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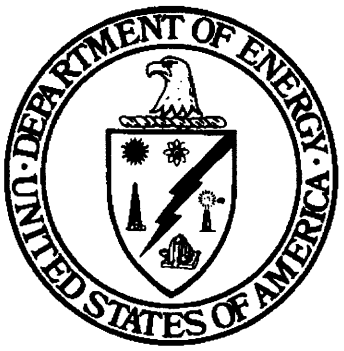
COMPLETION REPORT FOR THE FROG POND GROUNDWATER INVESTIGATION

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI

JANUARY 2004 **REV. 0**



U.S. Department of Energy
Grand Junction Office
Weldon Spring Site Remedial Action Project

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Weldon Spring Site Remedial Action Project

Completion Report for the Frog Pond Groundwater Investigation

Revision 0

January 2004

Prepared by

U.S. DEPARTMENT OF ENERGY
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APPROVALS

Originator — Date: 1-30-04

Project Director — Date: 1-30-04

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1. INTRODUCTION

Historical highs for nitroaromatic compounds have been reported over the past several years in wells in the vicinity of Frog Pond, most notably MW-2012. Concentrations of nitroaromatic compounds have increased at this location since 1997. Initial increases were attributed to soil remediation activities performed at the Department of Energy in this area and possibly remedial activities performed by the Corps of Engineers in nearby Army Lagoon 1.

1.1 Purpose and Objective

The purpose of this groundwater investigation was to obtain data from the existing and newly installed monitoring wells in order to delineate the areal extent of groundwater contamination in the Frog Pond area. Data was also used in an effort to identify the source(s) or nitroaromatic impact to the groundwater in this area.

The objective of these groundwater field studies was to identify the groundwater flow directions in the vicinity of Frog Pond and the possible preferential migration pathways in this area. Data were also to be obtained to determine the areal extent of groundwater impact in this area.

1.2 Background

The Frog Pond is located in a pre-glacial drainage valley extending north from the site as determined from the bedrock topography and hydraulic conductivity distributions in this area. Review of pre-ordnance works topography shows that both Frog Pond and Army Lagoon 1 were constructed in a stream drainage, which is coincident with the preglacial drainage. Previous site characterization indicates that these pre-glacial drainages are locations for preferential groundwater and contaminant movement.

Groundwater in Frog Pond has exhibited elevated nitroaromatic compound impact since monitoring was initiated in 1987. Prior to 1997, the area of highest nitroaromatic compound impact was in the vicinity of MW-2013, located south of MW-2012. This well; however, was installed closer to where the production houses for TNT Line #1 were located.

1.3 Document Organization

Section 2 — Drilling and Well Installation – A summary of the well installation activities and interpretation of the geologic and hydrogeologic data obtained during soil and rock drilling.

Section 3 — Hydrogeologic Data Analysis – A summary of the hydrogeologic information obtained during drilling and testing and baseline groundwater levels.

Section 4 — Analytical Data – A summary of the analytical data obtained from the pumping wells and the surrounding monitoring wells and springs.

Section 5	Potential Source Survey – A summary of the historical data review and exploratory trench performed in support of this investigation.
Section 6	Quality Control – A summary of data evaluation performed on the analytical data to determine whether data quality objectives were met.
Section 7	Conclusions – An overall summary of the effectiveness for improving contaminant removal in the study area by implementing the modifications evaluated under this study and a determination of the effects of extracting groundwater on contaminant levels in Zone 1.
Section 8	References – A summary of the reference documents used in the preparation of this report.
Appendix A	Geologic logs, packer test field sheets, and monitoring well details.
Appendix B	Analytical data.
Appendix C	Quality control data.
Appendix D	Nitroaromatic Soil/Source Investigation in the Frog Pond Area

2. DRILLING WELL INSTALLATION

Seven monitoring wells were installed in support of this groundwater investigation (Figure 2-1). Three of the wells were drilled beginning in October 2000 and development was completed in December 2000. Four additional wells were drilled beginning in November 2001 and well development was completed in January 2002. All work was performed as specified in *Frog Pond Groundwater Investigation Sampling Plan* (Ref. 1) and in the task description for Work Package WP-487A, *Subsurface Drilling Services*.

2.1 Drilling and Sampling

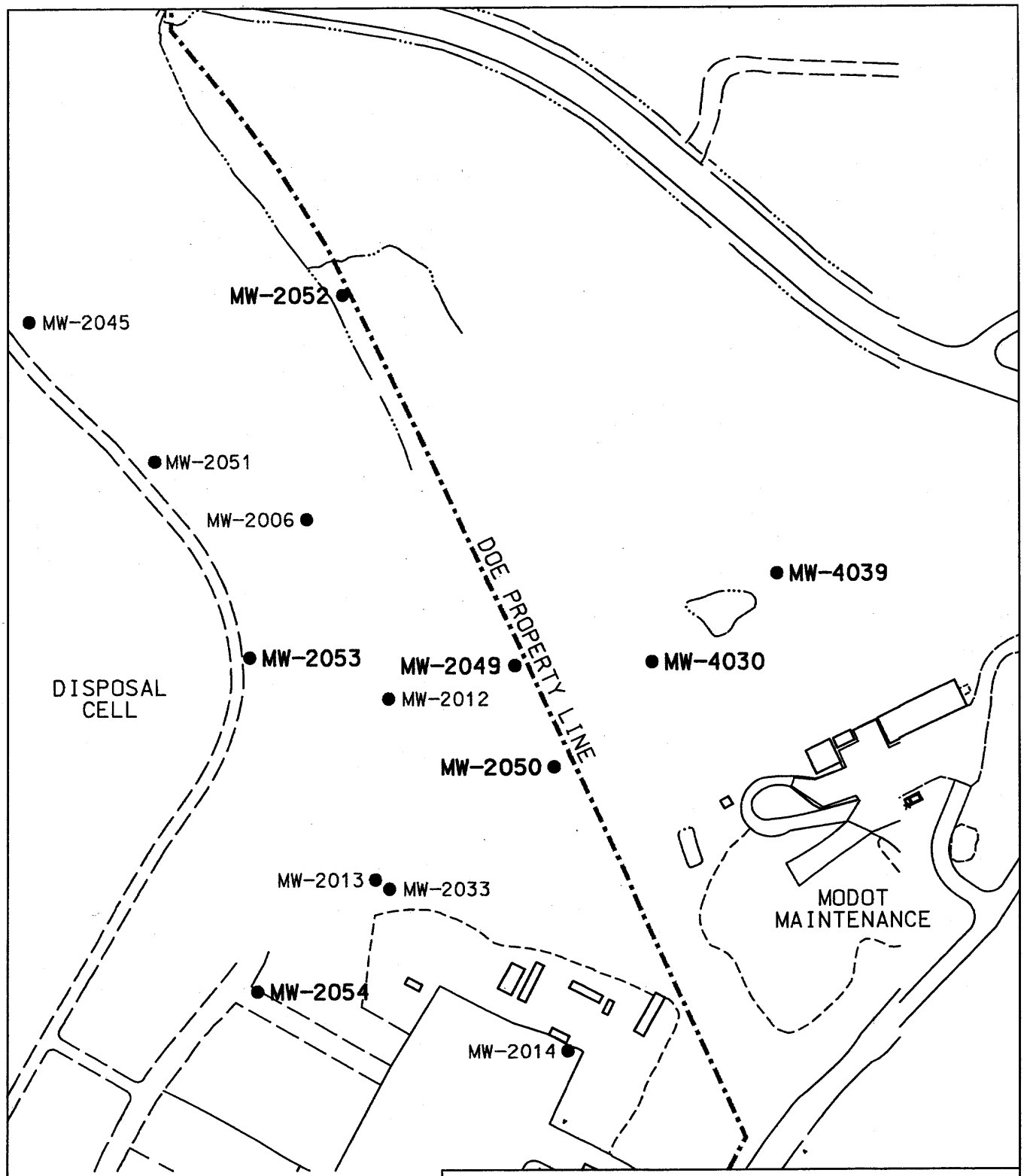
The monitoring wells were drilled at the locations identified in the *Frog Pond Groundwater Investigation Sampling Plan* (Figure 2-1). Drilling and well installation were performed to supplement the existing monitoring well network and to provide additional hydrogeologic characterization data related to the study area. Subsurface data indicate the presence of linear bedrock lows on the surface of the Burlington-Keokuk Limestone. These lows resemble surface drainages and appear to be preglacial channels formed by surface erosion of the exposed Mississippian limestone. Testing indicates that hydraulic conductivity is typically highest in wells completed in these bedrock lows.

Soil drilling and rock coring was performed using a CME-750 all-terrain drill rig. Hollow stem augers having an inside diameter (ID) of 4-1/4 inches and outside diameter (OD) of 8-1/4 inches were used to drill through the overburden. Soil sampling using a split-spoon sampler was performed only near the base of the soil zone in order to identify the top of the bedrock. Soil was described using the Unified Soil Classification System. Data obtained from the soil descriptions was consistent with previous investigations.

Core drilling was performed in all 6 boreholes once the top of rock was determined by either auger refusal or visual inspection of samples. Temporary casing with an ID of 3-1/8 inches was placed to the top of rock. Nominal 2-inch diameter core was obtained using NQ wireline drilling methods producing a 3-inch diameter borehole. A split inner barrel was used to help maintain core integrity. Coring was continued until the field geologist determined that the depth was sufficient to place the monitoring well. Typically, coring was stopped approximately 15-ft below the static groundwater level. Geologic logs are included in Appendix A. Data obtained from the rock descriptions was consistent with previous investigations in this area.

2.2 Packer Testing

During drilling of the monitoring wells, the bedrock was pressure tested (packer tested) using methods described in the *Groundwater Manual* (Ref. 2) at approximately 10-ft intervals throughout the length of the boring. At the completion of a core run, the inner barrel was removed and the hole was flushed with water to remove drill cuttings. The drill pipe and outer core barrel were then pulled out of the borehole. A single packer assembly was installed in the borehole and inflated at the top of the test interval. The



NEW MONITORING WELL LOCATIONS

FIGURE 2-1

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ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04

open hole below was then pressurized by pumping water directly into the boring through a water pipe extending through the packer. Test pressure and flow rates were measured with a pressure gauge and water meter, respectively. Results from the packer testing are presented in Section 3.

2.3 Well Installation

After the completion of coring and packer testing, the vertical boreholes were reamed from 3-inch diameter to 6-inch diameter in order to construct a well. The hollow stem augers were left in the hole to serve as casing through the soil zone. Reaming was accomplished using an Ingersoll-Rand TH-60 air rotary drill equipped with a tri-cone bit.

The 7 monitoring wells were constructed using 2-inch stainless steel (316) casing and screen (0.010-inch slot). The filter pack was constructed of silica sand (20-40 gradation). The well was surged to compact the sand during installation to prevent bridging. Bentonite pellets formed a seal above the filter pack and bentonite slurry was used, as the annular seal to within 2-feet of the ground surface. A summary of the well construction is provided in Table 2-1. Well construction details are presented in Appendix A.

Table 2-1 Well Construction Details

Well ID	Coordinates		Elevation		Screened Interval (ft bgs)	Total Depth (ft)
	Northing	Easting	Ground	Top of Casing		
2049	1043408.75	756270.80	634.12	637.02	39.0 – 44.0	45.0
2050	1043266.62	756323.47	636.62	640.11	39.0 – 44.0	44.0
2052	1043928.24	756051.16	622.29	624.82	30.0 – 40.0	41.0
2053	1043421.87	755919.13	640.76	643.19	45.0 – 55.0	56.0
2054	1042960.26	755929.99	650.04	652.58	50.0 – 60.0	61.0
4030	1043403.12	756457.20	642.54	645.04	50.0 – 55.0	56.0
4039	1043537.82	756647.70	646.40	648.94	52.0 – 62.0	62.3

Note: bgs = below ground surface

2.4 Well Development

Following a minimum of 24 hours after well completion, all wells were developed using a pump and surge technique combined with over-pumping. Development was accomplished by initially removing water and sediment by hand bailing. The bailer was raised and lowered several times within the water column to provide a surging action to breakdown skin effects on the borehole caused by the drilling process. After completion of surging using the hand bailer, the well was pumped using a Grundfos Redi-Flo2 pump to remove groundwater. Three well volumes were removed from each well prior to determining stabilization. Physical parameters including temperature, conductivity, turbidity, and pH were measured until all were stable and turbidity-free water was noted. Well development records are presented in Appendix A.

3. HYDROGEOLOGIC DATA ANALYSIS

3.1 Bedrock Stratigraphy

The Burlington-Keokuk Limestone unit has been divided into two units based primarily on the degree of weathering: the upper weathered unit and the lower unweathered unit. The weathered unit typically exhibits a strongly weathered subzone that shows a considerably higher degree of weathering and is characterized by vuggy, weakly cemented chert breccia with minor limestone fragments in a sandy, clayey matrix (Ref. 3). This zone is qualitatively recognized as the strongly weathered subunit and is generally found at the top of the weathered unit in this portion of the site, although it is discontinuous across the entire site. Hydrologic testing in the weathered and unweathered Burlington-Keokuk generally shows higher hydraulic conductivity values in the weathered unit. The strongly weathered subunit averages still higher results than the weathered unit (Ref. 3).

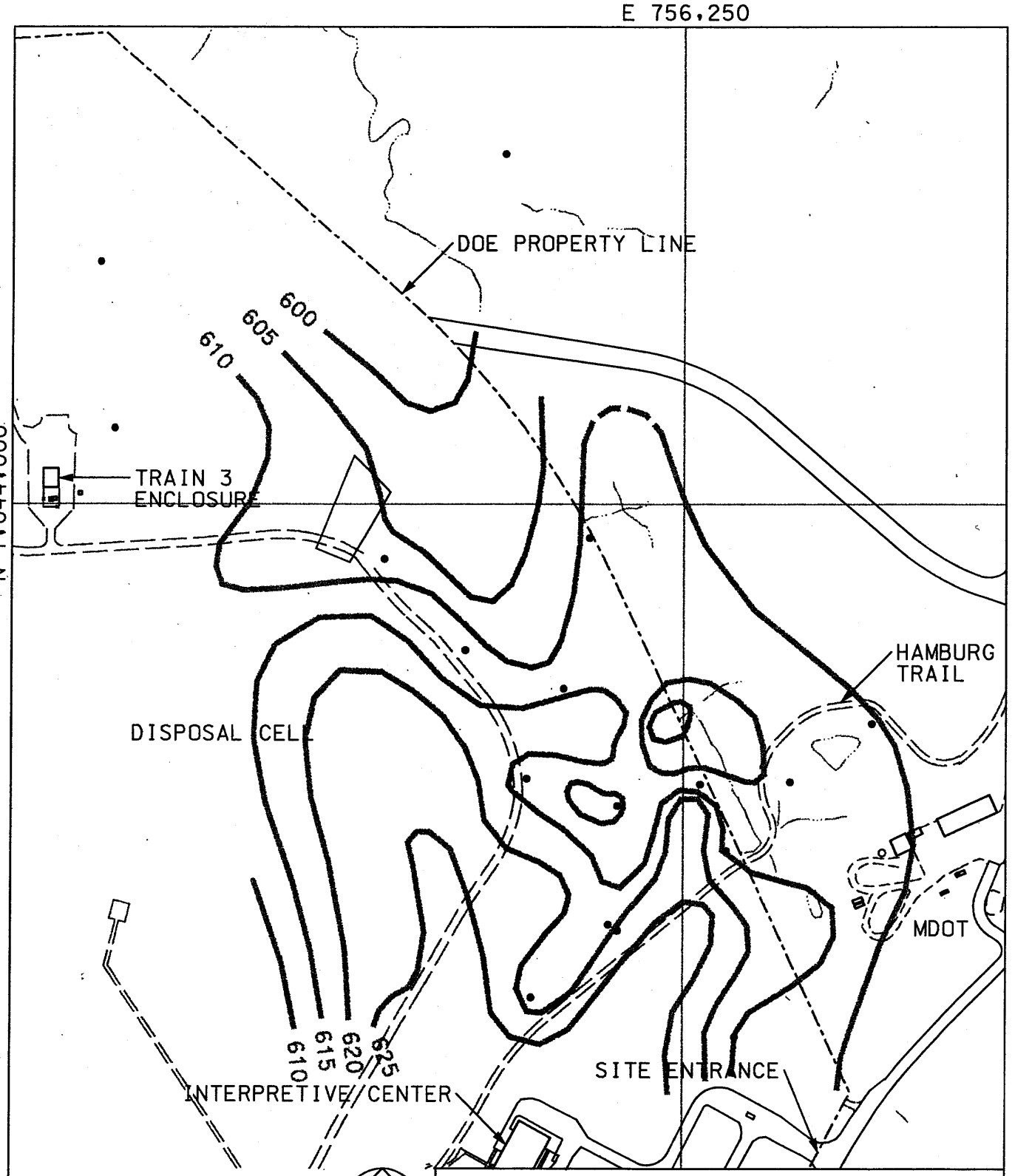
3.2 Bedrock Topography

Drilling performed at the chemical plant and surrounding area has identified linear bedrock lows on the surface of the Burlington-Keokuk Limestone (Ref. 3). These topographic lows resemble surface drainages and appear to be pre-glacial channels formed by surface erosion of the Mississippian Limestone.

Revision of the bedrock topography using the new top of rock data from the monitoring wells indicates the presence of the paleochannel extending to the north through the Frog Pond area (Figure 3-1). This bedrock low follows the pre-1950's topography of the area where a creek channel flowed to the west. Contaminant concentrations obtained from the wells support the conclusion that the flow through this feature is to the north.

3.3 Fracture Frequency/RQD Results

During the drilling of the wells, fractures were observed in the bedrock core and noted on the borehole logs (Appendix A). Fracture frequency and Rock Quality Designation (RQD) were also documented on the logs. RQD is a qualitative determination of rock quality calculated by taking the cumulative length of recovered solid pieces of core that are 4 in. or greater in length in a core run divided by the length of the core run, expressed as a percentage. A summary of the fracture data is presented in Table 3-1.



BEDROCK TOPOGRAPHY IN FROND POND AREA

FIGURE 3-1

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Table 3-1 Fracture Frequency and RQD Data

Location	Stratigraphic Unit	Average Fracture Frequency (per foot)	RQD % (Weighted Average)
MW-2049	Strongly weathered Burlington-Keokuk	5	34%
	Weathered Burlington-Keokuk	5	30%
MW-2050	Strongly weathered Burlington-Keokuk	4	26%
	Weathered Burlington-Keokuk	3	19%
MW-2052	Strongly weathered Burlington-Keokuk	Not determined	17%
	Weathered Burlington-Keokuk	Not determined	22%
MW-2053	Strongly weathered Burlington-Keokuk	2	17%
	Weathered Burlington-Keokuk	3	43%
MW-2054	Strongly weathered Burlington-Keokuk	Not determined	66%
	Weathered Burlington-Keokuk	5	56%
MW-4030	Strongly weathered Burlington-Keokuk	5	16%
	Weathered Burlington-Keokuk	5	33%
MW-4039	Strongly weathered Burlington-Keokuk	Not present	Not present
	Weathered Burlington-Keokuk	3	45%

Fracture frequencies per foot were similar in core from the strongly weathered unit and weathered unit of the Burlington-Keokuk Limestone in this portion of the site. Average fracture frequencies ranged from 2 to 5 fractures per foot. The RQD averages for the strongly weathered and weathered units were also similar and ranged from 16% to 66%. Review of the geologic logs indicates more core loss and rubble zones in the strongly weathered unit than in the weathered unit. These results were consistent with previous geologic investigations of the Burlington–Keokuk Limestone at the chemical plant.

3.4 Packer Testing

As the coring progressed, hydraulic packer testing was performed at successive intervals in the borehole to determine the hydraulic conductivity for discrete intervals of the limestone. An inflatable rubber packer was expanded within the core hole, typically 10-feet above the bottom of the hole. Water was pumped into the hole below the packer at various pressures; typically 10 psi increments. A flow meter recorded the amount of water pumped into the formation. The results from the testing are provided in Table 3-2. The results from the testing followed trends noted from previous packer testing at the site, such as decreasing permeability with depth and the highest permeability exhibited in the strongly weathered portion of the Burlington-Keokuk Limestone. Packer test field sheets are contained in Appendix A.

Table 3-2 Summary of Packer Testing Results

Well	Test Interval	Test Number	Pressure (psi)	K (cm/s)	Average K (cm/s)
MW-2049	28.0 – 35.0	1	15	8×10^{-4}	7×10^{-4}
		2	35	7×10^{-4}	
		3	50	7×10^{-4}	
		4	20	7×10^{-4}	
	35.0 – 45.0	1	25	2×10^{-5}	3×10^{-4}
		2	40	4×10^{-4}	
		3	50	6×10^{-4}	

Well	Test Interval	Test Number	Pressure (psi)	K (cm/s)	Average K (cm/s)
MW-2050	29.8 – 37.5	1	20	1×10^{-4}	3×10^{-4}
		2	30	3×10^{-4}	
		3	35	6×10^{-4}	
		4	20	9×10^{-5}	
MW-2052	13.0 – 23.0	1	5	2×10^{-3}	2×10^{-3}
		2	10	2×10^{-3}	
		3	15	2×10^{-3}	
		4	5	3×10^{-3}	
	24.0 – 35.0	1	10	1×10^{-3}	1×10^{-3}
		2	15	1×10^{-3}	
		3	25	1×10^{-3}	
		4	10	1×10^{-3}	
	35.0 x 40.0	1	15	5×10^{-5}	5×10^{-5}
		2	25	5×10^{-5}	
		3	35	5×10^{-5}	
		4	15	4×10^{-5}	
MW-2053	29.0 – 39.0	1	10	4×10^{-4}	4×10^{-4}
		2	20	4×10^{-4}	
		3	30	4×10^{-4}	
		4	10	4×10^{-4}	
	40.0 – 50.0	1	15	2×10^{-3}	2×10^{-3}
		2	25	2×10^{-3}	
		3	40	1×10^{-3}	
		4	15	2×10^{-3}	
	45.0 – 55.0	1	15	2×10^{-3}	2×10^{-3}
		2	30	2×10^{-3}	
		3	45	1×10^{-3}	
		4	15	2×10^{-3}	
MW-2054	32.0 – 41.0	1	10	1×10^{-5}	1×10^{-5}
		2	20	1×10^{-5}	
		3	30	2×10^{-5}	
		4	10	1×10^{-5}	
	44.0 – 53.0	1	15	1×10^{-3}	1×10^{-3}
		2	30	1×10^{-3}	
		3	45	9×10^{-4}	
		4	15	1×10^{-3}	
	53.0 – 60.0	1	15	4×10^{-5}	6×10^{-5}
		2	30	6×10^{-5}	
		3	50	7×10^{-5}	
		4	15	6×10^{-5}	
MW-4030	35.0 – 45.0	1	0	1×10^{-3}	1×10^{-3}
	45.0 – 53.0	1	35	2×10^{-5}	6×10^{-5}
		2	45	5×10^{-5}	
		3	55	1×10^{-4}	
		4	45	5×10^{-5}	
MW-4039	42.0 – 49.5	1	15	2×10^{-3}	2×10^{-3}
		2	25	2×10^{-3}	
		3	15	2×10^{-3}	
	49.5 – 58.8	1	25	9×10^{-6}	9×10^{-6}
		2	40	1×10^{-5}	
		3	55	1×10^{-5}	
		4	25	8×10^{-6}	

4.0 ANALYTICAL DATA

4.1 Nitroaromatic Compounds in Groundwater

Six primary nitroaromatic compounds and 5 breakdown products were monitored in the new monitoring wells and other nearby wells to establish the areal extent of groundwater impact and to determine possible sources for this impact. Summaries of the data for the new wells and the existing nearby wells are presented in Tables 4-1 and 4-2, respectively. Analytical data for each sampling event is contained in Appendix B.

Table 4-1 Nitroaromatic Compound Data[(a)] for the New Monitoring Wells

Parameter		Well Number						
		2049	2050	2052	2053	2054	4030	4039
Nitroaromatic Compounds (µg/l)								
1,3,5-TNB	Detects/ Total	14/17	16/17	10/10	10/10	7/10	10/10	0/10
	Mean	0.28	4.3	2.9	7.3	0.16	3.1	---
	Max.	0.81	8.0	3.7	9.2	0.46	7.1	ND
	Min.	ND	ND	2.2	5.7	ND	0.16	ND
1,3-DNB	Detects/ Total	2/17	8/17	3/10	3/10	2/10	9/16	0/10
	Mean	0.20	0.12	0.05	0.07	0.04	0.07	---
	Max.	1.8	0.32	0.10	0.23	0.06	0.16	ND
	Min.	ND	ND	ND	ND	ND	ND	ND
2,4,6-TNT	Detects/ Total	7/17	3/17	9/10	9/10	0/10	10/10	1/10
	Mean	0.81	0.11	0.47	6.6	---	1.3	0.04
	Max.	5.5	0.73	0.61	9.9	ND	2.3	0.12
	Min.	ND	ND	ND	ND	ND	0.38	ND
2,4-DNT	Detects/ Total	15/17	16/17	7/10	5/10	9/10	14/16	0/10
	Mean	21	22	0.09	0.12	3.4	0.18	---
	Max.	78	45	0.13	0.33	13	0.21	ND
	Min.	ND	ND	ND	ND	ND	ND	ND
2,6-DNT	Detects/ Total	17/17	16/17	7/10	9/10	7/10	15/16	2/10
	Mean	72	6.1	0.24	5.4	8.3	0.42	0.08
	Max.	160	21	0.39	25	32	0.81	0.31
	Min.	34	ND	ND	ND	ND	ND	ND
NB	Detects/ Total	1/17	1/17	1/10	1/10	2/10	0/16	4/10
	Mean	0.23	0.04	0.04	0.27	0.09	---	0.04
	Max.	2.7	0.35	0.08	2.4	0.45	ND	0.04
	Min.	ND	ND	ND	ND	ND	ND	ND
Breakdown Products (µg/l)								
2-amino-4,6-DNT	Detects/ Total	7/8	8/8	6/6	5/6	5/6	8/8	1/6
	Mean	1.4	1.9	2.3	2.4	0.13	1.0	0.03
	Max.	2.1	3.2	3.2	3.8	0.27	1.5	0.10
	Min.	ND	1.0	1.7	ND	ND	0.69	ND
4-amino-2,6-DNT	Detects/ Total	7/8	7/8	6/6	6/6	5/6	8/8	1/6
	Mean	2.4	2.0	1.1	2.2	0.19	1.1	0.11
	Max.	4.0	3.1	1.5	2.7	0.35	1.5	0.56
	Min.	ND	ND	0.73	1.6	ND	0.84	ND

Parameter		Well Number						
		2049	2050	2052	2053	2054	4030	4039
2-NT	Detects/ Total	8/8	8/8	5/6	3/6	6/6	2/8	2/6
	Mean	87	9.0	0.36	0.28	5.5	0.16	0.03
	Max.	180	23	1.1	0.78	16	0.46	0.06
	Min.	6.6	1.6	ND	ND	0.73	ND	ND
3-NT	Detects/ Total	7/8	7/8	0/6	1/6	4/6	1/8	1/6
	Mean	3.7	1.0	---	0.05	0.36	0.04	0.04
	Max.	7.5	3.1	ND	0.18	0.95	0.14	0.12
	Min.	0.6	0.01	ND	ND	ND	ND	ND
4-NT	Detects/ Total	6/8	6/8	1/6	0/6	4/6	0/8	0/6
	Mean	2.0	2.6	0.08	---	0.16	---	---
	Max.	7.4	6.5	0.39	ND	0.37	ND	ND
	Min.	ND	ND	ND	ND	ND	ND	ND

(a) Data from December 2001 through October 2003

Table 4-2 Nitroaromatic Compound Data[(a)] for the Existing Nearby Monitoring Wells

Parameter		Well Number						
		2006	2012	2013	2014	2033	2045	4015
Nitroaromatic Compounds (µg/l)								
1,3,5-TNB	Detects/ Total	16/16	19/19	15/15	15/15	15/15	5/12	9/9
	Mean	4.9	191	2.6	2.2	2.4	0.08	4.0
	Max.	7.0	350	7.1	3.5	6.5	0.27	5.5
	Min.	0.03	17	0.19	1.1	ND	ND	1.1
1,3-DNB	Detects/ Total	2/16	14/19	2/15	3/15	1/15	6/12	0/9
	Mean	0.07	2.8	0.06	0.05	0.04	0.08	---
	Max.	0.37	18	0.23	0.07	0.10	0.16	ND
	Min.	ND	ND	ND	ND	ND	ND	ND
2,4,6-TNT	Detects/ Total	4/16	19/19	10/15	1/15	14/15	4/13	1/9
	Mean	0.25	216	0.33	0.04	0.50	0.07	0.04
	Max.	1.7	310	1.1	0.25	1.1	0.2	0.11
	Min.	ND	20	ND	ND	ND	ND	ND
2,4-DNT	Detects/ Total	6/16	19/19	12/15	14/15	7/15	8/12	6/9
	Mean	0.08	1127	0.12	0.12	0.20	0.07	0.10
	Max.	0.39	1800	0.36	0.34	1.1	0.10	0.47
	Min.	ND	170	ND	ND	ND	ND	ND
2,6-DNT	Detects/ Total	12/16	19/19	15/15	15/15	14/15	11/12	9/9
	Mean	0.81	947	1.1	0.44	1.2	0.61	0.78
	Max.	1.6	1300	2.3	0.73	4.1	0.8	1.1
	Min.	ND	560	0.47	0.21	ND	ND	0.42
NB	Detects/ Total	1/16	1/19	0/15	2/15	0/15	1/12	1/9
	Mean	0.12	3.9	---	0.11	---	0.04	0.06
	Max.	1.6	69	ND	0.93	ND	0.5	0.32
	Min.	ND	ND	ND	ND	ND	ND	ND

Parameter		Well Number						
		2006	2012	2013	2014	2033	2045	4015
Breakdown Products (µg/l)								
2-amino-4,6-DNT	Detects/ Total	5/5	7/7	5/5	5/5	5/5	5/5	5/5
	Mean	1.5	13	1.1	0.38	1.0	0.57	2.4
	Max.	1.7	17	1.6	0.45	1.6	0.71	2.5
	Min.	1.2	5.8	0.6	0.3	0.2	0.4	2.2
4-amino-2,6-DNT	Detects/ Total	5/5	3/7	5/5	5/5	4/5	5/5	5/5
	Mean	1.3	5.3	1.2	0.60	1.2	0.59	2.8
	Max.	1.6	13	1.6	0.71	1.9	0.69	3.0
	Min.	1.1	ND	0.77	0.49	ND	0.45	2.6
2-NT	Detects/ Total	4/5	7/7	2/5	1/5	3/5	1/5	1/5
	Mean	0.31	2014	0.18	0.14	1.5	0.05	0.17
	Max.	0.58	2300	0.44	0.57	4.6	0.11	0.75
	Min.	ND	1500	ND	ND	ND	ND	ND
3-NT	Detects/ Total	1/5	7/7	0/5	0/5	2/5	0/5	0/5
	Mean	0.04	143	---	---	0.11	---	---
	Max.	0.07	160	ND	ND	0.26	ND	ND
	Min.	ND	110	ND	ND	ND	ND	ND
4-NT	Detects/ Total	0/5	7/7	0/5	0/5	1/5	0/5	0/5
	Mean	---	531	---	---	0.09	---	---
	Max.	ND	770	ND	ND	0.37	ND	ND
	Min.	ND	250	ND	ND	ND	ND	ND

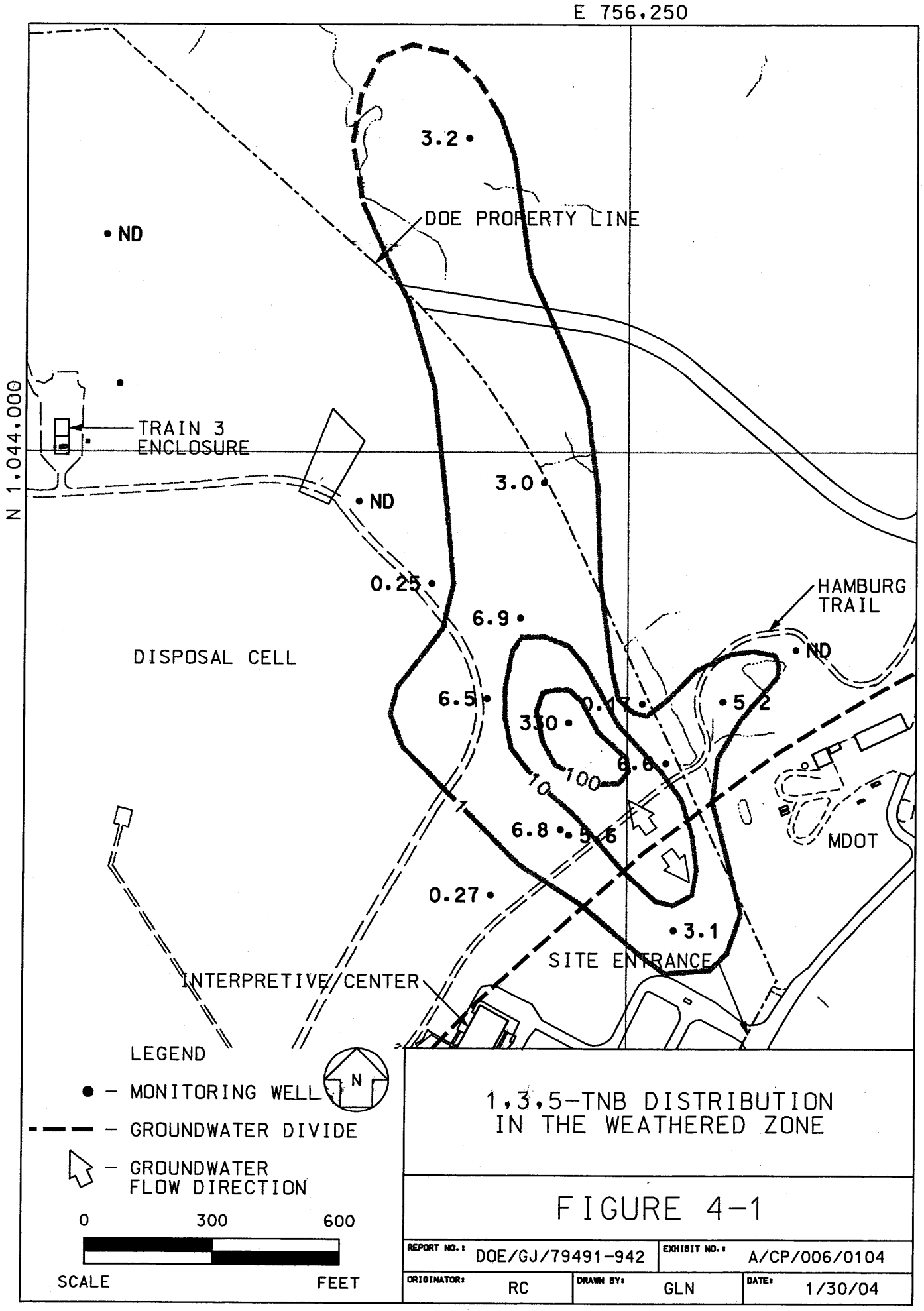
(a) Data from December 2001 through October 2003

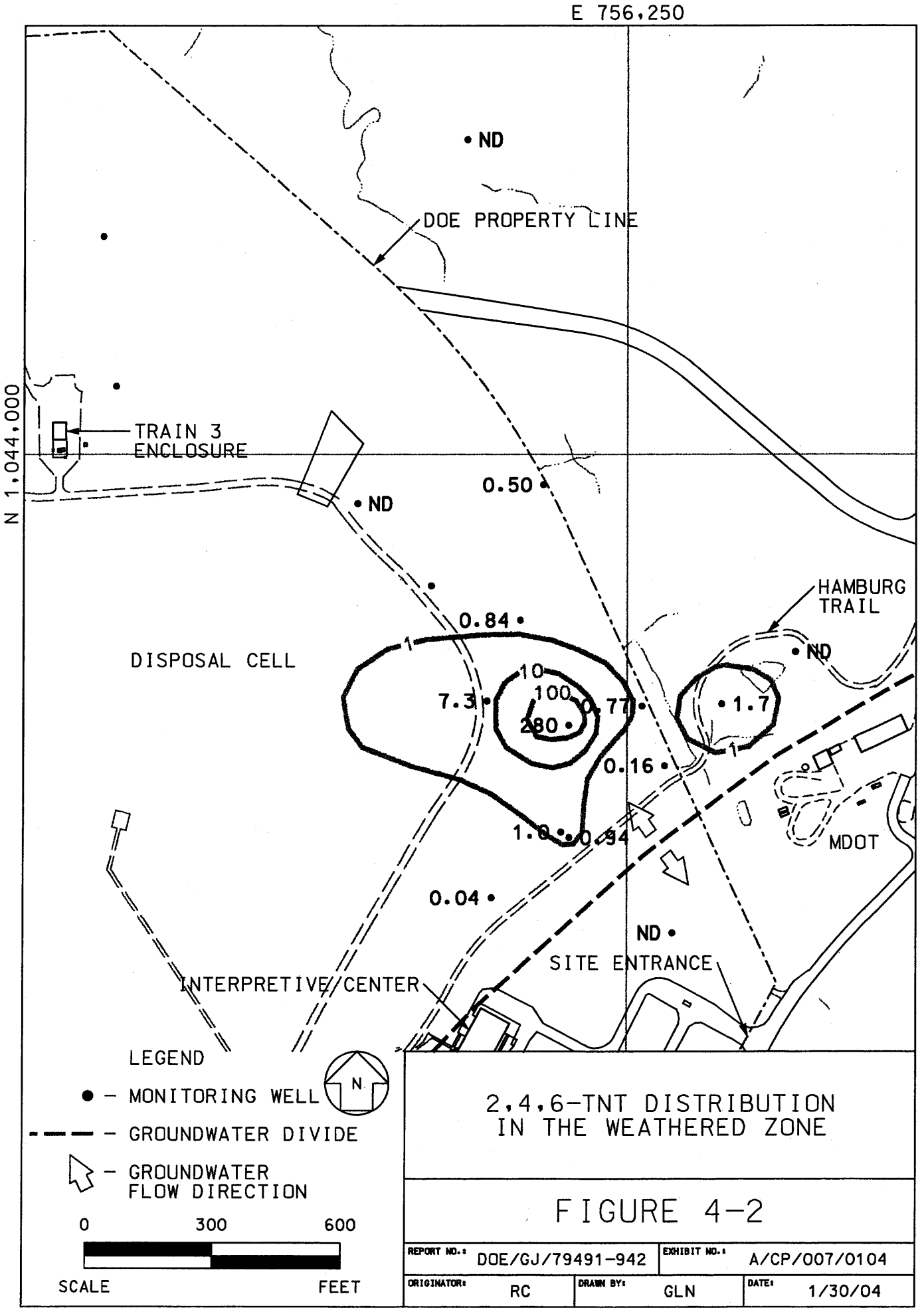
The distributions of the nitroaromatic compounds in groundwater are depicted on Figures 4-1 through 4-10. These distributions represented the average of data collected at each location during 2003 (January through October). ,The compounds 1,3,5-TNB, 2,6-DNT, and 2-Amino-4,6-DNT cover the larger areal extent. The remainder of the nitroaromatic compounds are centered primarily on MW-2012. Groundwater impact extends off-site to MW-4015, located north of the Frog Pond area

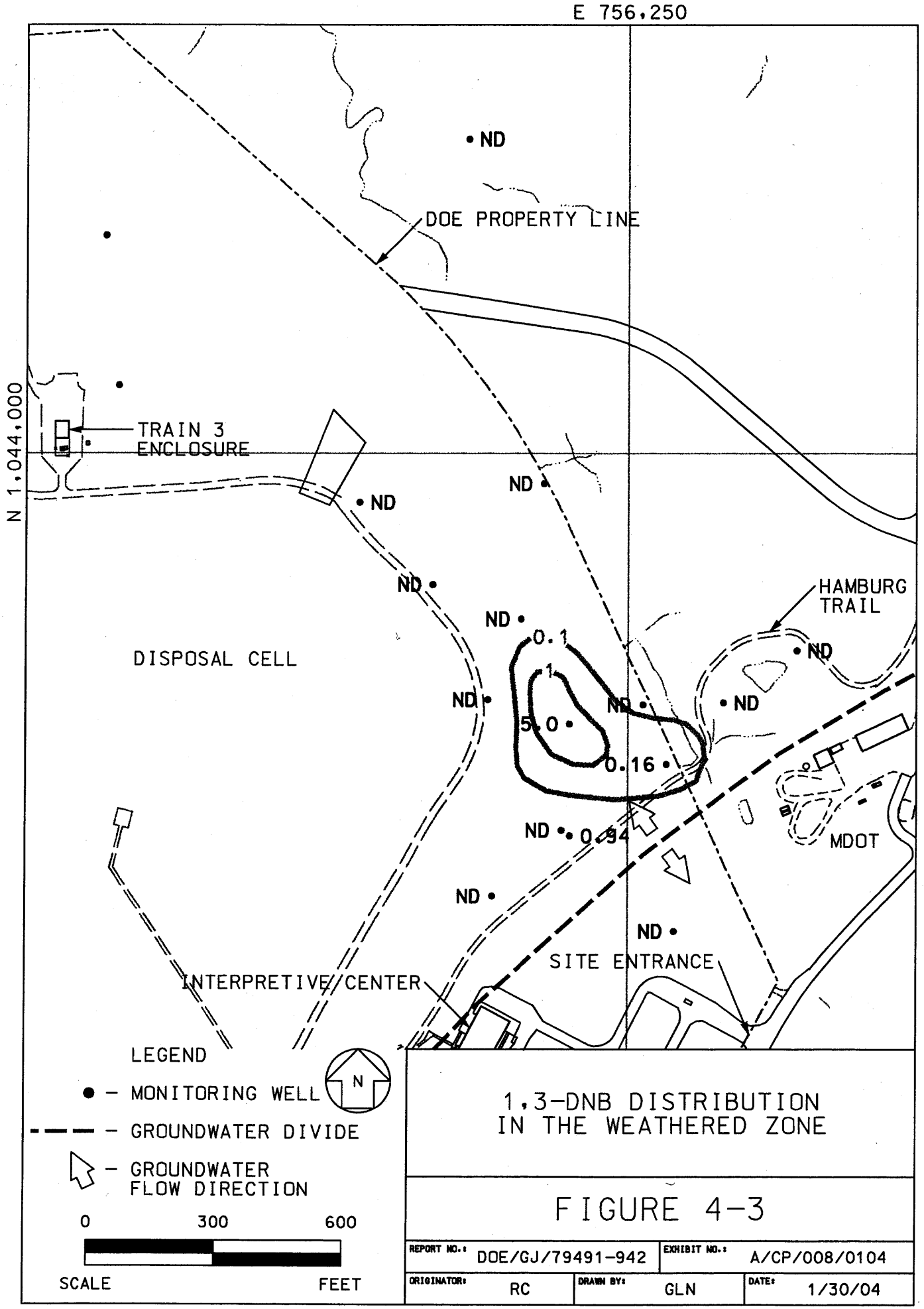
The distribution of nitroaromatic compounds in groundwater shows evidence of strong control by the paleochannel located in the area. The areas of greatest contamination are centered on MW-2012, which appears to be within the paleochannel itself. Elevated concentrations also occur in MW-2050 and MW-2053 that are located in bedrock lows that intersect the paleochannel. Nitroaromatic compounds extend to the north along the bedrock low as shown by elevated levels measured in MW-4015.

