pump @ 11:54								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ✓	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com ✓	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com ✓	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	
Com ✓	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com ✓	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com ✓	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com ✓	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	
Com ✓	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	~~HNO3 / 4 Deg C~~	~~1-1 Liter Poly~~	
Com	Cyanide- 9010B	USEPA Method 9010B	N	~~NaOH / 4 Deg C~~	~~1-1 Liter Poly~~	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	~~4 Deg C~~	~~1-500 mL Poly~~	
F ✓	Carbon Dioxide	Hach Method	N	None	NA	
F ✓	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES — **Field Chemistry Results (ppm):**

Com=Compuchem
F = Field

Fe^{+2}: 0.0 mg/L

CO_2: 14 mg/L

SIGNATURE: [signature]

RECEIVED BY: [signature]

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Screen interval ~~[illegible]~~ 24' - 34'

v207

(43)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5/25/04

MONITORING WELL ID: PZ-TF-02A | ACTIVITY TIME: START 0935 END 1120 | BOTTLE TIME: 1005

LABEL SAMPLE ID: PZTF0402A04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 1.85 Lat 1.85 ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS

DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 0 <0.1 ppmv

PURGE DATA

TIME	DTW (ft) Lat	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0940	1.85	150	13.72	41.9	6.75	1.81	23	86	2.7	
0945	3.00	150	13.80	41.9	6.75	1.63	95	81	2.7	
0950	3.00	150	13.76	41.8	6.74	1.55	26	17	2.7	
0953	3.05	150	13.85	41.6	6.73	1.37	30	-56	2.6	
0956	3.05	150	13.88	41.3	6.73	1.40	33	-98	2.6	
0959	3.05	150	13.77	40.0	6.72	1.21	33	-146	2.5	
1005	Sampling									
Water level began to drop rapidly as continued to sample - Had to stop and wait for recharge to finish sampling										

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 1.5 mg/L

CO_2 553 mg/L

SIGNATURE: Lauren Atwood

RECEIVED BY: David Lovejoy

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4-14ft 1207

(44)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5/25/04

MONITORING WELL ID: PZ-TF-02B | ACTIVITY TIME: START 1130 END 1215 | BOTTLE TIME: 1150

LABEL SAMPLE ID: PZTF0402B04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP [ ] | PERISTALTIC PUMP [X]

INITIAL DTW: 1.01 ft (TOR) | FINAL DTW: 2.00 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED: L/m X minutes X 0 26 gal/L | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1130	1.01	100	14.30	33.7	7.98	10.99	25	53	2.1	
1133	1.50	100	14.25	33.8	7.99	10.61	12	54	2.1	
1136	1.50	100	14.17	34.1	8.00	9.99	9.0	56	2.1	
1139	1.50	100	14.09	37.2	7.99	9.34	8.3	56	2.1	
1142	1.50	100	13.99	35.1	7.43	9.20	8.5	20	2.2	
1145	1.50	100	13.98	34.1	7.42	9.01	8.0	18	2.2	
1148	1.50	100	13.97	35.1	7.43	9.0	8.2	16	2.2	
1150	- Sampling									
Faulty VOA vial so lost sample - other 3 VOAs collected										

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2}: 0.7 mg/L

CO_2: 126 mg/L

SIGNATURE: Lauren A Smith

RECEIVED BY:

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38-48'

1207

(45)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5-25-04

MONITORING WELL ID: PZTF-04-03A | ACTIVITY TIME: START 1105 END 1225 | BOTTLE TIME: 1220

LABEL SAMPLE ID: PZTF0403A04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: well went | PERISTALTIC PUMP: X | DRAWDOWN VOL:

INITIAL DTW: 1.65 ft (TOR) | FINAL DTW: Dry ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L:

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1105	1.65	200	Begin purging							
1110	5.00	200	14.6	>99.9	7.04	0.09	32	45	>4	
1103	—	200	14.2	>99.9	7.05	0.43	30	44	>4	
1106	—	200	14.2	>99.9	7.05	0.40	30	-86	>4	
			Well went dry.							
			Allow well to	recharge						
1220	Collect	samples for	VOC, methane/ethane/ethene/ + TOC							
		Tide coming in Fast - unable to collect								
		remaining samples								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	X
Com X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	X
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	X
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	X
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F X	Carbon Dioxide	Hach Method	N	None	NA	X
F X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} < 0.2 mg/L

CO_2 78 mg/L

SIGNATURE: Jeff Marshman

RECEIVED BY: David Lovejoy

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(46)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.25.04

MONITORING WELL ID: PZTF-04-03B | ACTIVITY TIME: START 1120 END 1155 | BOTTLE TIME: 1135

LABEL SAMPLE ID: PZTF0403B04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] | PERISTALTIC PUMP [X] | DRAWDOWN VOL

INITIAL DTW: 1.25 ft (TOR) | FINAL DTW: — ft (TOR) | INITIAL - FINAL X 0 16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1120	1.25	200	begin purging							
1122	—	200	14.3	24.1	8.38	7.25	15	15	1.45	
1125	meter not working	200	13.9	27.6	8.45	7.27	10	33	1.52	
1128	"	200	12.8	26.5	8.42	7.26	10	35	1.52	
1132	—	200	13.8	26.3	8.43	7.28	10	36	1.70	
			Parameters stable							
1135	Collect samples									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	X
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES

Com=Compuchem
F = Field

Field Chemistry Results (ppm):

Fe^{+2} < 0.2 mg/L

CO_2 124 mg/L

SIGNATURE: Jeffrey K. Darthma

RECEIVED BY: D Lovejoy

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 5/25/04

MONITORING WELL ID: PZ-TF-07A | ACTIVITY TIME: START 1045 END 1125 | BOTTLE TIME: 1110

LABEL SAMPLE ID: PZTF0407A04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP:

INITIAL DTW: 1.02 ft (TOR) | FINAL DTW: 1.50 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 8 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1045	1.03	350	15.54	39.5	7.40	1.25	24	9	2.50	
1050	1.20		15.57	38.7	7.28	1.02	9	7	2.49	
1055	1.37		15.59	38.6	7.27	0.97	8	6	2.47	
1100	1.40		15.60	38.5	7.26	0.95	7	5	2.47	
1105	1.43		15.61	38.4	7.26	0.93	7	5	2.47	
1110	1.50		Sample	PZ-TF-	07A					
1125	end		pumping							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 1.0 mg/L

CO_2 97 mg/L

SIGNATURE:

RECEIVED BY: David Lovejoy

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(48)

Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5/25/04

MONITORING WELL ID: PZ-TF-07B | ACTIVITY TIME: START 1130 END 1210 | BOTTLE TIME: 1155

LABEL SAMPLE ID: PZTF0407B04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [ ]

INITIAL DTW: 0.89 ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: Ø ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1130	0.90	350	16.01	45.7	8.01	1.38	17	13	2.98	
1135	1.01		16.11	44.7	7.98	1.02	5	7	2.90	
1140	1.34		16.12	43.6	7.96	0.89	4	5	2.90	
1145	1.56		16.14	43.5	7.89	0.87	4	4	2.96	
1150	1.67		16.13	43.5	7.88	0.86	4	5	2.90	
1155	Sample PZ-TF-078									
1210	end pumping									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 20.2 mg/L

CO_2 74 mg/L

SIGNATURE

RECEIVED BY Daniel O Lovejoy

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5-26-04

MONITORING WELL ID: PZ-TF-09A | ACTIVITY TIME: START 1035 END 1130 | BOTTLE TIME: 1100

LABEL SAMPLE ID: PZTF0409A04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] PERISTALTIC PUMP: [X]

INITIAL DTW: — ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA PVC

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1035	—	250	13.91	39.8	6.77	0.00	80	36	2.5	water level is
1038	—		14.55	37.7	7.23	0.00	70	-22	2.4	over inner PVC
1043	2.53	200	14.69	36.7	7.36	0 00	50	-32	2.3	
1046	4.35	150	13.75	37.9	7.00	0.00	40	-65	2.3	lowest pump rate
1049	5.30	150	13.00	39.0	6.82	0.00	16	-116	2.5	possible
1052		150	12.78	38.9	6.05	0 00	15	-134	2.5	
1055		150	12.79	38.8	6.87	0.00	15	-134	2.4	
1058		150	12.80	38.5	6.87	0.00	15	-136	2.4	
		Parameters stable								
1100		Collect samples								
		Well went dry while sampling - allow well to recharge								
		and cont collecting								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [X]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[X]
Com [X]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[X]
Com [X]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	[X]
Com [X]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[X]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[X]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [X]	Carbon Dioxide	Hach Method	N	None	NA	[X]
F [X]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[X]

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} < 0.2 mg/L

CO_2 89 mg/L

SIGNATURE: [signature]

RECEIVED BY: Dawn Lopez

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5/26/04

MONITORING WELL ID: PZ-TF-09B | ACTIVITY TIME: START 1135 END | BOTTLE TIME:

LABEL SAMPLE ID: PZTF0409B04XX | ASSOCIATED TRIP BLANK: TBK-04-106 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP:

INITIAL DTW: 0 ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED: L/m X minutes X 0 26 gal/L | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1035	0	350	12.58	36.9	8.01	0.50	30	53	2.25	
1040	0.1		12.89	35.9	8.02	5.95	25	54	2.26	
1045	0.2		12.97	36.4	8.01	5.72	15	63	2.28	
1050	0.2		12.93	36.7	8.00	5.62	13.7	64	2.30	
1055	0.2		13.12	37.1	8.04	5.15	12.1	64	2.33	
1100	0.2		13.29	37.2	8.03	5.14	12.0	63	2.35	
1105	0.2		13.30	37.2	8.03	5.13	11.8	62	2.35	
1110	Sample		PZ-TF09B							

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 20.2 mg/L

CO_2 112 mg/L

SIGNATURE:

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 5/18/04

MONITORING WELL ID: WC-10S | ACTIVITY TIME: START 1520 END 1645 | BOTTLE TIME: 1625

LABEL SAMPLE ID: WC10S04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ☒

INITIAL DTW: 4.30 ft (TOR) | FINAL DTW: 4.3 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 20.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1535	4.30	300	15.89	0.550	7.65	9.00	12	59	0.0	Turbid H2O
1545	4.32	300	15.91	0.533	7.56	7.49	4.2	65	0.0	but no stain/tint
1555	4.32	300	16.04	0.533	7.48	8.74	2.8	69	0.0	to H2O
1600	4.32	300	16.05	0.529	7.46	8.69	2.3	71	0.0	no odor
1605	4.32	300	16.09	0.526	7.44	8.59	1.3	73	0.0	
1610	4.32	300	16.09	0.525	7.42	8.55	1.0	74	0.0	
1615	4.32	300	16.13	0.522	7.40	8.45	1.2	75	0.0	
1620	4.32	300	16.03	0.523	7.41	8.40	1.2	77	0.0	
1625	Sampling									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	☐	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	☐
Com	☐	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	☐
Com	☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	☐
Com	☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☐
Com	☒	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	☒	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	☒	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	✓
Com	☐	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	☐
Com	☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com	☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	☐
F	☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F	☐	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ Sulfide _____

SIGNATURE: Lauren A Smith

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 6-7-04

MONITORING WELL ID: WG10S | ACTIVITY TIME: START 1325 END 1405 | BOTTLE TIME: 1400

LABEL SAMPLE ID: WG10S04X2 | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: N/A

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] PERISTALTIC PUMP: [X]

INITIAL DTW: 4.34 ft (TOR) | FINAL DTW: 4.30 ft (TOR) | INITIAL - FINAL X 0 16 gal/ft: — gal | DRAWDOWN VOL

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 0.98 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS

DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi (W) 6/10/04

PID AT WELLHEAD: 0.0 <1.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1330	4.34	150	—	—	—	—	—	—	—	START PURGE
1335	4.34	150	17	0.381	7.4	9.4	16	220	0.0	WELL COVER NOT
1345	4.34	150	18	0.377	7.3	7.9	6.2	230	0.0	SECURED. WELL CAP
1350	4.32	150	18	0.377	7.3	7.7	4.8	230	0.0	BROKEN.
1355	4.30	150	18	0.375	7.4	7.7	4.8	230	0.0	INCOMING TIDE
1400	4.30	150	—	—	—	—	—	—	—	SAMPLE

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [X]	Volatile Fatty Acids	VFA AM23G	N	Iconium chloride/ 4 D	2-40 mL	[X]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	[ ]
Com [X]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-250 mL Poly	[X]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: Brenda B. L.

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5-24-04

MONITORING WELL ID: WC-12S | ACTIVITY TIME: START 1420 END 1510 | BOTTLE TIME: 1455

LABEL SAMPLE ID: WC12S04XX | ASSOCIATED TRIP BLANK: TBK-04-105 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

TD 13.85

INITIAL DTW: 5.15 ft (TOR) | FINAL DTW: 6.10 ft (TOR)

DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0.152 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 2.73

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.043

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1420	5.17	350	17.40	0.590	7.10	5.98	10.1	167	0.02	
1424	5.19		17.35	0.548	7.06	5.65	4.6	169	0.02	
1428	5.23		17.24	0.456	6.96	4.46	1.4	204	0.02	
1432	5.32		17.52	0.457	6.90	4.07	1.2	210	0.02	
1436	5.41		17.60	0.442	6.88	4.01	0.7	219	0.02	
1440	5.59		17.61	0.440	6.87	4.03	0.6	222	0.02	
1444	5.72		17.61	0.441	6.86	4.02	0.6	224	0.02	
1448	5.89		17.62	0.442	6.87	4.01	0.5	223	0.02	
1455	6.10		Sample	WC-12S						

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com		TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com		Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	✓
Com		Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	X	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	✓
F		Carbon Dioxide	Hach Method	N	None	NA	
F		Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE _____ RECEIVED BY. _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5-19-04

MONITORING WELL ID: WC-14S | ACTIVITY TIME: START 11:25 END 1250 | BOTTLE TIME: 12:15

LABEL SAMPLE ID: WC14S04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [ ]

INITIAL DTW: 4.55 ft (TOR) | FINAL DTW: 4.58 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.0048 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 7.02 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.00068

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: <0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
11:25	TUBE	ON	pump							
11:30	4.58	600ml/	33 seconds							
11:35	4.58	"	13.2	0.14	6.1	10.5	9.8	122	0.01	
11:40	4.58	"	13.1	0.13	6.0	10.1	3.3	123	0.0	
11:45	4.58	"	13.2	0.14	6.0	9.5	2.7	123	0	
11:50	4.58	"	13.2	0.13	6.0	9.3	2.2	124	0	
12:00	4.58	"	13.1	0.13	6.0	9.1	2.9	121	0	
12:05	4.58	"	13.1	0.13	6.0	8.9	2.3	125	0	
12:10	4.58	"	13.1	0.13	6.0	9.0	2.5	121	0	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[✓]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[✓]
Com [X]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	[✓]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg. C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

CO_2 _____

SIGNATURE: Thomas D. Lang

RECEIVED BY: _____

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 05/19/04

MONITORING WELL ID: WC-1S | ACTIVITY TIME: START 1040 END 1415 | BOTTLE TIME: 1215

LABEL SAMPLE ID: 54 WC1S04XX | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: MS/MSD

13.6

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] | PERISTALTIC PUMP: [X]

INITIAL DTW: 5.65 ft (TOR) | FINAL DTW: 5.30 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.056 gal

DTB=13.6 ft

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 4.91

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.011

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 20.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1100	5.65	300	18.36	0.380	6.86	8.47	16	28	0.0	
1110	5.61	300	18.00	0.400	6.80	8.12	14	3	0.0	Tide is coming in
1120	5.59	300	18.10	0.395	6.80	8.10	10	-5	0.0	
1130	5.56	300	18.09	0.397	6.79	7.99	6.6	-7	0.0	MS MSD taken
1140	5.52	300	18.12	0.397	6.76	8.08	5.3	-8	0.0	
1150	5.52	300	18.16	0.398	6.78	8.16	4.5	-9	0.0	
1155	5.50	300	18.22	0.399	6.77	8.09	4.3	-10	0.0	
1200	5.47	300	18.10	0.398	6.79	7.40	4.9	-9	0.0	
1203	5.47	300	18.10	0.396	6.77	7.73	4.3	-10	0.0	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [✓]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	✓
Com [✓]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com [✓]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg. C	1-1 Liter Poly	✓
Com [✓]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	✓
Com [✓]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com [✓]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com [✓]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	✓
Com [✓]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [✓]	Carbon Dioxide	Hach Method	N	None	NA	✓
F [✓]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 0.8 mg/L

CO_2 20 mg/L

SIGNATURE: Lauren A Smith

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Stratford Army Engine Plant | **CONSULTANT** MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5 26 04

MONITORING WELL ID: WC-2D | ACTIVITY TIME: START 0745 END | BOTTLE TIME: 0828

LABEL SAMPLE ID: WC2D04XX | ASSOCIATED TRIP BLANK: TBK-04-107 | ASSOCIATED QC: DUF n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 3.65 ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0745	3.67	350	13.44	1.45	6.29	0	94	-178	0.07	H2S odor
0750	3.72		13.34	1.46	6.30	0	60	-183	0.07	
0755	3.76		13.33	1.45	6.31	0	10	-194	0.07	
0800	3.79		13.37	1.45	6.30	0	8	-206	0.07	
0805			13.34	1.45	6.30	0	7	-210	0.07	
0810			13.36	1.45	6.30	0	6	-219	0.07	
0815			13.37	1.45	6.30	0	6	-215	0.07	
0820		Sample	WC2D04XX &	WC2D04XD						

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	2
Com	X	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	2
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	1
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	2
Com		Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	1
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	1
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	1
F	X	Ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	1

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} <0.2 mg/L

CO_2 116 mg/L

SIGNATURE: [signature]

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/18/04

MONITORING WELL ID: WC2-1S | ACTIVITY TIME: START 1420 END 1600 | BOTTLE TIME: 1535

LABEL SAMPLE ID: WC21504XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 3.92 ft (TOR) | FINAL DTW: 4.05 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.02 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 1.59 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.01

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~0.0~~ 20.6 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1435	Start purge @			100 mL/min						Depth = 11.72
1445	3.98	100	13.0	0.632	6.8	5.5	9.4	-207	0.0	Sample clear
1450	3.99	100	13.0	0.458	6.7	4.5	7.6	-208		musty odor
1455	4.00	100	13.0	0.415	6.7	4.0	7.5	-200	0.0	
1500	4.01	100	13.0	0.392	6.6	3.6	7.4	-221		
1505	4.02	100	13.0	0.376	6.6	3.3	5.1	-224		
1510	4.02	100	13.0	0.365	6.6	3.1	4.3	-229		
1515	4.03	100	13.0	0.356	6.6	3.0	3.0	-232		
1520	4.03	100	13.1	0.353	6.6	2.9	2.1	-230		
1525	4.04	100	13.2	0.346	6.6	2.8	2.0	-232		
1530	4.04	100	13.2	0.348	6.6	2.8	1.4	-229		
1535	4.05	100	13.3	0.341	6.6	2.7	1.8	-231	0.0	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	X
Com	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ Sulfide _____

SIGNATURE: David O Lovejoy

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE ___ OF ___

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5/20/04

MONITORING WELL ID: WC2-2D | ACTIVITY TIME: START 0950 END | BOTTLE TIME: 1235

LABEL SAMPLE ID: WC22D04XX | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 5.87 ft (TOR) | FINAL DTW: 5.32 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: ___ gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 6.06

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~20.7~~ 20.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1000	Start	purge @ 180	ml/min							Rising tide
1015	5.81	180	17.1	29.9	6.8	7.2	>100	-127	1.9	Tidal influence
1020	5.79	180	16.9	30.2	6.8	6.2	>100	-130	1.9	on well
1025	5.77	180	17.1	30.5	6.8	6.0	>100	-131	1.9	
1030	5.75	180	17.0	30.1	6.9	5.6	>100	-136	1.9	
1035	5.73	180	17.0	29.4	6.8	5.1	94.3	-132	1.8	
1040	5.71	180	17.0	29.7	6.8	5.0	79.7	-132	1.8	
1050	5.62	180	17.1	30.2	6.8	4.9	59.6	-130	1.9	
1100	5.62	180	17.2	30.3	6.8	4.5	35.7	-134	1.9	
1110	5.58	180	17.4	29.9	6.8	4.3	28.2	-135	1.9	
1125	5.52	180	17.5	30.3	6.8	4.4	18.5	-125	1.9	pump off 5 min
1135	5.43	125	17.9	29.7	6.8	4.3	13.6	-118	1.8	to dump water
1145	5.42	125	18.3	30.0	6.8	4.0	11.8	-123	1.9	
1155	5.41	125	18.6	29.7	6.8	3.8	9.1	-123	1.8	
1200	5.40	125	18.8	29.7	6.8	3.8	7.9	-123	1.8	
1210	5.38	125	18.9	29.9	6.8	3.7	6.1	-122	1.9	
1215	5.38	125	19.0	30.0	6.8	3.7	5.4	-122	1.9	
1220	5.37	125	19.1	30.0	6.8	3.6	4.7	-122	1.9	
1230	5.34	125	19.2	30.1	6.8	3.5	4.2	-122	1.9	
1233	5.33	125	19.2	30.1	6.8	3.5	4.2	-122	1.9	
1236	5.32	125	19.3	30.1	6.8	3.5	4.3	-122	1.9	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com i	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com ii	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	X
Com iii	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	X
Com iv	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com v	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com vi	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com vii	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com viii	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F i	Carbon Dioxide	Hach Method	N	None	NA	X
F ii	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES

Com=Compuchem
F = Field

Field Chemistry Results (ppm):

Fe^{+2} 8 mg/L

CO_2 180 mg/L

SIGNATURE: David O. Lovejoy

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Screen interval 51.5' to 61.5' bgs

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5.19.04

MONITORING WELL ID: WC2-3D | ACTIVITY TIME: START 0827 END 0940 | BOTTLE TIME: 0910

LABEL SAMPLE ID: WC23D04 | ASSOCIATED TRIP BLANK: TBK-04-102 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 5.21 ft (TOR) | FINAL DTW: 5.19 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: N/A gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 3.79 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 7.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0827	5.21	200	Begin	purging						No odors
0832	5.22	200	15.9	36.2	6.59	0.00	2.3	36		Clear to start
0840	5.21	200	15.9	>100	6.61	2.77	1.9	58	>4.00	
0845	5.21	200	15.9	19.7	6.65	2.27	2.0	45	1.17	
0849	5.21	200	15.9	19.7	6.67	1.61	1.9	-14	1.17	
0853	5.21	200	15.8	19.6	6.68	1.40	2.0	-69	1.16	
0857	5.20	200	15.9	19.6	6.69	1.24	2.0	-87	1.15	
0901	5.20	200	16.0	19.4	6.69	1.15	1.9	-91	1.15	
0905	5.20	200	16.1	19.4	6.71	1.10	1.9	-92	1.15	
0909	5.19	200	16.1	19.4	6.71	1.09	1.9	-92	1.15	
	Parameters stable									
0910	Collect samples									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	X
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 1.04 mg/L

CO_2 100 mg/L

SIGNATURE: Jeffrey K. Harshman

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5/18/04

MONITORING WELL ID: WC2-3I | ACTIVITY TIME: START 1615 END 1715 | BOTTLE TIME: 1645

LABEL SAMPLE ID: WC23I04 | ASSOCIATED TRIP BLANK: TBK-04-10I | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] | PERISTALTIC PUMP [X]

INITIAL DTW: 3.80 ft (TOR) | FINAL DTW: 3.86 ft (TOR) | DRAWDOWN VOL — INITIAL - FINAL X 0 16 gal/ft: 0.0096 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 3.9 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0024

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 20.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1615	3.80	200	Begin purging							
1621	3.85	250	15.2	10.7	6.82	1.46	3.7	10	0.56	
1625	3.85	250	15.1	10.0	6.84	1.24	2.6	9	0.55	
1629	3.86	250	15.1	11.9	6.76	0.90	1.8	-25	0.66	
1632	3.86	250	15.0	12.4	6.75	0.57	1.8	-23	0.70	
1635	3.86	250	15.1	12.5	6.75	0.58	1.7	-22	0.71	
1638	3.86	250	15.0	12.5	6.76	0.57	1.7	-20	0.71	
		Parameters stable.								
1645	Collect Samples									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	X
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com	X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	X
F	X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 1.4 mg/L

~~Sulfide~~ CO_2 300 mg/L

SIGNATURE: Jeffrey K Dorsheimer

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5/18/04

MONITORING WELL ID: WC2-3S | ACTIVITY TIME: START 1615 END 1800 | BOTTLE TIME: 1725

LABEL SAMPLE ID: WC23S04XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] | PERISTALTIC PUMP: [X]

INITIAL DTW: 5.67 ft (TOR) | FINAL DTW: 5.95 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.04 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.37 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.03

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~<0.0~~ <0.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1625	Start	purge	@ 100 ml/min							Depth = 11.15
1630	5.86	100	12.5	16.8	6.5	8.1	32.7	-7		outgoing tide
1635	5.88	100	12.7	16.5	6.5	7.4	21.4	-4	1.0	
1640	5.91	100	12.6	16.1	6.5	6.5	18.7	-11	0.9	
1645	5.93	100	12.9	16.0	6.5	5.6	11.5	-15	0.9	< to 80ml/min
1650	5.90	80	12.9	16.0	6.5	5.2	8.7	-14	0.9	
1655	5.91	80	12.7	15.9	6.6	4.7	6.1	-35	0.9	
1700	5.92	80	12.7	15.9	6.6	4.2	3.6	-56	0.9	
1705	5.93	80	12.6	15.9	6.6	4.0	4.6	-78	0.9	Sample clear
1710	5.93	80	12.5	15.8	6.6	3.9	3.3	-164	0.9	no odor
1715	5.94	80	12.5	15.8	6.6	3.9	3.8	-119	0.9	
1720	5.94	80	12.6	15.7	6.6	3.7	3.1	-124	0.9	
1725	5.95	80	12.5	15.6	6.6	3.7	3.7	-128	0.9	

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[X]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES Field Chemistry Results (ppm):

Com=Compuchem
F = Field

Fe^{+2} _____

Sulfide _____

SIGNATURE: David O. Lovejoy

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09 3 | DATE: 5-19-04

MONITORING WELL ID: WC2-4S | ACTIVITY TIME: START 10:18 (10:18) END 11:02 | BOTTLE TIME: 10:50

LABEL SAMPLE ID: WC24504XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA B.O.W. = 11.99 ~~11.99~~ 107 | BLADDER PUMP: ☐ | PERISTALTIC PUMP: ✓

INITIAL DTW: ~~4.80~~ 5.06 ft (TOR) | FINAL DTW: 5.08 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft: 0.0032 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 4.4 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.00073

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: NA ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m) (#)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L) 107	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
10:20	5.08	600/93seconds				7.1				
10:23	5.09	"	14.9	0.17	6.7	~~0.17~~	3.3	181	0.01	
10:26	5.09	"	14.7	0.17	6.6	6.3	2.7	179	0.01	
10:30	5.08	"	14.6	0.17	6.6	5.8	2.4	173	0.01	
10:35	5.08	"	14.5	0.17	6.5	5.5	2.2	170	0.01	
10:40	5.08	"	14.4	0.17	6.5	5.4	1.9	170	0.01	
10:45	5.08	"	14.4	0.17	6.5	7.7	1.5	170	0.01	
10:50	5.08	"	14.4	0.17	6.5	7.4	1.8	170	0.01	Pre-LABELED TL
10:55	5.08	"	14.4	0.17	6.5	7.3	2.1	170	0.01	Sample labels to
										10:50 TIME -
										ACTUALLY TOOK
										Sample @ 11:00
		(#) 600 ml/93 seconds is purge rate								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ☐	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	☐
Com ☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com ☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	☐
Com ☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	☐
Com ☒	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com ☒	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com ☒	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	✓
Com ☐	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	☐
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	☐
Com ☐	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	☐
F ☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F ☐	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ CO_2 _____

SIGNATURE: Thomas D. Lyngby

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64

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5/19/04

MONITORING WELL ID: WC2-5I | ACTIVITY TIME: START 1630 END 1810 | BOTTLE TIME: 1750

LABEL SAMPLE ID: 64 WC2C5104KX | ASSOCIATED TRIP BLANK: TBK-04-10 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 7.32 ft (TOR) | FINAL DTW: 7.50 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME:

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1645	7.34	250	15.32	26.2	6.81	1.41	61.3	-3	1.6	H_2O Cloudy
1655	7.34	250	15.33	24.4	6.75	1.03	31.3	1	1.5	no odor
1705	7.35	250	15.32	23.8	6.74	1.06	21.2	1	1.4	
1715	7.41	250	15.36	23.9	6.72	0.95	17.3	2	1.4	tide is going out
1725	7.41	250	15.32	24.0	6.72	1.02	12.6	1	1.5	+ could be
1730	7.41	250	15.44	24.2	6.73	1.11	12.4	1	1.5	causing extra
1735	7.47	250	15.29	24.1	6.72	1.05	9.9	1	1.5	drawdown
1740	7.47	250	15.30	24.0	6.71	1.03	10.30	1	1.5	
1743	7.47	250	15.46	24.0	6.73	0.99	10.47	2	1.5	
1750	Sample									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	✓
Com X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	✓
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	
Com X	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	✓
Com X	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F X	Carbon Dioxide	Hach Method	N	None	NA	✓
F X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem, F = Field

Field Chemistry Results (ppm):

Fe^{+2} 3.8 mg/L

CO_2 110 mg/L

SIGNATURE: Lauren A Smith

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09 3 | DATE: 05/19/04

MONITORING WELL ID: WC2-5S | ACTIVITY TIME: START 1405 END 1620 | BOTTLE TIME: 1545

LABEL SAMPLE ID: 65WC25S04XX | ASSOCIATED TRIP BLANK: TBK-04-10 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 7.20 Rad ft (TOR) | FINAL DTW: 7.27 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: 0.011 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 6.63 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0017

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: <0.00 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1420	7.27	300	15.16	0.336	6.37	1.93	5.68	153	0.0	
1430	7.27	300	15.13	0.304	6.35	2.79	2.90	148	0.0	
1440	7.27	300	15.04	0.307	6.33	2.63	2.37	149	0.0	
1445	7.27	300	15.05	0.302	6.32	2.59	1.70	149	0.0	
1450	7.27	300	14.98	0.293	6.31	2.70	1.41	150	0.0	
1455	7.27	300	14.95	0.285	6.31	2.96	1.34	151	0.0	
1500	7.27	300	14.95	0.280	6.30	3.15	1.63	153	0.0	
1505	7.27	300	14.92	0.276	6.30	3.59	1.43	154	0.0	
1510	7.27	300	14.96	0.262	6.30	3.63	1.54	154	0.0	
1515	7.27	300	14.99	0.254	6.30	7.45	1.77	157	0.0	
1520	7.27	300	14.86	0.247	6.29	7.28	1.40	158	0.0	
1525	7.27	300	14.78	.230.230	6.30	7.00	1.33	159	0.0	
1530	7.27	300	14.81	0.231	6.30	6.72	1.35	160	0.0	
1535	7.27	300	14.82	0.229	6.30	6.60	1.36	161	0.0	
1540	7.27	300	14.81	0.229	6.29	6.65	1.40	162	0.0	
1545	Sampling									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	X	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	X	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	✓
Com	X	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	X	Carbon Dioxide	Hach Method	N	None	NA	✓
F	X	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} <0.2 mg/L

CO_2 32 mg/L

SIGNATURE: Lauren A Smith

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NOTE: NEED TO weight tubing to reach mid-screen depth (44') using bolt/washers/nut/hose clamp.

66

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5-18-04

MONITORING WELL ID: WC2-61 | ACTIVITY TIME: START 1220 END 1350 | BOTTLE TIME: 1320

LABEL SAMPLE ID: WC261044X | ASSOCIATED TRIP BLANK: TBK-04-101

WATER LEVEL / PUMP DATA

BLADDER PUMP: [ ] | PERISTALTIC PUMP: [X]

INITIAL DTW: 4.05 ft (TOR) | FINAL DTW: 4.14 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.0144 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 5.85 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0024

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 <0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1220	4.05	250	Begin purging							No odors
1227	4.07	250	16.6	14.7	6.70	5.75	25	45		
1232	4.08	250	16.5	14.7	6.71	4.72	20	42		
1236	4.08	250	16.6	14.8	6.72	5.01	18	41		
1242	4.08	250	16.8	14.9	6.73	3.01	16	39		
1246	4.08	250	16.6	14.9	6.74	0.09	13	38		
1251	4.09	250	16.6	14.9	6.74	0.00	9.8	37	0.86	
1256	4.10	250	16.5	14.9	6.75	0.34	8.7	38	0.86	
1300	4.10	250	16.6	14.9	6.71	0.33	7.6	38	0.87	
1304	4.12	250	16.6	14.9	6.71	0.26	6.7	37	0.86	
1307	4.13	250	16.7	14.9	6.72	0.09	6.8	38	0.86	
1310	4.13	250	16.7	14.9	6.73	0.02	6.3	39	0.86	
1313	4.13	250	16.7	14.9	6.74	0.00	4.7	39	0.86	
1316	4.14	250	16.9	14.9	6.74	0.00	4.6	40	0.86	
1319	4.14	250	16.8	14.9	6.74	0.00	4.6	40	0.86	
		Parameters	stable							
1320	Collect	samples								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [X]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[X]
Com [X]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[X]
Com [X]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	[X]
Com [X]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[X]
Com [X]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [X]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[X]
Com [X]	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[X]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly (solid color)	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [X]	Carbon Dioxide	Hach Method	N	None	NA	[X]
F [X]	Fe^{2+}, Sulfite	Hach Method	N	None	NA	[X]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

- Fe^{+2}: 1.4 mg/L
- CO_2
- Sulfide: 120 mg/L

SIGNATURE: Jeffrey K. Danielson

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.18.04

MONITORING WELL ID: WC-3S | ACTIVITY TIME: START 1452 END 1352 | BOTTLE TIME: 1540

LABEL SAMPLE ID: WC3S04 | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA — Tidal Influence on water level | BLADDER PUMP: | PERISTALTIC PUMP: X | DRAWDOWN VOL

INITIAL DTW: 3.63 ft (TOR) | FINAL DTW: 4.43 ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: 0.128 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 2.808 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0455

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: <0.03 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1452	3.63	250	Begin purging							Blackish, odor
1459	4.18	250	13.7	18.5	8.32	0.23	15	-276	1.08	clearing
1503	4.19	250	13.7	18.4	8.34	0.13	11	-277	1.08	"
1507	4.22	250	13.5	18.3	8.37	0.00	9.2	-281	1.08	
1512	4.28	250	13.5	18.5	8.39	0.29	6.4	-279	1.08	
1516	4.28	200	13.7	18.4	8.40	0.38	5.2	-278	1.08	Reduce Flow Rate
1520	4.30	200	13.7	18.5	8.44	0.33	5.1	-277	1.09	
1524	4.34	200	13.7	18.6	8.40	0.26	4.9	-269	1.09	
1528	4.40	200	13.6	18.8	8.43	0.27	3.9	-269	1.10	Tidal Influence -
1532	4.42	200	13.8	18.7	8.43	0.27	3.8	-269	1.10	water level lowering
1535	4.43	200	13.8	18.7	8.44	0.26	3.8	-270	1.10	
		Parameters	stable							
1540	Collect	Samples								

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com		TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	
Com		Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com		Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	
Com		Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	
Com	X	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	X	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com		Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com		Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F		Carbon Dioxide	Hach Method	N	None	NA	
F		ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} _____

Sulfide _____

SIGNATURE: Jeffrey K. Danielson

RECEIVED BY: _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07 09.3 | DATE: 5/19/04

MONITORING WELL ID: WC-4S | ACTIVITY TIME: START 1100 END 1305 | BOTTLE TIME: 1225

LABEL SAMPLE ID: 68 WC4S04XX | ASSOCIATED TRIP BLANK: TBK-04-10 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 3.30 ft (TOR) | FINAL DTW: 2.82 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.077 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 5.85

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.013

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: Ø < 0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1110	3.33	300	15.58	0.318	6.79	2.07	9.6	18	0.0	Depth to Bottom
1120	3.33	300	14.93	0.313	6.77	0.94	4.9	-13	0.0	12.28
1130	3.33	300	14.85	0.316	6.76	0.86	4.3	-32	0.0	
1140	3.05	300	14.93	0.319	6.74	0.86	4.3	-37	0.0	Tide coming In
1145	3.05	300	14.95	0.323	6.72	0.82	3.6	-41	0.0	so well is gaining
1150	3.05	300	14.91	0.327	6.71	0.82	3.7	-43	0.0	water
1155	3.05	300	14.57	0.333	6.71	0.79	65	-43	0.0	←bumped tubing
1200	3.01	300	14.57	0.353	6.71	0.80	5.3	-43	0.0	stirred up sediment
1205	3.01	300	14.65	0.350	6.69	0.78	3.4	-49	0.0	
1210	2.99	300	14.71	0.347	6.69	0.76	2.7	-51	0.0	
1215	2.99	300	14.78	0.349	6.69	0.77	2.5	-51	0.0	
1220	2.99	300	14.80	0.350	6.68	0.77	2.5	-51	0.0	
1225	Sample									
		0								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	✓
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	✓
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	✓
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	✓
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	✓
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	✓
Com	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	✓
Com	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	✓
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	✓
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	✓

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} 1.0 mg/L; CO_2 52 mg/L

SIGNATURE: Karen A Smith

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09.3 | DATE: 5.20.04

MONITORING WELL ID: WC5-1D | ACTIVITY TIME: START 0805 END 1000 | BOTTLE TIME: 0900

LABEL SAMPLE ID: WC51D04 | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: MS/MSD

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 4.60 ft (TOR) | FINAL DTW: 4.71 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.017 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 7.475 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.0022

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: <0.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0805	4.60	250	Begin	purging						NO odors
0815	4.72	250	13.6	>99.9	7.18	0.00	3.2	-68	>4.00	Clear to start
0820	4.71	250	13.6	>99.9	7.22	0.00	2.9	-72	>4.00	
0825	4.71	250	13.6	>99.9	7.26	0.00	3.9	-81	>4.00	
0830	4.71	250	13.7	>99.9	7.30	0.00	3.6	-78	>4.00	
0835	4.71	250	13.7	>99.9	7.31	0.00	4.0	-74	>4.00	
0840	4.71	250	13.7	>99.9	7.33	0.00	4.0	-72	>4.00	
0845	4.71	250	13.7	90.3	7.33	0.00	3.9	-70	>4.00	
0850	4.71	250	13.7	86.1	7.33	0.00	3.9	-69	>4.00	
0853	4.71	250	13.7	83.8	7.33	0.00	3.9	-68	>4.00	
0856	4.71	250	13.7	84.7	7.33	0.00	3.9	-67	>4.00	
		Parameters	Stable							
0900	Collect	Samples								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [✓]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	[X]
Com [✓]	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	[X]
Com [✓]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[X]
Com [✓]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[X]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [✓]	Carbon Dioxide	Hach Method	N	None	NA	[X]
F [✓]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[X]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 8 mg/L

CO_2 ~~+98200~~ 3200 mg/L

SIGNATURE: Jeffrey K. Dershuman

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5/21/04

MONITORING WELL ID: WC51S | ACTIVITY TIME: START 0745 END 905 | BOTTLE TIME: 0835

LABEL SAMPLE ID: WC51504XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] PERISTALTIC PUMP [X]

INITIAL DTW: 2.39 ft (TOR) | FINAL DTW: 2.39 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0 16 gal/ft: gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 1.4 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: NA

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: ~~10.0~~ 20.0 (2) ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0750	Start purge @	120 ml/min								clear,
0755	2.39	120	15.9	0.284	7.0	11.5	4.4	148	0.0	no odor
0800	2.39	120	15.9	0.280	7.0	11.2	3.5	147		
0805	2.39	120	15.9	0.308	7.0	10.4	3.0	142		
0810	2.39	120	15.9	0.327	7.0	9.6	2.6	145		
0815	2.39	120	15.9	0.335	7.0	9.3	2.7	146		
0820	2.39	120	15.9	0.329	6.9	8.8	2.8	143		
0825	2.39	120	16.0	0.326	6.8	8.7	2.9	141		
0830	2.39	120	16.0	0.341	6.8	8.4	2.7	141		
0835	2.39	120	16.0	0.345	6.8	8.3	2.6	139		

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [ ]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[ ]
Com [ ]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[ ]
Com [ ]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	[ ]
Com [✓]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	[X]
Com [✓]	Total Suspended Solids	USEPA Method 160 2	N	4 Deg. C	1-1 Liter Poly	[X]
Com [ ]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[ ]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	[ ]
F [ ]	Carbon Dioxide	Hach Method	N	None	NA	[ ]
F [ ]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[ ]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

SIGNATURE: David O. Lovejoy

RECEIVED BY: MD Calibs

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07.09 3 | DATE: 5.20.04

MONITORING WELL ID: WC5-2I | ACTIVITY TIME: START 1145 END 1245 | BOTTLE TIME: 1215

LABEL SAMPLE ID: WC52I04 | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP [ ] | PERISTALTIC PUMP [X] | DRAWDOWN VOL

INITIAL DTW: 4.56 ft (TOR) | FINAL DTW: 4.56 ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 3.9 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0.0 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1145	4.56	250	Begin purging.							No odors
1153	4.56	250	14.4	1.14	7.19	0.00	2.9	88	0.05	Clear to start
1157	4.56	250	14.4	1.13	7.20	0.00	3.5	78	0.05	
1201	4.56	250	14.4	1.14	7.19	0.00	2.4	75	0.05	
1205	4.56	250	14.4	1.22	7.19	0.00	2.2	74	0.05	
1208	4.56	250	14.5	1.25	7.19	0.00	2.2	73	0.06	
1211	4.56	250	14.6	1.24	7.19	0.00	2.2	73	0.06	
		Parameters	Stable							
1215	Collect Samples									

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com [✓]	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	[X]
Com [✓]	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	[X]
Com [✓]	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	[X]
Com [✓]	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	[X]
Com [✓]	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Total Suspended Solids	USEPA Method 160.2	N	4 Deg C	1-1 Liter Poly	[X]
Com [✓]	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	[X]
Com [ ]	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	[ ]
Com [ ]	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	[ ]
Com [ ]	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	[ ]
F [✓]	Carbon Dioxide	Hach Method	N	None	NA	[X]
F [✓]	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	[X]

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} <0.2 mg/L

CO_2 48 50 mg/L

SIGNATURE: Jeffrey K. Danielson

RECEIVED BY: Colin Callahan

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.20.04

MONITORING WELL ID: WC5-3S | ACTIVITY TIME: START 1015 END 1140 | BOTTLE TIME: 1115

LABEL SAMPLE ID: WC53S04 | ASSOCIATED TRIP BLANK: TBK-04-103 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: | PERISTALTIC PUMP: X | DRAWDOWN VOL

INITIAL DTW: 4.72 ft (TOR) | FINAL DTW: 4.72 ft (TOR) | INITIAL - FINAL X 0.16 gal/ft: — gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 5.52 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: —

BLADDER PUMP SETTINGS

DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 0 <0.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1015	4.72	250	Begin purging.							
1025	4.72	250	12.8	0.544	6.59	1.97	13	103	0.02	
1030	4.72	250	12.8	0.548	6.58	1.58	13	103	0.02	
1034	4.72	250	12.7	0.562	6.60	1.27	11	102	0.02	
1038	4.72	250	12.8	0.565	6.61	0.70	12	102	0.02	
1042	4.72	250	12.8	0.570	6.60	0.81	13	102	0.02	
1046	4.72	250	12.8	0.564	6.62	0.98	8.4	101	0.02	
1050	4.72	250	12.8	0.566	6.61	0.24	6.0	102	0.02	
1054	4.72	250	12.8	0.560	6.61	0.80	4.6	102	0.02	
1057	4.72	250	12.8	0.558	6.61	1.50	4.1	103	0.02	
1100	4.72	250	12.8	0.572	6.61	0.25	4.0	102	0.02	
1103	4.72	250	12.9	0.573	6.60	0.46	4.0	103	0.02	
1106	4.72	250	12.9	0.570	6.60	0.47	4.0	103	0.02	
1110	4.72	250	12.9	0.569	6.60	0.48	4.0	103	0.02	
		Parameters	stable							
1115	Collect	Samples								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ✓	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com ✓	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com ✓	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310 1	N	4 Deg. C	1-1 Liter Poly	X
Com ✓	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com ✓	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com ✓	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com ✓	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	X
Com ✓	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218 4	N	4 Deg C	1-500 mL Poly	
F ✓	Carbon Dioxide	Hach Method	N	None	NA	X
F ✓	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} <0.2 mg/L

CO_2 20 mg/L

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09 3 | DATE: 5.20.04

MONITORING WELL ID: WC-5S | ACTIVITY TIME: START 1425 END 1530 | BOTTLE TIME: 1515

LABEL SAMPLE ID: WC5504 | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW: 3.25 ft (TOR) | FINAL DTW: 3.37 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0.019 gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 4.225 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.004

BLADDER PUMP SETTINGS: DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: 1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1425	3.25	250	Begin purging							oil sheen on probe
1434	3.34	250	12.4	0.633	6.97	1.66	3.6	-160	0.03	no measurable free pro
1439	3.35	250	12.4	0.620	6.99	1.01	3.4	-160	0.03	just a skim -
1444	3.36	250	12.4	0.612	7.01	0.30	3.2	-160	0.03	Fuel oil odor
1448	3.36	250	12.5	0.610	7.03	0.00	3.1	-161	0.03	
1452	3.37	250	12.4	0.606	7.03	0.00	3.2	-162	0.03	
1456	3.37	250	12.4	0.607	7.04	0.00	3.2	-162	0.03	
1500	3.37	250	12.5	0.614	7.06	0.00	3.1	-160	0.03	
1503	3.37	250	12.5	0.639	7.06	0.00	3.1	-160	0.03	
1506	3.37	250	12.5	0.656	7.06	0.00	3.2	-160	0.03	
1509	3.37	250	12.5	0.660	7.05	0.00	3.1	-160	0.03	
1512	3.37	250	12.5	0.658	7.05	0.00	3.1	-160	0.03	
		Parameters	stable							
1515		Collect Samples								

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	
Com	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	
Com ✓	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	X
Com ✓	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com ✓	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com ✓	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	X
Com ✓	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	X
F	Carbon Dioxide	Hach Method	N	None	NA	
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm): Fe^{+2} _____ ; CO_2 _____

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Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008.07.09.3 | DATE: 5-20-04

MONITORING WELL ID: WC-8S | ACTIVITY TIME: START 1503 END 1740 | BOTTLE TIME: 1715

LABEL SAMPLE ID: WC8504XX | ASSOCIATED TRIP BLANK: n/a | ASSOCIATED QC: DUPLICATE/MS/MSD

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ | PERISTALTIC PUMP: ✓

INITIAL DTW: 2.17 ft (TOR) | FINAL DTW: 4.90 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 gal/ft: 0.4368 gal

TOTAL VOLUME PURGED L/m X minutes X 0.26 gal/L: 2.97 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.15

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 10.10 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg. C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
15:03	TURB on		Pump	& play w/	Rate					
15:28	4.74	150								Flow Adjusted
15:35	4.77	150	16.0	0.32	6.5	5.9	227	-50	0.01	
15:40	4.76	150	16.1	0.36	6.5	5.3	186	-53	0.01	
15:45	4.74	150	16.3	0.38	6.4	5.0	137	-57	0.02	
15:50	4.73	150	16.1	0.40	6.4	4.6	105	-59	0.02	
15:55	4.75	150	15.8	0.43	6.4	4.3	104	-61	0.02	
16:00	4.77	150	15.8	0.43	6.4	4.1	89	-63	0.02	
16:05	4.80	150	15.7	0.44	6.3	3.8	70	-65	0.02	
16:10	4.78	160	15.6	0.45	6.3	4.0	62	-66	0.02	
16:15	4.90	160	15.7	0.45	6.4	3.9	71	-67	0.02	
16:20	4.93	160	15.0	0.47	6.4	4.8	45	-70	0.02	
16:25	4.91	160	15.0	0.48	6.4	4.6	33	-72	0.02	
16:35	4.93	160	14.8	0.48	6.4	4.2	43	-74	0.02	Cyanide Bottles when filled turned GREEN & had a strong reaction w/ NaOH
16:45	4.89	180	14.9	0.50	6.4	3.8	41	-78	0.02	
16:50	4.88	180	14.9	0.50	6.4	3.7	39	-79	0.02	
16:53	4.88	180	14.9	0.50	6.4	3.6	41	-79	0.02	
16:56	4.88	180	14.9	0.50	6.4	3.5	46	-79	0.02	
	4.90 (1)		(2)	(3) (4)	Will	Take	Sample	here		
Took	Sample		+ Dup +	MS + MSD						

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com ☐	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	☐
Com ☐	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	☐
Com ☐	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310.1	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg. C	3-40 mL	☐
Com ☐	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ☐	Total Suspended Solids	USEPA Method 160.2	N	4 Deg. C	1-1 Liter Poly	☐
Com ☐	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	☐
Com ☐	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com ✓	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	✓
Com ✓	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg. C	1-500 mL Poly	✓
F ☐	Carbon Dioxide	Hach Method	N	None	NA	☐
F ☐	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	☐

NOTES Field Chemistry Results (ppm):

Com=Compuchem

F = Field

Fe^{+2} _____

CO_2 _____

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Stratford Army Engine Plant | CONSULTANT | MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.21.04

MONITORING WELL ID: WC-9D2 | ACTIVITY TIME: START 1025 END 1130 | BOTTLE TIME: 1105

LABEL SAMPLE ID: WC9D204 | ASSOCIATED TRIP BLANK: TBK-04-104 | ASSOCIATED QC: n/a

WATER LEVEL / PUMP DATA

BLADDER PUMP: ☐ PERISTALTIC PUMP: ☒

INITIAL DTW: ~~5.29~~ 4.84 JKH ft (TOR) | FINAL DTW: 4.87 ft (TOR) | DRAWDOWN VOL: INITIAL - FINAL X 0 16 gal/ft: 0.004B gal

TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L: 4.225 | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: 0.001

BLADDER PUMP SETTINGS

DISCHARGE: SEC | REFILL: SEC | PRESSURE: psi

PID AT WELLHEAD: ~~0~~ <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
1025	4.84	250	Begin	purging						
1032	4.87	250	15.8	31.8	7.43	0.00	1.4	-123	2.83	
1036	4.87	250	15.9	>99.9	7.48	0.00	1.5	-132	4.00	
1040	4.87	250	16.0	>99.9	7.51	0.20	2.0	-134	>4.00	
1044	4.87	250	16.1	>99.9	7.52	0.51	2.0	-133	>4.00	
1050	4.87	250	16.1	>99.9	7.54	0.69	2.0	-136	>4.00	
1054	4.87	250	16.2	>99.9	7.56	0.50	1.9	-137	>4.00	
1058	4.87	250	16.2	>99.9	7.56	0.49	1.9	-138	>4.00	
1102	4.87	250	16.2	>99.9	7.57	0.48	1.9	-138	>4.00	
			Parameters stable							
1105	Collect samples									

ANALYTICAL PARAMETERS

LAB		ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	i	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg. C	3-40 mL	X
Com	c	Total Organic Carbon	SW 846 Method 415 1 or 9060	N	H_2SO_4	2-40 mL	X
Com	a	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300 0 and 310.1	N	4 Deg C	1-1 Liter Poly	X
Com	h	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com	l	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	m	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	b	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com	o	Chemical Oxygen Demand	USEPA Method 410 1	N	H2SO4 / 4 Deg C	1-500 mL Poly	X
Com		Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg. C	1-1 Liter Poly	☐
Com		Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg. C	1-1 Liter Poly	☐
Com		Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	☐
F	k	Carbon Dioxide	Hach Method	N	None	NA	X
F	j	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 6.2 mg/L

CO_2 112 mg/L

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136

Stratford Army Engine Plant | CONSULTANT: MACTEC E & C | PAGE 1 OF 1

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: 3618038008 07 09.3 | DATE: 5.21.04

MONITORING WELL ID: WC-9S | ACTIVITY TIME: START 0810 END 0950 | BOTTLE TIME: 0855

LABEL SAMPLE ID: WC9S04XD | ASSOCIATED TRIP BLANK: TBK-04-104 | ASSOCIATED QC: n/a DUP

WATER LEVEL / PUMP DATA WC 9S | BLADDER PUMP: | PERISTALTIC PUMP: X

INITIAL DTW	5.70 ft (TOR)	FINAL DTW	5.71 ft (TOR)	DRAWDOWN VOL: INITIAL - FINAL X 0.16 gal/ft	0.0016 gal
TOTAL VOLUME PURGED L/m X minutes X 0 26 gal/L	10.4 5.2 gals	RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME	0.0003		

BLADDER PUMP SETTINGS: DISCHARGE SEC | REFILL SEC | PRESSURE psi

PID AT WELLHEAD: 0 <0.1 ppmv

PURGE DATA

TIME	DTW (ft)	PURGE RATE (mL/m)	TEMP (Deg C)	SPECIFIC CONDUCTANCE (mS/cm)	pH (units)	DO (mg/L)	TURBIDITY (NTU)	ORP (+/- mV)	SAL (percent)	COMMENTS
0810	5.70	200	begin purging							
0815	5.70	200	15.2	0.339	6.74	1.65	3.9	172	0.01	
0820	5.70	200	15.2	0.339	6.79	0.70	2.9	129	0.01	
0825	5.71	200	15.1	0.340	6.77	0.40	2.8	108	0.01	
0830	5.71	200	15.2	0.354	6.79	0.23	2.4	92	0.01	
0835	5.71	200	15.2	0.363	6.81	0.56	2.5	58	0.01	
0838	5.71	200	15.2	0.357	6.82	0.58	2.5	30	0.01	
0841	5.71	200	15.2	0.362	6.89	0.56	2.4	9	0.01	
0845	5.71	200	15.3	0.365	6.85	0.54	2.1	13	0.02	
0849	5.71	200	15.3	0.369	6.85	0.55	2.1	14	0.03	
0853	5.71	200	15.3	0.371	6.85	0.56	2.1	14	0.03	
		Parameters	stable							
0855		Collect	Samples							

ANALYTICAL PARAMETERS

LAB	ANALYSIS	ANALYSIS ID	FILTERED (y/n)	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
Com	TCL VOA	SW 846 Method 8260B	N	HCL / 4 Deg C	3-40 mL	X
Com	Total Organic Carbon	SW 846 Method 415.1 or 9060	N	H_2SO_4	2-40 mL	X
Com	Nitrate/Nitrite/Sulfate/Alkalinity	USEPA Method 300.0 and 310 1	N	4 Deg. C	1-1 Liter Poly	X
Com	Methane/Ethane/Ethene	SW 846 Modified Method 8015	N	HCL / 4 Deg C	3-40 mL	X
Com	Dissolved TAL Metals (field filtered)	USEPA Method 6010B + 7470A	Y	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	Total TAL Metals	USEPA Method 6010B + 7470A	N	HNO3 / 4 Deg C	1-1 Liter Poly	X
Com	Total Suspended Solids	USEPA Method 160 2	N	4 Deg C	1-1 Liter Poly	X
Com	Chemical Oxygen Demand	USEPA Method 410.1	N	H2SO4 / 4 Deg. C	1-500 mL Poly	X
Com	Dissolved Manganese (field filtered)	USEPA Method 6010B	Y	HNO3 / 4 Deg C	1-1 Liter Poly	
Com	Cyanide- 9010B	USEPA Method 9010B	N	NaOH / 4 Deg C	1-1 Liter Poly	
Com	Total Hexavalent Chromium	USEPA Method 218.4	N	4 Deg C	1-500 mL Poly	
F	Carbon Dioxide	Hach Method	N	None	NA	X
F	ferrous Iron (Fe^{2+})	Hach Method	N	None	NA	X

NOTES: Com=Compuchem; F = Field

Field Chemistry Results (ppm):

Fe^{+2} 0.2 mg/L

CO_2 15 mg/L

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4'-14' bgs

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: # 3618038008 | DATE: 5-25-04

FIELD SAMPLE NUMBER: BRW-04-01 | ACTIVITY TIME: START 0755 END 0855 | BOTTLE TIME: 0845

QC SAMPLES COLLECTED: | ASSOCIATED TRIP BLANK:

WATER LEVEL / PUMP DATA

INITIAL DTW: 5.80 ft (TOR) | FINAL DTW: 8.03 ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: ft

TOTAL VOLUME PURGED LPM X MIN X 0 26 GAL/LITER: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: in

BLADDER PUMP: | PERISTALTIC PUMP: X | DISCHARGE: | REFILL: | PRESSURE TO PUMP:

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
									SAL
0755	5.80	250	Begin purging						
0810	8.05	250	16.4	>99.9	8.13	0.09	17	-192	>4.00
0817	8.00	200	16.4	799.9	8.22	0.07	14	-174	>4.00 Reduce Pump Rate
0822	8.03	200	16.4	>99.9	8.15	0.09	11	-179	>4.00
0826	8.03	200	16.6	>99.9	8.05	0.05	7.9	-172	>4.00
0830	8.03	200	16.6	799.9	8.02	0.00	6.8	-166	>4.00
0833	8.03	200	16.5	>99.9	8.00	0.00	6.4	-164	>4.00
0836	8.03	200	16.4	799.9	7.96	0.00	6.5	-158	>4.00
0840	8.03	200	16.3	>99.9	7.93	0.00	6.5	-156	>4.00
0843	8.03	200	16.4	>99.9	7.93	000	6.6	-159	>4.00
			Parameters stable						
0845		Collect Samples							

ANALYTICAL PARAMETERS

		METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
X	TCL VOA				X
X	TOC				X
X	N/N/S/A				X
X	COD				X
X	Diss. Mn (F.F.)				X
X	CO_2	HACH	159 mg/L		X
X	Fe^{2+}	HACH	1.6		X

NOTES

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

PROJECT: STRATFORD ARMY ENGINE PLANT | JOB NUMBER: ## 3618038008 | DATE: 5-25-04

FIELD SAMPLE NUMBER: MESE 01 BD | ACTIVITY TIME: START 1630 END | BOTTLE TIME:

QC SAMPLES COLLECTED: | ASSOCIATED TRIP BLANK:

WATER LEVEL / PUMP DATA

INITIAL DTW: 4.50 ft (TOR) | FINAL DTW: ft (TOR) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: ft

TOTAL VOLUME PURGED LPM X MIN X 0.26 GAL/LITER: | RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME: in

BLADDER PUMP: | PERISTALTIC PUMP: | DISCHARGE: | REFILL: | PRESSURE TO PUMP:

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (ms/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1630		358	20.80	0.222	7.46	6.59	12.2	101	
1635			20.84	0.191	7.41	6.09	9.0	102	
1640			20.68	0.189	7.37	6.03	8.4	103	
1645			20.69	0.189	7.29	5.99	7.9	105	
1650			20.70	0.188	7.30	5.98	7.8	104	
		4							

ANALYTICAL PARAMETERS

	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐
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APPENDIX C

2004 MNA GROUNDWATER DATA VALIDATION REPORT

Monitored Natural Attenuation Groundwater Sampling
Data Validation Report
August 2004
Stratford Army Engine Plant

I. INTRODUCTION

Analytical data were generated from the analysis of groundwater samples collected by MACTEC Engineering and Consulting (formerly Harding ESE) at the Stratford Army Engine Plant (SAEP) Site. Samples for Monitored Natural Attenuation in groundwater were collected from May 17 through May 26, 2004. All samples were analyzed by CompuChem Laboratories, located in Carey, NC.