4.2 General Groundwater Quality

Baseline groundwater quality samples were collected from each of the newly installed wells to determine whether groundwater impact from other than nitroaromatic compounds had occurred in this area. During the initial phase of the investigation, the wells were analyzed for radiochemical parameters, metals, anions, and volatile organic compounds. Based on the results from these three wells, the wells installed under


E 756,250
N 1,044,000
3.2
DOE PROPERTY LINE
ND
TRAIN 3
ENCLOSURE
ND
3.0
0.25
6.9
HAMBURG
TRAIL
DISPOSAL CELL
ND
6.5
330
0.17
5.2
6.6
100
10
1
6.8
5.6
MDOT
0.27
3.1
SITE ENTRANCE
INTERPRETIVE CENTER
LEGEND
● – MONITORING WELL
– GROUNDWATER DIVIDE
– GROUNDWATER FLOW DIRECTION
N
0
300
600
SCALE
FEET
1,3,5-TNB DISTRIBUTION
IN THE WEATHERED ZONE
FIGURE 4-1
REPORT NO.: DOE/GJ/79491-942
EXHIBIT NO.: A/CP/006/0104
ORIGINATOR: RC
DRAWN BY: GLN
DATE: 1/30/04

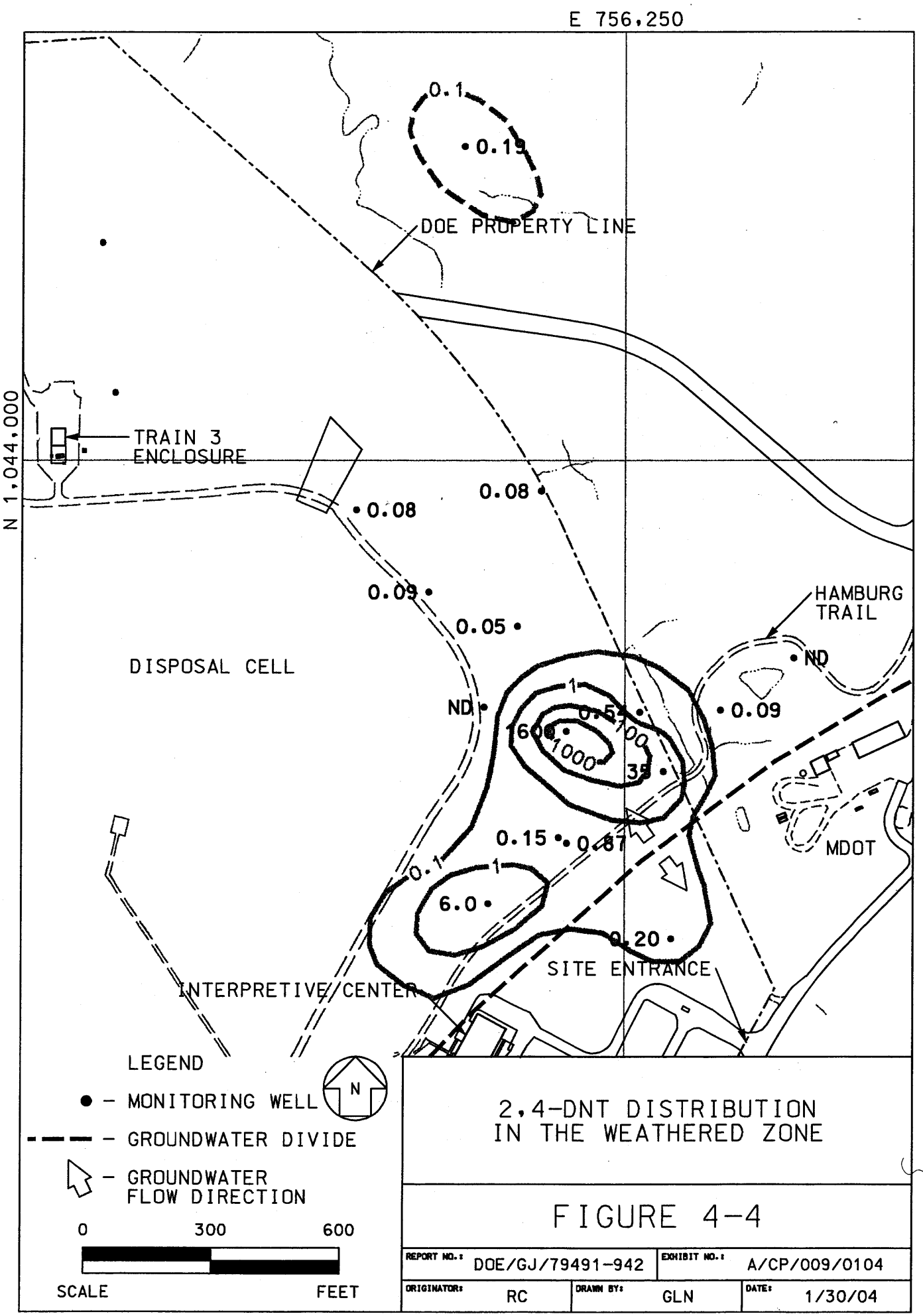

E 756,250
N 1,044,000
• ND
DOE PROPERTY LINE
TRAIN 3
ENCLOSURE
• ND
0.50 •
0.84 •
1
DISPOSAL CELL
10
100
7.3 •
0.77 •
280 •
• 1.7
1
0.16 •
1.0 •
0.94
0.04 •
ND •
HAMBURG
TRAIL
• ND
MDOT
SITE ENTRANCE
INTERPRETIVE CENTER
LEGEND
• – MONITORING WELL
– GROUNDWATER DIVIDE
– GROUNDWATER
FLOW DIRECTION
N
0
300
600
SCALE
FEET
2,4,6-TNT DISTRIBUTION
IN THE WEATHERED ZONE
FIGURE 4-2
REPORT NO.: DOE/GJ/79491-942
EXHIBIT NO.: A/CP/007/0104
ORIGINATOR: RC
DRAWN BY: GLN
DATE: 1/30/04

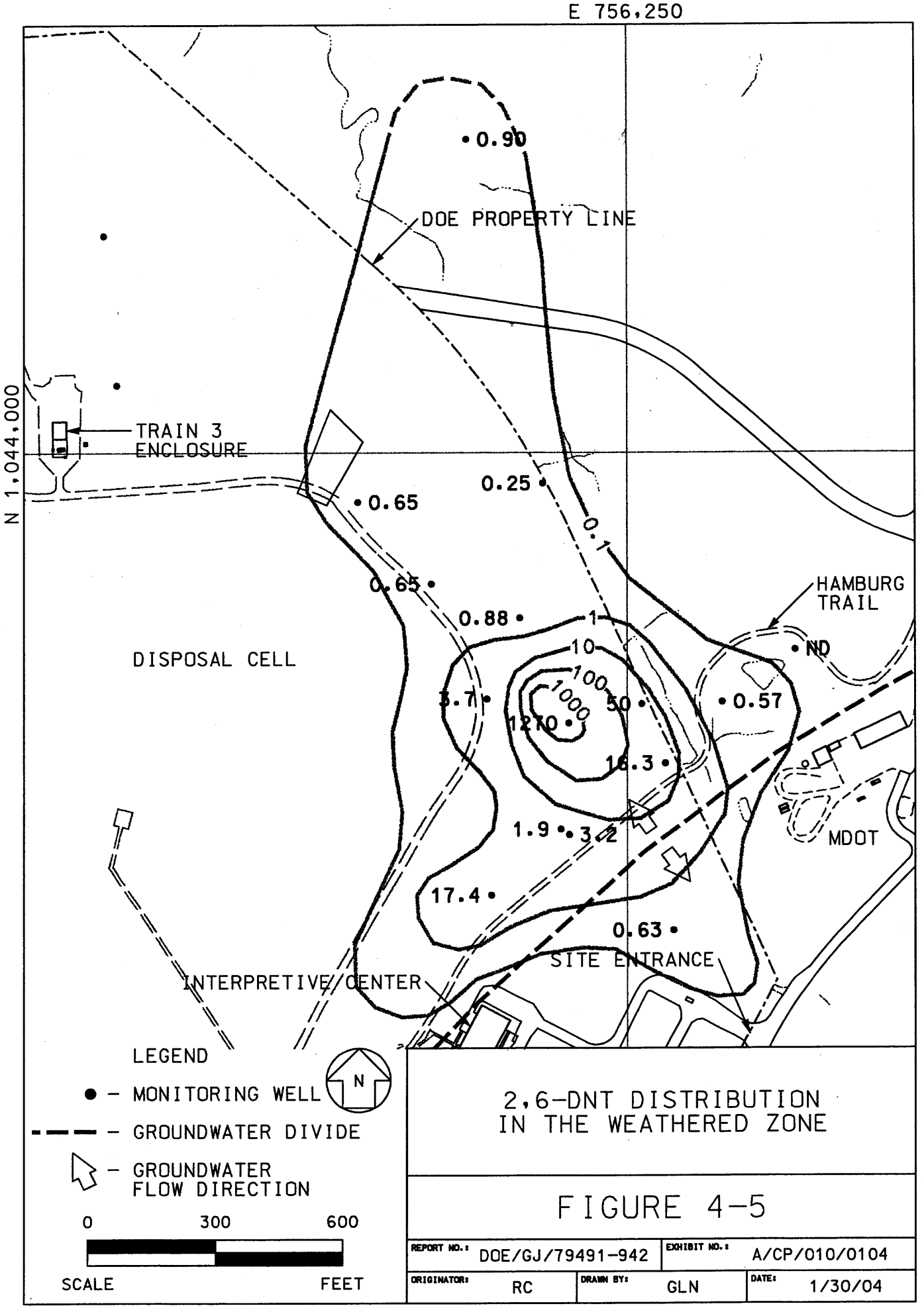


1,3-DNB DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-3

REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/008/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04

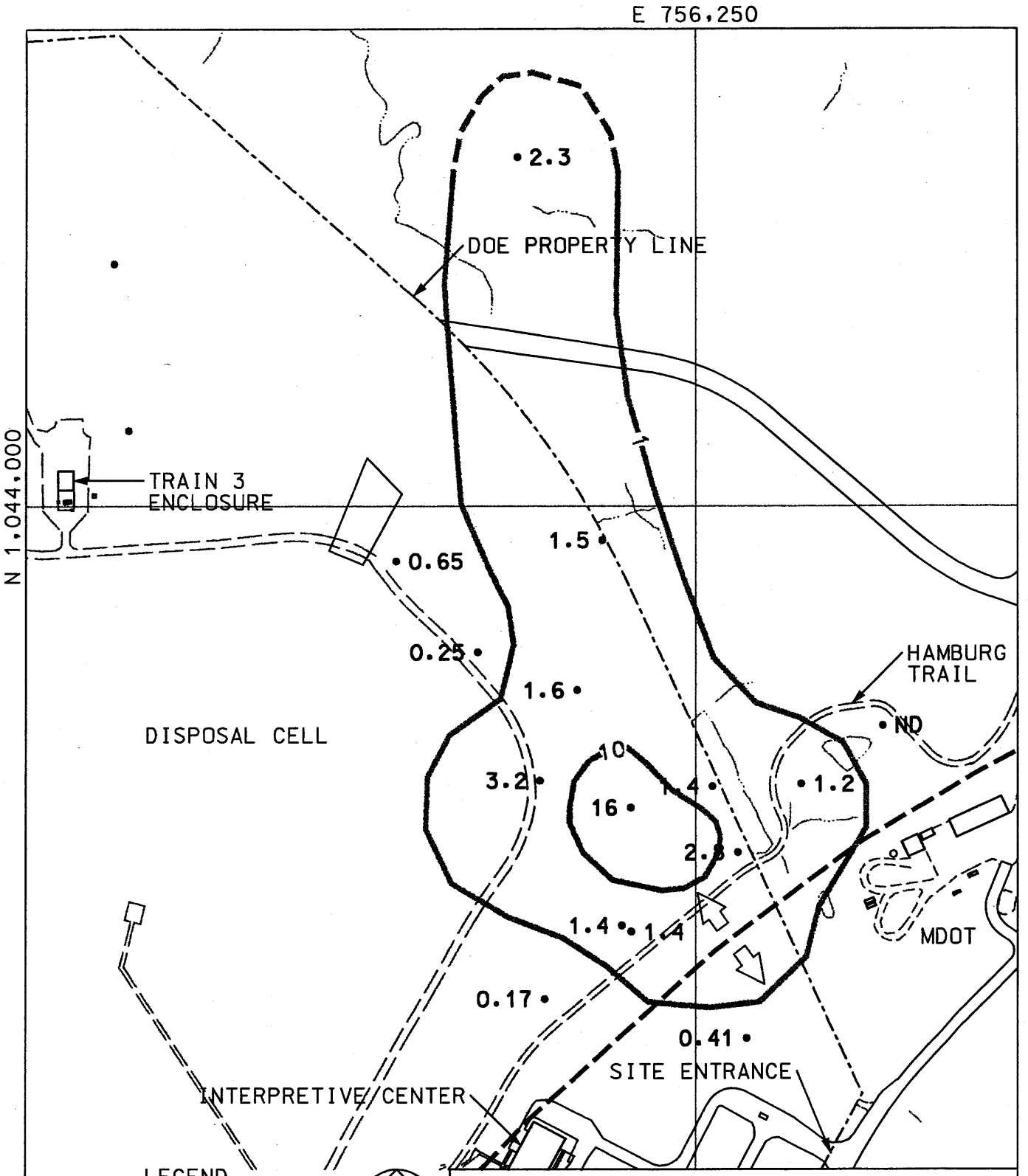

E 756,250
N 1,044,000
0.1
0.19
DOE PROPERTY LINE
TRAIN 3
ENCLOSURE
0.08
0.08
0.09
0.05
DISPOSAL CELL
HAMBURG
TRAIL
ND
ND
1
0.5
100
600
1000
35
0.09
0.15
0.87
0.1
1
6.0
0.20
MDOT
SITE ENTRANCE
INTERPRETIVE CENTER
LEGEND
● – MONITORING WELL
– GROUNDWATER DIVIDE
– GROUNDWATER
FLOW DIRECTION
N
0
300
600
SCALE
FEET
2,4-DNT DISTRIBUTION
IN THE WEATHERED ZONE
FIGURE 4-4
REPORT NO.: DOE/GJ/79491-942
EXHIBIT NO.: A/CP/009/0104
ORIGINATOR: RC
DRAWN BY: GLN
DATE: 1/30/04



2,6-DNT DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-5

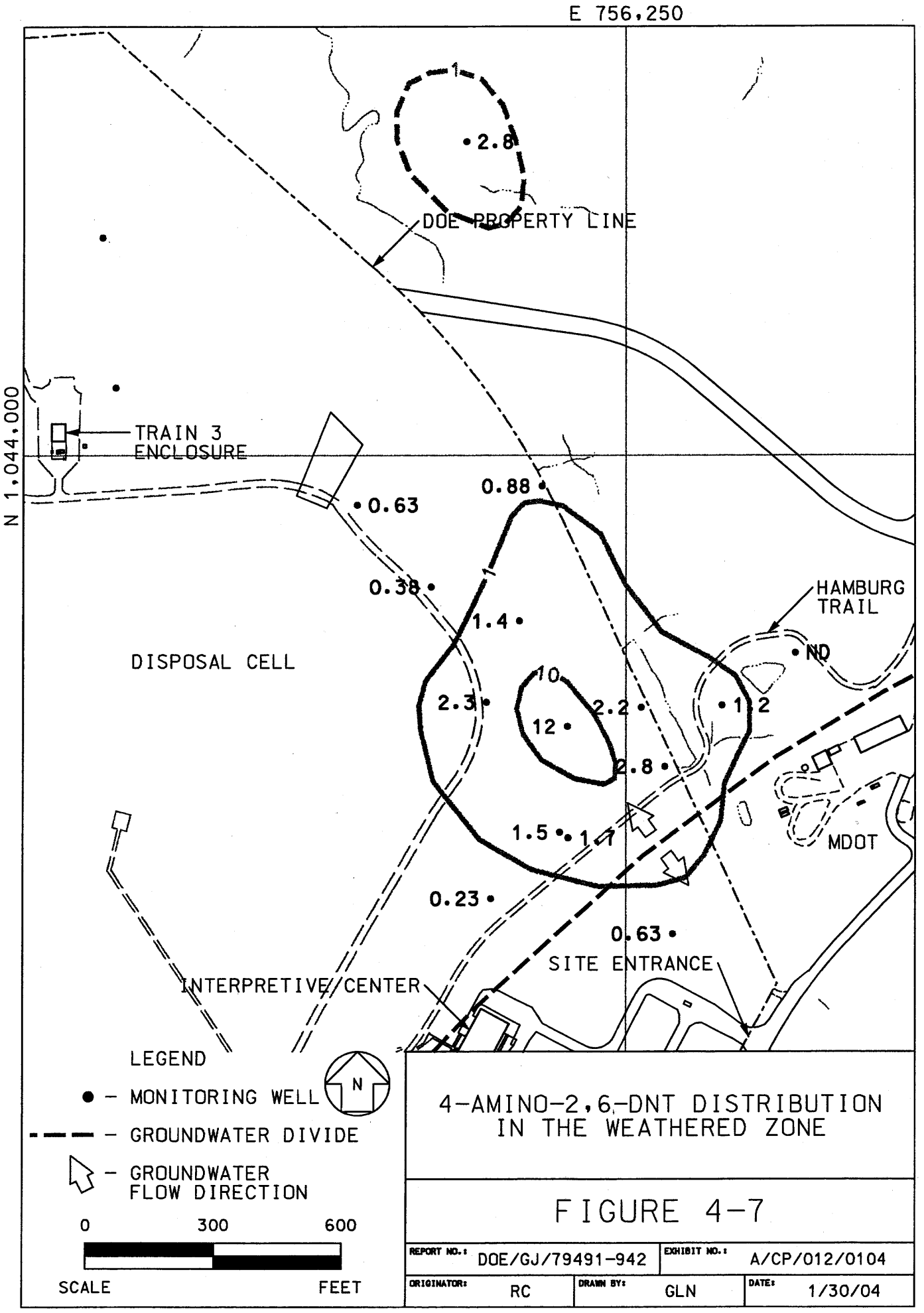
REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/010/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04



2-AMINO-4,6-DNT DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-6

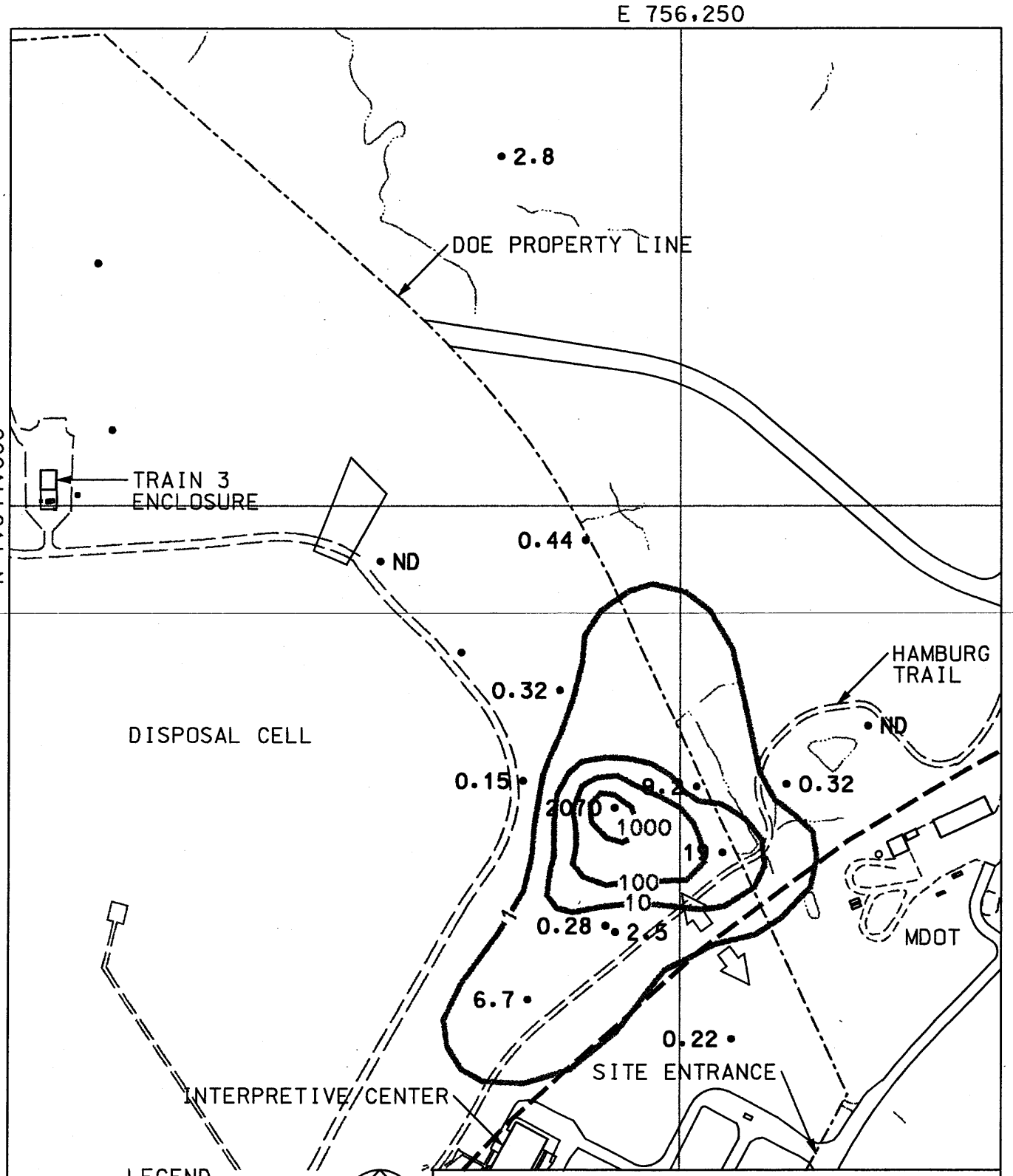
REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/011/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04



4-AMINO-2,6-DNT DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-7

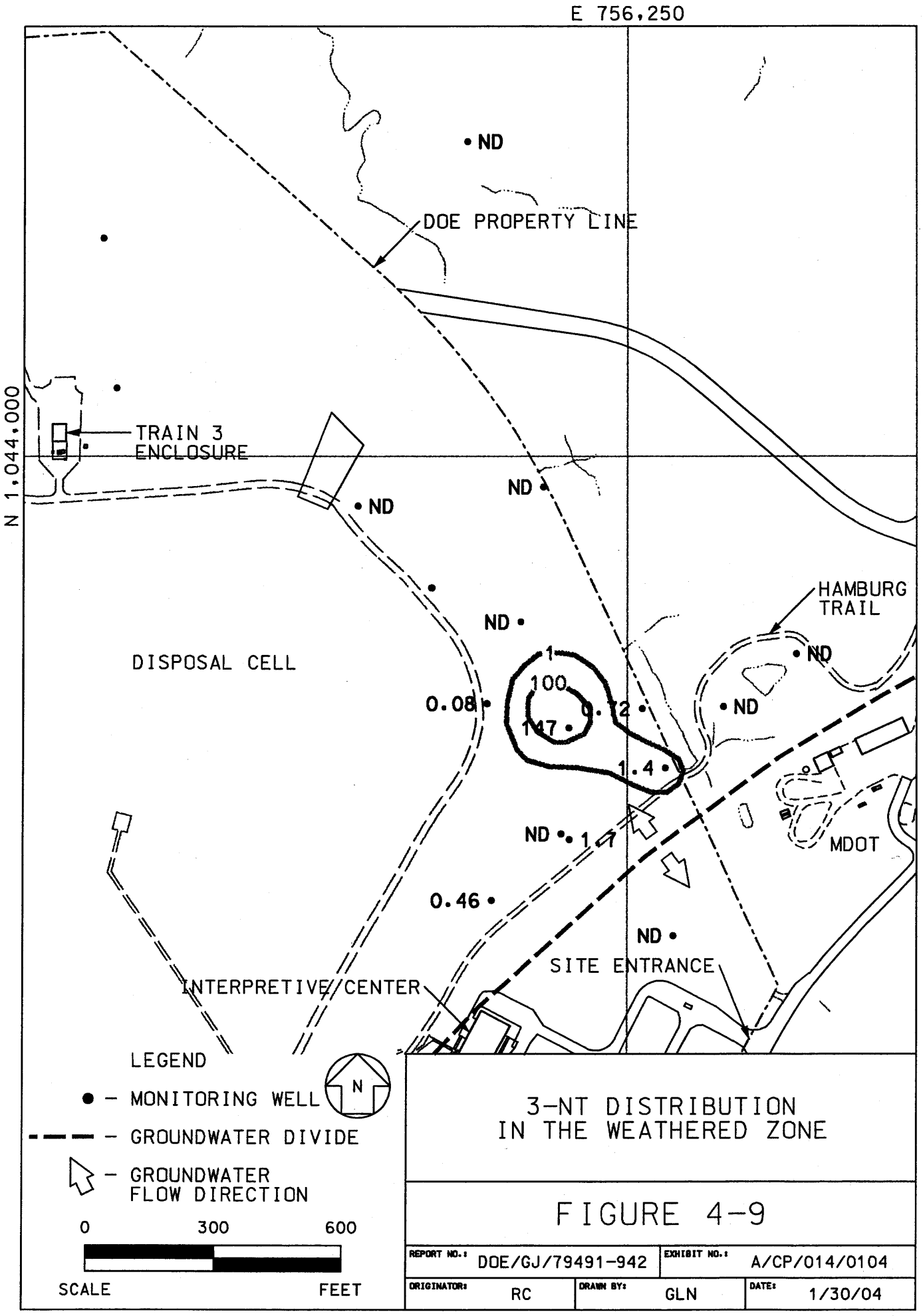
REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/012/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04



2-NT DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-8

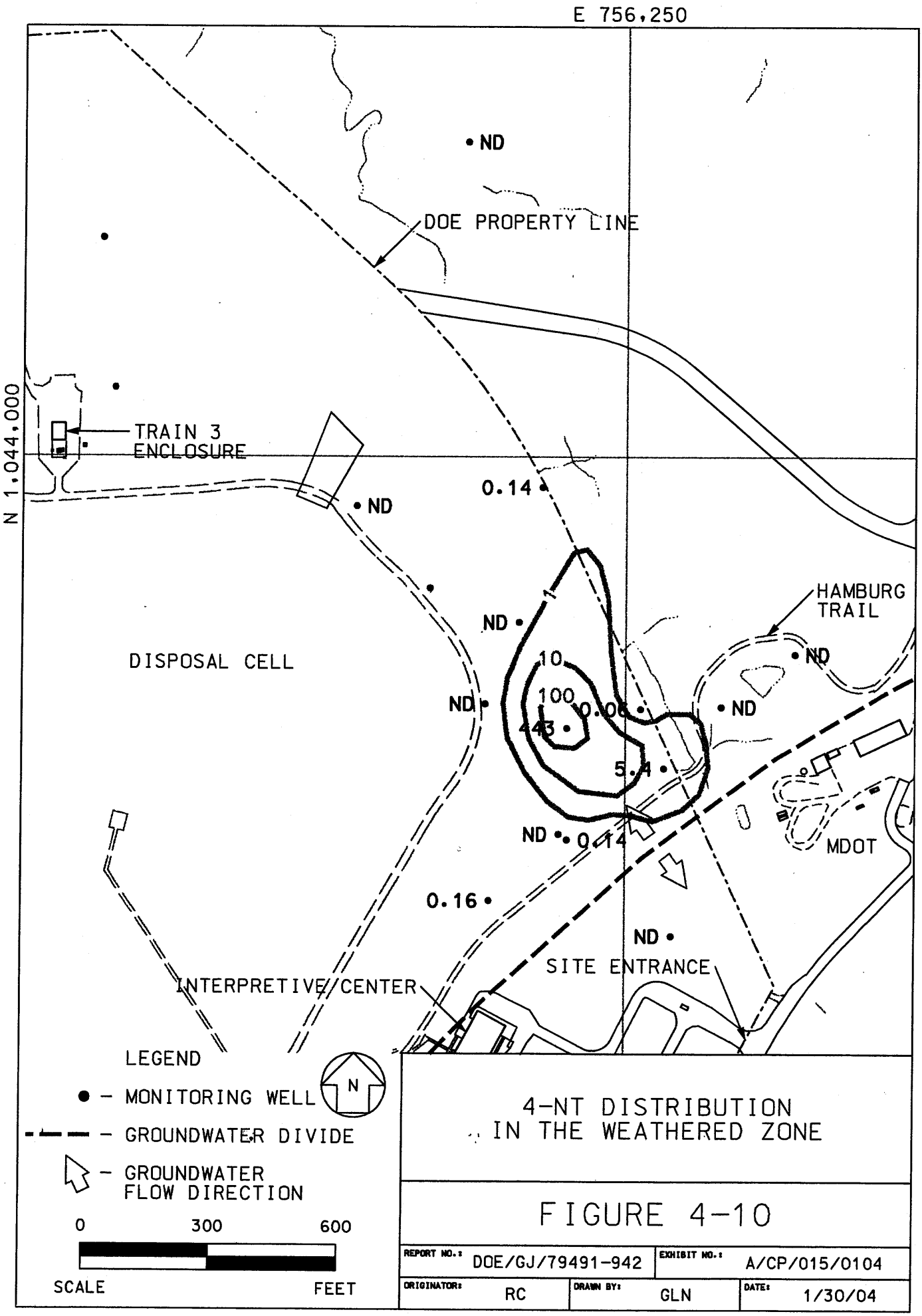
REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/013/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04



3-NT DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-9

REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/014/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04



4-NT DISTRIBUTION IN THE WEATHERED ZONE

FIGURE 4-10

REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/015/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04

Addendum 1 (Ref. 1) were sampled only for metals, nitrate, and uranium. A summary of the data is presented in Table 4-3.

Table 4-3 Groundwater Quality Data

Parameter	Well ID						
	MW-2049	MW-2050	MW-2052	MW-2053	MW-2054	MW-4030	MW-4039
Metals (µg/l)							
Aluminum	1200	293	1110	214	< 34.3	1110	509
Antimony	< 2.8	< 2.8	< 3.3	< 3.3	< 3.3	< 2.8	< 3.3
Arsenic	< 1.5	< 1.5	< 1.2	< 1.2	< 1.2	< 1.5	< 1.2
Barium	142	253	340	232	287	233	193
Beryllium	< 0.2	< 0.2	1.1	0.69	0.68	< 0.2	< 0.2
Cadmium	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Calcium	110000	122000	274000	151000	72800	95400	71900
Chromium	1.3	13.7	4	< 0.7	< 0.7	< 0.8	5.8
Cobalt	< 0.9	< 0.9	19.3	4.9	2.9	< 0.9	2.7
Copper	10.8	2.7	5.9	< 1.4	3.5	4.4	4.4
Iron	1240	452	1530	527	125	1200	1340
Lead	< 1.6	< 1.6	< 1	< 1	< 1	< 1.6	< 1
Lithium	< 9.4	< 9.4	12.7	14	20.8	< 9.4	20.3
Magnesium	20200	46900	38700	30400	45500	41400	35100
Manganese	108	34.4	197	30.9	26.1	85.2	89.8
Mercury	< 0.1	< 0.1	0.1	0.1	(0.35)	< 0.1	< 0.1
Molybdenum	5.2	5.5	< 1.3	< 1.3	< 1.3	4	10.5
Nickel	31.9	51.7	9.6	5.2	7.9	11.2	27.4
Potassium	4820	5050	8460	5980	3360	2800	3970
Selenium	< 2.2	< 2.2	< 1.2	< 1.2	< 1.2	< 2.2	< 1.2
Silver	< 1.3	< 1.3	2.1	< 1.7	< 1.7	< 1.3	1.8
Sodium	102000	62300	389000	54400	20200	25800	22100
Thallium	< 3	< 3	10.7	7.6	8.3	< 3	7.3
Vanadium	1.7	< 1.3	3.6	< 1.8	< 1.8	1.7	2.5
Zinc	19.3	17.7	9.6	8.8	4.5	11.9	14.6
Anions (mg/l)							
Chloride	123	189	NS	NS	NS	31.3	NS
Fluoride	0.32	0.24	NS	NS	NS	0.22	NS
Nitrate	0.34	1.3	0.86	1.5	0.97	6.2	0.5
Sulfate	87.7	60.6	NS	NS	NS	34.9	NS
Radiochemical (pCi/l)							
U, total	1.17	5.41	0.29	3.72	1.02	0.39	2.55
Ra-226	0.68	1.53	NS	NS	NS	0.70	NS
Ra-228	< 0.47	< 0.47	NS	NS	NS	< 0.47	NS
Th-228	(0.07)	0.14	NS	NS	NS	(0.06)	NS
Th-230	(0.09)	0.23	NS	NS	NS	< 0.64	NS
Th-232	(0.03)	(0.04)	NS	NS	NS	< 0.49	NS
Volatile Organic Compounds (µg/l)							
TCE	< 1	< 1	NS	NS	NS	< 1	NS
DCE, Total	< 10	< 10	NS	NS	NS	< 10	NS
PCE	2	< 1	NS	NS	NS	(0.99)	NS

The groundwater quality data was compared to background values for the weathered Burlington-Keokuk in the vicinity of the chemical plant site (Ref. 3). The majority of the analytes were similar to background for the weathered Burlington-Keokuk limestone. Concentrations of chromium, lithium, molybdenum, nitrate, sulfate, and thallium were greater than background, although they are similar to historical concentrations in the Frog Pond area (Ref. 3). Chloride concentrations are significantly

greater than background; however, runoff from the Missouri Department of Transportation facility, which stores salt for deicing of the roadways, has historically entered the groundwater in this area.

5. POTENTIAL SOURCE SURVEY

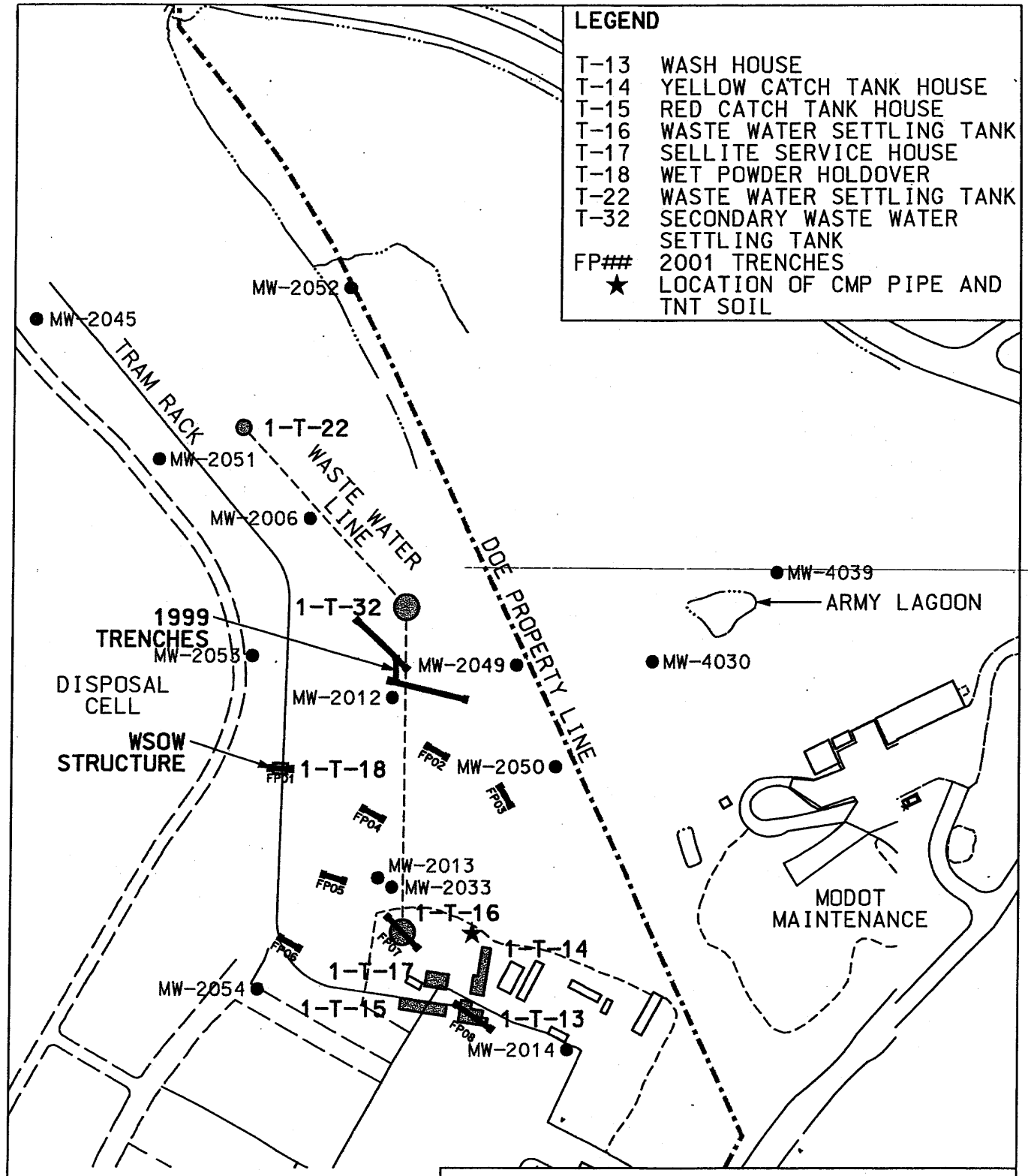
In response to increasing nitroaromatic compound concentrations in select wells in the Frog Pond area, a review of soil characterization data and previous soil removal actions was performed to evaluate whether a possible source may still be present in the area.

5.1 Soil Survey

It was suspected that initial increases in 1999 were the result of remediation in the Frog Pond area performed in 1998 that included the excavation of soil and foundations contaminated with nitroaromatic compounds. Trenching was performed in the area between the settling tank for the wash house (T-16) and the wastewater storage tank (T-32) to determine if the underground wooded piping was still present. No wooden piping or TNT stained soil was observed in the three trenches, which were excavated to the top of bedrock (Figure 5-1). During 1999, the Department of Army remediated Waste Lagoon 1 (Figure 5-1), which contained the waste products (primarily DNT) from the manufacturing of TNT. It was assumed that contaminant concentrations in groundwater would decrease after a period of time, however, contaminant levels remained elevated or showed slight increases.

Trenching was performed again in October 2001 to investigate possible soil sources associated with TNT Line #1 (Figure 5-1). These sources included process building locations, waste tank locations, and surface drainage features. Process building and waste tank locations were selected to determine if these features had been removed during previous remediation activities that were performed during the 1950's and if gross contamination was present in the adjacent soil. Surface drainages were target because overflows, spills, and wastewater were known to flow into the drainages during the operation of the TNT manufacturing facility. Trenching was performed because this original topography had been covered with soil during construction of the uranium processing facility.

Soil from the trenches was visually inspected for staining indicative of the presence of trinitrotoluene. Small pockets of nitroaromatic contamination were noted in the trench that transected the wash house (T-13). It was estimated that approximately 2 cu yd of soil exhibited nitroaromatic contamination. The trench was not extended beyond its design limits to further investigate the area. The concentration of trinitrotoluene in the soil sample collected from the bottom of the trench was 210 mg/kg. The remaining 5 nitroaromatic compounds were less than the detection limit (2.5 mg/kg). The other seven trenches did not contain any TNT-stained soils; however, a sampled collected at the base of FP03 produced a TNT concentration of 0.59 mg/kg. Analytical data indicated TNT levels below the detection limit (0.25 mg/kg) in the remainder of the locations. The conclusion from these trenching activities was that although small pockets of soil with visual TNT contamination are present in this area, a soil source of significant size is not present in the Frog Pond area (Appendix D).



TRENCHING LOCATIONS ASSOCIATED WITH WSOW PRODUCTION LINE #1

FIGURE 5-1

REPORT NO.:	DOE/GJ/79491-942	EXHIBIT NO.:	A/CP/016/0104		
ORIGINATOR:	RC	DRAWN BY:	GLN	DATE:	1/30/04

In May 2002, TNT contaminated soil and a 12-in corrugated metal pipe (CMP) were encountered during excavation activities in the vicinity of MW-2013 (Fig. 5-1). A 2 to 3 in contaminated soil lens was located approximately 6 to 12 in above and at the end of the CMP, which was buried 2 ft below the ground surface. The CMP also contained water, which was not groundwater because the CMP was located in unsaturated overburden. Testing verified the presence of TNT in both the soil and water from the CMP. Approximately 12 cu yd of material showing visible TNT contamination was excavated from the area and 150 gal of water removed from the CMP. Analytical data are presented in Appendix D.

5.2 Groundwater Survey

Primary nitroaromatic compounds and associated breakdown products measured in the groundwater were evaluated in an effort to determine possible sources. Several of the primary nitroaromatic compounds breakdown differently through decomposition or photodegradation and can be indicators of source areas. A summary of breakdown products and possible source indicators is presented in Table 5-1.

Table 5-1

Primary Compound	Breakdown Products	Breakdown Mechanism	Source Indicator
2,4,6-TNT	1,3,5-TNB	Photodegradation	Surface spills
	2-Amino-4,6-DNT	Decomposition	Buried materials or pipeline
	4-Amino-2,6-DNT	Decomposition	Buried materials or pipeline
2,4-DNT	1,3-DNB	Photodegradation	Waste lagoon
	Amino - NTs	Decomposition	Buried materials or pipeline

The presence of 2,4,6-TNT, 2-Amino-4,6-DNT, 4-Amino-2,6-DNT, or 1,3,5-TNB would be an indication that groundwater impact was sourced by large surface spills near the production lines. The presence of 2,4-DNT or 1,3-DNB would be an indication that groundwater impact was sourced by leakage from one of the waste lagoons used during TNT manufacturing.

It is speculated that the nitroaromatic compound levels present in groundwater are likely long-term and were not previously observed due to dilution from water infiltrating from Frog Pond and other surface drainages. Groundwater levels in MW-2012 and other wells in close proximity to the Frog Pond have been declining since 1998. This decline would correlate to the diversion of storm water away from the Frog Pond area and the subsequent removal of the pond itself.

6. QUALITY ASSURANCE

Data evaluation was performed on the analytical data generated from this investigation to determine whether Weldon Spring Site Remedial Action Project (WSSRAP) data quality objectives were met and to ensure overall data quality results were generated. Data evaluation was performed in accordance with the *Environmental Quality Assurance Project Plan* (EQAPjP) (Ref. 4). The data evaluation process was completed through data verification, data review, data validation, and data management activities.

6.1 Data Evaluation

Data verification was conducted in accordance with the sampling plan (Ref. 3), to ensure that documentation and data were reported in compliance with established reporting requirements and standard operating procedures, and to ensure that all analyses were performed. Analytical results received from the laboratory were reviewed to verify samples were properly handled according to WSSRAP protocol. The following factors were reviewed and evaluated: sample identification, chain-of-custody, holding times, sample preservation requirements, sample analysis request forms, laboratory tracking, data reporting requirements, and the database transfer.

Data packages were reviewed to ensure the final data were properly identified, analyzed, reported, and met data quality requirements. The data were also reviewed to check for inconsistencies with the field quality control samples. Final analytical results were compared to the preliminary analytical results to identify any changes in data.

6.2 Quality Control Analyses

The *Frog Pond Groundwater Investigation Sampling Plant* (Ref. 1) indicated that quality control samples would be taken at a frequency of 1 per 20 samples or 5%. Quality control samples included matrix duplicates (DU) and matrix spike/matrix spike duplicates (MS/MD). Matrix duplicates were analyzed for uranium, metals, and anion samples. Matrix spike/matrix spike duplicates were also analyzed for uranium, metals, anion, nitroaromatic compound, and volatile organic compound (VOA) samples. Although the quality analyses were not run on separate samples, the quality control sample frequency requirement was satisfied. A summary of the number of quality control samples analyzed is presented in Table 6-1.

TABLE 6-1 Number of Quality Control Samples

TYPE	PARAMETERS	NUMBER OF SAMPLES		% OF TOTAL
		QUALITY CONTROL	TOTAL	
Duplicate	Radiological, Metals, Anions	29	215	13.5%
Matrix Spike/Matrix Spike Duplicate	Radiological, Metals, Anions, Nitroaromatic Compounds, and VOAs	109	1902	5.7%

Matrix duplicate samples (DU) are aliquots taken from the parent sample at the laboratory and results are compared to the parent sample and the relative percent difference (RPD) is calculated for each. The recommended RPD for radiological and chemical parameters is less than or equal to 50% and 35%, respectively. RPDs are not calculated for "non-detect" results. Also, if one or both of the results are less than five times the detection limit, the RPD value is considered of limited value due to higher tolerance limits near the analytical detection limit. Overall, the data quality does not appear to be compromised by these variances.

Twenty-nine (29) matrix duplicates were analyzed for this study. The RPD values ranged from 0 % to 55 %. None of the samples exceeded the recommend RPD value of 50% for radiological parameters. Two samples exceeded the recommended RPD value of 35% for chemical analyses and these samples had results for either the parent sample or duplicate that was less than five times the detection limit; therefore, the RPD value is considered of limited value due to higher tolerance limits near analytical detection limits. A summary of the quality control analyses is provided in Appendix C.

Matrix spikes (MS) are sample aliquots split by the laboratory that are treated in the same manner as the parent samples except these samples have been spiked with a known amount of the target analytes to determine the precision of the method in a given sample type or matrix. The samples are processed as regular samples and a percent recovery is determined after analysis. Matrix spike duplicates (MD) are split samples of the matrix spike samples that are treated in the same manner as the matrix spike parent samples. A percent recovery is determined after the analysis as well as the RPD between the MS and MD. The recommended percent recovery is +/- 20% for radiological and nitroaromatic compound parameters.

One hundred and nine (109) matrix spike/matrix spike duplicates were analyzed for this study. The percent recovery values typically were within the acceptable range for metals, anions, and uranium analyses. The percent recovery values for nitroaromatic compound analyses were consistently low. Of the 69 MS analyses performed 9 (13%) reported recovery values less than 80%. All of the samples exhibiting these low recoveries were nitroaromatic compounds, which typically exhibit low recoveries. Also, several locations selected for MS analyses were from locations with significant nitroaromatic compound contamination and the small amount added as a spike was likely masked by the greater existing contamination. One MS analysis for nitrate reported a recovery greater than 120%. The RPDs for the MDs were within the acceptable ranges for all the remaining parameters except for a set nitroaromatic compound results from MW-2006. Overall, the data quality does not appear to be compromised by these variances. A summary of the quality control analyses is provided in Appendix C.

7. SUMMARY AND CONCLUSIONS

7.1 Summary

Core drilling, well installation, hydraulic conductivity testing, and groundwater sampling were conducted in the Frog Pond area where nitroaromatic compounds have impacted the groundwater. The wells were installed in two stages, both on the chemical plant site and on the adjacent Missouri Department of Conservation property. Each stage was required to provide additional monitoring in areas both on and off site that lacked groundwater quality data.

Groundwater sampling was performed as the monitoring wells were completed and developed. Analytical data showed elevated nitroaromatic compound concentrations in the vicinity of MW-2012. Analytical results from wells installed during this program were also used to evaluate potential source areas for the nitroaromatic compound contamination in groundwater.

The distribution of nitroaromatic compounds in groundwater in the impacted area was further defined as a result of this study. The nitroaromatic compound plume is centered on MW-2012 located south of Frog Pond, and the higher concentrations are primarily resident in the bedrock lows within this area. The horizontal extent of nitroaromatic compound impact in the weathered Burlington-Keokuk has been better defined through the installation of these wells.

7.2 Conclusions

The objectives for the Frog Pond groundwater investigation program were accomplished. The program provided significant additional geologic, hydrologic, and water quality data in the vicinity of the site impacted by nitroaromatic compounds in groundwater. The areal extent of nitroaromatic compound impact on the groundwater in the northeastern portion of the chemical plant was better defined through the installation and sampling of the additional monitoring wells. Furthermore, the hydrogeologic and analytical data has provided an increased understanding of how the natural setting beneath the site controls the contaminant migration and fate.

The distribution of nitroaromatic compounds suggests two source areas for the plume in the Frog Pond area. The primary source area is production line #1, most notably the T-13 (wash house) and T-16 (wastewater settling tank). Some contribution to the nitroaromatic contamination originates from Army Lagoon #1. The preferential flow pathway in the vicinity of Frog Pond has been identified from the bedrock topography and the contaminant distribution.

8. REFERENCES

1. MK-Ferguson and Jacobs Engineering Group. *Frog Pond Groundwater Investigation Sampling Plan.* Rev 0 and *Addendum 1: Additional Nitroaromatic Compound Delineation.* Rev. 0. DOE/OR/21548-873. Prepared for the U.S. Department of Energy, Oak Ridge Operation Office, Weldon Spring Remedial Action Project. St. Charles, MO. November 2000.

2. U.S. Department of Interior, Bureau of Reclamation. *Groundwater Manual,* A Water Resources Technical Publication. 1977.

3. Argonne National Laboratory. *Remedial Investigation for the Groundwater Operable Units at the Chemical Plant Area and Ordnance Works Area, Weldon Spring, Missouri.* Final. DOE/OR/21548-571. Prepared for the U.S. Department of Energy, Oak Ridge Operation Office, Weldon Spring Remedial Action Project. St. Charles, MO. July 1997.

4. MK-Ferguson and Jacobs Engineering Group. *Environmental Quality Assurance Project Plan.* Rev. 5. DOE/OR/21548-352. Prepared for the U.S. Department of Energy, Oak Ridge Operation Office, Weldon Spring Remedial Action Project. St. Charles, MO. November 2000.

APPENDIX A

Geologic Logs
Packer Test Field Sheets
Monitoring Well Details
Well Development Records

APPENDIX B

Analytical Data

APPENDIX C

Quality Control Data

APPENDIX D

Nitroaromatic Soil/Source Investigations in the Frog Pond Area

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

WSWLOG-C

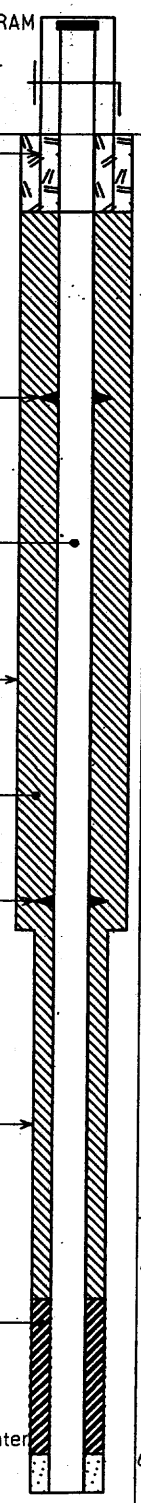
HOLE NUMBER	MW-2049
SHEET 1 OF 2	
NORTH (Y):	1043408.75
EAST (X):	756270.80
TOC ELEVATION	637.02
GROUND ELEVATION	634.12
STICKUP	2.9
HYDR CONDUCTIVITY (cm/sec)	K= 7.8x10^{-4} (Packer Test)

WELL STATUS/COMMENTS	ACTIVE
LOCATION	NE OF DISPOSAL CELL, NEAR FROG POND
DRILLING CONTRACTOR	LAYNE WESTERN Inc.
DRILL RIG MAKE & MODEL	CME-750 HSA/NXWL; I-R TH-60 AIR ROTARY
HOLE SIZE & METHOD	9" HSA-20.5; NX-45; 6" AIR-45
ANGLE FROM HORIZONTAL & BEARING	Vertical
DEPTH (FT.) FROM GROUND ELEV. TO: BOTTOM OF HOLE (TD)	45.0
DRILL FLUIDS & ADDITIVES	Water core; Air ream
CASING TYPE, DEPTH, SIZE	2" 316 SS Mon. Well
BEDROCK	20.5
DATE START	10-4-00
DATE FINISH	11-10-00 Mon. Well
WATER LEVELS & DATES	▽ ▼

LITHOLOGY BY ALAN BENFER

DEPTH feet	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
	SPT-1		11	FILL	CLAY, silty. Fill.	Fill
				CL	CLAY, silty, low plasticity, dark grayish brown (10YR4/2), damp, firm, CL. Probably topsoil.	Qfv
	SPT-2		13		CLAY, silty, low to med. plasticity, abundant black MmOx, mottled light gray (10YR7/2) and yellow brown (10YR6/6), damp, firm, CL. Ferrelview Clay.	
	SPT-3		–		CLAY, silty, as above, medium plasticity, with FeOx and MnOx.	
5	SPT-4		11		CLAY, silty, medium plasticity, mottled light gray and yellow brown with FeOx and MnOx, damp, firm, CL. Tip contains ~5% fine sand.	
	SPT-5		10	CL	CL as above, ~10% fine white sand, firm. Basal Ferrelview Clay.	
10	SPT-6		14	CL	CLAY, silty, some limestone gravel, mottled light gray and yellow brown, with FeOx and MnOx, damp, firm, CL. Clay Till.	Qct
	SPT-7		60+		CL with some gravel as above.	
	SPT-8		15	CH	CLAY, high plasticity, ~30% coarse sand and fine gravel, yellow brown, moist, firm, CH. Chert gravel clast in sampler shoe.	
15	SPT-9		43		CLAY, high plasticity, ~30% angular sand and fine gravel some up to 1", mottled brown (7.5YR5/3), yellow brown and gray, some MnOx, CH. Clay Till.	
	SPT-10		50+		CH with chert gravel as above.	
20	SPT-11		50+		CLAY, high plasticity with angular fine gravel up to 1", mottled dark brown, yellow brown and gray, moist, hard, CH. Clay Till. Weathered limestone in tip of shoe. Auger refusal at 20.5'.	
	NX-1	50/112"	7.6	CHRT LMS	LIMESTONE AND CHERT, limestone is moderately weathered, medium- grained, moderately hard, locally fossiliferous, highly fractured with minor oxidation on fracture surfaces, trace oxidized pyrite, mostly light gray (N8), some light brown (5YR6/4); minor chert, very light gray.	Mbkw
25					Fluid return for NX-1 ~50-100%. LIMESTONE, strongly weathered, with localized wavy bands of oxidation, highly fractured with greater than 4 fractures per foot, surfaces are oxidized and open, core is easily broken, grayish orange to orange brown. Contains ~50% chert throughout, hard, whitish to light gray to pale orange, locally fossiliferous. Strongly Weathered Burlington-Keokuk Limestone.	
30	NX-2	50/62"	27		Fluid return for NX-2 ~30-50%.	Mbksw
35	NX-3	43/60"	40			

WELL DIAGRAM



ELEVATION feet: 630, 625, 620, 615, 610, 605, 600

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

HOLE NUMBER: MW-2049

SHEET 2 OF 2

NORTH (Y): 1043408.75

EAST (X): 756270.80

WELL STATUS/COMMENTS: ACTIVE

LOCATION: NE OF DISPOSAL CELL, NEAR FROG POND

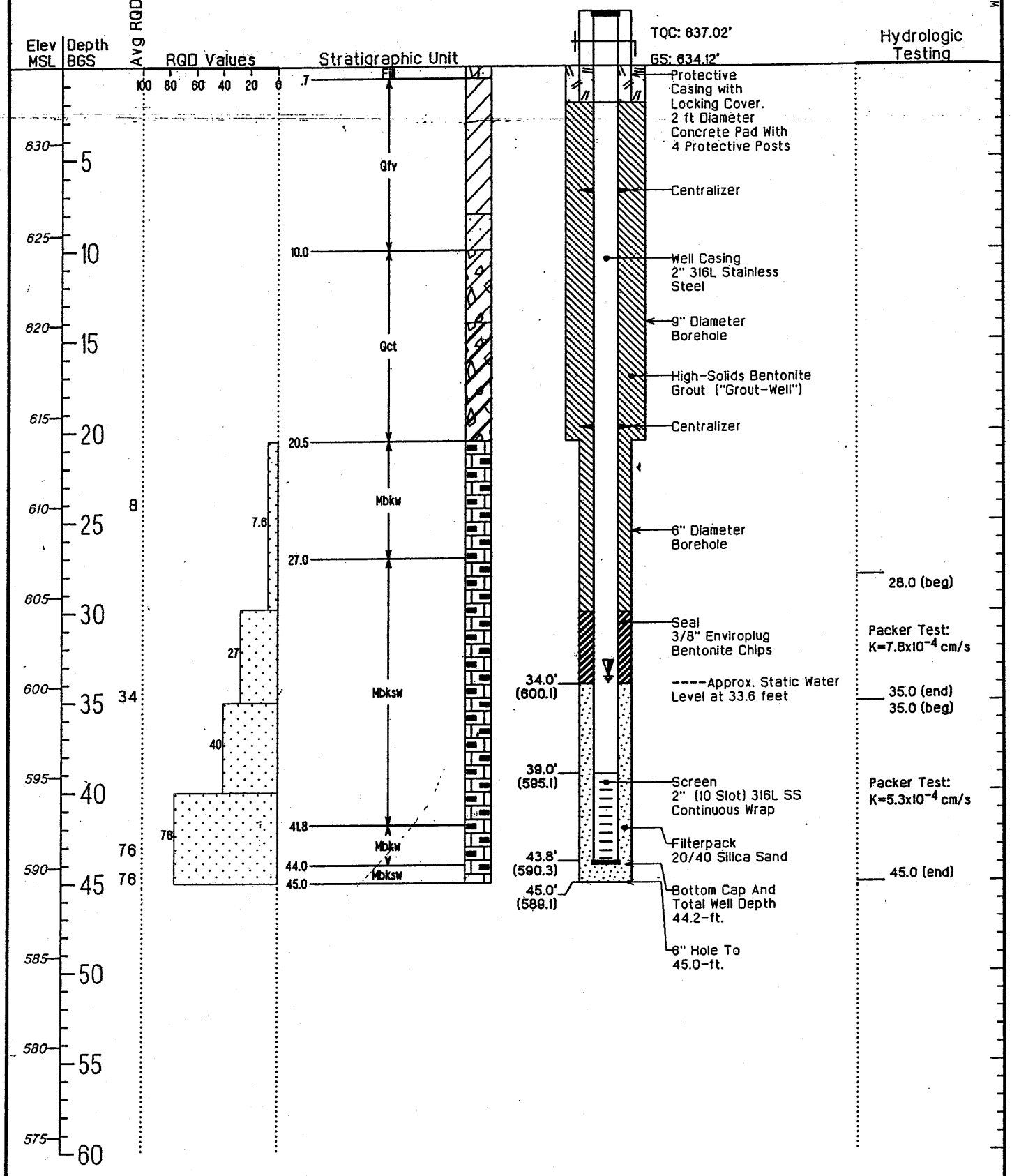
DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT	WELL DIAGRAM	ELEVATION feet
40		NX-4	43/60"	76		CHRT LMS	@ 36'– 38.6'. Predominantly chert, very pale orange, fossiliferous, minor styolites.	MDksw	Screen 2" (10 Slot) 316L SS Continuous Wrap	595
			60/60"				Lost circulation at 39.5'; partial return at 44.3'.			
							@ 39.6'– 40.0'. Chert with light gray high plasticity clay.			
							@ 40'– 41.8'. Limestone, strongly weathered, solutioned, grayish orange (10YR8/2), minor interbedded chert.		Filterpack 20/40 Silica Sand	
45							@ 41.8'– 44.0'. Predominantly chert, grayish blue (5RB5/2); with moderately weathered limestone, grayish orange (10YR7/4), overall rock quality is improved. Weathered Burlington-keokuk Limestone.	MDkw	Bottom Cap And Total Well Depth 44.2-ft.	590
							@ 44.0'– 45.0'. Strongly weathered limestone, grayish orange with minor light gray chert.	MDksw	6" Hole To 45.0-ft.	
							Total cored depth 45.0', 11-3-00. Hole reamed to 6" diameter to 45.0' and a 2" monitoring well was constructed.			
50							CONSTANT HEAD SINGLE PACKER TEST RESULTS 28.0 – 35.0 ft. K= 7.8E-4 cm/sec 35.0 – 45.0 ft. K= 5.3E-4 cm/sec			585
55										580
60										575
65										570
70										565
75										560

▮ Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

BOREHOLE DIAGRAM

MW-2049

WSDIAG-E



▽minimum ▼maximum ▼average

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Sheet 1 of 2

Project:	Job Number:	Test Section:	Bore Hole:
Groundwater Invest. Nitroaromatics		K = 7X10⁻⁴ 28 to 35	2049

Test Equipment Identification	BORE HOLE		Test By:
Neptune Flow Meter - 1" U.S. Gauge	Orientation: Vertical	Size: 3.0" r = .125'	A. Benfer
			Date: 0900 11/3/00

Packers: On Casing, (Single) Double, Hydraulic, (Inflatable)	Groundwater Depth: 37.5 ~~33.6~~ Ft.	Gauge Height Above Ground: 3.6' Ft.	Gravity Head: 35.1 3.6 + ~~38~~' Ft.

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	200.0	210.7	221.1	230.5	239.7	248.5	257.4	266.4	275.4			9.1 GPM
												CFM
Take Per Min.		10.7	10.4	9.4	9.2	8.8	8.9	9.0	9.0			CFM × 7.48 = GPM

Total Head (H_T) [don't use] = Gravity Head (H_G) + Pressure Head (H_P) − Head Losses (H_L)

69.7 FT.	=	35.1 FT.	+	34.6 FT.	−	N.A. FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{9.1}{69.7 \times 7.0} \times \frac{.044}{.011 \ln \frac{7.0}{.125}} = K, CM/SEC = 8 \times 10^{-4}$$

TEST 2

Inflow pressure (H_P) 35 psi × 2.31 = 80.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	296.0	308.9	321.9	334.7	347.3	359.8	372.3					12.7 GPM
												CFM
Take Per Min.		12.9	13.0	12.8	12.6	12.5	12.5					

H_T 116.0 FT.	= H_G 35.1 FT.	+ H_P 80.9 FT.	− H_L N.A. FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{7.0}{r} = \frac{12.7}{116.0 \times 7} \times .044 = K, CM/SEC = 7 \times 10^{-4}$$

(r = 1.5)

TEST 3

Inflow pressure (H_P) 50 psi × 2.31 = 115.5 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	470.0	487.2	504.3	521.2	537.8	554.5	571.3					16.8 GPM
												CFM
Take Per Min.		17.2	17.1	16.9	16.6	16.7	16.8					

drop ↑ ↗

H_T 150.6 FT.	= H_G 35.1 FT.	+ H_P 115.5 FT.	− H_L N.A. FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{16.8}{150.6 \times 7} \times .044 = K, CM/SEC = 7 \times 10^{-4}$$

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Sheet 2 of 2

Project: Groundwater Invest. Nitroaromatics	Job Number:	Test Section: 28 to 35 ft	Bore Hole: MW 2049
Test Equipment Identification: Neptune Flow meter 1" U.S. Gauge	BORE HOLE Orientation: Vertical Size: 3"	Test By: A. Beafer Date: 11/3/00	
Packers: On Casing; (Single)/Double; Hydraulic; (Inflatable)	Groundwater Depth: 33.6' ? Ft.	Gauge Height Above Ground: 3.6 Ft.	Gravity Head: 37.2 3.6 + 28 Ft.

TEST 1 0940 Inflow pressure (H_P) 20 psi × 2.31 = 46.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	589.0	598.4	607.8	617.1	626.3	635.5	644.5					9.3 GPM
												CFM
Take Per Min.	9.4	9.4	9.3	9.2	9.2	9.0						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

81.3 FT. = 35.1 FT. + 46.2 FT. – N.A. FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{9.3}{81.3 \times 7} \times .044 = K, CM/SEC = 7 \times 10^{-4}$$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	899.0											GPM
												CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Project: G.W. Invest. Nitroaromatics	Job Number:	Test Section: K = 3x10^-4 35' to 45'	Bore Hole: MW 2049
Test Equipment Identification: Neptune Flow Meter - 1" U.S. Gauge	BORE HOLE Orientation: vertical	Size: 3"	Test By: A. Benfer Date:

Packers On Casing Single/Double Hydraulic/Inflatable	Groundwater Depth: ~~33.6~~ 37.5' Ft.	Gauge Height Above Ground: 5.6 Ft.	Gravity Head: Stickup 67" ~~39.2~~ 43.1 Ft.

TEST 1 0855 Inflow pressure (H_P) 25 psi × 2.31 = 57.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	658.3	658.6	658.9	659.3	659.6	659.95	660.3					0.33 GPM
												CFM
Take Per Min.	0.3	0.3	0.4	0.3	0.35	0.35						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

~~97.0~~ 100.9 FT. = ~~39.2~~ 43.1 FT. + 57.8 FT. – N.A. FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{0.33}{\cancel{97.0}\ 100.9 \times 10} \times .011 \ln \frac{10}{.125} = 2 \times 10^{-5}$$

.0482

TEST 2 Inflow pressure (H_P) 40 psi × 2.31 = 92.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	675.0	687.7	699.8	712.4	724.8	736.8	749.0	751.0				12.3 GPM
												CFM
Take Per Min.	12.7	12.1	12.6	12.4	12	12.2	12					

H_T ~~131.6~~ 135.5 FT. = H_G ~~39.2~~ 43.1 FT. + H_P 92.4 FT. – H_L N.A. FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{12.3}{\cancel{131.6}\ 135.5 \times 10} \times .0482 = 4 \times 10^{-4}$$

TEST 3 Inflow pressure (H_P) 50 psi × 2.31 = 115.5 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	775.8	794.8	814.0	833.2	852.2	871.3	890.0					19.0 GPM
												CFM
Take Per Min.	19.0	19.2	19.2	19	19.1	18.7						

H_T ~~154.9~~ 158.6 FT. = H_G ~~39.2~~ 43.1 FT. + H_P 115.5 FT. – H_L N.A. FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{19}{\cancel{154.7}\ 158.6 \times 10} \times .0482 = 6 \times 10^{-4}$$

MORRISON KNUDSEN CORPORATION

Well Development Record

Project: ~~Ga~~ W. Invest. Nitroaromatics Date: 11/13

Client: _____ W.O. No.: 3840 WSSRAP

Well Number: 2049
Hole Diameter: 6"
Hole Depth: ~~45~~ ft.
Well Diameter: 2.0"

Location: Near Frog Pond
Screened Interval: 39.0 - 44.0
Static Water Level: ~ 34.1
Water Column Height: ~ 10.0'

Water Volume
$V = H(D)^2 \times 0.041$
V = One well volume (gallons) = 3.14
H = Height of water column (feet) 10.4
D = Inside well Diameter (inches) 2.0"

Well volume, V = _____ gallons
Bailer dimensions = _____ (inches/feet)
Bailer volume, V = _____ gallons

Bailer _____ or pump ✓ Pump model Grundfos: BMI/MP-1

TIME	SPEC. COND.	TEMP. °C	pH	TURBIDITY	COMMENTS
1315	0.95	14.5	8.1	406	
1345	0.89	13.6	8.1	offscale	E-3 low light - Turb.
0830	0.98	11.8	7.6		E-3. Turbidity
0835	0.98	11.7	7.5	775	
0845	0.98	11.1	7.4	1841	
1055	1.01	11.8	7.4	1000+	E-3.
1100	0.99	12.5	7.4	off-scale	E-3 - low light
1105	1.00	11.9	7.4	off-scale	E-3
1300	1.02	11.4	7.6	1000+	
1308	0.97	12.0	7.5	offscale	E-3
1315	1.01	11.8 (53°F)	7.3	"	E-3 ~13.7 well vol removed
1415	0.98	12.6	7.6	offscale	E-3

1/14/00

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

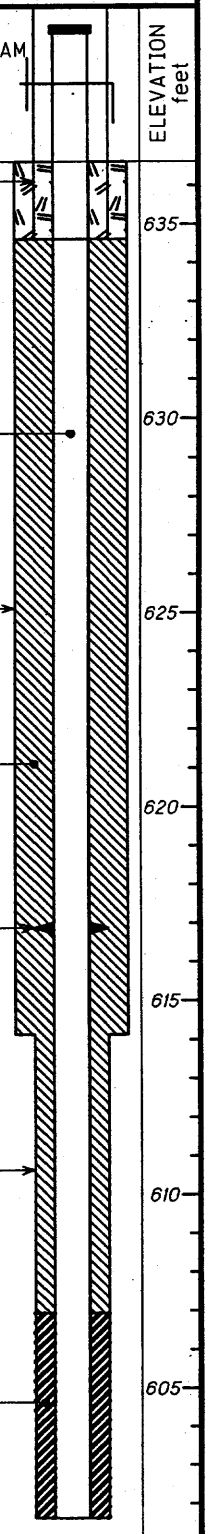
HOLE NUMBER	MW-2050
SHEET	1 OF 2
NORTH (Y):	1043266.62
EAST (X):	756323.47
TOC ELEVATION	640.11
GROUND ELEVATION	636.62
STICKUP	3.49
HYDR CONDUCTIVITY (cm/sec)	K= 3.0×10^{-4} (Packer Test)

WELL STATUS/COMMENTS	ACTIVE
LOCATION	NE OF DISPOSAL CELL, NEAR FROG POND
DRILLING CONTRACTOR	LAYNE WESTERN Inc.
DRILL RIG MAKE & MODEL	CME-750 HSA/NXWL; I-R TH-60 AIR ROTARY
HOLE SIZE & METHOD	9" HSA-22.5; NX-37.5; 6" AIR-44
ANGLE FROM HORIZONTAL & BEARING	Vertical
BOTTOM OF HOLE (TD) (DEPTH (FT.) FROM GROUND ELEV. TO:)	44.0
DRILL FLUIDS & ADDITIVES	Water core; Air ream
CASING TYPE, DEPTH, SIZE	2" 316 SS Mon. Well
BEDROCK	23.5
DATE START	10-10-00
DATE FINISH	11-1-00, Mon. Well
WATER LEVELS & DATES	▽ ▼

LITHOLOGY BY ALAN BENFER

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
0	SPT-1			8		Fill	CLAY, medium to high plasticity, some fine gravel, some roots, reddish yellow, moist, soft, CL-CH. Fill.	Fill
	SPT-2			6			Clay as above, some olive gray. Fill.	
	SPT-3			7				
5	SPT-4			9		CH	CLAY, high plasticity, some FeOx, light gray (2.5Y7/1), moist, soft, CH. Ferrelview Clay.	Gfv
							CH as above, zone of high FeOx concentration. Trace fine sand at 7.0'.	
	SPT-5			11			CLAY, high plasticity, ~10% fine white sand, light gray (2.5Y7/1), moist, firm, CH. Lower Ferrelview Clay.	
10	SPT-6			18		CH	CLAY, high plasticity, ~15% fine to coarse angular white sand, slickensided, mottled brownish yellow (10YR6/6) and light gray (10YR7/1), moist, firm, CH. Clay Till.	Gct
	SPT-7			20		CH	CLAY, high plasticity, ~15% fine to coarse sand, some fine gravel, some FeOx, mottled brownish yellow, and light gray, moist, hard, CH.	
	SPT-8			14			CH as above with MnOx, abundant weathered limestone gravel.	
15	SPT-9			9			CH as above, some slickensides, MnOx and FeOx, weathered limestone gravel up to 1"+. Clay Till.	
							CH as above with gravel.	
	SPT-10			62		GC	GRAVEL, weathered limestone, angular, up to 1", white with high plasticity clay, yellow brown, moist, GC. Likely Residuum.	pPr
20	SPT-11			23		CH	CLAY, high plasticity with ~40% angular weathered limestone and chert gravel, clay is brownish yellow (10YR6/6), moist, CH. Residuum.	
	SPT-12			50+			CH as above.	
	NX-1		30/60"	8		CHRT LMS	CLAY, high plasticity, with chert and limestone fragments, brownish yellow (10YR6/6), moist, CH. Possible Residuum.	
25							LIMESTONE AND CHERT, limestone is weathered, ~40% chert. Lost circulation at 23.5' permanently.	Mdkw
							Poor core recovery from 22.5' to 27.5'.	
	NX-2		60/60"	0			@ 25'-27.5'. Predominantly chert, highly fractured, fracture surfaces are oxidized. Appears to be water-bearing.	
30							@ 27.5'-32.5'. Limestone, moderately weathered, argillaceous, some solutioning, oxidized, mottled light brown (5YR5/6) and whitish. ~40% chert, hard, light gray. ~16 fractures throughout run NX-2, all are open with oxidized rough surfaces, most are horizontal and likely represent bedding planes spaced ~ 2-3" apart. Vuggy @ 32.3'.	
	NX-3		55/60"	26			LIMESTONE, strongly weathered, local solutioning, argillaceous, grayish orange (10YR7/4). ~30% chert, hard, pale orange (10YR8/2), generally scattered throughout the limestone. Contains 16+ fractures.	Mdksw
35								

WELL DIAGRAM



ELEVATION feet: 635, 630, 625, 620, 615, 610, 605

Sample Interval ☐ No Sample Taken ▽ minimum ▼ maximum ▽ average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

HOLE NUMBER: MW-2050

SHEET 2 OF 2

NORTH (Y): 1043266.62

EAST (X): 756323.47

WELL STATUS/COMMENTS: ACTIVE

LOCATION: NE OF DISPOSAL CELL, NEAR FROG POND

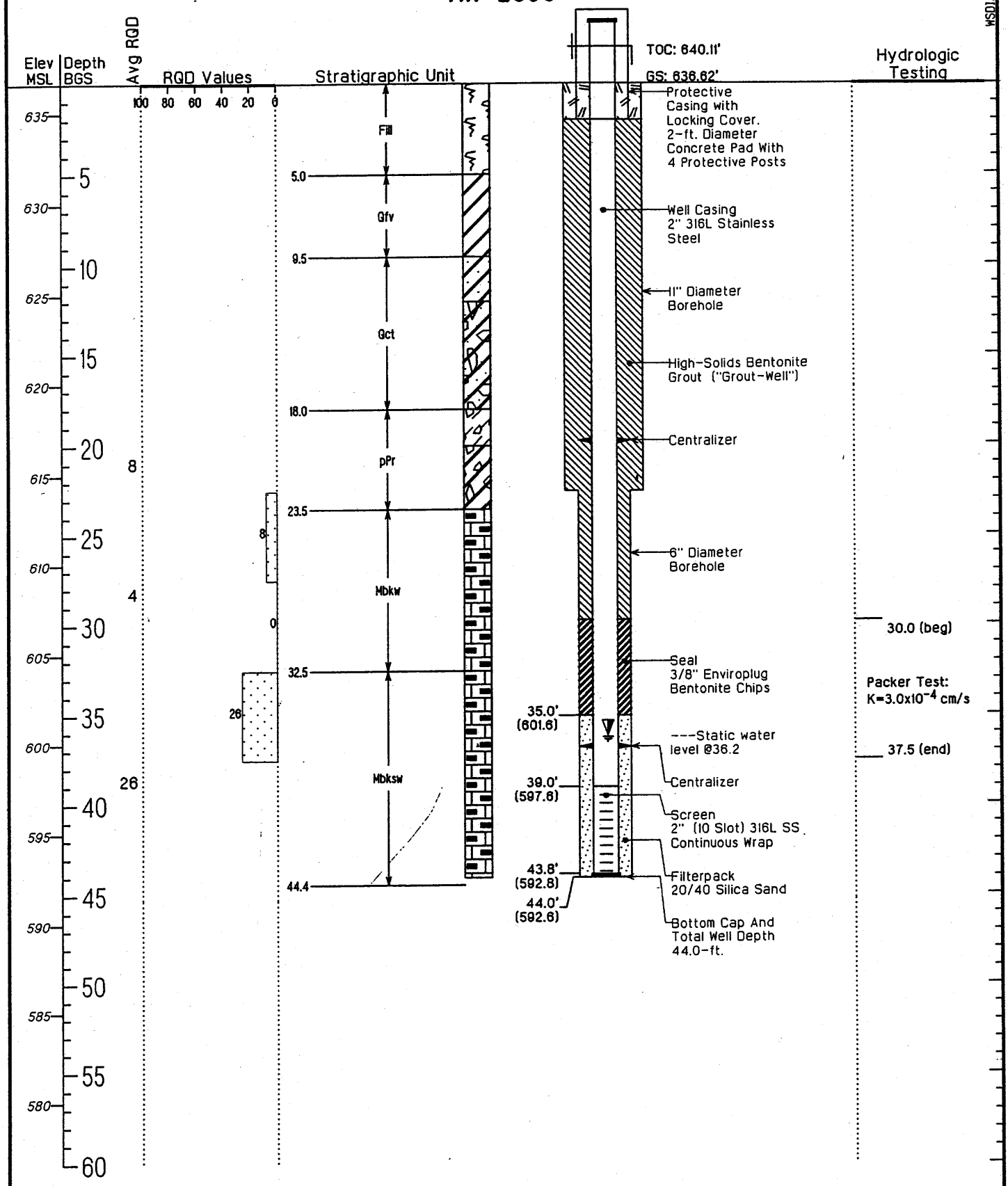
DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery 0 100	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT	WELL DIAGRAM	ELEVATION feet
40						CHRT LMS	all surfaces are rough, eroded and open up to 1-1/2". @ 33.7'-34.5'. Very vuggy, soft, easily scratched with fingernail. @ 35.5'-37.5'. Predominantly chert. Total cored depth, 37.5', 11-1-00. Hole reamed to 6" diameter to 44.0' and a 2" monitoring well was constructed. CONSTANT HEAD SINGLE PACKER TEST RESULTS 29.8 - 37.5 ft. K=3.0E-4 cm/sec	Mdksw	---Static water level @36.2; Centralizer; Screen 2" (10 Slot) 316L SS Continuous Wrap; Filterpack 20/40 Silica Sand; Bottom Cap And Total Well Depth 44.0-ft.	600
45										595
50										590
55										585
60										580
65										575
70										570
75										565

Sample Interval No Sample Taken minimum maximum average

BOREHOLE DIAGRAM

MW-2050

WSDIAG-E



▽minimum ▼maximum ▼average

Sheet 1 of 2

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

K = 3X10-4

Project: Groundwater Invest. Nitroaromatics. Frog Pond	Job Number:	Test Section: (L) 29.8 to 37.5	Bore Hole: 2050
Test Equipment Identification: Neptune Flow Meter U.S. pressure gauge	BORE HOLE Orientation: Vertical	Size: 3.0"	Test By: A. Benfer B. Cato Date: 1430 10/30/00
Packers: On Casing (Single/Double) Hydraulic (Inflatable)	Groundwater Depth: 38.9 ~~36.2~~ Ft.	Gauge Height Above Ground: 1.5' Ft.	Gravity Head: stick up 5.5 + ~~29.8~~ 33.6 39.1 Ft.

TEST 1

Inflow pressure (H_P) 20 psi × 2.31 = 46.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	970.0	971.7	973.4	975.0	976.7	978.4						1.7 GPM
												CFM
Take Per Min.	1.7	1.7	1.6	1.7	1.7							CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

~~87.9~~ 85.3 FT. = ~~41.7~~ 39.1 FT. + 46.2 FT. – N.A. FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{1.7}{\cancel{87.9}\ 85.3 \times 7.7} \times .011 \frac{7.7}{.125} = 0.045$$

K, CM/SEC: 1 X 10-4

TEST 2

Inflow pressure (H_P) 30 psi × 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	990.0	995.6	001.1	006.9	012.7	018.7	024.6	030.5				5.8 GPM
												CFM
Take Per Min.	5.6	5.5	5.8	5.8	6.0	5.9	5.9					

H_T ~~111.0~~ 108.4 FT. = H_G ~~41.7~~ 39.1 FT. + H_P 69.3 FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{5.8}{111 \times 7.7} \times .045 =$$

K, CM/SEC: 3X10-4

TEST 3

Unstable P

Inflow pressure (H_P) 35 psi × 2.31 = 80.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	040.0	050.5	061.1	072.1	083.9	095.7	107.6	119.5	131.1	142.7	154.5	11.4 GPM
												CFM
Take Per Min.	~~10.5~~	~~10.6~~	11.0	11.8	11.8	11.9	11.9	11.6	11.6			

H_T ~~122.5~~ 119.9 FT. = H_G ~~41.7~~ 39.1 FT. + H_P 80.8 FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{11.6}{\cancel{122.5}\ 119.9 \times 7.7} \times .045 =$$

K, CM/SEC: 6X10-4

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Groundwater Invest. Nitroaromatics. Frog Pond		29.8 to 37.5	MW2050

Test Equipment Identification	BORE HOLE		Test By:
Neptune flow meter U.S. pressure gauge	Orientation: Vertical	Size: 3"	A. Benfer B. Cato Date: 1500 10/30/00

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing (Single)/Double Hydraulic/(Inflatable)	36.2 Ft.	1.5 Ft.	5.5 ~~+ 29.8~~ Ft.

TEST 1 1500 Inflow pressure (H_P) 20 psi × 2.31 = 46.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	162.8	164.2	165.5	166.8	168.1	169.4						1.3 GPM
												CFM
Take Per Min.	1.4	1.3	1.3	1.3	1.3	1.3						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

~~85.3~~ ~~87.9~~ FT. = ~~39.1~~ ~~41.7~~ FT. + 46.2 FT. – FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{1.3}{\cancel{87.9} \times 7.7\ 85.3} \times .045 = K, CM/SEC\ 9 \times 10^{-5}$$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

MORRISON KNUDSEN CORPORATION

Well Development Record

Project: G.W. Invest. Nitroaromatics Date: 11/13

Client: WSSRAP W.O. No.: _____

Well Number: 2050 Location: Near Frog Pond

Hole Diameter: 6" Screened Interval: 39.0 - 44.0

Hole Depth: 44 ft Static Water Level: ~ 35.6

Well Diameter: 2.0" Water Column Height: ~ 9'

Water Volume
$V = H(D)^2 \times 0.041$
V = One well volume (gallons)
H = Height of water column (feet)
D = Inside well Diameter (inches)

Well volume, V = _____ gallons

Bailer dimensions = _____ (inches/feet)

Bailer volume, V = _____ gallons

Bailer _____ or pump _____ Pump model _____

TIME	SPEC. COND.	TEMP.	pH	TURBIDITY	COMMENTS turbidity
1100	1.18	13.0	erratic	off-scale	E-3 low light
1250	1.07	14.9	"	682	
1305	1.10	15.1		off-scale	E-3 low light
1405	1.08	13.0	8.0	594	
1445	1.11	14.0	8.0	off-scal	E-3. still cloudy
11/14/00 0800	1.02	11.2	7.9	781	/
0810	1.03	12.0	7.7	-	E-3 low light
0925	1.12	12.3	7.7	offscale	E-3
1025	1.12	13.1	7.7	offscale	E-3 - too cloudy
1030	1.03	12.8	7.4	offscale	E-3
1045	1.17	11.0	7.5	1000+	
1340	1.09	11.9	7.4	offscale	E-3 - high turbidity
1355	1.09	11.8	7.4	offscale	E-3 ~10 well vol. removed

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

HOLE NUMBER MW-2052

SHEET 1 OF 2

NORTH (Y): 1043928.24

EAST (X): 756051.16

TOC ELEVATION 624.82

GROUND ELEVATION 622.29

STICKUP 2.53

HYDR CONDUCTIVITY (cm/sec) K= 2.3×10^{-3} (Packer Test)

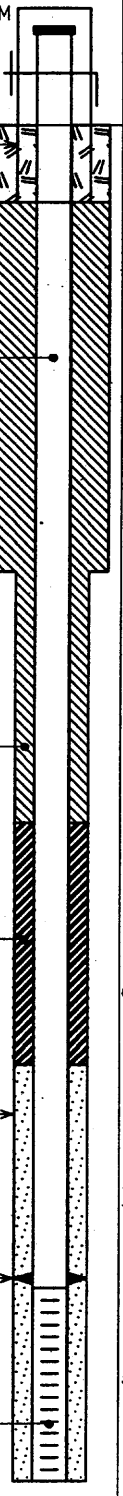
WELL STATUS/COMMENTS ACTIVE	**LOCATION** N. OF CELL, N. EDGE OF SITE		
DRILLING CONTRACTOR LAYNE WESTERN Inc.	**DRILL RIG MAKE & MODEL** CME-750 HSA/NQWL; I-R TH-60 AIR ROTARY		
HOLE SIZE & METHOD 9" HSA-11.5; NQ-40; 6" AIR-41	**ANGLE FROM HORIZONTAL & BEARING** Vertical	**BOTTOM OF HOLE (TD)** 41.0	
DRILL FLUIDS & ADDITIVES Water core; Air ream	**CASING TYPE, DEPTH, SIZE** 2" 316 SS Mon. Well	**BEDROCK** 11.5	
DATE START 12-7-01	**DATE FINISH** 12-14-01, Mon. Well	**WATER LEVELS & DATES**	

DEPTH (FT.) FROM GROUND ELEV. TO:

LITHOLOGY BY ALAN BENFER

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
							Soil not sampled or logged from the surface to 11.5-ft.	pPr/Qct/Qfc undiff.
10							Auger refusal at 11.5-ft. Continued with NQ core.	
		SPT-1 / NQ-1	43/66"	22		LMS, CHRT	NQ-1, 11.5'– 17.0'. Loss zones unknown, ~7 loss zones including the bottom of the core. 14 fractures, several zones of bit drop.	
							@ 12.5'. Lost circulation permanently.	
15							LIMESTONE, moderately weathered, argillaceous, fine-grained, some vugs, mostly light gray, a few styolites, trace oxidized pyrite, most fractures are oxidized but probably not water-bearing, ~30% interbedded chert, light gray. Weathered Burlington-Keokuk Limestone.	Mdkw
		NQ-2	68/72"	62			@ 17.0'– 19.4'. LIMESTONE AND CHERT as above, limestone is light gray to orange brown, moderately hard, ~30% chert.	
20							@19.4'– 23.0'. LIMESTONE, moderately to strongly weathered, mostly orange brown, some light gray, argillaceous, vuggy, thinly bedded, moderately hard to soft; ~35% chert, generally thinly interbedded with the limestone, mostly light gray with thin streaks of MnOx. One to 4 fractures per foot, rough, open, oxidized, some broken, horizontal. At ~23-ft., Strongly Weathered Burlington-Keokuk Limestone.	
		NQ-3	9/72"	0			NQ-3, 23.0'– 29.0'. Loss zones unknown, certainly the fast cutting zone from 25.8'– 29.0'. Recovered 5 pieces of chert plus some rubble, longest piece 2-1/2", light gray to yellow brown (FeOx stain), with thin streaks of MnOx, fossiliferous.	
25							Void at ~27' to ~28'.	
		NQ-4	34/72"	8			NQ-4, 29.0'– 35.0'. Loss zones unknown, possibly the top.	Mdksw
30							LIMESTONE AND CHERT, ~50/50%, thinly interbedded, "poker chip"-like fracturing along the bedding, limestone is strongly weathered, orange brown, argillaceous, very vuggy and severely eroded; light gray chert.	
35		NQ-5	36/60"	48				

WELL DIAGRAM



ELEVATION feet: 620, 615, 610, 605, 600, 595, 590

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

HOLE NUMBER: MW-2052

SHEET 2 OF 2

NORTH (Y): 1043928.24

EAST (X): 756051.16

WELL STATUS/COMMENTS: ACTIVE

LOCATION: N. OF CELL, N. EDGE OF SITE

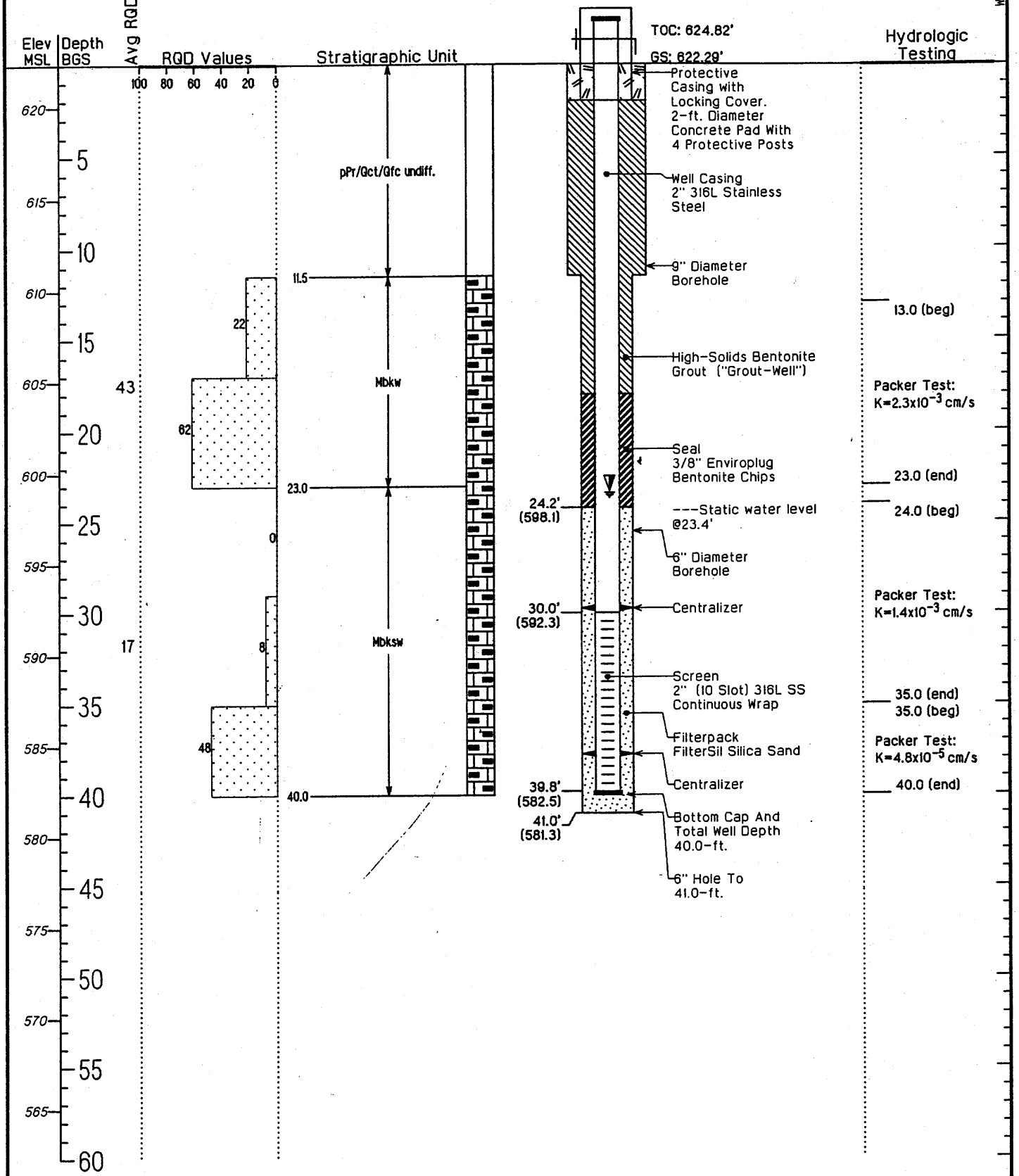
DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT	WELL DIAGRAM	ELEVATION feet
40			0 100 36/60"			LMS CHRT	@ 35.0'- 35.5'. Coarsely crystalline limestone, slightly weathered, hard, light gray with minor oxidation. 4+ fracures per foot, broken. @ 35.5'- 38.0'. Limestone, strongly weathered, argillacous, locally thinly bedded, localized vugs up to 1/2", weak and somewhat soft, yellow brown, interbedded with ~40% chert, light and dark gray, some fossils. One fracture per foot, broken but tight. Strongly Weathered Burlington-Keokuk Limestone. Total cored depth 40.0', 12-11-01. Hole reamed to 6" diameter to 41.0' and a 2" monitoring well was constructed. CONSTANT HEAD SINGLE PACKER TEST RESULTS 13.0 - 23.0-ft. K = 2.3E-3 cm/sec 24.0 - 35.0-ft. K = 1.4E-3 cm/sec 35.0 - 40.0-ft. K = 4.8E-5 cm/sec	Mdksw	Filterpack FilterSil Silica Sand Centralizer Bottom Cap And Total Well Depth 40.0-ft. 6" Hole To 41.0-ft.	585 580 575 570 565 560 555 550
45										
50										
55										
60										
65										
70										
75										

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

BOREHOLE DIAGRAM

MW-2052

WSDIAG-E



▽minimum ▼maximum ▼average

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

K = 2X10⁻³

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 11	Mid = 18 13.0 to 23.0	MW 2052

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: Vert	Size: 3.00	A. Benfer Date: 1300 12/10/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing (Single)/Double Hydraulic/(Inflatable)	unsat. Ft.	3.0 Ft.	18 + 3.0 = 21.0 Ft.

1300

TEST 1

Inflow pressure (H_P) 5 psi × 2.31 = 11.55 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	297.0	308.6	320.4	332.4	344.4	356.5	368.4					12.0 GPM CFM
Take Per Min.	11.6	11.8	12.0	12.0	12.1	11.9						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

32.6 FT.	=	21.0 FT.	+	11.55 FT.	–	0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{12.0}{32.6 \times 10.0} \times \frac{.0482}{.011 \ln \frac{10.}{.125}} = K, CM/SEC\ 1.8 \times 10^{-3}$$

2X10⁻³

TEST 2

Inflow pressure (H_P) 10 psi × 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	388.0	405.8	424.0	442.3	460.3	479.1	[illegible]	518.3	538.5	559.2		19.0 GPM CFM
Take Per Min.	17.8	18.2	18.3	18.0	18.8	[illegible]	20.3	20.2	20.7			

6
12
18

H_T 44.1 FT.	= H_G 21.0 FT.	+ H_P 23.1 FT.	– H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{19.0}{44.1 \times 10.0} \times \frac{.0482}{.011 \ln \frac{10.0}{.125}} = K, CM/SEC\ 2.1 \times 10^{-3}$$

2X10⁻³

TEST 3

Inflow pressure (H_P) 15 psi × 2.31 = 34.65 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	590.0	618.5	646.8	675.8	703.6	732.4	[illegible]	788.9				28.5 GPM CFM
Take Per Min.	28.5	28.3	29.0	27.8	28.8	[illegible]	28.5					

25
4

H_T 55.7 FT.	= H_G 21.0 FT.	+ H_P [illegible] FT.	– H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{28.5}{55.7 \times 10.0} \times \frac{.0482}{} = K, CM/SEC\ 2.5 \times 10^{-3}$$

2X10⁻³

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

PRESSURE TEST RESULTS (FIELD)

Sheet 2 of 2

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 11	13.0 to 23.0	MW 2052

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.0"	A. Benfer Date: 12/10/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing (Single) Double Hydraulic (Inflatable)	Unsat. Ft.	3.0 Ft.	18+3 Ft.

TEST 1

Inflow pressure (H_P) 5 psi × 2.31 = 11.55 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	835.0	835.2	835.6	836.0	836.3	836.4	836.4	836.4				20.2 GPM CFM
Take Per Min.	20.2	20.4	20.4	20.3	20.1	20.0	20.2					CFM × 7.48 – GPM

used ~800 gals

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

32.6 FT. = 21.0 FT. + 11.6 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{20.2}{32.6 \times 10.0} \times .0482 = 3.0 \times 10^{-3}$$ K, CM/SEC

TEST 2

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

$\bar{X} = 2.3 \times 10^{-3}$

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\quad \times \quad} \times \quad =$$ K, CM/SEC

TEST 3

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\quad \times \quad} \times \quad =$$ K, CM/SEC

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Sheet 1 of 2

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 11	24 K_2 1×10^{-3} 10 35	MW 2052

Test Equipment Identification	BORE HOLE		Test By:
Sensas Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.0	A. Benfer
			Date: 12/11/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	23.5' Ft.	3.0 Ft.	26.5 Ft.