A combination of the following USEPA SW-846 (USEPA, 1996a) and USEPA Waste Water (USEPA, 1983) analytical methods were performed:

- Volatile organic compounds (VOCs) by USEPA Method 8260B.
- Dissolved gases (methane, ethane and ethene) by USEPA RSK-175.
- Total and dissolved metals by USEPA Method 6010B/7470A.
- Hexavalent chromium by American Public Health Association (APHA) Standard Methods 3500 (APHA, 2001).
- Water chemistry parameters including total cyanide by 9012A, chemical oxygen demand (COD) by 410.4, nitrate/nitrite and sulfate by 300.0, total suspended solids (TSS) by 160.2, total organic carbon by 9060, and alkalinity by 310.1.
- Volatile Fatty Acids (Microseeps Procedure)

VOC and metals data were validated using Tier II and Tier III (ten percent) review procedures in accordance with U.S. Environmental Protection Agency (USEPA) Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses (USEPA, 1996). Project chemist reviews were completed on the remaining parameters.

A summary of field samples included in this sampling task is provided below:

Field Sample ID	Collection Date	Media	QC Type
BRW040104XX	5/25/2004	GW	
BRW040204XX	5/26/2004	GW	
D041304X2	6/8/2004	GW	
D041304XX	5/24/2004	GW	
D041704X2	6/8/2004	GW	
D041704XX	5/25/2004	GW	
D04404XX	6/8/2004	GW	
D804XX	5/26/2004	GW	
ECD404XX	5/19/2004	GW	

Field Sample ID	Collection Date	Media	QC Type
HESE0112D04XX	5/18/2004	GW	
HESE-0112I04XX	5/18/2004	GW	
HESE0114I04XD	5/20/2004	GW	Field Duplicate
HESE0114I04XX	5/20/2004	GW	
HESE0115I04XX	5/24/2004	GW	
HESE0116I04XX	5/19/2004	GW	
HESE0117D04XX	5/18/2004	GW	
HESE0117I04XX	5/18/2004	GW	
HESE0118D04XX	5/18/2004	GW	
MW0304XX	5/26/2004	GW	
MW404XX	5/20/2004	GW	
MWCD9901A04XX	5/19/2004	GW	
MWCD9901B04XX	5/19/2004	GW	
MWCD9902A04XX	5/19/2004	GW	
MWCD9902B04XX	5/19/2004	GW	
MWCR990104XX	5/25/2004	GW	
MWCR990204XX	5/25/2004	GW	
PZ11D04X2	6/8/2004	GW	
PZ11D04XX	5/20/2004	GW	
PZ13D04XX	5/18/2004	GW	
PZ17D04XX	5/21/2004	GW	
PZ1D04XD	5/20/2004	GW	Field Duplicate
PZ1D04XX	5/20/2004	GW	
PZ4D04XX	5/19/2004	GW	
PZ5D04XX	5/18/2004	GW	
PZ7D04XD	5/21/2004	GW	Field Duplicate
PZ7D04XX	5/21/2004	GW	
PZ8D04XX	5/20/2004	GW	
PZ9901A04XX	5/19/2004	GW	
PZ9901B04XX	5/19/2004	GW	
PZ9901C04XX	5/19/2004	GW	
PZ9901I04XX	5/25/2004	GW	
PZ9902A04XX	5/20/2004	GW	
PZ9902B04XX	5/24/2004	GW	
PZ9902C04XX	5/24/2004	GW	
PZ990304XX	5/24/2004	GW	
PZ9904I04XX	5/19/2004	GW	
PZ9908I04XX	5/24/2004	GW	
PZ9912I04XX	5/25/2004	GW	
PZ9D04XX	5/21/2004	GW	
PZTF0402A04XX	5/25/2004	GW	
PZTF0402B04XX	5/25/2004	GW	
PZTF0403A04XX	5/25/2004	GW	
PZTF0403B04XX	5/25/2004	GW	
PZTF0407A04XX	5/25/2004	GW	

PZTF0407B04XX	5/25/2004	GW	
Field Sample ID	**Collection Date**	**Media**	**QC Type**
PZTF0409A04XX	5/26/2004	GW	
PZTF0409B04XX	5/26/2004	GW	
TBK04101	5/18/2004	BW	Trip Blank
TBK04102	5/19/2004	BW	Trip Blank
TBK04103	5/20/2004	BW	Trip Blank
TBK04104	5/21/2004	BW	Trip Blank
TBK04105	5/24/2004	BW	Trip Blank
TBK04106	5/25/2004	BW	Trip Blank
TBK04107	5/26/2004	BW	Trip Blank
TBK04108	6/8/2004	BW	Trip Blank
WC10S04XX	5/18/2004	GW	
WC12S04XX	5/24/2004	GW	
WC14S04XX	5/19/2004	GW	
WC1S04XX	5/20/2004	GW	
WC21S04XX	5/18/2004	GW	
WC22D04XX	5/20/2004	GW	
WC23D04XX	5/19/2004	GW	
WC23I04XX	5/18/2004	GW	
WC23S04XX	5/18/2004	GW	
WC24S04XX	5/19/2004	GW	
WC25I04XX	5/19/2004	GW	
WC25S04XX	5/19/2004	GW	
WC26I04XX	5/18/2004	GW	
WC2D04XD	5/26/2004	GW	Field Duplicate
WC2D04XX	5/26/2004	GW	
WC3S04XX	5/18/2004	GW	
WC4S04XX	5/19/2004	GW	
WC51D04XX	5/20/2004	GW	
WC51S04XX	5/21/2004	GW	
WC52I04XX	5/20/2004	GW	
WC53S04XX	5/20/2004	GW	
WC5S04XX	5/20/2004	GW	
WC8S04XD	5/20/2004	GW	Field Duplicate
WC8S04XX	5/20/2004	GW	
WC9D204XX	5/21/2004	GW	
WC9S04XD	5/21/2004	GW	Field Duplicate
WC9S04XX	5/21/2004	GW	

Trip blanks (TBK) were also collected and analyzed with the VOC samples. Dedicated tubing was used for each well location and equipment rinse blanks were collected.

II. VOLATILE ORGANIC COMPOUNDS ANALYSIS

Data were evaluated for the following parameters:

Data Completeness*
Preservation and Technical Holding Times*
Analytical Sequence Check*
Instrument Tuning*
Initial and Continuing Calibration
Trip Blanks and Laboratory Blanks
Internal Standards*
Surrogate Spike Compounds
Laboratory Control Sample (LCS)*
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Field Duplicate
Electronic Evaluation Verification*
Miscellaneous

*** = criteria were met for this parameter**

Holding Times

All samples were analyzed within the holding times.

Instrument Tunes

The GC/MS instrument tunes were completed using the tuning compound bromofluorobenzene (BFB). All tunes met USEPA Region I validation criteria.

Initial Calibration

In a subset of initial calibrations included in this data set the average Relative Response Factors (RRFs) for acetone, acetic acid-methyl ester (methyl acetate), methyl ethyl ketone (2-butanone), 1,2-dibromo-3-chloropropane and methyl butyl ketone (2-hexanone) were below validation guideline limits (less than 0.05). The percent Relative Standard Deviations (%RSDs) of the RRFs over the five point calibration for acetone and 1,2-dibromo-3-chloropropane exceeded the Region I goals of 30%. Sample results reported as non-detect in field samples were qualified as rejected (R). Sample results reported as detections were qualified estimated (J).

Continuing Calibration

Ina subset of continuing calibrations the RRFs for acetone, acetic acid-methyl ester, methyl ethyl ketone, 1,2-dibromo-3-chloropropane and methyl butyl ketone were below

validation guideline limits (less than 0.05). Sample results reported as non-detect in associated field samples were qualified as rejected (R).

The percent differences versus the initial calibration for acetone, methylene chloride, 1,2-dibromo-3-chloropropane, dichlorodifluoromethane, cyclohexane, methyl bromide, methyl tertbutyl ether (MTBE), trans-1,3-trichloropropene, 1,2,4-trichlorobenzene, trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane exceeded the Region I goals of 25%. Sample results reported as detections in associated samples were qualified estimated (J).

Trip Blanks and Laboratory Blanks Review

QC blanks associated with this data set include laboratory method blanks and trip blanks (TBK). Trip blanks were included in each sample cooler. The following target compounds were reported in field QC blanks:

Sample ID	Compound	Conc. (µg/L)	Laboratory Qualifier
TBK04106	Acetone	2.6	
TBK04108	Bromoform	0.13	J
TBK04107	Methyl ethyl ketone	1.4	J
TBK04107	Methylene chloride	0.77	BJ
TBK04106	Silane, fluorotrimethyl	36	NJ
TBK04106	Sulfur dioxide	3.1	NJ
TBK04106	TIC(s) unspecified	2.8	NJ
TBK04108	Toluene	0.23	J
TBK04106	Trichloroethene	0.42	JB

Acetone, methyl bromide, methylene chloride, TIC(s) unspecified and trichloroethene were also reported in method blanks associated with this data set. The highest compound concentrations reported in the QC blanks were used to calculate action levels for the target compounds that are listed below:

Analyte	Blank Concentration (µg/L)	Action Level (µg/L)
Acetone	2.6	26
Bromoform	0.13	0.65
Methyl ethyl ketone	1.4	14
Methylene chloride	0.77	7.7
Silane, fluorotrimethyl	36	360
Sulfur dioxide	3.1	31
Analyte	**Blank Concentration (µg/L)**	**Action Level (µg/L)**
TIC(s) unspecified	2.8	28
Toluene	0.23	1.2

Trichloroethene	0.42	2.1

These action levels were used to evaluate all samples in this sampling round. Concentrations less than action levels above were qualified non-detect (U) in the final data.

Internal Standard Response

All internal standard areas and retention times were within USEPA Region I control limits as specified in the CLP Statement of Work (OLM03.1) and were within the laboratory's control limits.

Surrogate Recoveries

In a subset of samples, surrogate percent recoveries for toluene-$_{d8}$, 1,2-dichloroethane-$_{d4}$ and 4-bromofluorobenzene were outside the USEPA Region I control limits. Target compound results in associated samples were qualified estimated (J/UJ) in accordance with the validation guidelines.

Sample ID	1,2-Dichloroethane-$_{d4}$ Recovery (%)	Toluene-$_{d8}$ Recovery (%)	4-Bromofluorobenzene Recovery (%)
HESE0112D04XX	124	----	----
HESE0116I04XX	121	86	83
HESE0117I04XX	128	----	----
HESE0117D04XX	121	85	----
HESE0118D04XX	123	----	----
MWCD9901B04XX	----	85	----
MWCD9901B04XX-DL	----	87	----
WC51D04XX	----	83	----
WC22D04XX	----	85	----
WC23D04XX	----	87	----

LCS Spike Recoveries

Laboratory control samples (LCS) had percent recoveries within laboratory control limits indicating good accuracy.

MS/MSD Review

Samples HESE0116I04XX, WC51D04XX, WC1S04XX, PZ11D04XX, and MW0304XX were analyzed as MS/MSD pairs. The majority of target compounds were recovered within laboratory control limits indicating good accuracy and precision was obtained for the water matrices. Exceptions are discussed below.

For sample HESE0116I04XX the MS/MSD percent recoveries for MTBE (13 and 16) were below the lower control limit of 50. The MS percent recovery for methyl bromide (47) was below the lower control limit of 54. The MSD percent recovery for trichloroethene (135) was above the upper control limit of 120. The relative percent differences (RPD) for methyl bromide (27) and methylene chloride (27) exceed the control limits. Results for methyl bromide, MTBE and methylene chloride in the unspiked sample are non-detect and were qualified estimated (UJ). The result for trichloroethene in the unspiked sample was qualified estimated (J).

In sample WC51D04XX the MS percent recovery for methyl bromide (53) was below the lower control limit of 54. The result for methyl bromide in the unspiked sample was non-detect and was qualified estimated (UJ).

In sample WC1S04XX the MS/MSD percent recoveries for methyl bromide (50) and MTBE (20 and 22) are less than the lower QC control limits. The MS/MSD percent recoveries for 1,1,2-trichloro-1,2,2-trifluoroethane (448 and 445), 1,1-dichloroethane (169 and 169), cis-1,2-dichloroethene (296 and 288) and trichloroethene (147 and 144) exceed the upper QC control limits. Results for methyl bromide and MTBE in the unspiked sample are non-detect and were qualified estimated (UJ). Results for 1,1,2-trichloro-1,2,2-trifluoroethane, 1,1-dichloroethane, cis-1,2-dichloroethene and trichloroethene in the unspiked sample were qualified estimated (J) and may be biased high.

In sample PZ11D04XX the MS percent recoveries for 1,1-dichloroethene (53), trichloroethene (61) and tetrachloroethene (34) are less than the lower QC control limits. The MS/MSD percent recoveries for methyl bromide (44 and 49) are less than the lower QC control limits. The MSD percent recoveries for 1,1-dichloroethene (123), trichloroethene (121) and tetrachloroethene (115) exceed the control limits. The RPDs for 1,1-dichlroethene (79), trichloroethene (66) and tetrachloroethene (109) exceed the control limits. The result for methyl bromide in the unspiked sample is non-detect and was qualified estimated (UJ). Results for 1,1-dichloroethene, trichloroethene and tetrachloroethene in the unspiked sample were qualified estimated (J) and may be bias high.

In sample MW0304XX the MS/MSD percent recoveries for chloroethane (51 and 57), trichlorofluoromethane (56 and 57), 1,1-dichloroethene (48 and 50), carbon disulfide (49 and 5), 1,1,2-trichloro-1,2,2-trifluoroethane (47 and 49), methylene chloride (40 and 42), trans-1,2-dichloroethene (52 and 56), 1,1-dichloroethane (53 and 54), cis-1,2-dichloroethane (56), chloroform (53 and 54), 1,1,1-trichloroethane (49 and 51), benzene

(40), 1,1-dichloroethane (46), trichloroethene (66), toluene (60 and 64), dibromochloromethane (66), 1,1-dichloroethene (53), trichloroethene (61), tetrachloroethene (34), chlorobenzene (67), isopropyl benzene (50 and 45), cyclohexane (42 and 59) and methylcyclohexane (55 and 55) are less than the lower QC control limits. The MS/MSD percent recoveries for acetic acid-methyl ester (642 and 628) are greater than the upper QC control limit. The RPDs for benzene (50) and 1,2-dichloroethane (37) exceed the control limits. Due to the quantity of analytes that were recovered outside of control limits, all results reported in the unspiked sample were qualified estimated (J/UJ).

Duplicates

Field duplicates were collected and analyzed for sample locations HESE0114I04XX, PZ1D04XX, PZ7D04XX, WC2D04XX and WC9S04XX. The USEPA Region I for RPD of 30 percent or less was used when evaluating the duplicate data.

In the duplicate samples PZ7D04XX and PZ7D04XD the RPDs for 1,1-dichloroethane (37), 1,1-dichloroethene (34), cis-1,2-dichloroethene (36) and vinyl chloride (36) exceeds the QC control limit of 30. Results for 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene and vinyl chloride in samples PZ7D04XX and PZ7D04XD were qualified estimated (J).

In the duplicate samples WC9S04XX and WC9S04XD the RPD for methyl tert-butyl ether (112) exceeds the QC control limit of 30. The results for methyl tert butyl ether in samples WC9S04XX and WC9S04XD were qualified estimated (J/UJ).

In the duplicate samples WC2D04XX and WC2D04XD the RPD for cis-1,2-dichloroethene (34) exceeds the QC control limit of 30. Results for cis-1,2-dichloroethene in samples WC2D04XX and WC2D04XD were qualified estimated (J).

In duplicate samples HESE0114I04XX and HESE0114I04XD all target compounds met duplicate goals.

Miscellaneous

Trichloroethene, tetrachloroethene, 1,1-dichloroethene, cis-1,2-dichloroethene, chloroethane and vinyl chloride were reported with an "E" qualifier in a subset of samples indicating the concentrations in the samples exceeded the instrument calibration range. The laboratory diluted and reanalyzed the samples. Both the original and diluted data were reported. During validation the results were combined to report a single result for each target compound in the final data set. Professional judgment was used to select the best data from the analyses.

III. DISSOLVED GASES, METHANE, ETHANE AND ETHENE

Data were evaluated for the following parameters:

Data Completeness*
Preservation and Technical Holding Times*
Analytical Sequence Check*
Initial and Continuing Calibration*
Laboratory Blanks
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Laboratory Control Sample (LCS)
Field Duplicate
Electronic Evaluation Verification*
Miscellaneous

*** = criteria were met for this parameter**

Holding Times

All samples were analyzed within the holding times.

Initial Calibration

All initial calibration criteria were met.

Continuing Calibration

All continuing calibration verification criteria were met.

Laboratory Blanks Review

QC blanks associated with this data set include laboratory method blanks. Methane was reported in 4 of 5 method blanks associated with the samples at low concentrations. In a subset of samples, ethene and ethane were also reported in the method blanks. Action limits were established at five times the highest concentrations reported in the method blanks. Detections of methane, ethane and ethene less than the associated action limits were qualified non-detect (U). Action levels for the target compounds are listed below:

Analyte	Blank Concentration (µg/L)	Action limit (µg/L)
Methane	0.70	3.5
Ethane	1.0	5.0
Ethene	1.0	5.0

LCS Spike Recoveries

In a subset of samples the laboratory control samples (LCS) had percent recoveries for methane (50 and 67), ethane (55 and 64) and ethene (64 and 64) that are less than the lower control limit of 80. Results for methane, ethane and ethene in the associated samples were qualified estimated (J/UJ) and are potentially biased low.

MS/ MSD Review

Samples WC1S04XX, MW0304XX , WC51D04XX, HESE0116I04XX, PZ11D04XX, and D04404XX were analyzed as MS/MSD pairs. Laboratory limits of 80 - 120 percent were used to evaluate the results.

In sample WC1S04XX the MS/MSD percent recoveries for methane (0 and 0), ethane (73 and 45) and ethene (54) are less than the lower QC control limit of 80. The RPD for ethane (46) and ethene (40) are greater than the QC control limit of 25. The unspiked sample concentration for methane is greater than four times the spiking concentration and results were not used to evaluate recovery due to the high concentration in the original sample. Results for ethane and ethene in the unspiked sample were qualified estimated (UJ).

In sample MW0304XX the MS/MSD percent recoveries for methane (0 and 0), ethane (60) and ethene (66) are less than the lower QC control limit of 80. The RPD for ethane (27) and ethene (29) are greater than the QC control limit of 25. The unspiked sample concentration for methane is greater than four times the spiking concentration. No further action required. Results for ethane and ethene in the unspiked sample were qualified estimated (UJ).

Sample WC51D04XX was analyzed as an MS/MSD. The MS/MSD percent recoveries for methane (67), ethane (73 and 54) and ethene (54) are less than the lower QC control limit of 80. The RPD for ethane (28) and ethene (40) are greater than the QC control limit of 25. Results for methane, ethane and ethene in the unspiked sample were qualified estimated (J/UJ).

Sample HESE0116I04XX was analyzed as an MS/MSD. The MS/MSD percent recoveries for methane (37 and 38) are less than the lower QC control limit of 80. Results for methane in the unspiked sample were qualified estimated (J).

Sample PZ11D04XX was analyzed as an MS/MSD. The MSD percent recoveries for methane (52), ethane (64) and ethene (73) are less than the lower QC control limit of 80. The RPD for methane (40) is greater than the QC control limit of 25. Results for methane, ethane and ethene in the unspiked sample were qualified estimated (UJ).

Sample D04404XX was analyzed as an MS/MSD. The MS percent recoveries for methane (0), ethane (43) and ethene (48) and the MSD percent recovery for methane (0) are less than the lower QC control limit of 80. The RPDs for ethane (59) and ethene (70) exceed the QC control limit of 25. Results for methane, ethane and ethene in the unspiked sample were qualified estimated (J).

Duplicates

Field duplicates were collected and analyzed for sample locations HESE0114I04XX, PZ1D04XX, PZ7D04XX, WC2D04XX and WC9S04XX. Results are presented below.

Field ID	Parameter	Result		Duplicate		RPD	Unit
HESE0114I04XX	Ethane	2	U	2	U		UG/L
HESE0114I04XX	Ethene	2	U	2	U		UG/L
HESE0114I04XX	Methane	2		2		0	UG/L
PZ1D04XX	Ethane	2	U	2	U		UG/L
PZ1D04XX	Ethene	2	U	2	U		UG/L
PZ1D04XX	Methane	22	J	38	J	-53	UG/L
PZ7D04XX	Ethane	2	UJ	2	UJ		UG/L
PZ7D04XX	Ethene	2	UJ	2	UJ		UG/L
PZ7D04XX	Methane	51	J	2	UJ	200	UG/L
WC2D04XX	Ethane	2	J	6	J	-100	UG/L
WC2D04XX	Ethene	4	J	11	J	-93	UG/L
WC2D04XX	Methane	230	J	76	J	101	UG/L
WC9S04XX	Ethane	2	UJ	2	UJ		UG/L
WC9S04XX	Ethene	2	UJ	2	UJ		UG/L
WC9S04XX	Methane	2	UJ	2	UJ		UG/L

With the exception of the duplicate sample PZ7D04XX, results showed reasonably good agreement with the presence or absence of gases in the samples. In PZ7D04XX, result do not agree regarding methane detection in the sample, and the concentrations of methane reported in the duplicate pairs PZ1D04XX and WC2D04XX have RPDs exceeding the project goal of 30 percent.

Results for methane in samples PZ1D04XX, PZ7D04XX, WC2D04XX and their associated duplicates were qualified estimated (J). These duplicate results indicate that all dissolved gases data should be considered estimated due to sample collection and/or analytical variability.

Miscellaneous

Methane was reported with an "E" qualifier in a subset of samples, indicating the quantitation exceeds the linear range of the calibration. The laboratory diluted and reanalyzed the samples. Both the original and diluted data were reported. During validation the results were combined to report a single result for each target compound in the final data set. Professional judgment was used to select the best data from the analyses.

IV. TOTAL AND DISSOLVED METALS ANALYSIS

Data were evaluated for the following parameters:

Data Completeness*
Preservation and Technical Holding Times*
Analytical Sequence Check*
Initial and Continuing Calibration*
Laboratory Blanks
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Laboratory Control Sample (LCS)*
Laboratory Duplicate*
Field Duplicate
Serial Dilution
Interference Check Standard
Electronic Evaluation Verification*
Miscellaneous

*** = criteria were met for this parameter**

Holding Times

All samples were analyzed within the holding times.

Initial Calibration

All initial calibration criteria were met.

Continuing Calibration

All continuing calibration verification criteria were met.

Laboratory Blanks Review

QC blanks associated with this data set include laboratory preparation blanks and initial and continuing calibration blanks. Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, zinc and cyanide were reported in the method blanks associated with the samples. Action limits were established at five times the concentrations reported in the blanks. Lead was reported in the method blank from only one sample delivery group (SDG). Sample results from that associated SDG that are less than the action limit were qualified estimated (J). Sample results for aluminum, antimony, barium, calcium, chromium, cobalt, iron, magnesium, manganese, nickel, potassium, sodium, vanadium and zinc that are less than the action limits were qualified non-detect (U).
Action limits calculated for arsenic, beryllium, cadmium, copper, lead, selenium, silver, thallium and cyanide exceed the Connecticut Remediation Standard Regulations (RSR). Based on professional judgment, results for arsenic, beryllium, cadmium, copper, lead, selenium, silver, thallium and cyanide were not qualified using routine USEPA validation actions. Concentration of these elements reported in samples were qualified non-detect (U) only if they were less than or equal to the maximum concentration observed in the blanks. Concentrations in samples that are greater than the maximum blank concentration and less than the action limits were qualified X to indicate that the result may represent false positive laboratory contamination. These qualifiers will be available for use when assessing the contamination nature and extent.

Action levels for the target compounds are listed below:

Analyte	Blank Concentration (µg/L)	Action Level (µg/L)
Aluminum	75	380
Antimony	7.6	38
Arsenic	3.6	18
Barium	0.6	3
Beryllium	0.8	4
Cadmium	0.5	2.5
Calcium	38	190
Chromium	2.1	10
Cobalt	0.8	4
Copper	3.8	19
Iron	27	140
Lead	1.7	8.5
Analyte	**Blank Concentration**	**Action Level (µg/L)**

	(µg/L)	
Magnesium	29	140
Manganese	0.3	1.5
Nickel	0.8	4
Potassium	52	260
Selenium	3.5	18
Silver	1.7	8.5
Sodium	390	2000
Thallium	5.1	26
Vanadium	0.5	2.5
Zinc	2.5	12
Cyanide	3.1	16

LCS Spike Recoveries

All target analytes in laboratory control samples had percent recoveries between 84 and 115 indicating good accuracy.

MS/ MSD Review

Samples HESE0116I04XX, PZ11D04XX, and WC1S04XX were analyzed as total metals MS/MSD. Samples HESE0116I04XX, PZ11D04XX, and WC51D04XX were analyzed as dissolved metals MS/MSD.

In sample HESE0116I04XX total metals MS/MSD the percent recoveries for manganese (23 and 63), thallium (74 and 70) and cyanide (42 and 52) are less than the QC control limits. The MSD percent recovery for selenium (132) exceeds the upper QC control limit. The unspiked sample concentration for manganese was greater than four times the spiking concentration and results were not qualified. Post digestion spike analyses for selenium are within criteria. All selenium results are non-detect and require no qualification. Post digestion spike analyses for thallium are less than control limits. All associated thallium results are non-detect and were qualified estimated (UJ). All associated cyanide results are non-detect and were qualified estimated (UJ).

In sample HESE0116I04XX dissolved metals MS/MSD the percent recoveries for barium (66 and 45), iron (74 and 68) and lead (68) are less than the QC control limits. The percent recoveries for aluminum (134), arsenic (127) and selenium (167 and 146) exceed the upper QC control limit. The unspiked sample concentration for iron was greater than four times the spiking concentration and the results were not qualified. All associated barium and lead results were qualified estimated (J/UJ). All associated aluminum results are non-detect and require no further action. Associated sample detections reported for arsenic and selenium were qualified estimated (J).

Sample PZ11D04XX was analyzed as a total metals MS/MSD. The percent recovery for thallium (69) is less than the lower QC control limit. The post digestion spike recovery (40) is less than the lower QC control limit. Associated results for thallium are all non-detect and were qualified estimated (UJ).

Sample PZ11D04XX was analyzed as a dissolved metals MS/MSD. The MS percent recovery for selenium (135) exceeds the upper QC control limit. Associated sample detections reported for selenium were qualified estimated (J).

Sample WC1S04XX was analyzed as a total metals MS/MSD. The percent recovery for thallium (67) is less than the lower QC control limit. The post digestion spike recovery (33) is less than the QC control criteria. Associated sample results for thallium are non-detect and were qualified estimated (UJ) and are potentially biased low.

Sample WC1S04XX was analyzed as a dissolved metals MS/MSD. The percent recoveries for selenium (153 and 149) are greater than the upper QC control limit. Associated sample detections reported for selenium were qualified estimated (J).

Sample WC51D04XX was analyzed as a total metals MS/MSD. The percent recoveries for iron (35), manganese (64), selenium (71) and thallium (69) are less than the lower QC control limit. The unspiked sample concentrations for iron and manganese are greater than four times the spiking concentrations. No further action required. The post digestion spike recoveries for selenium and thallium are less than the control limits. Associated sample results for selenium and thallium are non-detect and were qualified estimated (J/UJ).

Sample WC51D04XX was analyzed as a dissolved metals MS/MSD. The percent recoveries for iron (3.2) and manganese (57) are less than the lower QC control limit. The unspiked sample concentrations for iron and manganese are greater than four times the spiking concentrations. No further action required.

Duplicates

Field duplicates were collected and analyzed for sample locations HESE0114I04XX, PZ1D04XX, PZ7D04XX, WC2D04XX and WC9S04XX. Total metals field duplicate results for detected analytes are summarized in Table 4A. Dissolved metals field duplicate results for detected analytes are summarized in Table 4B. A goal for RPD of 30% or less was used when evaluating the duplicate data. The majority of analytes meet this goal indicating good precision was obtained in the data set.

For the total metals samples the RPDs for copper and zinc exceed the QC control limits in a subset of the duplicate pairs. There was no apparent trend in the data set and results for affected analytes in the samples and duplicates were qualified estimated (J).

For the dissolved metals all detected analytes were within method specifications.

Table 4A

Sample ID	Analyte	Original Result (µg/L)	Qual	Duplicate Result (µg/L)	Qual	RPD
HESE0114I04XX	Barium	34.3	J	34.3	J	0
HESE0114I04XX	Calcium	68500		68000		1
HESE0114I04XX	Cobalt	14.1		14.3		1
HESE0114I04XX	Magnesium	116000		115000		1
HESE0114I04XX	Manganese	7230	J	7170	J	1
HESE0114I04XX	Nickel	6.4	J	6.2	J	3
HESE0114I04XX	Potassium	18700		18500		1
HESE0114I04XX	Sodium	1490000		1490000		0
PZ1D04XX	Barium	58.9	J	60.1	J	2
PZ1D04XX	Calcium	63100		64700		3
PZ1D04XX	Iron	5000	J	5080	J	2
PZ1D04XX	Magnesium	141000		144000		2
PZ1D04XX	Manganese	3360	J	3440	J	2
PZ1D04XX	Nickel	5.2	J	5.2	J	0
PZ1D04XX	Potassium	59800		61100		2
PZ1D04XX	Sodium	875000		918000		5
PZ1D04XX	Zinc	45.4	J	33.3	J	31
PZ7D04XX	Barium	31.2	J	32	J	3
PZ7D04XX	Calcium	40100		41300		3
PZ7D04XX	Copper	0.7	UJ	74.6	J	200
PZ7D04XX	Iron	1260		1280		2
PZ7D04XX	Magnesium	100000		103000		3
PZ7D04XX	Manganese	847		864		2
PZ7D04XX	Potassium	58500		59800		2
PZ7D04XX	Sodium	1150000		1190000		3
PZ7D04XX	Zinc	2.4	U	47.1	J	200
WC9S04XX	Barium	10.4	J	10.3	J	1
WC9S04XX	Calcium	21600		21500		0
WC9S04XX	Copper	1.1	J	0.7	U	200
WC9S04XX	Magnesium	6100		6160		1
WC9S04XX	Manganese	71.3		71.6		0
WC9S04XX	Potassium	5270		5310		1
WC9S04XX	Sodium	31800		31400		1

Table 4B

Sample ID	Analyte	Original Result (µg/L)	Qual	Duplicate Result (µg/L)	Qual	RPD
HESE0114I04XX	Barium	34.3	J	34.1	J	1
HESE0114I04XX	Calcium	70400		71500		2
HESE0114I04XX	Cobalt	14.7	J	15.2	J	3
HESE0114I04XX	Magnesium	119000		121000		2
HESE0114I04XX	Manganese	7300		7410		1
HESE0114I04XX	Nickel	6.3	J	6.7	J	6
HESE0114I04XX	Potassium	21500		21600		0
HESE0114I04XX	Sodium	1440000		1480000		3
PZ1D04XX	Barium	56.8	J	56.9	J	0
PZ1D04XX	Calcium	62900		63400		1
PZ1D04XX	Iron	4690		4700		0
PZ1D04XX	Magnesium	141000		142000		1
PZ1D04XX	Manganese	3280		3310		1
PZ1D04XX	Nickel	4.5	J	4.7	J	4
PZ1D04XX	Potassium	67000		66900		0
PZ1D04XX	Sodium	864000		865000		0
PZ1D04XX	Zinc	36.7		40.4		10
PZ7D04XX	Barium	29.8	J	30.1	J	1
PZ7D04XX	Calcium	42500		41200		3
PZ7D04XX	Iron	1190		1180		1
PZ7D04XX	Magnesium	106000		103000		3
PZ7D04XX	Manganese	794		801		1
PZ7D04XX	Potassium	67300		64900		4
PZ7D04XX	Sodium	1240000		1120000		10
WC9S04XX	Barium	9.5	J	9.7	J	2
WC9S04XX	Calcium	22200		22700		2
WC9S04XX	Magnesium	6220		6420		3
WC9S04XX	Manganese	68.5		69.9		2
WC9S04XX	Potassium	6290		6530		4
WC9S04XX	Sodium	32700		33500		2

Serial Dilution

In a subset of samples, the percent differences for manganese, potassium and zinc exceed the QC control criteria. Associated results for manganese, potassium and zinc were qualified estimated (J).

Interference Check Standard

In a subset of samples, the percent recovery for selenium (75) is less than the lower QC control limit of 80. Calcium, iron and magnesium concentrations in the samples meet validation criteria for interference. Results for selenium were qualified estimated (J/UJ).

Miscellaneous

Results for total metals were compared to dissolved metals. Overall, the dissolved metals results are less than or nearly the same as the total metals results. In a subset of samples, the dissolved mercury result is greater than the total mercury result. A review of the run data indicates that the sample was misplaced in the run sequence. Corrections were made by the lab; however, the supporting documentation is inconclusive. The lab verified the observations reviewed in the run log. The total mercury result for the sample is non-detect with a reported detection in the dissolved sample. Based upon professional judgment, results for dissolved mercury in sample D041304X2 were qualified as uncertain (N).

V. HEXAVALENT CHROMIUM ANALYSIS

Data were evaluated for the following parameters:

Data Completeness*
Preservation and Technical Holding Times*
Initial and Continuing Calibration*
Analytical Sequence Check*
Laboratory Blanks
Laboratory Control Sample (LCS)*
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Field Duplicate
Electronic Evaluation Verification*

*** = criteria were met for this parameter**

Holding Times

All samples were analyzed within the holding times.

Initial Calibration

All initial calibration criteria were met.

Continuing Calibration

All continuing calibration verification criteria were met.

Laboratory Blanks Review

In a subset of samples, hexavalent chromium was reported in the preparation blank at a low concentration (< 1 µg/L). An action limit was established at five times the concentration reported in the blank. All sample results are greater than the action limit and no qualification actions were required. Action levels for the target compounds are listed below:

Analyte	Blank Concentration (µg/L)	Action limit (µg/L)
Chromium, hexavalent	0.60	3.0

LCS Spike Recoveries

Laboratory control samples (LCS) had percent recoveries between 99 and 102 indicating good accuracy.

Field Duplicates

Field duplicates were collected and analyzed for sample locations HESE0114I04XX and WC8S04XX. The field duplicate results are summarized in Table 5. A goal for RPD of 30% or less was used when evaluating the duplicate data. Good agreement was observed in the pair from HESE0114I04XX. The results for duplicate samples WC8S04XX and WC8S04XD showed poor agreement with an RPD of 174. These results suggest that an error may have occurred during sample collection or analysis. Results for hexavalent chromium in samples WC8S04XX and WC8S04XD were qualified estimated (J).

Table 5

Sample ID	Analyte	Original Result (µg/L)	Qual	Duplicate Result (µg/L)	Qual	RPD
HESE0114I04XX	Hexavalent chromium	7.0		7.82		11
WC8S04XX	Hexavalent chromium	128		8.83		174

MS/ MSD Review

Sample HESE0116I04XX was analyzed as an MS/MSD. The MS/MSD percent recoveries (67 and 64) were below the lower control limit of 75. All associated samples results were qualified estimated (J) and are potentially biased low.

Sample WC8S04XX was analyzed as an MS/MSD. The MS/MSD percent recoveries (0 and 0) were below the lower control limit and are less than ten. A field duplicate sample was also collected and analyzed at this location (WC8S04XD). As previously discuss under field duplicates, there was a large difference in the field duplicate result for this sample. The original and duplicate results were 128 and 8.8 µg/L indicating sampling or analytical variability occurred with this sample. If the WC8S04XD result was used to calculate the MS/MSD recoveries, percent recoveries of 83 and 33 would be reported. Based upon professional judgment, all sample results were qualified estimated (J/UJ).

Miscellaneous

Results for hexavalent chromium were compared to the total chromium results. There is a good correlation between the hexavalent and total/dissolved chromium results when the hexavalent chromium sample concentration is greater than 100 µg/L (see results for sample WC12S04XX). Hexavalent chromium results below 100 µg/L do not correlate well with the total chromium results. Hexavalent chromium results reported below 10 µg/L are estimated because they are below the reporting limit. The hexavalent chromium results reported for sample WC5S04XX is reported above the reporting limit and is significantly greater than the total chromium result. The project manager at the laboratory was contacted and asked to review the laboratory's sample preparation and run logs to verify the results reported. The laboratory had a remaining aliquot of the hexavalent chromium sample for WC5S04XX and screened it on the ICP for total chromium. The results matched the unvalidated total chromium concentration reported originally. The lab also observed a large amount of precipitate and high turbidity in the hexavalent chromium sample remaining. Based upon the observations made at the lab and the comparison of total data versus hexavalent data, the result for hexavalent chromium in sample WC5S04XX were qualified as uncertain (N) and represents a probable false positive.

VI. WATER CHEMISTRY PARAMETERS ANALYSIS

Data were evaluated for the following parameters:

Data Completeness*
Preservation and Technical Holding Times
Analytical Sequence Check*
Field and Laboratory Blanks
Initial and Continuing Calibration*
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Laboratory Control Sample (LCS)*
Field Duplicate
Laboratory Duplicate
Electronic Evaluation Verification*

*** = criteria were met for this parameter**

Holding Times

The nitrite analyses of samples WC25I04XX, WC9D204XX, HESE0114I04XX, HESE0114I04XD, WC22D04XX, WC51D04XX, D041304XX, PZTF0402A04XX, PZTF0402B04XX, PZTF0407A04XX, PZTF0407B04XX, D041704XX, BRW040104XX, PZTF0403B04XX, PZTF0403A04XX, PZTF0409A04XX, PZTF0409B04XX, BRW040204XX and D804XX were performed outside of analytical hold times. Due to high, interfering levels of chloride, the lab reanalyzed the samples from eight to sixteen days outside of analytical hold time. Results for nitrite in these samples were non-detect and were qualified rejected (R) due to the grossly exceeded hold time.

Initial Calibration

All initial calibration criteria were met.

Continuing Calibration

All continuing calibration verification criteria were met.

Laboratory Blanks Review

In a subset of samples, detections below the reporting limits were reported for total organic carbon (TOC) and alkalinity. Action limits were established at five times the concentrations reported in the blanks. All associated sample results are greater than the action limits and required no further qualification action.

LCS Spike Recoveries

All laboratory control samples percent recoveries were within criteria.

MS/MSD Review

Sample HESE0116I04XX was analyzed as an MS/MSD. The MS percent recovery for nitrite (150), and the MSD percent recoveries for sulfate (239) and nitrate (240) exceed the QC control limit of 125. The RPDs for sulfate (33), nitrate (73) and nitrite (30) exceed the control limit of 20. Reported detections for sulfate, nitrate and nitrite in associated samples were qualified estimated (J).

Sample WC1S04XX was analyzed as an MS/MSD. The MS percent recoveries for sulfate (132) and nitrate (139) and the MSD percent recovery for nitrite (193) exceed the QC control limit of 125. The MSD percent recoveries for sulfate (48) and nitrate (55) are less than the lower QC control limit of 75. The RPDs for sulfate (65), nitrate (85) and nitrite (71) exceed the control limit of 20. All associated sample results for sulfate and nitrate were qualified estimated (J/UJ). Reported detections for nitrite were qualified estimated (J).

Sample MW0304XX was analyzed as an MS/MSD. The MS percent recoveries for sulfate (146), nitrate (153) and nitrite (191) and the MSD percent recovery for nitrite (144) exceed the QC control limit of 125. The MSD percent recoveries for sulfate (53) and nitrate (57) are less than the lower QC control limit of 75. The RPDs for sulfate (94), nitrate (91) and nitrite (28) exceed the control limit of 20. All associated sample results for sulfate and nitrate were qualified estimated (J/UJ). Results for nitrite are either non-detect or rejected due to holding time (see above) and required no further action.

Duplicates

Field duplicates were collected and analyzed for sample locations HESE0114I04XX, PZ1D04XX, PZ7D04XX, WC2D04XX and WC9S04XX. A goal for RPD of 30% or less was used when evaluating the duplicate data. Good agreement was observed for nitrate, nitrate, and sulfate indicating good field and analytical precision for these parameters.

In the duplicate samples WC9S04XX/WC9S04XD, WC2D04XX/WC2D04XD, and HESE0114I04XX/HESE0114I04XD the RPDs for TSS (36, 109, and 44) exceeds the QC control limit of 30.

Field ID	Parameter	Original Result		Duplicate Result		RPD	Unit
HESE0114I04XX	Total Suspended Solids	6.6		4.6		36	mg/L
PZ1D04XX	Total Suspended Solids	13.6		17.6		-26	mg/L
PZ7D04XX	Total Suspended Solids	9.8		10.8		-10	mg/L
WC2D04XX	Total Suspended Solids	1.8		2.83		-44	mg/L
WC9S04XX	Total Suspended Solids	15.6	J	52.8	J	-109	mg/L

Results for HESE0114I04XX/HESE0114I04XD and WC2D04XX/WC2D04XD were not qualified due to generally good agreement at the low concentrations (<10 mg/L) reported in the samples. Results for TSS in samples WC9S04XX and WC9S04XD were qualified estimated (J).

In the duplicate samples PZ7D04XX/PZ7D04XD and PZ1D04XX/PZ1D04XXD the RPD for TOC (40 and 114) exceeds the QC control limit of 30. Results for TOC in samples PZ7D04XX and PZ7D04XD and PZ1D04XX and PZ1D04XXD were qualified estimated (J).

VII. VOLATILE FATTY ACIDS

The following items were reviewed:

Case Narrative and Data Package Completeness*
Holding Times*
QC Blanks*
Initial Calibration Results*
Continuing Calibration Results*
Laboratory Control Sample Review*
Field Duplicate Precision
Matrix Spike Results (if applicable)

*** indicates that all method criteria were met**

Field Duplicate Precision

Field duplicates were collected and analyzed for sample location HESE0107D04X2. The RPDs for acetic acid (47) and propionic acid (40) exceed the control limit. Results for acetic acid and propionic acid in all samples were qualified estimated (J/UJ).

Matrix Spike Results

Sample PZ990304X2 was analyzed as an MS/MSD. The MSD percent recoveries for acetic acid (131), propionic acid (133) and i-hexanoic acid (132) exceed the upper control limit of 130. Reported detections for acetic acid and propionic acid were qualified estimated (J) and may be biased high. I-hexanioc acid was not detected in samples and not qualification was done.

References:

U.S. Environmental Protection Agency (USEPA), 1983. "Methods for the Chemical Analysis of Water and Wastes"; Environmental Monitoring and Support Laboratory; USEPA, 600-4-79-020; Cincinnati, OH; March 1983.

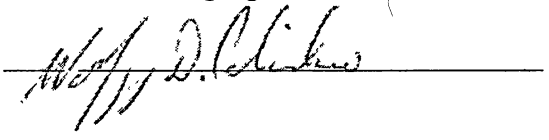
U.S. Environmental Protection Agency (USEPA), 1988. "Region 1 Laboratory Data Validation Functional Guidelines For Evaluating Organic Analyses"; Hazardous Site Evaluation Division; November 1988.

U.S. Environmental Protection Agency (USEPA), 1989. "Region 1 Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses"; Hazardous Site Evaluation Division; February 1989.

U.S. Environmental Protection Agency (USEPA), 1996a. "Test Methods for Evaluating Solid Waste"; Laboratory Manual Physical/Chemical Methods; Office of Solid Waste and Emergency Response; Washington, DC; SW-846; November 1986; Revision 4 -December 1996.

U.S. Environmental Protection Agency (USEPA), 1996b. "Region 1 EPA-NE Data Validation Guidelines For Evaluating Environmental Analyses"; Quality Assurance Unit Staff; Office of Environmental Measurement and Evaluation; December 1996