TEST 1

Inflow pressure (H_P) 10 psi × 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	008.0	014.6	030.9	047.5	063.7	079.7	095.6	111.3				16.1 GPM / CFM
Take Per Min.		6.6	16.3	16.6	16.2	16.0	15.9	15.7				CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

49.6 FT. = 26.5 FT. + 23.1 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{16.1}{49.6 \times 11.0} \times .0493 \times .011 \ln \frac{11.0}{.125} = K,\ CM/SEC\ \cancel{1.5\times10^{-3}}$$

TEST 2

Inflow pressure (H_P) 15 psi × 2.31 = 34.7 feet

1×10^{-3}

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	131.0	149.7	168.3	187.0	205.8	224.5	243.1					18.7 GPM / CFM
Take Per Min.		18.7	18.6	18.7	18.8	18.7	18.6					

H_T 61.2 FT. = H_G 26.5 FT. + H_P 34.7 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{18.7}{61.2 \times 11.0} \times .0493 = K,\ CM/SEC\ \cancel{1.4\times10^{-3}}$$

TEST 3

Inflow pressure (H_P) 25 psi × 2.31 = 57.8 feet

1×10^{-3}

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	278.0	301.5	325.7	349.6	373.1	397.2	420.7	444.5				23.8 GPM / CFM
Take Per Min.		23.5	24.2	23.9	23.5	24.1	23.5	23.8				

H_T 84.3 FT. = H_G 26.5 FT. + H_P 57.8 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{23.8}{84.3 \times 11.0} \times .0493 = K,\ CM/SEC\ \cancel{1.3\times10^{-3}}$$

1×10^{-3}

Sheet 2 of 2

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 4	24 to 35	MW 2052

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.0"	A. Benfer Date: 12/11/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	23.5' Ft.	3.0 Ft.	26.5 Ft.

TEST 1

Inflow pressure (H_P) 10 psi × 2.31 = 23.1 feet

Used ~ 800 gals water

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	474.0	486.8	500.3	513.7	527.3	540.6	554.3	567.5	581.3	594.8		13.6 GPM CFM
Take Per Min.		12.8	13.5	13.4	13.6		13.7	1	13.8	13.5		CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

49.6 FT.	=	26.5 FT.	+	23.1 FT.	–	10 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln.\frac{L\ (ft)}{r\ (ft)} = \frac{13.6}{49.6 \times 11.0} \times .0493 = K, CM/SEC$$

~~1.2 × 10⁻³~~ 1 × 10⁻³

$\bar{X} = 1.4 \times 10^{-3}$

TEST 2

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln.\frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln.\frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A Task 11	35 to 40 (5x10⁻⁵)	MW 205R

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.0"	A. Benfer Date: 1340 12/14/01

Packers On Casing (Single)/Double Hydraulic/(Inflatable)	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
	23.5' Ft.	3.0' Ft.	26.5 Ft.

TEST 1

Inflow pressure (Hp) 15 psi × 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	03.7	04.1	04.43	04.78	05.11	05.48	05.84	06.15				0.35 GPM CFM
Take Per Min.		0.4	0.33	0.35	0.33	0.37	0.36	0.31				CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) – Head Losses (H_L)

61.2 FT. = 26.5 FT. + 34.7 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.35}{61.2 \times 5.0} \times .011 \ln \frac{5.0}{.125} = .0406$$

K, CM/SEC: 4.6x10⁻⁵ → 5x10⁻⁵

TEST 2

Inflow pressure (Hp) 25 psi × 2.31 = 57.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	07.20	07.69	08.17	08.67	09.19	09.69	10.19					0.50 GPM CFM
Take Per Min.		0.49	0.48	0.50	0.52	0.50	0.50					

H_T 84.3 FT. = H_G 26.5 FT. + Hp 57.8 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.50}{84.3 \times 5.0} \times .0406 =$$

K, CM/SEC: 4.8x10⁻⁵ → 5x10⁻⁵

TEST 3

Inflow pressure (Hp) 35 psi × 2.31 = 80.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	11.40	12.11	12.80	13.55	14.26	14.93	15.61					0.70 GPM CFM
Take Per Min.		0.71	0.69	0.75	0.71	0.67	0.68					

H_T 107.4 FT. = H_G 26.5 FT. + Hp 80.9 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.70}{107.4 \times 5.0} \times .0406 =$$

K, CM/SEC: 5.3x10⁻⁵ → 5x10⁻⁵

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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 11	35 to 40	MW 2052

Test Equipment Identification	BORE HOLE		Test By:
	Orientation:	Size:	A. Benfer
Sensus Flow Meter U.S. Gauge	Vert.	3.0"	Date: 12/11/01

Packers On Casing Single/Double Hydraulic/Inflatable	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
	23.5 Ft.	3.0' Ft.	26.5 Ft.

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	16.30	16.63	16.99	17.30	17.64	17.99	18.33					0.34 GPM CFM
Take Per Min.	0.33	0.36	0.31	0.34	0.35	0.34						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

61.2 FT. = 26.5 FT. + 34.7 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{0.34}{61.2 \times 5.0} \times .0406 = K, CM/SEC$$

4.5×10^{-5}
4×10^{-5}
$\bar{X} = 4.8 \times 10$

TEST 2

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

ES&H 4.4.8.2, Rev.0, 5/95

PROJECT NAME Frog Pond Nitro Delineation WORK PACKAGE NO. 487A, Task 11

DEVELOPED BY Layne-Western, Alan Benfer PMC

1. Well Number.: MW-2052 Well Location: No. of cell, No. edge of site
2. Date of Installation: 12-14-01
3. Date of Development: 2-17-01
4. Static Water Level: Before Development 25.9 TOC ft.; At least 24 hrs. after _____ ft.
5. Organic Vapor: Before development NA ppm; After development NA ppm.
6. Quantity of water loss during drilling, if used: ~3400 gal.
7. Quantity of standing water in well and annulus before development: ~ 7½ gal.
8. Depth from top of well casing to bottom of well: 42.5 ft. (from Well Installation Diagram)
9. Well diameter: 2.0 in.
10. Screen length: 10.0 ft.
11. Minimum quantity of water to be removed: 23 gal.
12. Depth to top of sediment: Before development NA ft.; After development NA ft.
13. Physical character of water (before/after development): Cloudy / Clear
14. Type and size of well development equipment: 1½" Grund fos Redi-Flo submer. pump.
15. Description of surge technique: bailed well several times initially

16. Height of well casing above ground surface: 2½ ft. (from Well Installation Diagram).
17. Quantity of water removed: 80 gal. Time for removal: 1/45 hr./min.

Good Producer.

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

ES&H 4.4.8.2, Rev.0, 5/95

PROJECT NAME Frog Pond Nitro Delineation WORK PACKAGE NO. 487A, Task 11

DEVELOPED BY Lynne Western, Alan Benfer PMC

Well Number: MW-2052 Well Locations: North of Cell

12/17/01

Date/ Time	Hrs. Dev./ Cum. Hrs. Dev.	Gals. Purged/ Cum. Gals. Purged	pH	Temp.	Cond.	Remarks Turbidity
0843		20	7.0	12.1	2.59	210
0845		25	6.6	12.6	2.79	171
0847		30	6.5	12.9	2.78	220
0852		35	6.6	13.1	2.74	268
0854		40	6.5	13.3	2.83	306
0857		45	6.5	13.3	2.89	312
0930		50	6.0	10.7	2.93	661
0937		55	6.1	11.7 10.7	3.01	160
0943		60	6.1	12.4	2.95	112
0950		65	6.1	12.9	2.77	87.1
0958		70	6.1	12.6	2.83	43.8
1005		75	6.1	12.9	2.89	16.1
1013		80	6.1	12.8	3.00	9.41

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

WSMLOG-C

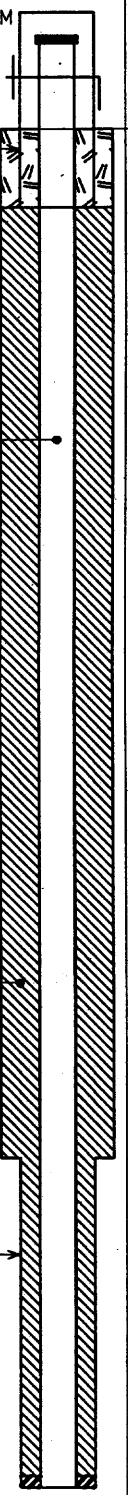
HOLE NUMBER: MW-2053
SHEET 1 OF 2
NORTH (Y): 1043421.87
EAST (X): 755919.13
TOC ELEVATION: 643.19
GROUND ELEVATION: 640.77
STICKUP: 2.42
HYDR CONDUCTIVITY (cm/sec): K= 3.8×10^{-4} (Packer Test)

WELL STATUS/COMMENTS: ACTIVE	LOCATION: NE CORNER OF DISPOSAL CELL	
DRILLING CONTRACTOR: LAYNE WESTERN Inc.	DRILL RIG MAKE & MODEL: CME-750 HSA/NXWL; I-R TH-60 AIR ROTARY	
HOLE SIZE & METHOD: 9" HSA-27; NQ-55; 6" AIR-56	ANGLE FROM HORIZONTAL & BEARING: Vertical	BOTTOM OF HOLE (TD) (FT.) FROM GROUND ELEV.: 55.0
DRILL FLUIDS & ADDITIVES: Water core; Air ream	CASING TYPE, DEPTH, SIZE: 2" 316 SS Mon. Well	BEDROCK: 26.5
DATE START: 11-30-01	DATE FINISH: 12-7-01, Mon. Well	WATER LEVELS & DATES

LITHOLOGY BY: ALAN BENFER

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
							The soil overburden was not sampled or logged from the surface to 20.0-ft.	Qct/Qfv undiff.
20	SPT-1			18		CH	CLAY, high plasticity, minor angular chert gravel, some decomposed limestone, mottled reddish brown and black, moist, hard. CH. Residuum.	
	SPT-2			11			CH as above.	
25	SPT-3			61+			CH as above. Residuum.	
							Auger refusal at 26.5-ft., continue with NQ core.	pPr
	NQ-1		63/72"	48		CHRT LMS	Lost circulation at 27.5-ft. permanently. CHERT, hard, some nodular, some disseminated, localized wavy bedding, thin streaks of MnOx, light gray to light brown. LIMESTONE, ~40% moderately weathered, argillaceous, minor scattered oxidized pyrite, gray to yellow brown. Zero to 4+ fractures per foot, all rough, open and oxidized; some rubble. Weathered Burlington-Keokuk Limestone.	
30							@ 29.3'- 29.6'. Chert breccia, light gray to orange brown, FeOx stain, generally interbedded with limestone, vuggy at 29.0', 30.3' to 30.5' and 31.8'.	
	NQ-2		72/72"	75			0.8' of NQ-1 core picked up in NQ-2, mostly chert with minor strongly weathered and vuggy limestone.	Mbkw
35								

WELL DIAGRAM



ELEVATION feet: 640, 635, 630, 625, 620, 615, 610

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSMLOG-C

HOLE NUMBER **MW-2053**

SHEET 2 OF 2

NORTH (Y): 1043421.87

EAST (X): 755919.13

WELL STATUS/COMMENTS: ACTIVE

LOCATION: NE CORNER OF DISPOSAL CELL

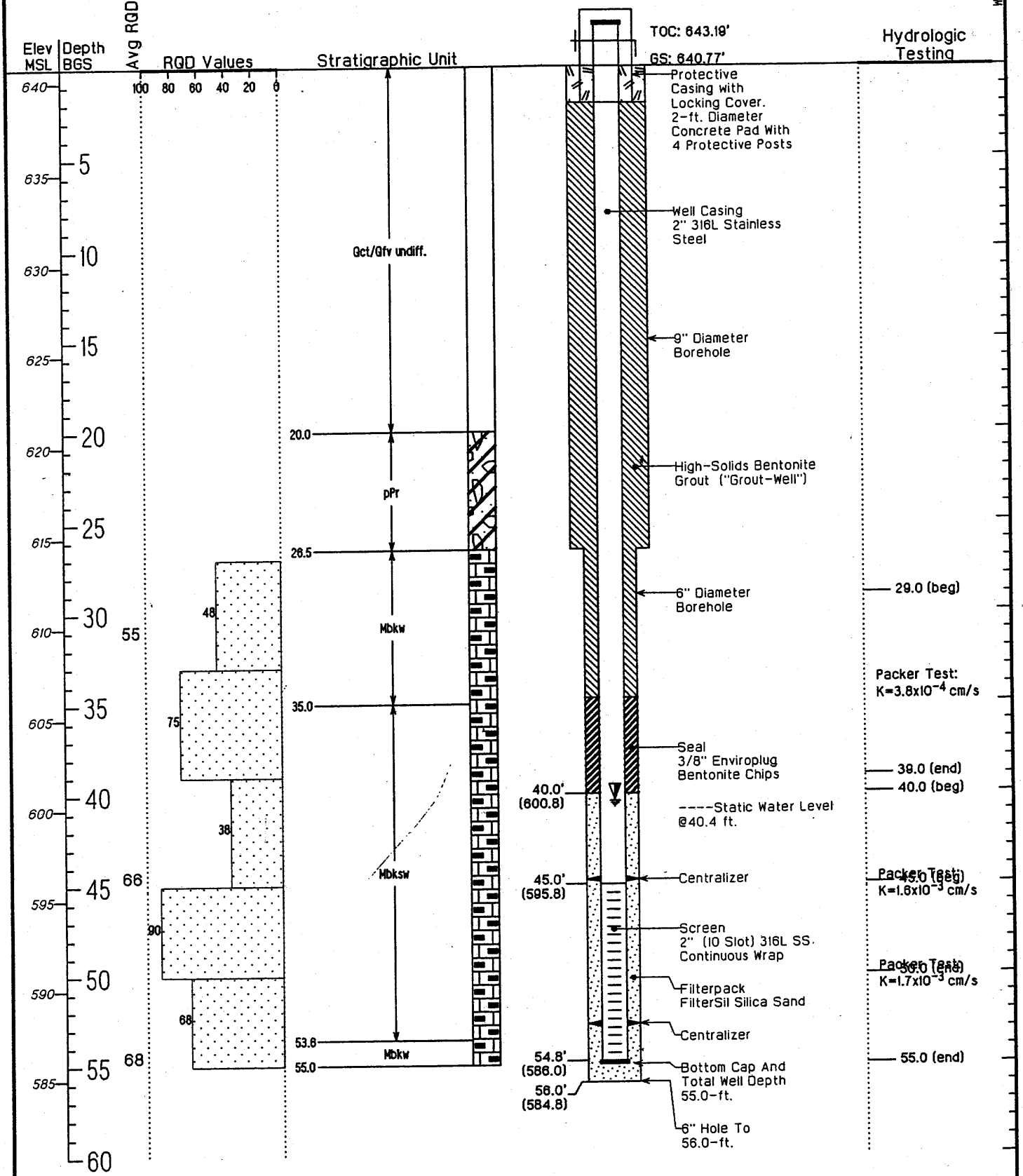
DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT	WELL DIAGRAM	ELEVATION feet
40		NQ-3	53/72"	38		CHRT LMS	@ 33.0'– 34.9'. Mostly limestone, moderately weathered, hard, argillaceous, somewhat vuggy, mostly yellow brown, with ~30% interbedded chert, light gray with thin streaks of MnOx.		Seal 3/8" Enviroplug Bentonite Chips	605
							@ 34.9'– 38.5'. Mostly light colored chert with ~30% strongly weathered limestone, orange brown, argillaceous, vuggy, soft and weak. Zero to 3 fractures per foot, rough and open. Strongly Weathered Burlington–Keokuk Limestone.		----Static Water Level @40.4 ft.	
							@ 38.5'– 39.8'. Very vuggy, very soft, highly eroded.			
							@ ~40.4'– 41.5'. Bit dropped; probable void.			
							@ 42.1'– 45.0'. Mostly chert, light brown to light gray with thin MnOx streaks, ~20% limestone, moderately weathered, argillaceous, thinly bedded.			
45		NQ-4	60/60"	90			@ 45.0'. Overall rock quality improved, especially RQD. ~50% chert and limestone. Limestone is still strongly weathered, argillaceous, soft, locally thinly bedded, fossiliferous and vuggy. Color varies from light gray to orange brown. Strongly Weathered Burlington–Keokuk Limestone.	Mdksw	Centralizer	595
							@ 46.7'– 49.7'. Mostly chert, light and bluish gray and orange brown.		Screen 2" (10 Slot) 316L SS Continuous Wrap	
50		NQ-5	52/60"	68			@ 49.7'– 50.0'. Vugs up to 2".		Filterpack FilterSil Silica Sand	590
							@ 50.9'– 51.1'. Abundant oxidized pyrite.			
							@ 51.1'– 53.6'. Limestone and chert, ~50% each, closely interbedded, limestone strongly weathered to 53.6'.		Centralizer	
55							LIMESTONE, moderately weathered, argillaceous, generally soft and weak, mostly fine-grained, locally thinly bedded, locally vuggy, orange brown with tiny black specks of MnOx. Zero to 2+ fractures per foot, some open and eroded, some rubble. Weathered Burlington–Keokuk Limestone.	Mdkw	Bottom Cap And Total Well Depth 55.0–ft.	585
							Total cored depth 55.0', 12-4-01. Hole reamed to 6" diameter to 56.0' and a 2" monitoring well was constructed.		6" Hole To 56.0–ft.	
60										580
							CONSTANT HEAD SINGLE PACKER TEST RESULTS 29.0 – 39.0–ft. K = 3.8E–4 cm/sec 40.0 – 50.0–ft. K = 1.6E–3 cm/sec 45.0 – 55.0–ft. K = 1.7E–3 cm/sec			
65										575
70										570
75										

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

BOREHOLE DIAGRAM

MW-2053

WSDIAG-E



▽minimum ▼maximum ▼average

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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	487A, Task 11	29.0 to 39.0 ($K = 4 \times 10^{-4}$)	MW 2053

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By:
Sensus Flow Meter U.S. Gauge	Vert.	3.0"	Date: 1320 12/3/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	Unsat. ~40' Ft.	3.0' Ft.	34+3 37 Ft.

TEST 1

Inflow pressure (Hp) 10 psi × 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	93.0	98.2	102.6	07.0	11.7	16.3	20.6	24.9				4.5 GPM CFM
Take Per Min.		5.2	4.4	4.5	4.7	4.6	4.2	4.4				CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) – Head Losses (H_L)

60.1 FT. = 37.0 FT. + 23.1 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{4.5}{60.1 \times 10.0} \times .011 \ln \frac{10.0}{.125} = .0482$$

K, CM/SEC: ~~3.6×10^{-4}~~ 4×10^{-4}

TEST 2

Inflow pressure (Hp) 20 psi × 2.31 = 46.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	35.0	41.3	47.6	54.0	60.3	66.6	72.3					6.3 GPM CFM
Take Per Min.		6.3	6.3	6.4	6.3	6.3	5.7					

H_T 83.2 FT. = H_G 37 FT. + H_P 46.2 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{6.3}{83.2 \times 10.0} \times .0482 =$$

K, CM/SEC: ~~3.6×10^{-4}~~ 4×10^{-4}

TEST 3

Inflow pressure (Hp) 30 psi × 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	84.0	92.0	00.0	08.2	16.3	24.3						8.1 GPM CFM
Take Per Min.		8.0	8.0	8.2	8.1	8.0						

H_T ____ FT. = H_G 37 FT. + H_P 69.3 FT. – H_L ____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{8.1}{104.3 \times 10.0} \times .0482 =$$

K, CM/SEC: ~~3.7×10^{-4}~~ 4×10^{-4}

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PRESSURE TEST RESULTS (FIELD)

Sheet 2 of 2

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	487A, Task 11	mid 34' 29.0 to 39.0	MW 2053

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: vert	Size: 3.0"	A. Benfer Date: 12/3/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing (Single) Double Hydraulic (Inflatable)	Unsat. ~40' Ft.	3.0' Ft.	34+3 = 37 Ft.

TEST 1 Inflow pressure (H_P) 10 psi × 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	41.0	46.6	52.1	57.6	63.1	68.6	74.2					5.6 GPM CFM
Take Per Min.		5.6	5.5	5.5	5.5	5.5	5.6					CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

60.1 FT. = 37.0 FT. + 23.1 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{5.6}{60.1 \times 10.0} \times .0482 = K, CM/SEC$$

~~4.5 x 10⁻⁴~~ 4 x 10⁻⁴

$\bar{X} = 3.8 \times 10^{-4}$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

K = 2 x 10⁻³ 1/2

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	487A, Task 11	40 to 50'	MW 2053

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.0"	A. Benfer
			Date: 0930 12/4/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single Double Hydraulic Inflatable	40.0 Ft.	3.0 Ft.	43' Ft.

TEST 1 Inflow pressure (H_P) 15 psi x 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	60.0	88.0	115.8	143.5	171.3	199.0	226.7					27.8 GPM / CFM
Take Per Min.		28.0	27.8	27.7	27.8	27.7	27.7					CFM x 7.48 – GPM

15.8 / 12 / 2 / 7

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

77.7 FT.	=	43 FT.	+	34.7 FT.	–	0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{27.8}{77.7 \times 10.0} \times .0482 \times .011 \ln \frac{10.0}{.125} = K,\ CM/SEC$$

~~1.7 x 10⁻³~~ 2 x 10⁻³

TEST 2 Inflow pressure (H_P) 25 psi x 2.31 = 57.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	54.0	86.8	119.5	152.3	184.8	217.5						32.7 GPM / CFM
Take Per Min.		32.8	32.7	32.8	32.5	32.7						

H_T 100.8 FT.	= H_G 43 FT.	+ H_P 57.8 FT.	– H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{32.7}{100.8 \times 10.0} \times .0482 \times .011 \ln \frac{10.0}{.125} = K,\ CM/SEC$$

~~1.6 x 10⁻³~~ 2 x 10⁻³

TEST 3 Inflow pressure (H_P) 40 psi x 2.31 = 92.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	60.0	99.0	138.5	177.5	217.0	256.3						39.3 GPM / CFM
Take Per Min.		39.0	39.5	39.0	39.5	39.3						

86.8 / 54 / 3 / 2 .8

H_T 135.4 FT.	= H_G 43 FT.	+ H_P 92.4 FT.	– H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{39.3}{135.4 \times 10.0} \times .0482 = K,\ CM/SEC$$

~~1.4 x 10⁻³~~ 1 x 10⁻³

2/2

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	487A Task 11	40 to 50	MW 2053

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By:
Seasus Flow Meter U.S. Gauge	Vert	3.0	A. Benfer Date: 12/4/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	40' Ft.	3.0' Ft.	43 Ft.

Used ~ 900 gals

17
10.5
65.5
38.0
27.5

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	283.0	310.5	338.0	365.5	392.6							27.4 GPM CFM
Take Per Min.	27.5	27.5	27.5	27.1								CFM × 7.48 – GPM

Total Head (H_T)	=	Gravity Head (H_G)	+	Pressure Head (H_P)	–	Head Losses (H_L)
77.7 FT.	=	43 FT.	+	34.7 FT.	–	0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{27.4}{77.7 \times 10.0} \times .0482 = K, CM/SEC$$

~~1.7×10⁻³~~ 2×10⁻³

$\bar{X} = 1.6 \times 10^{-3}$

TEST 2

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\quad \times \quad} \times \quad = K, CM/SEC$$

TEST 3

Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\quad \times \quad} \times \quad = K, CM/SEC$$

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

$K = 2 \times 10^{-3}$ 2/2

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	487A, Task 11	(L) 45 to 55	MW 2053

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By:
Sensus Flow Meter U.S. Gauge	vert.	3.0"	A. Benfer
			Date: 12/4/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	40' Ft.	3.0 Ft.	43' Ft.

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	30.0	59.8	90.0	519.8	549.8	579.7	609.7					30.0 GPM
												CFM
Take Per Min.	29.8	30.2	29.8	30.0	30.0	30.0						CFM × 7.48 – GPM

21

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

77.7 FT. = 43 FT. + 34.7 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011\ \ln.\frac{L\ (ft)}{r\ (ft)} = \frac{30.0}{77.7 \times 10.0} \times .011 \ln \frac{10.0}{.125} = \text{K, CM/SEC}$$

.0482

~~1.9×10⁻³~~ 2×10⁻³

TEST 2

Inflow pressure (H_P) 30 psi × 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	700.0 ~~70.0~~	736.7	77.30	809.8	846.3	882.5						36.5 GPM
												CFM
Take Per Min.	36.7	40.6	32.5	36.5	36.2							

H_T 112.3 FT. = H_G 43 FT. + H_P 69.3 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011\ \ln.\frac{L}{r} = \frac{36.5}{112.3 \times 10.0} \times .0482 = \text{K, CM/SEC}$$

~~1.6×10⁻³~~ 2×10⁻³

TEST 3

Inflow pressure (H_P) 45 psi × 2.31 = 104 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	913.0	965.5	999.0	041.7	085.5	128.3						43.1 GPM
												CFM
Take Per Min.	52.5	33.5	42.7	43.8	42.8							

H_T 147 FT. = H_G 43 FT. + H_P 104 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011\ \ln.\frac{L}{r} = \frac{43.1}{147 \times 10.0} \times .0482 = \text{K, CM/SEC}$$

~~1.4×10⁻³~~ 1×10⁻³

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

2/2

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	4871A, Task 11	45 to 55	MW 2053

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.00	A. Benfer Date: 12/4/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing (Single)/Double Hydraulic/(Inflatable)	40 Ft.	3.0 Ft.	43 Ft.

TEST 1 Inflow pressure (H_P) 15 psi × 2.31 = ~~34.7~~ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	164.0	192.8	221.5	249.2	270.5	out of water						~~28.4~~ GPM 26.6 CFM
Take Per Min.		28.8	28.7	27.7	21.3							CFM × 7.48 – GPM

used ~900 gals water

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

77.7 FT.	=	43 FT.	+	34.7 FT.	–	FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{\sim\!\!\sim 26.6 \sim\!\!\sim\ 28.4}{77.7 \times 10.0} \times .0482 = K, CM/SEC\ \sim\!\!\sim 1.8 \times 10^{-3}\ \sim\!\!\sim\ 2 \times 10^{-3}$$

$\bar{X} = 1.7 \times 10^{-3}$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T FT. = H_G FT. + H_P FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T FT. = H_G FT. + H_P FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

ES&H 4.4.8.2, Rev.0, 5/95

PROJECT NAME Frog Pond Nitro Delineation WORK PACKAGE NO. 487A, Task 11

SHEET 2 OF 2

DEVELOPED BY Layne-Western, Alan Benfer PMC

Well Number: MW-2053 Well Locations:

12/13/01

Date/ Time	Hrs. Dev./ Cum. Hrs. Dev.	Gals. Purged/ Cum. Gals. Purged	pH	Temp.	Cond.	Remarks Turbidity
1244		30	6.6	12.7	0.93	38.2
1247		35	6.4	13.2	0.91	26.3
1250		40	6.4	13.7	0.88	22.0
1256		45	6.3	13.6	0.86	19.7
1259		50	6.3	13.7	0.95	18.1
1302		55	6.3	13.7	0.86	14.4
1305		60	6.4	13.8	0.89	13.9

Good Producer

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

ES&H 4.4.8.2, Rev.0, 5/95

PROJECT NAME Frog Pond Nitro Delineation WORK PACKAGE NO. 487A, Task 11

SHEET 1 OF 2

DEVELOPED BY Layne-Western, Alan Benfer PMC

1. Well Number.: MW-2053 Well Location: _____
2. Date of Installation: 12/7/01
3. Date of Development: 12/13/01
4. Static Water Level: Before Development 40.46 bgs; At least 24 hrs. after _____ ft.
5. Organic Vapor: Before development NA ppm; After development NA ppm.
6. Quantity of water loss during drilling, if used: unknown gal.
7. Quantity of standing water in well and annulus before development: ~15' gal.
8. Depth from top of well casing to bottom of well: 58.5' ft. (from Well Installation Diagram)
9. Well diameter: 2.0 in.
10. Screen length: 10.0 ft.
11. Minimum quantity of water to be removed: 23 gal.
12. Depth to top of sediment: Before development NA ft.; After development _____ ft.
13. Physical character of water (before/after development): cloudy / clear
14. Type and size of well development equipment: Grundfos Redi-Flo submer. pump
15. Description of surge technique: 1½" bailer up and down
16. Height of well casing above ground surface: 2.5 ft. (from Well Installation Diagram).

Quantity of water removed: 60 gal. Time for removal: 1½ hr./min.

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

HOLE NUMBER **MW-2054**

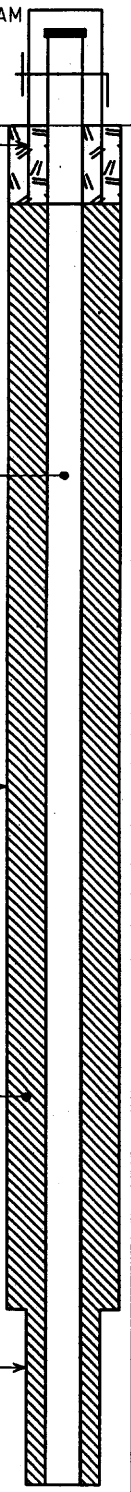
SHEET 1 OF 2

WELL STATUS/COMMENTS: ACTIVE	LOCATION: EAST OF DISPOSAL CELL	NORTH (Y): 1042960.26
DRILLING CONTRACTOR: LAYNE WESTERN Inc.	DRILL RIG MAKE & MODEL: CME-750 HSA/NQWL; I-R TH-60 AIR ROTARY	EAST (X): 755929.99
HOLE SIZE & METHOD: 11" HSA-30.5; NQ-60; 6" AIR-61	ANGLE FROM HORIZONTAL & BEARING: Vertical	TOC ELEVATION: 652.58
DRILL FLUIDS & ADDITIVES: Water core; Air ream	CASING TYPE, DEPTH, SIZE: 2" 316 SS Mon. Well	GROUND ELEVATION: 650.05
DATE START: 11-26-01	DATE FINISH: 12-6-01, Mon. Well	STICKUP: 2.53
	DEPTH (FT.) FROM GROUND ELEV. TO: BOTTOM OF HOLE (TD): 61.0; BEDROCK: 30.5; WATER LEVELS & DATES	HYDR CONDUCTIVITY (cm/sec): K= 1.5×10^{-5} (Packer Test)

LITHOLOGY BY ALAN BENFER/BECKY CATO

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
						FILL	Soil not sampled or logged from the surface to 20-ft.	Fill
20	SPT-1			13			CLAY, silty, with some pebbles and organics, FeOx, brown, stiff, CL- CH. Fill. @ 21.5'. As above with pebbles and sand.	
25	SPT-2			21			CLAY, high plasticity, with limestone and chert fragments, some FeOx staining, light gray, CH. Fill.	
30	SPT-3			20+			LIMESTONE AND CHERT, strongly weathered, with clay.	
	NQ-1	43/54"		29		LMS CHRT	Auger refusal at 30.5-ft. Continued with NQ core.	
							LIMESTONE, moderately weathered, argillaceous, hard, some styolites, some oxidized, locally fossiliferous, light gray and light brown, interbedded with ~30% chert, light gray. Does not appear to be water bearing. 3 to 6 fractures per foot, rough, open, several spun, all are horizontal, minor rubble zones. Weathered Burlington-Keokuk Limestone.	Mdkw
35	NQ-2	49/72"		39				

WELL DIAGRAM



ELEVATION feet: 645, 640, 635, 630, 625, 620

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

WSHLOG-C

HOLE NUMBER: MW-2054

SHEET 2 OF 2

NORTH (Y): 1042960.26

EAST (X): 755929.99

WELL STATUS/COMMENTS: ACTIVE

LOCATION: EAST OF DISPOSAL CELL

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
			49/72"			LMS CHRT	No fluid return for the entire core, 30.5' to 60.0'.	Mdkw
							@ 34'. 3" long vertical styolite.	
							@ 34'– 35'. Mostly chert with thin MnOx streaks.	
							@ 35'. LIMESTONE as above, moderately weathered, generally coarse– grained.	
							@ 37.4'–37.8'. Chert breccia.	
40							@ 38'– 41'. LIMESTONE, strongly weathered, with chert, hard, light gray, fossiliferous. One to 4+ fractures per foot, rough, open, some rubble. Strongly Weathered Burlington–Keokuk Limestone.	
		NQ-3	22/48"	14			@ 40.7'– 41.0'. Limestone fragments with brown clay.	
45		NQ-4	29/41"	12			NQ–3, 41.0'– 45.0'. Poor recovery, loss zones unknown. Chert, fossiliferous, some thin MnOx streaks, light gray to light yellow brown, thinly interbedded with ~30% limestone, strongly weathered, argillaceous, minor solutioning, some styolites, orange brown.	
							@ 45'. CHERT, abundant thin streaks of MnOx, bluish gray to light brown, interbedded with ~30% strongly weathered limestone, very vuggy. ~12+ fractures, heavily eroded, weak.	Mdkwsw
		NQ-5	24/55"	9			@ 48.7'– 49.1'. Drilled fast.	
50							CHERT AND LIMESTONE as above, limestone is soft, but less vuggy. Heavily fractured and broken with rubble. Poor recovery.	
		NQ-6	50/84"	14			NQ–6, 53'– 60'. Loss zones unknown. Mostly strongly weathered limestone, orange brown, argillaceous, locally vuggy, soft, weak, with ~30% scattered chert containing abundant oxidized pyrite near the top of the core. 12+ horizontal fractures with rubble. Strongly Weathered Burlington–Keokuk Limestone.	
55								
60							Total cored depth 60.0', 11–30–01. Hole reamed to 6" diameter to 61.0' and a 2" monitoring well was constructed.	
65							CONSTANT HEAD SINGLE PACKER TEST RESULTS 32.0 – 41.0–ft. K = 1.5E–5 cm/sec 44.0 – 53.0–ft. K = 1.0E–3 cm/sec 53.0 – 60.0–ft. K = 5.5E–5 cm/sec	
70								
75								

WELL DIAGRAM

- Seal — 3/8" Enviroplug Bentonite Chips
- ---Static Water Level @47.1 ft
- Centralizer
- Screen — 2" (10 Slot) 316L SS Continuous Wrap
- Filterpack — FilterSil Indus. Qzt. Sand
- Centralizer
- Bottom Cap And Total Well Depth 60.2–ft.
- 6" Hole To 61.0–ft.

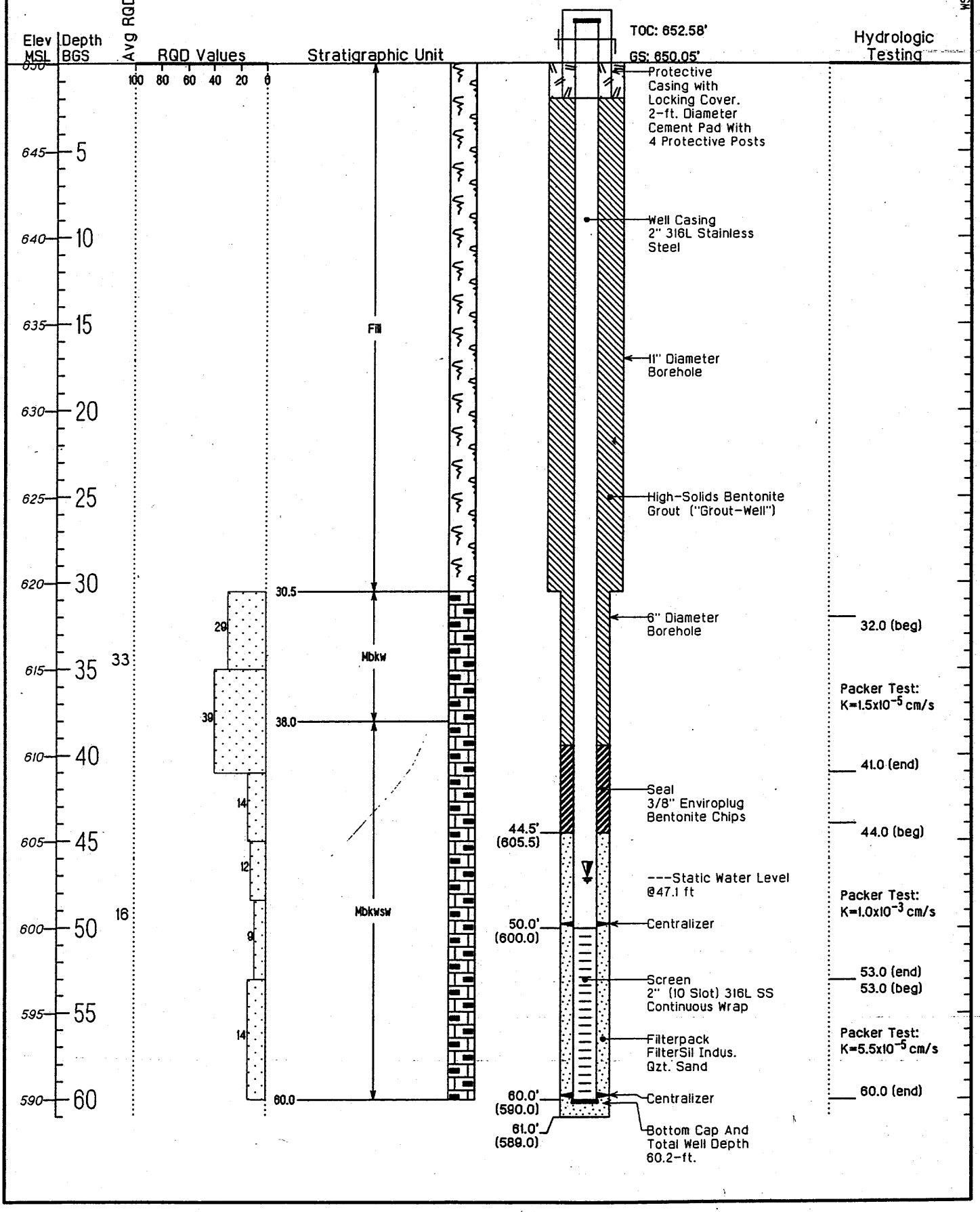
ELEVATION feet
610
605
600
595
590
585
580

Sample Interval ☐ No Sample Taken ▽minimum ▼maximum ▼average

BOREHOLE DIAGRAM

MW-2054

WSDIAG-E



▽minimum ▼maximum ▼average

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Sheet 1 of 2

K = 1 x 10-5

Project: Frog Pond Nitro declineation	Job Number: 487A, Task 11, Rev. 3.	Test Section: mid point + 36 32 to 41'	Bore Hole: MW 2054
Test Equipment Identification: Sensus Flow Meter U.S. Gauge	BORE HOLE Orientation: Vert. Size: 3.0"	Test By: A. Benfer Date: 1400 11/27/01	
Packers On Casing (Single) Double Hydraulic (Inflatable)	Groundwater Depth: ~45' unsat. Ft.	Gauge Height Above Ground: 3' Ft.	Gravity Head: 36.5 + 3 = 39.5 Ft.

TEST 1 Inflow pressure (H_P) 10 psi × 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	80.70	80.81	80.95	81.08	81.20	81.33	81.46	81.59				0.13 GPM
Take Per Min.		.11	.14	.13	.12	.13	.13	.13				CFM

CFM × 7.48 = GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) − Head Losses (H_L)

62.6 FT. = 39.5 FT. + 23.1 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.13}{62.6 \times 9.0} \times .011 \ln \frac{9.0}{.125} = .0470$$

K, CM/SEC: ~~1.1 x 10-5~~ 1 x 10-5

TEST 2 Inflow pressure (H_P) 20 psi × 2.31 = 46.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	82.30	82.54	82.79	83.05	83.30	83.54	83.80	84.01				0.24 GPM
Take Per Min.		0.24	0.23	0.26	0.25	0.24	0.24	0.23				CFM

H_T 85.7 FT. = H_G 39.5 FT. + H_P 46.2 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.24}{85.7 \times 9} \times .011 \ln \frac{9.0}{.125} = .0470$$

K, CM/SEC: ~~1.5 x 10-5~~ 1 x 10-5

TEST 3 Inflow pressure (H_P) 30 psi × 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	84.80	85.19	85.58	85.93	86.31	86.69	87.07					0.38 GPM
Take Per Min.		0.39	0.39	0.38	0.38	0.38	0.38					CFM

H_T 108.8 FT. = H_G 39.5 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.38}{108.8 \times 9.0} \times .0470 =$$

K, CM/SEC: ~~1.8 x 10-5~~ 2 x 10-5

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 11	32 - 41 to	MW 2054

Test Equipment Identification	BORE HOLE		Test By:
Sensas Flow Meter U.S. Gauge	Orientation: Vert.	Size: 3.0"	A. Benfer
			Date: 11/27/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	~ 45 unsat. Ft.	3.0 Ft.	39.5 Ft.

TEST 1 Inflow pressure (H_P) 10 psi × 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	87.30	87.47	87.64	87.79	87.96	88.13	88.30					0.17 GPM
												CFM
Take Per Min.	0.17	0.15	0.17	0.17	0.17	0.17						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

62.6 FT. = 39.5 FT. + 23.1 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{0.17}{62.6 \times 9.0} \times .0470 = K, CM/SEC$$

~~1.4 X 10⁻⁵~~ 1 X 10⁻⁵

$\bar{X} = 1.45 \times 10^{-5}$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD)

Sheet 1 of 2
V 2 1 X 10-3

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	487A, Task 11	Partial Sat. 44.0 to 53.0	MW 2054

Test Equipment Identification	BORE HOLE Orientation:	Size:	Test By: / Date:
Sensus Flow Meter U.S. Gauge	vert.	3.0"	A. Benfer 1330 11/28/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	~45' Ft.	3.0 Ft.	48' Ft.

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	534.0	552.9	572.0	590.8	609.5	628.1	646.5	665.0				18.6 GPM / CFM
Take Per Min.		18.9	19.1	18.8	18.7	18.6	18.4	18.5				CFM × 7.48 = GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) − Head Losses (H_L)

82.7 FT. = 48 FT. + 34.7 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{18.6}{82.7 \times 9.0} \times .011 \ln \frac{9.0}{.125} \times .0470 = 1.2 \times 10^{-3}$$

K, CM/SEC: 1×10^{-3}

TEST 2

Inflow pressure (H_P) 30 psi × 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	688.0	711.7	735.5	758.7	781.5	804.6	827.4	850.4	873.0			22.9 GPM / CFM
Take Per Min.		23.7	23.8	23.2	22.8	23.1	22.8	23.0	22.6			

H_T 117.3 FT. = H_G 48.0 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{22.9}{117.3 \times 9.0} \times .011 \ln \frac{9.0}{.125} \times .0470 = 1.0 \times 10^{-3}$$

K, CM/SEC: 1×10^{-3}

TEST 3

Inflow pressure (H_P) 45 psi × 2.31 = 104 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	926.0	953.5	980.5	1007.3	1033.8	1060.5	1086.5	1112.0	1138.0			26.4 GPM / CFM
Take Per Min.		27.5	27.0	26.8	26.5	26.7	26.0	26.1	26.0			

H_T 152.0 FT. = H_G 48.0 FT. + H_P 104 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{26.4}{152 \times 9.0} \times .0470 = 9.0 \times 10^{-4}$$

K, CM/SEC: 9×10^{-4}

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
Frog Pond Nitro Delineation	4B7A, Task 11	44 to 53	MW 2054

Test Equipment Identification	BORE HOLE		Test By: A. Benfer
	Orientation:	Size:	Date: 11/28/01
Seasus Flow Meter U.S. Gauge	Vert.	3.0"	

Packers On Casing Single/Double Hydraulic/Inflatable	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
	~45 Ft.	3.0 Ft.	48 Ft.

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.65 feet

used 900 gals

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	175.0	190.9	207.1	223.1	239.4	255.8	272.1	288.5	304.8	321.1		16.3 GPM CFM
Take Per Min.		15.9	16.2	16.0	15.9	16.4	16.3	16.4	16.3			CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

82.65 FT.	=	48.0 FT.	+	34.65 FT.	–	– FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{16.3}{82.7 \times 9.0} \times .0470 \ln \frac{9}{.125} = 1.0 \times 10^{-3}$$

K, CM/SEC: 1.0×10^{-3}

TEST 2

Inflow pressure (H_P) 1 psi × 2.31 = ____ feet

$\bar{X} = 1.0 \times 10^{-3}$

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{\quad}{\times} \times \quad =$$

K, CM/SEC:

TEST 3

Inflow pressure (H_P) ____ psi × 2.31 = ____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{\quad}{\times} \times \quad =$$

K, CM/SEC:

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PRESSURE TEST RESULTS (FIELD)

K = 6X10-5

1/2

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation	487A, Task 11	(L) 53.0 to 60.0	MW 2054

Test Equipment Identification	BORE HOLE		Test By:
Sensus Flow Meter U.S. Gauge	Orientation: vert	Size: 3.0"	A. Benfer Date: 1005 11/30/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	45 Ft.	3.0 Ft.	48 Ft.

TEST 1

Inflow pressure (H_P) 15 psi × 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	46.30	46.83	47.32	47.85	48.37	48.87	49.37	49.89				0.52 GPM CFM
Take Per Min.		0.53	0.49	0.53	0.52	0.50	0.50	0.52				CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

82.7 FT. = 48 FT. + 34.7 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.52}{82.7 \times 7.0} \times .011 \ln \frac{7.0}{.125} \times .0443 = 4.0 \times 10^{-5}$$ K, CM/SEC

TEST 2

Inflow pressure (H_P) 30 psi × 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	52.0	53.12	54.20	55.25	56.25	57.30	58.37					1.06 GPM CFM
Take Per Min.		1.12	1.08	1.05	1.0	1.05	1.07					

H_T 117.3 FT. = H_G 48 FT. + H_P 69.3 FT. – H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{1.06}{117.3 \times 7.0} \times .0443 = 5.7 \times 10^{-5}$$ K, CM/SEC

6X10-5

TEST 3

Inflow pressure (H_P) 50 psi × 2.31 = 115.5 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	61.08	62.85	64.50	66.30	68.00	69.71	71.45	73.32				1.72 GPM CFM
Take Per Min.		1.85	1.73	1.72	1.70	1.71	1.74	1.87				

H_T 163.5 FT. = H_G 48 FT. + H_P 115.5 FT. – H_L .0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{1.72}{163.5 \times 7.0} \times .0443 = 6.7 \times 10^{-5}$$ K, CM/SEC

7X10-5

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PRESSURE TEST RESULTS (FIELD)

2/2

Project:	Job Number:	Test Section:	Bore Hole:
Additional Nitro Delineation.	487A, Task 11	53.0 to 60.0	MW 2054

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By:
Sensus Flow Meter U.S. Gauge	Vert.	3.0"	A. Benfer Date: 11/30/01

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single/Double Hydraulic/Inflatable	45' Ft.	3.0' Ft.	48 Ft.

TEST 1 Inflow pressure (H_P) 15 psi × 2.31 = 34.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	76.40	77.02	77.70	78.43	79.18	79.93	80.70	81.48				0.74 GPM CFM
Take Per Min.	0.62	0.68	0.73	0.75	0.75	0.77	0.78					CFM × 7.48 – GPM

5.18/5

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

82.7 FT. = 48 FT. + 34.7 FT. – 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{0.74}{82.7 \times 7.0} \times .0443 = \text{K, CM/SEC}$$

~~5.7×10⁻⁵~~ ~~6×10⁻⁵~~

$\bar{X} = 5.5 \times 10^{-5}$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\quad \times \quad} \times \quad = \text{K, CM/SEC}$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM CFM
Take Per Min.												

H_T _____ FT. = H_G _____ FT. + H_P _____ FT. – H_L _____ FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\quad \times \quad} \times \quad = \text{K, CM/SEC}$$

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

ES&H 4.4.8.2, Rev.0, 5/95

PROJECT NAME Frog Pond Nitro Delineation WORK PACKAGE NO. 4107A, Task 11

SHEET 1 OF 2

DEVELOPED BY Layne-Western, Alan Benfer PMC

1. Well Number.: MW-2054 Well Location: E. of CCH
2. Date of Installation: 12/6/01
3. Date of Development: 12/13/01
4. Static Water Level: Before Development 47.16 BGS, 49.7 TOC ft.; At least 24 hrs. after _____ ft.
5. Organic Vapor: Before development NA ppm; After development NA ppm.
6. Quantity of water loss during drilling, if used: unknown gal.
7. Quantity of standing water in well and annulus before development: 7.2 gal.
8. Depth from top of well casing to bottom of well: 62.5 ft. (from Well Installation Diagram)
9. Well diameter: 2.0 in.
10. Screen length: 10.0 ft.
11. Minimum quantity of water to be removed: 22 gal.
12. Depth to top of sediment: Before development NA ft.; After development NA ft.
13. Physical character of water (before/after development): Muddy / clear
14. Type and size of well development equipment: bailed well several times with 1½" bailer
15. Description of surge technique: Used Grundfos Redi-Flo submer. pump

16. Height of well casing above ground surface: 2.5' ft. (from Well Installation Diagram).

Quantity of water removed: 39 gal. Time for removal: 2 hrs. hr./min.

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

ES&H 4.4.8.2, Rev.0, 5/95

PROJECT NAME Frog Pond Nitro Delineation WORK PACKAGE NO. 487A, Task 11

DEVELOPED BY Layne-Western, Alan Benfer PMC

Well Number: MW-2054 Well Locations: JAB W E. of cell, N. end

12/13/01

Date/ Time	Hrs. Dev./ Cum. Hrs. Dev.	Gals. Purged/ Cum. Gals. Purged	pH	Temp.	Cond.	Remarks Turbidity
0955		17	7.0	12.2	0.86	104
1005		22	6.9	13.3	0.79	55.2
1008		24	6.7	14.0	0.72	58.2
1010		26	6.7	14.0	0.83	28.7
1013		28	6.7	14.1	0.82	37.0
1018		31	6.7	13.9	0.79	10.7
1021		33	6.7	13.8	0.82	15.8

pumped another 6-gals, 39 gals total.

3 well vols = 21.6 gals.

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

WSMLOG-C

HOLE NUMBER: **MW-4030**

SHEET 1 OF 2

NORTH (Y): 1043403.12

EAST (X): 756457.20

TOC ELEVATION: 645.04

GROUND ELEVATION: 642.54

STICKUP: 2.5

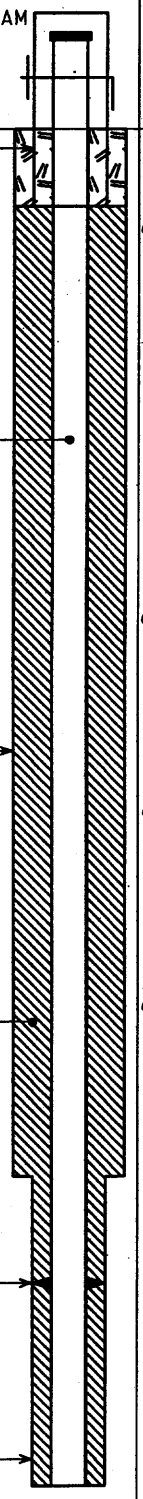
HYDR CONDUCTIVITY (cm/sec): K= 1.0×10^{-3} (Packer Test)

WELL STATUS/COMMENTS: ACTIVE	LOCATION: NE OF DISPOSAL CELL, NEAR FROG POND	
DRILLING CONTRACTOR: LAYNE WESTERN Inc.	DRILL RIG MAKE & MODEL: CME-750 HSA/NXWL; I-R TH-60 AIR ROTARY	
HOLE SIZE & METHOD: 9" HSA-27; NX-53; 6" AIR-56	ANGLE FROM HORIZONTAL & BEARING: Vertical	BOTTOM OF HOLE (TD) (DEPTH (FT.) FROM GROUND ELEV. TO): 56.0
DRILL FLUIDS & ADDITIVES: Water core; Air ream	CASING TYPE, DEPTH, SIZE: 2" 316 SS Mon. Well	BEDROCK: 24.5
DATE START: 10-12-00	DATE FINISH: 10-25-00, Mon. Well	WATER LEVELS & DATES: ▽ ▼

LITHOLOGY BY ALAN BENFER

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
0		SPT-1		20		CL	CLAY, silty, medium plasticity, mottled orange brown and light gray, dry, hard, CL. Ferrelview Clay.	Qfv
		SPT-2		28			CL as above, mottled light gray (10YR7/1) and brownish yellow (10YR6/6), damp, hard.	
5		SPT-3		26			CL as above, mostly very pale brown (10YR8/2), damp, hard.	
		SPT-4		20			CL as above.	
		SPT-5		14			CL as above, very pale brown (10YR7/4).	
10		SPT-6		12		CH	CLAY, high plasticity, slickensided, mottled brownish yellow (10YR6/6) and light gray (10YR7/1), moist, firm, CH. Ferrelview Clay.	
		SPT-7		16		CH	CH as above, with FeOx and MnOx, ~10% fine white sand. Basal Ferrelview Clay.	
		SPT-8		13				
15		SPT-9		15		CH	Clay, high plasticity, ~15% fine to coarse angular sand and angular fine gravel with MnOx and FeOx, mottled brownish yellow and light gray, moist, hard, CH. Clay Till.	Qct
		SPT-10		22			CH as above, ~30% sand and fine gravel.	
							CH as above, angular gravel up to 1", slickensided, weak red (2.5YR5/) in tip of sampler shoe.	
20		SPT-11		55			CLAY, high plasticity, with angular weathered limestone gravel fragments, mostly pale brown (10YR6/3), moist, hard, CH. Clay Till.	
		SPT-12		21			CH as above, mostly yellowish red (5YR5/6) with weathered limestone gravel up to 1".	
		SPT-13		23				
25		SPT-14		58+			CLAY, high plasticity, with weathered limestone fragments, MnOx, mostly brownish yellow, moist, hard, CH. @ 26', CH with weathered limestone fragments.	
		NX-1	33/60"	9		chert lms	LIMESTONE AND CHERT, with high plasticity clay from 27.2' to 27.9', reddish brown (7.5YR6/8). Limestone is moderately weathered and moderately hard, minor oxidized pyrite, light gray. With minor chert. Weathered Burlington-Keokuk Limestone.	Mbkw
30							@ 27.9'– 30.1'. Core loss is probably clay based on drill cuttings.	
		NX-2	55/60"	37			@ 30.1'–30.5'. Limestone rubble.	
							@ 30.5'. Lost circulation permanently.	
							31.4' 32.0'. Cherty limestone.	
35							@ 31.7'. Fractures are oxidized; possibly water bearing at some time.	

WELL DIAGRAM



ELEVATION feet: 640, 635, 630, 625, 620, 615, 610

Sample Interval ☐ No Sample Taken ▽ minimum ▼ maximum ▼ average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

WSWLOG-C

HOLE NUMBER: MW-4030

SHEET 2 OF 2

NORTH (Y): 1043403.12

EAST (X): 756457.20

WELL STATUS/COMMENTS: ACTIVE

LOCATION: NE OF DISPOSAL CELL, NEAR FROG POND

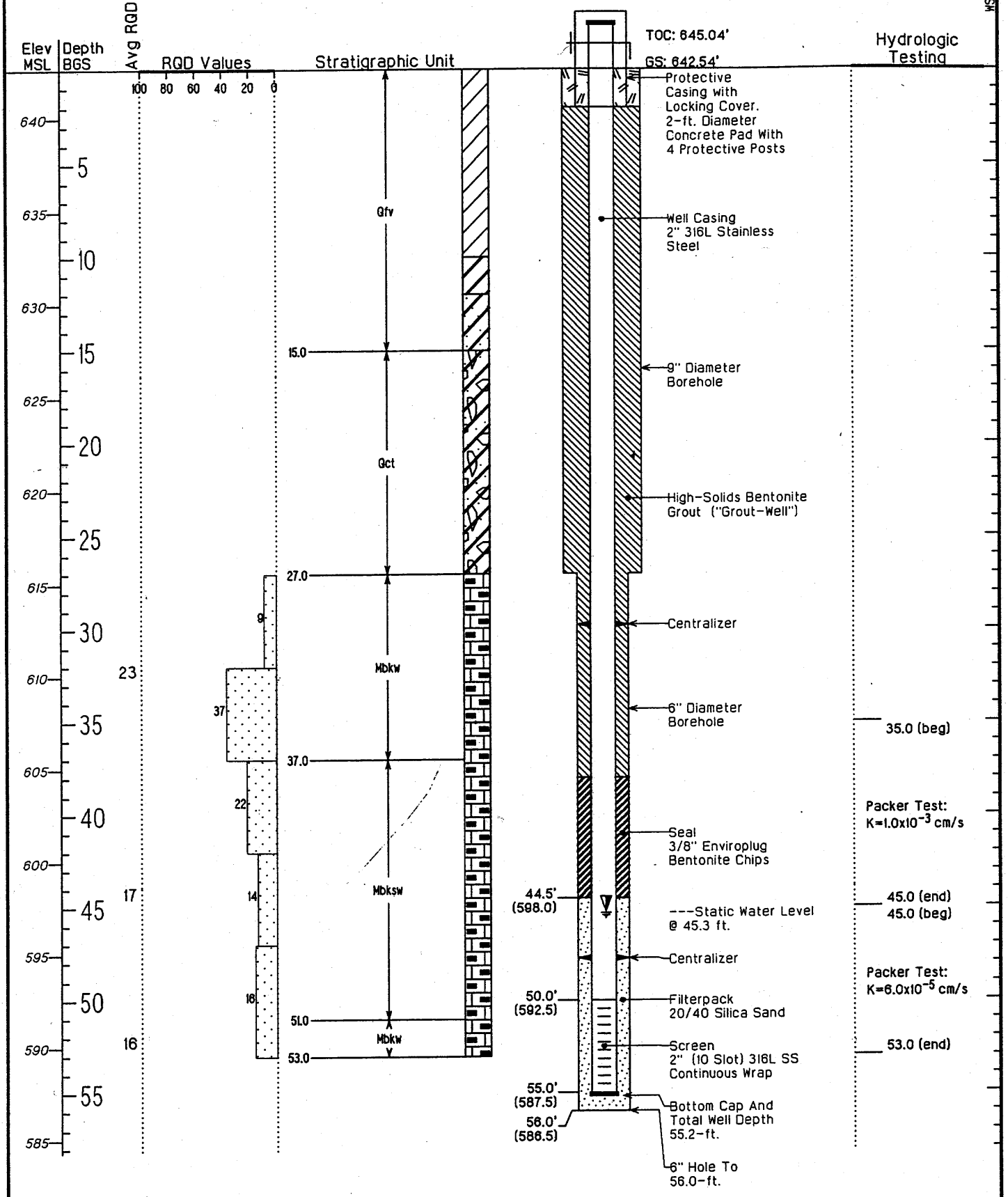
DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0 100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT	WELL DIAGRAM	ELEVATION feet
40		NX-3	15/60"	22		chert lms	NX-2, 32.0'-37.0'. Limestone, moderately to strongly weathered, moderately hard, generally argillaceous, mostly yellow (2.5Y7/8), strongly weathered at 34.5' to 36.5', core is soft and eroded at 34.8' and 35.7'; ~40% chert, mostly white (2.5Y8/1), ~20+ fractures, mostly horizontal, all are rough, open, oxidized and locally eroded.	Mbkw		605
							NX-3, 37.0'-42.0'. Core loss ~75%, recovered core is strongly weathered limestone, orange brown, some solutioning, ~25% chert. Strongly Weathered Burlington-Keokuk Limestone.			
45		NX-4	26/60"	14			NX-4, 42.0' to 47.0'. Strongly weathered and vuggy limestone with soft zones that break with finger pressure, mottled grayish orange (10YR7/4) and grayish pink (5YR7/2), minor chert.	Mbksw	Seal 3/8" Enviroplug Bentonite Chips ---Static Water Level @ 45.3 ft.	600
50		NX-5	50/72"	16			NX-5, 47.0' to 53.0'. Limestone, strongly weathered, fine-grained and argillaceous, grayish orange (10YR7/4), abundant horizontal fractures, open and rough, ~30% light gray chert.		Centralizer Filterpack 20/40 Silica Sand	595
55							@ 51.0'-51.9'. Less weathered, coarsely crystalline limestone. Weathered Burlington-Keokuk Limestone.	Mbkw	Screen 2" (10 Slot) 316L SS Continuous Wrap	590
							@ 52.1'-53.0', Less weathered limestone with ~40% chert.		Bottom Cap And Total Well Depth 55.2-ft.	
							Total cored depth, 53.0', 10-20-00. Hole reamed to 6" diameter to 56.0' and constructed a 2" monitoring well.		6" Hole To 56.0-ft.	585
60							CONSTANT HEAD SINGLE PACKER TEST RESULTS 35.0 - 45.0 ft. K= 1.0E-3 cm/sec 45.0 - 53.0 ft. K= 6.0E-5 cm/sec			580
65										575
70										570
75										

Sample Interval No Sample Taken minimum maximum average

BOREHOLE DIAGRAM

MW-4030

WSDIAG-E



▽minimum ▼maximum ▼average

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PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
		35.0 to 45.0	4030

Test Equipment Identification	BORE HOLE		Test By:
Neptune Flow Meter - 1"	Orientation:	Size:	Alan Benfer
U.S. Gauge	Vert.	3.0"	Date: 10/24/00 BGS

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing Single (Double) Hydraulic (Inflatable)	45' Ft.	4.7 Ft.	77" + 35' Ft.

TEST 1 Inflow pressure (H_P) 0 psi × 2.31 = _____ feet Could not develop pressure.

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading (Gallons) or Cu. Ft.												12.5 GPM
												CFM
Take Per Min.	12.5											CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

FT. = FT. + FT. – FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC } 1 \times 10^{-3}$$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T FT. = H_G FT. + H_P FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC}$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T FT. = H_G FT. + H_P FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC}$$

MORRISON-KNUDSEN ENGINEERS, INC.
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PRESSURE TEST RESULTS (FIELD) V 2

Project:	Job Number:	Test Section:	Bore Hole:
FROG POND GW INVESTIGATION		45 to 53	MW 4030

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By: R. CATO
	VERT.	NX	Date: 10-20-00

Packers	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
On Casing / Single/Double / Hydraulic/Inflatable — B Packer @ 45'	~~45~~ 48 RCC (~~45~~ RCC) Ft.	INLET 5.0 ft. Stickup ~~1.7~~ Ft.	53.0 ~~46.7~~ RCC Ft.

TEST 1

Inflow pressure (H_P) 35 ~~10 RCC~~ psi × 2.31 = 80.85 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	RC ~~8.26~~ ~~8.27~~ 1.3	RC ~~8.19~~ 1.9	2.5 ~~8.25~~ RC	3.1 ~~8.34~~ RC	3.6	4.1	4.6					0.55 GPM / CFM
Take Per Min.	~~0.06~~ 0.6	~~0.06~~ 0.6	~~0.06~~ 0.6	0.5	0.5	0.5						CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

133.8 FT. = 53.0 ~~46.7~~ FT. + 80.85 FT. – FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{0.55}{133.8 \times 8} \times .011 \ln \frac{8}{\cancel{0.25}\ .125} = K, CM/SEC\ 2 \times 10^{-5}$$

(2.98 in) .0458 10^{-5}

TEST 2

Inflow pressure (H_P) 45 psi × 2.31 = 103.95 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	6.0 ~~8.4~~	7.3	8.5	9.8	11.0	12.3	13.5					1.25 GPM / CFM
Take Per Min.	1.3	1.2	1.3	1.2	1.3	1.2						

H_T 156.9 FT. = H_G 53.0 ~~46.7~~ FT. + H_P 103.95 FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{1.25}{156.9 \times 8} \times .011 \ln \frac{8}{\cancel{0.25}\ .125} = K, CM/SEC\ 5 \times 10^{-5}$$

TEST 3

Inflow pressure (H_P) 55 psi × 2.31 = 127.05 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	6.0	9.9	13.8	17.7	21.6	25.5						3.9 GPM / CFM
Take Per Min.	3.9	3.9	3.9	3.9	3.9							

H_T 180 FT. = H_G 53 FT. + H_P 127.0 FT. – H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{3.9}{180 \times 8} \times .0458 = K, CM/SEC\ 1.2 \times 10^{-4}$$

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
		45 to 53	MW 4030

Test Equipment Identification	BORE HOLE		Test By:
	Orientation:	Size:	Date:

Packers On Casing Single/Double Hydraulic/Inflatable	Groundwater Depth: Ft.	Gauge Height Above Ground: Ft.	Gravity Head: Ft.

TEST X4 Inflow pressure (H_P) ~~45~~ 45 psi × 2.31 = 103.95 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading (Gallons or Cu. Ft.)	9.5	11.0	12.5	13.9	15.3	16.6	18.0	19.4				1.41 GPM
												CFM
Take Per Min.		1.5	1.5	1.4	1.3	1.4	1.4	1.4				CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

156.9 FT.	=	53 FT.	+	103.9 FT.	–	FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{1.41}{156.9 \times 8} \times .0458 = K, CM/SEC: 5 \times 10^{-5}$$

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading (Gallons or Cu. Ft.)												GPM
												CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading (Gallons or Cu. Ft.)												GPM
												CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad = K, CM/SEC$$

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

MSWLOG-C

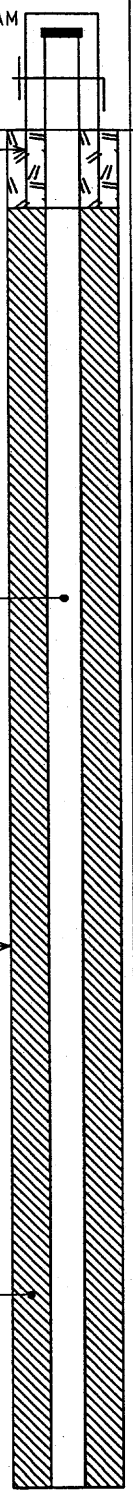
HOLE NUMBER	MW-4039
SHEET	1 OF 2
NORTH (Y):	1043537.83
EAST (X):	756647.70
TOC ELEVATION	648.95
GROUND ELEVATION	646.40
STICKUP	2.55
HYDR CONDUCTIVITY (cm/sec)	

WELL STATUS/COMMENTS	ACTIVE
LOCATION	N. ARMY PROP., W. OF CO. ROAD MAINT. YARD
DRILLING CONTRACTOR	LAYNE WESTERN Inc.
DRILL RIG MAKE & MODEL	CME-750 HSA/NQWL; I-R TH-60 AIR ROTARY
HOLE SIZE & METHOD	9" HSA-38; NQ-64.9; 6" AIR-62
ANGLE FROM HORIZONTAL & BEARING	Vertical
BOTTOM OF HOLE (TD)	64.9
DRILL FLUIDS & ADDITIVES	Water core; Air ream
CASING TYPE, DEPTH, SIZE	2" 316 SS Mon. Well
BEDROCK (DEPTH (FT.) FROM GROUND ELEV. TO:)	36.3
DATE START	12-14-01
DATE FINISH	12-28-01, Mon. Well
WATER LEVELS & DATES	▽ ▼

LITHOLOGY BY: BECKY CATO

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT
35	SPT-1			33		CH	The overburden soil was not sampled or logged from the surface to 35.0-ft.	Qct/Qfc undiff.

WELL DIAGRAM



ELEVATION feet: 645, 640, 635, 630, 625, 620, 615

Sample Interval ☐ No Sample Taken ▽ minimum ▼ maximum ▼ average

WELDON SPRING SITE REMEDIAL ACTION PROJECT

BOREHOLE AND WELL COMPLETION LOG

WSMLOG-C

HOLE NUMBER: MW-4039

SHEET 2 OF 2

NORTH (Y): 1043537.83

EAST (X): 756647.70

WELL STATUS/COMMENTS: ACTIVE

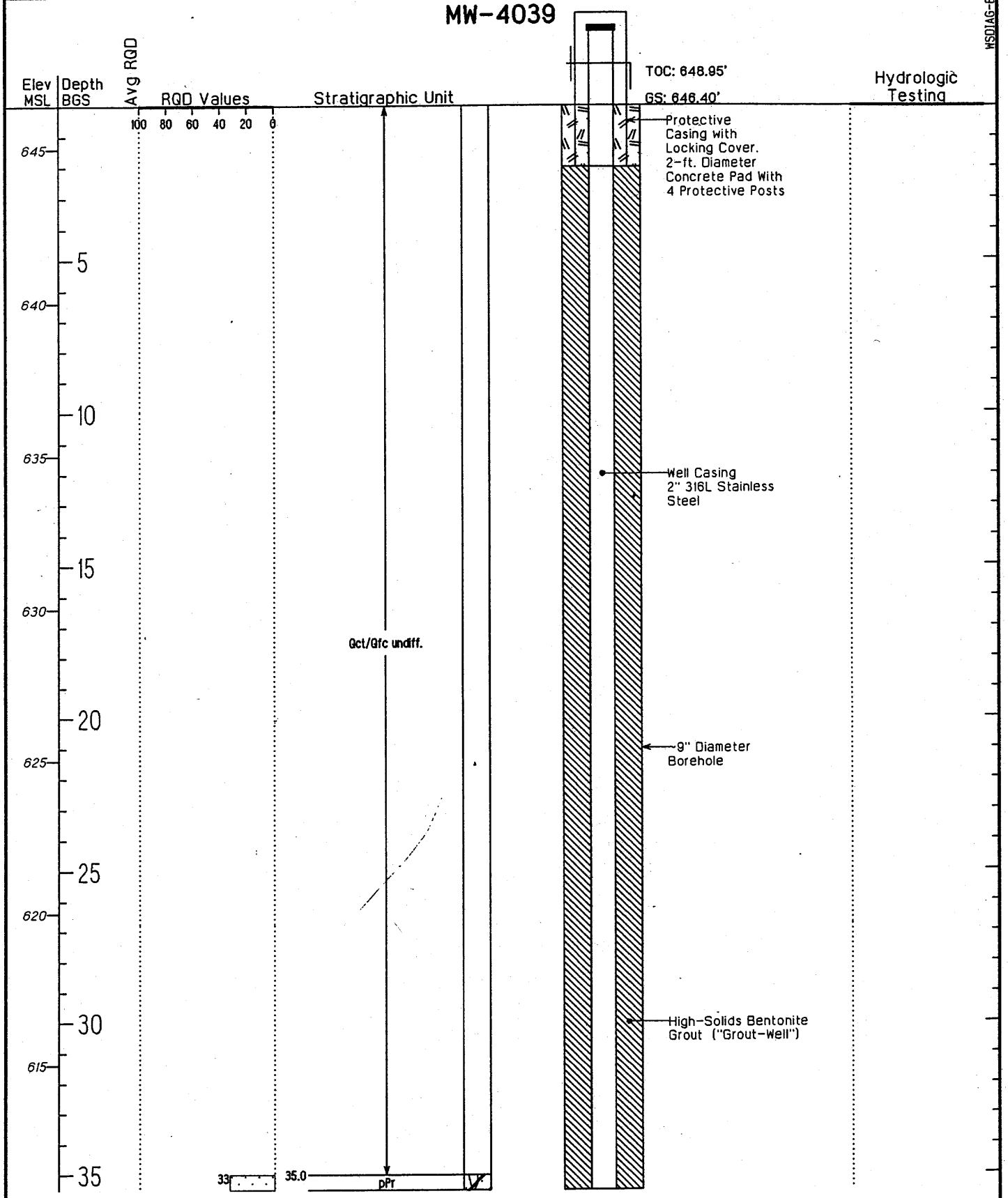
LOCATION: N. ARMY PROP., W. OF CO. ROAD MAINT. YARD

DEPTH feet	SAMPLE	SAMPLE/RUN Number	PERCENT Recovery (0–100)	N# or RQD	GRAPHIC LOG	SOIL/ROCK class	DESCRIPTION AND REMARKS	STRAT. UNIT	WELL DIAGRAM	ELEVATION feet
						CH	CLAY, high plasticity, with gravel, yellowish red (5YR5/6), hard, CH. Residuum.	pPr		610
						CHRT LMS	CHERT AND LIMESTONE, broken.			
		SPT-2		68			@ 38.0'. LIMESTONE, weathered, with brecciated chert, orange gray.			
		NQ-1	36/66"	52			Auger refusal at 38.5-ft. Continued with NQ core.			
40							LIMESTONE, moderately weathered, orange tan, with ~30% chert as nodules and beds, some brecciated. One to 3 fractures per foot, full water circulation. Weathered Burlington-Keokuk Limestone.			605
		NQ-2	42/66"	25			CHERT, with brecciated zones, increasing with depth, ~20% limestone, moderately weathered, vuggy at 45.2'. 5+ fractures per foot, some rubbled zones.		Seal 3/8" Enviroplug Bentonite Chips	
45							@ ~46.2'- ~49.0'. Sporatic fluid circulation. Bit dropped at ~46.2' to ~46.5'.		---Static Water Level @ 47.9 ft.	600
							@ ~49.0'. Lost circulation permanently.			
		NQ-3	112/112"	82			LIMESTONE, slightly weathered, argillaceous, gray to tan. One to 6 fractures per foot. Weathered Burlington-Keokuk Limestone.	MDkw	6" Diameter Borehole	
50									Centralizer	595
55									Screen 2" (10 Slot) 316L SS Continuous Wrap	590
		NQ-4	4/10"	0			@ 58.5'- 58.8'. Strongly weathered limestone, some styolites, orange tan, with brecciated chert.		Filterpack 10/20 Silica Sand	
		NQ-5	64/64"	0			@ 59.6'- 64.9'. LIMESTONE AND CHERT, ~50% each, limestone is moderately weathered, argillaceous, orange tan, with zones and thin beds of chert. Shale seams at 60.7-ft. Weathered Burlington-Keokuk Limestone.			
60									Centralizer	585
									Bottom Cap And Total Well Depth 62.2-ft.	
65							Total cored depth 64.9'. Hole reamed to 6" diameter to 62.3' and a 2" monitoring well was constructed.		3" Hole To 64.9-ft.	580
							CONSTANT HEAD SINGLE PACKER TEST RESULTS 42.0 - 49.5-ft. K = 2.0E-3 cm/sec 49.5 - 58.8-ft. K = 1.0E-5 cm/sec			
70										575
75										

BOREHOLE DIAGRAM

MW-4039

WSDIAG-E

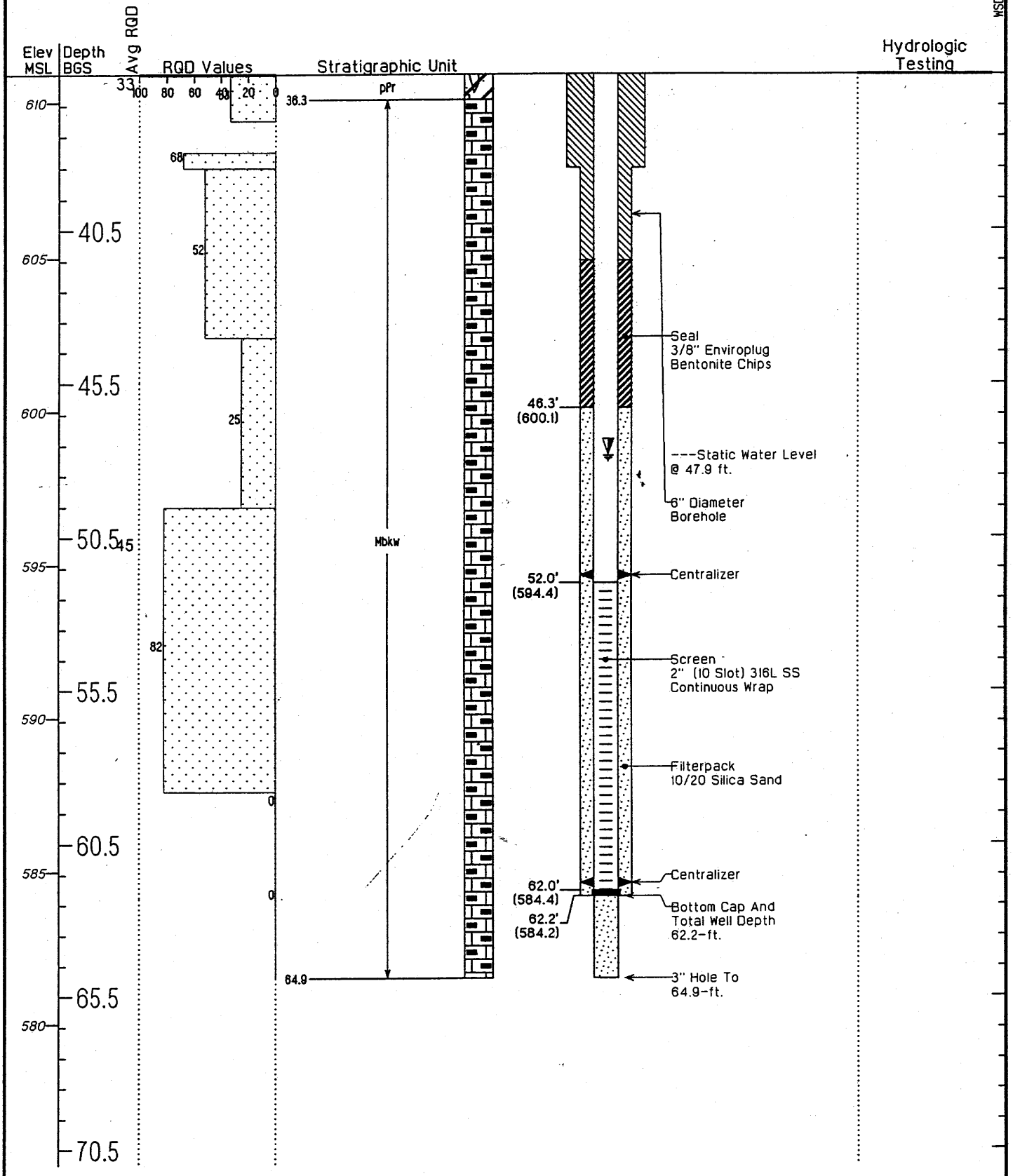


▽minimum ▼maximum ▼average

BOREHOLE DIAGRAM

MW-4039

WSDIAG-E



▽minimum ▼maximum ▼average

Sheet 1/1

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

PRESSURE TEST RESULTS (FIELD)

2.0×10^{-3} cm/s

Project:	Job Number:	Test Section:	Bore Hole:
FROG POND NITROS DELINEATION		42 to 49.5	MW4039

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By: R. CATO / Date:
SENSUS FLOWMETER	VERT	3"	12-26-01

Packers On Casing Single/Double Hydraulic/Inflatable	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
	47.8 Ft.	4.3 Ft.	52.1 Ft.

TEST 1

Inflow pressure (Hp) 15 psi × 2.31 = 34.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	470.0	490.0	520.3	560.3	590.5							30.2 GPM
												CFM
Take Per Min.		30.0	30.3	30.3	30.2							CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

86.7 FT.	=	52.1 FT.	+	34.6 FT.	–	— FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{30.2}{86.7 \times 7.5} \times .011 \ln \frac{7.5}{.125} = 0.045$$

K, CM/SEC: 2.1×10^{-3}

TEST 2

Inflow pressure (Hp) 25 psi × 2.31 = 57.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	921.0	955.4	989.5	1023.8	1058.0							34.2 GPM
												CFM
Take Per Min.		34.4	34.1	34.3	34.2							

H_T 109.9 FT. = H_G 52.1 FT. + H_P 57.8 FT. – H_L — FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{34.2}{109.9 \times 7.5} \times 0.045$$

K, CM/SEC: 1.9×10^{-3}

TEST 3

Inflow pressure (Hp) 15 psi × 2.31 = 34.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	90.0	118.8	147.8	176.4	205.0							28.8 GPM
												CFM
Take Per Min.		28.8	29.0	28.6	28.6							

H_T 86.7 FT. = H_G 52.1 FT. + H_P 34.6 FT. – H_L — FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{28.8}{86.7 \times 7.5} \times 0.045$$

K, CM/SEC: 2.0×10^{-3}

Sheet 1/2

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

PRESSURE TEST RESULTS (FIELD)

1.0×10^{-5} cm/s

Project:	Job Number:	Test Section:	Bore Hole:
FROG POND NITRO DELINEATION		49.5 to 58.75	MW 4039

Test Equipment Identification	BORE HOLE Orientation:	BORE HOLE Size:	Test By: R. CATO
	VERT.	3"	Date: 12-27-01

Packers: On Casing; (Single)/Double; Hydraulic/(Inflatable)	Groundwater Depth:	Gauge Height Above Ground:	Gravity Head:
	47.8 Ft.	3.2 Ft.	51.0 Ft.

TEST 1 Inflow pressure (H_P) 25 psi × 2.31 = 57.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	241.5	241.7	241.9	242.1	242.3							0.2 GPM / CFM
Take Per Min.		0.2	0.2	0.2	0.2							CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

108.8 FT.	=	51.0 FT.	+	57.8 FT.	–	— FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.2}{108.8 \times 9.3} \times .011 \ln \frac{9.3}{.125} = 0.047$$

K, CM/SEC: 9.3×10^{-4}

TEST 2 Inflow pressure (H_P) 40 psi × 2.31 = 92.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	243.0	243.3	243.6	243.9	244.2							0.3 GPM / CFM
Take Per Min.		0.3	0.3	0.3	0.3							

H_T 143.4 FT.	= H_G 51.0 FT.	+ H_P 92.4 FT.	– H_L — FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.3}{143.4 \times 9.3} \times 0.047$$

K, CM/SEC: 1.0×10^{-5}

TEST 3 Inflow pressure (H_P) 55 psi × 2.31 = 127.0 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	245.0	245.4	245.9	246.4	247.0	247.4	247.8					0.5 GPM / CFM
Take Per Min.		0.4	0.5	0.7	0.4	0.4	0.4					

H_T 178.0 FT.	= H_G 51.0 FT.	+ H_P 127.6 FT.	– H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.5}{178.0 \times 9.3} \times 0.047$$

K, CM/SEC: 1.4×10^{-5}

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

PRESSURE TEST RESULTS (FIELD)

Project:	Job Number:	Test Section:	Bore Hole:
		49.5 to 58.75	MW4039 (CONT)

Test Equipment Identification	BORE HOLE		Test By:
	Orientation:	Size:	Date:

Packers On Casing Single/Double Hydraulic/Inflatable	Groundwater Depth: Ft.	Gauge Height Above Ground: Ft.	Gravity Head: Ft.

TEST 1 Inflow pressure (H_P) 25 psi × 2.31 = 57.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.	248.0	[illegible]	248.35	248.5	248.65							0.16 GPM
												CFM
Take Per Min.		0.2	0.15	0.15	0.15							CFM × 7.48 – GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) – Head Losses (H_L)

108.8 FT.	=	51.0 FT.	+	57.8 FT.	–	—— FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln. \frac{L\ (ft)}{r\ (ft)} = \frac{0.16}{108.8 \times 9.3} \times 0.047 = 7.4 \times 10^{-6}$$

K, CM/SEC

TEST 2 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad =$$

K, CM/SEC

TEST 3 Inflow pressure (H_P) _____ psi × 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
Meter Reading Gallons or Cu. Ft.												GPM
												CFM
Take Per Min.												

H_T	FT.	= H_G	FT.	+ H_P	FT.	– H_L	FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln. \frac{L}{r} = \frac{\quad}{\times} \times \quad =$$

K, CM/SEC

WELDON SPRING SITE REMEDIAL ACTION PROJECT

MONITORING WELL DEVELOPMENT FORM

PROJECT NAME WSSRAP WORK PACKAGE NO. 487A

DEVELOPED BY Lance MARK MCNAMARA CHECKED BY MARK MCNAMARA SHEET 2 OF 2

1. Well No.: MW4039 Well Locations: Behind Hwy. Dept.

Date/ Time	Hrs. Dev./ Cum. Hrs. Dev.	Gals. Purged/ Cum. Gals. Purged	pH	Temp.	Cond.	Tu, b, ~~Remarks~~
03	7:22	26	6.4	7.2	0.67	N/A
1/03	8:38	27	6.7	12.6	0.63	7.00
1/03	8:47	27.5	6.6	12.7	0.64	1,00
1/03	8:53	28.0	6.6	14.1	0.63	2.00
1/03	8:58	28.5	6.6	14.3	0.64	1,00
1/03	9:10	29.0	6.6	15.1	.64	0.00
1/03	9:20	30.0	6.6	15.3	.64	0.00