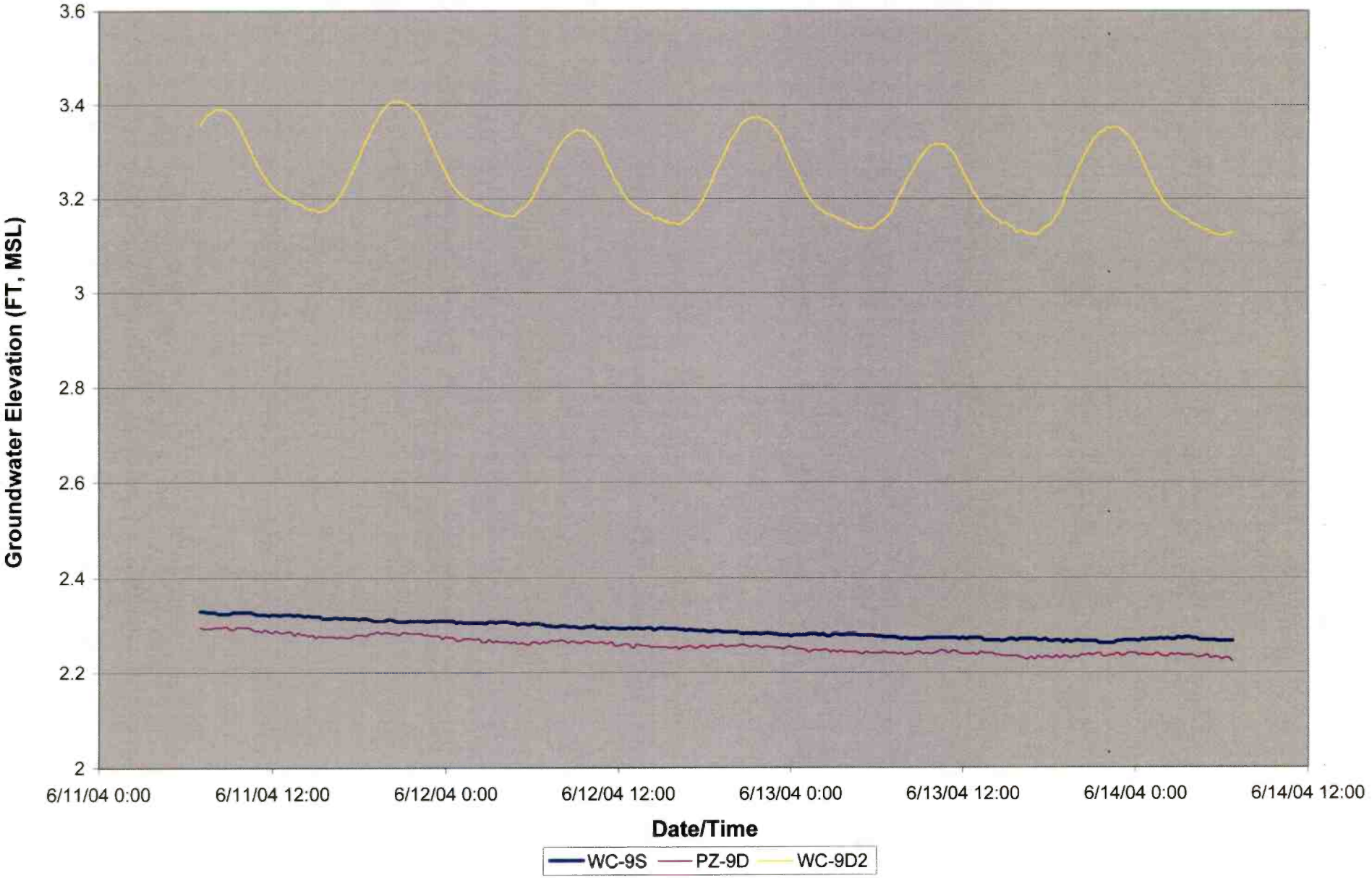
Data Validator: Wolfgang D. Calicchio

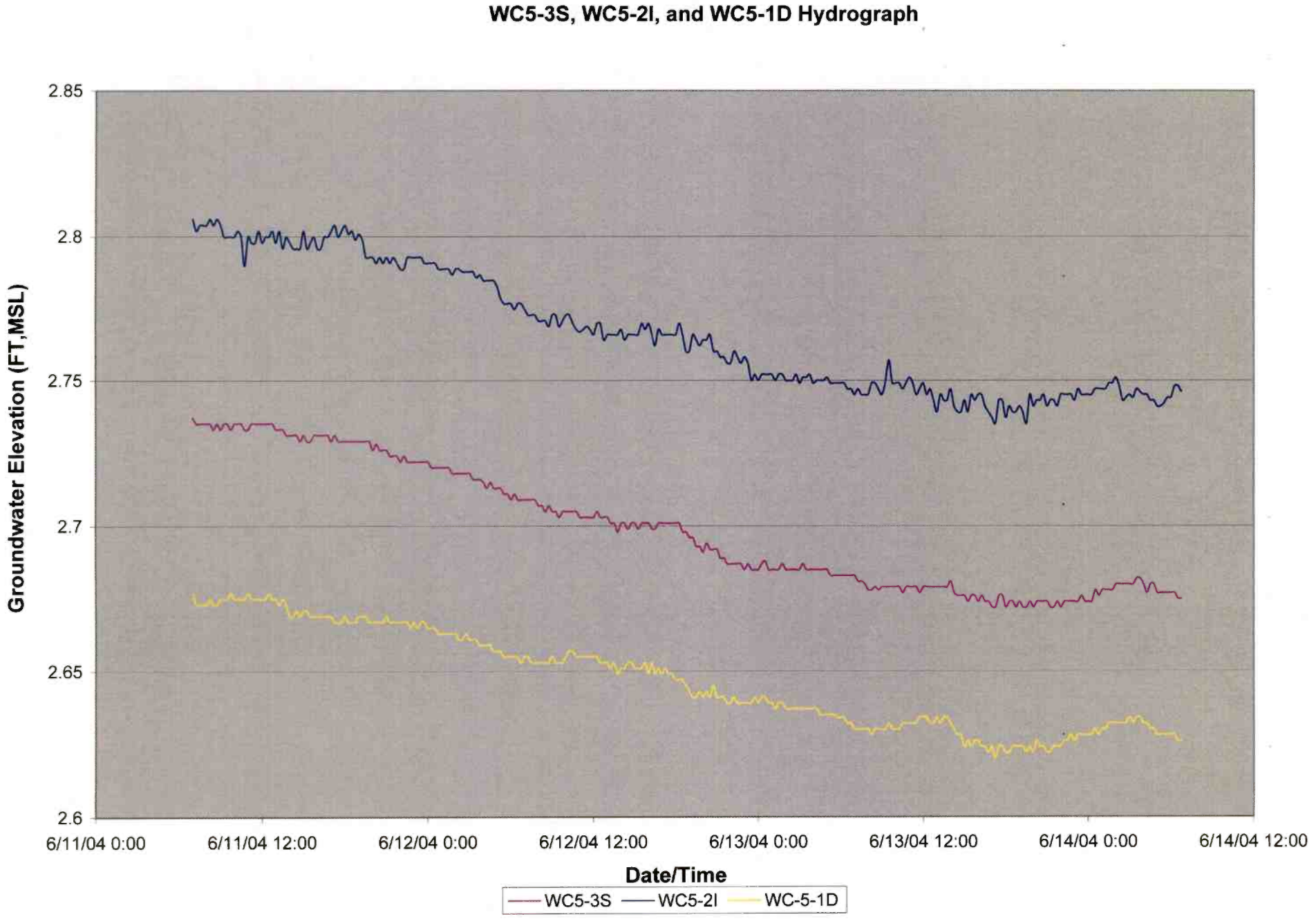
Signature:  Date: 16 August 2004

APPENDIX D

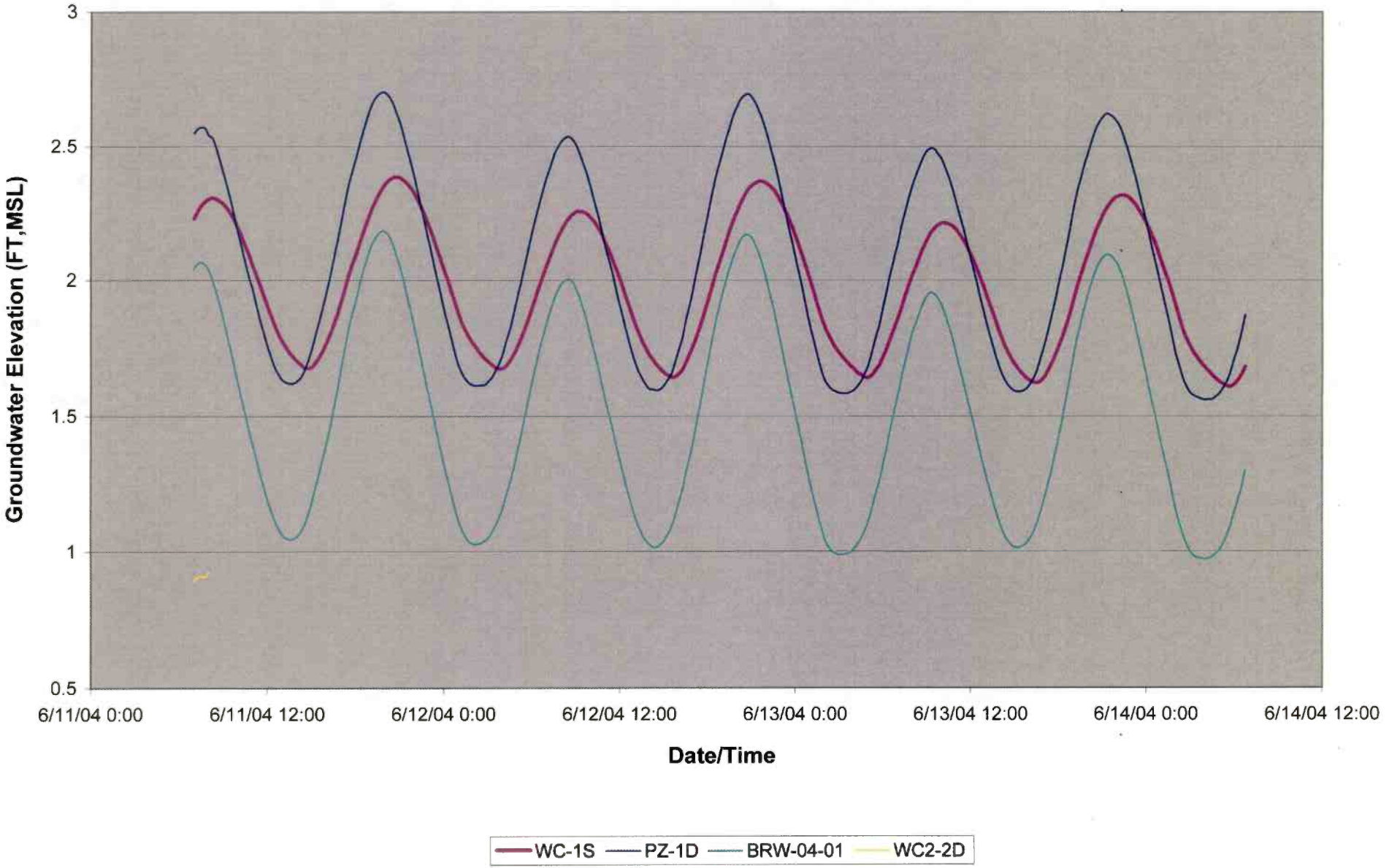
TIDAL EFFECTS STUDY HYDROGRAPHS

WC-9S, PZ-9D, and WC-9D2 Hydrograph

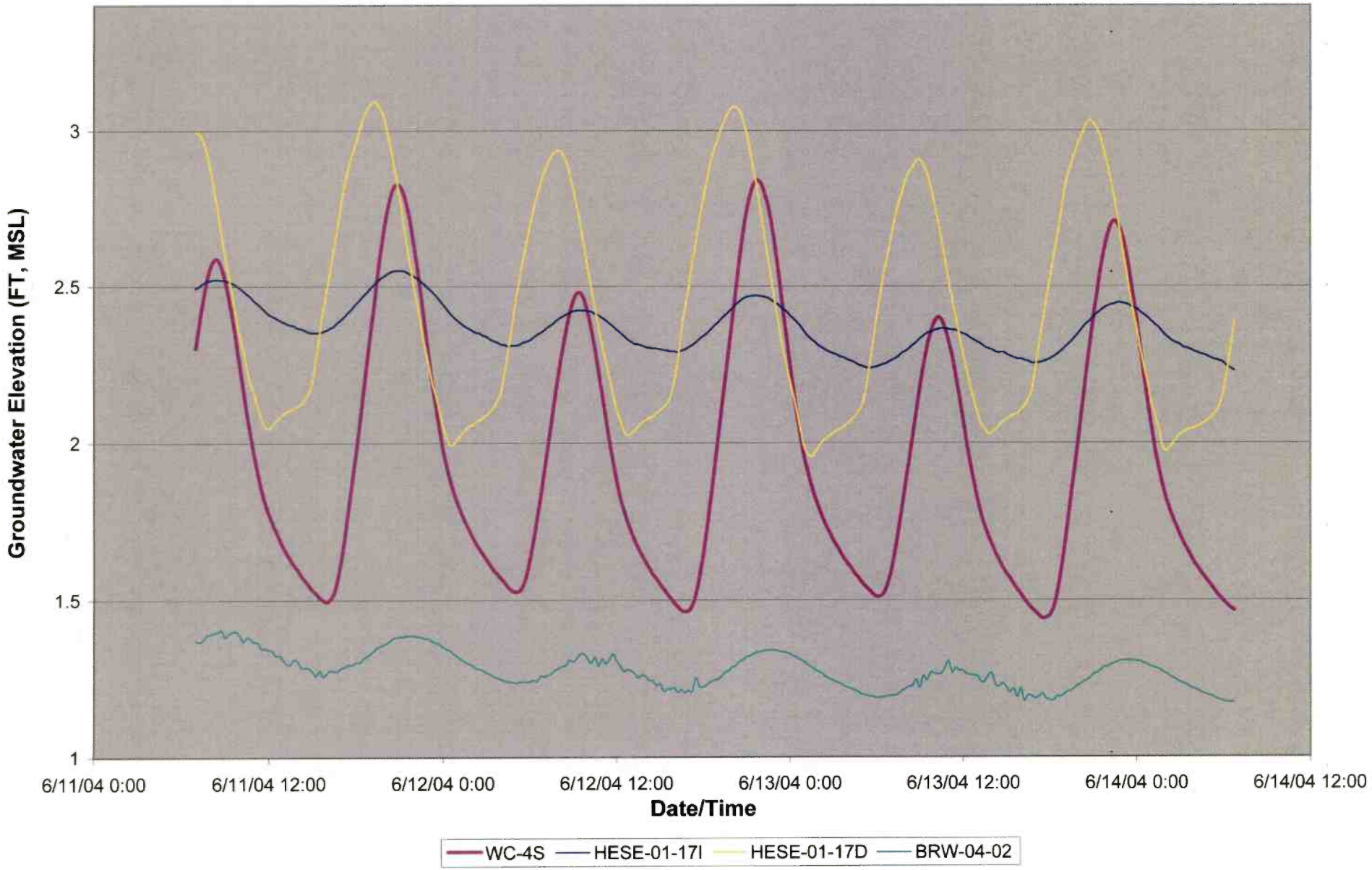


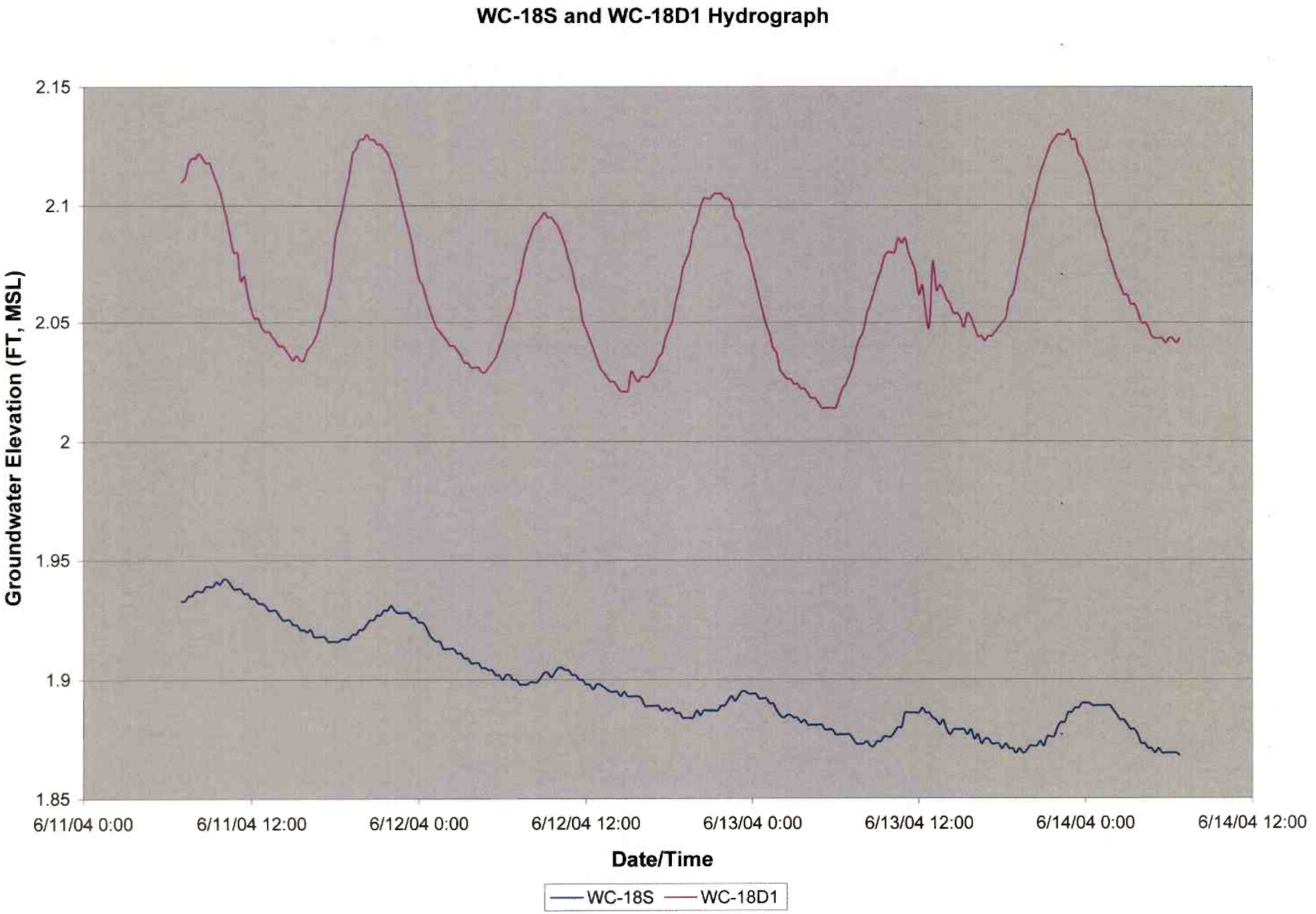

WC5-3S, WC5-2I, and WC5-1D Hydrograph
Groundwater Elevation (FT,MSL)
2.85
2.8
2.75
2.7
2.65
2.6
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
WC5-3S
WC5-2I
WC-5-1D

WC-1S, PZ-1D, WC2-2D, and BRW-04-01 Hydrograph

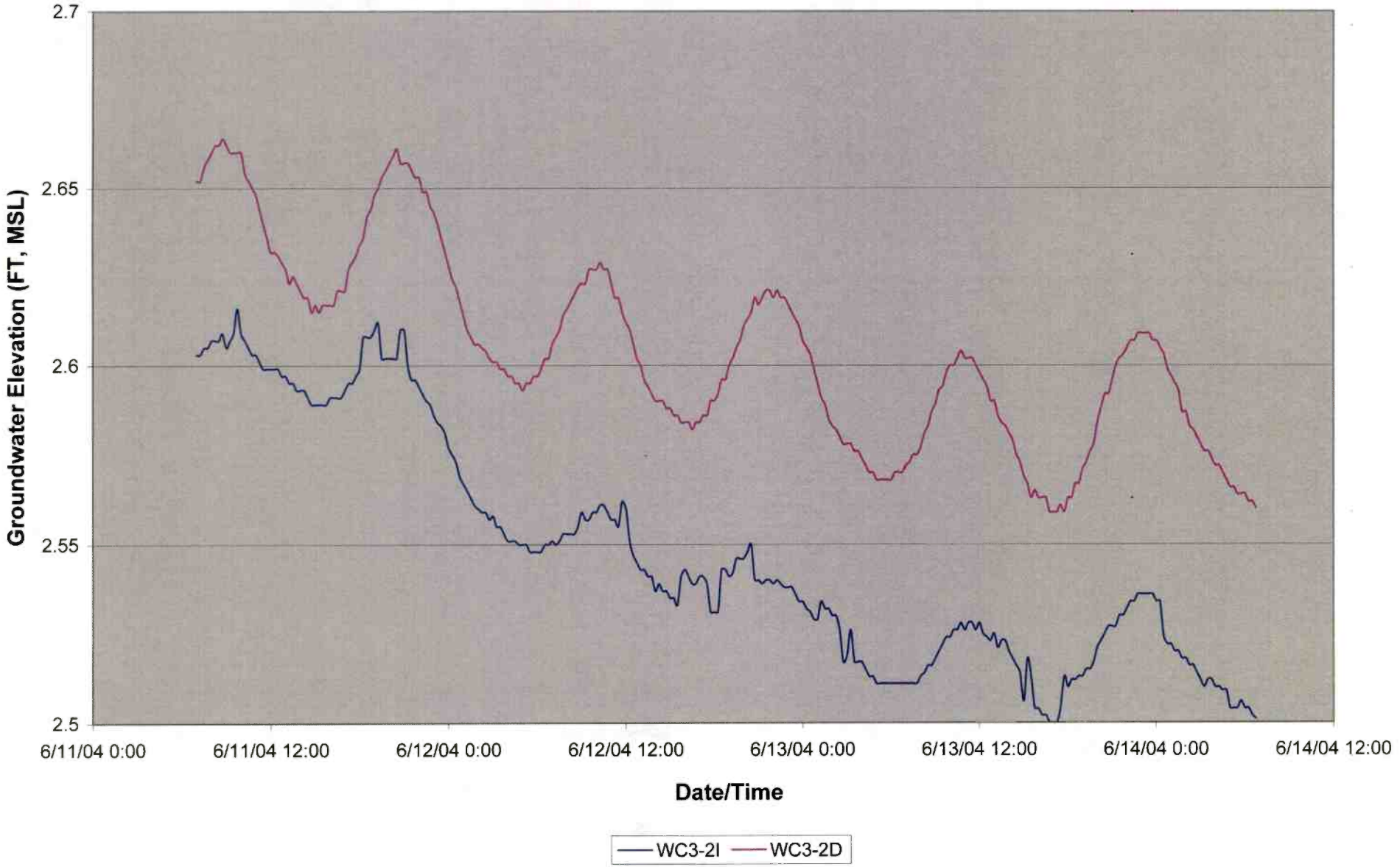


WC-4S, HESE-01-17I, HESE-01-17D, and BRW-04-02 Hydrograph

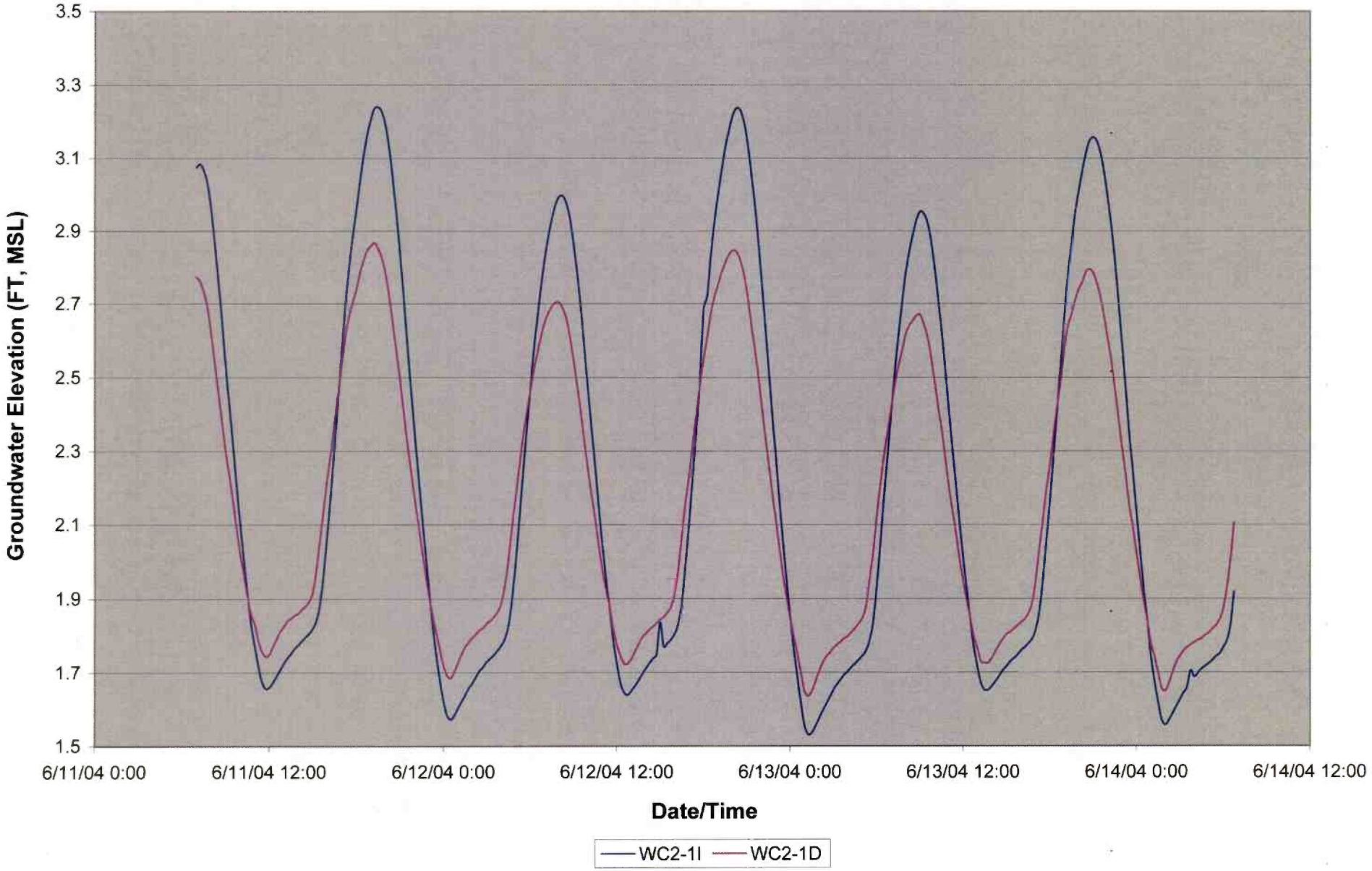


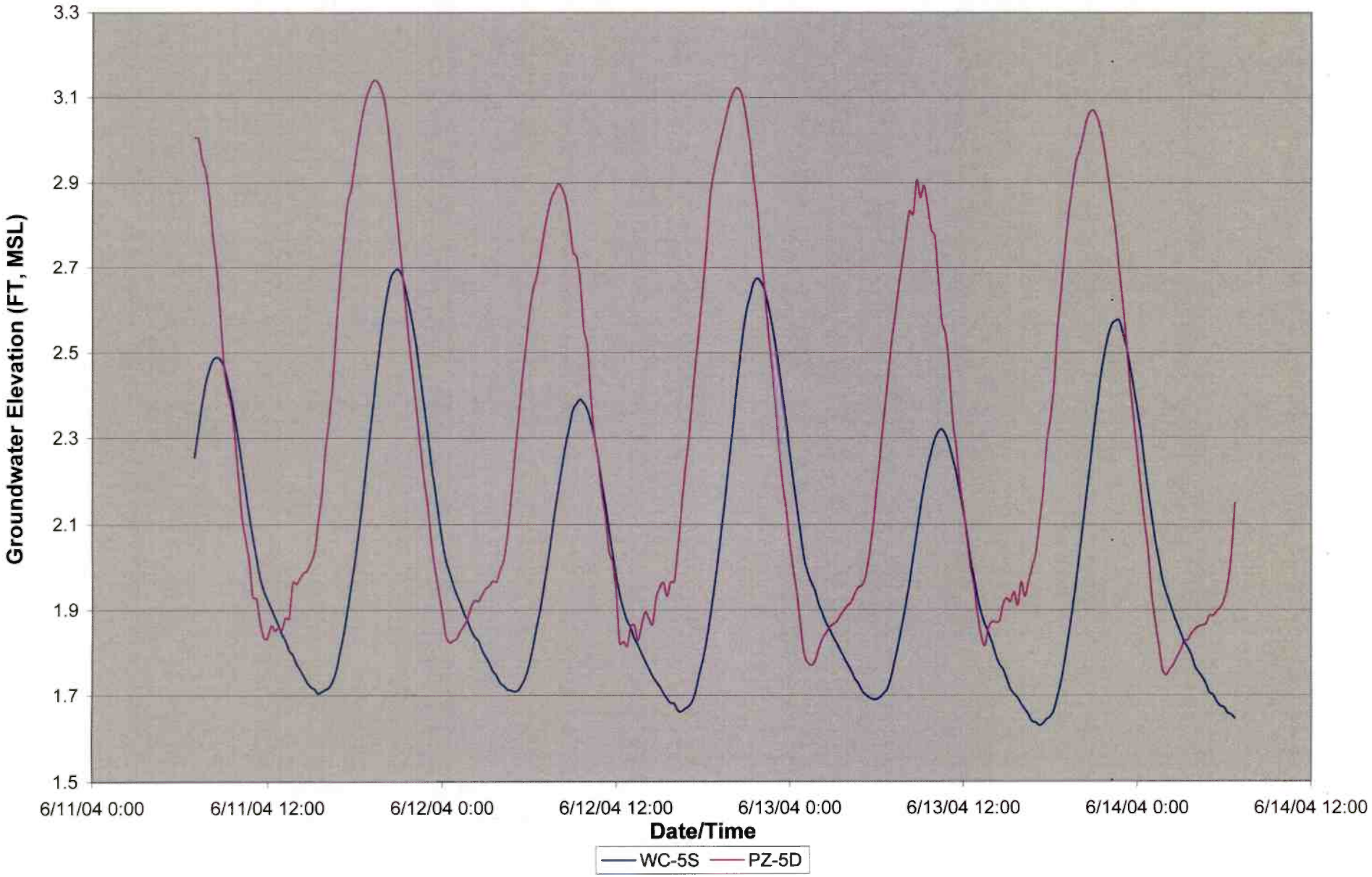

WC-18S and WC-18D1 Hydrograph
Groundwater Elevation (FT, MSL)
2.15
2.1
2.05
2
1.95
1.9
1.85
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
WC-18S
WC-18D1

WC3-2I and WC3-2D Hydrograph

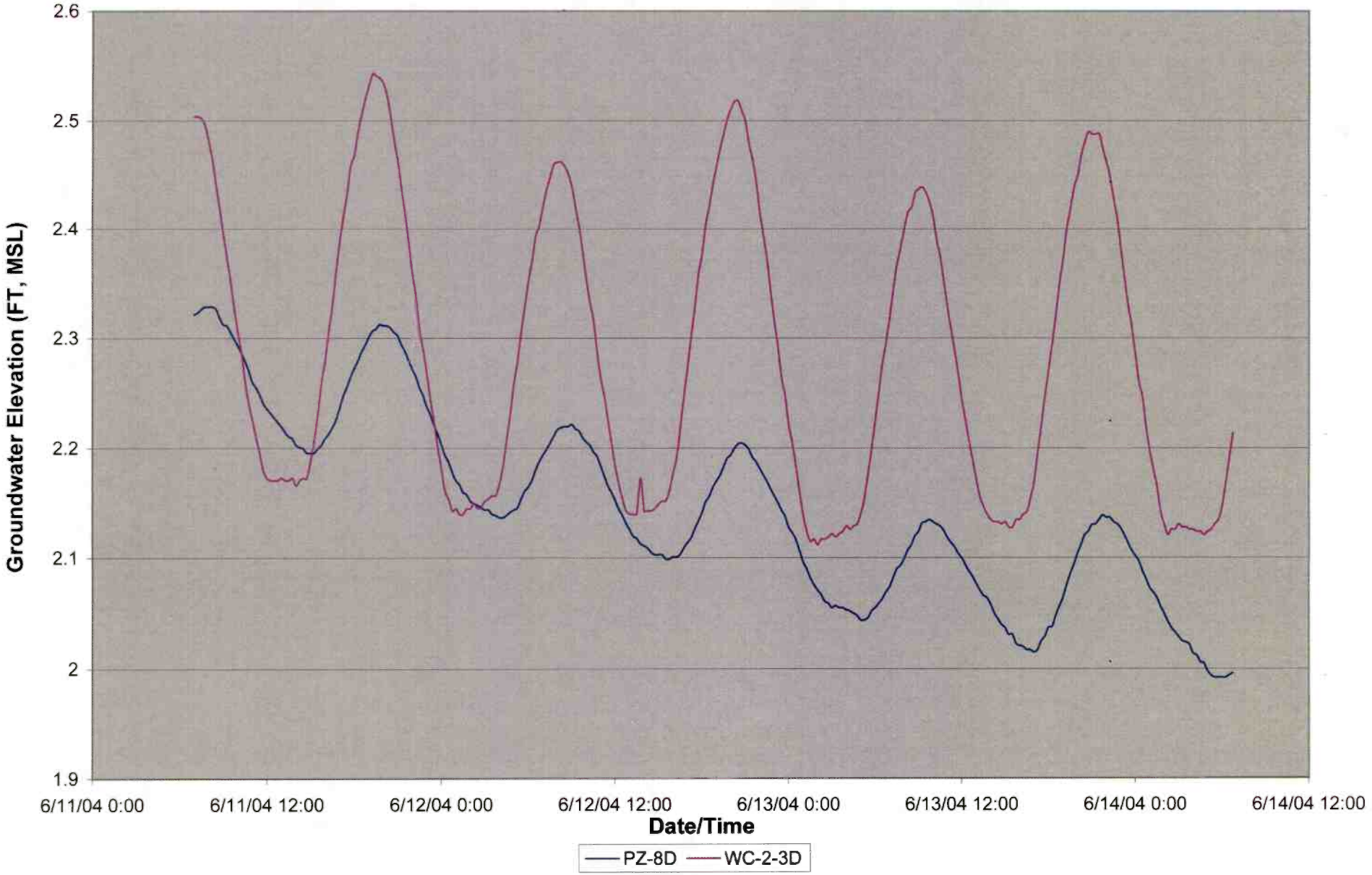


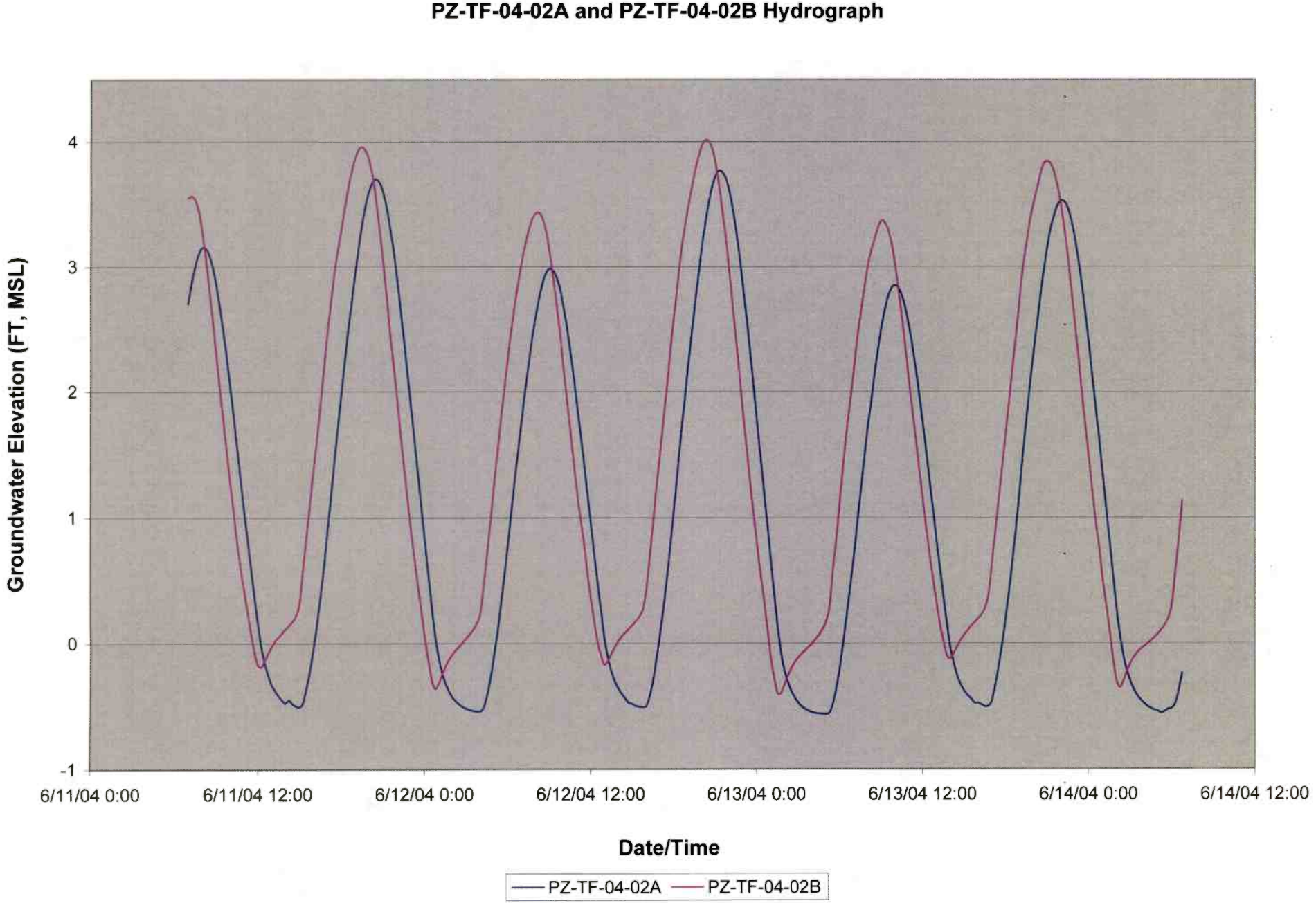
WC2-1I and WC-2-1D Hydrograph



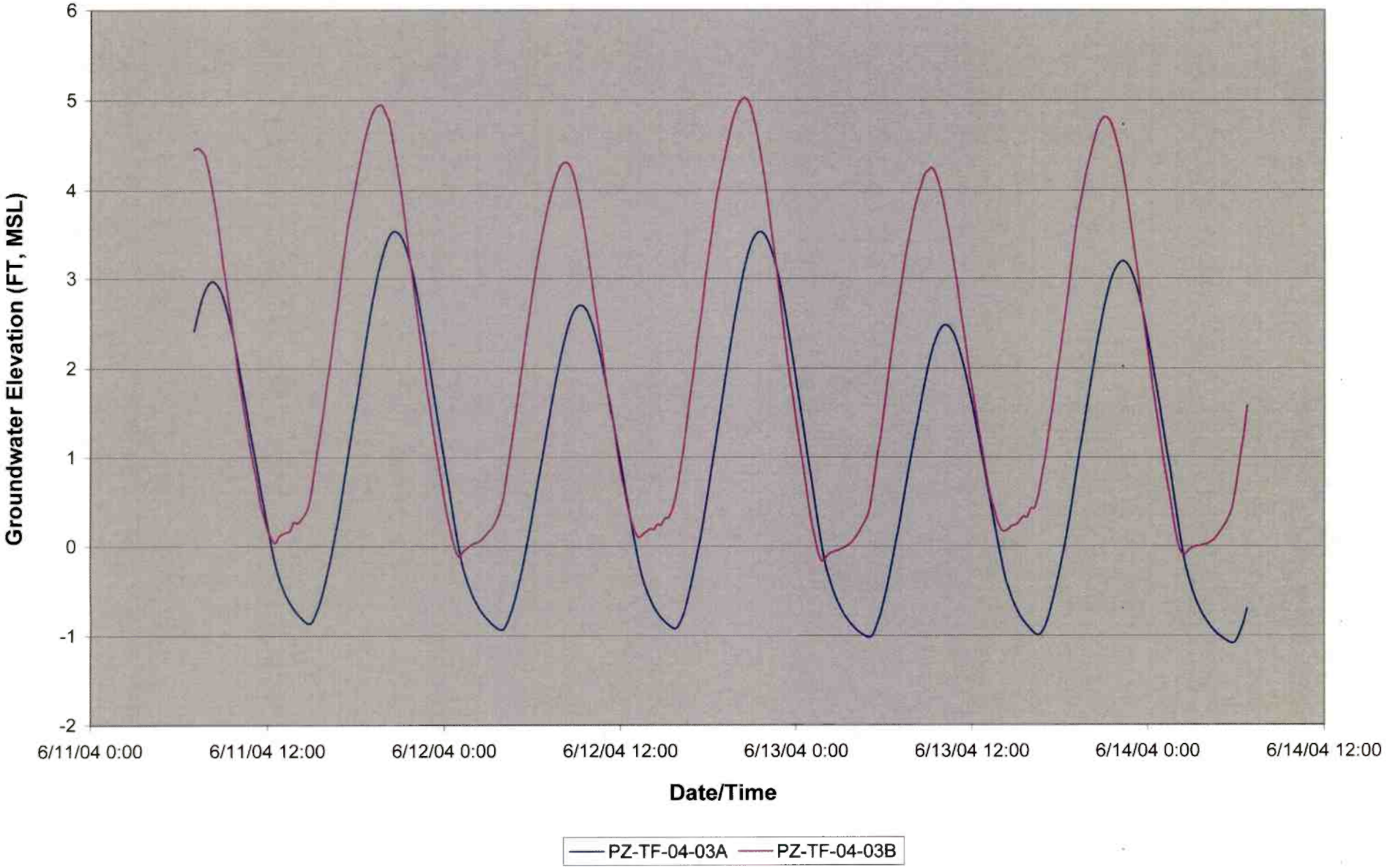

WC-5S and PZ-5D Hydrograph
Groundwater Elevation (FT, MSL)
3.3
3.1
2.9
2.7
2.5
2.3
2.1
1.9
1.7
1.5
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
WC-5S
PZ-5D

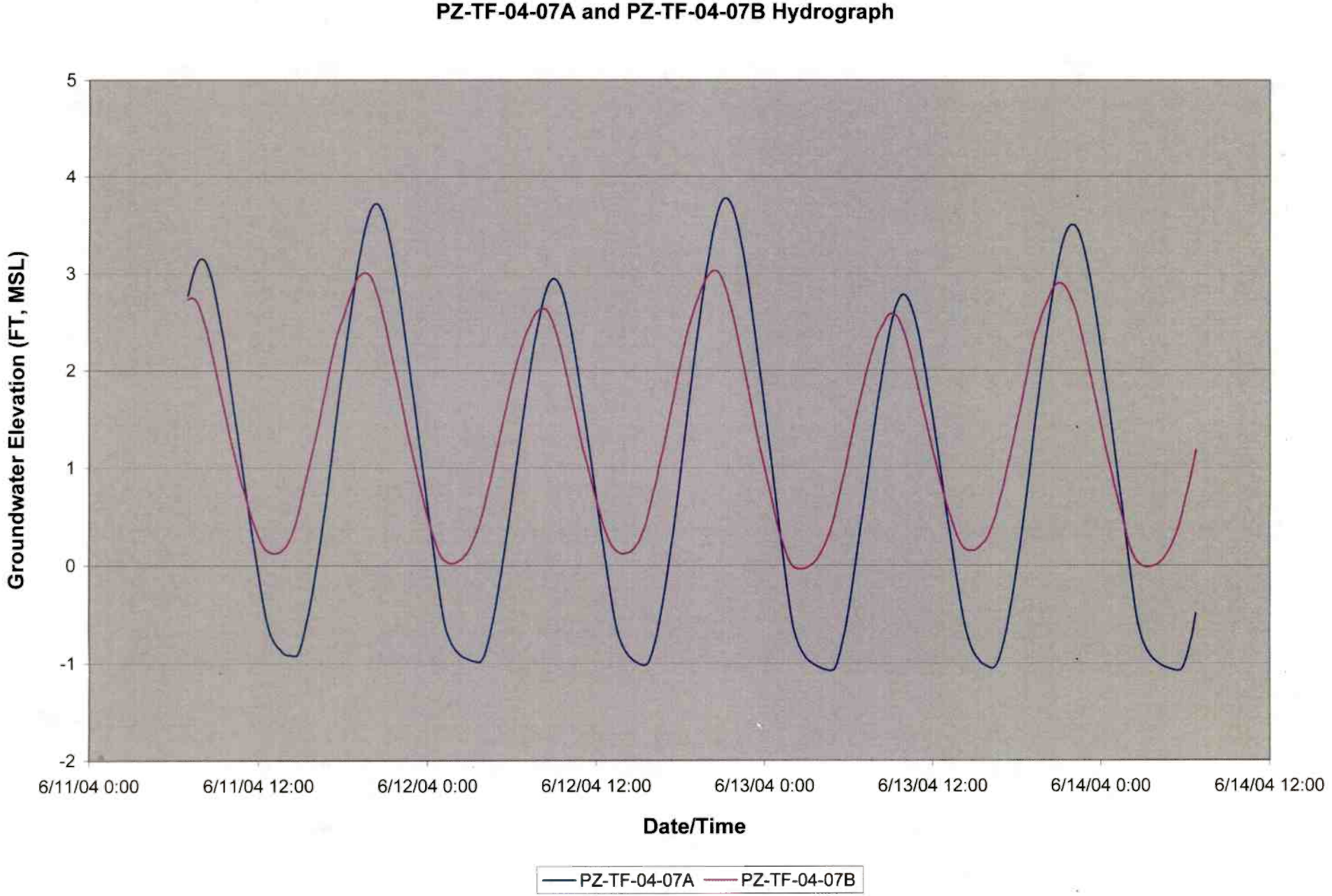
PZ-8D and WC-2-3D Hydrograph



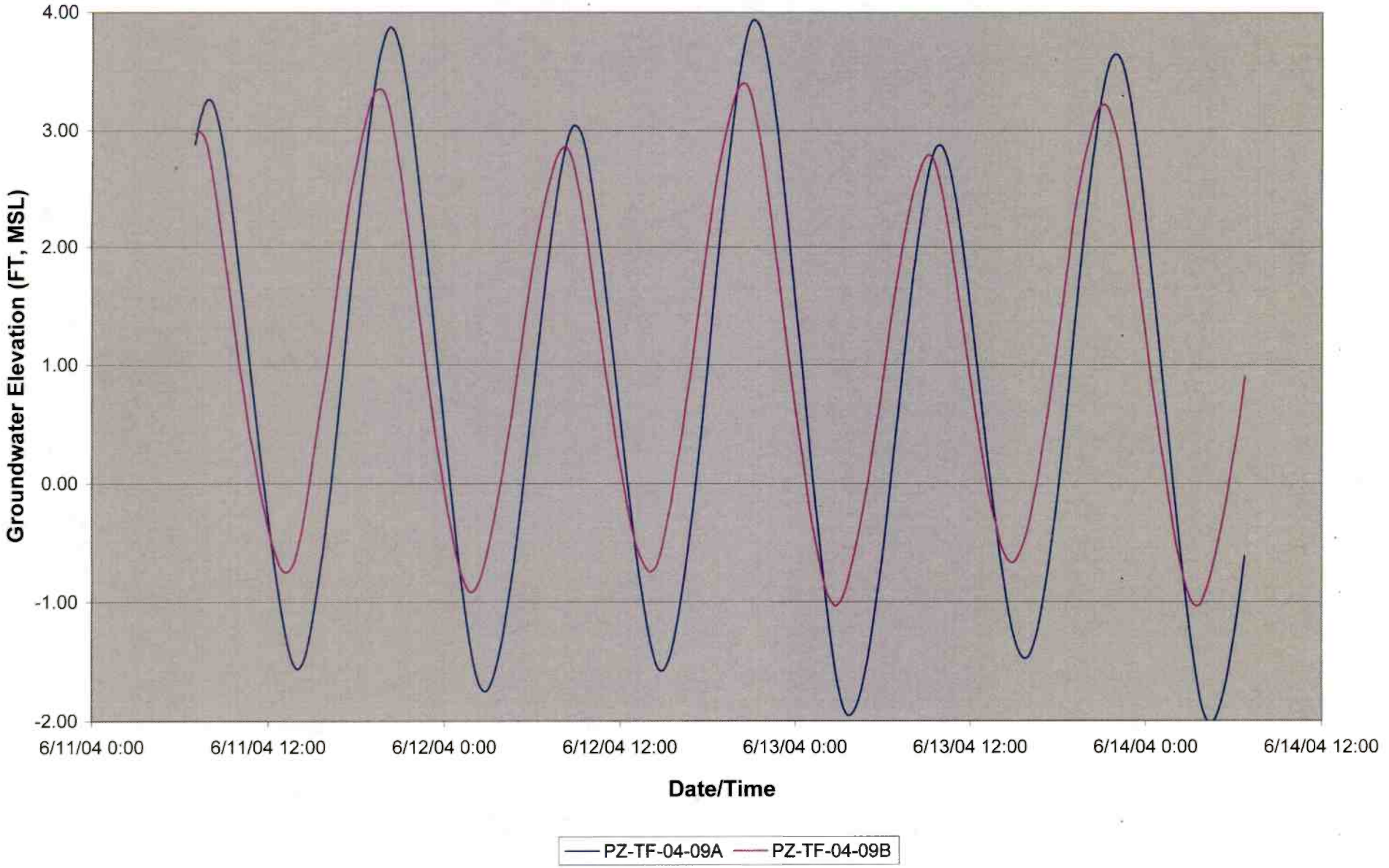

PZ-TF-04-02A and PZ-TF-04-02B Hydrograph
Groundwater Elevation (FT, MSL)
4
3
2
1
0
-1
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
PZ-TF-04-02A
PZ-TF-04-02B

PZ-TF-04-03A and PZ-TF-04-03B Hydrograph

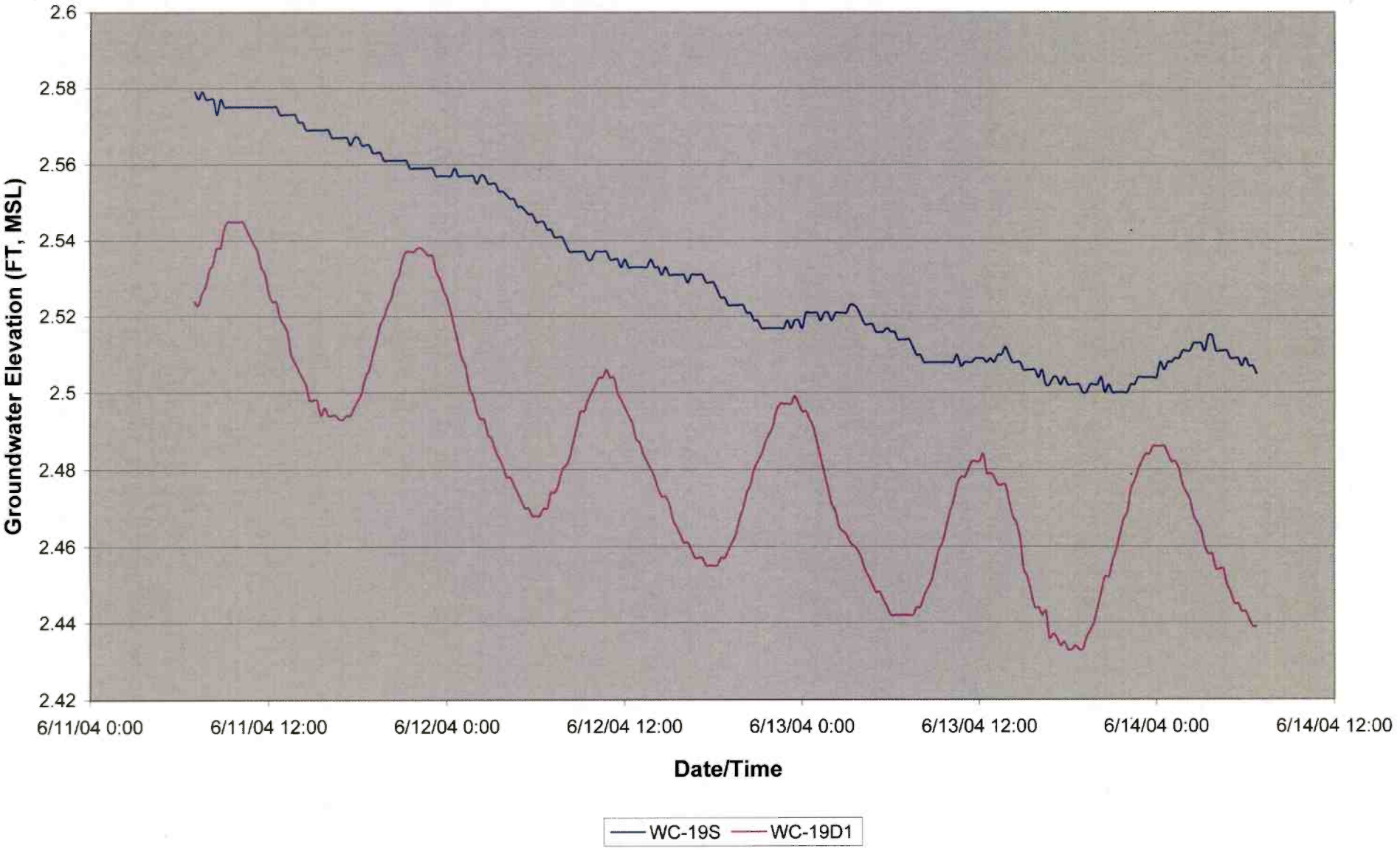



PZ-TF-04-07A and PZ-TF-04-07B Hydrograph
Groundwater Elevation (FT, MSL)
5
4
3
2
1
0
-1
-2
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
PZ-TF-04-07A
PZ-TF-04-07B

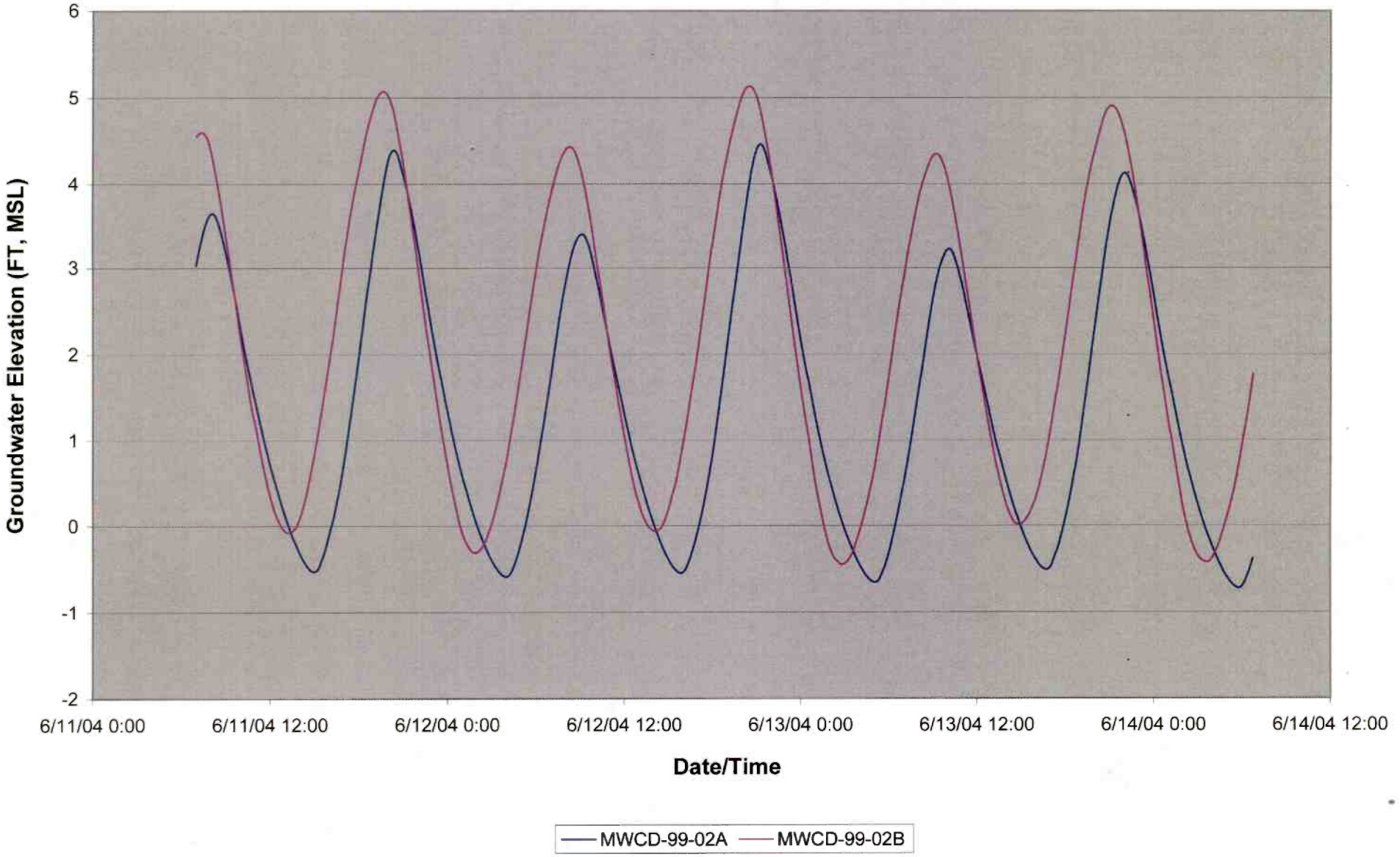
PZ-TF-04-09A and PZ-TF-04-09B Hydrograph