APPENDIX B

Analytical Data

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2006	1,3,5-Trinitrobenzene	12/5/2000	ND	0.015	U	ug/L
MW-2006	1,3,5-Trinitrobenzene	1/18/2001	4	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	3/27/2001	4.4	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	5/23/2001	4	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	7/5/2001	3.3	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	10/9/2001	3.2	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	12/5/2001	6.4	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	1/22/2002	5.9	0.03		ug/L
MW-2006	1,3,5-Trinitrobenzene	3/13/2002	5.8	0.04		ug/L
MW-2006	1,3,5-Trinitrobenzene	5/28/2002	5.4	0.04		ug/L
MW-2006	1,3,5-Trinitrobenzene	7/2/2002	5.8	0.04		ug/L
MW-2006	1,3,5-Trinitrobenzene	9/11/2002	4.8	0.04		ug/L
MW-2006	1,3,5-Trinitrobenzene	11/11/2002	5.2	0.04		ug/L
MW-2006	1,3,5-Trinitrobenzene	2/4/2003	6.9	0.04		ug/L
MW-2006	1,3,5-Trinitrobenzene	5/1/2003	6.8	0.08		ug/L
MW-2006	1,3,5-Trinitrobenzene	8/14/2003	7	0.08		ug/L
MW-2006	1,3-Dinitrobenzene	12/5/2000	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	1/18/2001	0.25	0.09		ug/L
MW-2006	1,3-Dinitrobenzene	3/27/2001	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	5/23/2001	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	7/5/2001	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	10/9/2001	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	12/5/2001	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	1/22/2002	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	5/28/2002	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	7/2/2002	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	9/11/2002	0.37	0.09		ug/L
MW-2006	1,3-Dinitrobenzene	11/11/2002	ND	0.09	U	ug/L
MW-2006	1,3-Dinitrobenzene	2/4/2003	ND	0.05	U	ug/L
MW-2006	1,3-Dinitrobenzene	5/1/2003	ND	0.05	U	ug/L
MW-2006	1,3-Dinitrobenzene	8/14/2003	ND	0.05	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	12/5/2000	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	1/18/2001	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	3/27/2001	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	5/23/2001	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	7/5/2001	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	10/9/2001	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	12/5/2001	ND	0.03	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	1/22/2002	0.68	0.03		ug/L
MW-2006	2,4,6-Trinitrotoluene	3/13/2002	ND	0.08	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2006	2,4,6-Trinitrotoluene	5/28/2002	0.57	0.08		ug/L
MW-2006	2,4,6-Trinitrotoluene	7/2/2002	ND	0.08	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	9/11/2002	ND	0.08	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	11/11/2002	ND	0.08	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	2/4/2003	0.79	0.08		ug/L
MW-2006	2,4,6-Trinitrotoluene	5/1/2003	ND	0.08	U	ug/L
MW-2006	2,4,6-Trinitrotoluene	8/14/2003	1.7	0.08		ug/L
MW-2006	2,4-Dinitrotoluene	12/5/2000	ND	0.03	U	ug/L
MW-2006	2,4-Dinitrotoluene	1/18/2001	ND	0.03	U	ug/L
MW-2006	2,4-Dinitrotoluene	3/27/2001	ND	0.04	U	ug/L
MW-2006	2,4-Dinitrotoluene	5/23/2001	ND	0.04	U	ug/L
MW-2006	2,4-Dinitrotoluene	7/5/2001	ND	0.04	U	ug/L
MW-2006	2,4-Dinitrotoluene	10/9/2001	0.39	0.04		ug/L
MW-2006	2,4-Dinitrotoluene	12/5/2001	0.15	0.04		ug/L
MW-2006	2,4-Dinitrotoluene	1/22/2002	0.14	0.04		ug/L
MW-2006	2,4-Dinitrotoluene	3/13/2002	0.11	0.06		ug/L
MW-2006	2,4-Dinitrotoluene	5/28/2002	0.09	0.06		ug/L
MW-2006	2,4-Dinitrotoluene	7/2/2002	ND	0.06	U	ug/L
MW-2006	2,4-Dinitrotoluene	9/11/2002	ND	0.06	U	ug/L
MW-2006	2,4-Dinitrotoluene	11/11/2002	ND	0.06	U	ug/L
MW-2006	2,4-Dinitrotoluene	2/4/2003	0.1	0.06		ug/L
MW-2006	2,4-Dinitrotoluene	5/1/2003	ND	0.06	U	ug/L
MW-2006	2,4-Dinitrotoluene	8/14/2003	ND	0.06	U	ug/L
MW-2006	2,6-Dinitrotoluene	12/5/2000	0.88	0.01		ug/L
MW-2006	2,6-Dinitrotoluene	1/18/2001	0.55	0.01		ug/L
MW-2006	2,6-Dinitrotoluene	3/27/2001	0.71	0.06		ug/L
MW-2006	2,6-Dinitrotoluene	5/23/2001	0.87	0.06		ug/L
MW-2006	2,6-Dinitrotoluene	7/5/2001	ND	0.06	U	ug/L
MW-2006	2,6-Dinitrotoluene	10/9/2001	ND	0.06	U	ug/L
MW-2006	2,6-Dinitrotoluene	12/5/2001	1.3	0.06		ug/L
MW-2006	2,6-Dinitrotoluene	1/22/2002	1.4	0.06		ug/L
MW-2006	2,6-Dinitrotoluene	3/13/2002	1.2	0.1		ug/L
MW-2006	2,6-Dinitrotoluene	5/28/2002	1.1	0.1		ug/L
MW-2006	2,6-Dinitrotoluene	7/2/2002	ND	0.1	U	ug/L
MW-2006	2,6-Dinitrotoluene	9/11/2002	0.85	0.1		ug/L
MW-2006	2,6-Dinitrotoluene	11/11/2002	1.3	0.1		ug/L
MW-2006	2,6-Dinitrotoluene	2/4/2003	0.99	0.1		ug/L
MW-2006	2,6-Dinitrotoluene	5/1/2003	ND	0.13	U	ug/L
MW-2006	2,6-Dinitrotoluene	8/14/2003	1.6	0.13		ug/L
MW-2006	2-Amino-4,6-dinitrotoluene	1/22/2002	1.4	0.03		ug/L
MW-2006	2-Amino-4,6-dinitrotoluene	3/13/2002	1.2	0.03		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2006	2-Amino-4,6-dinitrotoluene	2/4/2003	1.5	0.05		ug/L
MW-2006	2-Amino-4,6-dinitrotoluene	5/1/2003	1.7	0.05		ug/L
MW-2006	2-Amino-4,6-dinitrotoluene	8/14/2003	1.7	0.05		ug/L
MW-2006	2-Nitrotoluene	1/22/2002	0.32	0.03		ug/L
MW-2006	2-Nitrotoluene	3/13/2002	0.26	0.03		ug/L
MW-2006	2-Nitrotoluene	2/4/2003	ND	0.07	U	ug/L
MW-2006	2-Nitrotoluene	5/1/2003	0.36	0.11		ug/L
MW-2006	2-Nitrotoluene	8/14/2003	0.58	0.11		ug/L
MW-2006	3-Nitrotoluene	1/22/2002	0.068	0.03		ug/L
MW-2006	3-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2006	3-Nitrotoluene	2/4/2003	ND	0.07	U	ug/L
MW-2006	3-Nitrotoluene	5/1/2003	ND	0.07	U	ug/L
MW-2006	3-Nitrotoluene	8/14/2003	ND	0.07	U	ug/L
MW-2006	4-Amino-2,6-dinitrotoluene	1/22/2002	1.3	0.03		ug/L
MW-2006	4-Amino-2,6-dinitrotoluene	3/13/2002	1.1	0.03		ug/L
MW-2006	4-Amino-2,6-dinitrotoluene	2/4/2003	1.2	0.07		ug/L
MW-2006	4-Amino-2,6-dinitrotoluene	5/1/2003	1.3	0.07		ug/L
MW-2006	4-Amino-2,6-dinitrotoluene	8/14/2003	1.6	0.07		ug/L
MW-2006	4-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2006	4-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2006	4-Nitrotoluene	2/4/2003	ND	0.04	U	ug/L
MW-2006	4-Nitrotoluene	5/1/2003	ND	0.05	U	ug/L
MW-2006	4-Nitrotoluene	8/14/2003	ND	0.05	U	ug/L
MW-2006	Nitrobenzene	12/5/2000	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	1/18/2001	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	3/27/2001	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	5/23/2001	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	7/5/2001	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	1/22/2002	ND	0.03	U	ug/L
MW-2006	Nitrobenzene	3/13/2002	1.6	0.08		ug/L
MW-2006	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2006	Nitrobenzene	7/2/2002	ND	0.08	U	ug/L
MW-2006	Nitrobenzene	9/11/2002	ND	0.08	U	ug/L
MW-2006	Nitrobenzene	11/11/2002	ND	0.08	U	ug/L
MW-2006	Nitrobenzene	2/4/2003	ND	0.08	U	ug/L
MW-2006	Nitrobenzene	5/1/2003	ND	0.08	U	ug/L
MW-2006	Nitrobenzene	8/14/2003	ND	0.08	U	ug/L
MW-2012	1,3,5-Trinitrobenzene	12/5/2000	99	6		ug/L
MW-2012	1,3,5-Trinitrobenzene	1/18/2001	79	6		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2012	1,3,5-Trinitrobenzene	3/15/2001	92	3		ug/L
MW-2012	1,3,5-Trinitrobenzene	5/22/2001	100	3		ug/L
MW-2012	1,3,5-Trinitrobenzene	7/5/2001	17	3		ug/L
MW-2012	1,3,5-Trinitrobenzene	8/22/2001	110	3		ug/L
MW-2012	1,3,5-Trinitrobenzene	10/9/2001	98	0.3		ug/L
MW-2012	1,3,5-Trinitrobenzene	12/5/2001	150	0.6		ug/L
MW-2012	1,3,5-Trinitrobenzene	1/21/2002	220	48		ug/L
MW-2012	1,3,5-Trinitrobenzene	3/13/2002	190	0.8		ug/L
MW-2012	1,3,5-Trinitrobenzene	5/28/2002	230	1.2		ug/L
MW-2012	1,3,5-Trinitrobenzene	7/2/2002	180	20		ug/L
MW-2012	1,3,5-Trinitrobenzene	9/16/2002	240	0.68		ug/L
MW-2012	1,3,5-Trinitrobenzene	11/11/2002	280	0.04		ug/L
MW-2012	1,3,5-Trinitrobenzene	1/27/2003	300	1	D	ug/L
MW-2012	1,3,5-Trinitrobenzene	1/27/2003	260	0.96	D	ug/L
MW-2012	1,3,5-Trinitrobenzene	2/4/2003	350	1.2	D	ug/L
MW-2012	1,3,5-Trinitrobenzene	5/1/2003	310	2.4	D	ug/L
MW-2012	1,3,5-Trinitrobenzene	8/19/2003	330	2	D	ug/L
MW-2012	1,3-Dinitrobenzene	12/5/2000	0.09	0.09	U	ug/L
MW-2012	1,3-Dinitrobenzene	1/18/2001	18	18	U	ug/L
MW-2012	1,3-Dinitrobenzene	3/15/2001	0.21	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	5/22/2001	0.5	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	7/5/2001	ND	9	U	ug/L
MW-2012	1,3-Dinitrobenzene	8/22/2001	ND	0.09	U	ug/L
MW-2012	1,3-Dinitrobenzene	10/9/2001	1.1	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	12/5/2001	0.38	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	1/21/2002	0.84	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	3/13/2002	0.54	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	5/28/2002	1	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	7/2/2002	1.3	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	9/16/2002	1.7	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	11/11/2002	ND	0.09	U	ug/L
MW-2012	1,3-Dinitrobenzene	1/27/2003	1.6	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	1/27/2003	1.4	0.09		ug/L
MW-2012	1,3-Dinitrobenzene	2/4/2003	10	0.05		ug/L
MW-2012	1,3-Dinitrobenzene	5/1/2003	1.8	0.05		ug/L
MW-2012	1,3-Dinitrobenzene	8/19/2003	3.3	0.05		ug/L
MW-2012	2,4,6-Trinitrotoluene	12/5/2000	200	6		ug/L
MW-2012	2,4,6-Trinitrotoluene	1/18/2001	170	6		ug/L
MW-2012	2,4,6-Trinitrotoluene	3/15/2001	190	3		ug/L
MW-2012	2,4,6-Trinitrotoluene	5/22/2001	220	3		ug/L
MW-2012	2,4,6-Trinitrotoluene	7/5/2001	20	3		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2012	2,4,6-Trinitrotoluene	8/22/2001	190	3		ug/L
MW-2012	2,4,6-Trinitrotoluene	10/9/2001	110	0.75		ug/L
MW-2012	2,4,6-Trinitrotoluene	12/5/2001	180	0.6		ug/L
MW-2012	2,4,6-Trinitrotoluene	1/21/2002	270	48		ug/L
MW-2012	2,4,6-Trinitrotoluene	3/13/2002	220	16		ug/L
MW-2012	2,4,6-Trinitrotoluene	5/28/2002	230	2.4		ug/L
MW-2012	2,4,6-Trinitrotoluene	7/2/2002	180	40		ug/L
MW-2012	2,4,6-Trinitrotoluene	9/16/2002	260	1.4		ug/L
MW-2012	2,4,6-Trinitrotoluene	11/11/2002	290	0.08		ug/L
MW-2012	2,4,6-Trinitrotoluene	1/27/2003	280	2	D	ug/L
MW-2012	2,4,6-Trinitrotoluene	1/27/2003	260	1.9	D	ug/L
MW-2012	2,4,6-Trinitrotoluene	2/4/2003	310	2.4	D	ug/L
MW-2012	2,4,6-Trinitrotoluene	5/1/2003	280	2.4	D	ug/L
MW-2012	2,4,6-Trinitrotoluene	8/19/2003	250	2	D	ug/L
MW-2012	2,4-Dinitrotoluene	12/5/2000	730	6		ug/L
MW-2012	2,4-Dinitrotoluene	1/18/2001	660	6		ug/L
MW-2012	2,4-Dinitrotoluene	3/15/2001	730	4		ug/L
MW-2012	2,4-Dinitrotoluene	5/22/2001	920	4		ug/L
MW-2012	2,4-Dinitrotoluene	7/5/2001	170	4		ug/L
MW-2012	2,4-Dinitrotoluene	8/22/2001	840	4		ug/L
MW-2012	2,4-Dinitrotoluene	10/9/2001	880	4		ug/L
MW-2012	2,4-Dinitrotoluene	12/5/2001	950	8		ug/L
MW-2012	2,4-Dinitrotoluene	1/21/2002	1600	12		ug/L
MW-2012	2,4-Dinitrotoluene	3/13/2002	1200	12		ug/L
MW-2012	2,4-Dinitrotoluene	5/28/2002	1500	12		ug/L
MW-2012	2,4-Dinitrotoluene	7/2/2002	1100	30		ug/L
MW-2012	2,4-Dinitrotoluene	9/16/2002	1500	1		ug/L
MW-2012	2,4-Dinitrotoluene	11/11/2002	940	0.06		ug/L
MW-2012	2,4-Dinitrotoluene	1/27/2003	1600	1.5	D	ug/L
MW-2012	2,4-Dinitrotoluene	1/27/2003	1300	1.4	D	ug/L
MW-2012	2,4-Dinitrotoluene	2/4/2003	1800	1.8	D	ug/L
MW-2012	2,4-Dinitrotoluene	5/1/2003	1500	1.8	D	ug/L
MW-2012	2,4-Dinitrotoluene	8/19/2003	1500	1.5	D	ug/L
MW-2012	2,6-Dinitrotoluene	12/5/2000	690	2		ug/L
MW-2012	2,6-Dinitrotoluene	1/18/2001	610	2		ug/L
MW-2012	2,6-Dinitrotoluene	3/15/2001	650	6		ug/L
MW-2012	2,6-Dinitrotoluene	5/22/2001	800	6		ug/L
MW-2012	2,6-Dinitrotoluene	7/5/2001	560	6		ug/L
MW-2012	2,6-Dinitrotoluene	8/22/2001	640	6		ug/L
MW-2012	2,6-Dinitrotoluene	10/9/2001	710	6		ug/L
MW-2012	2,6-Dinitrotoluene	12/5/2001	800	12		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2012	2,6-Dinitrotoluene	1/21/2002	1300	18		ug/L
MW-2012	2,6-Dinitrotoluene	3/13/2002	910	20		ug/L
MW-2012	2,6-Dinitrotoluene	5/28/2002	1100	20		ug/L
MW-2012	2,6-Dinitrotoluene	7/2/2002	820	50		ug/L
MW-2012	2,6-Dinitrotoluene	9/16/2002	1100	1.7		ug/L
MW-2012	2,6-Dinitrotoluene	11/11/2002	1200	0.1		ug/L
MW-2012	2,6-Dinitrotoluene	1/27/2003	1200	2.5	D	ug/L
MW-2012	2,6-Dinitrotoluene	1/27/2003	1100	2.4	D	ug/L
MW-2012	2,6-Dinitrotoluene	2/4/2003	1300	3	D	ug/L
MW-2012	2,6-Dinitrotoluene	5/1/2003	1300	3.9	D	ug/L
MW-2012	2,6-Dinitrotoluene	8/19/2003	1200	3.2	D	ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	1/21/2002	11	48	J	ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	3/13/2002	5.8	0.03		ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	1/27/2003	14	0.03		ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	1/27/2003	14	0.03		ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	2/4/2003	14	0.05		ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	5/1/2003	17	0.05		ug/L
MW-2012	2-Amino-4,6-dinitrotoluene	8/19/2003	16	0.05		ug/L
MW-2012	2-Nitrotoluene	1/21/2002	2300	9		ug/L
MW-2012	2-Nitrotoluene	3/13/2002	1500	6		ug/L
MW-2012	2-Nitrotoluene	1/27/2003	2100	0.75	D	ug/L
MW-2012	2-Nitrotoluene	1/27/2003	2000	0.72	D	ug/L
MW-2012	2-Nitrotoluene	2/4/2003	2300	2.1	D	ug/L
MW-2012	2-Nitrotoluene	5/1/2003	2000	3.3	D	ug/L
MW-2012	2-Nitrotoluene	8/19/2003	1900	2.8	D	ug/L
MW-2012	3-Nitrotoluene	1/21/2002	140	48		ug/L
MW-2012	3-Nitrotoluene	3/13/2002	110	0.6		ug/L
MW-2012	3-Nitrotoluene	1/27/2003	160	0.75	D	ug/L
MW-2012	3-Nitrotoluene	1/27/2003	150	0.72	D	ug/L
MW-2012	3-Nitrotoluene	2/4/2003	160	2.1	D	ug/L
MW-2012	3-Nitrotoluene	5/1/2003	140	2.1	D	ug/L
MW-2012	3-Nitrotoluene	8/19/2003	140	1.8	D	ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	1/27/2003	ND	0.03	U	ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	1/27/2003	ND	0.03	U	ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	2/4/2003	12	0.07		ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	5/1/2003	13	0.07		ug/L
MW-2012	4-Amino-2,6-dinitrotoluene	8/19/2003	12	0.07		ug/L
MW-2012	4-Nitrotoluene	1/21/2002	760	9		ug/L
MW-2012	4-Nitrotoluene	3/13/2002	470	6		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2012	4-Nitrotoluene	1/27/2003	730	0.75	D	ug/L
MW-2012	4-Nitrotoluene	1/27/2003	430	0.72	D	ug/L
MW-2012	4-Nitrotoluene	2/4/2003	770	1.2	D	ug/L
MW-2012	4-Nitrotoluene	5/1/2003	250	1.5	D	ug/L
MW-2012	4-Nitrotoluene	8/19/2003	310	1.2	D	ug/L
MW-2012	Nitrobenzene	12/5/2000	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	1/18/2001	ND	6	U	ug/L
MW-2012	Nitrobenzene	3/15/2001	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	5/22/2001	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	7/5/2001	ND	3	U	ug/L
MW-2012	Nitrobenzene	8/22/2001	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	1/21/2002	ND	0.03	U	ug/L
MW-2012	Nitrobenzene	3/13/2002	69	1.6		ug/L
MW-2012	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	7/2/2002	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	9/16/2002	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	11/11/2002	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	1/27/2003	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	1/27/2003	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	2/4/2003	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	5/1/2003	ND	0.08	U	ug/L
MW-2012	Nitrobenzene	8/19/2003	ND	0.08	U	ug/L
MW-2013	1,3,5-Trinitrobenzene	12/12/2000	1.3	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	1/19/2001	1.7	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	3/15/2001	1.2	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	5/22/2001	1.4	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	7/5/2001	0.9	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	10/9/2001	1.4	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	12/5/2001	1.9	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	1/21/2002	2	0.03		ug/L
MW-2013	1,3,5-Trinitrobenzene	3/14/2002	2	0.04		ug/L
MW-2013	1,3,5-Trinitrobenzene	5/28/2002	0.19	0.04		ug/L
MW-2013	1,3,5-Trinitrobenzene	8/14/2002	1.5	0.04		ug/L
MW-2013	1,3,5-Trinitrobenzene	11/11/2002	3.4	0.04		ug/L
MW-2013	1,3,5-Trinitrobenzene	2/5/2003	7	0.04		ug/L
MW-2013	1,3,5-Trinitrobenzene	5/12/2003	7.1	0.08		ug/L
MW-2013	1,3,5-Trinitrobenzene	8/18/2003	6.4	0.08		ug/L
MW-2013	1,3-Dinitrobenzene	12/12/2000	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	1/19/2001	ND	0.09	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2013	1,3-Dinitrobenzene	3/15/2001	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	5/22/2001	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	7/5/2001	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	10/9/2001	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	12/5/2001	0.23	0.09		ug/L
MW-2013	1,3-Dinitrobenzene	1/21/2002	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	3/14/2002	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	5/28/2002	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	8/14/2002	ND	0.09	U	ug/L
MW-2013	1,3-Dinitrobenzene	11/11/2002	0.19	0.09		ug/L
MW-2013	1,3-Dinitrobenzene	2/5/2003	ND	0.05	U	ug/L
MW-2013	1,3-Dinitrobenzene	5/12/2003	0.024	0.05	J	ug/L
MW-2013	1,3-Dinitrobenzene	8/18/2003	ND	0.05	U	ug/L
MW-2013	2,4,6-Trinitrotoluene	12/12/2000	0.25	0.03		ug/L
MW-2013	2,4,6-Trinitrotoluene	1/19/2001	ND	0.03	U	ug/L
MW-2013	2,4,6-Trinitrotoluene	3/15/2001	0.14	0.03		ug/L
MW-2013	2,4,6-Trinitrotoluene	5/22/2001	0.35	0.03		ug/L
MW-2013	2,4,6-Trinitrotoluene	7/5/2001	0.25	0.03		ug/L
MW-2013	2,4,6-Trinitrotoluene	10/9/2001	ND	0.03	U	ug/L
MW-2013	2,4,6-Trinitrotoluene	12/5/2001	ND	0.03	U	ug/L
MW-2013	2,4,6-Trinitrotoluene	1/21/2002	0.34	0.03		ug/L
MW-2013	2,4,6-Trinitrotoluene	3/14/2002	0.35	0.08		ug/L
MW-2013	2,4,6-Trinitrotoluene	5/28/2002	ND	0.08	U	ug/L
MW-2013	2,4,6-Trinitrotoluene	8/14/2002	0.16	0.08		ug/L
MW-2013	2,4,6-Trinitrotoluene	11/11/2002	ND	0.08	U	ug/L
MW-2013	2,4,6-Trinitrotoluene	2/5/2003	1	0.08		ug/L
MW-2013	2,4,6-Trinitrotoluene	5/12/2003	1.1	0.08		ug/L
MW-2013	2,4,6-Trinitrotoluene	8/18/2003	0.96	0.08		ug/L
MW-2013	2,4-Dinitrotoluene	12/12/2000	0.059	0.03		ug/L
MW-2013	2,4-Dinitrotoluene	1/19/2001	0.048	0.03		ug/L
MW-2013	2,4-Dinitrotoluene	3/15/2001	0.24	0.04		ug/L
MW-2013	2,4-Dinitrotoluene	5/22/2001	0.081	0.04		ug/L
MW-2013	2,4-Dinitrotoluene	7/5/2001	ND	0.04	U	ug/L
MW-2013	2,4-Dinitrotoluene	10/9/2001	0.089	0.04		ug/L
MW-2013	2,4-Dinitrotoluene	12/5/2001	0.36	0.04		ug/L
MW-2013	2,4-Dinitrotoluene	1/21/2002	0.095	0.04		ug/L
MW-2013	2,4-Dinitrotoluene	3/14/2002	0.15	0.06		ug/L
MW-2013	2,4-Dinitrotoluene	5/28/2002	ND	0.06	U	ug/L
MW-2013	2,4-Dinitrotoluene	8/14/2002	ND	0.06	U	ug/L
MW-2013	2,4-Dinitrotoluene	11/11/2002	0.099	0.06		ug/L
MW-2013	2,4-Dinitrotoluene	2/5/2003	0.15	0.06		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2013	2,4-Dinitrotoluene	5/12/2003	0.15	0.06		ug/L
MW-2013	2,4-Dinitrotoluene	8/18/2003	0.15	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	12/12/2000	0.54	0.01		ug/L
MW-2013	2,6-Dinitrotoluene	1/19/2001	0.85	0.01		ug/L
MW-2013	2,6-Dinitrotoluene	3/15/2001	0.79	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	5/22/2001	0.69	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	7/5/2001	0.5	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	10/9/2001	0.64	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	12/5/2001	2.3	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	1/21/2002	0.89	0.06		ug/L
MW-2013	2,6-Dinitrotoluene	3/14/2002	0.89	0.1		ug/L
MW-2013	2,6-Dinitrotoluene	5/28/2002	0.47	0.1		ug/L
MW-2013	2,6-Dinitrotoluene	8/14/2002	0.59	0.1		ug/L
MW-2013	2,6-Dinitrotoluene	11/11/2002	1.5	0.1		ug/L
MW-2013	2,6-Dinitrotoluene	2/5/2003	2.3	0.1		ug/L
MW-2013	2,6-Dinitrotoluene	5/12/2003	2.1	0.13		ug/L
MW-2013	2,6-Dinitrotoluene	8/18/2003	1.4	0.13		ug/L
MW-2013	2-Amino-4,6-dinitrotoluene	1/21/2002	0.55	0.03		ug/L
MW-2013	2-Amino-4,6-dinitrotoluene	3/14/2002	0.59	0.03		ug/L
MW-2013	2-Amino-4,6-dinitrotoluene	2/5/2003	1.3	0.05		ug/L
MW-2013	2-Amino-4,6-dinitrotoluene	5/12/2003	1.6	0.05		ug/L
MW-2013	2-Amino-4,6-dinitrotoluene	8/18/2003	1.3	0.05		ug/L
MW-2013	2-Nitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2013	2-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2013	2-Nitrotoluene	2/5/2003	0.36	0.07		ug/L
MW-2013	2-Nitrotoluene	5/12/2003	ND	0.11	U	ug/L
MW-2013	2-Nitrotoluene	8/18/2003	0.44	0.11		ug/L
MW-2013	3-Nitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2013	3-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2013	3-Nitrotoluene	2/5/2003	ND	0.07	U	ug/L
MW-2013	3-Nitrotoluene	5/12/2003	ND	0.07	U	ug/L
MW-2013	3-Nitrotoluene	8/18/2003	ND	0.07	U	ug/L
MW-2013	4-Amino-2,6-dinitrotoluene	1/21/2002	0.77	0.03		ug/L
MW-2013	4-Amino-2,6-dinitrotoluene	3/14/2002	0.79	0.03		ug/L
MW-2013	4-Amino-2,6-dinitrotoluene	2/5/2003	1.6	0.07		ug/L
MW-2013	4-Amino-2,6-dinitrotoluene	5/12/2003	1.6	0.07		ug/L
MW-2013	4-Amino-2,6-dinitrotoluene	8/18/2003	1.4	0.07		ug/L
MW-2013	4-Nitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2013	4-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2013	4-Nitrotoluene	2/5/2003	ND	0.04	U	ug/L
MW-2013	4-Nitrotoluene	5/12/2003	ND	0.05	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2013	4-Nitrotoluene	8/18/2003	ND	0.05	U	ug/L
MW-2013	Nitrobenzene	12/12/2000	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	1/19/2001	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	3/15/2001	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	5/22/2001	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	7/5/2001	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	1/21/2002	ND	0.03	U	ug/L
MW-2013	Nitrobenzene	3/14/2002	ND	0.08	U	ug/L
MW-2013	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2013	Nitrobenzene	8/14/2002	ND	0.08	U	ug/L
MW-2013	Nitrobenzene	11/11/2002	ND	0.08	U	ug/L
MW-2013	Nitrobenzene	2/5/2003	ND	0.08	U	ug/L
MW-2013	Nitrobenzene	5/12/2003	ND	0.08	U	ug/L
MW-2013	Nitrobenzene	8/18/2003	ND	0.08	U	ug/L
MW-2014	1,3,5-Trinitrobenzene	12/5/2000	2.1	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	1/24/2001	2.3	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	3/15/2001	1.7	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	5/23/2001	1.3	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	7/5/2001	1.1	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	10/9/2001	1.3	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	12/5/2001	2.3	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	1/22/2002	2.6	0.03		ug/L
MW-2014	1,3,5-Trinitrobenzene	3/13/2002	2.5	0.04		ug/L
MW-2014	1,3,5-Trinitrobenzene	5/29/2002	1.9	0.04		ug/L
MW-2014	1,3,5-Trinitrobenzene	8/15/2002	2.1	0.04		ug/L
MW-2014	1,3,5-Trinitrobenzene	11/12/2002	3.2	0.04		ug/L
MW-2014	1,3,5-Trinitrobenzene	2/10/2003	3.5	0.04		ug/L
MW-2014	1,3,5-Trinitrobenzene	5/12/2003	2.8	0.08		ug/L
MW-2014	1,3,5-Trinitrobenzene	8/19/2003	2.9	0.08		ug/L
MW-2014	1,3-Dinitrobenzene	12/5/2000	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	1/24/2001	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	3/15/2001	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	5/23/2001	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	7/5/2001	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	10/9/2001	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	12/5/2001	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	1/22/2002	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	5/29/2002	ND	0.09	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2014	1,3-Dinitrobenzene	8/15/2002	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	11/12/2002	ND	0.09	U	ug/L
MW-2014	1,3-Dinitrobenzene	2/10/2003	0.055	0.05		ug/L
MW-2014	1,3-Dinitrobenzene	5/12/2003	0.069	0.05		ug/L
MW-2014	1,3-Dinitrobenzene	8/19/2003	0.06	0.05		ug/L
MW-2014	2,4,6-Trinitrotoluene	12/5/2000	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	1/24/2001	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	3/15/2001	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	5/23/2001	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	7/5/2001	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	10/9/2001	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	12/5/2001	ND	0.03	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	1/22/2002	0.25	0.03		ug/L
MW-2014	2,4,6-Trinitrotoluene	3/13/2002	ND	0.08	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	5/29/2002	ND	0.08	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	8/15/2002	ND	0.08	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	11/12/2002	ND	0.08	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	2/10/2003	ND	0.08	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	5/12/2003	ND	0.08	U	ug/L
MW-2014	2,4,6-Trinitrotoluene	8/19/2003	ND	0.08	U	ug/L
MW-2014	2,4-Dinitrotoluene	12/5/2000	0.11	0.03		ug/L
MW-2014	2,4-Dinitrotoluene	1/24/2001	0.058	0.03		ug/L
MW-2014	2,4-Dinitrotoluene	3/15/2001	0.07	0.04		ug/L
MW-2014	2,4-Dinitrotoluene	5/23/2001	0.089	0.04		ug/L
MW-2014	2,4-Dinitrotoluene	7/5/2001	ND	0.04	U	ug/L
MW-2014	2,4-Dinitrotoluene	10/9/2001	0.11	0.04		ug/L
MW-2014	2,4-Dinitrotoluene	12/5/2001	0.11	0.04		ug/L
MW-2014	2,4-Dinitrotoluene	1/22/2002	0.14	0.04		ug/L
MW-2014	2,4-Dinitrotoluene	3/13/2002	0.12	0.06		ug/L
MW-2014	2,4-Dinitrotoluene	5/29/2002	0.098	0.06		ug/L
MW-2014	2,4-Dinitrotoluene	8/15/2002	0.12	0.06		ug/L
MW-2014	2,4-Dinitrotoluene	11/12/2002	0.15	0.06		ug/L
MW-2014	2,4-Dinitrotoluene	2/10/2003	0.14	0.06		ug/L
MW-2014	2,4-Dinitrotoluene	5/12/2003	0.11	0.06		ug/L
MW-2014	2,4-Dinitrotoluene	8/19/2003	0.34	0.06		ug/L
MW-2014	2,6-Dinitrotoluene	12/5/2000	0.27	0.01		ug/L
MW-2014	2,6-Dinitrotoluene	1/24/2001	0.34	0.01		ug/L
MW-2014	2,6-Dinitrotoluene	3/15/2001	0.28	0.06		ug/L
MW-2014	2,6-Dinitrotoluene	5/23/2001	0.34	0.06		ug/L
MW-2014	2,6-Dinitrotoluene	7/5/2001	0.21	0.06		ug/L
MW-2014	2,6-Dinitrotoluene	10/9/2001	0.44	0.06		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2014	2,6-Dinitrotoluene	12/5/2001	0.5	0.06		ug/L
MW-2014	2,6-Dinitrotoluene	1/22/2002	0.58	0.06		ug/L
MW-2014	2,6-Dinitrotoluene	3/13/2002	0.5	0.1		ug/L
MW-2014	2,6-Dinitrotoluene	5/29/2002	0.37	0.1		ug/L
MW-2014	2,6-Dinitrotoluene	8/15/2002	0.4	0.1		ug/L
MW-2014	2,6-Dinitrotoluene	11/12/2002	0.55	0.1		ug/L
MW-2014	2,6-Dinitrotoluene	2/10/2003	0.65	0.1		ug/L
MW-2014	2,6-Dinitrotoluene	5/12/2003	0.52	0.13		ug/L
MW-2014	2,6-Dinitrotoluene	8/19/2003	0.73	0.13		ug/L
MW-2014	2-Amino-4,6-dinitrotoluene	1/22/2002	0.37	0.03		ug/L
MW-2014	2-Amino-4,6-dinitrotoluene	3/13/2002	0.3	0.03		ug/L
MW-2014	2-Amino-4,6-dinitrotoluene	2/10/2003	0.45	0.05		ug/L
MW-2014	2-Amino-4,6-dinitrotoluene	5/12/2003	0.37	0.05		ug/L
MW-2014	2-Amino-4,6-dinitrotoluene	8/19/2003	0.41	0.05		ug/L
MW-2014	2-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2014	2-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2014	2-Nitrotoluene	2/10/2003	ND	0.07	U	ug/L
MW-2014	2-Nitrotoluene	5/12/2003	ND	0.11	U	ug/L
MW-2014	2-Nitrotoluene	8/19/2003	0.57	0.11		ug/L
MW-2014	3-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2014	3-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2014	3-Nitrotoluene	2/10/2003	ND	0.07	U	ug/L
MW-2014	3-Nitrotoluene	5/12/2003	ND	0.07	U	ug/L
MW-2014	3-Nitrotoluene	8/19/2003	ND	0.07	U	ug/L
MW-2014	4-Amino-2,6-dinitrotoluene	1/22/2002	0.6	0.03		ug/L
MW-2014	4-Amino-2,6-dinitrotoluene	3/13/2002	0.49	0.03		ug/L
MW-2014	4-Amino-2,6-dinitrotoluene	2/10/2003	0.71	0.07		ug/L
MW-2014	4-Amino-2,6-dinitrotoluene	5/12/2003	0.59	0.07		ug/L
MW-2014	4-Amino-2,6-dinitrotoluene	8/19/2003	0.6	0.07		ug/L
MW-2014	4-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2014	4-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2014	4-Nitrotoluene	2/10/2003	ND	0.04	U	ug/L
MW-2014	4-Nitrotoluene	5/12/2003	ND	0.05	U	ug/L
MW-2014	4-Nitrotoluene	8/19/2003	ND	0.05	U	ug/L
MW-2014	Nitrobenzene	12/5/2000	ND	0.03	U	ug/L
MW-2014	Nitrobenzene	1/24/2001	0.4	0.03		ug/L
MW-2014	Nitrobenzene	3/15/2001	ND	0.03	U	ug/L
MW-2014	Nitrobenzene	5/23/2001	ND	0.03	U	ug/L
MW-2014	Nitrobenzene	7/5/2001	ND	0.03	U	ug/L
MW-2014	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-2014	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2014	Nitrobenzene	1/22/2002	ND	0.03	U	ug/L
MW-2014	Nitrobenzene	3/13/2002	0.93	0.08		ug/L
MW-2014	Nitrobenzene	5/29/2002	ND	0.08	U	ug/L
MW-2014	Nitrobenzene	8/15/2002	ND	0.08	U	ug/L
MW-2014	Nitrobenzene	11/12/2002	ND	0.08	U	ug/L
MW-2014	Nitrobenzene	2/10/2003	ND	0.08	U	ug/L
MW-2014	Nitrobenzene	5/12/2003	ND	0.08	U	ug/L
MW-2014	Nitrobenzene	8/19/2003	ND	0.08	U	ug/L
MW-2033	1,3,5-Trinitrobenzene	12/5/2000	0.13	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	1/19/2001	1.9	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	3/26/2001	2.3	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	5/22/2001	1.4	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	7/6/2001	1.1	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	10/22/2001	1.5	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	12/5/2001	0.76	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	1/22/2002	2.7	0.03		ug/L
MW-2033	1,3,5-Trinitrobenzene	3/14/2002	1.3	0.04		ug/L
MW-2033	1,3,5-Trinitrobenzene	5/30/2002	1.9	0.04		ug/L
MW-2033	1,3,5-Trinitrobenzene	8/21/2002	1.6	0.04		ug/L
MW-2033	1,3,5-Trinitrobenzene	11/19/2002	2.6	0.04		ug/L
MW-2033	1,3,5-Trinitrobenzene	2/11/2003	5.2	0.04		ug/L
MW-2033	1,3,5-Trinitrobenzene	5/14/2003	5.1	0.08		ug/L
MW-2033	1,3,5-Trinitrobenzene	8/19/2003	6.5	0.08		ug/L
MW-2033	1,3-Dinitrobenzene	12/5/2000	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	1/19/2001	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	3/26/2001	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	5/22/2001	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	7/6/2001	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	10/22/2001	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	12/5/2001	0.1	0.09		ug/L
MW-2033	1,3-Dinitrobenzene	1/22/2002	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	3/14/2002	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	5/30/2002	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	8/21/2002	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	11/19/2002	ND	0.09	U	ug/L
MW-2033	1,3-Dinitrobenzene	2/11/2003	ND	0.05	U	ug/L
MW-2033	1,3-Dinitrobenzene	5/14/2003	ND	0.05	U	ug/L
MW-2033	1,3-Dinitrobenzene	8/19/2003	ND	0.05	U	ug/L
MW-2033	2,4,6-Trinitrotoluene	12/5/2000	ND	0.03	U	ug/L
MW-2033	2,4,6-Trinitrotoluene	1/19/2001	0.57	0.03		ug/L
MW-2033	2,4,6-Trinitrotoluene	3/26/2001	0.64	0.03		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2033	2,4,6-Trinitrotoluene	5/22/2001	0.58	0.03		ug/L
MW-2033	2,4,6-Trinitrotoluene	7/6/2001	ND	0.03	U	ug/L
MW-2033	2,4,6-Trinitrotoluene	10/22/2001	0.3	0.03		ug/L
MW-2033	2,4,6-Trinitrotoluene	12/5/2001	0.58	0.03		ug/L
MW-2033	2,4,6-Trinitrotoluene	1/22/2002	0.61	0.03		ug/L
MW-2033	2,4,6-Trinitrotoluene	3/14/2002	0.18	0.08		ug/L
MW-2033	2,4,6-Trinitrotoluene	5/30/2002	0.3	0.08		ug/L
MW-2033	2,4,6-Trinitrotoluene	8/21/2002	0.4	0.08		ug/L
MW-2033	2,4,6-Trinitrotoluene	11/19/2002	0.52	0.08		ug/L
MW-2033	2,4,6-Trinitrotoluene	2/11/2003	0.86	0.08		ug/L
MW-2033	2,4,6-Trinitrotoluene	5/14/2003	1.1	0.08		ug/L
MW-2033	2,4,6-Trinitrotoluene	8/19/2003	0.86	0.08		ug/L
MW-2033	2,4-Dinitrotoluene	12/5/2000	ND	0.03	U	ug/L
MW-2033	2,4-Dinitrotoluene	1/19/2001	ND	0.03	U	ug/L
MW-2033	2,4-Dinitrotoluene	3/26/2001	0.06	0.04		ug/L
MW-2033	2,4-Dinitrotoluene	5/22/2001	0.052	0.04		ug/L
MW-2033	2,4-Dinitrotoluene	7/6/2001	ND	0.04	U	ug/L
MW-2033	2,4-Dinitrotoluene	10/22/2001	ND	0.04	U	ug/L
MW-2033	2,4-Dinitrotoluene	12/5/2001	0.067	0.04		ug/L
MW-2033	2,4-Dinitrotoluene	1/22/2002	0.11	0.04		ug/L
MW-2033	2,4-Dinitrotoluene	3/14/2002	ND	0.06	U	ug/L
MW-2033	2,4-Dinitrotoluene	5/30/2002	ND	0.06	U	ug/L
MW-2033	2,4-Dinitrotoluene	8/21/2002	ND	0.06	U	ug/L
MW-2033	2,4-Dinitrotoluene	11/19/2002	ND	0.06	U	ug/L
MW-2033	2,4-Dinitrotoluene	2/11/2003	0.93	0.06		ug/L
MW-2033	2,4-Dinitrotoluene	5/14/2003	1.1	0.06		ug/L
MW-2033	2,4-Dinitrotoluene	8/19/2003	0.57	0.06		ug/L
MW-2033	2,6-Dinitrotoluene	12/5/2000	0.16	0.01		ug/L
MW-2033	2,6-Dinitrotoluene	1/19/2001	0.59	0.01		ug/L
MW-2033	2,6-Dinitrotoluene	3/26/2001	0.88	0.06		ug/L
MW-2033	2,6-Dinitrotoluene	5/22/2001	0.85	0.06		ug/L
MW-2033	2,6-Dinitrotoluene	7/6/2001	ND	0.06	U	ug/L
MW-2033	2,6-Dinitrotoluene	10/22/2001	0.78	0.06		ug/L
MW-2033	2,6-Dinitrotoluene	12/5/2001	0.99	0.06		ug/L
MW-2033	2,6-Dinitrotoluene	1/22/2002	1.2	0.06		ug/L
MW-2033	2,6-Dinitrotoluene	3/14/2002	0.49	0.1		ug/L
MW-2033	2,6-Dinitrotoluene	5/30/2002	0.76	0.1		ug/L
MW-2033	2,6-Dinitrotoluene	8/21/2002	1	0.1		ug/L
MW-2033	2,6-Dinitrotoluene	11/19/2002	1.1	0.1		ug/L
MW-2033	2,6-Dinitrotoluene	2/11/2003	4.1	0.1		ug/L
MW-2033	2,6-Dinitrotoluene	5/14/2003	3.3	0.13		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2033	2,6-Dinitrotoluene	8/19/2003	2.2	0.13		ug/L
MW-2033	2-Amino-4,6-dinitrotoluene	1/22/2002	0.62	0.03		ug/L
MW-2033	2-Amino-4,6-dinitrotoluene	3/14/2002	0.23	0.03		ug/L
MW-2033	2-Amino-4,6-dinitrotoluene	2/11/2003	1.2	0.05		ug/L
MW-2033	2-Amino-4,6-dinitrotoluene	5/14/2003	1.6	0.05		ug/L
MW-2033	2-Amino-4,6-dinitrotoluene	8/19/2003	1.4	0.05		ug/L
MW-2033	2-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2033	2-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2033	2-Nitrotoluene	2/11/2003	4.6	0.07		ug/L
MW-2033	2-Nitrotoluene	5/14/2003	2.3	0.11		ug/L
MW-2033	2-Nitrotoluene	8/19/2003	0.61	0.11		ug/L
MW-2033	3-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2033	3-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2033	3-Nitrotoluene	2/11/2003	0.22	0.07		ug/L
MW-2033	3-Nitrotoluene	5/14/2003	0.26	0.07		ug/L
MW-2033	3-Nitrotoluene	8/19/2003	ND	0.07	U	ug/L
MW-2033	4-Amino-2,6-dinitrotoluene	1/22/2002	0.75	0.03		ug/L
MW-2033	4-Amino-2,6-dinitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2033	4-Amino-2,6-dinitrotoluene	2/11/2003	1.6	0.07		ug/L
MW-2033	4-Amino-2,6-dinitrotoluene	5/14/2003	1.9	0.07		ug/L
MW-2033	4-Amino-2,6-dinitrotoluene	8/19/2003	1.6	0.07		ug/L
MW-2033	4-Nitrotoluene	1/22/2002	ND	0.03	U	ug/L
MW-2033	4-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2033	4-Nitrotoluene	2/11/2003	ND	0.04	U	ug/L
MW-2033	4-Nitrotoluene	5/14/2003	0.37	0.05		ug/L
MW-2033	4-Nitrotoluene	8/19/2003	ND	0.05	U	ug/L
MW-2033	Nitrobenzene	12/5/2000	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	1/19/2001	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	3/26/2001	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	5/22/2001	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	7/6/2001	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	10/22/2001	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	1/22/2002	ND	0.03	U	ug/L
MW-2033	Nitrobenzene	3/14/2002	ND	0.08	U	ug/L
MW-2033	Nitrobenzene	5/30/2002	ND	0.08	U	ug/L
MW-2033	Nitrobenzene	8/21/2002	ND	0.08	U	ug/L
MW-2033	Nitrobenzene	11/19/2002	ND	0.08	U	ug/L
MW-2033	Nitrobenzene	2/11/2003	ND	0.08	U	ug/L
MW-2033	Nitrobenzene	5/14/2003	ND	0.08	U	ug/L
MW-2033	Nitrobenzene	8/19/2003	ND	0.08	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2045	1,3,5-Trinitrobenzene	12/21/2000	ND	0.03	U	ug/L
MW-2045	1,3,5-Trinitrobenzene	6/13/2001	0.2	0.1		ug/L
MW-2045	1,3,5-Trinitrobenzene	9/20/2001	ND	0.1	U	ug/L
MW-2045	1,3,5-Trinitrobenzene	12/10/2001	ND	0.03	U	ug/L
MW-2045	1,3,5-Trinitrobenzene	1/23/2002	0.069	0.03		ug/L
MW-2045	1,3,5-Trinitrobenzene	3/14/2002	0.044	0.04		ug/L
MW-2045	1,3,5-Trinitrobenzene	6/19/2002	0.064	0.04		ug/L
MW-2045	1,3,5-Trinitrobenzene	9/25/2002	ND	0.04	U	ug/L
MW-2045	1,3,5-Trinitrobenzene	12/10/2002	0.27	0.04		ug/L
MW-2045	1,3,5-Trinitrobenzene	3/19/2003	0.12	0.04		ug/L
MW-2045	1,3,5-Trinitrobenzene	6/19/2003	ND	0.08	U	ug/L
MW-2045	1,3,5-Trinitrobenzene	9/18/2003	ND	0.08	U	ug/L
MW-2045	1,3-Dinitrobenzene	12/21/2000	0.16	0.09		ug/L
MW-2045	1,3-Dinitrobenzene	6/13/2001	ND	0.1	U	ug/L
MW-2045	1,3-Dinitrobenzene	9/20/2001	ND	0.1	U	ug/L
MW-2045	1,3-Dinitrobenzene	12/10/2001	0.099	0.09		ug/L
MW-2045	1,3-Dinitrobenzene	1/23/2002	0.091	0.09		ug/L
MW-2045	1,3-Dinitrobenzene	3/14/2002	0.079	0.09	J	ug/L
MW-2045	1,3-Dinitrobenzene	6/19/2002	ND	0.09	U	ug/L
MW-2045	1,3-Dinitrobenzene	9/25/2002	0.097	0.09		ug/L
MW-2045	1,3-Dinitrobenzene	12/10/2002	ND	0.09	U	ug/L
MW-2045	1,3-Dinitrobenzene	3/19/2003	ND	0.05	U	ug/L
MW-2045	1,3-Dinitrobenzene	6/19/2003	0.1	0.05		ug/L
MW-2045	1,3-Dinitrobenzene	9/18/2003	ND	0.05	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	12/21/2000	ND	0.03	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	6/13/2001	ND	0.1	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	9/20/2001	ND	0.1	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	12/10/2001	0.13	0.03		ug/L
MW-2045	2,4,6-Trinitrotoluene	1/23/2002	0.13	0.03		ug/L
MW-2045	2,4,6-Trinitrotoluene	2/25/2002	ND	0.08	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	3/14/2002	ND	0.08	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	6/19/2002	ND	0.08	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	9/25/2002	ND	0.08	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	12/10/2002	0.2	0.08		ug/L
MW-2045	2,4,6-Trinitrotoluene	3/19/2003	0.12	0.08		ug/L
MW-2045	2,4,6-Trinitrotoluene	6/19/2003	ND	0.08	U	ug/L
MW-2045	2,4,6-Trinitrotoluene	9/18/2003	ND	0.08	U	ug/L
MW-2045	2,4-Dinitrotoluene	12/21/2000	0.081	0.03		ug/L
MW-2045	2,4-Dinitrotoluene	6/13/2001	ND	0.1	U	ug/L
MW-2045	2,4-Dinitrotoluene	9/20/2001	ND	0.1	U	ug/L
MW-2045	2,4-Dinitrotoluene	12/10/2001	0.078	0.04		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2045	2,4-Dinitrotoluene	1/23/2002	0.077	0.04		ug/L
MW-2045	2,4-Dinitrotoluene	3/14/2002	ND	0.06	U	ug/L
MW-2045	2,4-Dinitrotoluene	6/19/2002	0.092	0.06		ug/L
MW-2045	2,4-Dinitrotoluene	9/25/2002	0.072	0.06		ug/L
MW-2045	2,4-Dinitrotoluene	12/10/2002	0.09	0.06		ug/L
MW-2045	2,4-Dinitrotoluene	3/19/2003	ND	0.06	U	ug/L
MW-2045	2,4-Dinitrotoluene	6/19/2003	0.1	0.06		ug/L
MW-2045	2,4-Dinitrotoluene	9/18/2003	0.1	0.06		ug/L
MW-2045	2,6-Dinitrotoluene	12/21/2000	0.62	0.01		ug/L
MW-2045	2,6-Dinitrotoluene	6/13/2001	0.73	0.1		ug/L
MW-2045	2,6-Dinitrotoluene	9/20/2001	ND	0.1	U	ug/L
MW-2045	2,6-Dinitrotoluene	12/10/2001	0.76	0.06		ug/L
MW-2045	2,6-Dinitrotoluene	1/23/2002	0.63	0.06		ug/L
MW-2045	2,6-Dinitrotoluene	3/14/2002	0.49	0.1		ug/L
MW-2045	2,6-Dinitrotoluene	6/19/2002	0.74	0.1		ug/L
MW-2045	2,6-Dinitrotoluene	9/25/2002	0.59	0.1		ug/L
MW-2045	2,6-Dinitrotoluene	12/10/2002	0.8	0.1		ug/L
MW-2045	2,6-Dinitrotoluene	3/19/2003	0.52	0.1		ug/L
MW-2045	2,6-Dinitrotoluene	6/19/2003	0.71	0.13		ug/L
MW-2045	2,6-Dinitrotoluene	9/18/2003	0.73	0.13		ug/L
MW-2045	2-Amino-4,6-dinitrotoluene	1/23/2002	0.54	0.03		ug/L
MW-2045	2-Amino-4,6-dinitrotoluene	3/14/2002	0.39	0.03		ug/L
MW-2045	2-Amino-4,6-dinitrotoluene	3/19/2003	0.53	0.05		ug/L
MW-2045	2-Amino-4,6-dinitrotoluene	6/19/2003	0.71	0.05		ug/L
MW-2045	2-Amino-4,6-dinitrotoluene	9/18/2003	0.7	0.05		ug/L
MW-2045	2-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L
MW-2045	2-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2045	2-Nitrotoluene	3/19/2003	ND	0.07	U	ug/L
MW-2045	2-Nitrotoluene	6/19/2003	0.11	0.11		ug/L
MW-2045	2-Nitrotoluene	9/18/2003	ND	0.11	U	ug/L
MW-2045	3-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L
MW-2045	3-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2045	3-Nitrotoluene	3/19/2003	ND	0.07	U	ug/L
MW-2045	3-Nitrotoluene	6/19/2003	ND	0.07	U	ug/L
MW-2045	3-Nitrotoluene	9/18/2003	ND	0.07	U	ug/L
MW-2045	4-Amino-2,6-dinitrotoluene	1/23/2002	0.62	0.03		ug/L
MW-2045	4-Amino-2,6-dinitrotoluene	3/14/2002	0.45	0.03		ug/L
MW-2045	4-Amino-2,6-dinitrotoluene	3/19/2003	0.53	0.07		ug/L
MW-2045	4-Amino-2,6-dinitrotoluene	6/19/2003	0.69	0.07		ug/L
MW-2045	4-Amino-2,6-dinitrotoluene	9/18/2003	0.66	0.07		ug/L
MW-2045	4-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2045	4-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-2045	4-Nitrotoluene	3/19/2003	ND	0.04	U	ug/L
MW-2045	4-Nitrotoluene	6/19/2003	ND	0.05	U	ug/L
MW-2045	4-Nitrotoluene	9/18/2003	ND	0.05	U	ug/L
MW-2045	Nitrobenzene	12/21/2000	ND	0.03	U	ug/L
MW-2045	Nitrobenzene	6/13/2001	ND	0.1	U	ug/L
MW-2045	Nitrobenzene	9/20/2001	ND	0.1	U	ug/L
MW-2045	Nitrobenzene	12/10/2001	ND	0.03	U	ug/L
MW-2045	Nitrobenzene	1/23/2002	ND	0.03	U	ug/L
MW-2045	Nitrobenzene	3/14/2002	0.15	0.08		ug/L
MW-2045	Nitrobenzene	6/19/2002	ND	0.08	U	ug/L
MW-2045	Nitrobenzene	9/25/2002	ND	0.08	U	ug/L
MW-2045	Nitrobenzene	12/10/2002	ND	0.08	U	ug/L
MW-2045	Nitrobenzene	3/19/2003	ND	0.08	U	ug/L
MW-2045	Nitrobenzene	6/19/2003	ND	0.08	U	ug/L
MW-2045	Nitrobenzene	9/18/2003	ND	0.08	U	ug/L
MW-4015	1,3,5-Trinitrobenzene	12/7/2000	5.5	0.03		ug/L
MW-4015	1,3,5-Trinitrobenzene	6/22/2001	3.8	0.03		ug/L
MW-4015	1,3,5-Trinitrobenzene	12/20/2001	5.4	0.03		ug/L
MW-4015	1,3,5-Trinitrobenzene	1/23/2002	2.6	0.03		ug/L
MW-4015	1,3,5-Trinitrobenzene	3/14/2002	5	0.04		ug/L
MW-4015	1,3,5-Trinitrobenzene	8/15/2002	3.7	0.04		ug/L
MW-4015	1,3,5-Trinitrobenzene	2/11/2003	3.7	0.04		ug/L
MW-4015	1,3,5-Trinitrobenzene	5/12/2003	1.1	0.08		ug/L
MW-4015	1,3,5-Trinitrobenzene	8/19/2003	4.8	0.08		ug/L
MW-4015	1,3-Dinitrobenzene	12/7/2000	ND	0.09	U	ug/L
MW-4015	1,3-Dinitrobenzene	6/22/2001	ND	0.09	U	ug/L
MW-4015	1,3-Dinitrobenzene	12/20/2001	ND	0.09	U	ug/L
MW-4015	1,3-Dinitrobenzene	1/23/2002	ND	0.09	U	ug/L
MW-4015	1,3-Dinitrobenzene	3/14/2002	ND	0.09	U	ug/L
MW-4015	1,3-Dinitrobenzene	8/15/2002	ND	0.09	U	ug/L
MW-4015	1,3-Dinitrobenzene	2/11/2003	ND	0.05	U	ug/L
MW-4015	1,3-Dinitrobenzene	5/12/2003	ND	0.05	U	ug/L
MW-4015	1,3-Dinitrobenzene	8/19/2003	ND	0.05	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	12/7/2000	ND	0.03	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	6/22/2001	ND	0.03	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	12/20/2001	ND	0.03	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	1/23/2002	0.11	0.03		ug/L
MW-4015	2,4,6-Trinitrotoluene	3/14/2002	ND	0.08	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	8/15/2002	ND	0.08	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	2/11/2003	ND	0.08	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4015	2,4,6-Trinitrotoluene	5/12/2003	ND	0.08	U	ug/L
MW-4015	2,4,6-Trinitrotoluene	8/19/2003	ND	0.08	U	ug/L
MW-4015	2,4-Dinitrotoluene	12/7/2000	0.073	0.03		ug/L
MW-4015	2,4-Dinitrotoluene	6/22/2001	ND	0.04	U	ug/L
MW-4015	2,4-Dinitrotoluene	12/20/2001	0.067	0.04		ug/L
MW-4015	2,4-Dinitrotoluene	1/23/2002	0.073	0.04		ug/L
MW-4015	2,4-Dinitrotoluene	3/14/2002	0.073	0.06		ug/L
MW-4015	2,4-Dinitrotoluene	8/15/2002	ND	0.06	U	ug/L
MW-4015	2,4-Dinitrotoluene	2/11/2003	ND	0.06	U	ug/L
MW-4015	2,4-Dinitrotoluene	5/12/2003	0.082	0.06		ug/L
MW-4015	2,4-Dinitrotoluene	8/19/2003	0.47	0.06		ug/L
MW-4015	2,6-Dinitrotoluene	12/7/2000	0.87	0.01		ug/L
MW-4015	2,6-Dinitrotoluene	6/22/2001	0.42	0.06		ug/L
MW-4015	2,6-Dinitrotoluene	12/20/2001	0.77	0.06		ug/L
MW-4015	2,6-Dinitrotoluene	1/23/2002	0.78	0.06		ug/L
MW-4015	2,6-Dinitrotoluene	3/14/2002	0.81	0.1		ug/L
MW-4015	2,6-Dinitrotoluene	8/15/2002	0.71	0.1		ug/L
MW-4015	2,6-Dinitrotoluene	2/11/2003	0.65	0.1		ug/L
MW-4015	2,6-Dinitrotoluene	5/12/2003	0.95	0.13		ug/L
MW-4015	2,6-Dinitrotoluene	8/19/2003	1.1	0.13		ug/L
MW-4015	2-Amino-4,6-dinitrotoluene	1/23/2002	2.4	0.03		ug/L
MW-4015	2-Amino-4,6-dinitrotoluene	3/14/2002	2.4	0.03		ug/L
MW-4015	2-Amino-4,6-dinitrotoluene	2/11/2003	2.2	0.05		ug/L
MW-4015	2-Amino-4,6-dinitrotoluene	5/12/2003	2.5	0.05		ug/L
MW-4015	2-Amino-4,6-dinitrotoluene	8/19/2003	2.3	0.05		ug/L
MW-4015	2-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L
MW-4015	2-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-4015	2-Nitrotoluene	2/11/2003	ND	0.07	U	ug/L
MW-4015	2-Nitrotoluene	5/12/2003	ND	0.11	U	ug/L
MW-4015	2-Nitrotoluene	8/19/2003	0.75	0.11		ug/L
MW-4015	3-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L
MW-4015	3-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-4015	3-Nitrotoluene	2/11/2003	ND	0.07	U	ug/L
MW-4015	3-Nitrotoluene	5/12/2003	ND	0.07	U	ug/L
MW-4015	3-Nitrotoluene	8/19/2003	ND	0.07	U	ug/L
MW-4015	4-Amino-2,6-dinitrotoluene	1/23/2002	3	0.03		ug/L
MW-4015	4-Amino-2,6-dinitrotoluene	3/14/2002	2.9	0.03		ug/L
MW-4015	4-Amino-2,6-dinitrotoluene	2/11/2003	2.7	0.07		ug/L
MW-4015	4-Amino-2,6-dinitrotoluene	5/12/2003	3	0.07		ug/L
MW-4015	4-Amino-2,6-dinitrotoluene	8/19/2003	2.6	0.07		ug/L
MW-4015	4-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4015	4-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-4015	4-Nitrotoluene	2/11/2003	ND	0.04	U	ug/L
MW-4015	4-Nitrotoluene	5/12/2003	ND	0.05	U	ug/L
MW-4015	4-Nitrotoluene	8/19/2003	ND	0.05	U	ug/L
MW-4015	Nitrobenzene	12/7/2000	ND	0.03	U	ug/L
MW-4015	Nitrobenzene	6/22/2001	ND	0.03	U	ug/L
MW-4015	Nitrobenzene	12/20/2001	ND	0.03	U	ug/L
MW-4015	Nitrobenzene	1/23/2002	ND	0.03	U	ug/L
MW-4015	Nitrobenzene	3/14/2002	0.32	0.08		ug/L
MW-4015	Nitrobenzene	8/15/2002	ND	0.08	U	ug/L
MW-4015	Nitrobenzene	2/11/2003	ND	0.08	U	ug/L
MW-4015	Nitrobenzene	5/12/2003	ND	0.08	U	ug/L
MW-4015	Nitrobenzene	8/19/2003	ND	0.08	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	1,3,5-Trinitrobenzene	12/11/2000	ND	0.6	U	ug/L
MW-2049	1,3,5-Trinitrobenzene	1/23/2001	ND	1.2	U	ug/L
MW-2049	1,3,5-Trinitrobenzene	2/21/2001	0.078	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	3/26/2001	0.31	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	5/22/2001	0.24	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	7/6/2001	0.12	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	10/9/2001	0.39	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	12/5/2001	0.81	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	1/21/2002	0.59	0.03		ug/L
MW-2049	1,3,5-Trinitrobenzene	3/13/2002	0.33	0.04		ug/L
MW-2049	1,3,5-Trinitrobenzene	5/28/2002	0.22	0.04		ug/L
MW-2049	1,3,5-Trinitrobenzene	7/2/2002	0.27	0.04		ug/L
MW-2049	1,3,5-Trinitrobenzene	9/17/2002	ND	0.04	U	ug/L
MW-2049	1,3,5-Trinitrobenzene	11/18/2002	0.21	0.04		ug/L
MW-2049	1,3,5-Trinitrobenzene	3/18/2003	0.18	0.04		ug/L
MW-2049	1,3,5-Trinitrobenzene	6/18/2003	0.19	0.08		ug/L
MW-2049	1,3,5-Trinitrobenzene	9/16/2003	0.15	0.08		ug/L
MW-2049	1,3-Dinitrobenzene	12/11/2000	ND	1.8	U	ug/L
MW-2049	1,3-Dinitrobenzene	1/23/2001	ND	3.6	U	ug/L
MW-2049	1,3-Dinitrobenzene	2/21/2001	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	3/26/2001	0.1	0.09		ug/L
MW-2049	1,3-Dinitrobenzene	5/22/2001	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	7/6/2001	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	10/9/2001	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	12/5/2001	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	1/21/2002	0.099	0.09		ug/L
MW-2049	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	5/28/2002	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	7/2/2002	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	9/17/2002	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	11/18/2002	ND	0.09	U	ug/L
MW-2049	1,3-Dinitrobenzene	3/18/2003	ND	0.05	U	ug/L
MW-2049	1,3-Dinitrobenzene	6/18/2003	ND	0.05	U	ug/L
MW-2049	1,3-Dinitrobenzene	9/16/2003	ND	0.05	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	12/11/2000	ND	0.6	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	1/23/2001	ND	1.2	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	2/21/2001	ND	0.03	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	3/26/2001	ND	0.03	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	5/22/2001	ND	0.03	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	7/6/2001	ND	0.03	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	10/9/2001	2.4	0.03		ug/L
MW-2049	2,4,6-Trinitrotoluene	12/5/2001	5.5	0.03		ug/L
MW-2049	2,4,6-Trinitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	3/13/2002	ND	0.08	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	5/28/2002	1.2	0.08		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	2,4,6-Trinitrotoluene	7/2/2002	ND	0.08	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	9/17/2002	ND	0.08	U	ug/L
MW-2049	2,4,6-Trinitrotoluene	11/18/2002	1.2	0.08		ug/L
MW-2049	2,4,6-Trinitrotoluene	3/18/2003	0.67	0.08		ug/L
MW-2049	2,4,6-Trinitrotoluene	6/18/2003	0.78	0.08		ug/L
MW-2049	2,4,6-Trinitrotoluene	9/16/2003	0.87	0.08		ug/L
MW-2049	2,4-Dinitrotoluene	12/11/2000	ND	0.6	U	ug/L
MW-2049	2,4-Dinitrotoluene	1/23/2001	37	1.2		ug/L
MW-2049	2,4-Dinitrotoluene	2/21/2001	13	0.03		ug/L
MW-2049	2,4-Dinitrotoluene	3/26/2001	41	0.8		ug/L
MW-2049	2,4-Dinitrotoluene	5/22/2001	42	0.4		ug/L
MW-2049	2,4-Dinitrotoluene	7/6/2001	8.2	0.04		ug/L
MW-2049	2,4-Dinitrotoluene	10/9/2001	22	0.2		ug/L
MW-2049	2,4-Dinitrotoluene	12/5/2001	78	0.8		ug/L
MW-2049	2,4-Dinitrotoluene	1/21/2002	43	0.8		ug/L
MW-2049	2,4-Dinitrotoluene	3/13/2002	19	0.84		ug/L
MW-2049	2,4-Dinitrotoluene	5/28/2002	17	0.6		ug/L
MW-2049	2,4-Dinitrotoluene	7/2/2002	20	3		ug/L
MW-2049	2,4-Dinitrotoluene	9/17/2002	7.3	0.06		ug/L
MW-2049	2,4-Dinitrotoluene	11/18/2002	1	0.06		ug/L
MW-2049	2,4-Dinitrotoluene	3/18/2003	0.59	0.06		ug/L
MW-2049	2,4-Dinitrotoluene	6/18/2003	1	0.06		ug/L
MW-2049	2,4-Dinitrotoluene	9/16/2003	ND	0.06	U	ug/L
MW-2049	2,6-Dinitrotoluene	12/11/2000	116	0.2		ug/L
MW-2049	2,6-Dinitrotoluene	1/23/2001	130	2.4		ug/L
MW-2049	2,6-Dinitrotoluene	2/21/2001	60	0.06		ug/L
MW-2049	2,6-Dinitrotoluene	3/26/2001	84	1.2		ug/L
MW-2049	2,6-Dinitrotoluene	5/22/2001	67	0.6		ug/L
MW-2049	2,6-Dinitrotoluene	7/6/2001	34	0.06		ug/L
MW-2049	2,6-Dinitrotoluene	10/9/2001	39	0.3		ug/L
MW-2049	2,6-Dinitrotoluene	12/5/2001	160	1.2		ug/L
MW-2049	2,6-Dinitrotoluene	1/21/2002	95	1.2		ug/L
MW-2049	2,6-Dinitrotoluene	3/13/2002	72	1.4		ug/L
MW-2049	2,6-Dinitrotoluene	5/28/2002	65	1		ug/L
MW-2049	2,6-Dinitrotoluene	7/2/2002	65	5		ug/L
MW-2049	2,6-Dinitrotoluene	9/17/2002	38	0.1		ug/L
MW-2049	2,6-Dinitrotoluene	11/18/2002	47	0.1		ug/L
MW-2049	2,6-Dinitrotoluene	3/18/2003	41	0.1		ug/L
MW-2049	2,6-Dinitrotoluene	6/18/2003	58	0.13		ug/L
MW-2049	2,6-Dinitrotoluene	9/16/2003	51	0.13		ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	1/23/2001	1.7	1.2		ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	2/21/2001	1.7	0.03		ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	3/26/2001	1.8	0.03		ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	3/13/2002	2.1	0.03		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	2-Amino-4,6-dinitrotoluene	3/18/2003	1.1	0.05		ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	6/18/2003	1.6	0.05		ug/L
MW-2049	2-Amino-4,6-dinitrotoluene	9/16/2003	1.6	0.05		ug/L
MW-2049	2-Nitrotoluene	1/23/2001	180	1.2		ug/L
MW-2049	2-Nitrotoluene	2/21/2001	150	0.6		ug/L
MW-2049	2-Nitrotoluene	3/26/2001	120	0.6		ug/L
MW-2049	2-Nitrotoluene	1/21/2002	120	0.6		ug/L
MW-2049	2-Nitrotoluene	3/13/2002	100	0.42		ug/L
MW-2049	2-Nitrotoluene	3/18/2003	6.6	0.07		ug/L
MW-2049	2-Nitrotoluene	6/18/2003	11	0.11		ug/L
MW-2049	2-Nitrotoluene	9/16/2003	10	0.11		ug/L
MW-2049	3-Nitrotoluene	1/23/2001	ND	1.2	U	ug/L
MW-2049	3-Nitrotoluene	2/21/2001	7.5	0.03		ug/L
MW-2049	3-Nitrotoluene	3/26/2001	6.9	0.03		ug/L
MW-2049	3-Nitrotoluene	1/21/2002	7	0.03		ug/L
MW-2049	3-Nitrotoluene	3/13/2002	5.3	0.03		ug/L
MW-2049	3-Nitrotoluene	3/18/2003	0.69	0.07		ug/L
MW-2049	3-Nitrotoluene	6/18/2003	0.81	0.07		ug/L
MW-2049	3-Nitrotoluene	9/16/2003	0.68	0.07		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	1/23/2001	ND	1.2	U	ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	2/21/2001	2.4	0.03		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	3/26/2001	2.5	0.03		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	1/21/2002	4	0.03		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	3/13/2002	3.1	0.03		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	3/18/2003	1.7	0.07		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	6/18/2003	2.4	0.07		ug/L
MW-2049	4-Amino-2,6-dinitrotoluene	9/16/2003	2.4	0.07		ug/L
MW-2049	4-Nitrotoluene	1/23/2001	7.4	1.2		ug/L
MW-2049	4-Nitrotoluene	2/21/2001	0.39	0.03		ug/L
MW-2049	4-Nitrotoluene	3/26/2001	4.6	0.03		ug/L
MW-2049	4-Nitrotoluene	1/21/2002	2.8	0.03		ug/L
MW-2049	4-Nitrotoluene	3/13/2002	0.99	0.03		ug/L
MW-2049	4-Nitrotoluene	3/18/2003	ND	0.04	U	ug/L
MW-2049	4-Nitrotoluene	6/18/2003	0.13	0.05		ug/L
MW-2049	4-Nitrotoluene	9/16/2003	ND	0.05	U	ug/L
MW-2049	Nitrobenzene	12/11/2000	ND	0.6	U	ug/L
MW-2049	Nitrobenzene	1/23/2001	ND	1.2	U	ug/L
MW-2049	Nitrobenzene	2/21/2001	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	3/26/2001	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	5/22/2001	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	7/6/2001	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	1/21/2002	ND	0.03	U	ug/L
MW-2049	Nitrobenzene	3/13/2002	2.7	0.08		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2049	Nitrobenzene	7/2/2002	ND	0.08	U	ug/L
MW-2049	Nitrobenzene	9/17/2002	ND	0.08	U	ug/L
MW-2049	Nitrobenzene	11/18/2002	ND	0.08	U	ug/L
MW-2049	Nitrobenzene	3/18/2003	ND	0.08	U	ug/L
MW-2049	Nitrobenzene	6/18/2003	ND	0.08	U	ug/L
MW-2049	Nitrobenzene	9/16/2003	ND	0.08	U	ug/L
MW-2050	1,3,5-Trinitrobenzene	12/11/2000	ND	0.03	U	ug/L
MW-2050	1,3,5-Trinitrobenzene	1/23/2001	2.1	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	2/21/2001	1.9	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	3/26/2001	1.9	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	5/22/2001	1.3	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	7/6/2001	1.1	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	10/9/2001	5.4	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	12/5/2001	7.3	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	1/21/2002	7.9	0.03		ug/L
MW-2050	1,3,5-Trinitrobenzene	3/13/2002	4.7	0.04		ug/L
MW-2050	1,3,5-Trinitrobenzene	5/29/2002	4.4	0.04		ug/L
MW-2050	1,3,5-Trinitrobenzene	7/2/2002	4	0.04		ug/L
MW-2050	1,3,5-Trinitrobenzene	9/16/2002	4.3	0.04		ug/L
MW-2050	1,3,5-Trinitrobenzene	11/18/2002	7.7	0.04		ug/L
MW-2050	1,3,5-Trinitrobenzene	3/18/2003	4.9	0.04		ug/L
MW-2050	1,3,5-Trinitrobenzene	6/18/2003	6.9	0.08		ug/L
MW-2050	1,3,5-Trinitrobenzene	9/16/2003	8	0.08		ug/L
MW-2050	1,3-Dinitrobenzene	12/11/2000	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	1/23/2001	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	2/21/2001	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	3/26/2001	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	5/22/2001	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	7/6/2001	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	10/9/2001	0.19	0.09		ug/L
MW-2050	1,3-Dinitrobenzene	12/5/2001	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	1/21/2002	0.24	0.09		ug/L
MW-2050	1,3-Dinitrobenzene	3/13/2002	0.16	0.09		ug/L
MW-2050	1,3-Dinitrobenzene	5/29/2002	0.19	0.09		ug/L
MW-2050	1,3-Dinitrobenzene	7/2/2002	ND	0.09	U	ug/L
MW-2050	1,3-Dinitrobenzene	9/16/2002	0.13	0.09		ug/L
MW-2050	1,3-Dinitrobenzene	11/18/2002	0.32	0.09		ug/L
MW-2050	1,3-Dinitrobenzene	3/18/2003	ND	0.05	U	ug/L
MW-2050	1,3-Dinitrobenzene	6/18/2003	0.22	0.05		ug/L
MW-2050	1,3-Dinitrobenzene	9/16/2003	0.23	0.05		ug/L
MW-2050	2,4,6-Trinitrotoluene	12/11/2000	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	1/23/2001	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	2/21/2001	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	3/26/2001	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2050	2,4,6-Trinitrotoluene	5/22/2001	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	7/6/2001	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	10/9/2001	0.46	0.03		ug/L
MW-2050	2,4,6-Trinitrotoluene	12/5/2001	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	1/21/2002	ND	0.03	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	3/13/2002	ND	0.08	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	5/29/2002	ND	0.08	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	7/2/2002	ND	0.08	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	9/16/2002	ND	0.08	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	11/18/2002	0.73	0.08		ug/L
MW-2050	2,4,6-Trinitrotoluene	3/18/2003	0.36	0.08		ug/L
MW-2050	2,4,6-Trinitrotoluene	6/18/2003	ND	0.08	U	ug/L
MW-2050	2,4,6-Trinitrotoluene	9/16/2003	ND	0.08	U	ug/L
MW-2050	2,4-Dinitrotoluene	12/11/2000	0.3	0.03		ug/L
MW-2050	2,4-Dinitrotoluene	1/23/2001	0.48	0.03		ug/L
MW-2050	2,4-Dinitrotoluene	2/21/2001	0.74	0.03		ug/L
MW-2050	2,4-Dinitrotoluene	3/26/2001	0.62	0.04		ug/L
MW-2050	2,4-Dinitrotoluene	5/22/2001	7.7	0.04		ug/L
MW-2050	2,4-Dinitrotoluene	7/6/2001	12	0.04		ug/L
MW-2050	2,4-Dinitrotoluene	10/9/2001	28	0.16		ug/L
MW-2050	2,4-Dinitrotoluene	12/5/2001	32	0.2		ug/L
MW-2050	2,4-Dinitrotoluene	1/21/2002	40	1.4		ug/L
MW-2050	2,4-Dinitrotoluene	3/13/2002	29	0.24		ug/L
MW-2050	2,4-Dinitrotoluene	5/29/2002	20	0.18		ug/L
MW-2050	2,4-Dinitrotoluene	7/2/2002	26	0.06		ug/L
MW-2050	2,4-Dinitrotoluene	9/16/2002	30	0.06		ug/L
MW-2050	2,4-Dinitrotoluene	11/18/2002	45	0.06		ug/L
MW-2050	2,4-Dinitrotoluene	3/18/2003	26	0.30043956		ug/L
MW-2050	2,4-Dinitrotoluene	6/18/2003	41	0.316021978		ug/L
MW-2050	2,4-Dinitrotoluene	9/16/2003	39	0.331604396		ug/L
MW-2050	2,6-Dinitrotoluene	12/11/2000	3.9	0.01		ug/L
MW-2050	2,6-Dinitrotoluene	1/23/2001	1.8	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	2/21/2001	2.2	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	3/26/2001	2.2	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	5/22/2001	1.4	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	7/6/2001	1.2	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	10/9/2001	2.5	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	12/5/2001	4.7	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	1/21/2002	5	0.06		ug/L
MW-2050	2,6-Dinitrotoluene	3/13/2002	3.5	0.1		ug/L
MW-2050	2,6-Dinitrotoluene	5/29/2002	3.5	0.1		ug/L
MW-2050	2,6-Dinitrotoluene	7/2/2002	4.5	0.1		ug/L
MW-2050	2,6-Dinitrotoluene	9/16/2002	7.8	0.1		ug/L
MW-2050	2,6-Dinitrotoluene	11/18/2002	11	0.1		ug/L
MW-2050	2,6-Dinitrotoluene	3/18/2003	10	0.1		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2050	2,6-Dinitrotoluene	6/18/2003	18	0.13		ug/L
MW-2050	2,6-Dinitrotoluene	9/16/2003	21	0.13		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	1/23/2001	1	0.03		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	2/21/2001	1.2	0.03		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	3/26/2001	1.5	0.03		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	1/21/2002	1.7	0.03		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	3/13/2002	1.1	0.03		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	3/18/2003	2.3	0.05		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	6/18/2003	3	0.05		ug/L
MW-2050	2-Amino-4,6-dinitrotoluene	9/16/2003	3.2	0.05		ug/L
MW-2050	2-Nitrotoluene	1/23/2001	1.6	0.03		ug/L
MW-2050	2-Nitrotoluene	2/21/2001	1.8	0.03		ug/L
MW-2050	2-Nitrotoluene	3/26/2001	1.8	0.03		ug/L
MW-2050	2-Nitrotoluene	1/21/2002	6.4	0.03		ug/L
MW-2050	2-Nitrotoluene	3/13/2002	4.5	0.03		ug/L
MW-2050	2-Nitrotoluene	3/18/2003	13	0.07		ug/L
MW-2050	2-Nitrotoluene	6/18/2003	20	0.11		ug/L
MW-2050	2-Nitrotoluene	9/16/2003	23	0.11		ug/L
MW-2050	3-Nitrotoluene	1/23/2001	ND	0.03	U	ug/L
MW-2050	3-Nitrotoluene	2/21/2001	0.15	0.03		ug/L
MW-2050	3-Nitrotoluene	3/26/2001	0.3	0.03		ug/L
MW-2050	3-Nitrotoluene	1/21/2002	0.44	0.03		ug/L
MW-2050	3-Nitrotoluene	3/13/2002	3.1	0.03		ug/L
MW-2050	3-Nitrotoluene	3/18/2003	0.87	0.07		ug/L
MW-2050	3-Nitrotoluene	6/18/2003	1.5	0.07		ug/L
MW-2050	3-Nitrotoluene	9/16/2003	1.8	0.07		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	1/23/2001	1.6	0.03		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	2/21/2001	1.8	0.03		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	3/26/2001	2	0.03		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	1/21/2002	2.6	0.03		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	3/18/2003	2.3	0.07		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	6/18/2003	3	0.07		ug/L
MW-2050	4-Amino-2,6-dinitrotoluene	9/16/2003	3.1	0.07		ug/L
MW-2050	4-Nitrotoluene	1/23/2001	0.16	0.03		ug/L
MW-2050	4-Nitrotoluene	2/21/2001	ND	0.03	U	ug/L
MW-2050	4-Nitrotoluene	3/26/2001	ND	0.03	U	ug/L
MW-2050	4-Nitrotoluene	1/21/2002	2.2	0.03		ug/L
MW-2050	4-Nitrotoluene	3/13/2002	2	0.03		ug/L
MW-2050	4-Nitrotoluene	3/18/2003	3.7	0.04		ug/L
MW-2050	4-Nitrotoluene	6/18/2003	6.1	0.05		ug/L
MW-2050	4-Nitrotoluene	9/16/2003	6.5	0.05		ug/L
MW-2050	Nitrobenzene	12/11/2000	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	1/23/2001	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	2/21/2001	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2050	Nitrobenzene	3/26/2001	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	5/22/2001	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	7/6/2001	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	1/21/2002	ND	0.03	U	ug/L
MW-2050	Nitrobenzene	3/13/2002	0.35	0.08		ug/L
MW-2050	Nitrobenzene	5/29/2002	ND	0.08	U	ug/L
MW-2050	Nitrobenzene	7/2/2002	ND	0.08	U	ug/L
MW-2050	Nitrobenzene	9/16/2002	ND	0.08	U	ug/L
MW-2050	Nitrobenzene	11/18/2002	ND	0.08	U	ug/L
MW-2050	Nitrobenzene	3/18/2003	ND	0.08	U	ug/L
MW-2050	Nitrobenzene	6/18/2003	ND	0.08	U	ug/L
MW-2050	Nitrobenzene	9/16/2003	ND	0.08	U	ug/L
MW-2052	1,3,5-Trinitrobenzene	1/17/2002	2.8	0.03		ug/L
MW-2052	1,3,5-Trinitrobenzene	2/13/2002	2.9	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	3/13/2002	2.8	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	5/28/2002	2.9	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	7/1/2002	2.2	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	9/12/2002	2.5	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	11/11/2002	3.7	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	3/17/2003	2.6	0.04		ug/L
MW-2052	1,3,5-Trinitrobenzene	6/17/2003	3.4	0.08		ug/L
MW-2052	1,3,5-Trinitrobenzene	9/18/2003	3.1	0.08		ug/L
MW-2052	1,3-Dinitrobenzene	1/17/2002	ND	0.09	U	ug/L
MW-2052	1,3-Dinitrobenzene	2/13/2002	0.057	0.09	J	ug/L
MW-2052	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-2052	1,3-Dinitrobenzene	5/28/2002	ND	0.09	U	ug/L
MW-2052	1,3-Dinitrobenzene	7/1/2002	ND	0.09	U	ug/L
MW-2052	1,3-Dinitrobenzene	9/12/2002	ND	0.09	U	ug/L
MW-2052	1,3-Dinitrobenzene	11/11/2002	0.1	0.09		ug/L
MW-2052	1,3-Dinitrobenzene	3/17/2003	ND	0.05	U	ug/L
MW-2052	1,3-Dinitrobenzene	6/17/2003	ND	0.05	U	ug/L
MW-2052	1,3-Dinitrobenzene	9/18/2003	0.043	0.05	J	ug/L
MW-2052	2,4,6-Trinitrotoluene	1/17/2002	0.49	0.03		ug/L
MW-2052	2,4,6-Trinitrotoluene	2/13/2002	0.5	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	3/13/2002	0.39	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	5/28/2002	0.39	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	7/1/2002	ND	0.08	U	ug/L
MW-2052	2,4,6-Trinitrotoluene	9/12/2002	0.47	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	11/11/2002	0.6	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	3/17/2003	0.42	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	6/17/2003	0.47	0.08		ug/L
MW-2052	2,4,6-Trinitrotoluene	9/18/2003	0.61	0.08		ug/L
MW-2052	2,4-Dinitrotoluene	1/17/2002	0.13	0.04		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2052	2,4-Dinitrotoluene	2/13/2002	0.12	0.06		ug/L
MW-2052	2,4-Dinitrotoluene	3/13/2002	0.1	0.06		ug/L
MW-2052	2,4-Dinitrotoluene	5/28/2002	0.094	0.06		ug/L
MW-2052	2,4-Dinitrotoluene	7/1/2002	ND	0.06	U	ug/L
MW-2052	2,4-Dinitrotoluene	9/12/2002	ND	0.06	U	ug/L
MW-2052	2,4-Dinitrotoluene	11/11/2002	0.12	0.06		ug/L
MW-2052	2,4-Dinitrotoluene	3/17/2003	ND	0.06	U	ug/L
MW-2052	2,4-Dinitrotoluene	6/17/2003	0.11	0.06		ug/L
MW-2052	2,4-Dinitrotoluene	9/18/2003	0.11	0.06		ug/L
MW-2052	2,6-Dinitrotoluene	1/17/2002	0.36	0.06		ug/L
MW-2052	2,6-Dinitrotoluene	2/13/2002	0.38	0.1		ug/L
MW-2052	2,6-Dinitrotoluene	3/13/2002	0.28	0.1		ug/L
MW-2052	2,6-Dinitrotoluene	5/28/2002	0.26	0.1		ug/L
MW-2052	2,6-Dinitrotoluene	7/1/2002	ND	0.1	U	ug/L
MW-2052	2,6-Dinitrotoluene	9/12/2002	ND	0.1	U	ug/L
MW-2052	2,6-Dinitrotoluene	11/11/2002	0.23	0.1		ug/L
MW-2052	2,6-Dinitrotoluene	3/17/2003	ND	0.1	U	ug/L
MW-2052	2,6-Dinitrotoluene	6/17/2003	0.32	0.13		ug/L
MW-2052	2,6-Dinitrotoluene	9/18/2003	0.39	0.13		ug/L
MW-2052	2-Amino-4,6-dinitrotoluene	1/17/2002	3.2	0.03		ug/L
MW-2052	2-Amino-4,6-dinitrotoluene	2/13/2002	2.9	0.03		ug/L
MW-2052	2-Amino-4,6-dinitrotoluene	3/13/2002	2.1	0.03		ug/L
MW-2052	2-Amino-4,6-dinitrotoluene	3/17/2003	1.7	0.05		ug/L
MW-2052	2-Amino-4,6-dinitrotoluene	6/17/2003	1.8	0.05		ug/L
MW-2052	2-Amino-4,6-dinitrotoluene	9/18/2003	2.3	0.05		ug/L
MW-2052	2-Nitrotoluene	1/17/2002	0.31	0.03		ug/L
MW-2052	2-Nitrotoluene	2/13/2002	0.31	0.03		ug/L
MW-2052	2-Nitrotoluene	3/13/2002	0.21	0.03		ug/L
MW-2052	2-Nitrotoluene	3/17/2003	ND	0.07	U	ug/L
MW-2052	2-Nitrotoluene	6/17/2003	1.1	0.11		ug/L
MW-2052	2-Nitrotoluene	9/18/2003	0.19	0.11		ug/L
MW-2052	3-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-2052	3-Nitrotoluene	2/13/2002	ND	0.03	U	ug/L
MW-2052	3-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2052	3-Nitrotoluene	3/17/2003	ND	0.07	U	ug/L
MW-2052	3-Nitrotoluene	6/17/2003	ND	0.07	U	ug/L
MW-2052	3-Nitrotoluene	9/18/2003	ND	0.07	U	ug/L
MW-2052	4-Amino-2,6-dinitrotoluene	1/17/2002	1.5	0.03		ug/L
MW-2052	4-Amino-2,6-dinitrotoluene	2/13/2002	1.3	0.03		ug/L
MW-2052	4-Amino-2,6-dinitrotoluene	3/13/2002	1	0.03		ug/L
MW-2052	4-Amino-2,6-dinitrotoluene	3/17/2003	0.73	0.07		ug/L
MW-2052	4-Amino-2,6-dinitrotoluene	6/17/2003	0.9	0.07		ug/L
MW-2052	4-Amino-2,6-dinitrotoluene	9/18/2003	1	0.07		ug/L
MW-2052	4-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-2052	4-Nitrotoluene	2/13/2002	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2052	4-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2052	4-Nitrotoluene	3/17/2003	ND	0.04	U	ug/L
MW-2052	4-Nitrotoluene	6/17/2003	0.39	0.05		ug/L
MW-2052	4-Nitrotoluene	9/18/2003	ND	0.05	U	ug/L
MW-2052	Nitrobenzene	1/17/2002	0.082	0.03		ug/L
MW-2052	Nitrobenzene	2/13/2002	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	3/13/2002	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	7/1/2002	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	9/12/2002	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	11/11/2002	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	3/17/2003	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	6/17/2003	ND	0.08	U	ug/L
MW-2052	Nitrobenzene	9/18/2003	ND	0.08	U	ug/L
MW-2053	1,3,5-Trinitrobenzene	1/17/2002	8.3	0.03		ug/L
MW-2053	1,3,5-Trinitrobenzene	2/13/2002	7.9	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	3/13/2002	7.1	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	5/28/2002	7.2	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	7/1/2002	6.9	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	9/12/2002	7	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	11/11/2002	9.2	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	3/17/2003	5.7	0.04		ug/L
MW-2053	1,3,5-Trinitrobenzene	6/17/2003	7.8	0.08		ug/L
MW-2053	1,3,5-Trinitrobenzene	9/17/2003	6.1	0.08		ug/L
MW-2053	1,3-Dinitrobenzene	1/17/2002	ND	0.09	U	ug/L
MW-2053	1,3-Dinitrobenzene	2/13/2002	ND	0.09	U	ug/L
MW-2053	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-2053	1,3-Dinitrobenzene	5/28/2002	ND	0.09	U	ug/L
MW-2053	1,3-Dinitrobenzene	7/1/2002	ND	0.09	U	ug/L
MW-2053	1,3-Dinitrobenzene	9/12/2002	0.17	0.09		ug/L
MW-2053	1,3-Dinitrobenzene	11/11/2002	0.23	0.09		ug/L
MW-2053	1,3-Dinitrobenzene	3/17/2003	ND	0.05	U	ug/L
MW-2053	1,3-Dinitrobenzene	6/17/2003	ND	0.05	U	ug/L
MW-2053	1,3-Dinitrobenzene	9/17/2003	0.034	0.05	J	ug/L
MW-2053	2,4,6-Trinitrotoluene	1/17/2002	7.6	0.03		ug/L
MW-2053	2,4,6-Trinitrotoluene	2/13/2002	7.3	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	3/13/2002	6.3	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	5/28/2002	6.2	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	7/1/2002	ND	0.08	U	ug/L
MW-2053	2,4,6-Trinitrotoluene	9/12/2002	6.9	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	11/11/2002	9.9	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	3/17/2003	6.2	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	6/17/2003	8.7	0.08		ug/L
MW-2053	2,4,6-Trinitrotoluene	9/17/2003	7.1	0.08		ug/L
MW-2053	2,4-Dinitrotoluene	1/17/2002	0.33	0.04		ug/L

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MW-2053	2,4-Dinitrotoluene	2/13/2002	0.22	0.06		ug/L
MW-2053	2,4-Dinitrotoluene	3/13/2002	0.2	0.06		ug/L
MW-2053	2,4-Dinitrotoluene	5/28/2002	0.12	0.06		ug/L
MW-2053	2,4-Dinitrotoluene	7/1/2002	ND	0.06	U	ug/L
MW-2053	2,4-Dinitrotoluene	9/12/2002	ND	0.06	U	ug/L
MW-2053	2,4-Dinitrotoluene	11/11/2002	0.21	0.06		ug/L
MW-2053	2,4-Dinitrotoluene	3/17/2003	ND	0.06	U	ug/L
MW-2053	2,4-Dinitrotoluene	6/17/2003	ND	0.06	U	ug/L
MW-2053	2,4-Dinitrotoluene	9/17/2003	ND	0.06	U	ug/L
MW-2053	2,6-Dinitrotoluene	1/17/2002	25	0.96		ug/L
MW-2053	2,6-Dinitrotoluene	2/13/2002	0.99	0.1		ug/L
MW-2053	2,6-Dinitrotoluene	3/13/2002	1.4	0.1		ug/L
MW-2053	2,6-Dinitrotoluene	5/28/2002	4.8	0.1		ug/L
MW-2053	2,6-Dinitrotoluene	7/1/2002	ND	0.1	U	ug/L
MW-2053	2,6-Dinitrotoluene	9/12/2002	4.9	0.1		ug/L
MW-2053	2,6-Dinitrotoluene	11/11/2002	5.5	0.1		ug/L
MW-2053	2,6-Dinitrotoluene	3/17/2003	2.5	0.1		ug/L
MW-2053	2,6-Dinitrotoluene	6/17/2003	4.5	0.13		ug/L
MW-2053	2,6-Dinitrotoluene	9/17/2003	4	0.13		ug/L
MW-2053	2-Amino-4,6-dinitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-2053	2-Amino-4,6-dinitrotoluene	2/13/2002	2.6	0.03		ug/L
MW-2053	2-Amino-4,6-dinitrotoluene	3/13/2002	2.1	0.03		ug/L
MW-2053	2-Amino-4,6-dinitrotoluene	3/17/2003	2.7	0.05		ug/L
MW-2053	2-Amino-4,6-dinitrotoluene	6/17/2003	3.8	0.05		ug/L
MW-2053	2-Amino-4,6-dinitrotoluene	9/17/2003	3.1	0.05		ug/L
MW-2053	2-Nitrotoluene	1/17/2002	0.78	0.03		ug/L
MW-2053	2-Nitrotoluene	2/13/2002	0.43	0.03		ug/L
MW-2053	2-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2053	2-Nitrotoluene	3/17/2003	ND	0.07	U	ug/L
MW-2053	2-Nitrotoluene	6/17/2003	ND	0.11	U	ug/L
MW-2053	2-Nitrotoluene	9/17/2003	0.35	0.11		ug/L
MW-2053	3-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-2053	3-Nitrotoluene	2/13/2002	ND	0.03	U	ug/L
MW-2053	3-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2053	3-Nitrotoluene	3/17/2003	ND	0.07	U	ug/L
MW-2053	3-Nitrotoluene	6/17/2003	ND	0.07	U	ug/L
MW-2053	3-Nitrotoluene	9/17/2003	0.18	0.07		ug/L
MW-2053	4-Amino-2,6-dinitrotoluene	1/17/2002	2.6	0.03		ug/L
MW-2053	4-Amino-2,6-dinitrotoluene	2/13/2002	1.8	0.03		ug/L
MW-2053	4-Amino-2,6-dinitrotoluene	3/13/2002	1.6	0.03		ug/L
MW-2053	4-Amino-2,6-dinitrotoluene	3/17/2003	1.9	0.07		ug/L
MW-2053	4-Amino-2,6-dinitrotoluene	6/17/2003	2.7	0.07		ug/L
MW-2053	4-Amino-2,6-dinitrotoluene	9/17/2003	2.3	0.07		ug/L
MW-2053	4-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-2053	4-Nitrotoluene	2/13/2002	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2053	4-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2053	4-Nitrotoluene	3/17/2003	ND	0.04	U	ug/L
MW-2053	4-Nitrotoluene	6/17/2003	ND	0.05	U	ug/L
MW-2053	4-Nitrotoluene	9/17/2003	ND	0.05	U	ug/L
MW-2053	Nitrobenzene	1/17/2002	ND	0.03	U	ug/L
MW-2053	Nitrobenzene	2/13/2002	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	3/13/2002	2.4	0.08		ug/L
MW-2053	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	7/1/2002	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	9/12/2002	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	11/11/2002	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	3/17/2003	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	6/17/2003	ND	0.08	U	ug/L
MW-2053	Nitrobenzene	9/17/2003	ND	0.08	U	ug/L
MW-2054	1,3,5-Trinitrobenzene	1/17/2002	0.31	0.03		ug/L
MW-2054	1,3,5-Trinitrobenzene	2/13/2002	0.3	0.04		ug/L
MW-2054	1,3,5-Trinitrobenzene	3/13/2002	0.065	0.04		ug/L
MW-2054	1,3,5-Trinitrobenzene	5/28/2002	ND	0.04	U	ug/L
MW-2054	1,3,5-Trinitrobenzene	7/1/2002	ND	0.04	U	ug/L
MW-2054	1,3,5-Trinitrobenzene	9/12/2002	ND	0.04	U	ug/L
MW-2054	1,3,5-Trinitrobenzene	11/11/2002	0.099	0.04		ug/L
MW-2054	1,3,5-Trinitrobenzene	3/17/2003	0.17	0.04		ug/L
MW-2054	1,3,5-Trinitrobenzene	6/17/2003	0.46	0.08		ug/L
MW-2054	1,3,5-Trinitrobenzene	9/17/2003	0.18	0.08		ug/L
MW-2054	1,3-Dinitrobenzene	1/17/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	2/13/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	5/28/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	7/1/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	9/12/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	11/11/2002	ND	0.09	U	ug/L
MW-2054	1,3-Dinitrobenzene	3/17/2003	ND	0.05	U	ug/L
MW-2054	1,3-Dinitrobenzene	6/17/2003	0.056	0.05		ug/L
MW-2054	1,3-Dinitrobenzene	9/17/2003	0.048	0.05	J	ug/L
MW-2054	2,4,6-Trinitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	2/13/2002	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	3/13/2002	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	5/28/2002	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	7/1/2002	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	9/12/2002	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	11/11/2002	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	3/17/2003	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	6/17/2003	ND	0.08	U	ug/L
MW-2054	2,4,6-Trinitrotoluene	9/17/2003	ND	0.08	U	ug/L
MW-2054	2,4-Dinitrotoluene	1/17/2002	6.4	0.04		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2054	2,4-Dinitrotoluene	2/13/2002	7.2	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	3/13/2002	1.7	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	5/28/2002	0.075	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	7/1/2002	ND	0.06	U	ug/L
MW-2054	2,4-Dinitrotoluene	9/12/2002	0.073	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	11/11/2002	0.57	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	3/17/2003	1.5	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	6/17/2003	13	0.06		ug/L
MW-2054	2,4-Dinitrotoluene	9/17/2003	3.4	0.06		ug/L
MW-2054	2,6-Dinitrotoluene	1/17/2002	13	0.24		ug/L
MW-2054	2,6-Dinitrotoluene	2/13/2002	13	0.2		ug/L
MW-2054	2,6-Dinitrotoluene	3/13/2002	2.7	0.1		ug/L
MW-2054	2,6-Dinitrotoluene	5/28/2002	ND	0.1	U	ug/L
MW-2054	2,6-Dinitrotoluene	7/1/2002	ND	0.1	U	ug/L
MW-2054	2,6-Dinitrotoluene	9/12/2002	ND	0.1	U	ug/L
MW-2054	2,6-Dinitrotoluene	11/11/2002	2.1	0.1		ug/L
MW-2054	2,6-Dinitrotoluene	3/17/2003	7.2	0.1		ug/L
MW-2054	2,6-Dinitrotoluene	6/17/2003	32	0.13		ug/L
MW-2054	2,6-Dinitrotoluene	9/17/2003	13	0.13		ug/L
MW-2054	2-Amino-4,6-dinitrotoluene	1/17/2002	0.13	0.03		ug/L
MW-2054	2-Amino-4,6-dinitrotoluene	2/13/2002	0.12	0.03		ug/L
MW-2054	2-Amino-4,6-dinitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2054	2-Amino-4,6-dinitrotoluene	3/17/2003	0.091	0.05		ug/L
MW-2054	2-Amino-4,6-dinitrotoluene	6/17/2003	0.27	0.05		ug/L
MW-2054	2-Amino-4,6-dinitrotoluene	9/17/2003	0.14	0.05		ug/L
MW-2054	2-Nitrotoluene	1/17/2002	5.3	0.03		ug/L
MW-2054	2-Nitrotoluene	2/13/2002	6.2	0.03		ug/L
MW-2054	2-Nitrotoluene	3/13/2002	1.3	0.03		ug/L
MW-2054	2-Nitrotoluene	3/17/2003	0.73	0.07		ug/L
MW-2054	2-Nitrotoluene	6/17/2003	16	0.11		ug/L
MW-2054	2-Nitrotoluene	9/17/2003	3.5	0.11		ug/L
MW-2054	3-Nitrotoluene	1/17/2002	0.41	0.03		ug/L
MW-2054	3-Nitrotoluene	2/13/2002	0.38	0.03		ug/L
MW-2054	3-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2054	3-Nitrotoluene	3/17/2003	ND	0.07	U	ug/L
MW-2054	3-Nitrotoluene	6/17/2003	0.95	0.07		ug/L
MW-2054	3-Nitrotoluene	9/17/2003	0.39	0.07		ug/L
MW-2054	4-Amino-2,6-dinitrotoluene	1/17/2002	0.21	0.03		ug/L
MW-2054	4-Amino-2,6-dinitrotoluene	2/13/2002	0.22	0.03		ug/L
MW-2054	4-Amino-2,6-dinitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2054	4-Amino-2,6-dinitrotoluene	3/17/2003	0.15	0.07		ug/L
MW-2054	4-Amino-2,6-dinitrotoluene	6/17/2003	0.35	0.07		ug/L
MW-2054	4-Amino-2,6-dinitrotoluene	9/17/2003	0.19	0.07		ug/L
MW-2054	4-Nitrotoluene	1/17/2002	0.23	0.03		ug/L
MW-2054	4-Nitrotoluene	2/13/2002	0.21	0.03		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2054	4-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-2054	4-Nitrotoluene	3/17/2003	ND	0.04	U	ug/L
MW-2054	4-Nitrotoluene	6/17/2003	0.37	0.05		ug/L
MW-2054	4-Nitrotoluene	9/17/2003	0.1	0.05		ug/L
MW-2054	Nitrobenzene	1/17/2002	0.45	0.03		ug/L
MW-2054	Nitrobenzene	2/13/2002	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	3/13/2002	0.11	0.08		ug/L
MW-2054	Nitrobenzene	5/28/2002	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	7/1/2002	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	9/12/2002	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	11/11/2002	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	3/17/2003	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	6/17/2003	ND	0.08	U	ug/L
MW-2054	Nitrobenzene	9/17/2003	ND	0.08	U	ug/L
MW-4030	1,3,5-Trinitrobenzene	12/11/2000	0.16	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	1/23/2001	0.35	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	2/21/2001	0.88	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	3/27/2001	1.5	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	5/22/2001	1.7	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	7/6/2001	1.7	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	10/9/2001	1.8	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	12/5/2001	3.7	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	1/23/2002	4.2	0.03		ug/L
MW-4030	1,3,5-Trinitrobenzene	3/14/2002	4.1	0.04		ug/L
MW-4030	1,3,5-Trinitrobenzene	5/30/2002	2.6	0.04		ug/L
MW-4030	1,3,5-Trinitrobenzene	8/15/2002	4.1	0.04		ug/L
MW-4030	1,3,5-Trinitrobenzene	11/18/2002	7.1	0.04		ug/L
MW-4030	1,3,5-Trinitrobenzene	3/18/2003	4.2	0.04		ug/L
MW-4030	1,3,5-Trinitrobenzene	6/18/2003	5.1	0.08		ug/L
MW-4030	1,3,5-Trinitrobenzene	9/18/2003	6.2	0.08		ug/L
MW-4030	1,3-Dinitrobenzene	12/11/2000	0.066	0.09	J	ug/L
MW-4030	1,3-Dinitrobenzene	1/23/2001	0.12	0.09		ug/L
MW-4030	1,3-Dinitrobenzene	2/21/2001	0.15	0.09		ug/L
MW-4030	1,3-Dinitrobenzene	3/27/2001	0.16	0.09		ug/L
MW-4030	1,3-Dinitrobenzene	5/22/2001	0.1	0.09		ug/L
MW-4030	1,3-Dinitrobenzene	7/6/2001	ND	0.09	U	ug/L
MW-4030	1,3-Dinitrobenzene	10/9/2001	ND	0.09	U	ug/L
MW-4030	1,3-Dinitrobenzene	12/5/2001	0.11	0.09		ug/L
MW-4030	1,3-Dinitrobenzene	1/23/2002	ND	0.09	U	ug/L
MW-4030	1,3-Dinitrobenzene	3/14/2002	0.068	0.09	J	ug/L
MW-4030	1,3-Dinitrobenzene	5/30/2002	ND	0.09	U	ug/L
MW-4030	1,3-Dinitrobenzene	8/15/2002	ND	0.09	U	ug/L
MW-4030	1,3-Dinitrobenzene	11/18/2002	ND	0.09	U	ug/L
MW-4030	1,3-Dinitrobenzene	3/18/2003	ND	0.05	U	ug/L
MW-4030	1,3-Dinitrobenzene	6/18/2003	0.041	0.05	J	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4030	1,3-Dinitrobenzene	9/18/2003	0.066	0.05		ug/L
MW-4030	2,4,6-Trinitrotoluene	12/11/2000	0.38	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	1/23/2001	0.93	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	2/21/2001	1.3	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	3/27/2001	0.72	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	5/22/2001	0.67	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	7/6/2001	0.86	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	10/9/2001	0.87	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	12/5/2001	2.2	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	1/23/2002	1.8	0.03		ug/L
MW-4030	2,4,6-Trinitrotoluene	3/14/2002	1.6	0.08		ug/L
MW-4030	2,4,6-Trinitrotoluene	5/30/2002	0.72	0.08		ug/L
MW-4030	2,4,6-Trinitrotoluene	8/15/2002	1.6	0.08		ug/L
MW-4030	2,4,6-Trinitrotoluene	11/18/2002	2.3	0.08		ug/L
MW-4030	2,4,6-Trinitrotoluene	3/18/2003	1.2	0.08		ug/L
MW-4030	2,4,6-Trinitrotoluene	6/18/2003	1.7	0.08		ug/L
MW-4030	2,4,6-Trinitrotoluene	9/18/2003	2.1	0.08		ug/L
MW-4030	2,4-Dinitrotoluene	12/11/2000	0.12	0.03		ug/L
MW-4030	2,4-Dinitrotoluene	1/23/2001	0.21	0.03		ug/L
MW-4030	2,4-Dinitrotoluene	2/21/2001	0.16	0.03		ug/L
MW-4030	2,4-Dinitrotoluene	3/27/2001	0.12	0.04		ug/L
MW-4030	2,4-Dinitrotoluene	5/22/2001	0.13	0.04		ug/L
MW-4030	2,4-Dinitrotoluene	7/6/2001	ND	0.04	U	ug/L
MW-4030	2,4-Dinitrotoluene	10/9/2001	0.11	0.04		ug/L
MW-4030	2,4-Dinitrotoluene	12/5/2001	0.19	0.04		ug/L
MW-4030	2,4-Dinitrotoluene	1/23/2002	0.18	0.04		ug/L
MW-4030	2,4-Dinitrotoluene	3/14/2002	0.16	0.6	J	ug/L
MW-4030	2,4-Dinitrotoluene	5/30/2002	0.076	0.06		ug/L
MW-4030	2,4-Dinitrotoluene	8/15/2002	0.14	0.06		ug/L
MW-4030	2,4-Dinitrotoluene	11/18/2002	0.14	0.06		ug/L
MW-4030	2,4-Dinitrotoluene	3/18/2003	ND	0.06	U	ug/L
MW-4030	2,4-Dinitrotoluene	6/18/2003	0.11	0.06		ug/L
MW-4030	2,4-Dinitrotoluene	9/18/2003	0.14	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	12/11/2000	0.14	0.01		ug/L
MW-4030	2,6-Dinitrotoluene	1/23/2001	0.2	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	2/21/2001	0.27	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	3/27/2001	0.4	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	5/22/2001	0.49	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	7/6/2001	ND	0.06	U	ug/L
MW-4030	2,6-Dinitrotoluene	10/9/2001	0.38	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	12/5/2001	0.81	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	1/23/2002	0.58	0.06		ug/L
MW-4030	2,6-Dinitrotoluene	3/14/2002	0.58	0.1		ug/L
MW-4030	2,6-Dinitrotoluene	5/30/2002	0.21	0.1		ug/L
MW-4030	2,6-Dinitrotoluene	8/15/2002	0.49	0.1		ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4030	2,6-Dinitrotoluene	11/18/2002	0.6	0.1		ug/L
MW-4030	2,6-Dinitrotoluene	3/18/2003	0.33	0.1		ug/L
MW-4030	2,6-Dinitrotoluene	6/18/2003	0.51	0.13		ug/L
MW-4030	2,6-Dinitrotoluene	9/18/2003	0.69	0.13		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	1/23/2001	0.69	0.03		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	2/21/2001	0.77	0.03		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	3/27/2001	1	0.03		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	1/23/2002	1.1	0.03		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	3/14/2002	1.1	0.03		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	3/18/2003	0.93	0.05		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	6/18/2003	1.2	0.05		ug/L
MW-4030	2-Amino-4,6-dinitrotoluene	9/18/2003	1.5	0.05		ug/L
MW-4030	2-Nitrotoluene	1/23/2001	ND	0.03	U	ug/L
MW-4030	2-Nitrotoluene	2/21/2001	ND	0.03	U	ug/L
MW-4030	2-Nitrotoluene	3/27/2001	0.16	0.03		ug/L
MW-4030	2-Nitrotoluene	1/23/2002	0.11	0.03		ug/L
MW-4030	2-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-4030	2-Nitrotoluene	3/18/2003	ND	0.07	U	ug/L
MW-4030	2-Nitrotoluene	6/18/2003	0.45	0.11		ug/L
MW-4030	2-Nitrotoluene	9/18/2003	0.46	0.11		ug/L
MW-4030	3-Nitrotoluene	1/23/2001	ND	0.03	U	ug/L
MW-4030	3-Nitrotoluene	2/21/2001	ND	0.03	U	ug/L
MW-4030	3-Nitrotoluene	3/27/2001	ND	0.03	U	ug/L
MW-4030	3-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L
MW-4030	3-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-4030	3-Nitrotoluene	3/18/2003	ND	0.07	U	ug/L
MW-4030	3-Nitrotoluene	6/18/2003	ND	0.07	U	ug/L
MW-4030	3-Nitrotoluene	9/18/2003	0.14	0.07		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	1/23/2001	0.84	0.03		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	2/21/2001	0.85	0.03		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	3/27/2001	1	0.03		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	1/23/2002	1.2	0.03		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	3/14/2002	1.2	0.03		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	3/18/2003	0.93	0.07		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	6/18/2003	1.3	0.07		ug/L
MW-4030	4-Amino-2,6-dinitrotoluene	9/18/2003	1.5	0.07		ug/L
MW-4030	4-Nitrotoluene	1/23/2001	ND	0.03	U	ug/L
MW-4030	4-Nitrotoluene	2/21/2001	ND	0.03	U	ug/L
MW-4030	4-Nitrotoluene	3/27/2001	ND	0.03	U	ug/L
MW-4030	4-Nitrotoluene	1/23/2002	ND	0.03	U	ug/L
MW-4030	4-Nitrotoluene	3/14/2002	ND	0.03	U	ug/L
MW-4030	4-Nitrotoluene	3/18/2003	ND	0.04	U	ug/L
MW-4030	4-Nitrotoluene	6/18/2003	ND	0.05	U	ug/L
MW-4030	4-Nitrotoluene	9/18/2003	ND	0.05	U	ug/L
MW-4030	Nitrobenzene	12/11/2000	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4030	Nitrobenzene	1/23/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	2/21/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	3/27/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	5/22/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	7/6/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	10/9/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	12/5/2001	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	1/23/2002	ND	0.03	U	ug/L
MW-4030	Nitrobenzene	3/14/2002	ND	0.08	U	ug/L
MW-4030	Nitrobenzene	5/30/2002	ND	0.08	U	ug/L
MW-4030	Nitrobenzene	8/15/2002	ND	0.08	U	ug/L
MW-4030	Nitrobenzene	11/18/2002	ND	0.08	U	ug/L
MW-4030	Nitrobenzene	3/18/2003	ND	0.08	U	ug/L
MW-4030	Nitrobenzene	6/18/2003	ND	0.08	U	ug/L
MW-4030	Nitrobenzene	9/18/2003	ND	0.08	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	1/17/2002	ND	0.03	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	2/13/2002	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	3/13/2002	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	5/29/2002	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	7/1/2002	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	9/16/2002	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	11/14/2002	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	3/19/2003	ND	0.04	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	6/19/2003	ND	0.08	U	ug/L
MW-4039	1,3,5-Trinitrobenzene	9/18/2003	ND	0.08	U	ug/L
MW-4039	1,3-Dinitrobenzene	1/17/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	2/13/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	3/13/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	5/29/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	7/1/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	9/16/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	11/14/2002	ND	0.09	U	ug/L
MW-4039	1,3-Dinitrobenzene	3/19/2003	ND	0.05	U	ug/L
MW-4039	1,3-Dinitrobenzene	6/19/2003	ND	0.05	U	ug/L
MW-4039	1,3-Dinitrobenzene	9/18/2003	ND	0.05	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	2/13/2002	0.12	0.08		ug/L
MW-4039	2,4,6-Trinitrotoluene	3/13/2002	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	5/29/2002	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	7/1/2002	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	9/16/2002	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	11/14/2002	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	3/19/2003	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	6/19/2003	ND	0.08	U	ug/L
MW-4039	2,4,6-Trinitrotoluene	9/18/2003	ND	0.08	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4039	2,4-Dinitrotoluene	1/17/2002	ND	0.04	U	ug/L
MW-4039	2,4-Dinitrotoluene	2/13/2002	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	3/13/2002	ND	0.6	U	ug/L
MW-4039	2,4-Dinitrotoluene	5/29/2002	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	7/1/2002	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	9/16/2002	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	11/14/2002	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	3/19/2003	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	6/19/2003	ND	0.06	U	ug/L
MW-4039	2,4-Dinitrotoluene	9/18/2003	ND	0.06	U	ug/L
MW-4039	2,6-Dinitrotoluene	1/17/2002	0.074	0.06		ug/L
MW-4039	2,6-Dinitrotoluene	2/13/2002	0.31	0.1		ug/L
MW-4039	2,6-Dinitrotoluene	3/13/2002	ND	0.1	U	ug/L
MW-4039	2,6-Dinitrotoluene	5/29/2002	ND	0.1	U	ug/L
MW-4039	2,6-Dinitrotoluene	7/1/2002	ND	0.1	U	ug/L
MW-4039	2,6-Dinitrotoluene	9/16/2002	ND	0.1	U	ug/L
MW-4039	2,6-Dinitrotoluene	11/14/2002	ND	0.1	U	ug/L
MW-4039	2,6-Dinitrotoluene	3/19/2003	ND	0.1	U	ug/L
MW-4039	2,6-Dinitrotoluene	6/19/2003	ND	0.13	U	ug/L
MW-4039	2,6-Dinitrotoluene	9/18/2003	ND	0.13	U	ug/L
MW-4039	2-Amino-4,6-dinitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-4039	2-Amino-4,6-dinitrotoluene	2/13/2002	0.1	0.03		ug/L
MW-4039	2-Amino-4,6-dinitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-4039	2-Amino-4,6-dinitrotoluene	3/19/2003	ND	0.05	U	ug/L
MW-4039	2-Amino-4,6-dinitrotoluene	6/19/2003	ND	0.05	U	ug/L
MW-4039	2-Amino-4,6-dinitrotoluene	9/18/2003	ND	0.05	U	ug/L
MW-4039	2-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-4039	2-Nitrotoluene	2/13/2002	ND	0.03	U	ug/L
MW-4039	2-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-4039	2-Nitrotoluene	3/19/2003	ND	0.07	U	ug/L
MW-4039	2-Nitrotoluene	6/19/2003	ND	0.11	U	ug/L
MW-4039	2-Nitrotoluene	9/18/2003	ND	0.11	U	ug/L
MW-4039	3-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-4039	3-Nitrotoluene	2/13/2002	0.12	0.03		ug/L
MW-4039	3-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-4039	3-Nitrotoluene	3/19/2003	ND	0.07	U	ug/L
MW-4039	3-Nitrotoluene	6/19/2003	ND	0.07	U	ug/L
MW-4039	3-Nitrotoluene	9/18/2003	ND	0.07	U	ug/L
MW-4039	4-Amino-2,6-dinitrotoluene	1/17/2002	ND	0.03	U	ug/L
MW-4039	4-Amino-2,6-dinitrotoluene	2/13/2002	0.56	0.03		ug/L
MW-4039	4-Amino-2,6-dinitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-4039	4-Amino-2,6-dinitrotoluene	3/19/2003	ND	0.07	U	ug/L
MW-4039	4-Amino-2,6-dinitrotoluene	6/19/2003	ND	0.07	U	ug/L
MW-4039	4-Amino-2,6-dinitrotoluene	9/18/2003	ND	0.07	U	ug/L
MW-4039	4-Nitrotoluene	1/17/2002	ND	0.03	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4039	4-Nitrotoluene	2/13/2002	ND	0.03	U	ug/L
MW-4039	4-Nitrotoluene	3/13/2002	ND	0.03	U	ug/L
MW-4039	4-Nitrotoluene	3/19/2003	ND	0.04	U	ug/L
MW-4039	4-Nitrotoluene	6/19/2003	ND	0.05	U	ug/L
MW-4039	4-Nitrotoluene	9/18/2003	ND	0.05	U	ug/L
MW-4039	Nitrobenzene	1/17/2002	ND	0.03	U	ug/L
MW-4039	Nitrobenzene	2/13/2002	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	3/13/2002	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	5/29/2002	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	7/1/2002	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	9/16/2002	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	11/14/2002	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	3/19/2003	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	6/19/2003	ND	0.08	U	ug/L
MW-4039	Nitrobenzene	9/18/2003	ND	0.08	U	ug/L