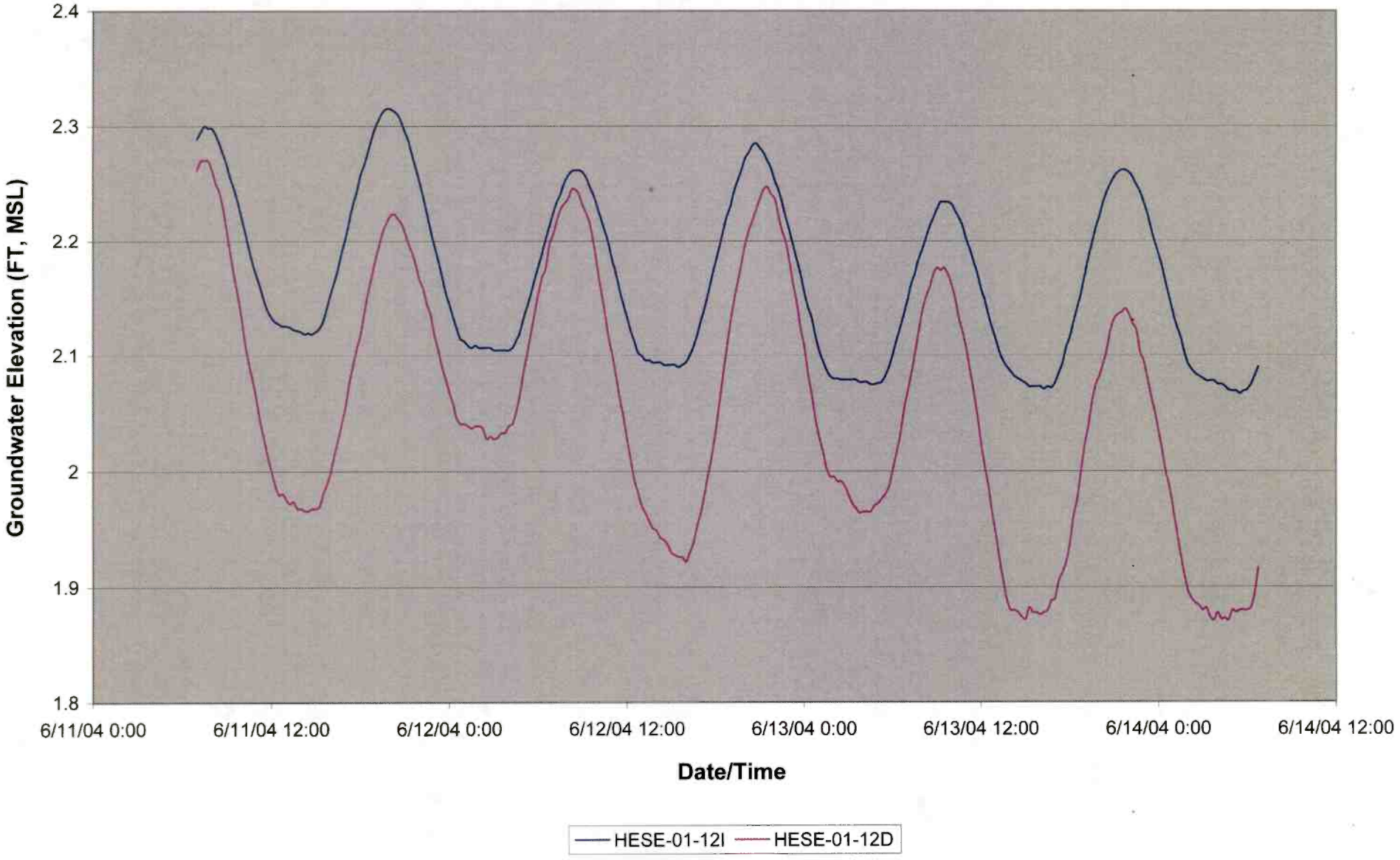
WC-19S and WC-19D1 Hydrograph



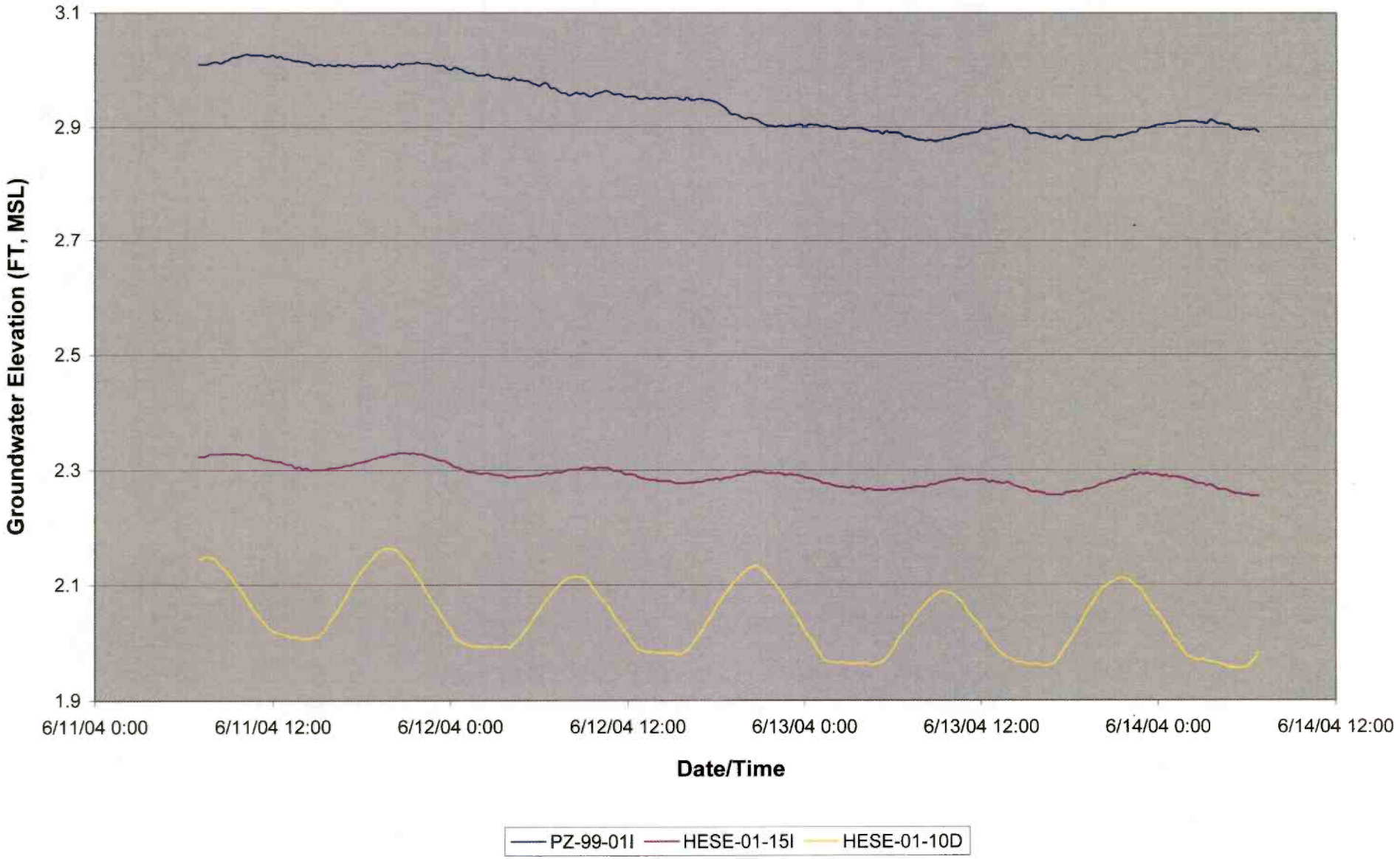
MWCD-99-02A and MWCD-99-02B Hydrograph



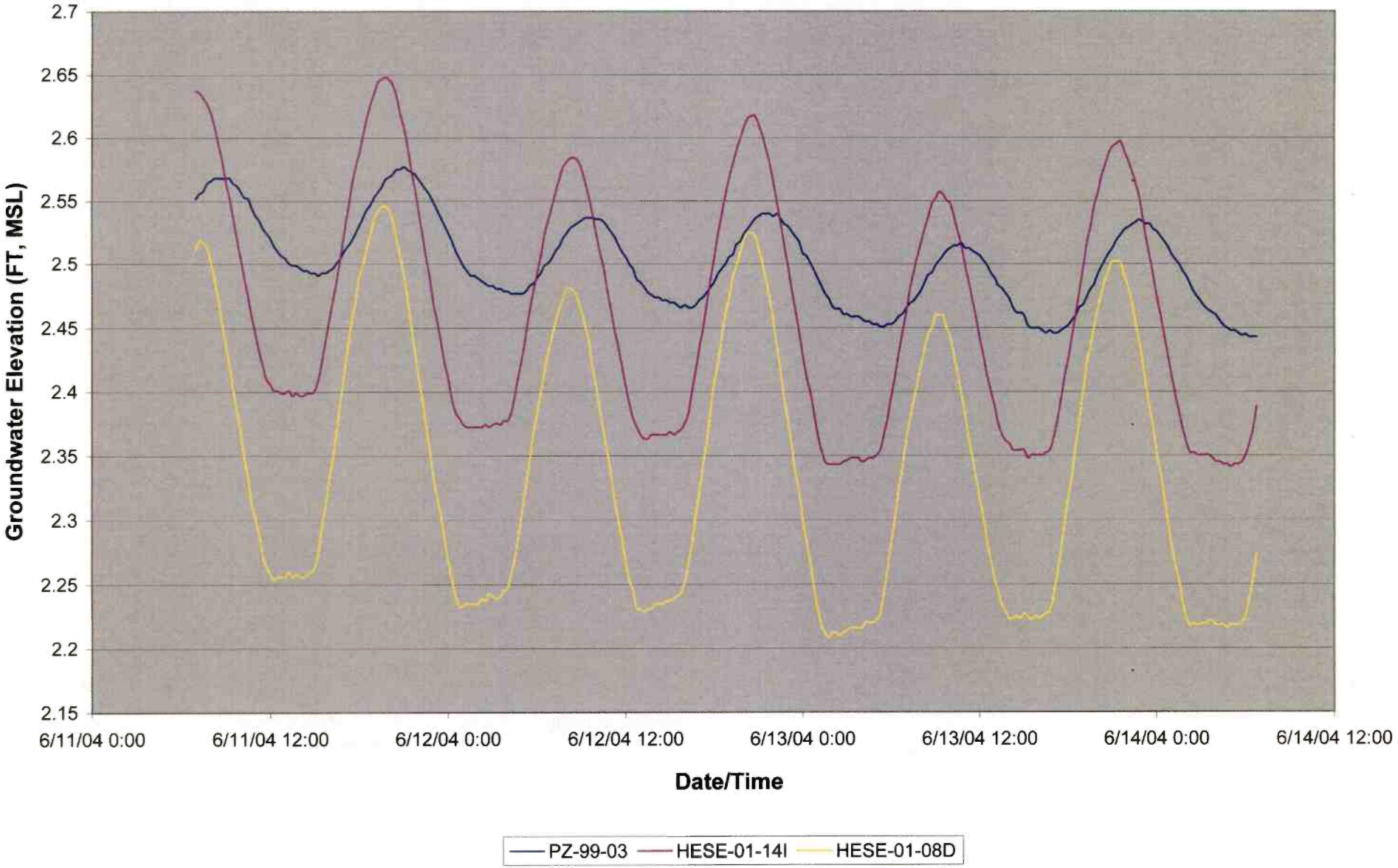
HESE-01-12I and HESE-01-12D Hydrograph

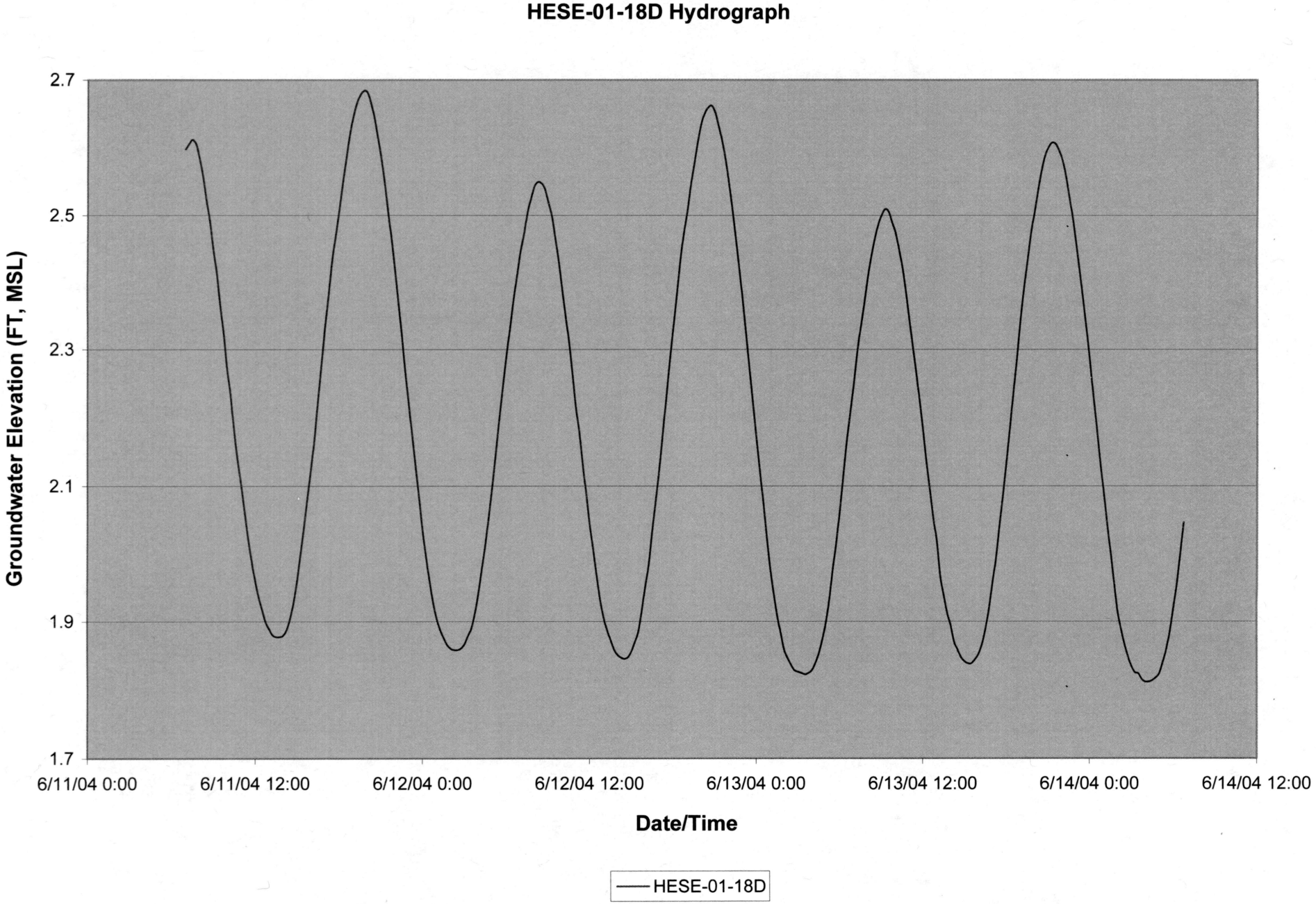


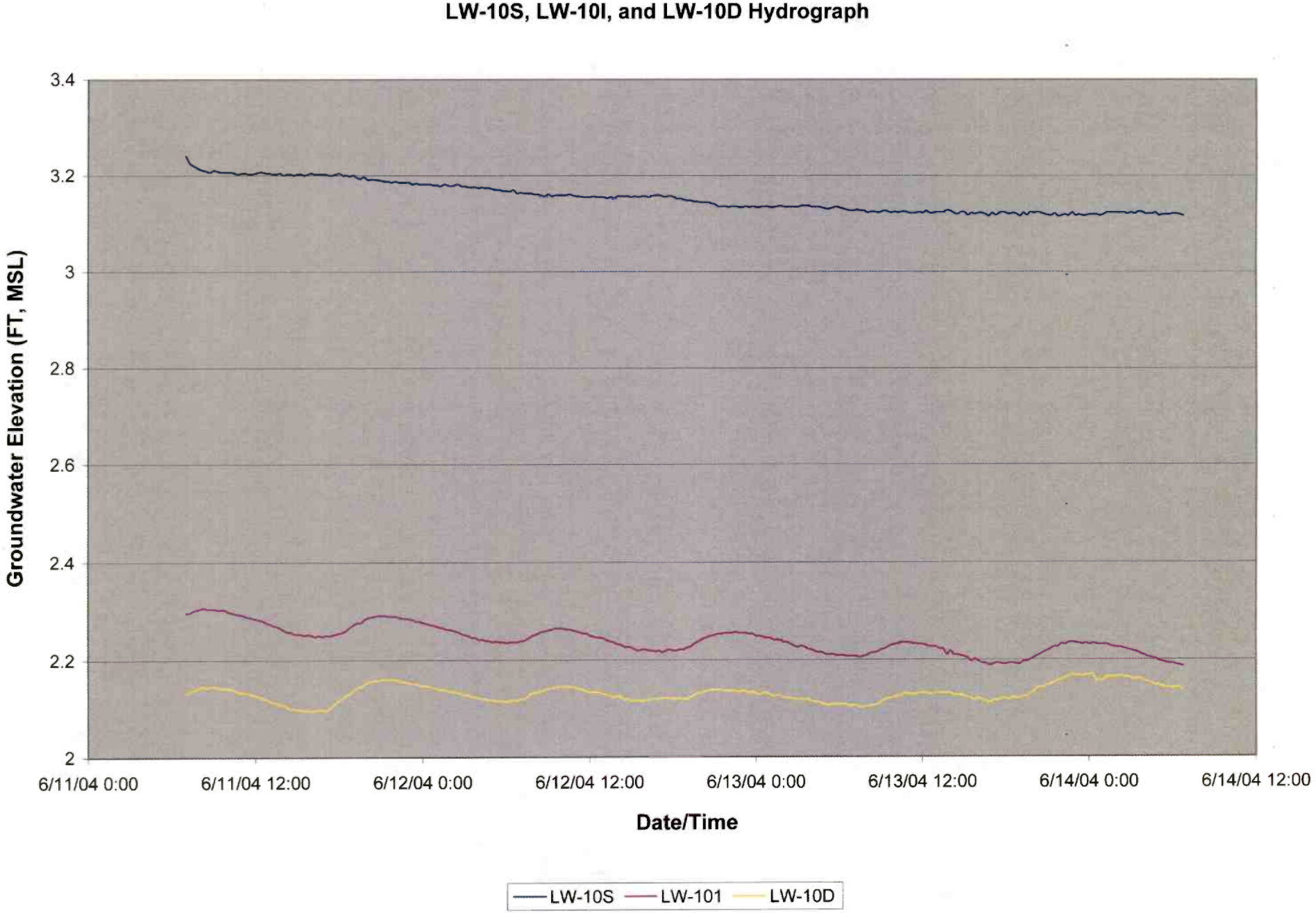
PZ-99-01I, HESE-01-15I, and HESE-01-10D Hydrograph

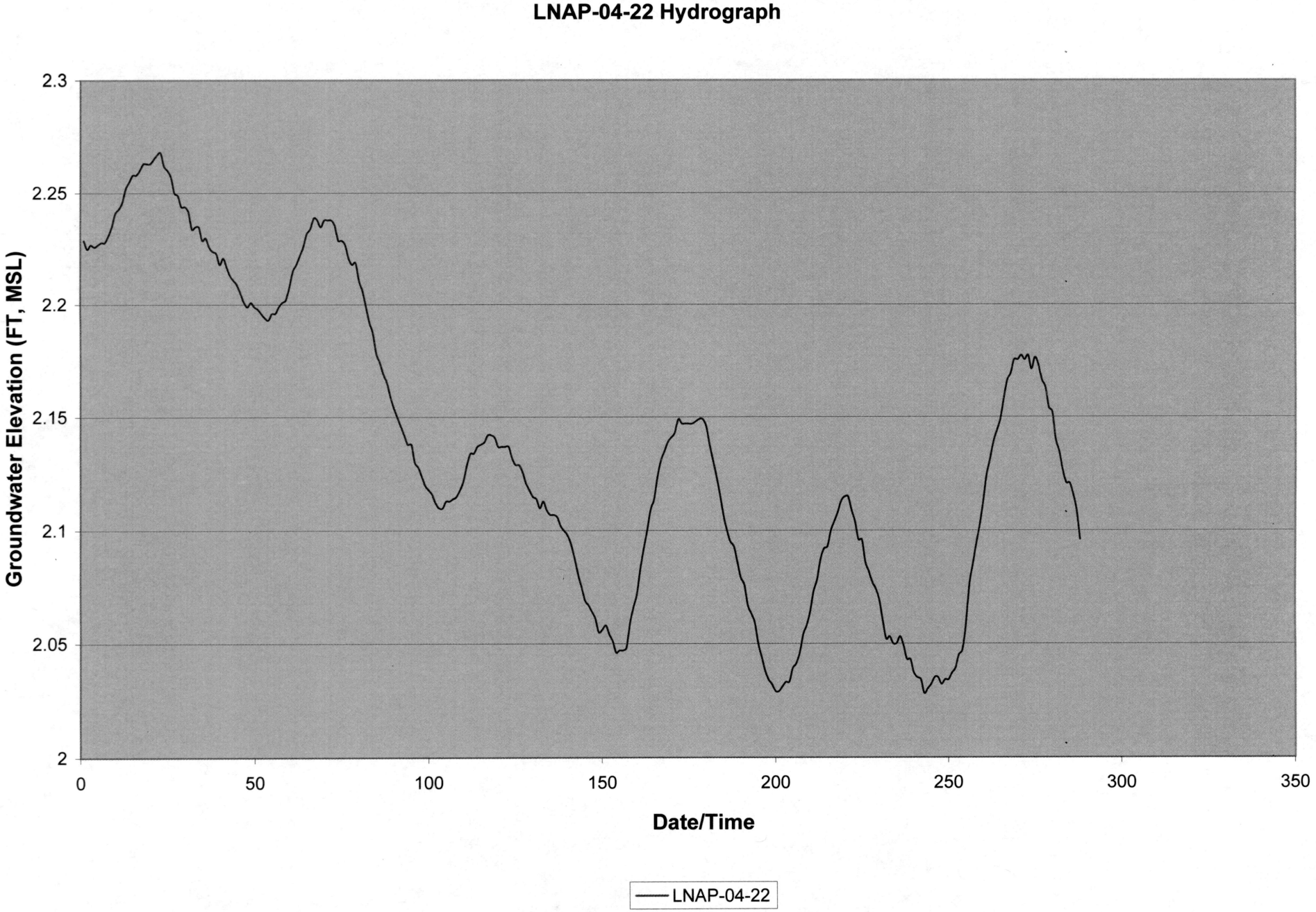


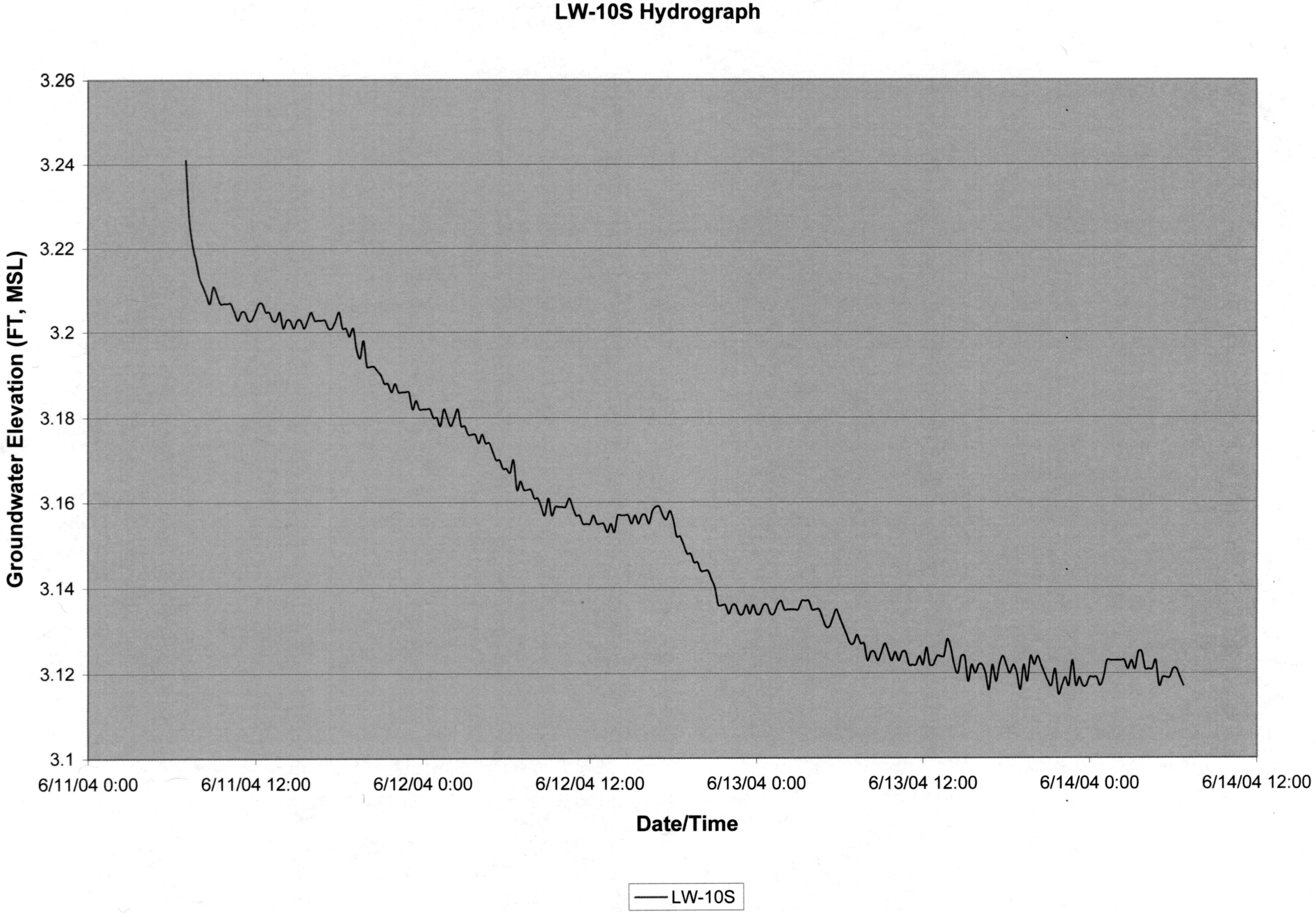
PZ-99-03, HESE-01-14I, and HESE-01-08D Hydrograph

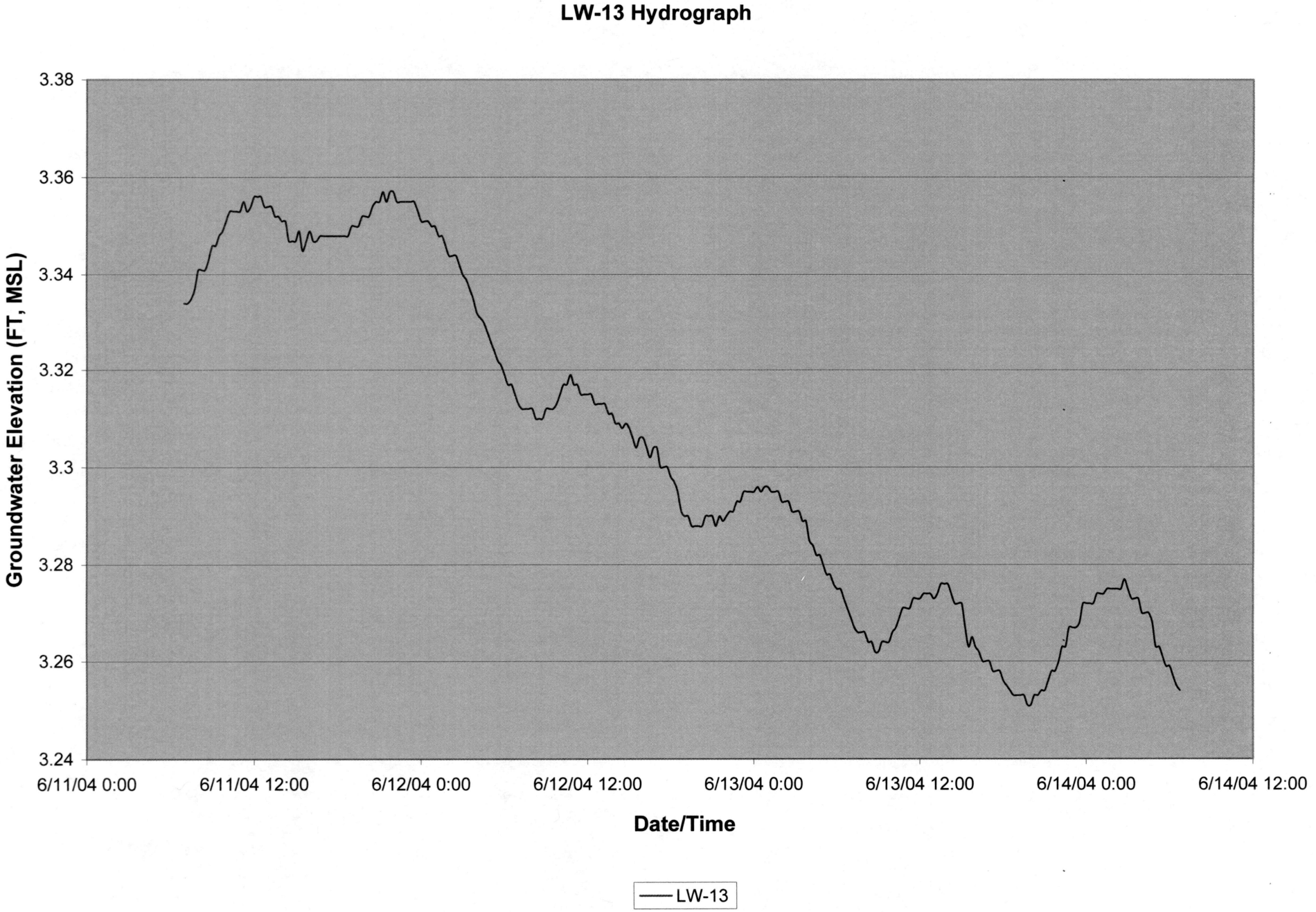


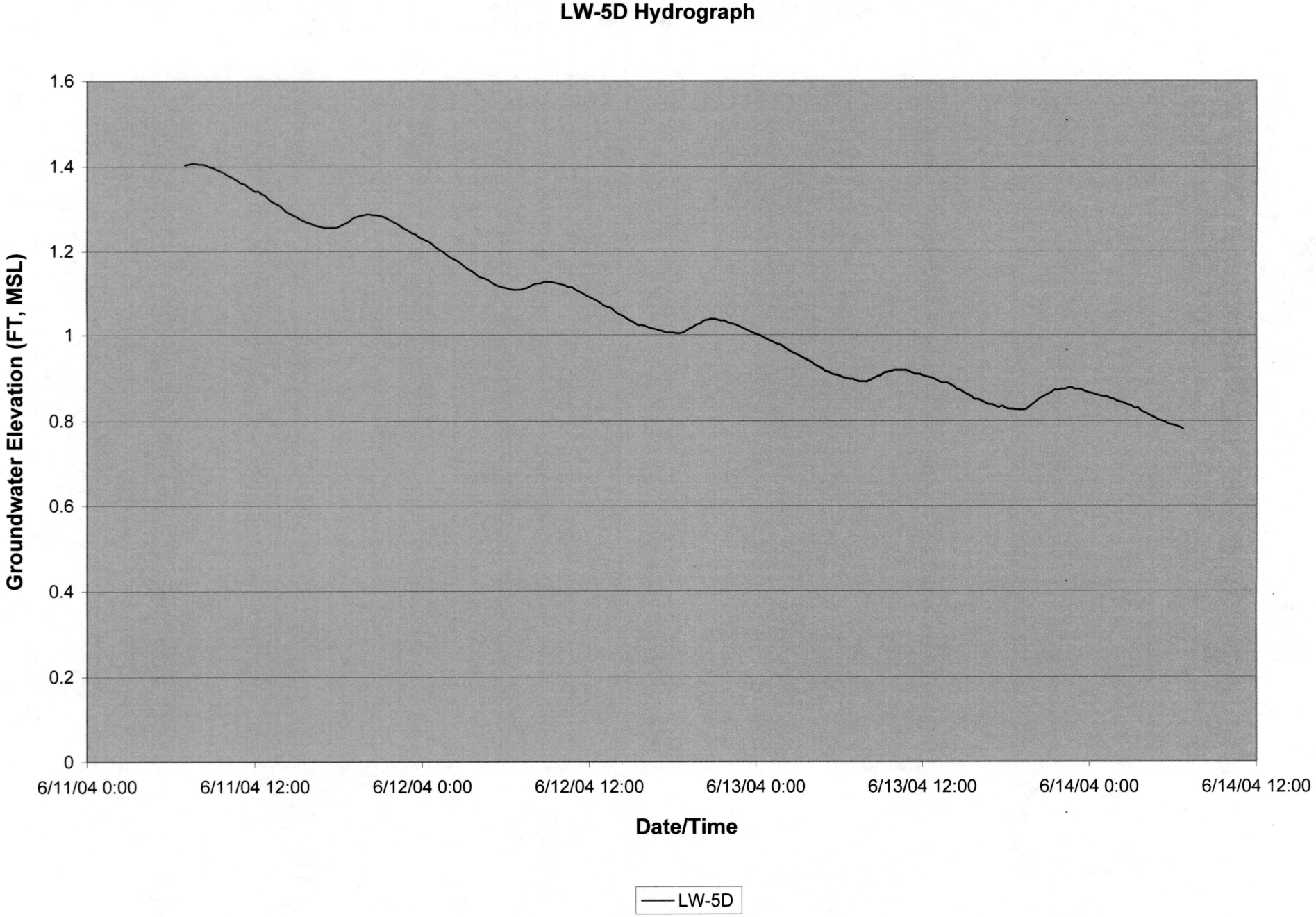

HESE-01-18D Hydrograph
Groundwater Elevation (FT, MSL)
2.7
2.5
2.3
2.1
1.9
1.7
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
HESE-01-18D

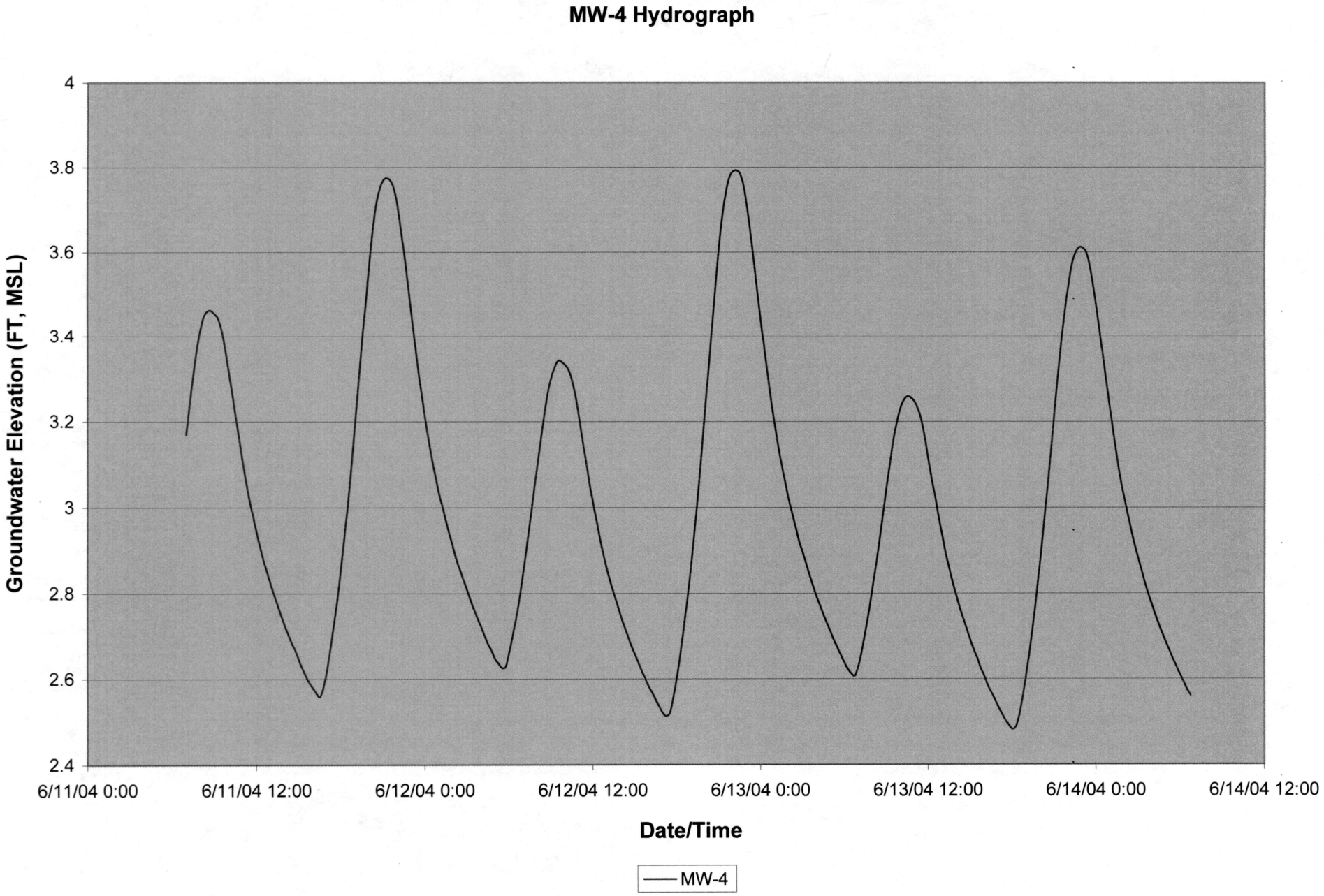

LW-10S, LW-10I, and LW-10D Hydrograph
Groundwater Elevation (FT, MSL)
3.4
3.2
3
2.8
2.6
2.4
2.2
2
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
LW-10S
LW-101
LW-10D

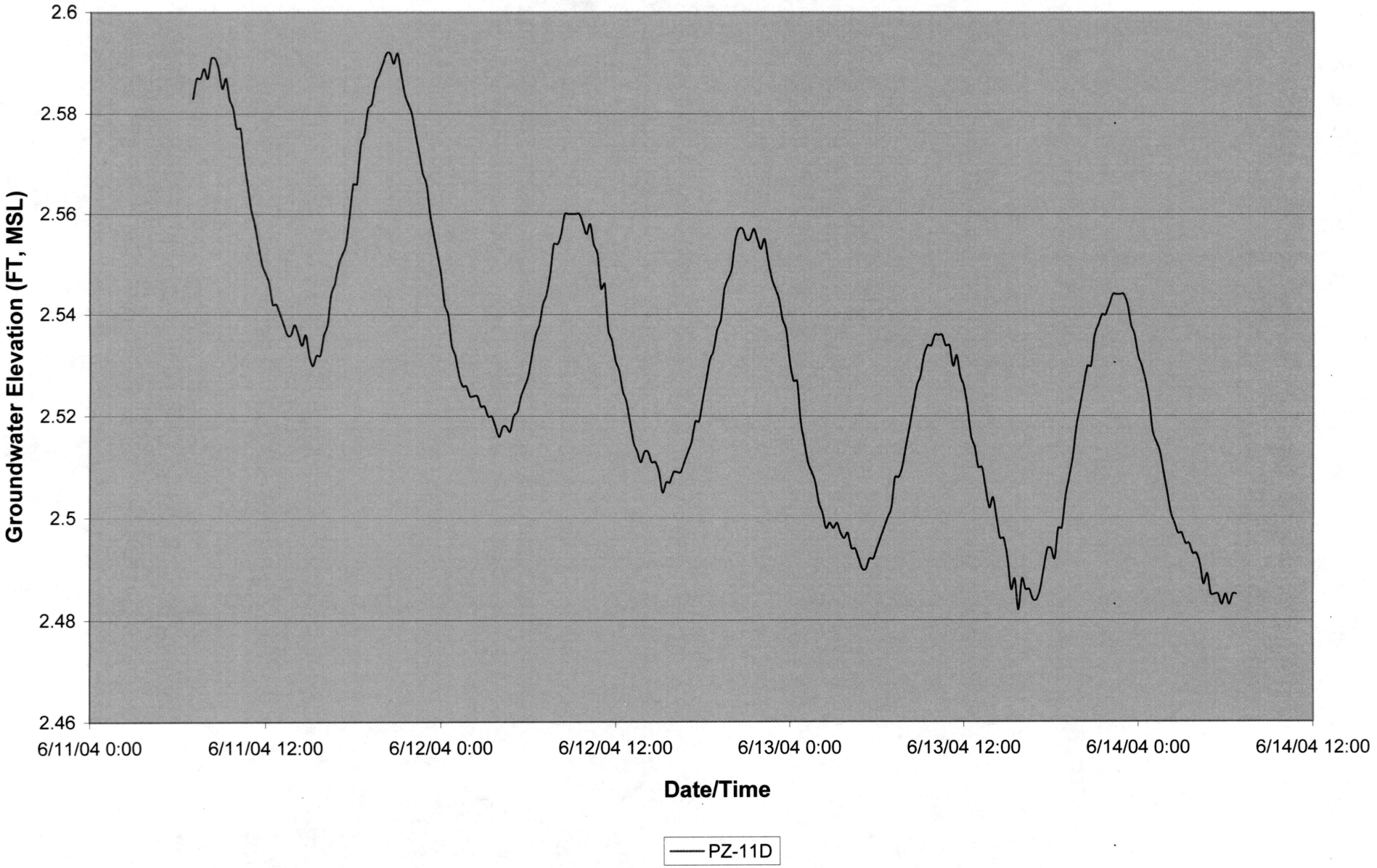

LNAP-04-22 Hydrograph
Groundwater Elevation (FT, MSL)
2.3
2.25
2.2
2.15
2.1
2.05
2
0
50
100
150
200
250
300
350
Date/Time
LNAP-04-22

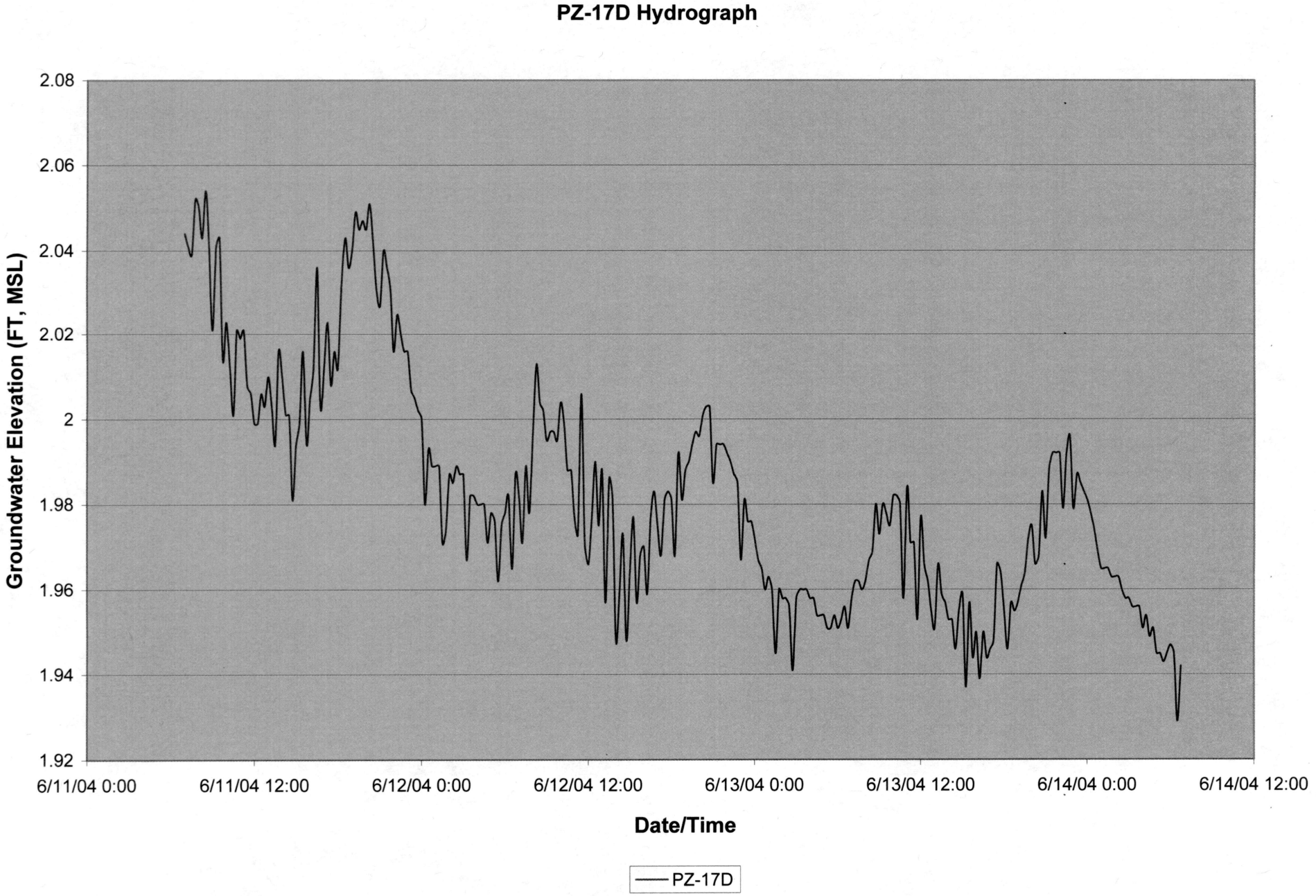

LW-10S Hydrograph
Groundwater Elevation (FT, MSL)
3.26
3.24
3.22
3.2
3.18
3.16
3.14
3.12
3.1
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
LW-10S

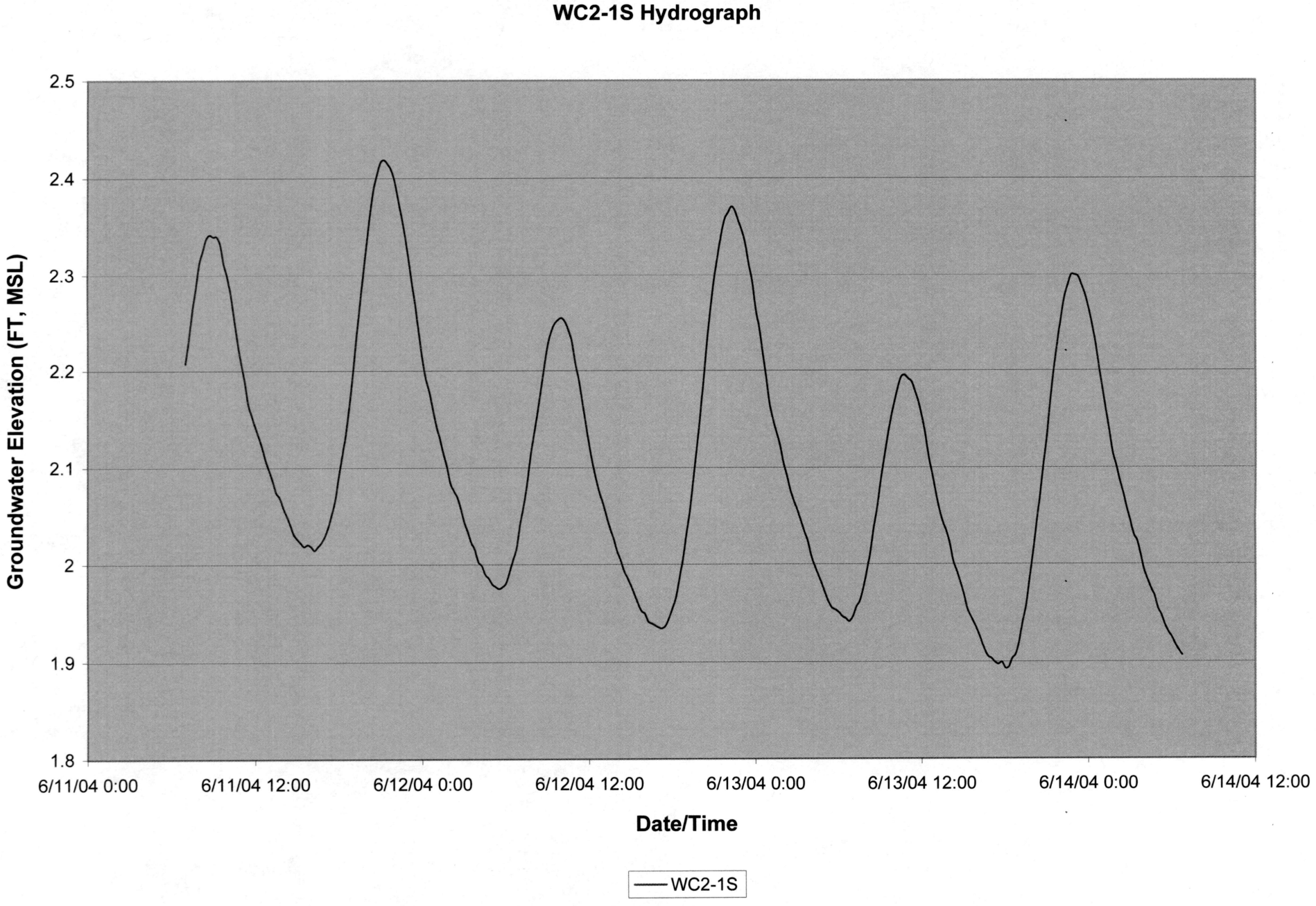

LW-13 Hydrograph
Groundwater Elevation (FT, MSL)
3.38
3.36
3.34
3.32
3.3
3.28
3.26
3.24
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
LW-13

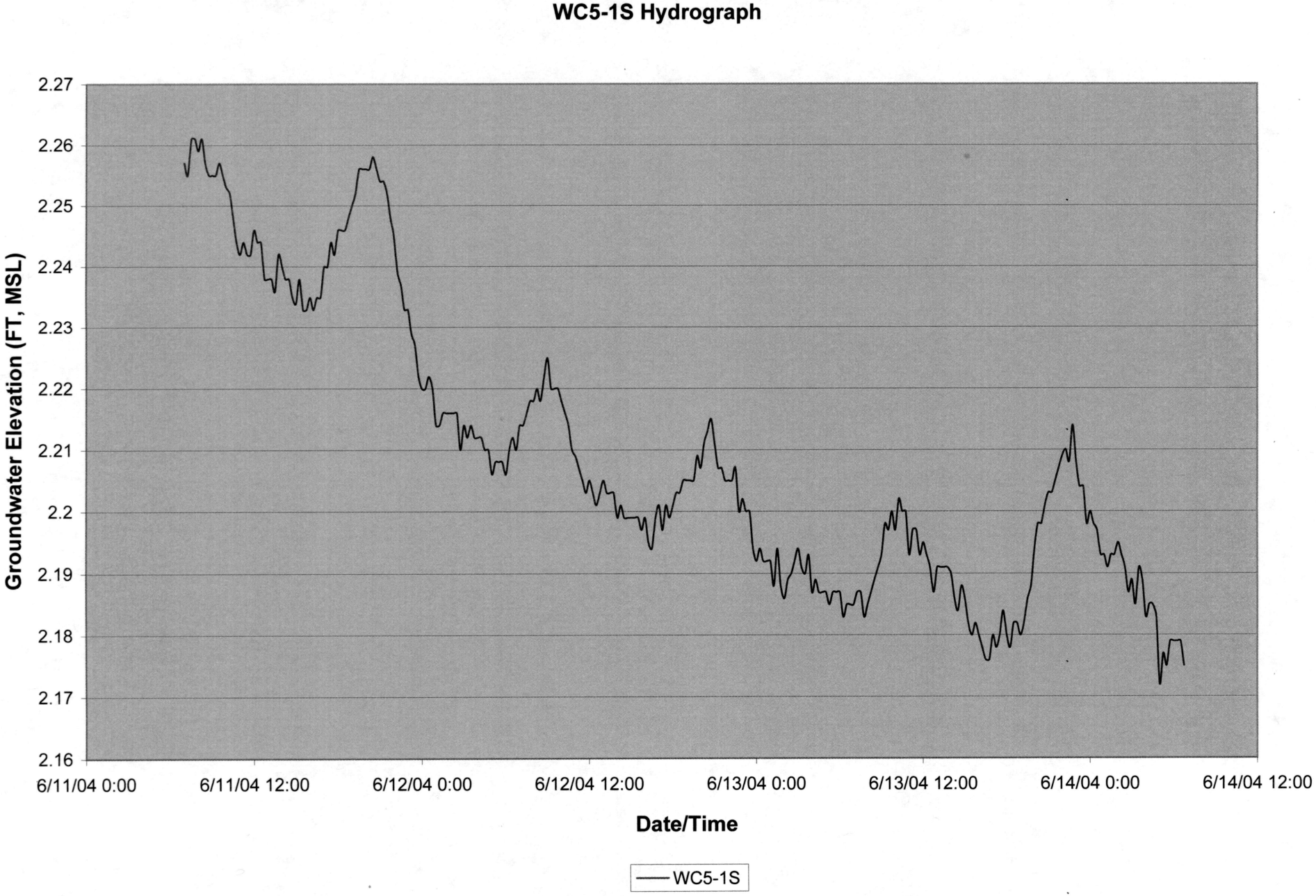

LW-5D Hydrograph
Groundwater Elevation (FT, MSL)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
LW-5D

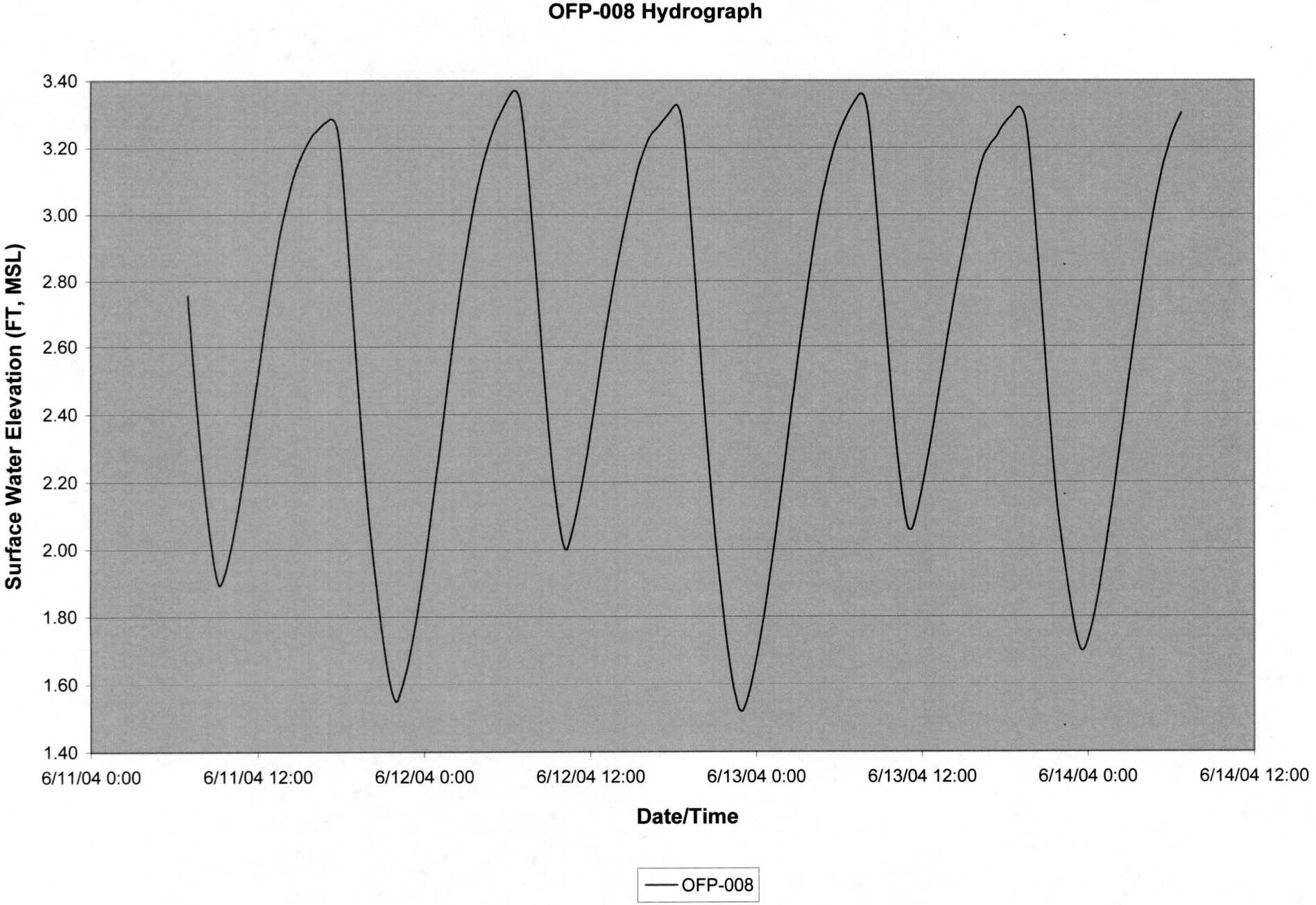

MW-4 Hydrograph
Groundwater Elevation (FT, MSL)
4
3.8
3.6
3.4
3.2
3
2.8
2.6
2.4
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
MW-4

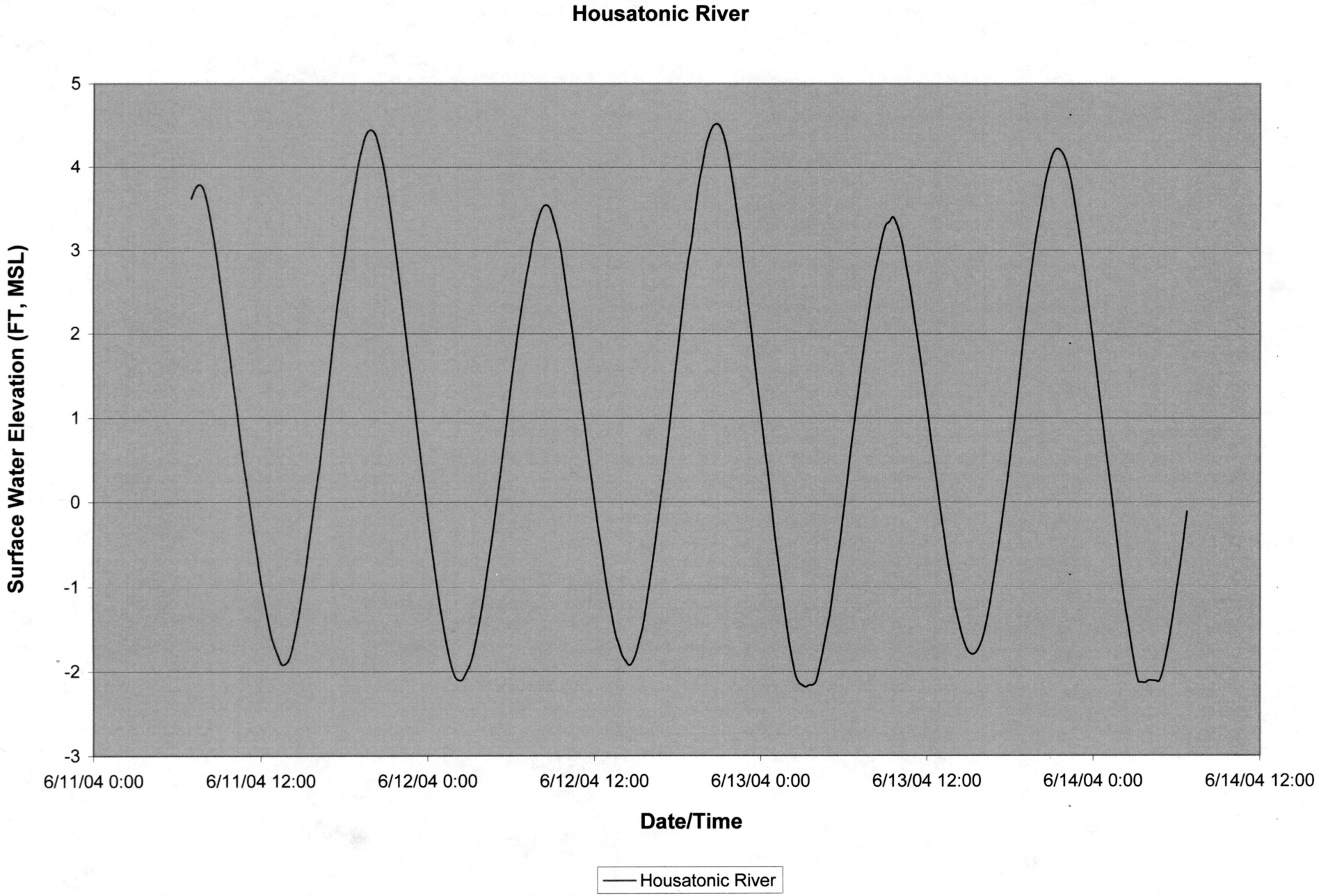

PZ-11D Hydrograph
Groundwater Elevation (FT, MSL)
2.6
2.58
2.56
2.54
2.52
2.5
2.48
2.46
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
PZ-11D


PZ-17D Hydrograph
Groundwater Elevation (FT, MSL)
2.08
2.06
2.04
2.02
2
1.98
1.96
1.94
1.92
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
PZ-17D


WC2-1S Hydrograph
Groundwater Elevation (FT, MSL)
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
WC2-1S


WC5-1S Hydrograph
Groundwater Elevation (FT, MSL)
2.27
2.26
2.25
2.24
2.23
2.22
2.21
2.2
2.19
2.18
2.17
2.16
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
WC5-1S

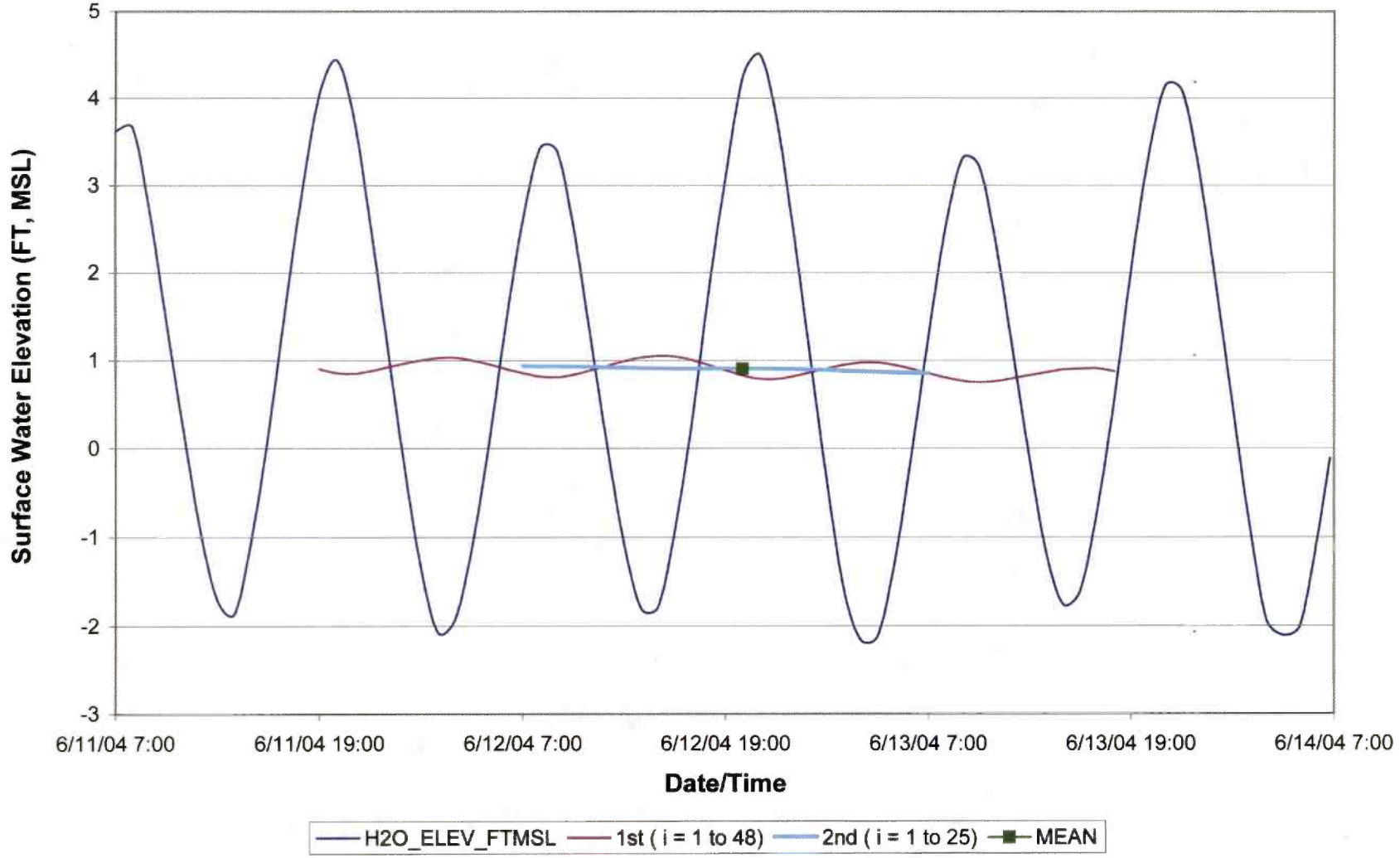

OFP-008 Hydrograph
Surface Water Elevation (FT, MSL)
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
OFP-008


Housatonic River
Surface Water Elevation (FT, MSL)
5
4
3
2
1
0
-1
-2
-3
6/11/04 0:00
6/11/04 12:00
6/12/04 0:00
6/12/04 12:00
6/13/04 0:00
6/13/04 12:00
6/14/04 0:00
6/14/04 12:00
Date/Time
Housatonic River

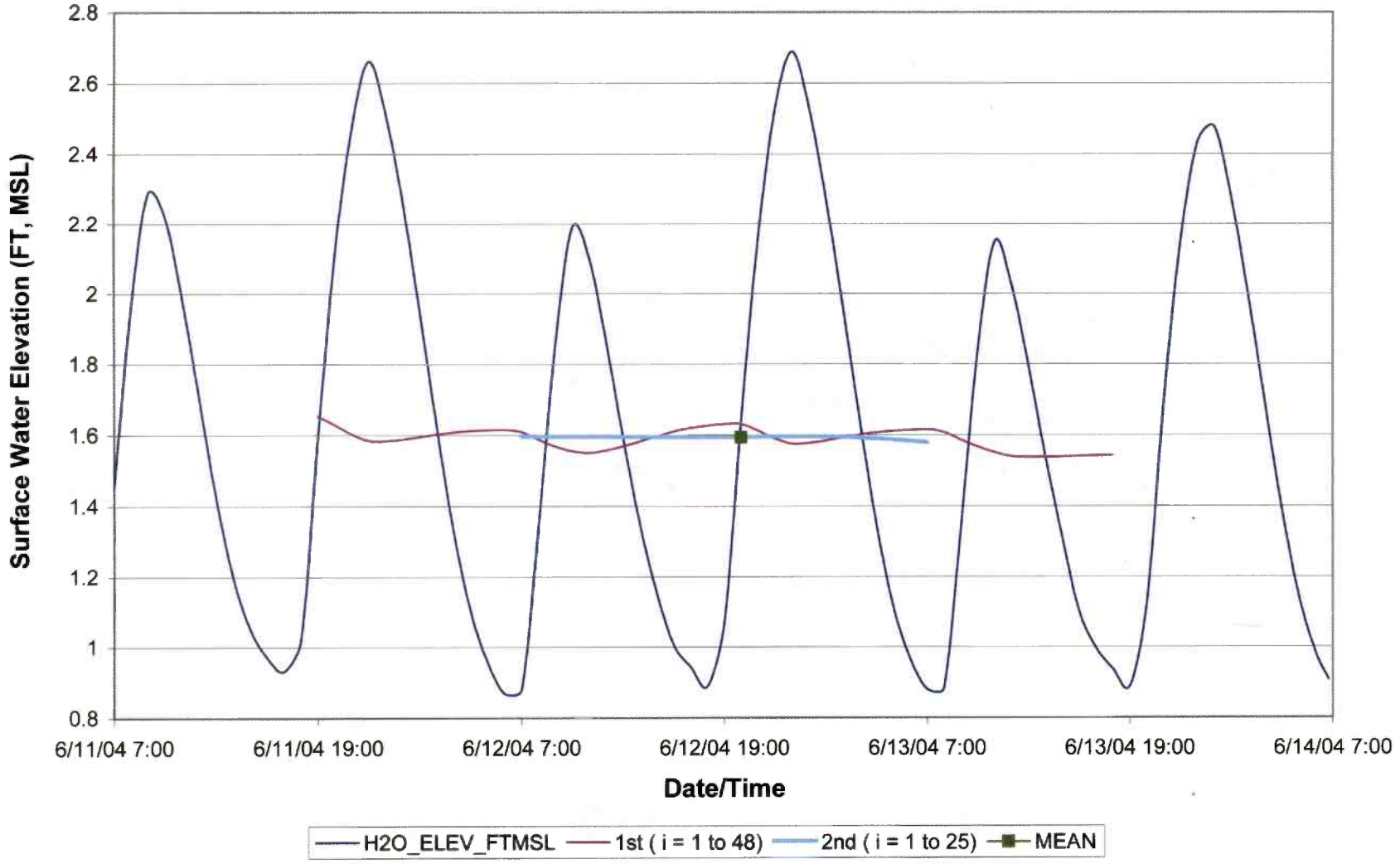
APPENDIX E

TIDAL EFFECTS STUDY DATA FILTERING GRAPHS

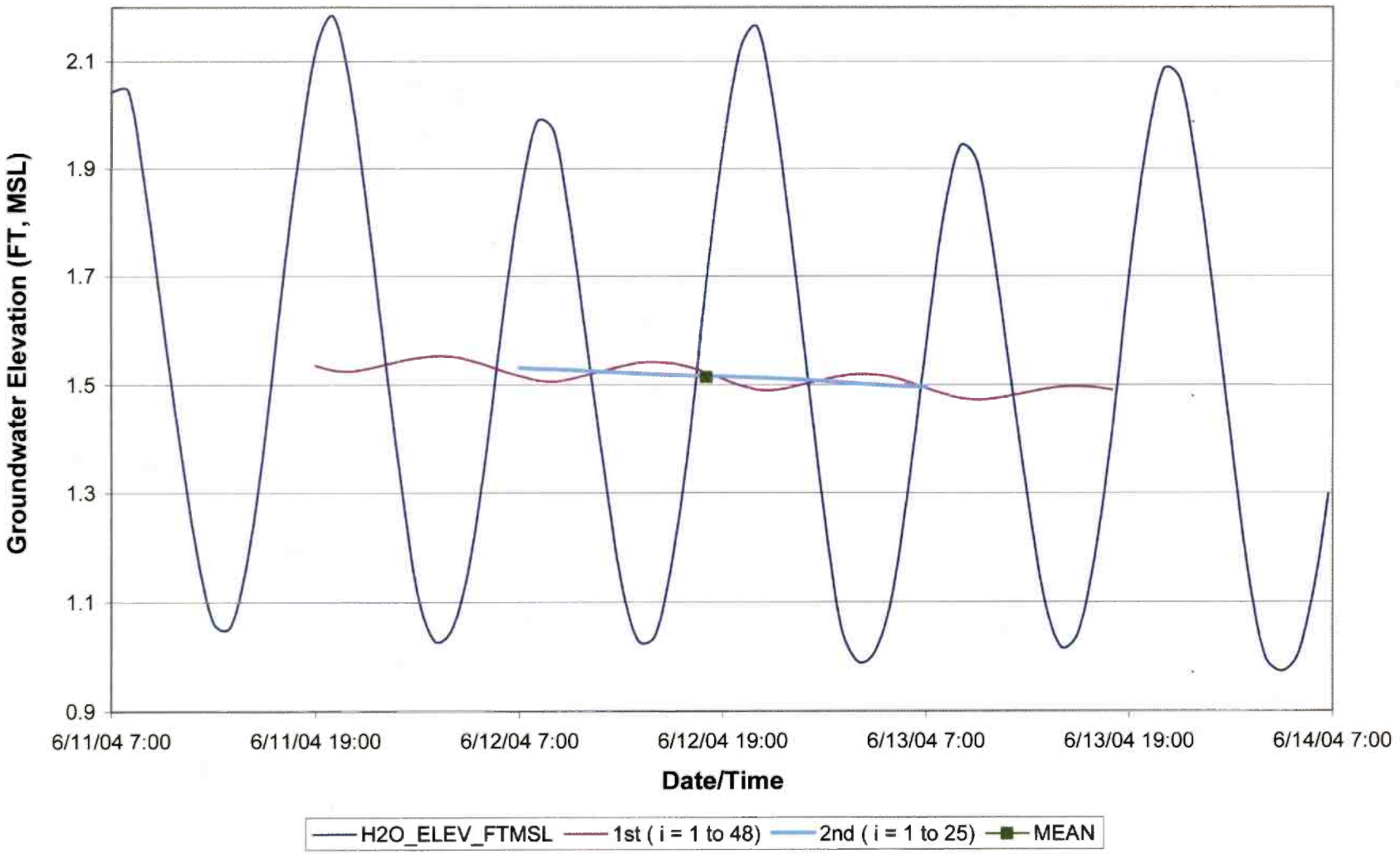
Housatonic River - Tidal Study 72-Hour Filtering Process Hydrograph



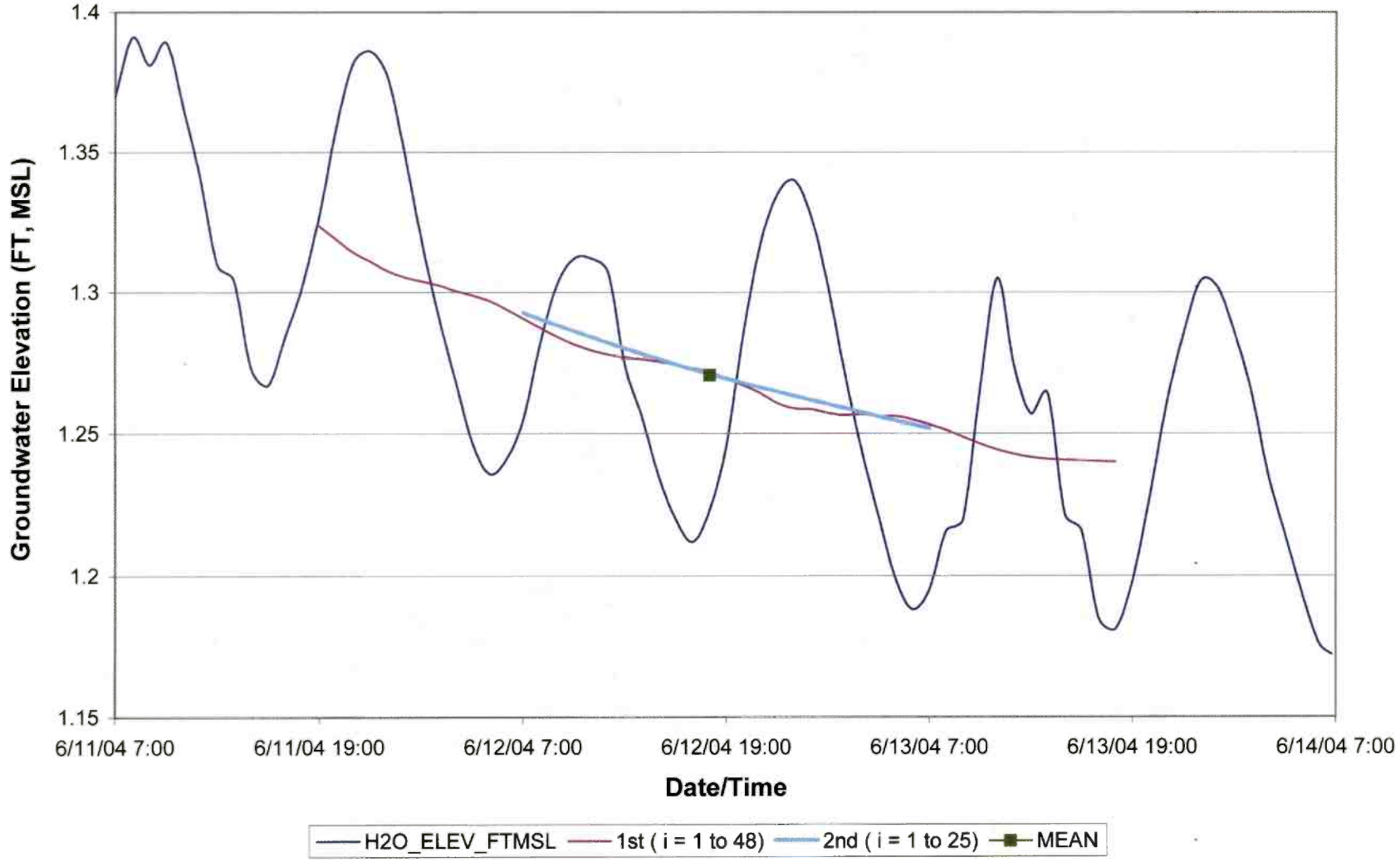
OFP-008 - Tidal Study 72-Hour Filtering Process Hydrograph



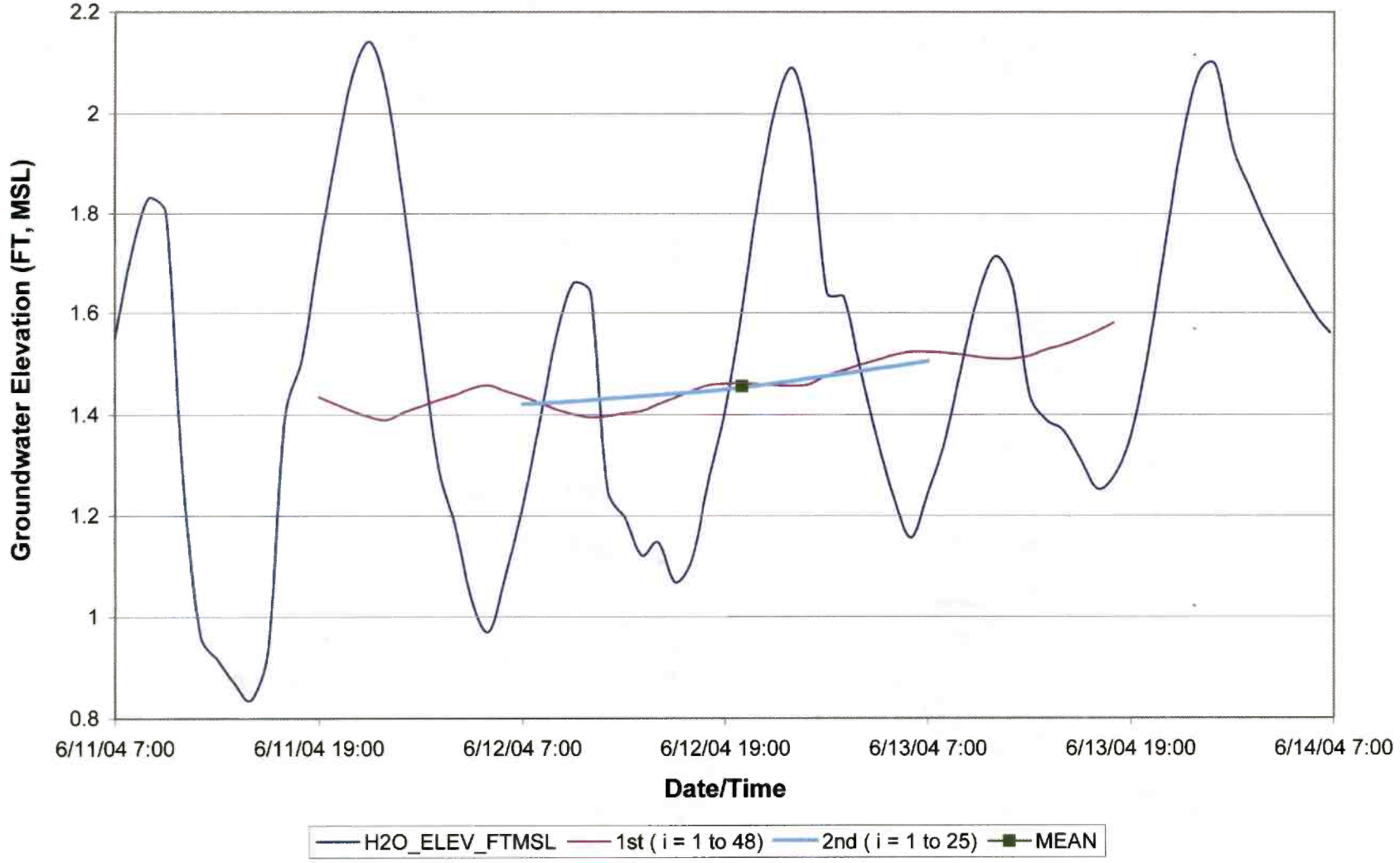
BRW-04-01 - Tidal Study 72-Hour Filtering Process Hydrograph



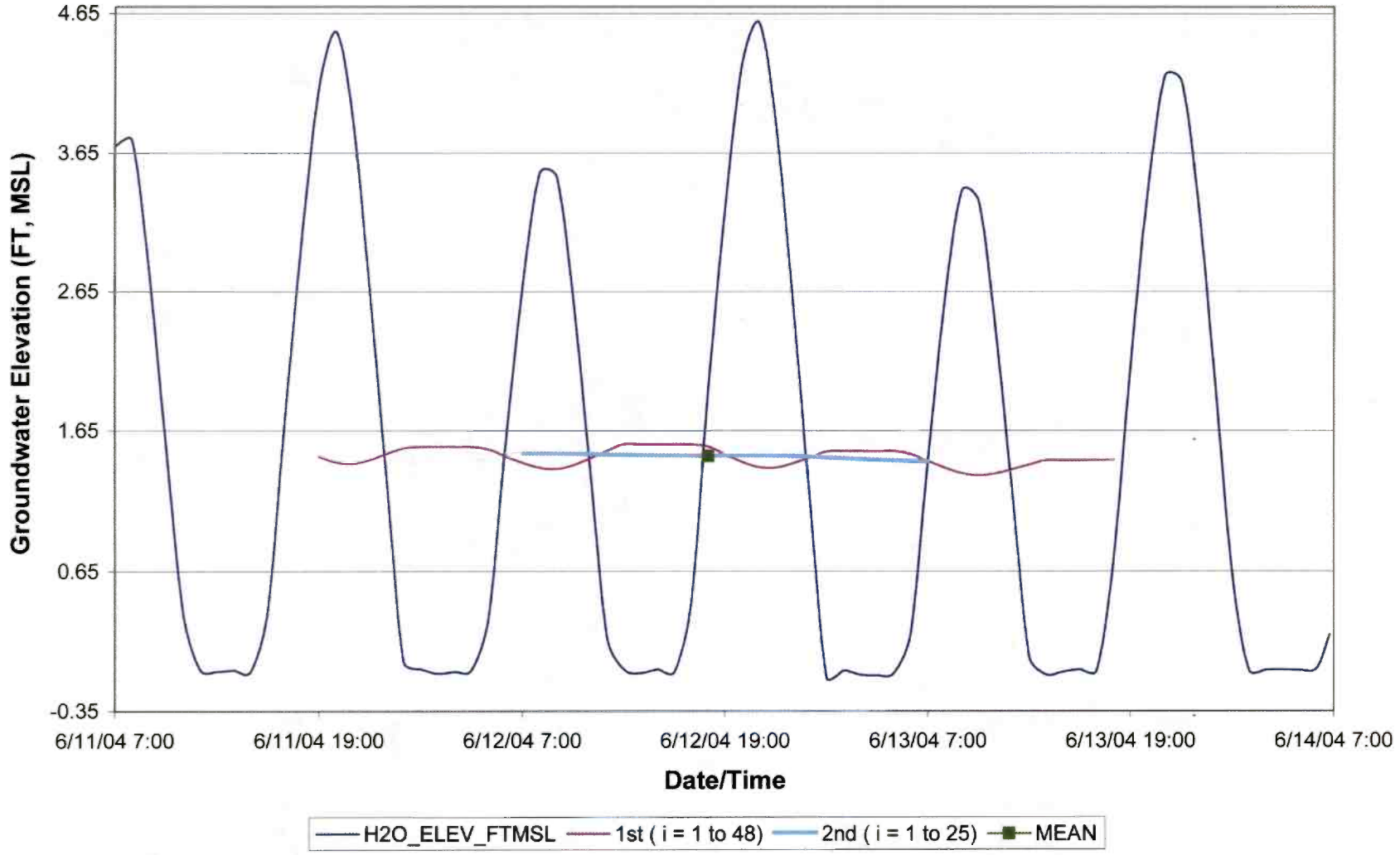
BRW-04-02 - Tidal Study 72-Hour Filtering Process Hydrograph



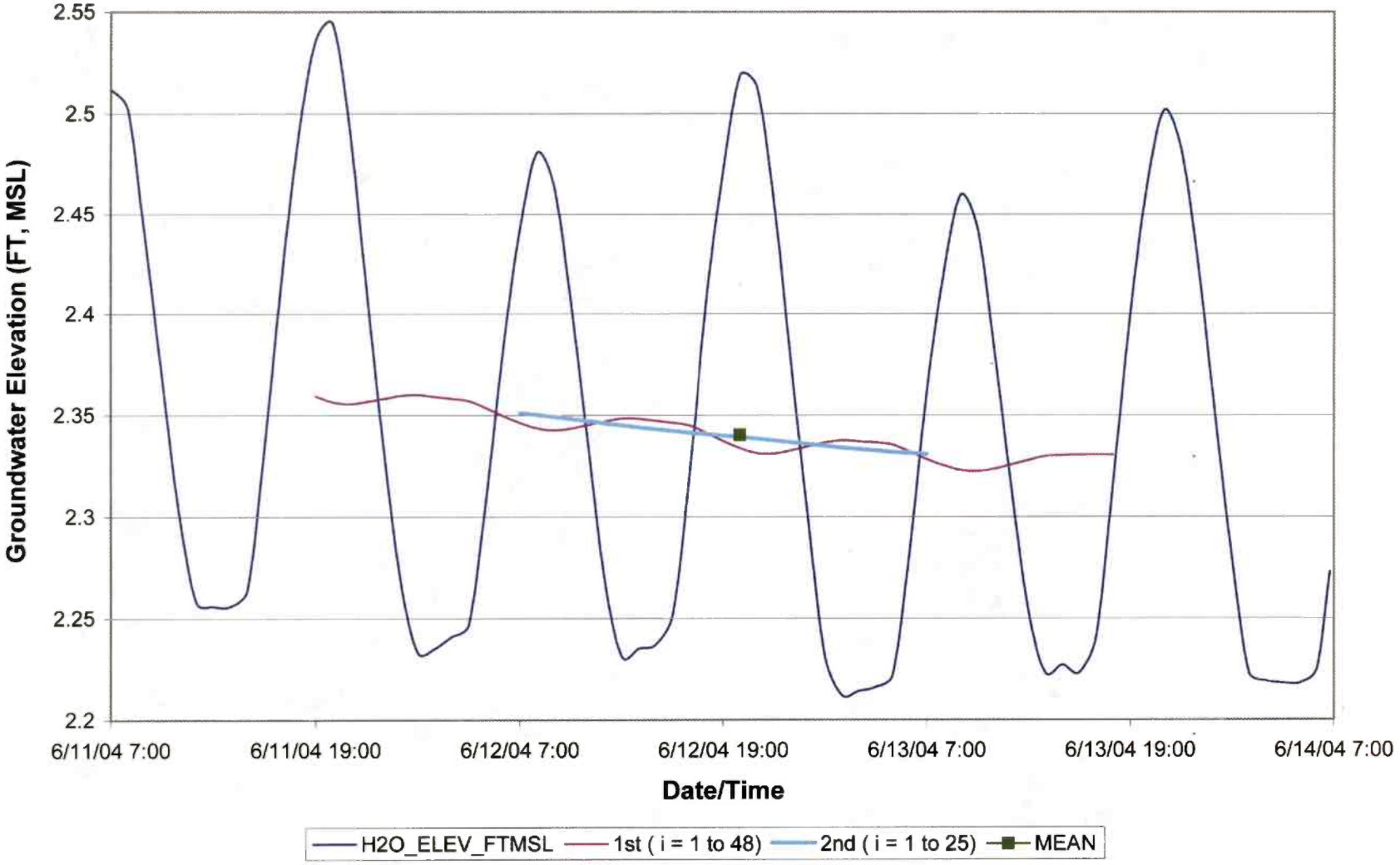
D-04-04A - Tidal Study 72-Hour Filtering Process Hydrograph



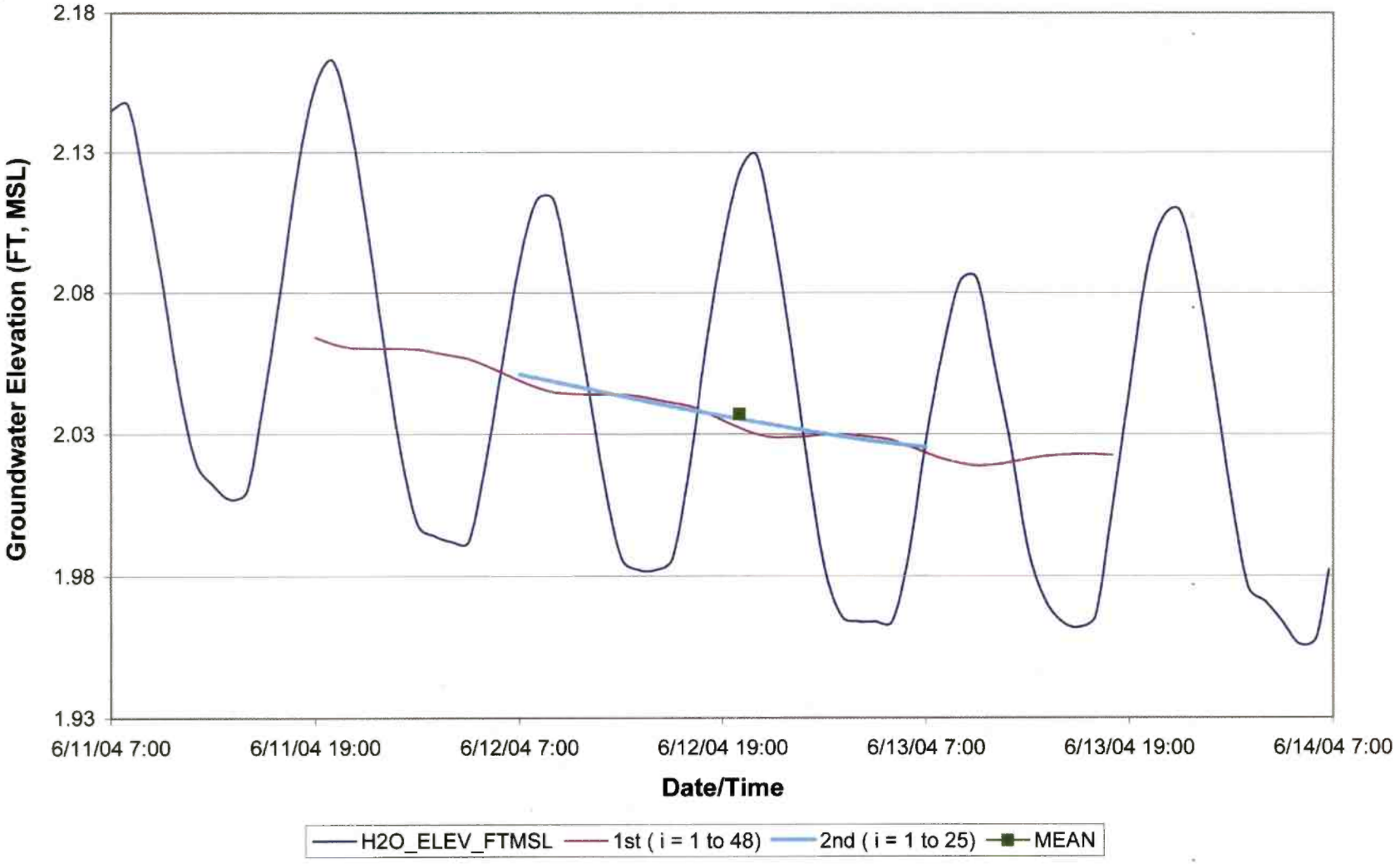
D-04-17A - Tidal Study 72-Hour Filtering Process Hydrograph



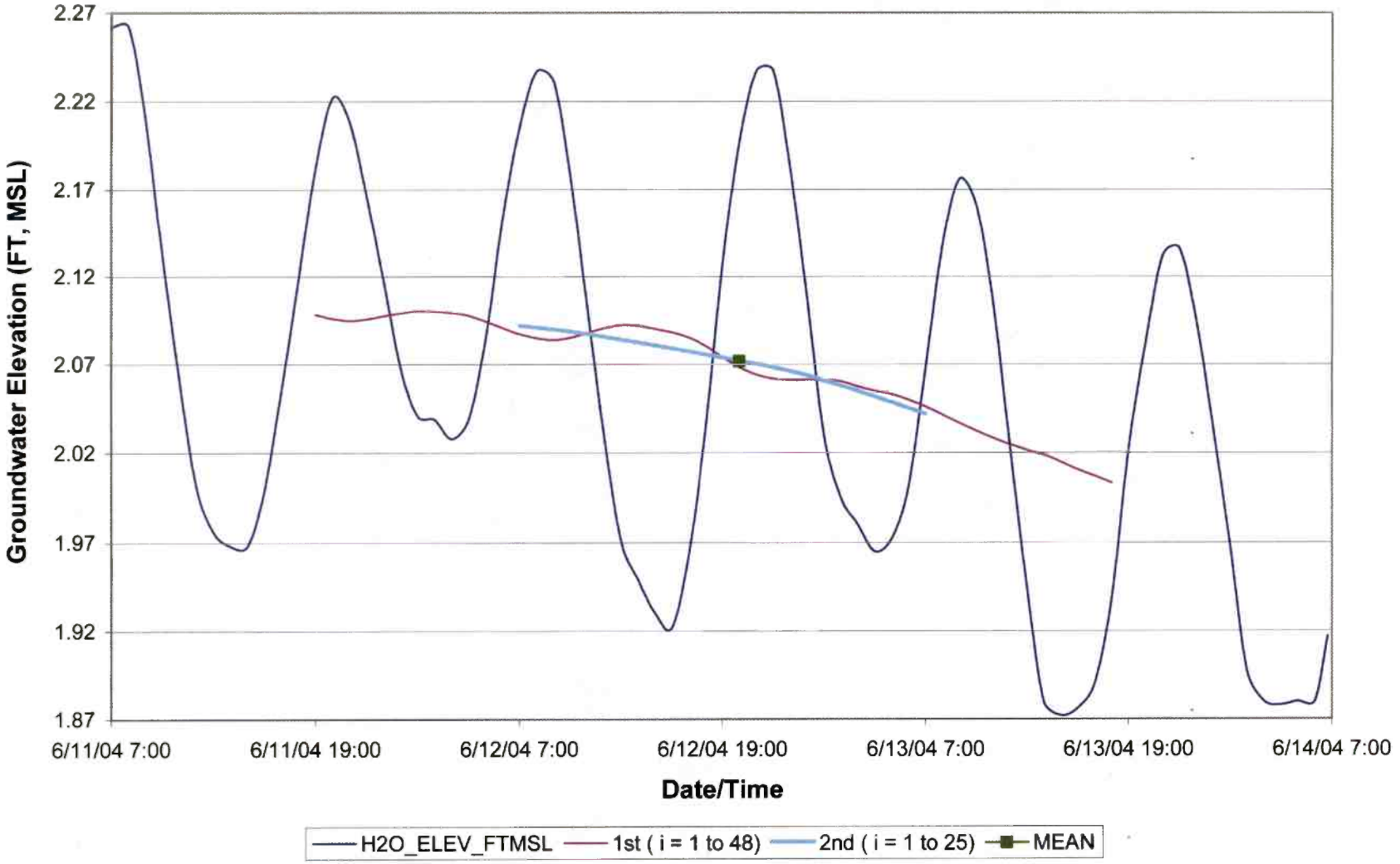
HESE-01-08D - Tidal Study 72-Hour Filtering Process Hydrograph



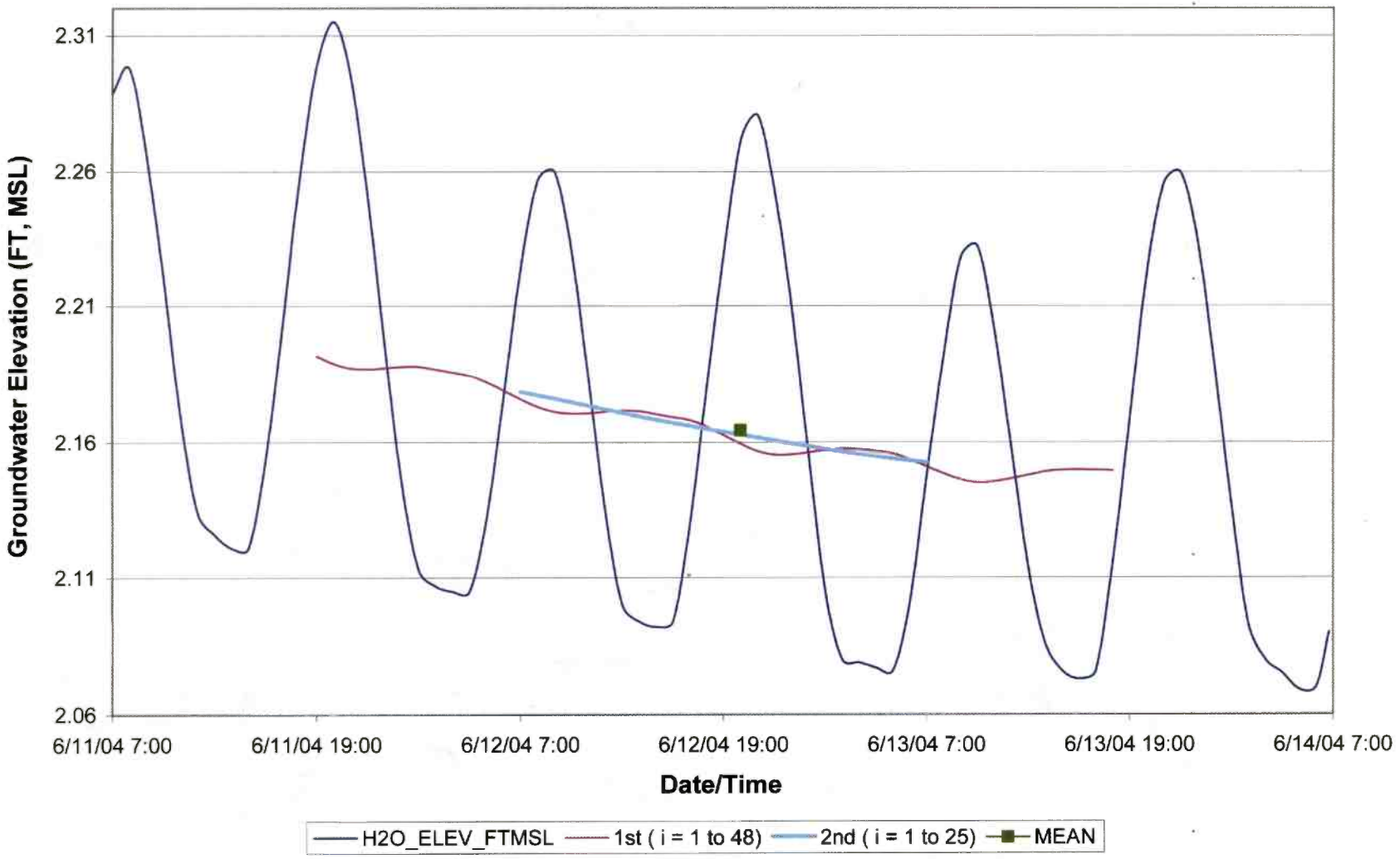
HESE-01-10D - Tidal Study 72-Hour Filtering Process Hydrograph



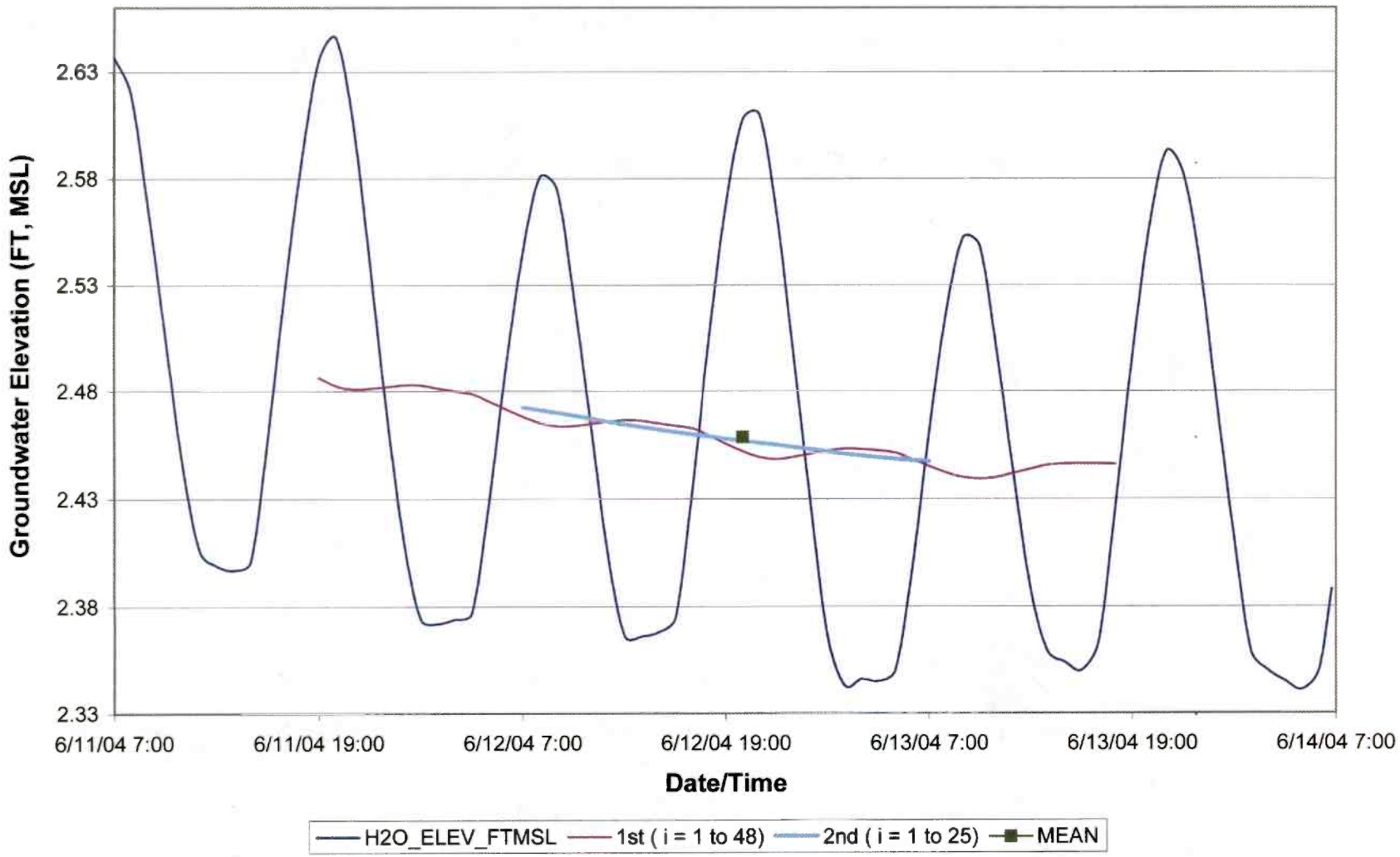
HESE-01-12D - Tidal Study 72-Hour Filtering Process Hydrograph



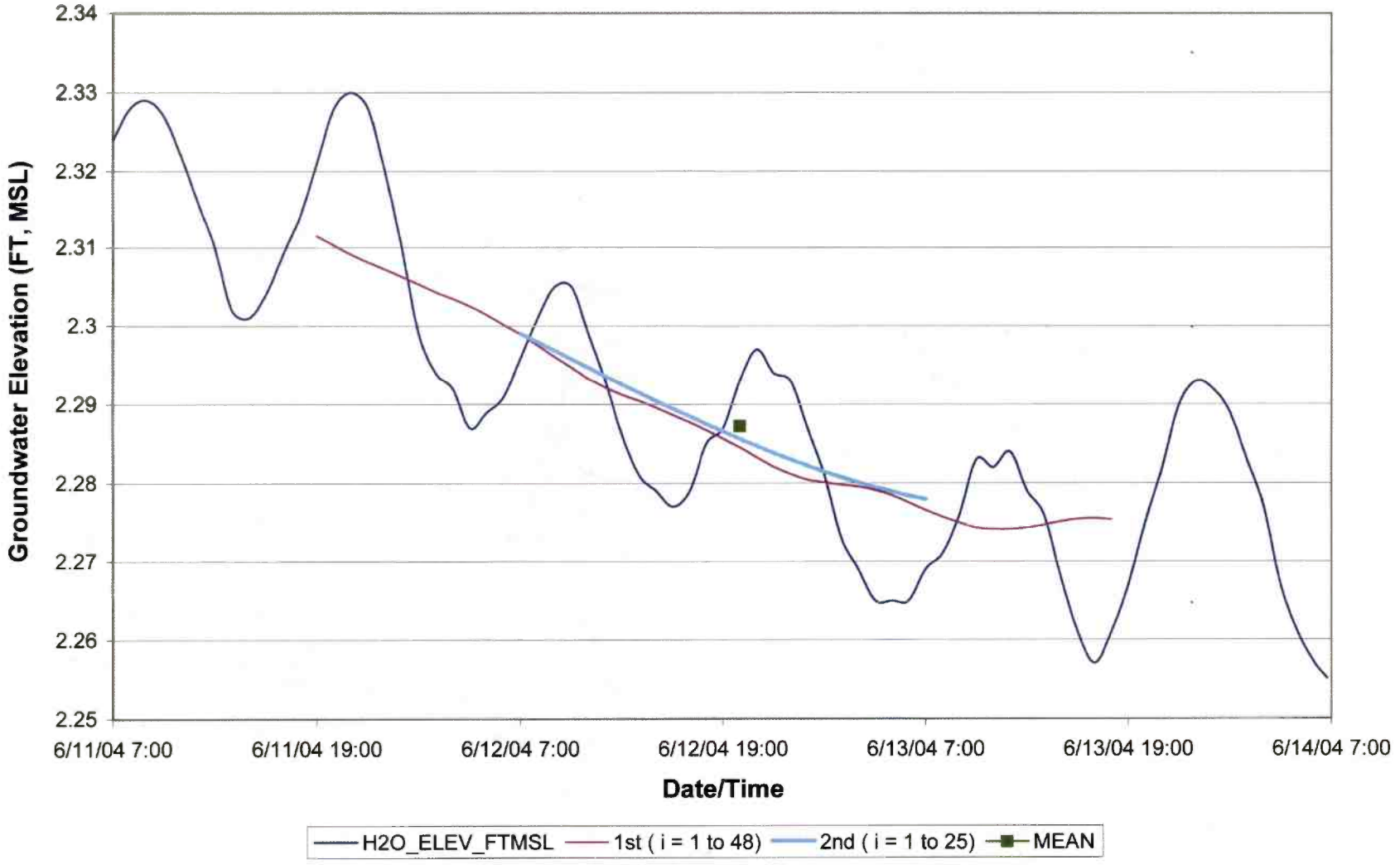
HESE-01-12I - Tidal Study 72-Hour Filtering Process Hydrograph



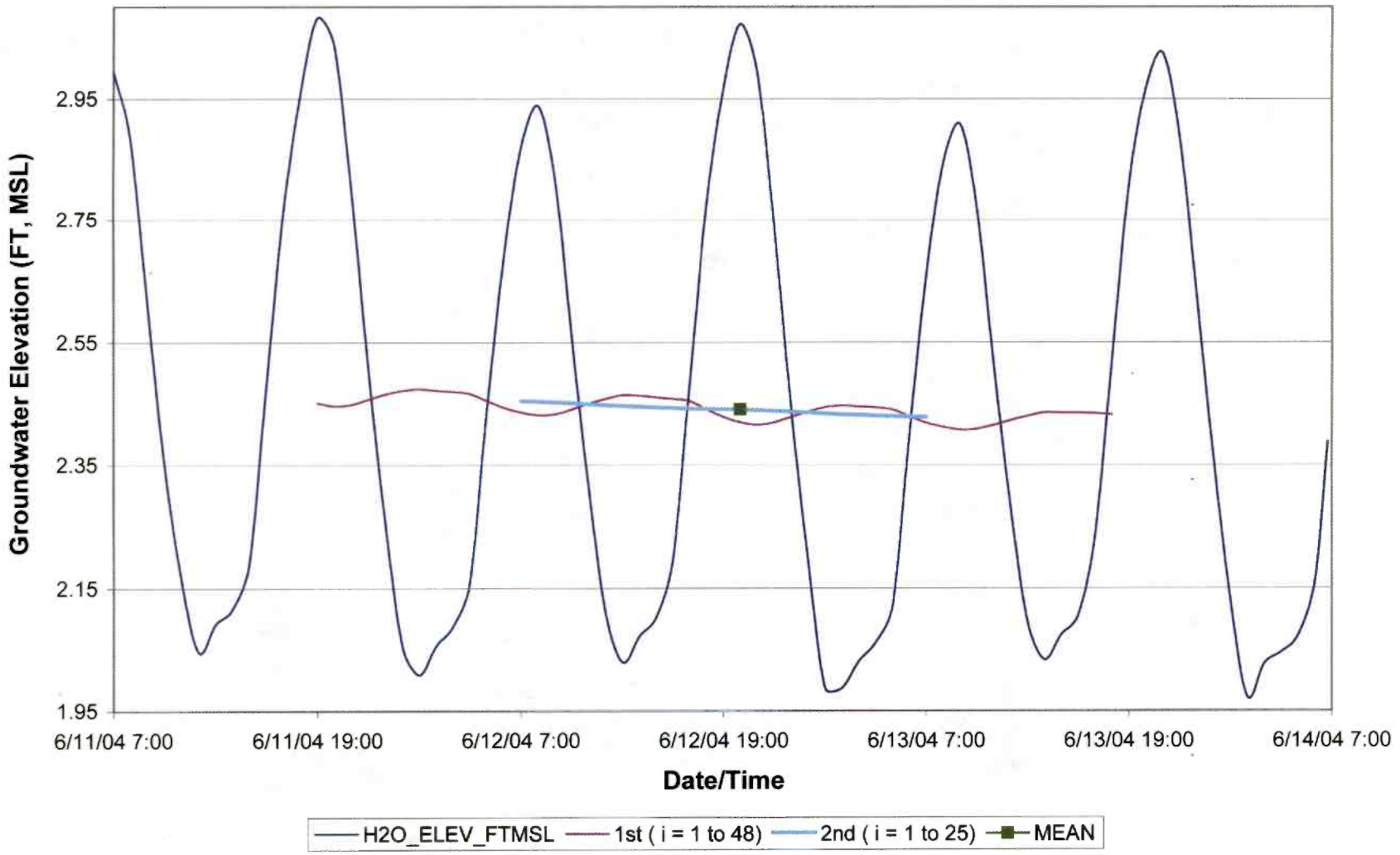
HESE-01-14I - Tidal Study 72-Hour Filtering Process Hydrograph



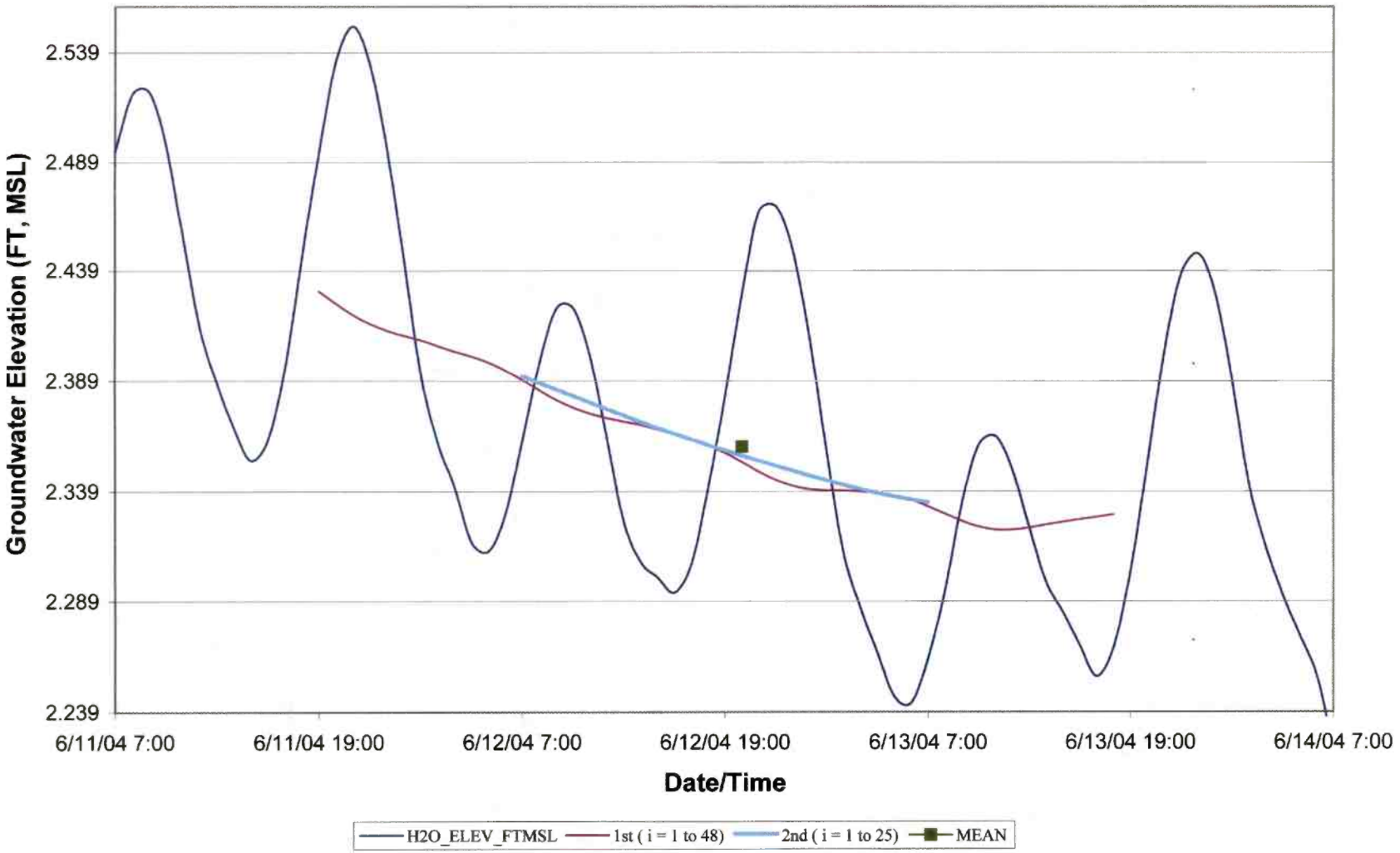
HESE-01-15I - Tidal Study 72-Hour Filtering Process Hydrograph



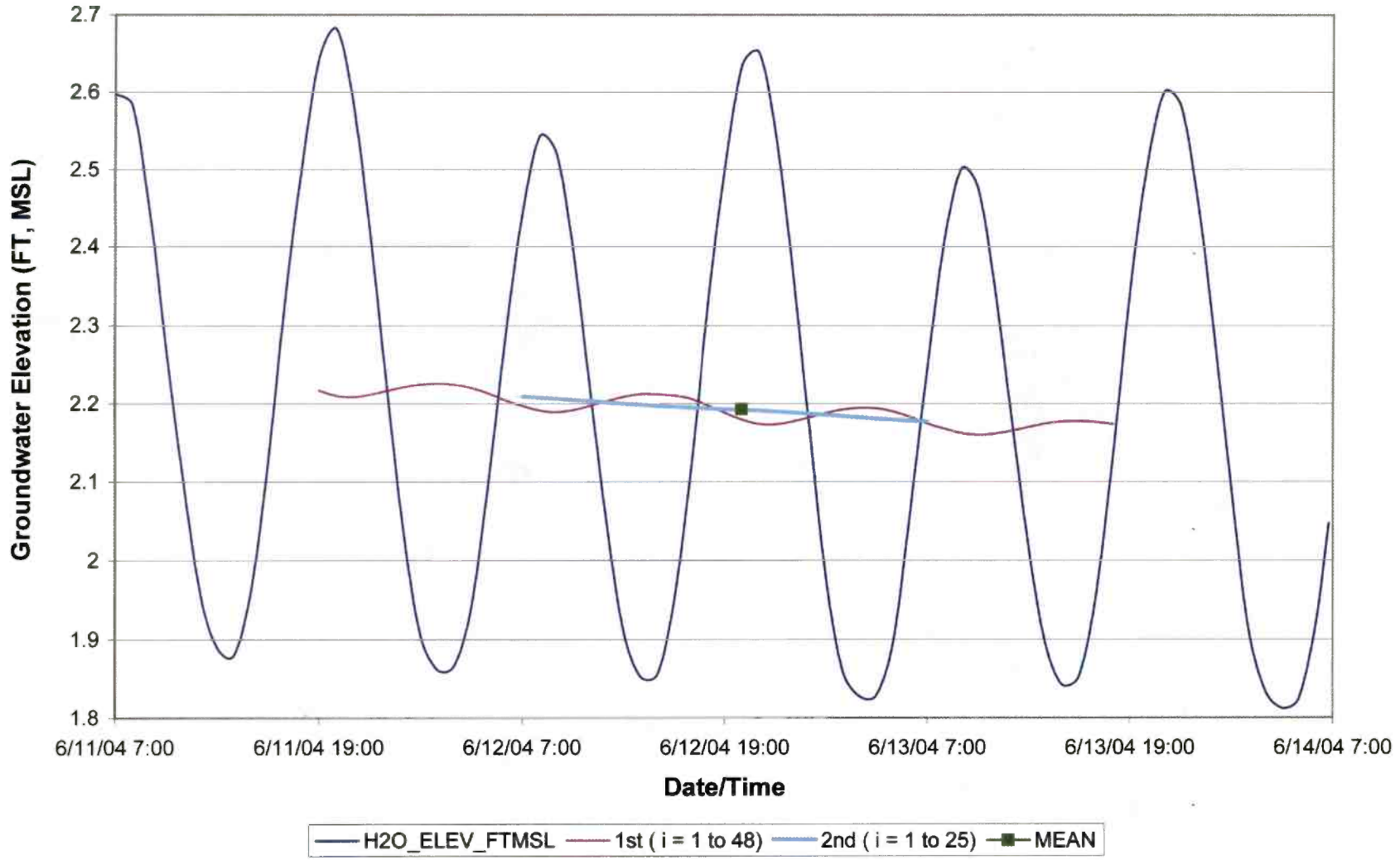
HESE-01-17D - Tidal Study 72-Hour Filtering Process Hydrograph



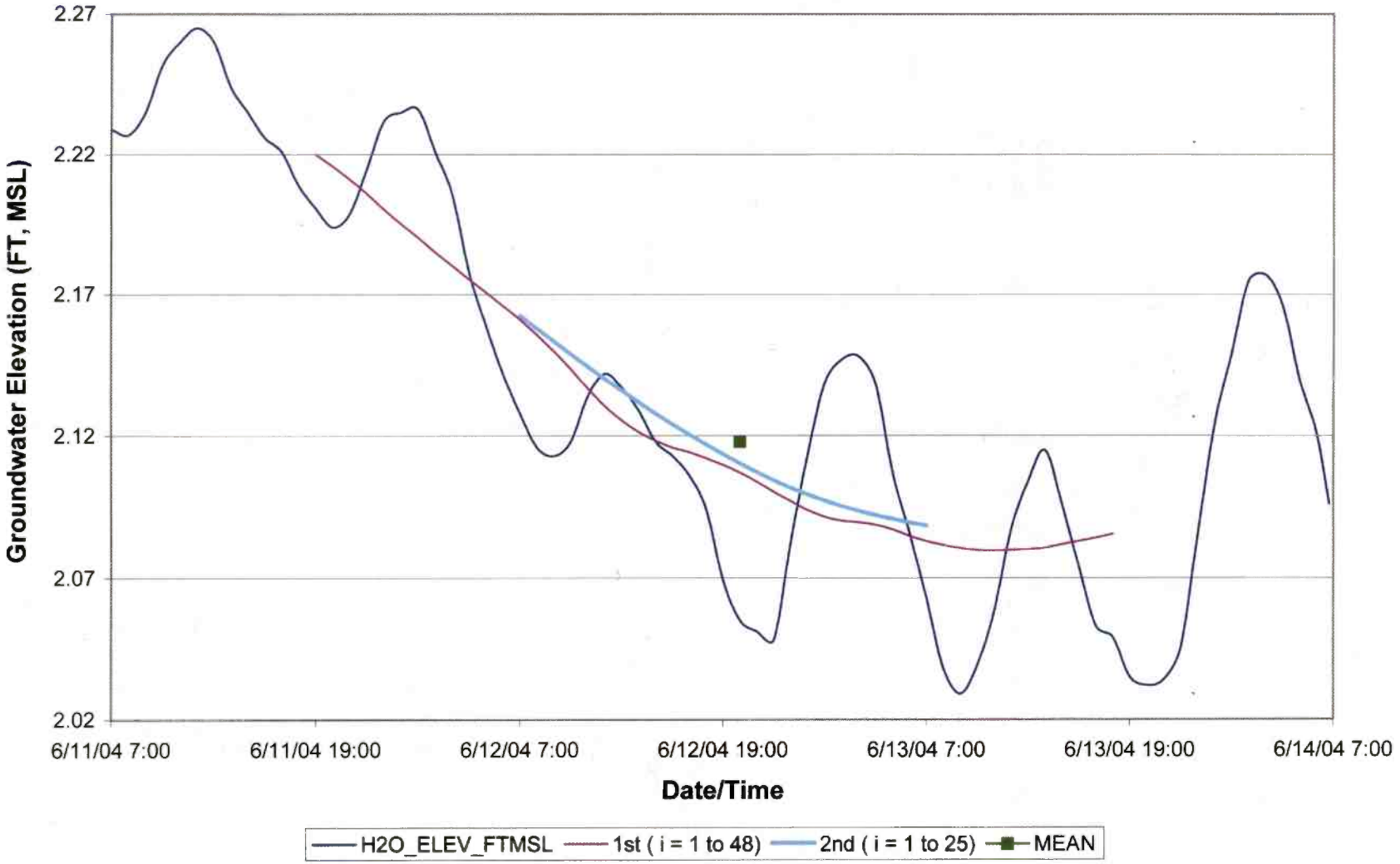
HESE-01-17I - Tidal Study 72-Hour Filtering Process Hydrograph



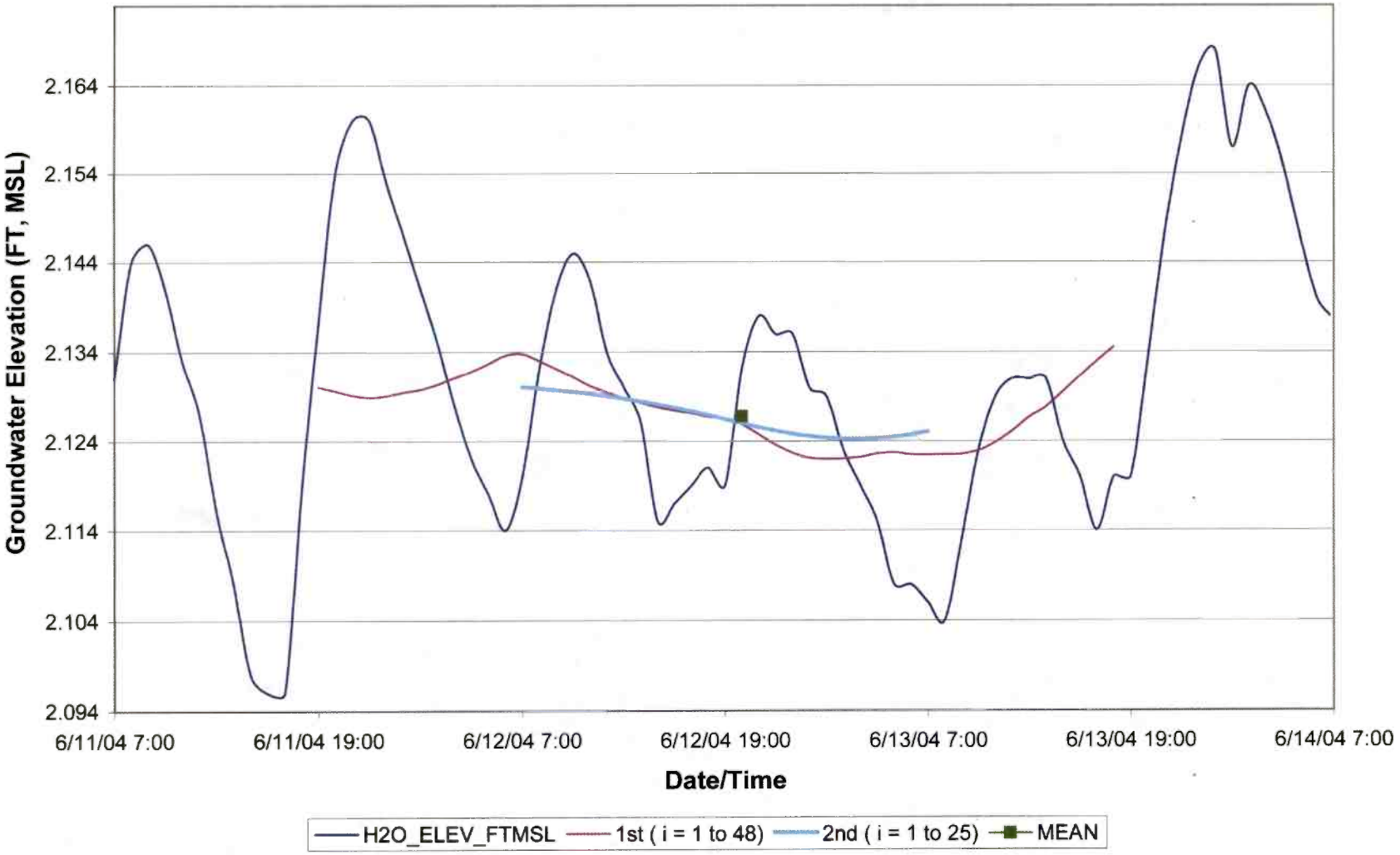
HESE-01-18D - Tidal Study 72-Hour Filtering Process Hydrograph



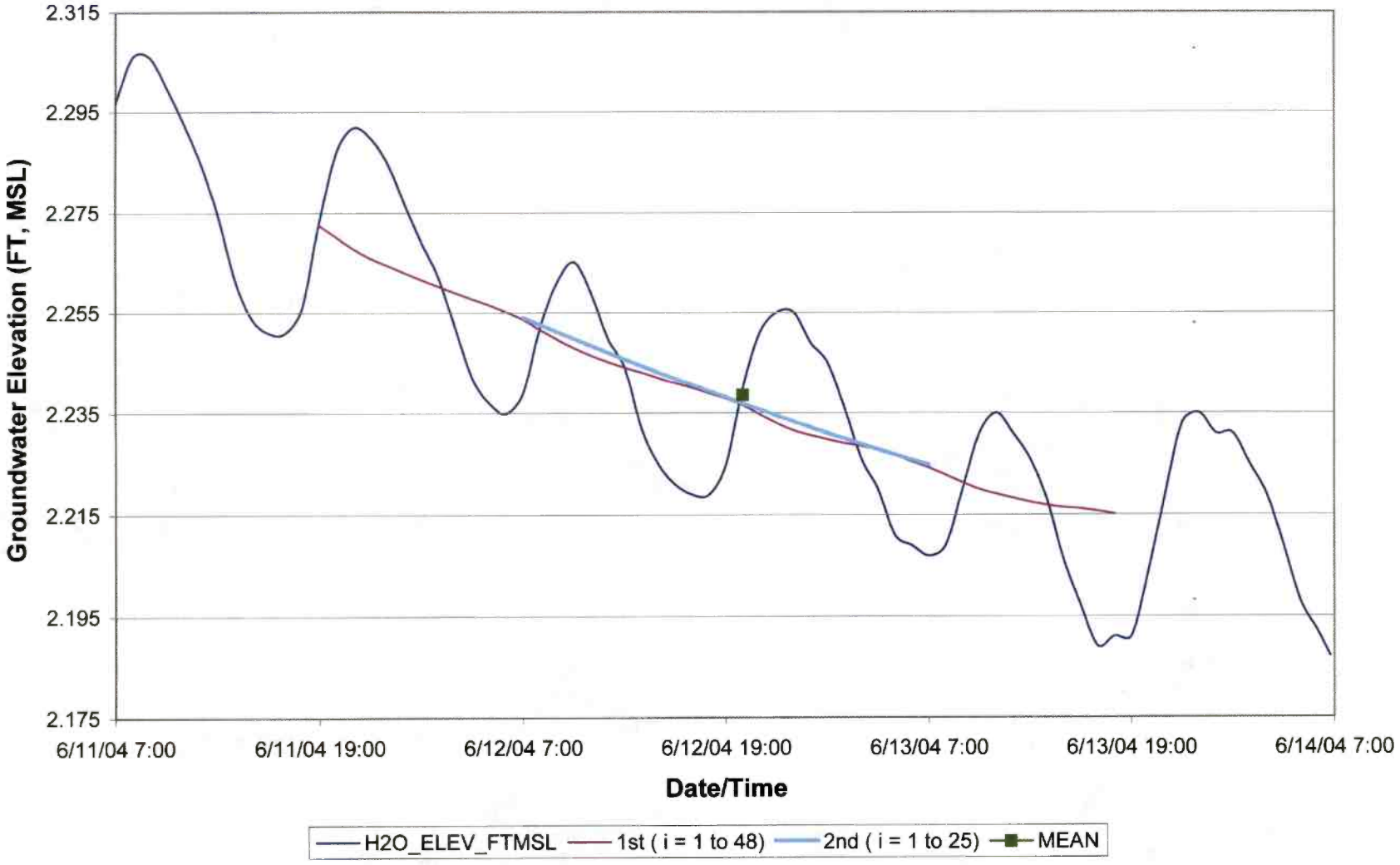
LNAP-04-22 - Tidal Study 72-Hour Filtering Process Hydrograph



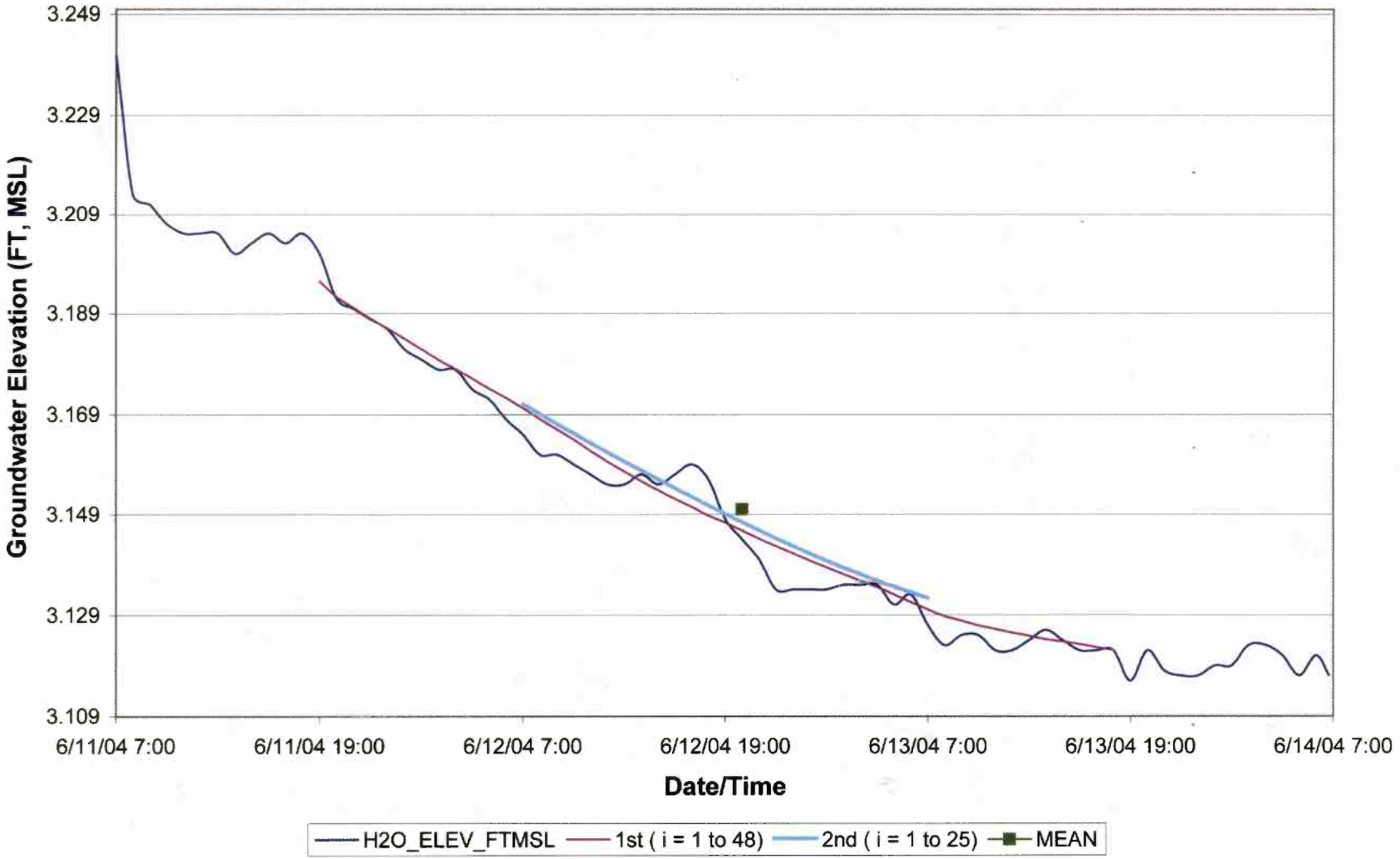
LW-10D - Tidal Study 72-Hour Filtering Process Hydrograph



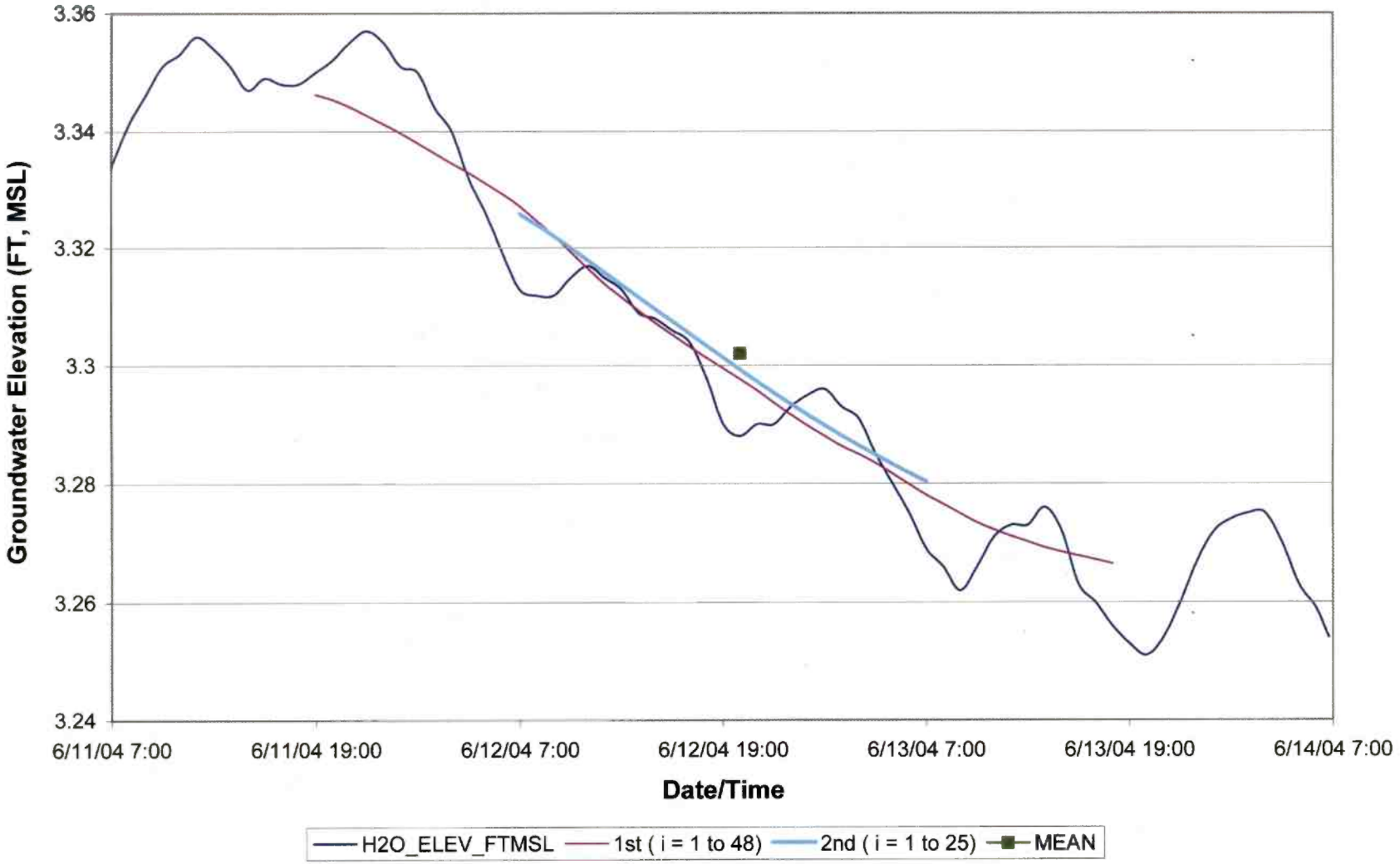
LW-10I - Tidal Study 72-Hour Filtering Process Hydrograph



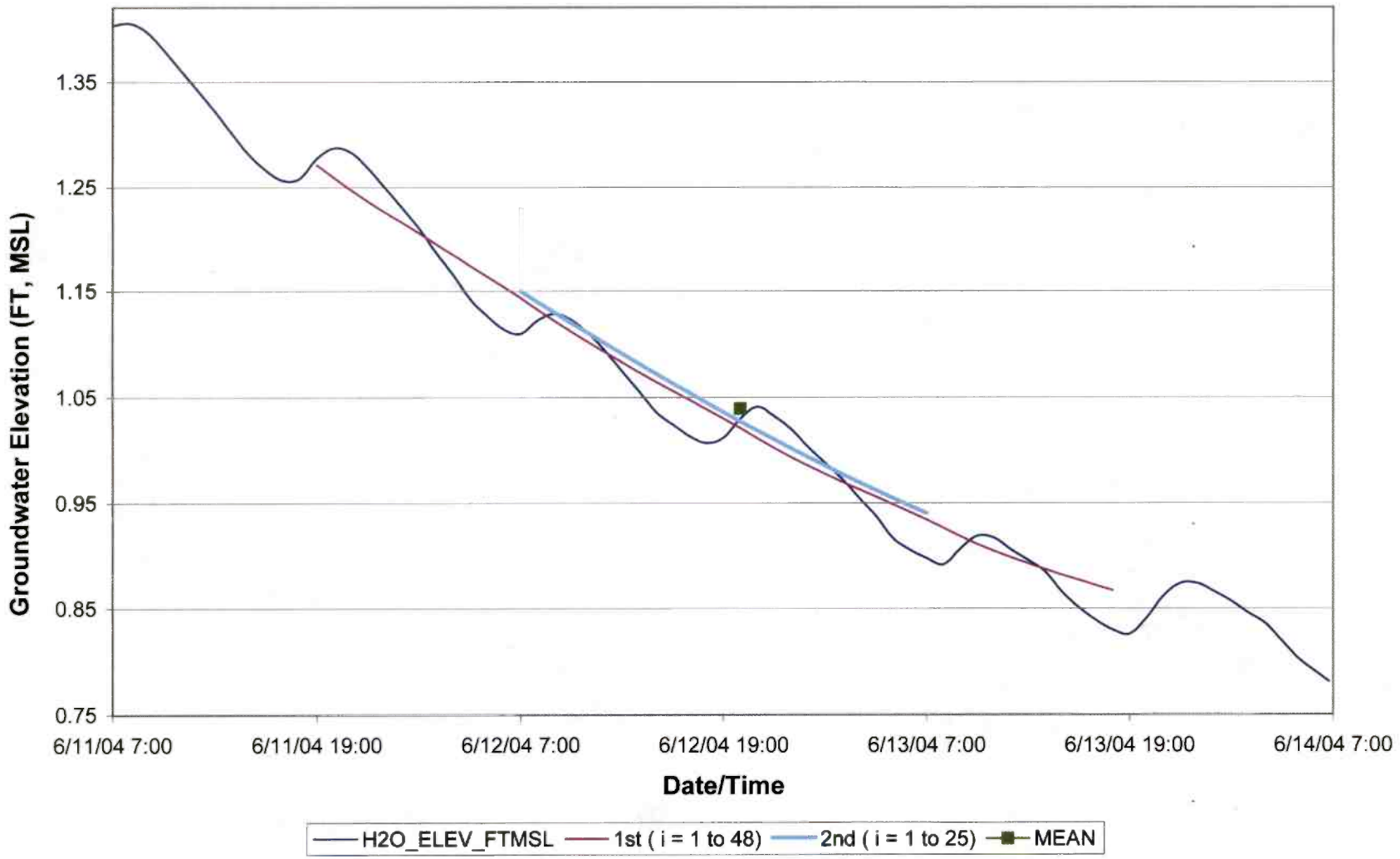
LW-10S - Tidal Study 72-Hour Filtering Process Hydrograph



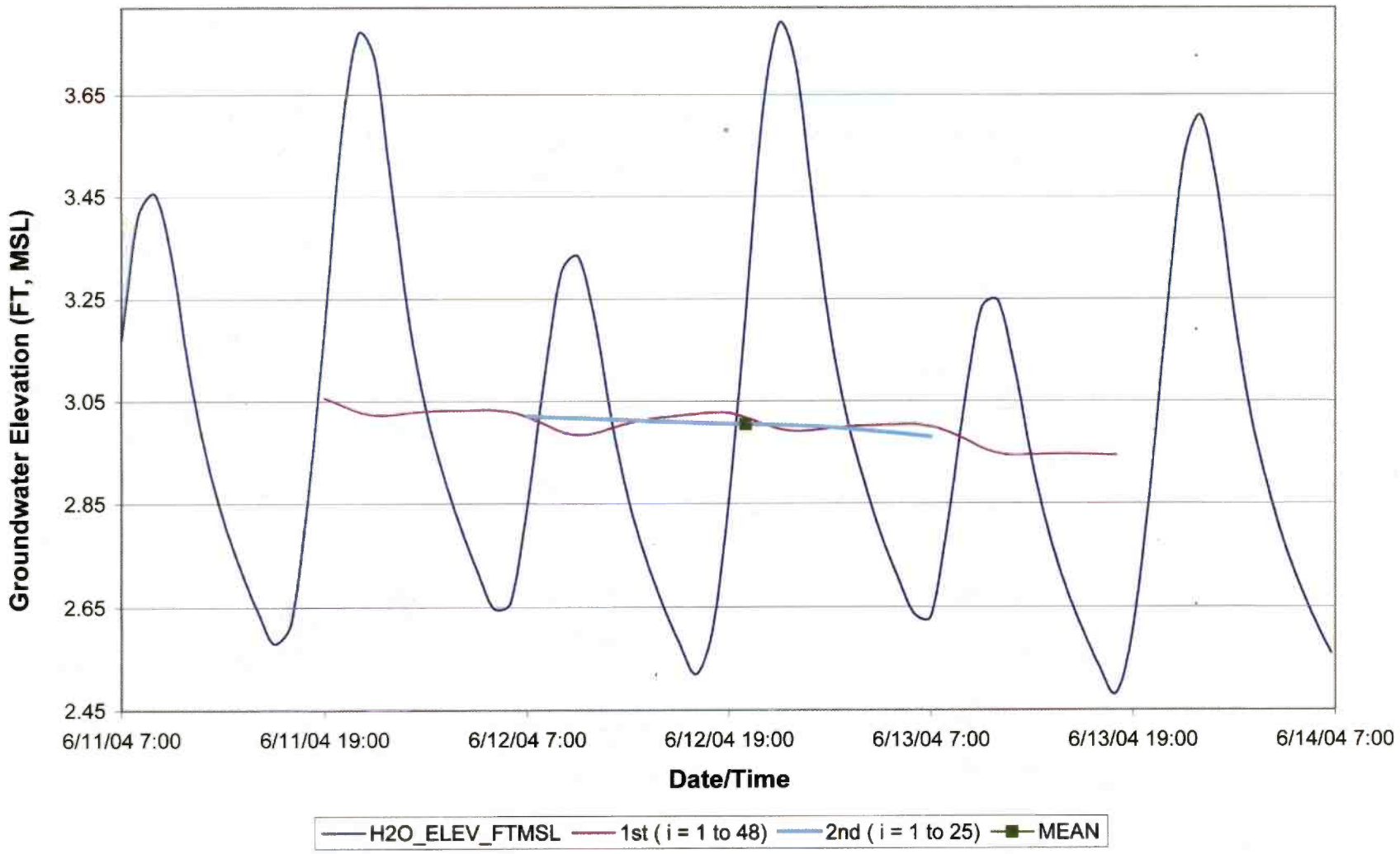
LW-13 - Tidal Study 72-Hour Filtering Process Hydrograph



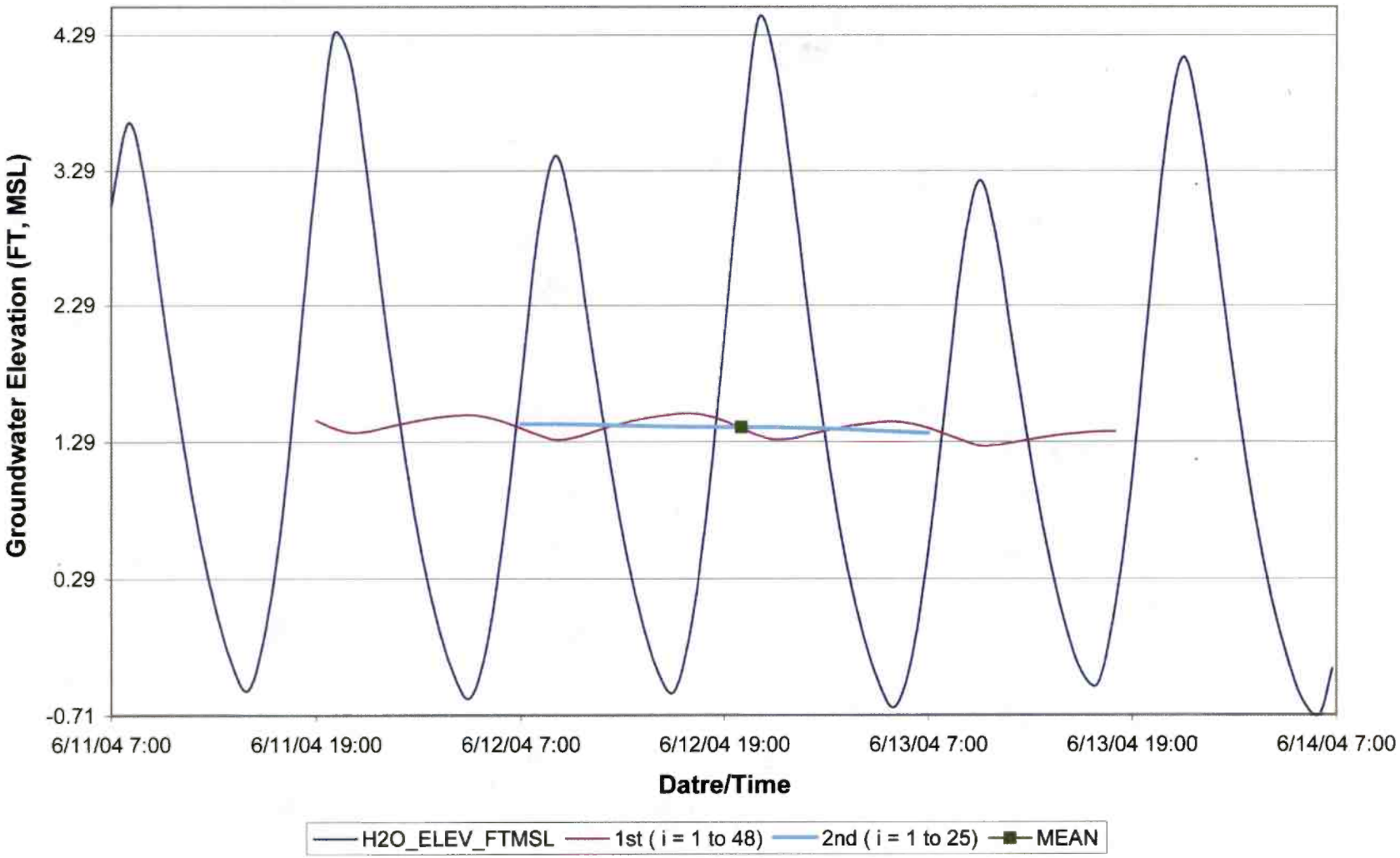
LW-5D - Tidal Study 72-Hour Filtering Process Hydrograph



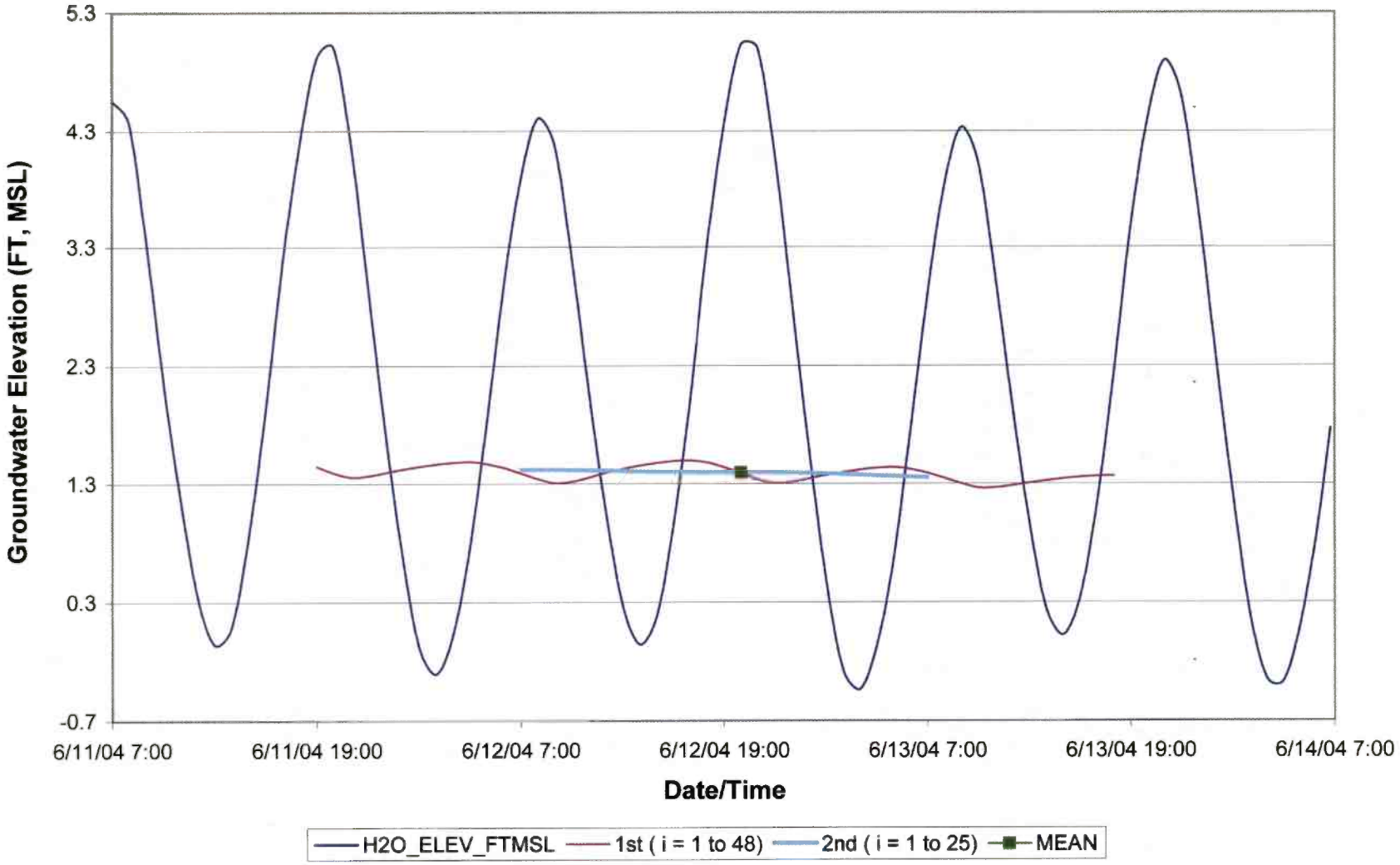
MW-4 - Tidal Study 72-Hour Filtering Process Hydrograph



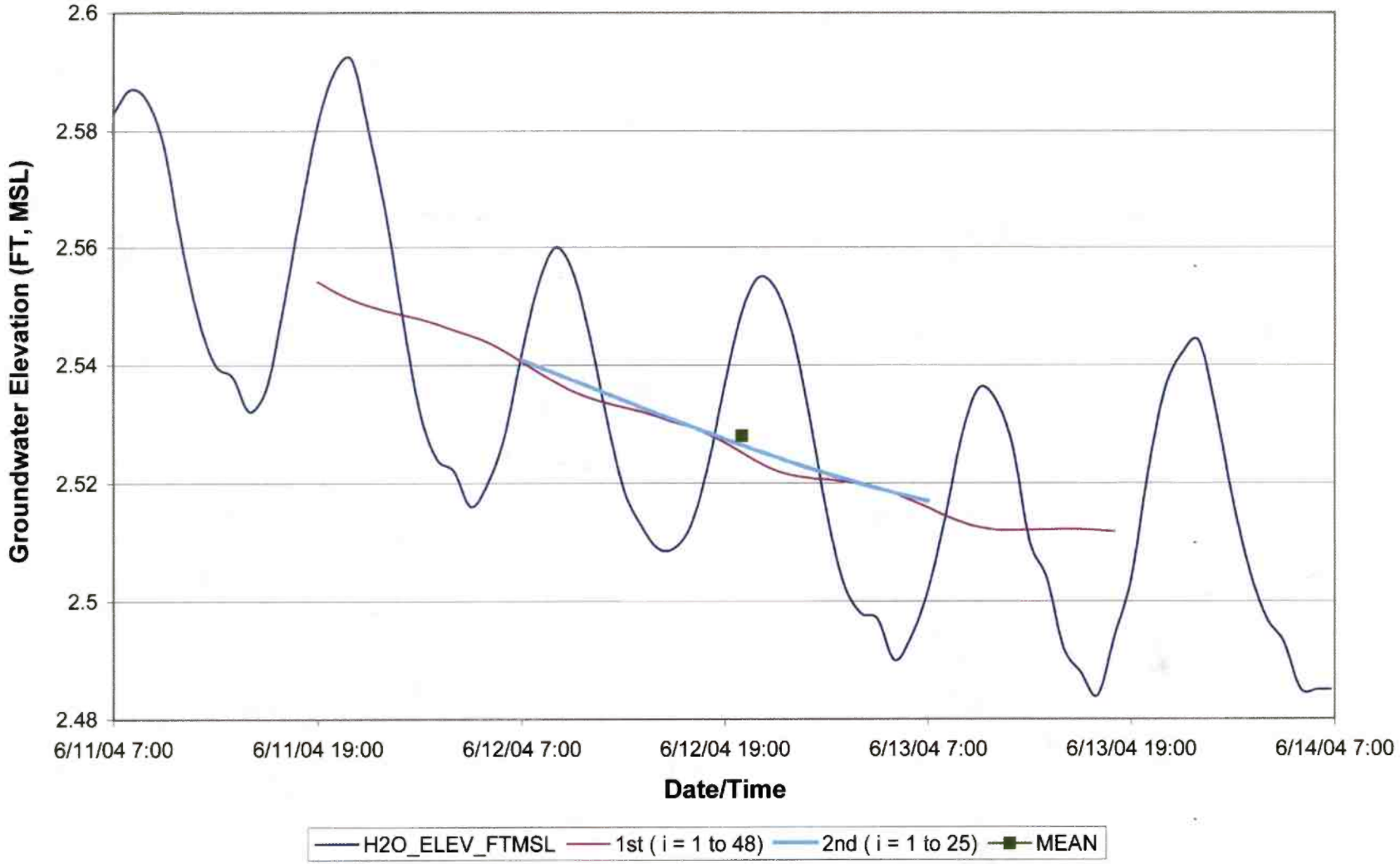
MWCD-99-02A - Tidal Study 72-Hour Filtering Process Hydrograph



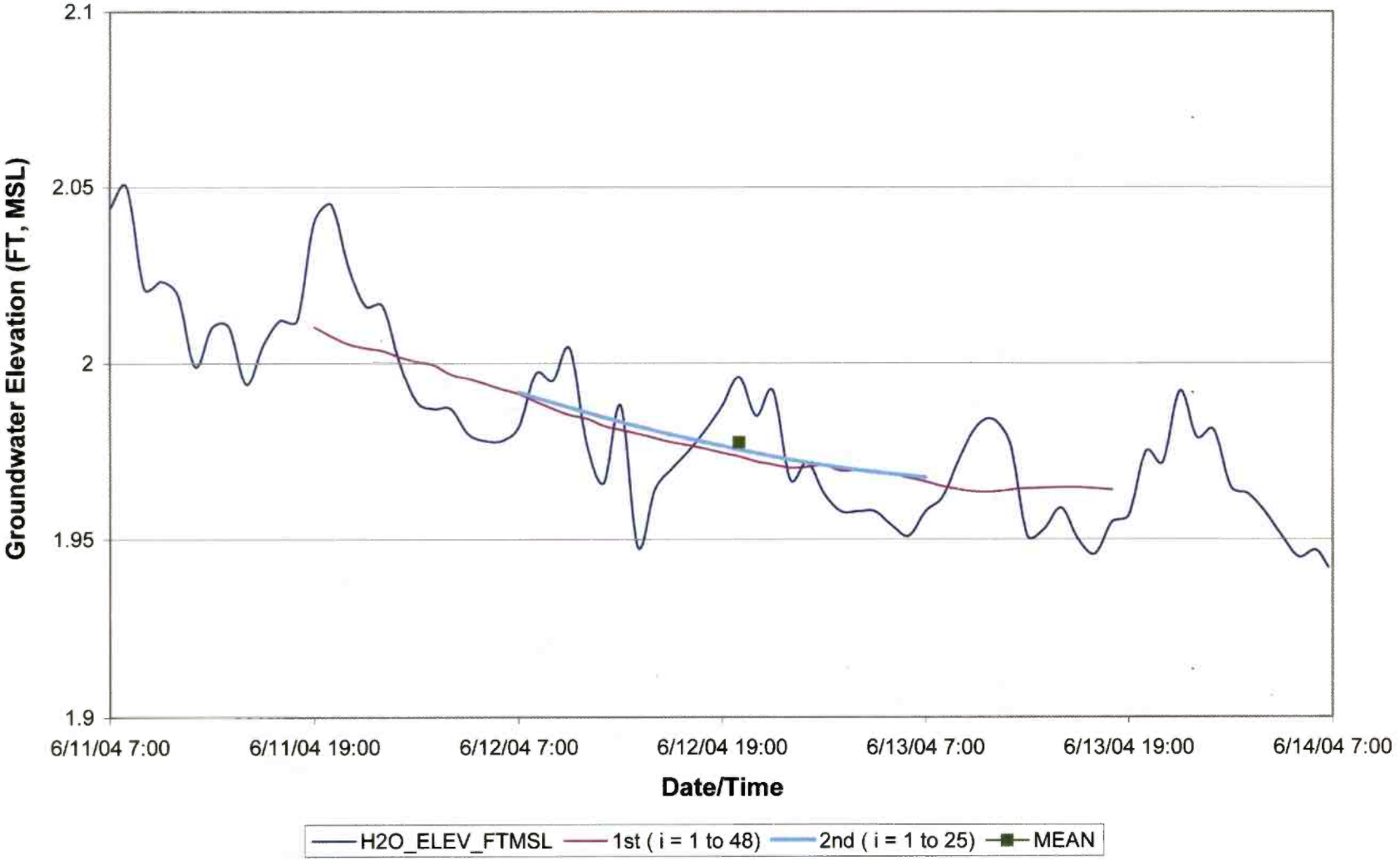
MWCD-99-02B - Tidal Study 72-Hour Filtering Process Hydrograph



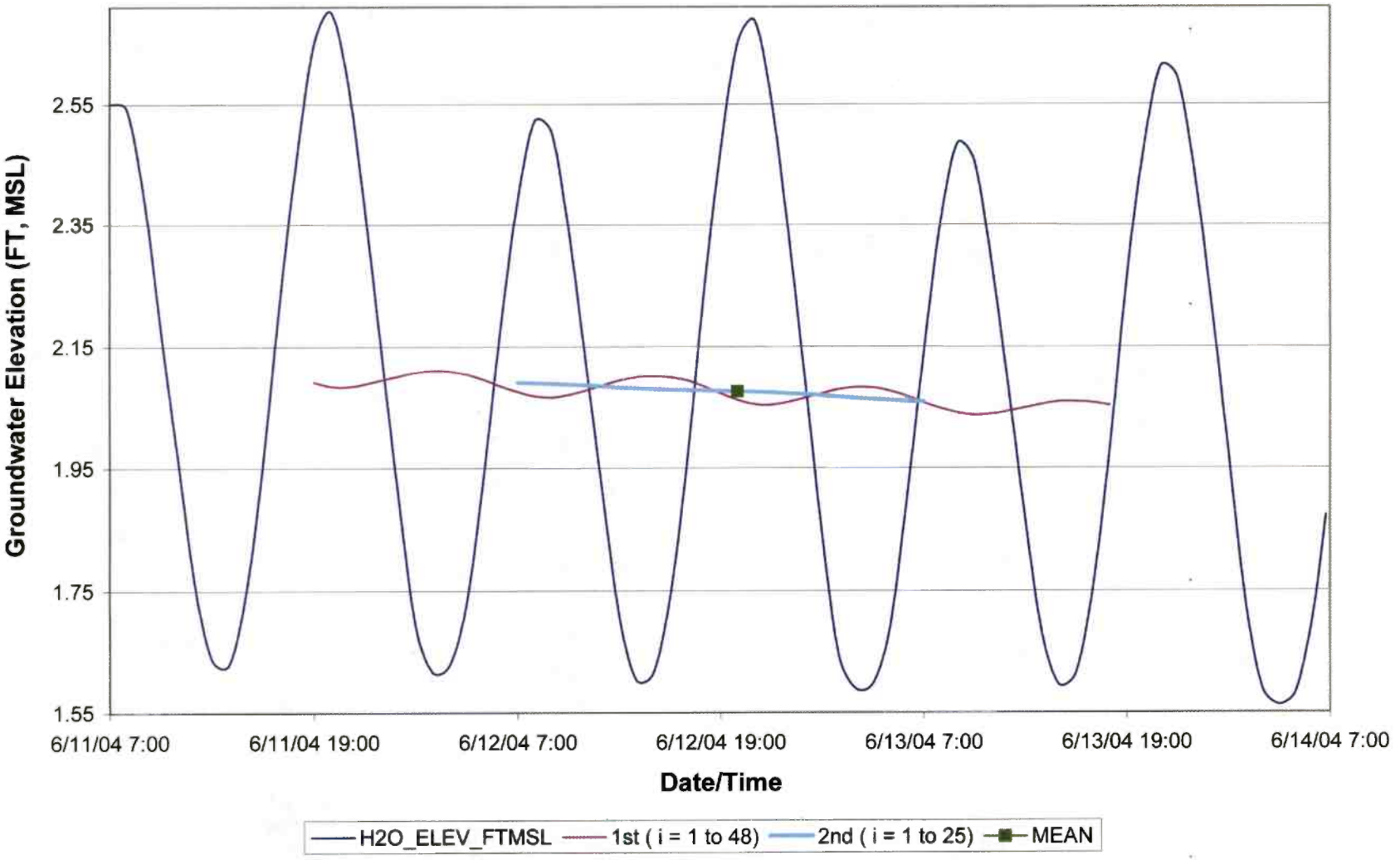
PZ-11D - Tidal Study 72-Hour Filtering Process Hydrograph



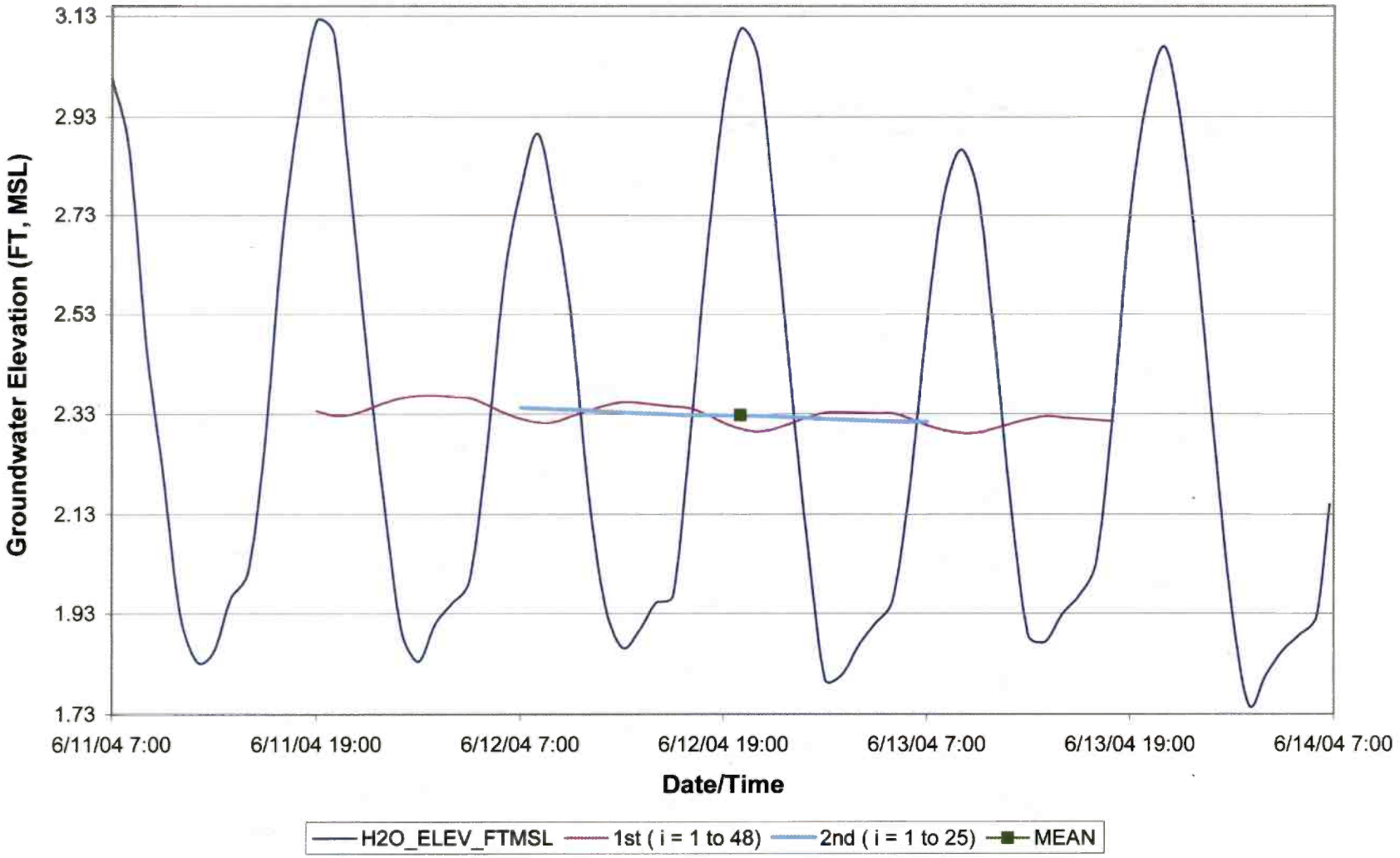
PZ-17D - Tidal Study 72-Hour Filtering Process Hydrograph



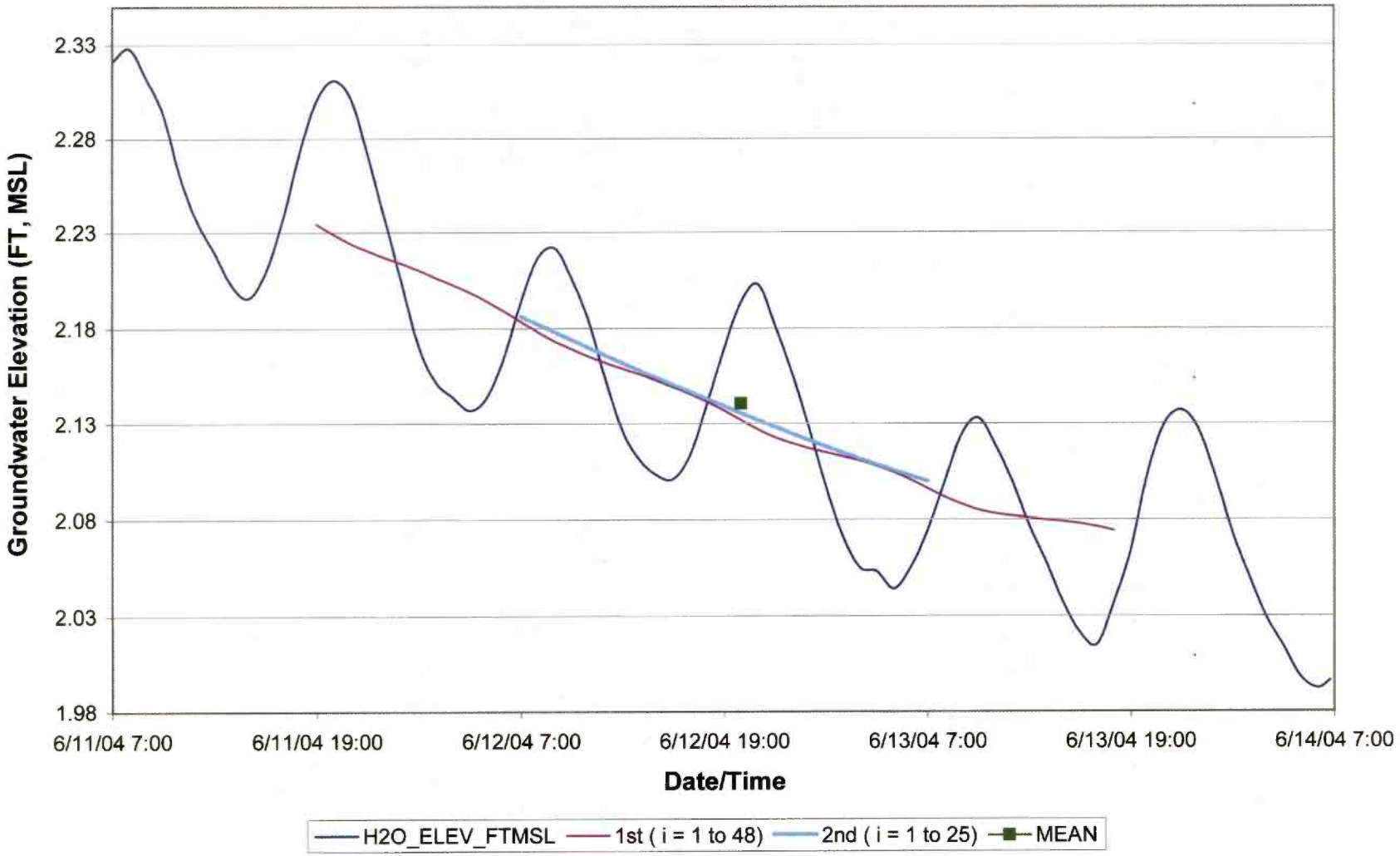
PZ-1D - Tidal Study 72-Hour Filtering Process Hydrograph

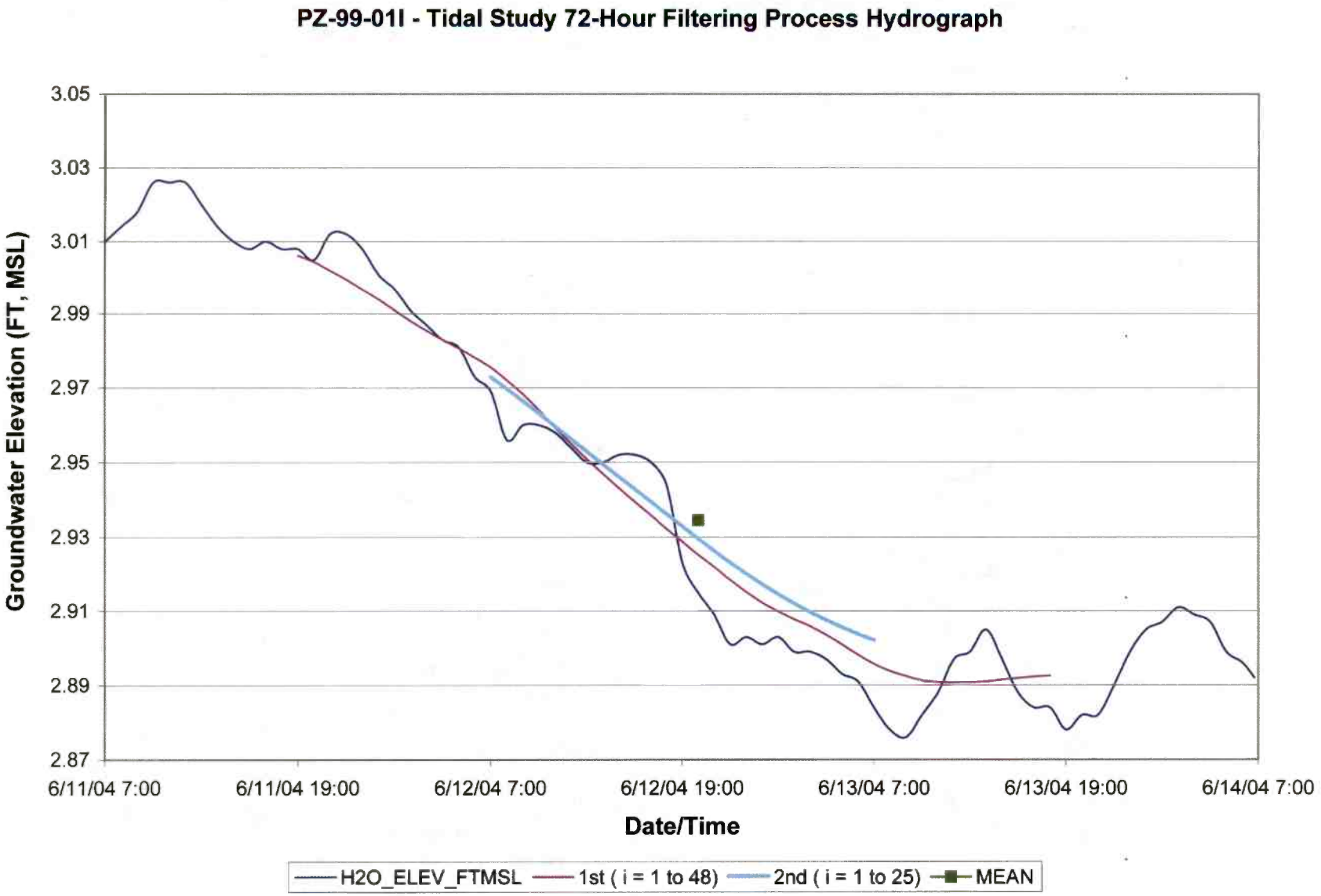


PZ-5D - Tidal Study 72-Hour Filtering Process Hydrograph

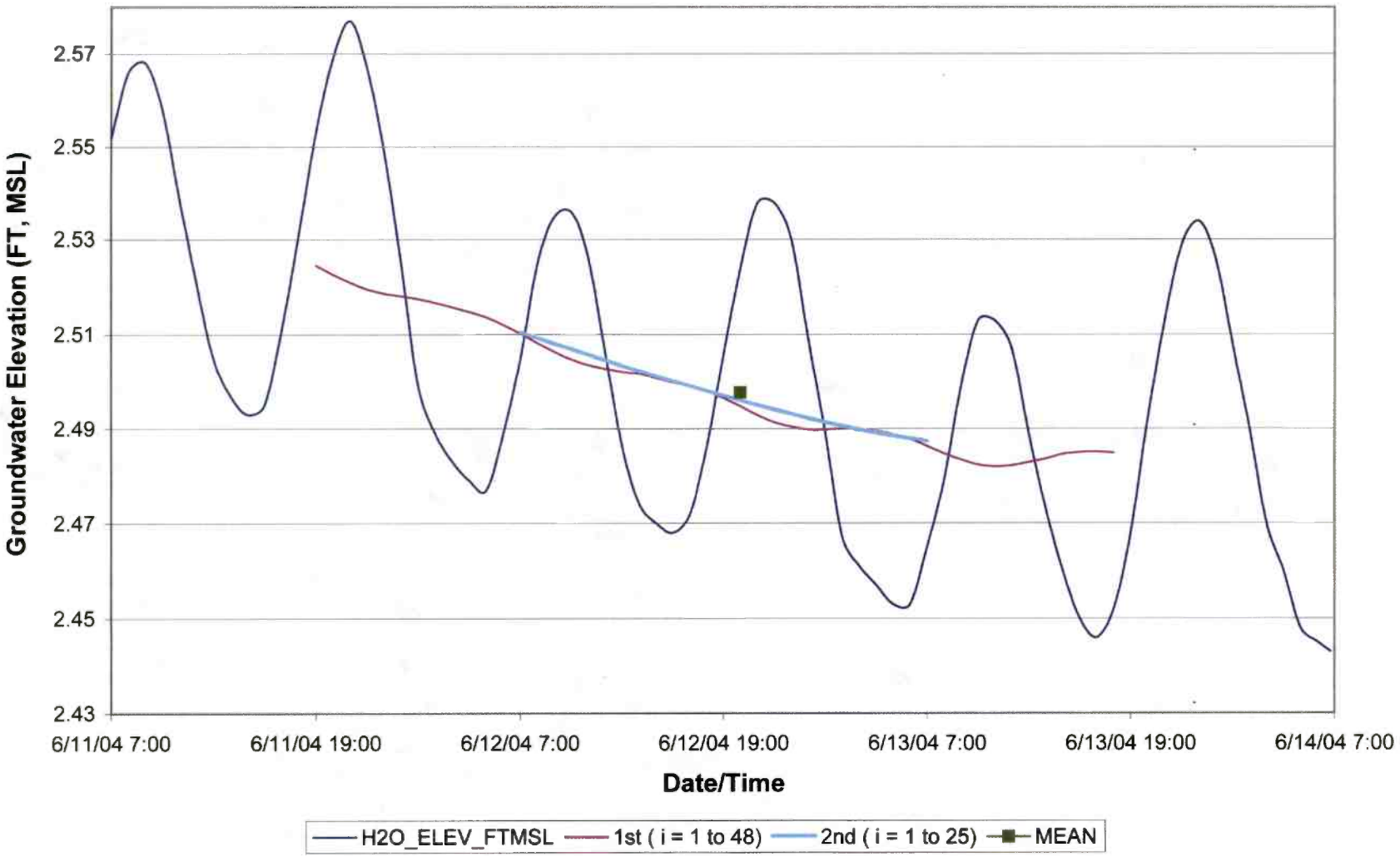


PZ-8D - Tidal Study 72-Hour Filtering Process Hydrograph

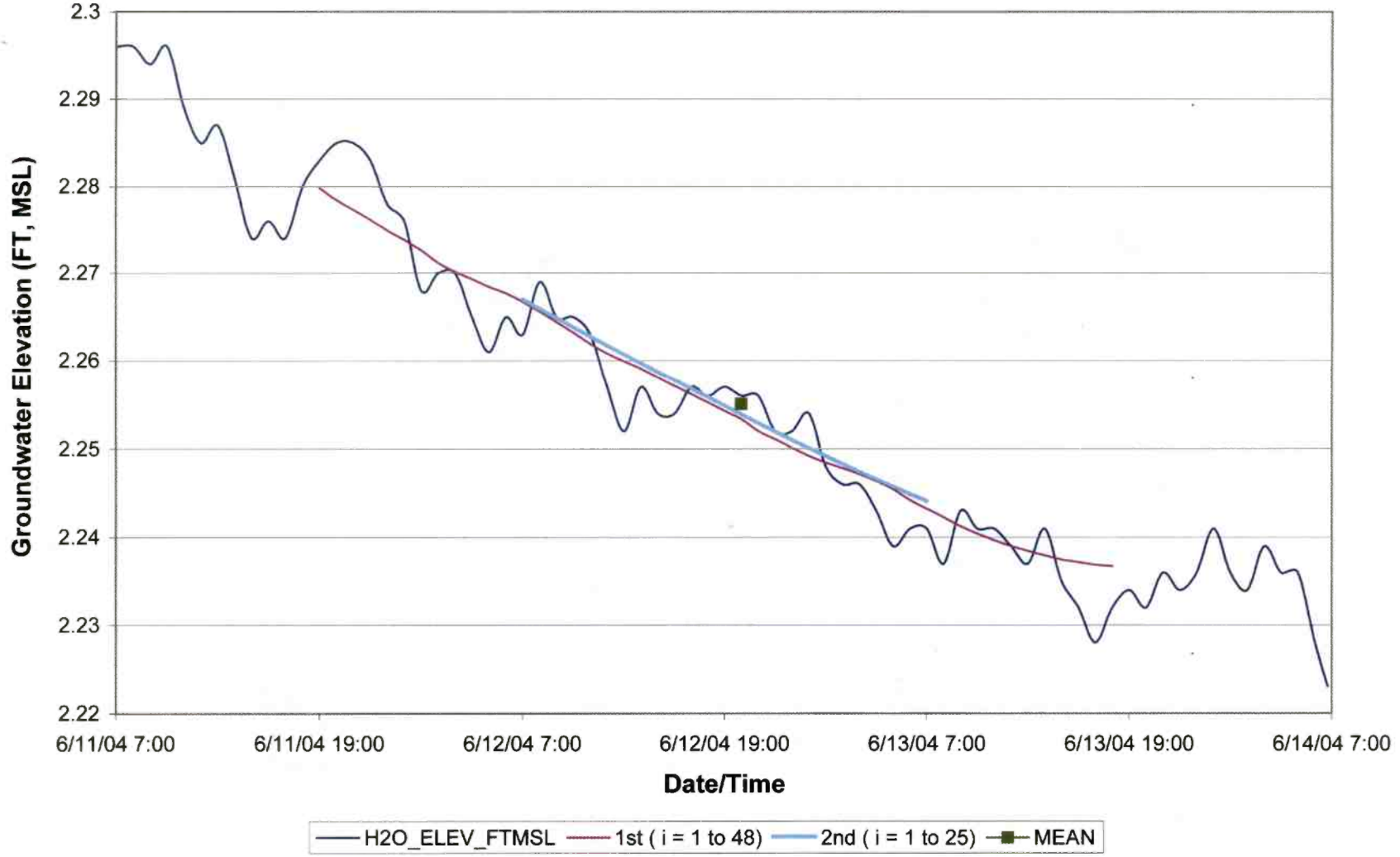



PZ-99-01I - Tidal Study 72-Hour Filtering Process Hydrograph
Groundwater Elevation (FT, MSL)
3.05
3.03
3.01
2.99
2.97
2.95
2.93
2.91
2.89
2.87
6/11/04 7:00
6/11/04 19:00
6/12/04 7:00
6/12/04 19:00
6/13/04 7:00
6/13/04 19:00
6/14/04 7:00
Date/Time
H2O_ELEV_FTMSL
1st (i = 1 to 48)
2nd (i = 1 to 25)
MEAN

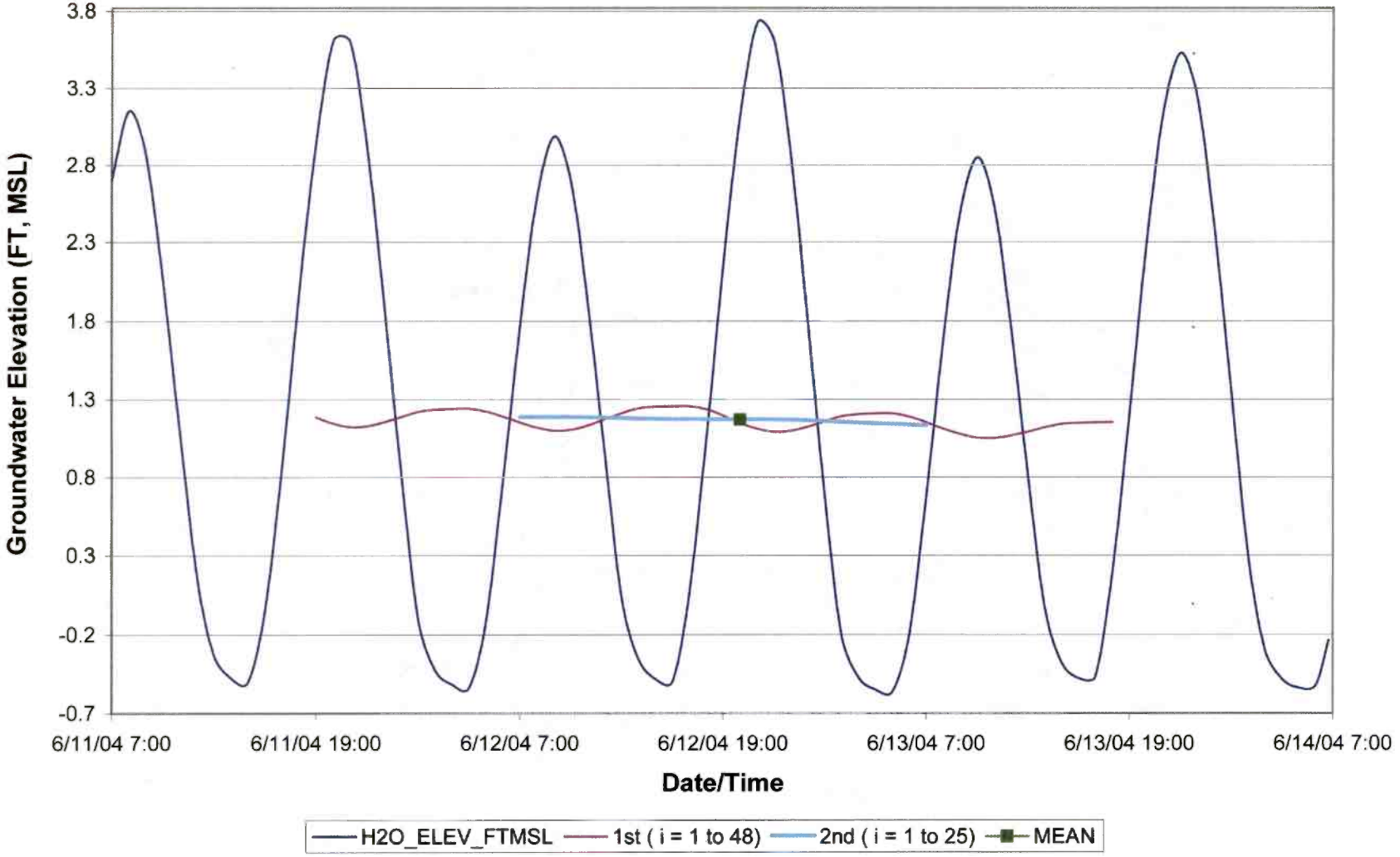
PZ-99-03 - Tidal Study 72-Hour Filtering Process Hydrograph



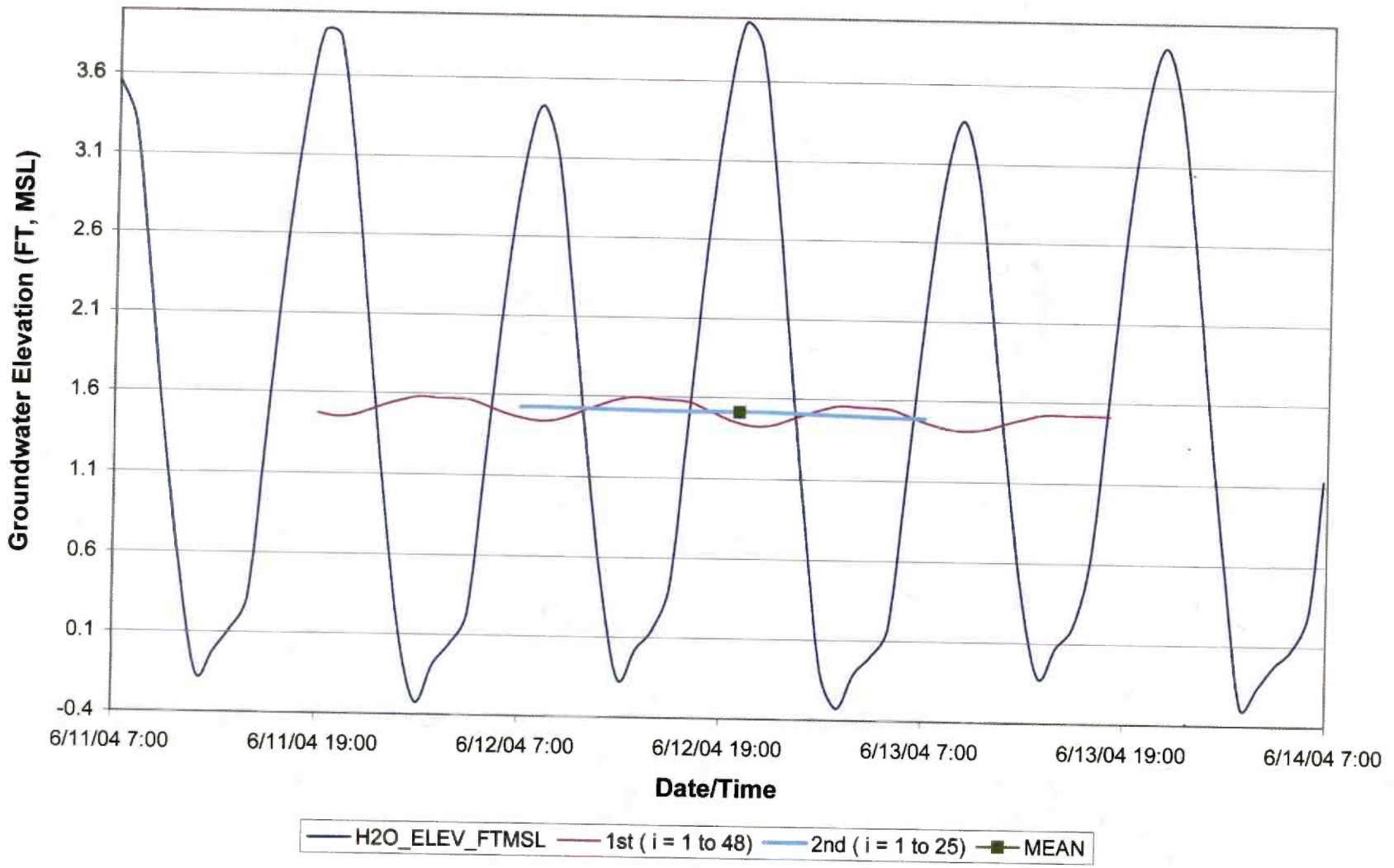
PZ-9D - Tidal Study 72-Hour Filtering Process Hydrograph



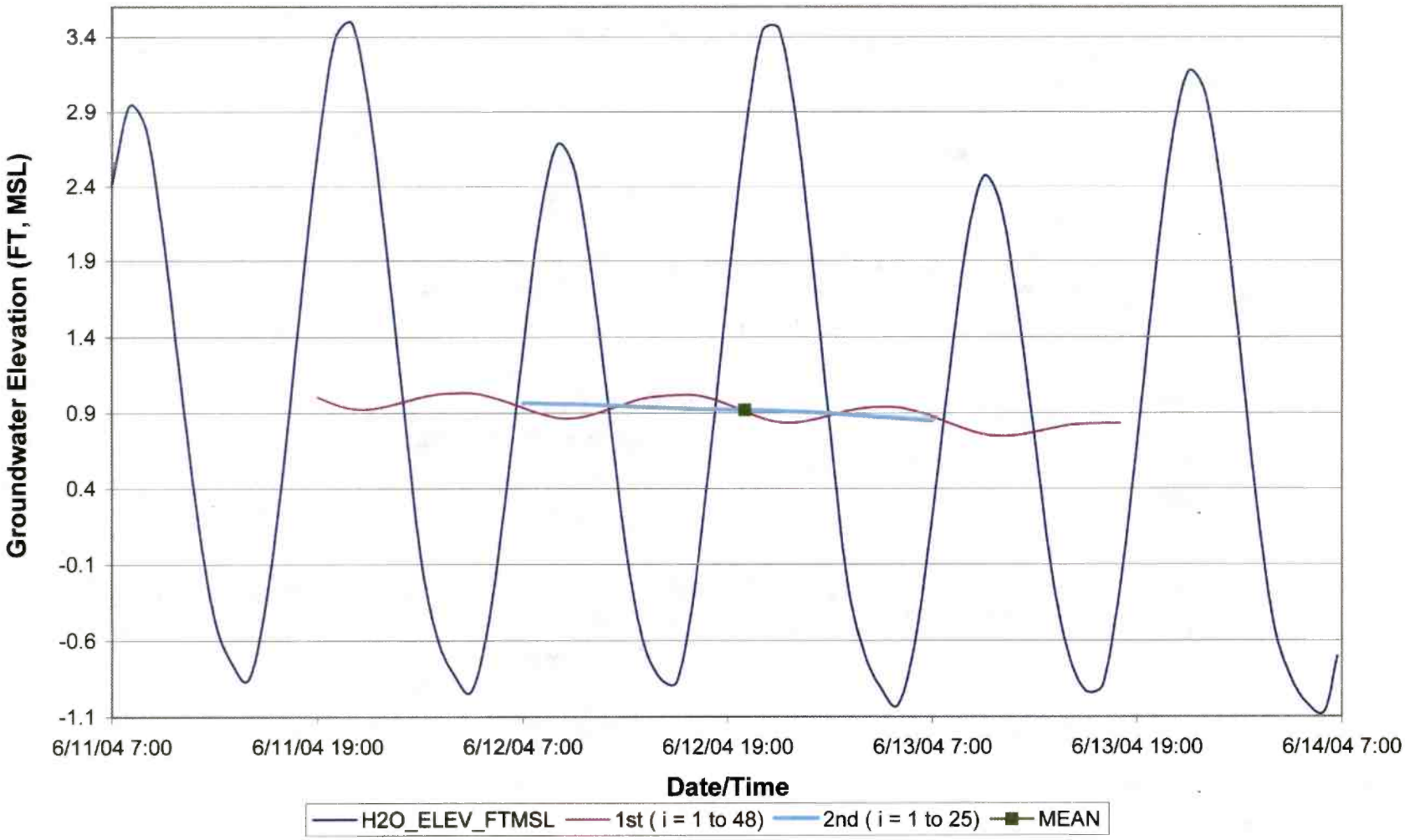
PZ-TF-04-02A - Tidal Study 72-Hour Filtering Process Hydrograph



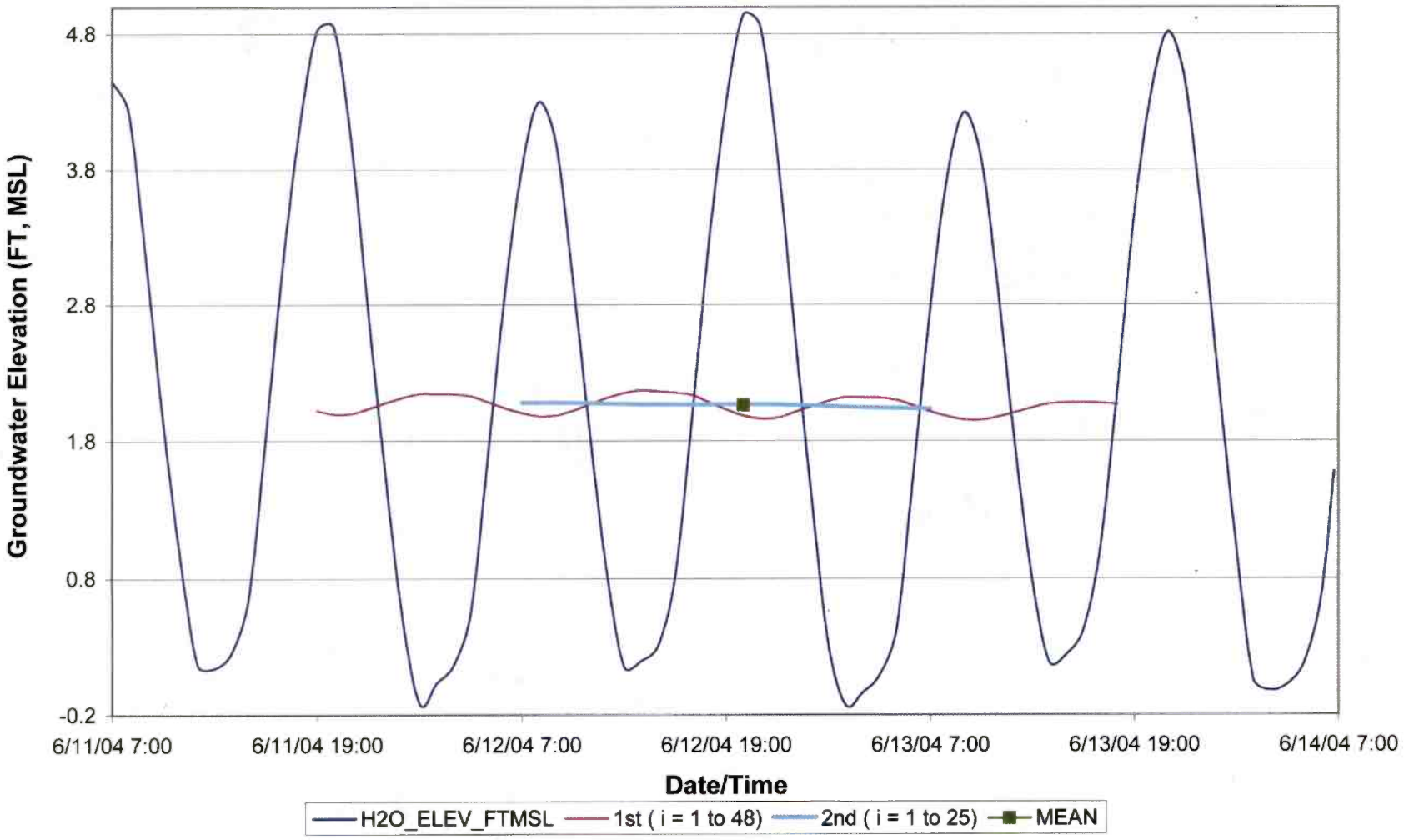
PZ-TF-04-02B - Tidal Study 72-Hour Filtering Process Hydrograph



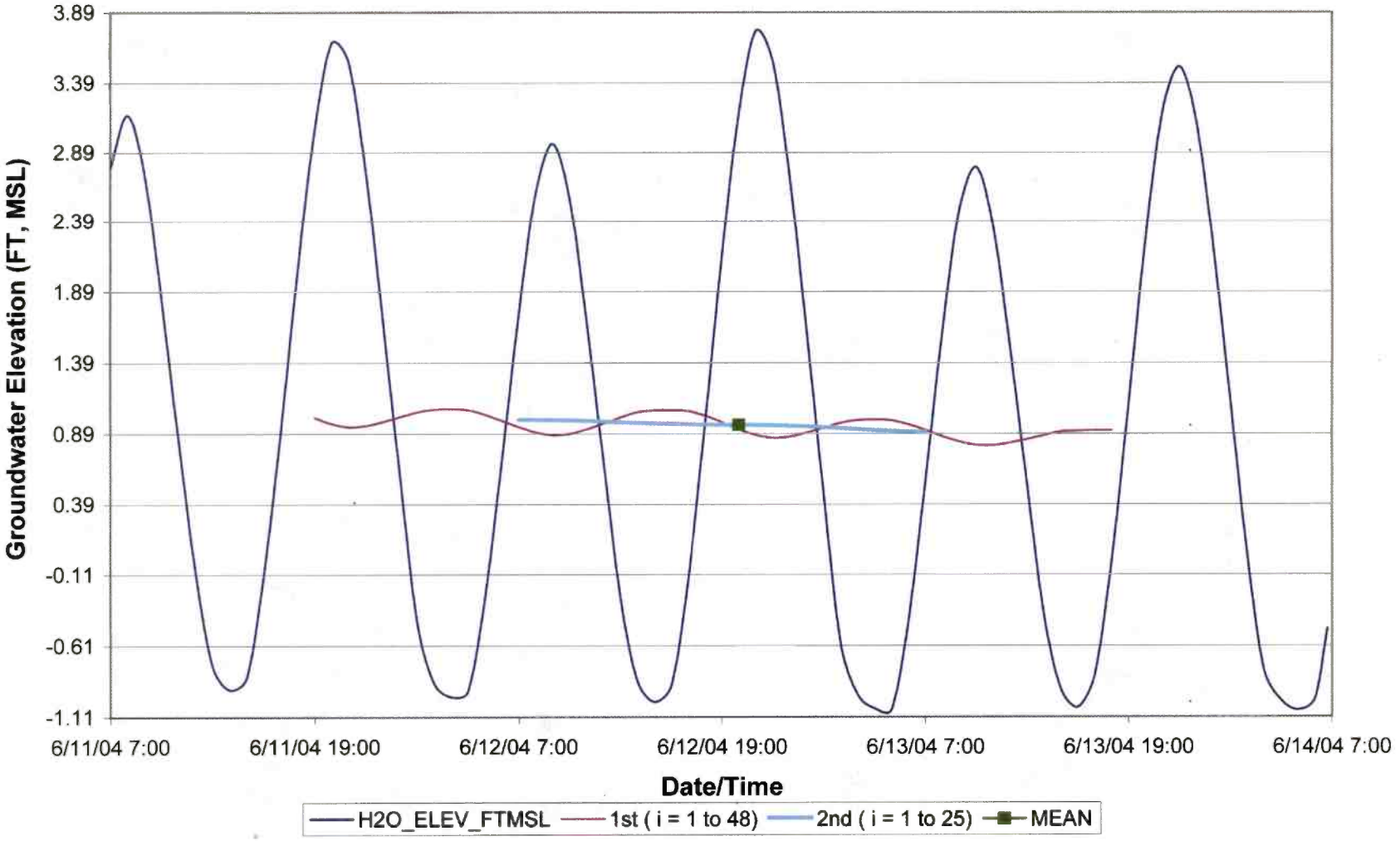
PZ-TF-04-03A - Tidal Study 72-Hour Filtering Process Hydrograph



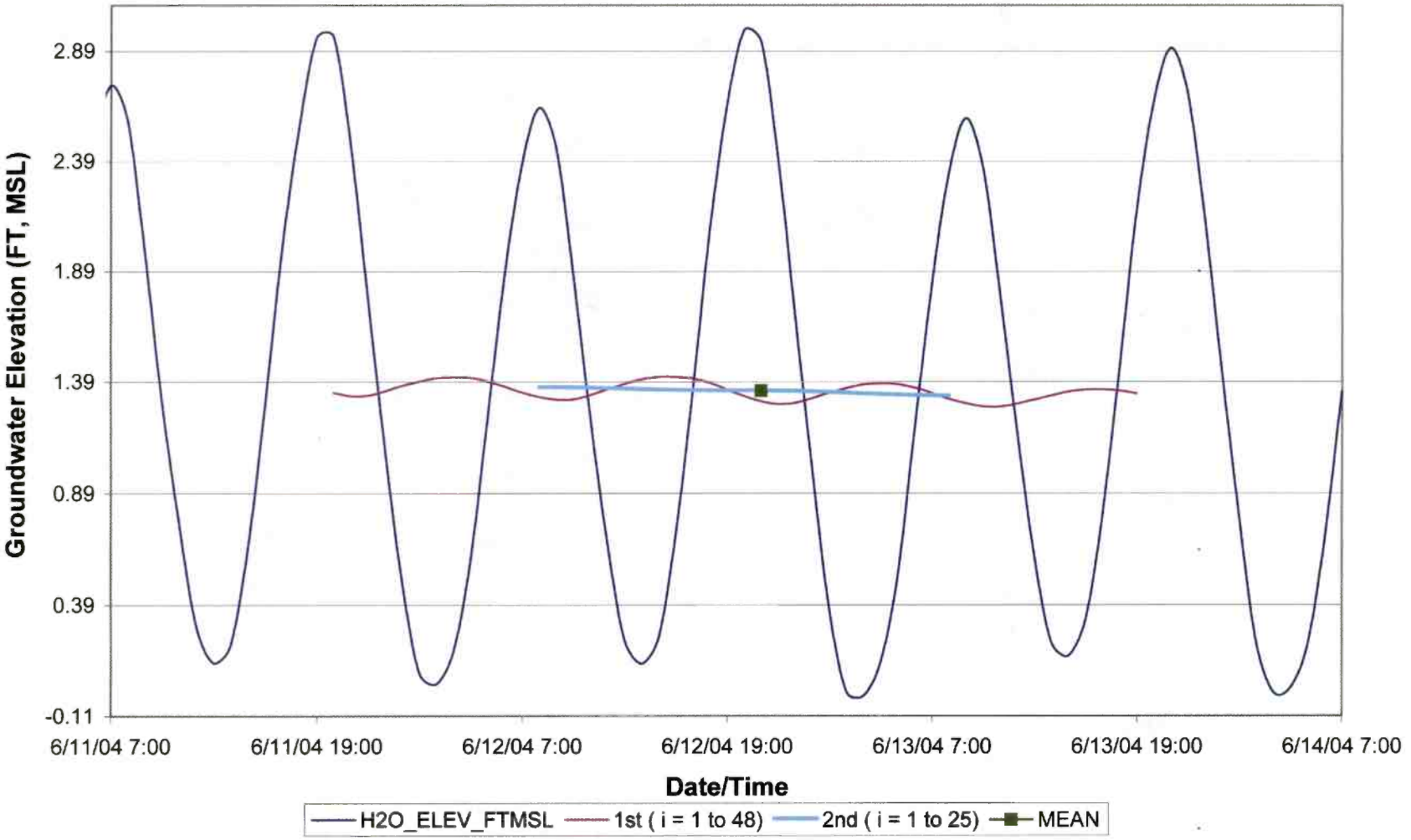
PZ-TF-04-03B - Tidal Study 72-Hour Filtering Process Hydrograph



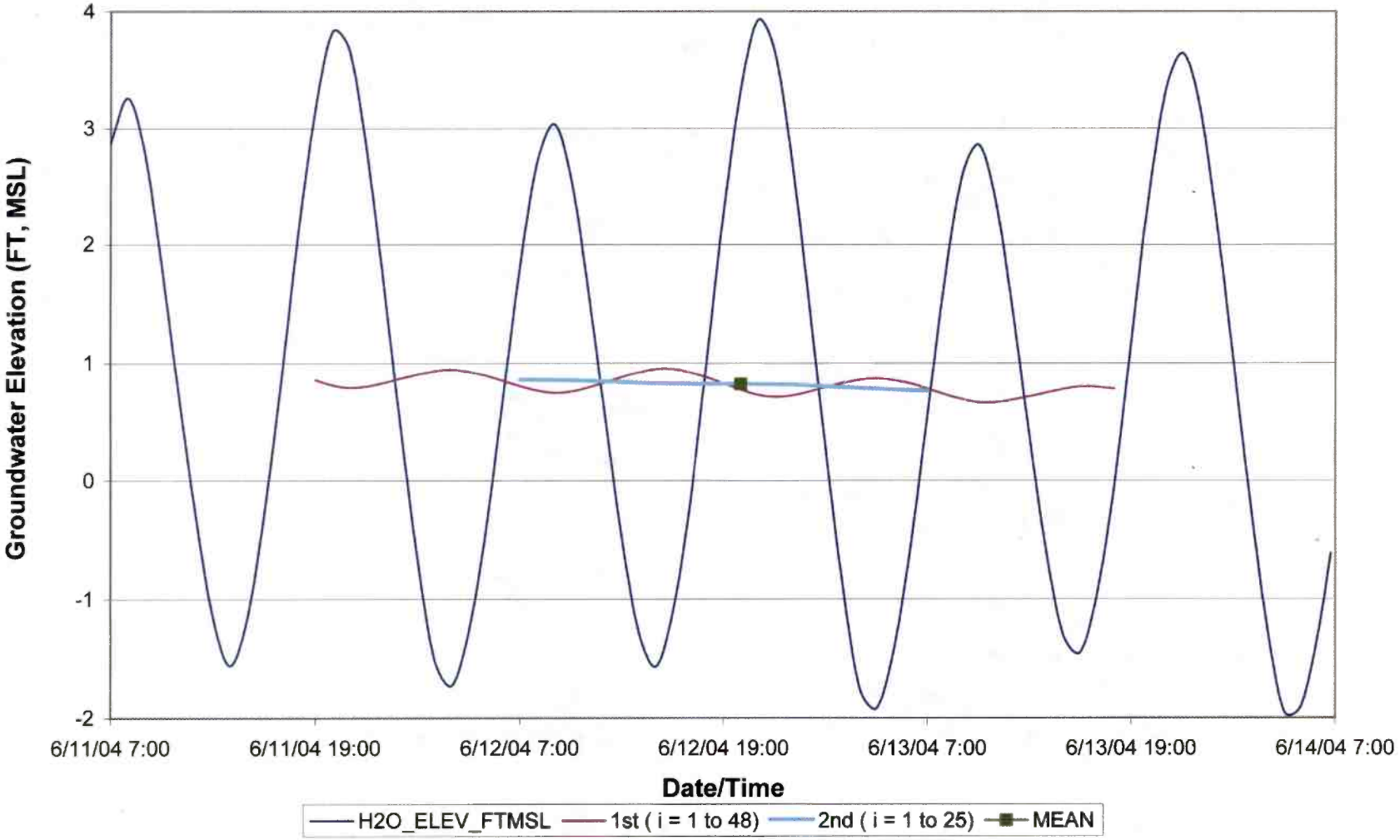
PZ-TF-04-07A - Tidal Study 72-Hour Filtering Process Hydrograph



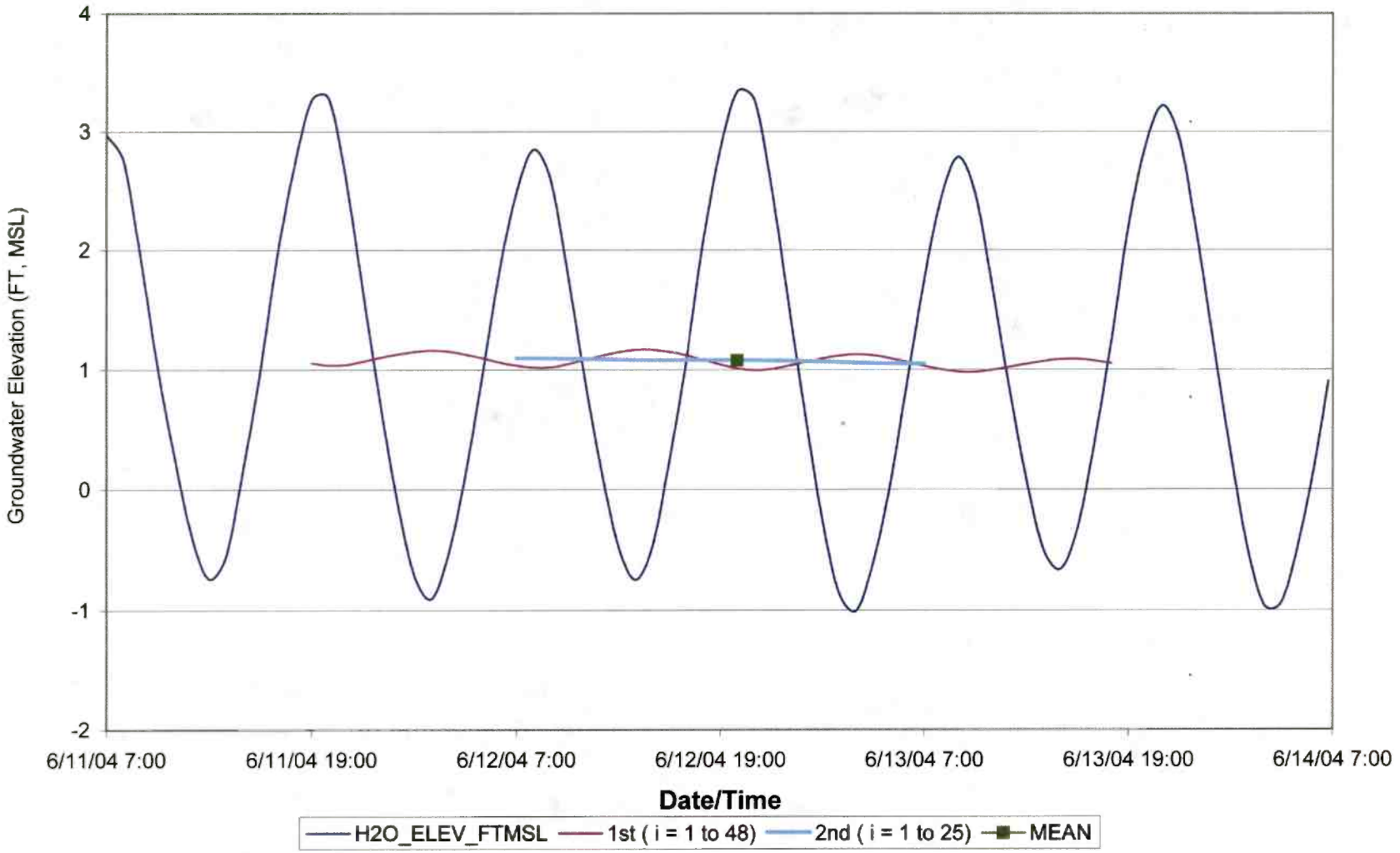
PZ-TF-04-07B - Tidal Study 72-Hour Filtering Process Hydrograph



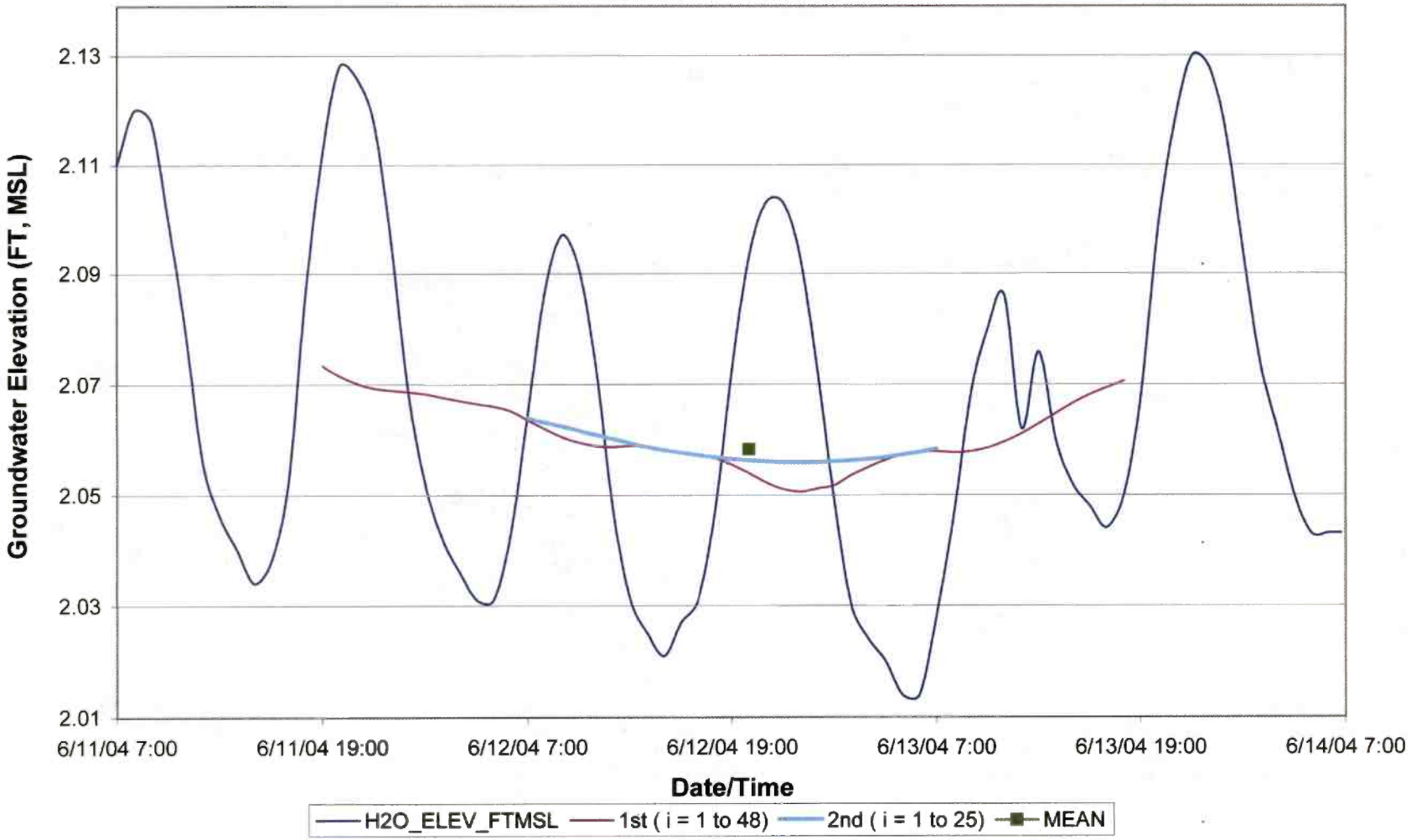
PZ-TF-04-09A - Tidal Study 72-Hour Filtering Process Hydrograph



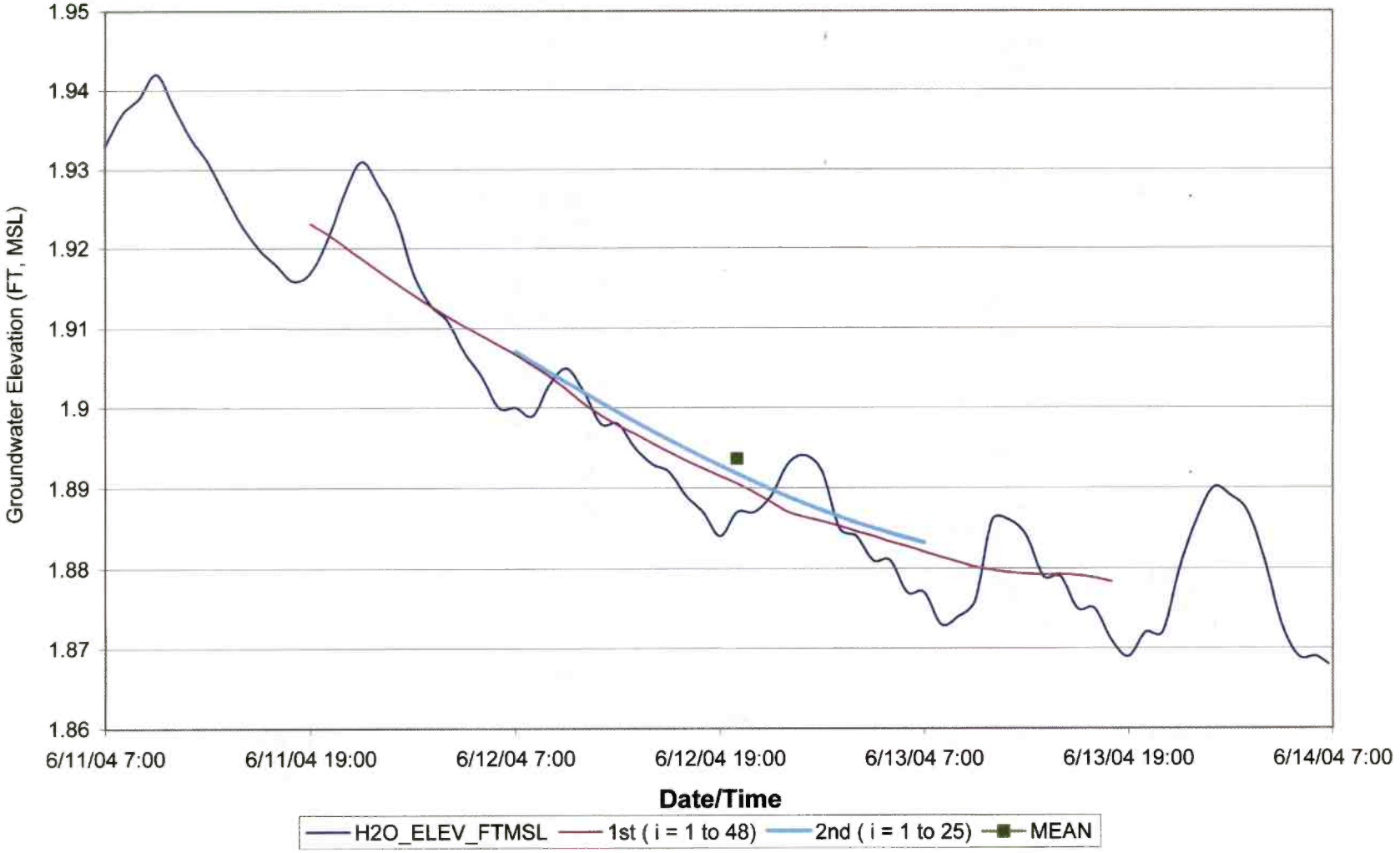
PZ-TF-04-09B - Tidal Study 72-Hour Filtering Process Hydrograph



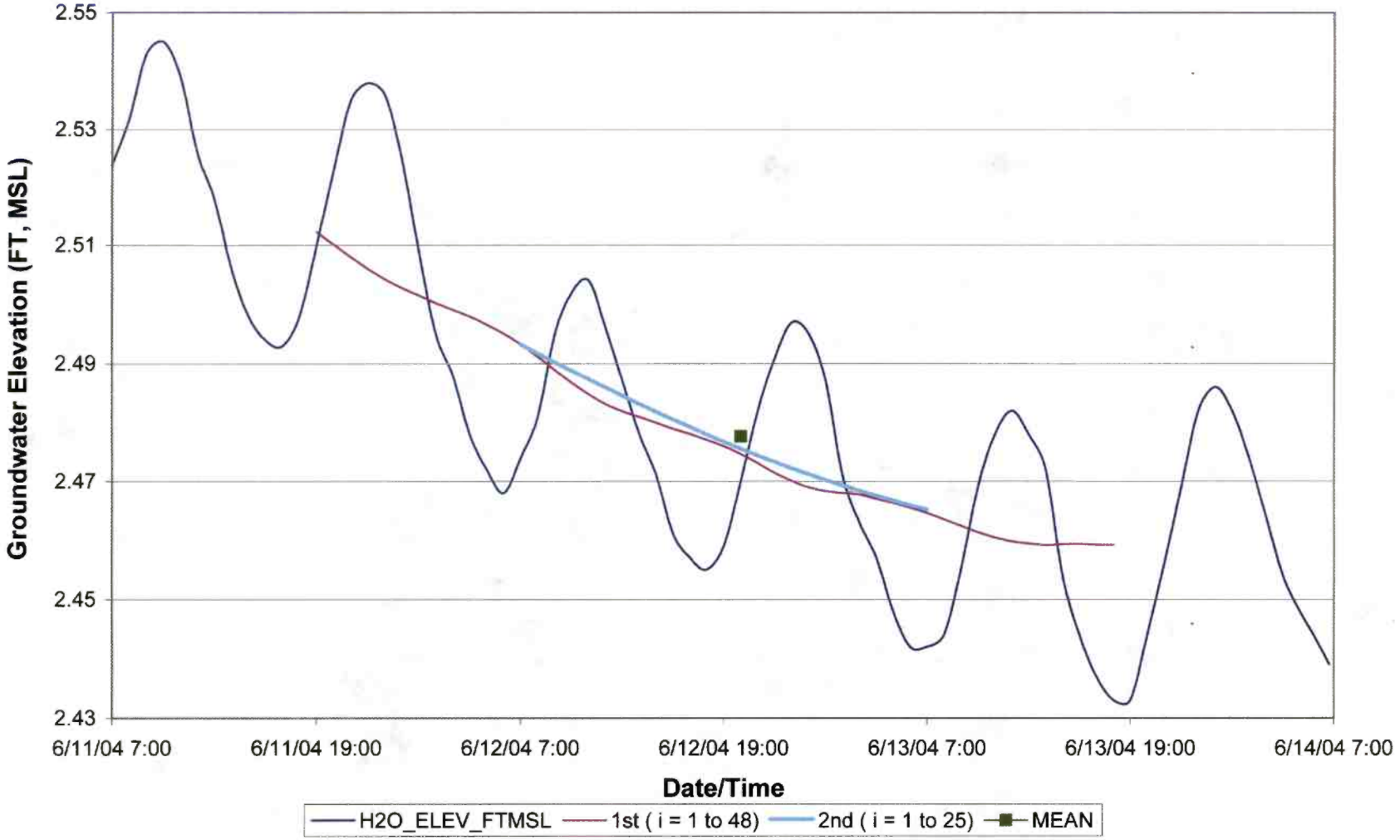
WC-18D1 - Tidal Study 72-Hour Filtering Process Hydrograph



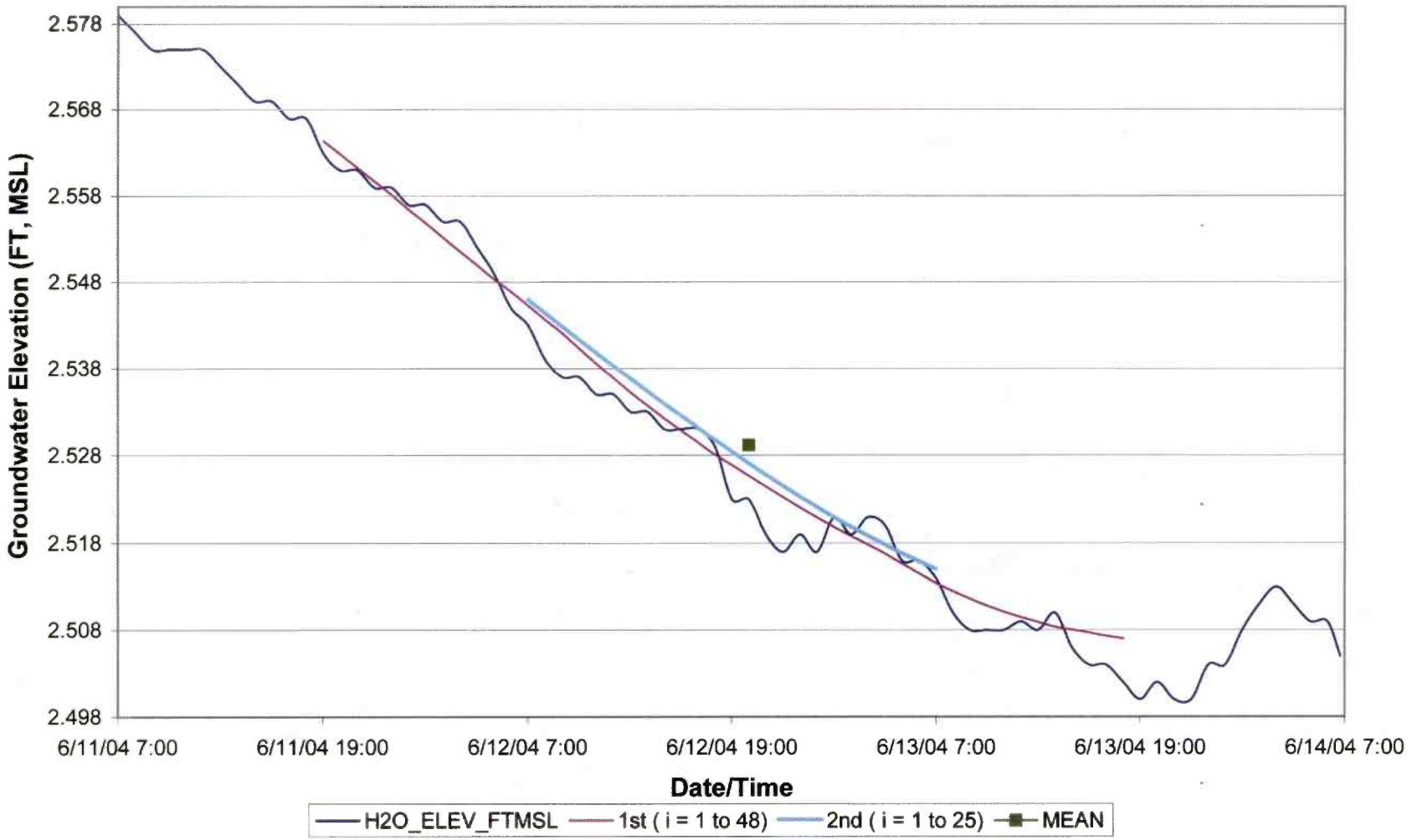
WC-18S - Tidal Study 72-Hour Filtering Process Hydrograph



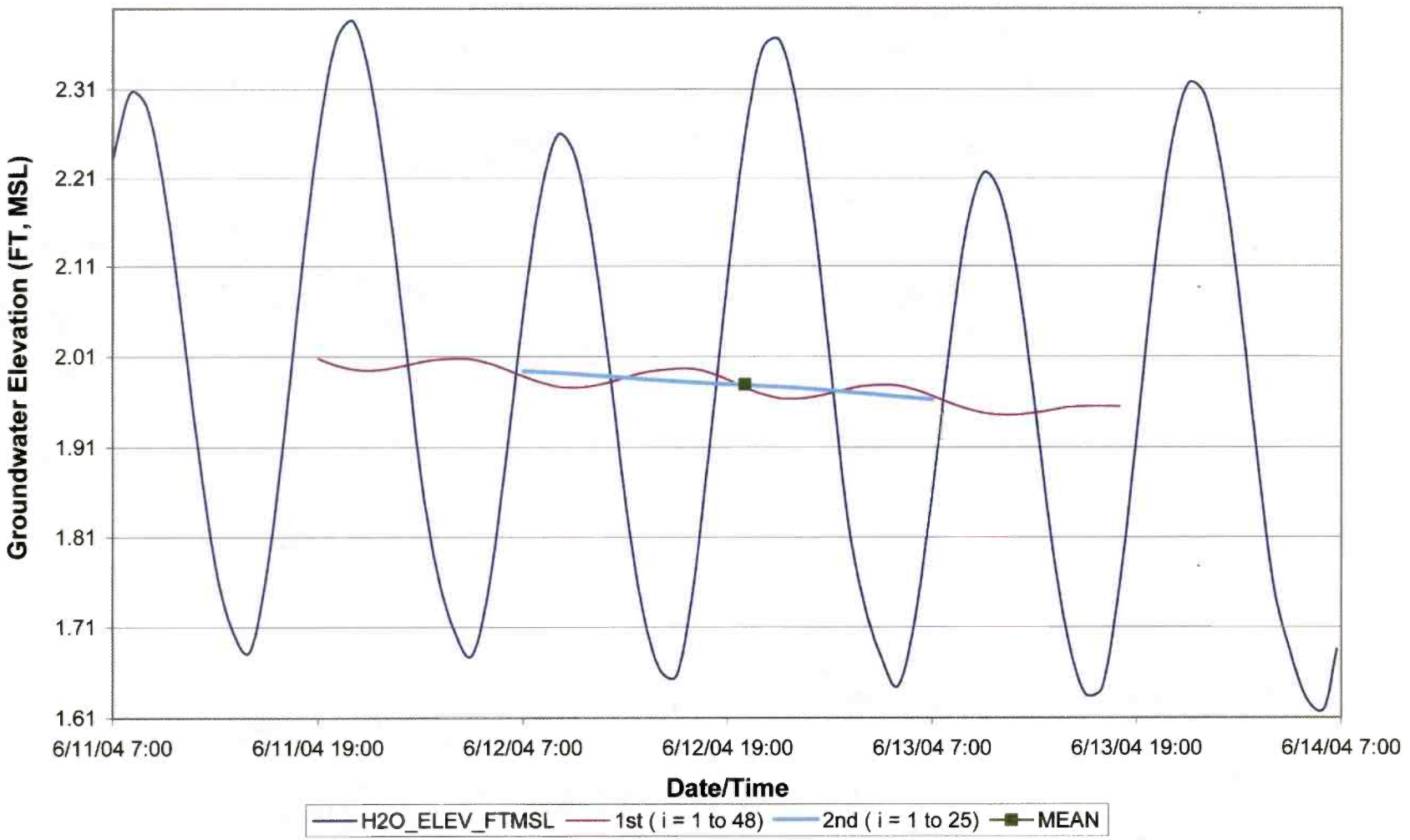
WC-19D1 - Tidal Study 72-Hour Filtering Process Hydrograph



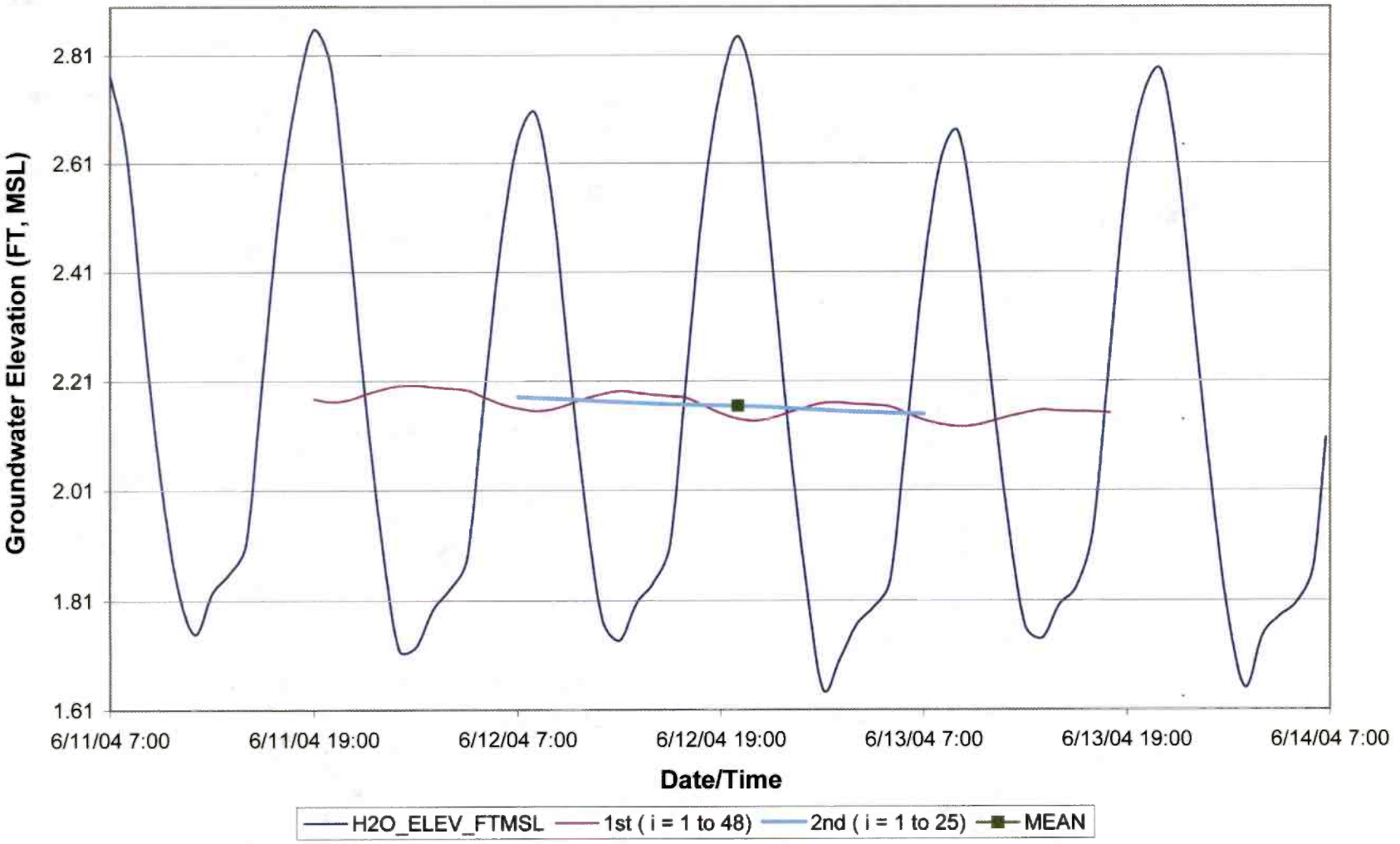
WC-19S - Tidal Study 72-Hour Filtering Process Hydrograph



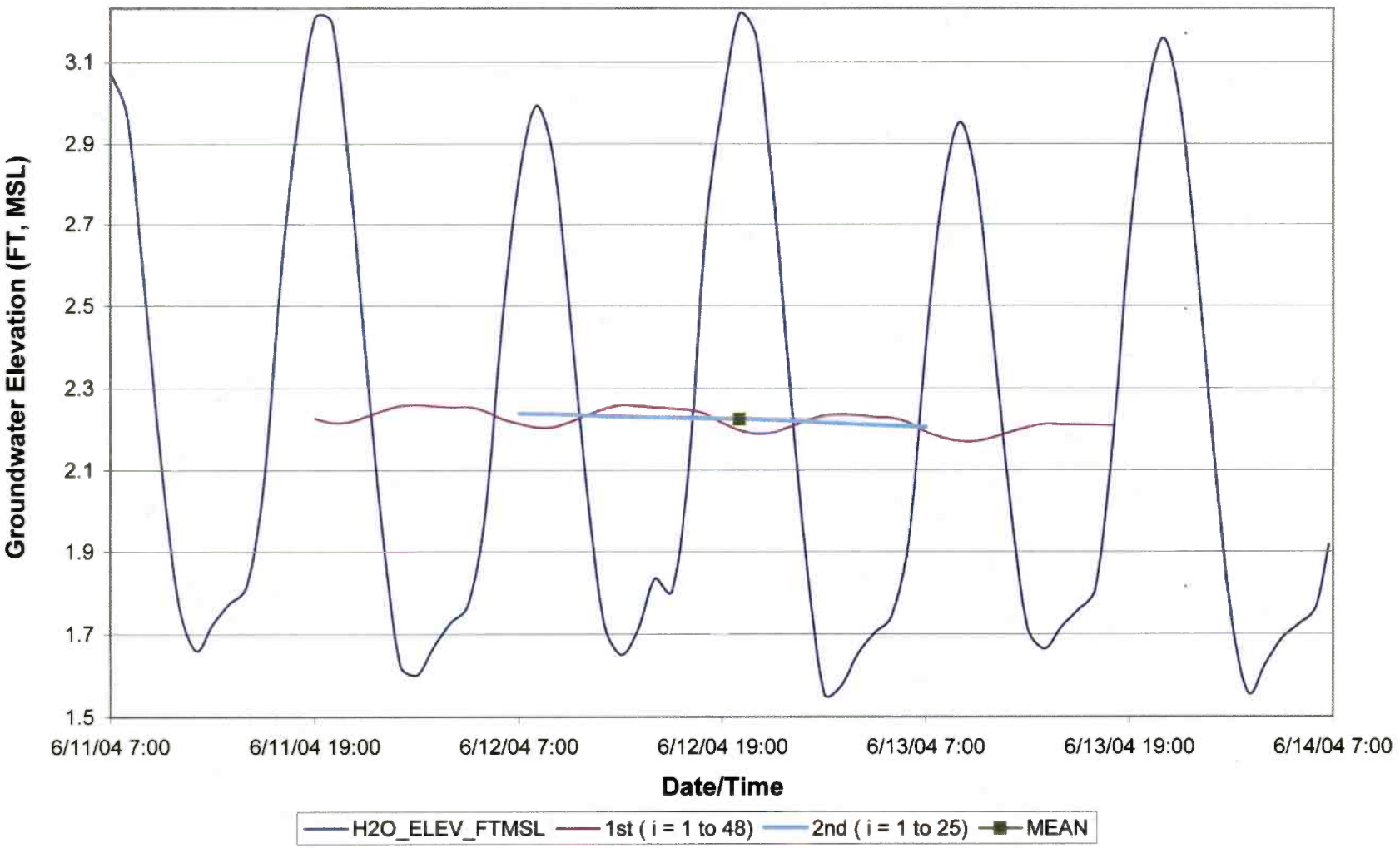
WC-1S - Tidal Study 72-Hour Filtering Process Hydrograph



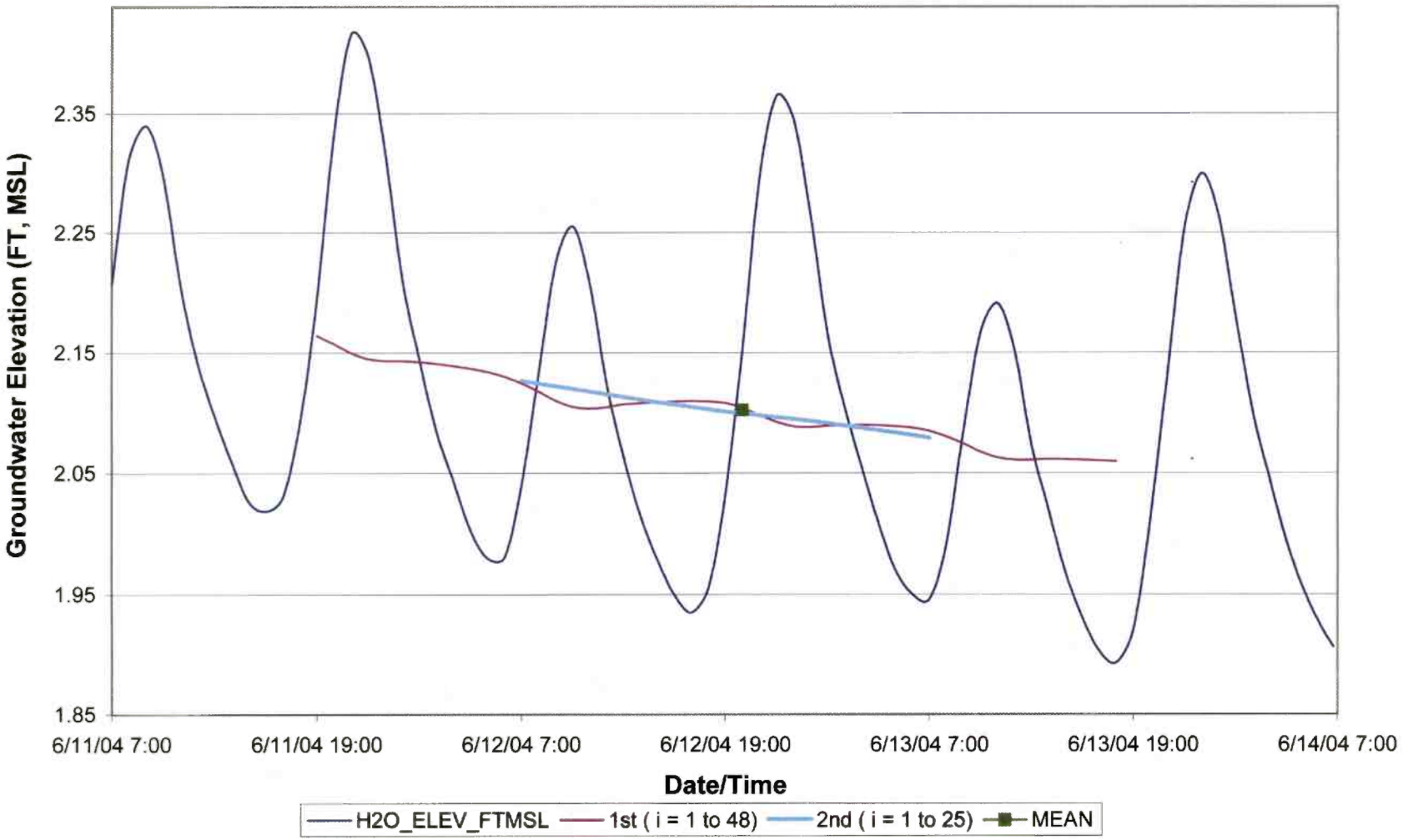
WC2-1D - Tidal Study 72-Hour Filtering Process Hydrograph



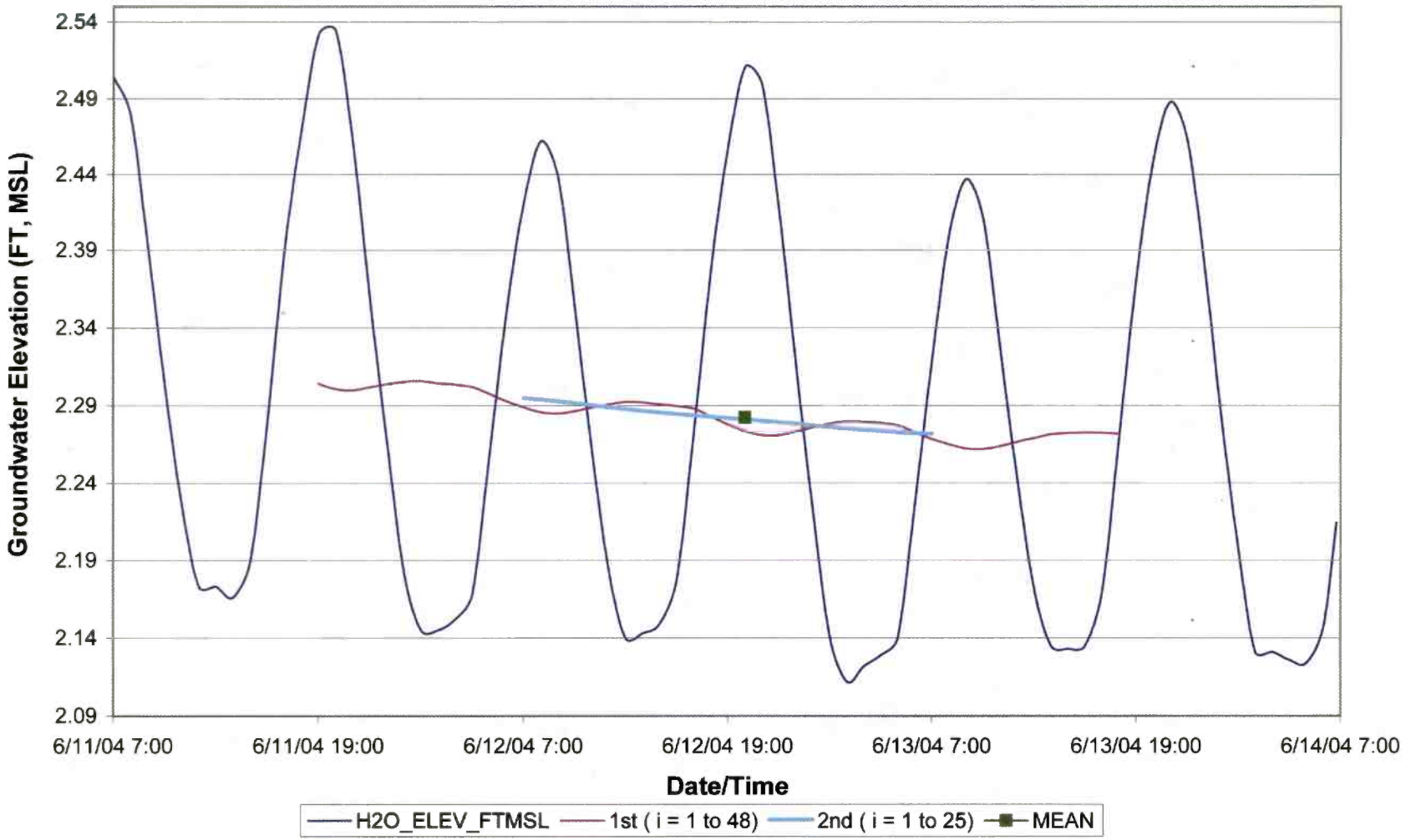
WC2-1I - Tidal Study 72-Hour Filtering Process Hydrograph



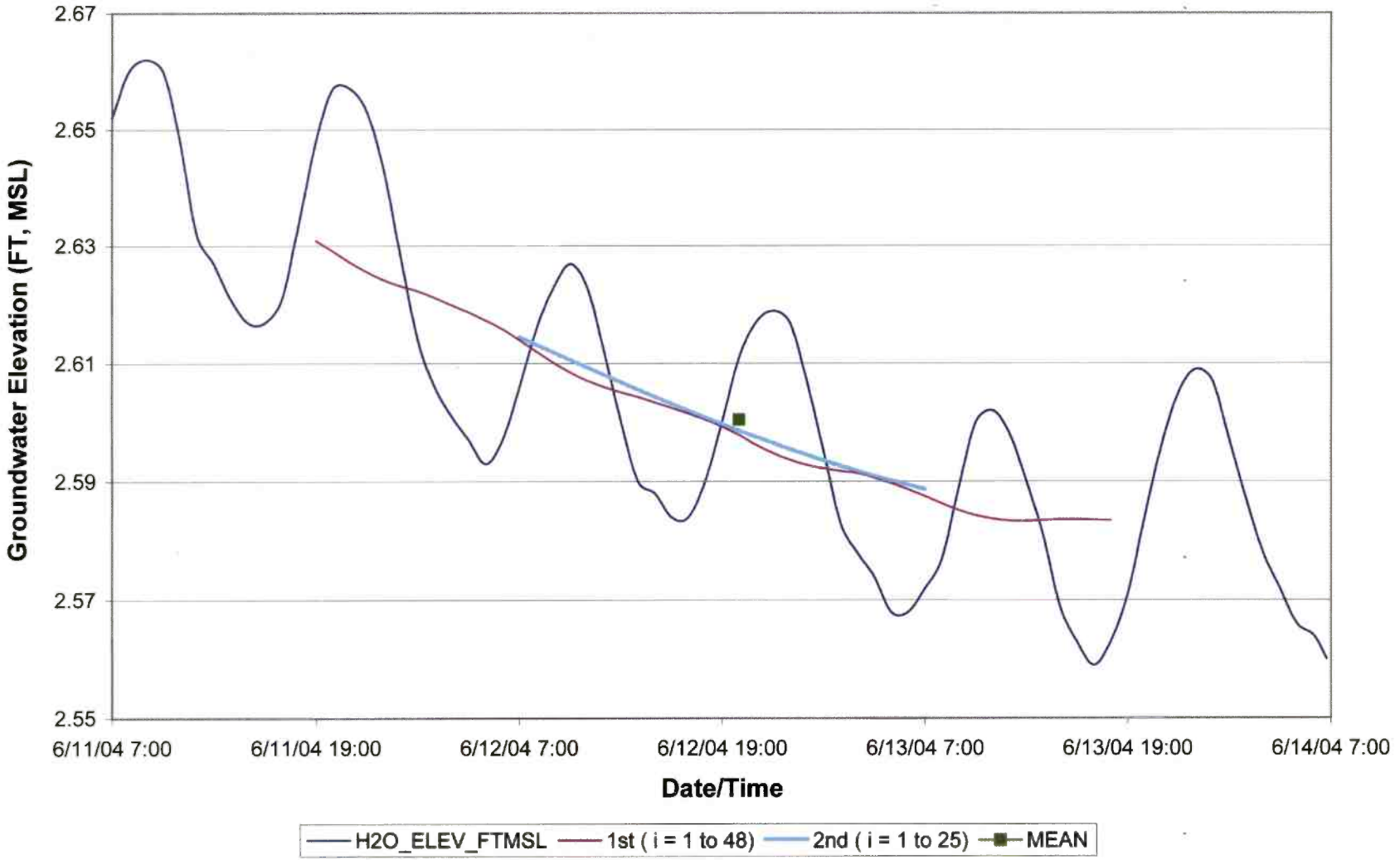
WC2-1S - Tidal Study 72-Hour Filtering Process Hydrograph



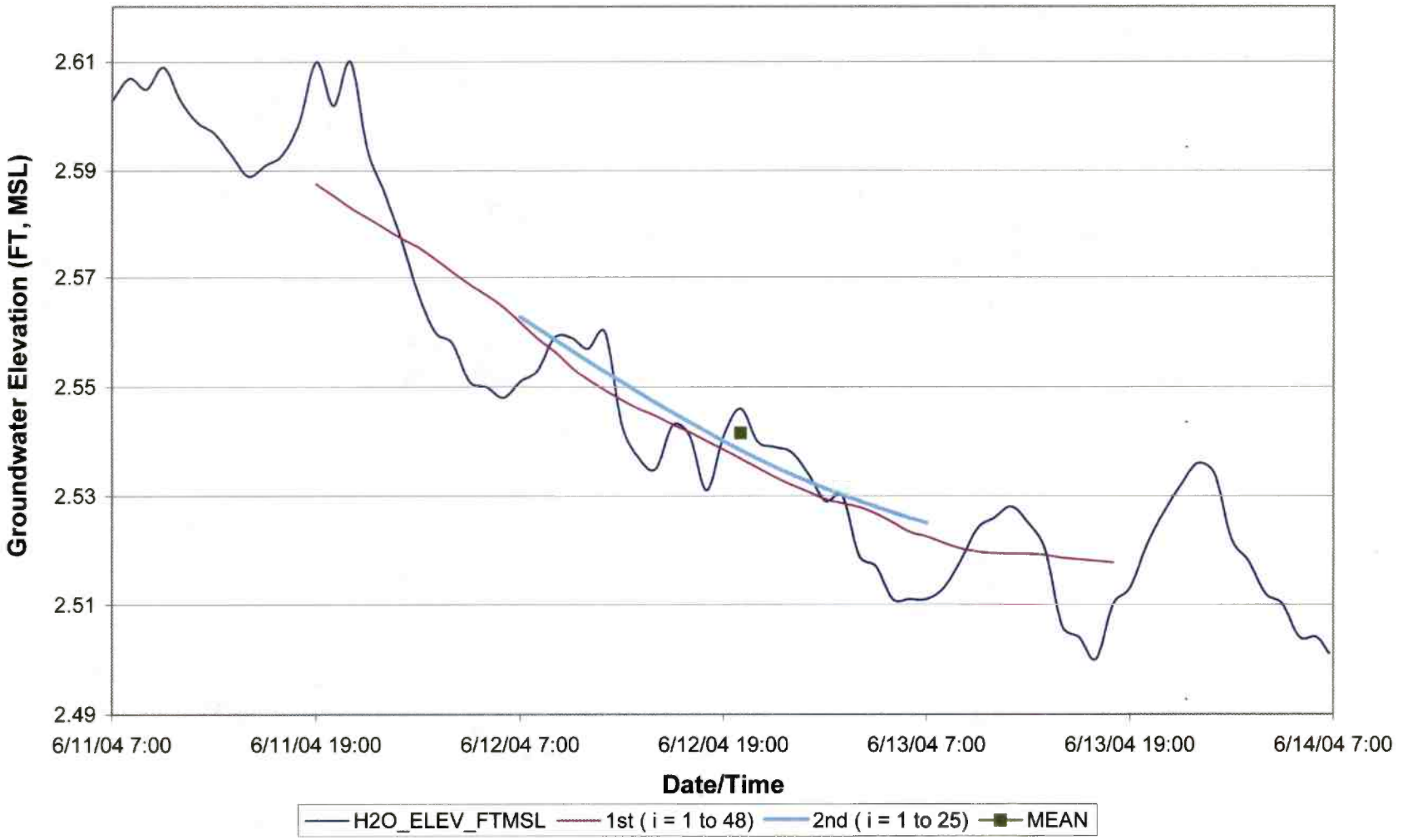
WC2-3D - Tidal Study 72-Hour Filtering Process Hydrograph



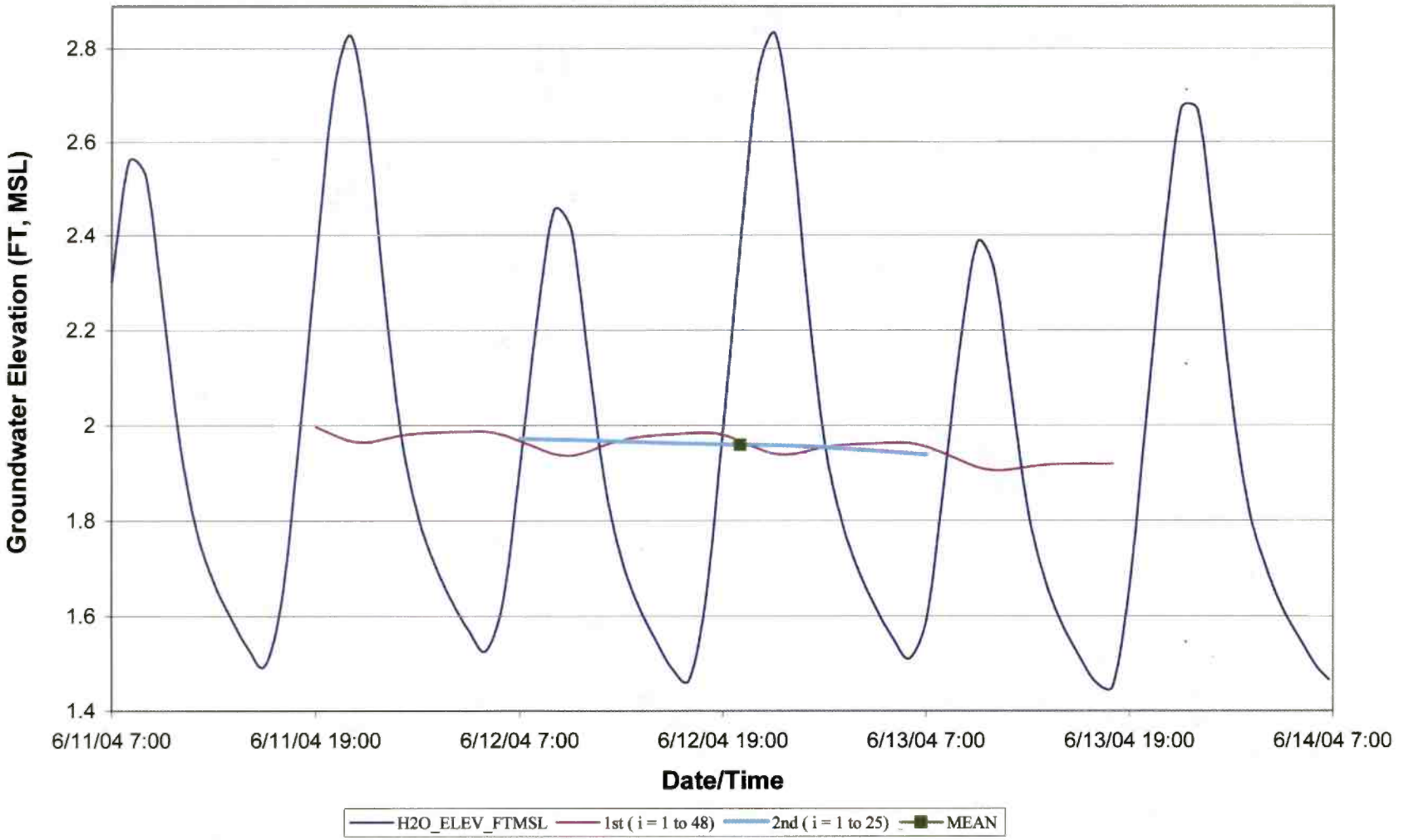
WC3-2D - Tidal Study 72-Hour Filtering Process Hydrograph

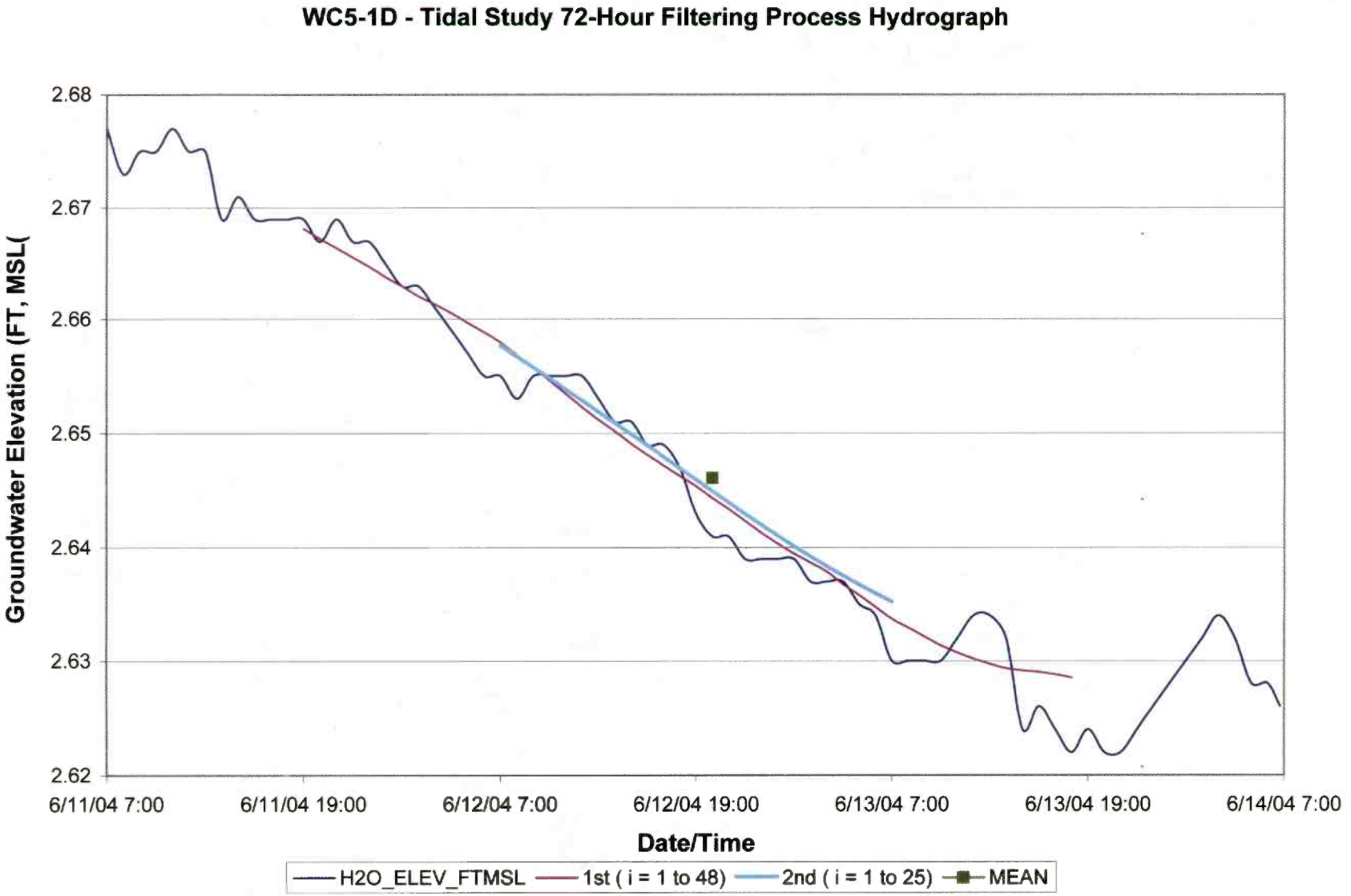


WC3-2I - Tidal Study 72-Hour Filtering Process Hydrograph

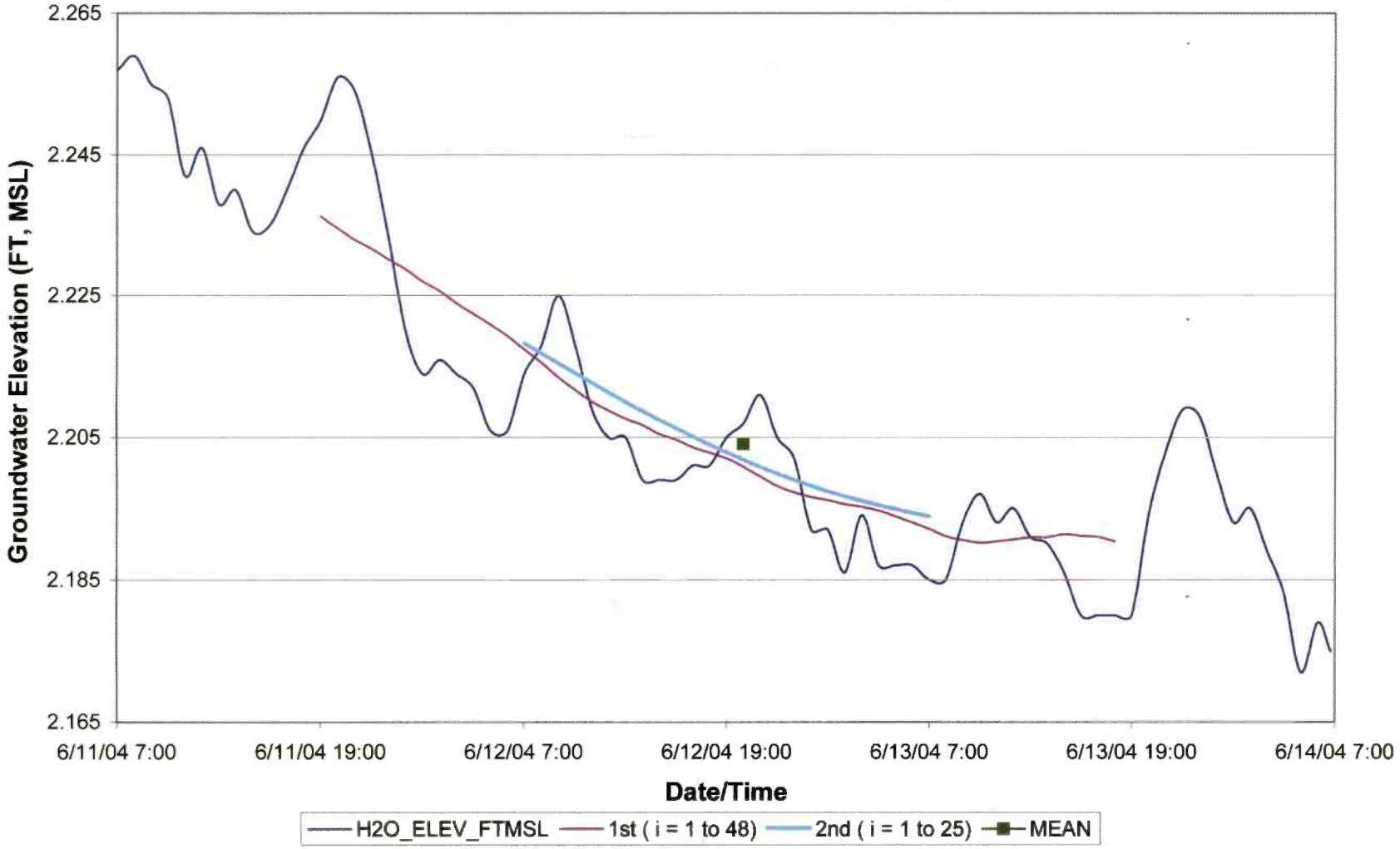


WC-4S - Tidal Study 72-Hour Filtering Process Hydrograph

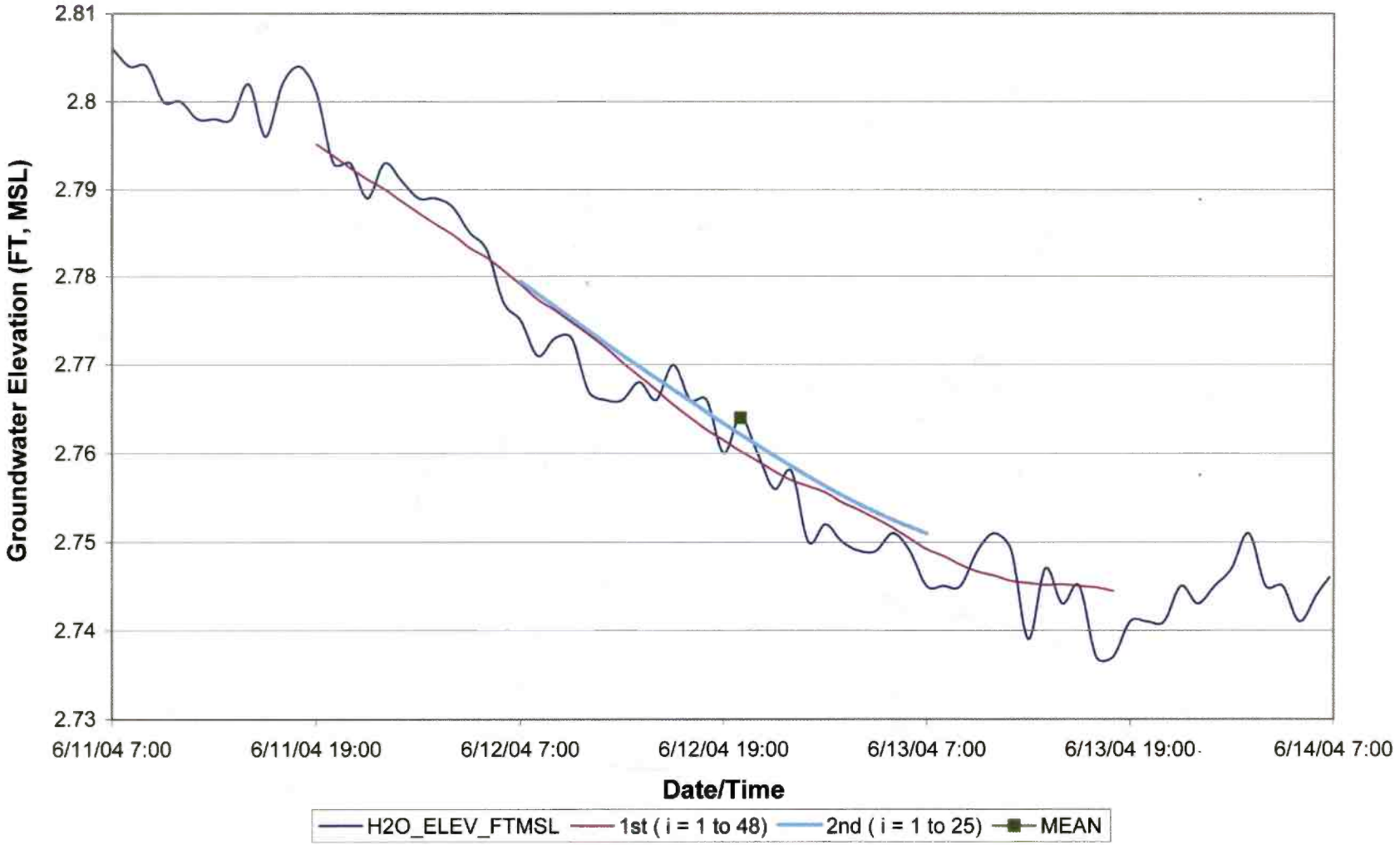



WC5-1D - Tidal Study 72-Hour Filtering Process Hydrograph
Groundwater Elevation (FT, MSL(
2.68
2.67
2.66
2.65
2.64
2.63
2.62
6/11/04 7:00
6/11/04 19:00
6/12/04 7:00
6/12/04 19:00
6/13/04 7:00
6/13/04 19:00
6/14/04 7:00
Date/Time
H2O_ELEV_FTMSL
1st (i = 1 to 48)
2nd (i = 1 to 25)
MEAN

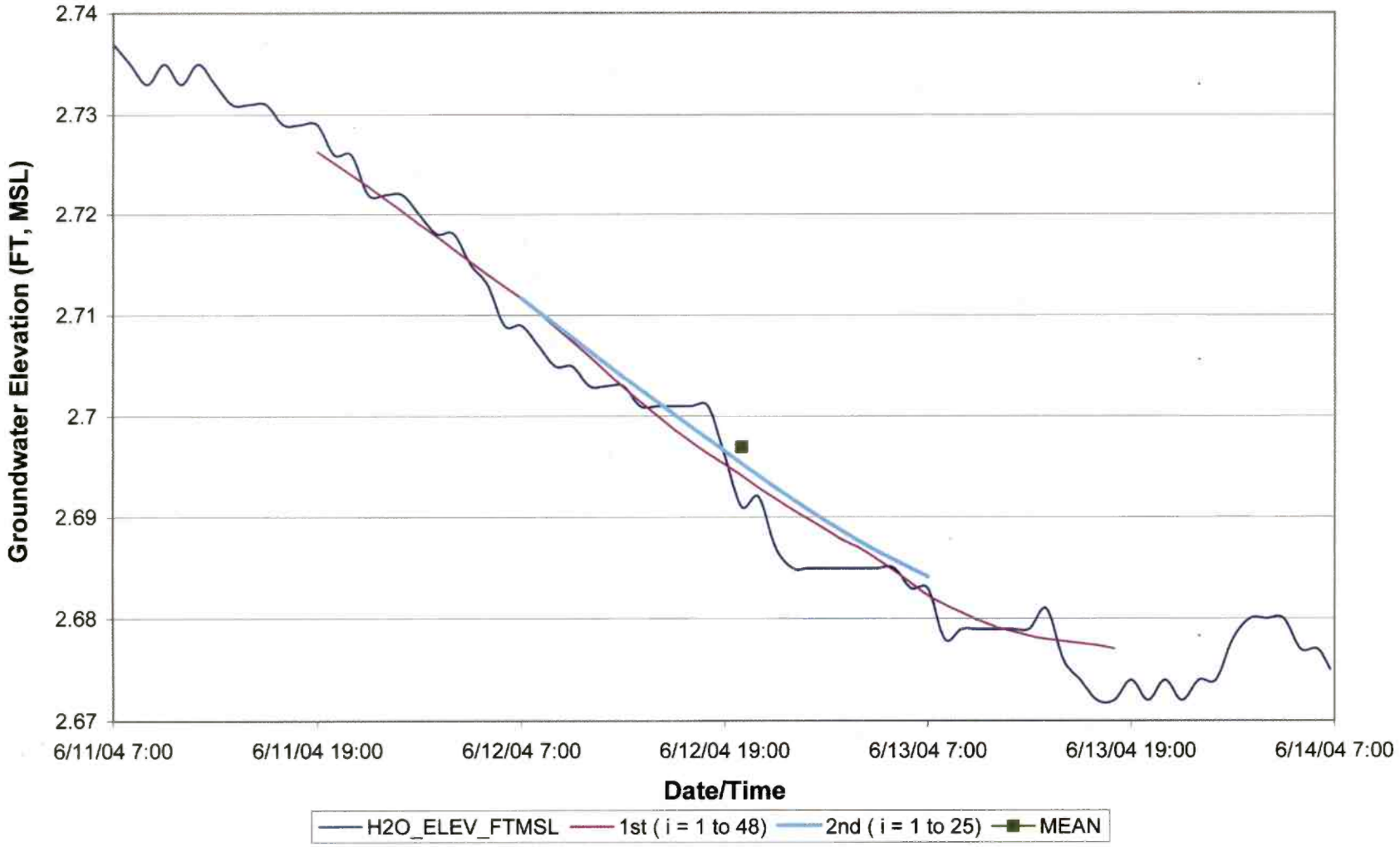
WC5-1S - Tidal Study 72-Hour Filtering Process Hydrograph



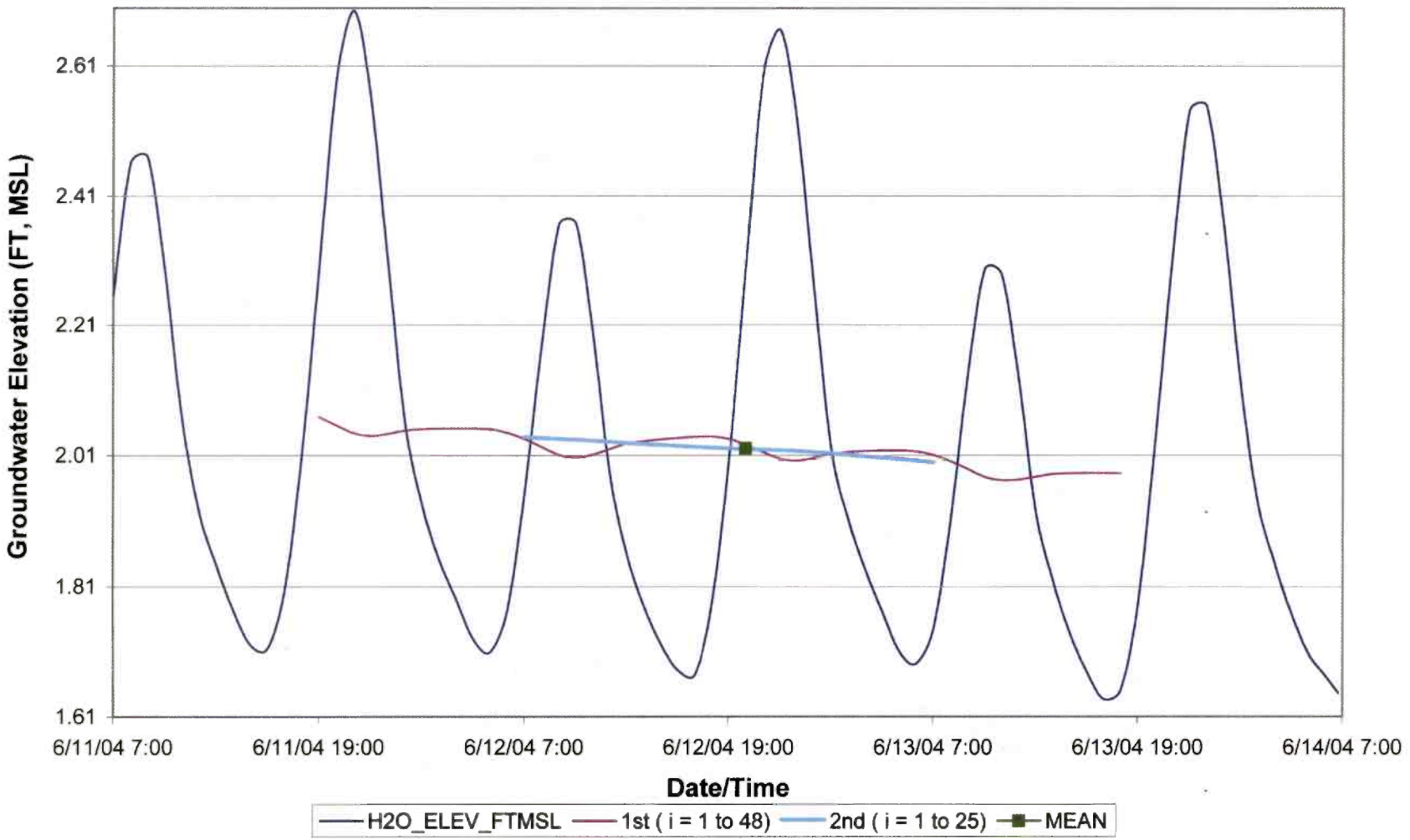
WC5-2I - Tidal Study 72-Hour Filtering Process Hydrograph



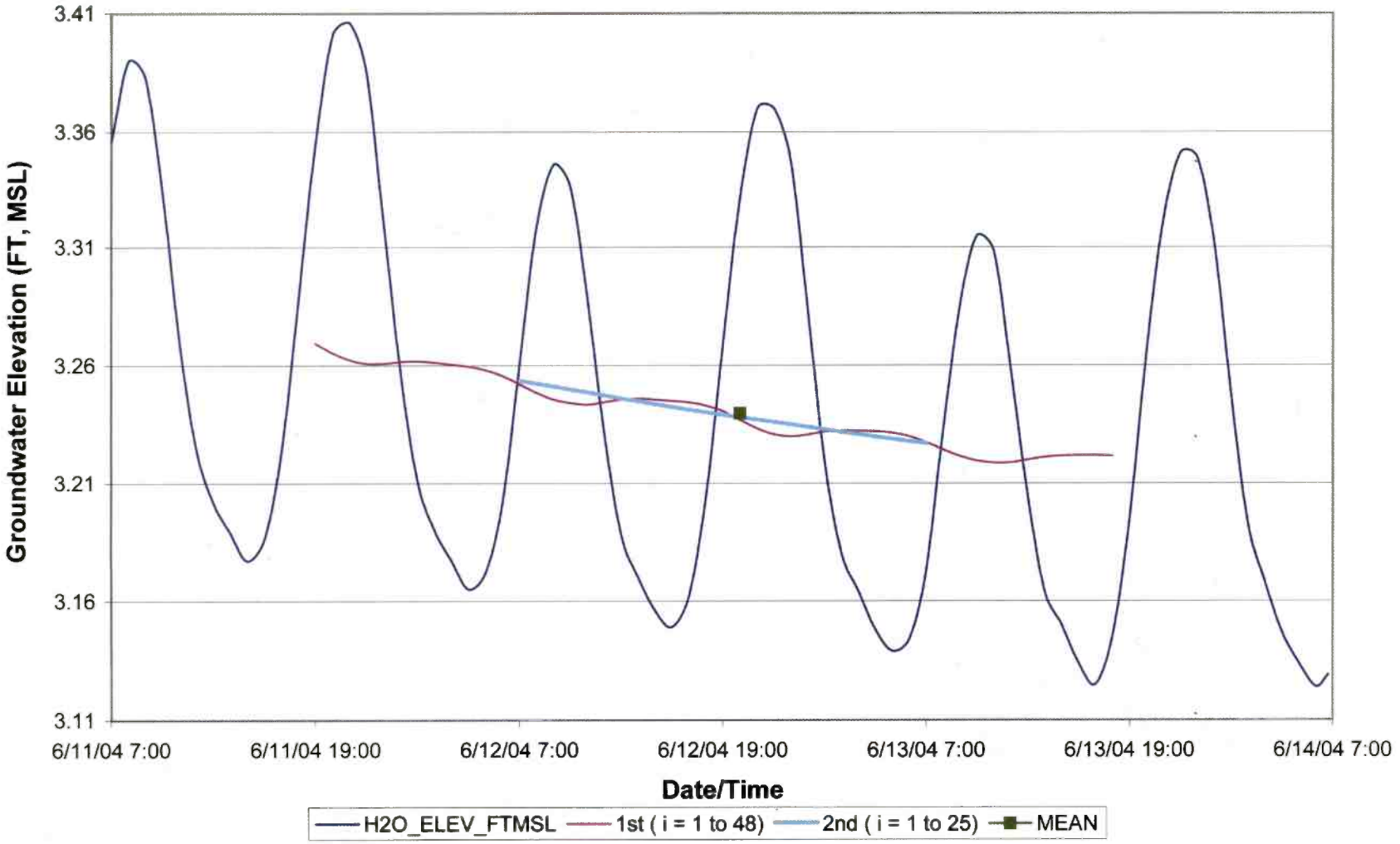
WC5-3S - Tidal Study 72-Hour Filtering Process Hydrograph



WC-5S - Tidal Study 72-Hour Filtering Process Hydrograph



WC-9D2 - Tidal Study 72-Hour Filtering Process Hydrograph



WC-9S - Tidal Study 72-Hour Filtering Process Hydrograph