LOCATION_CODE	ANALYTE	DATE_SAMPLED	RESULT	UNCERTAINTY	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	Radium-226	12/11/2000	0.684	0.261	0.366		pCi/L
MW-2050	Radium-226	12/11/2000	1.53	0.22	0.155		pCi/L
MW-4030	Radium-226	12/11/2000	0.695	0.15	0.121		pCi/L
MW-2049	Radium-228	12/11/2000	ND	0.049	0.469	U	pCi/L
MW-2050	Radium-228	12/11/2000	ND	0.049	0.469	U	pCi/L
MW-4030	Radium-228	12/11/2000	ND	0.051	0.469	U	pCi/L
MW-2049	Thorium-228	12/11/2000	ND	0.084	0.094	U	pCi/L
MW-2050	Thorium-228	12/11/2000	0.144	0.077	0.056		pCi/L
MW-4030	Thorium-228	12/11/2000	ND	0.111	0.124	U	pCi/L
MW-2049	Thorium-230	12/11/2000	ND	0.142	0.23	U	pCi/L
MW-2050	Thorium-230	12/11/2000	0.228	0.126	0.168		pCi/L
MW-4030	Thorium-230	12/11/2000	ND	0.337	0.642	U	pCi/L
MW-2049	Thorium-232	12/11/2000	ND	0.071	0.116	U	pCi/L
MW-2050	Thorium-232	12/11/2000	ND	0.064	0.096	U	pCi/L
MW-4030	Thorium-232	12/11/2000	ND	0.259	0.485	U	pCi/L
MW-2049	Uranium	12/11/2000	1.17	0.018	0.677		pCi/L
MW-2049	Uranium	5/22/2001	4.27	0.43	0.677		pCi/L
MW-2049	Uranium	3/13/2002	6.91	0.315	0.0745		pCi/L
MW-2049	Uranium	7/2/2002	5.04	0.5	0.68		pCi/L
MW-2050	Uranium	12/11/2000	5.41	0.063	0.677		pCi/L
MW-2050	Uranium	5/22/2001	1.38	0.14	0.677		pCi/L
MW-2050	Uranium	3/13/2002	0.471	0.0209	0.0745		pCi/L
MW-2050	Uranium	7/2/2002	0.58	0.058	0.68	UJ	pCi/L
MW-2052	Uranium	1/17/2002	0.29	0.029	0.68	UJ	pCi/L
MW-2053	Uranium	1/17/2002	3.72	0.37	0.68		pCi/L
MW-2054	Uranium	1/17/2002	1.02	0.1	0.68		pCi/L
MW-4030	Uranium	12/11/2000	0.39	0.006	0.677	J	pCi/L
MW-4030	Uranium	5/22/2001	1.91	0.19	0.677		pCi/L
MW-4030	Uranium	3/14/2002	0.9	0.0276	0.0745		pCi/L
MW-4030	Uranium	8/15/2002	1.22	0.12	0.68		pCi/L
MW-4039	Uranium	1/17/2002	2.55	0.26	0.68		pCi/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	Chloride	12/11/2000	123	20		mg/L
MW-2050	Chloride	12/11/2000	189	20		mg/L
MW-4030	Chloride	12/11/2000	31.3	20		mg/L
MW-2049	Fluoride	12/11/2000	0.32	0.1		mg/L
MW-2050	Fluoride	12/11/2000	0.24	0.1		mg/L
MW-4030	Fluoride	12/11/2000	0.22	0.1		mg/L
MW-2049	Nitrate as Nitrogen	12/11/2000	0.34	0.02		mg/L
MW-2049	Nitrate as Nitrogen	5/22/2001	0.68	0.05		mg/L
MW-2050	Nitrate as Nitrogen	12/11/2000	1.3	0.2		mg/L
MW-2050	Nitrate as Nitrogen	5/22/2001	0.042	0.05	B	mg/L
MW-2052	Nitrate as Nitrogen	1/17/2002	0.86	0.05		mg/L
MW-2053	Nitrate as Nitrogen	1/17/2002	1.5	0.1		mg/L
MW-2054	Nitrate as Nitrogen	1/17/2002	0.97	0.05		mg/L
MW-4030	Nitrate as Nitrogen	12/11/2000	6.2	0.4		mg/L
MW-4030	Nitrate as Nitrogen	5/22/2001	4.8	0.25		mg/L
MW-4039	Nitrate as Nitrogen	1/17/2002	0.5	0.05		mg/L
MW-2049	Sulfate	12/11/2000	87.7	5		mg/L
MW-2050	Sulfate	12/11/2000	60.6	5		mg/L
MW-4030	Sulfate	12/11/2000	34.9	10		mg/L
COUNT			19			

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	Aluminum	12/11/2000	1.2	0.0099		mg/L
MW-2050	Aluminum	12/11/2000	0.293	0.0099		mg/L
MW-2052	Aluminum	1/17/2002	1.11	0.0343		mg/L
MW-2053	Aluminum	1/17/2002	0.214	0.0343		mg/L
MW-2054	Aluminum	1/17/2002	ND	0.0343	U	mg/L
MW-4030	Aluminum	12/11/2000	1.11	0.0099		mg/L
MW-4039	Aluminum	1/17/2002	0.509	0.0343		mg/L
MW-2049	Antimony	12/11/2000	ND	0.0028	U	mg/L
MW-2050	Antimony	12/11/2000	ND	0.0028	U	mg/L
MW-2052	Antimony	1/17/2002	ND	0.0033	U	mg/L
MW-2053	Antimony	1/17/2002	ND	0.0033	U	mg/L
MW-2054	Antimony	1/17/2002	ND	0.0033	U	mg/L
MW-4030	Antimony	12/11/2000	ND	0.0028	U	mg/L
MW-4039	Antimony	1/17/2002	ND	0.0033	U	mg/L
MW-2049	Arsenic	12/11/2000	ND	0.0015	U	mg/L
MW-2050	Arsenic	12/11/2000	ND	0.0015	U	mg/L
MW-2052	Arsenic	1/17/2002	ND	0.0012	U	mg/L
MW-2053	Arsenic	1/17/2002	ND	0.0012	U	mg/L
MW-2054	Arsenic	1/17/2002	ND	0.0012	U	mg/L
MW-4030	Arsenic	12/11/2000	ND	0.0015	U	mg/L
MW-4039	Arsenic	1/17/2002	ND	0.0012	U	mg/L
MW-2049	Barium	12/11/2000	0.142	0.0016	B	mg/L
MW-2050	Barium	12/11/2000	0.253	0.0016		mg/L
MW-2052	Barium	1/17/2002	0.34	0.0108		mg/L
MW-2053	Barium	1/17/2002	0.232	0.0108		mg/L
MW-2054	Barium	1/17/2002	0.287	0.0108		mg/L
MW-4030	Barium	12/11/2000	0.233	0.0016		mg/L
MW-4039	Barium	1/17/2002	0.193	0.0108	B	mg/L
MW-2049	Beryllium	12/11/2000	ND	0.0002	U	mg/L
MW-2050	Beryllium	12/11/2000	ND	0.0002	U	mg/L
MW-2052	Beryllium	1/17/2002	0.0011	0.00022	BJ	mg/L
MW-2053	Beryllium	1/17/2002	0.00069	0.00022	BJ	mg/L
MW-2054	Beryllium	1/17/2002	0.00068	0.00022	BJ	mg/L
MW-4030	Beryllium	12/11/2000	ND	0.0002	U	mg/L
MW-4039	Beryllium	1/17/2002	ND	0.00022	U	mg/L
MW-2049	Cadmium	12/11/2000	ND	0.0003	U	mg/L
MW-2050	Cadmium	12/11/2000	ND	0.0003	U	mg/L
MW-2052	Cadmium	1/17/2002	ND	0.00031	U	mg/L
MW-2053	Cadmium	1/17/2002	ND	0.00031	U	mg/L
MW-2054	Cadmium	1/17/2002	ND	0.00031	U	mg/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4030	Cadmium	12/11/2000	ND	0.0003	U	mg/L
MW-4039	Cadmium	1/17/2002	ND	0.00031	U	mg/L
MW-2049	Calcium	12/11/2000	110	0.052		mg/L
MW-2050	Calcium	12/11/2000	122	0.052		mg/L
MW-2052	Calcium	1/17/2002	274	0.0934		mg/L
MW-2053	Calcium	1/17/2002	151	0.0934		mg/L
MW-2054	Calcium	1/17/2002	72.8	0.0934		mg/L
MW-4030	Calcium	12/11/2000	95.4	0.052		mg/L
MW-4039	Calcium	1/17/2002	71.9	0.0934		mg/L
MW-2049	Chromium	12/11/2000	0.0013	0.0008	B	mg/L
MW-2050	Chromium	12/11/2000	0.0137	0.0008		mg/L
MW-2052	Chromium	1/17/2002	0.004	0.00073	B	mg/L
MW-2053	Chromium	1/17/2002	ND	0.00073	U	mg/L
MW-2054	Chromium	1/17/2002	ND	0.00073	U	mg/L
MW-4030	Chromium	12/11/2000	ND	0.0008	U	mg/L
MW-4039	Chromium	1/17/2002	0.0058	0.00073	B	mg/L
MW-2049	Cobalt	12/11/2000	ND	0.0009	U	mg/L
MW-2050	Cobalt	12/11/2000	ND	0.0009	U	mg/L
MW-2052	Cobalt	1/17/2002	0.0193	0.0016	B	mg/L
MW-2053	Cobalt	1/17/2002	0.0049	0.0016	B	mg/L
MW-2054	Cobalt	1/17/2002	ND	0.0016	U	mg/L
MW-4030	Cobalt	12/11/2000	ND	0.0009	U	mg/L
MW-4039	Cobalt	1/17/2002	ND	0.0016	U	mg/L
MW-2049	Copper	12/11/2000	0.0108	0.0012	B	mg/L
MW-2050	Copper	12/11/2000	0.0027	0.0012	B	mg/L
MW-2052	Copper	1/17/2002	0.0059	0.0014	B	mg/L
MW-2053	Copper	1/17/2002	ND	0.0014	U	mg/L
MW-2054	Copper	1/17/2002	ND	0.0014	U	mg/L
MW-4030	Copper	12/11/2000	0.0044	0.0012	B	mg/L
MW-4039	Copper	1/17/2002	ND	0.0014	U	mg/L
MW-2049	Iron	12/11/2000	1.24	0.0182		mg/L
MW-2050	Iron	12/11/2000	0.452	0.0182		mg/L
MW-2052	Iron	1/17/2002	1.53	0.0269		mg/L
MW-2053	Iron	1/17/2002	0.527	0.0269		mg/L
MW-2054	Iron	1/17/2002	0.125	0.0269		mg/L
MW-4030	Iron	12/11/2000	1.2	0.0182		mg/L
MW-4039	Iron	1/17/2002	1.34	0.0269		mg/L
MW-2049	Lead	12/11/2000	ND	0.0016	U	mg/L
MW-2050	Lead	12/11/2000	ND	0.0016	U	mg/L
MW-2052	Lead	1/17/2002	ND	0.00099	U	mg/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2053	Lead	1/17/2002	ND	0.00099	U	mg/L
MW-2054	Lead	1/17/2002	ND	0.00099	U	mg/L
MW-4030	Lead	12/11/2000	ND	0.0016	U	mg/L
MW-4039	Lead	1/17/2002	ND	0.00099	U	mg/L
MW-2049	Lithium	12/11/2000	ND	0.0094	U	mg/L
MW-2050	Lithium	12/11/2000	ND	0.0094	U	mg/L
MW-2052	Lithium	1/17/2002	0.0127	0.0104	B	mg/L
MW-2053	Lithium	1/17/2002	0.014	0.0104	B	mg/L
MW-2054	Lithium	1/17/2002	0.0208	0.0104	B	mg/L
MW-4030	Lithium	12/11/2000	ND	0.0094	U	mg/L
MW-4039	Lithium	1/17/2002	0.0203	0.0104	B	mg/L
MW-2049	Magnesium	12/11/2000	20.2	0.0387		mg/L
MW-2050	Magnesium	12/11/2000	46.9	0.0387		mg/L
MW-2052	Magnesium	1/17/2002	38.7	0.141		mg/L
MW-2053	Magnesium	1/17/2002	30.4	0.141		mg/L
MW-2054	Magnesium	1/17/2002	45.5	0.141		mg/L
MW-4030	Magnesium	12/11/2000	41.4	0.0387		mg/L
MW-4039	Magnesium	1/17/2002	35.1	0.141		mg/L
MW-2049	Manganese	12/11/2000	0.108	0.0005		mg/L
MW-2050	Manganese	12/11/2000	0.0344	0.0005		mg/L
MW-2052	Manganese	1/17/2002	0.197	0.0004		mg/L
MW-2053	Manganese	1/17/2002	0.0309	0.0004		mg/L
MW-2054	Manganese	1/17/2002	0.0261	0.0004		mg/L
MW-4030	Manganese	12/11/2000	0.0852	0.0005		mg/L
MW-4039	Manganese	1/17/2002	0.0898	0.0004		mg/L
MW-2049	Mercury	12/11/2000	ND	0.0001	U	mg/L
MW-2050	Mercury	12/11/2000	ND	0.0001	U	mg/L
MW-2052	Mercury	1/17/2002	0.0001	0.0001	BJ	mg/L
MW-2053	Mercury	1/17/2002	0.0001	0.0001	BJ	mg/L
MW-2054	Mercury	1/17/2002	0.00035	0.0001	J	mg/L
MW-4030	Mercury	12/11/2000	ND	0.0001	U	mg/L
MW-4039	Mercury	1/17/2002	ND	0.0001	U	mg/L
MW-2049	Molybdenum	12/11/2000	0.0052	0.0011	B	mg/L
MW-2050	Molybdenum	12/11/2000	0.0055	0.0011	B	mg/L
MW-2052	Molybdenum	1/17/2002	ND	0.0013	U	mg/L
MW-2053	Molybdenum	1/17/2002	ND	0.0013	U	mg/L
MW-2054	Molybdenum	1/17/2002	ND	0.0013	U	mg/L
MW-4030	Molybdenum	12/11/2000	0.004	0.0011	B	mg/L
MW-4039	Molybdenum	1/17/2002	ND	0.0013	U	mg/L
MW-2049	Nickel	12/11/2000	0.0319	0.0016	B	mg/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2050	Nickel	12/11/2000	0.0517	0.0016		mg/L
MW-2052	Nickel	1/17/2002	ND	0.0013	U	mg/L
MW-2053	Nickel	1/17/2002	ND	0.0013	U	mg/L
MW-2054	Nickel	1/17/2002	ND	0.0013	U	mg/L
MW-4030	Nickel	12/11/2000	0.0112	0.0016	B	mg/L
MW-4039	Nickel	1/17/2002	0.0274	0.0013	B	mg/L
MW-2049	Potassium	12/11/2000	4.82	1.7	B	mg/L
MW-2050	Potassium	12/11/2000	5.05	1.7		mg/L
MW-2052	Potassium	1/17/2002	8.46	1.84		mg/L
MW-2053	Potassium	1/17/2002	5.98	1.84		mg/L
MW-2054	Potassium	1/17/2002	3.36	1.84	B	mg/L
MW-4030	Potassium	12/11/2000	2.8	1.7	B	mg/L
MW-4039	Potassium	1/17/2002	3.97	1.84	B	mg/L
MW-2049	Selenium	12/11/2000	ND	0.0022	U	mg/L
MW-2050	Selenium	12/11/2000	ND	0.0022	U	mg/L
MW-2052	Selenium	1/17/2002	ND	0.0012	U	mg/L
MW-2053	Selenium	1/17/2002	ND	0.0012	U	mg/L
MW-2054	Selenium	1/17/2002	ND	0.0012	U	mg/L
MW-4030	Selenium	12/11/2000	ND	0.0022	U	mg/L
MW-4039	Selenium	1/17/2002	ND	0.0012	U	mg/L
MW-2049	Silver	12/11/2000	ND	0.0013	U	mg/L
MW-2050	Silver	12/11/2000	ND	0.0013	U	mg/L
MW-2052	Silver	1/17/2002	ND	0.0017	U	mg/L
MW-2053	Silver	1/17/2002	ND	0.0017	U	mg/L
MW-2054	Silver	1/17/2002	ND	0.0017	U	mg/L
MW-4030	Silver	12/11/2000	ND	0.0013	U	mg/L
MW-4039	Silver	1/17/2002	ND	0.0017	U	mg/L
MW-2049	Sodium	12/11/2000	102	0.143		mg/L
MW-2050	Sodium	12/11/2000	62.3	0.143		mg/L
MW-2052	Sodium	1/17/2002	389	0.125		mg/L
MW-2053	Sodium	1/17/2002	54.4	0.125		mg/L
MW-2054	Sodium	1/17/2002	20.2	0.125		mg/L
MW-4030	Sodium	12/11/2000	25.8	0.143		mg/L
MW-4039	Sodium	1/17/2002	22.1	0.125		mg/L
MW-2049	Thallium	12/11/2000	ND	0.003	U	mg/L
MW-2050	Thallium	12/11/2000	ND	0.003	U	mg/L
MW-2052	Thallium	1/17/2002	0.0107	0.0022	J	mg/L
MW-2053	Thallium	1/17/2002	0.0076	0.0022	BJ	mg/L
MW-2054	Thallium	1/17/2002	0.0083	0.0022	BJ	mg/L
MW-4030	Thallium	12/11/2000	ND	0.003	U	mg/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-4039	Thallium	1/17/2002	0.0073	0.0022	BJ	mg/L
MW-2049	Vanadium	12/11/2000	0.0017	0.0013	B	mg/L
MW-2050	Vanadium	12/11/2000	ND	0.0013	U	mg/L
MW-2052	Vanadium	1/17/2002	0.0036	0.0018	B	mg/L
MW-2053	Vanadium	1/17/2002	ND	0.0018	U	mg/L
MW-2054	Vanadium	1/17/2002	ND	0.0018	U	mg/L
MW-4030	Vanadium	12/11/2000	0.0017	0.0013	B	mg/L
MW-4039	Vanadium	1/17/2002	0.0025	0.0018	B	mg/L
MW-2049	Zinc	12/11/2000	0.0193	0.0007	B	mg/L
MW-2050	Zinc	12/11/2000	0.0177	0.0007	B	mg/L
MW-2052	Zinc	1/17/2002	0.0096	0.0013	B	mg/L
MW-2053	Zinc	1/17/2002	0.0088	0.0013	B	mg/L
MW-2054	Zinc	1/17/2002	0.0045	0.0013	B	mg/L
MW-4030	Zinc	12/11/2000	0.0119	0.0007	B	mg/L
MW-4039	Zinc	1/17/2002	0.0146	0.0013	B	mg/L

LOCATION_CODE	ANALYTE	DATE_SAMPLED	RESULT	DETECTION_LIMIT	LAB_QUALIFIERS	UNITS
MW-2049	1,1,1-Trichloroethane	12/11/2000	ND	10	U	ug/L
MW-2050	1,1,1-Trichloroethane	12/11/2000	ND	10	U	ug/L
MW-4030	1,1,1-Trichloroethane	12/11/2000	ND	10	U	ug/L
MW-2049	1,1,2,2-Tetrachloroethane	12/11/2000	ND	10	U	ug/L
MW-2050	1,1,2,2-Tetrachloroethane	12/11/2000	ND	10	U	ug/L
MW-4030	1,1,2,2-Tetrachloroethane	12/11/2000	ND	10	U	ug/L
MW-2049	1,1,2-Trichloroethane	12/11/2000	ND	10	U	ug/L
MW-2050	1,1,2-Trichloroethane	12/11/2000	ND	10	U	ug/L
MW-4030	1,1,2-Trichloroethane	12/11/2000	ND	10	U	ug/L
MW-2049	1,1-Dichloroethane	12/11/2000	ND	10	U	ug/L
MW-2050	1,1-Dichloroethane	12/11/2000	ND	10	U	ug/L
MW-4030	1,1-Dichloroethane	12/11/2000	ND	10	U	ug/L
MW-2049	1,1-Dichloroethene	12/11/2000	ND	10	U	ug/L
MW-2050	1,1-Dichloroethene	12/11/2000	ND	10	U	ug/L
MW-4030	1,1-Dichloroethene	12/11/2000	ND	10	U	ug/L
MW-2049	1,2-Dichloroethane	12/11/2000	ND	10	U	ug/L
MW-2050	1,2-Dichloroethane	12/11/2000	ND	10	U	ug/L
MW-4030	1,2-Dichloroethane	12/11/2000	ND	10	U	ug/L
MW-2049	1,2-Dichloropropane	12/11/2000	ND	10	U	ug/L
MW-2050	1,2-Dichloropropane	12/11/2000	ND	10	U	ug/L
MW-4030	1,2-Dichloropropane	12/11/2000	ND	10	U	ug/L
MW-2049	2-Butanone	12/11/2000	ND	10	U	ug/L
MW-2050	2-Butanone	12/11/2000	ND	10	U	ug/L
MW-4030	2-Butanone	12/11/2000	ND	10	U	ug/L
MW-2049	2-Hexanone	12/11/2000	ND	10	U	ug/L
MW-2050	2-Hexanone	12/11/2000	ND	10	U	ug/L
MW-4030	2-Hexanone	12/11/2000	ND	10	U	ug/L
MW-2049	4-Methyl-2-Pentanone	12/11/2000	ND	10	U	ug/L
MW-2050	4-Methyl-2-Pentanone	12/11/2000	ND	10	U	ug/L
MW-4030	4-Methyl-2-Pentanone	12/11/2000	ND	10	U	ug/L
MW-2049	Acetone	12/11/2000	4.9	10	BJ	ug/L
MW-2050	Acetone	12/11/2000	4	10	BJ	ug/L
MW-4030	Acetone	12/11/2000	4.1	10	BJ	ug/L
MW-2049	Benzene	12/11/2000	ND	10	U	ug/L
MW-2050	Benzene	12/11/2000	ND	10	U	ug/L
MW-4030	Benzene	12/11/2000	ND	10	U	ug/L

MW-2049	Bromodichloromethane	12/11/2000	ND	10	U	ug/L
MW-2050	Bromodichloromethane	12/11/2000	ND	10	U	ug/L
MW-4030	Bromodichloromethane	12/11/2000	ND	10	U	ug/L
MW-2049	Bromoform	12/11/2000	ND	10	U	ug/L
MW-2050	Bromoform	12/11/2000	ND	10	U	ug/L
MW-4030	Bromoform	12/11/2000	ND	10	U	ug/L
MW-2049	Bromomethane	12/11/2000	ND	10	U	ug/L
MW-2050	Bromomethane	12/11/2000	ND	10	U	ug/L
MW-4030	Bromomethane	12/11/2000	ND	10	U	ug/L
MW-2049	Carbon Disulfide	12/11/2000	ND	10	U	ug/L
MW-2050	Carbon Disulfide	12/11/2000	ND	10	U	ug/L
MW-4030	Carbon Disulfide	12/11/2000	ND	10	U	ug/L
MW-2049	Carbon tetrachloride	12/11/2000	ND	10	U	ug/L
MW-2050	Carbon tetrachloride	12/11/2000	ND	10	U	ug/L
MW-4030	Carbon tetrachloride	12/11/2000	ND	10	U	ug/L
MW-2049	Chlorobenzene	12/11/2000	ND	10	U	ug/L
MW-2050	Chlorobenzene	12/11/2000	ND	10	U	ug/L
MW-4030	Chlorobenzene	12/11/2000	ND	10	U	ug/L
MW-2049	Chlorodibromomethane	12/11/2000	ND	10	U	ug/L
MW-2050	Chlorodibromomethane	12/11/2000	ND	10	U	ug/L
MW-4030	Chlorodibromomethane	12/11/2000	ND	10	U	ug/L
MW-2049	Chloroethane	12/11/2000	ND	10	U	ug/L
MW-2050	Chloroethane	12/11/2000	ND	10	U	ug/L
MW-4030	Chloroethane	12/11/2000	ND	10	U	ug/L
MW-2049	Chloroform	12/11/2000	2.1	10	J	ug/L
MW-2050	Chloroform	12/11/2000	ND	10	U	ug/L
MW-4030	Chloroform	12/11/2000	ND	10	U	ug/L
MW-2049	Chloromethane	12/11/2000	ND	10	U	ug/L
MW-2050	Chloromethane	12/11/2000	ND	10	U	ug/L
MW-4030	Chloromethane	12/11/2000	ND	10	U	ug/L
MW-2049	cis-1,3-Dichloropropene	12/11/2000	ND	10	U	ug/L
MW-2050	cis-1,3-Dichloropropene	12/11/2000	ND	10	U	ug/L
MW-4030	cis-1,3-Dichloropropene	12/11/2000	ND	10	U	ug/L
MW-2049	Ethylbenzene	12/11/2000	ND	10	U	ug/L
MW-2050	Ethylbenzene	12/11/2000	ND	10	U	ug/L
MW-4030	Ethylbenzene	12/11/2000	ND	10	U	ug/L
MW-2049	Methylene chloride	12/11/2000	ND	10	U	ug/L

MW-2050	Methylene chloride	12/11/2000	ND	10	U	ug/L
MW-4030	Methylene chloride	12/11/2000	ND	10	U	ug/L
MW-2049	Styrene	12/11/2000	ND	10	U	ug/L
MW-2050	Styrene	12/11/2000	1.2	10	J	ug/L
MW-4030	Styrene	12/11/2000	ND	10	U	ug/L
MW-2049	Tetrachloroethene	12/11/2000	2	1		ug/L
MW-2049	Tetrachloroethene	12/11/2000	2.1	10	J	ug/L
MW-2050	Tetrachloroethene	12/11/2000	ND	1	U	ug/L
MW-2050	Tetrachloroethene	12/11/2000	ND	10	U	ug/L
MW-4030	Tetrachloroethene	12/11/2000	0.99	1	J	ug/L
MW-4030	Tetrachloroethene	12/11/2000	ND	10	U	ug/L
MW-2049	Toluene	12/11/2000	ND	10	U	ug/L
MW-2050	Toluene	12/11/2000	ND	10	U	ug/L
MW-4030	Toluene	12/11/2000	ND	10	U	ug/L
MW-2049	Total 1,2-Dichloroethene	12/11/2000	ND	10	U	ug/L
MW-2050	Total 1,2-Dichloroethene	12/11/2000	ND	10	U	ug/L
MW-4030	Total 1,2-Dichloroethene	12/11/2000	ND	10	U	ug/L
MW-2049	Total Xylenes	12/11/2000	ND	10	U	ug/L
MW-2050	Total Xylenes	12/11/2000	3.2	10	J	ug/L
MW-4030	Total Xylenes	12/11/2000	ND	10	U	ug/L
MW-2049	trans-1,3-dichloropropene	12/11/2000	ND	10	U	ug/L
MW-2050	trans-1,3-dichloropropene	12/11/2000	ND	10	U	ug/L
MW-4030	trans-1,3-dichloropropene	12/11/2000	ND	10	U	ug/L
MW-2049	Trichloroethene	12/11/2000	ND	1	U	ug/L
MW-2049	Trichloroethene	12/11/2000	ND	10	U	ug/L
MW-2050	Trichloroethene	12/11/2000	ND	1	U	ug/L
MW-2050	Trichloroethene	12/11/2000	ND	10	U	ug/L
MW-4030	Trichloroethene	12/11/2000	ND	1	U	ug/L
MW-4030	Trichloroethene	12/11/2000	ND	10	U	ug/L
MW-2049	Vinyl chloride	12/11/2000	ND	10	U	ug/L
MW-2050	Vinyl chloride	12/11/2000	ND	10	U	ug/L
MW-4030	Vinyl chloride	12/11/2000	ND	10	U	ug/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2049	Dissolved Oxygen	5/22/2001	2.64		mg/L
MW-2049	Dissolved Oxygen	7/6/2001	2.25		mg/L
MW-2049	Dissolved Oxygen	10/9/2001	2.47		mg/L
MW-2049	Dissolved Oxygen	12/5/2001	0.92		mg/L
MW-2049	Dissolved Oxygen	1/21/2002	1.29		mg/L
MW-2049	Dissolved Oxygen	3/13/2002	2.17		mg/L
MW-2049	Dissolved Oxygen	5/28/2002	1.52		mg/L
MW-2049	Dissolved Oxygen	7/2/2002	1.37		mg/L
MW-2049	Dissolved Oxygen	9/17/2002	1.93		mg/L
MW-2049	Dissolved Oxygen	11/18/2002	2.12		mg/L
MW-2049	Dissolved Oxygen	3/18/2003	1.55		mg/L
MW-2049	Dissolved Oxygen	6/18/2003	2.97		mg/L
MW-2049	Dissolved Oxygen	9/16/2003	3.11		mg/L
MW-2050	Dissolved Oxygen	5/22/2001	3.27		mg/L
MW-2050	Dissolved Oxygen	7/6/2001	2.86		mg/L
MW-2050	Dissolved Oxygen	10/9/2001	1.74		mg/L
MW-2050	Dissolved Oxygen	12/5/2001	1.01		mg/L
MW-2050	Dissolved Oxygen	1/21/2002	1.23		mg/L
MW-2050	Dissolved Oxygen	3/13/2002	1.87		mg/L
MW-2050	Dissolved Oxygen	5/29/2002	1.51		mg/L
MW-2050	Dissolved Oxygen	7/2/2002	3.82		mg/L
MW-2050	Dissolved Oxygen	9/16/2002	0.87		mg/L
MW-2050	Dissolved Oxygen	11/18/2002	1.79		mg/L
MW-2050	Dissolved Oxygen	3/18/2003	1.48		mg/L
MW-2050	Dissolved Oxygen	6/18/2003	1.32		mg/L
MW-2050	Dissolved Oxygen	9/16/2003	1.79		mg/L
MW-2052	Dissolved Oxygen	1/17/2002	3.27		mg/L
MW-2052	Dissolved Oxygen	2/13/2002	3.12		mg/L
MW-2052	Dissolved Oxygen	3/13/2002	3.23		mg/L
MW-2052	Dissolved Oxygen	5/28/2002	2.5		mg/L
MW-2052	Dissolved Oxygen	7/1/2002	2.53		mg/L
MW-2052	Dissolved Oxygen	9/12/2002	2.02		mg/L
MW-2052	Dissolved Oxygen	11/11/2002	1.72		mg/L
MW-2052	Dissolved Oxygen	3/17/2003	2		mg/L
MW-2052	Dissolved Oxygen	6/17/2003	2.81		mg/L
MW-2052	Dissolved Oxygen	9/18/2003	2.54		mg/L
MW-2053	Dissolved Oxygen	1/17/2002	2.83		mg/L
MW-2053	Dissolved Oxygen	3/13/2002	2.27		mg/L
MW-2053	Dissolved Oxygen	5/28/2002	1.69		mg/L
MW-2053	Dissolved Oxygen	7/1/2002	1.59		mg/L
MW-2053	Dissolved Oxygen	9/12/2002	1.23		mg/L

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2053	Dissolved Oxygen	11/11/2002	1.36		mg/L
MW-2053	Dissolved Oxygen	3/17/2003	2.56		mg/L
MW-2053	Dissolved Oxygen	6/17/2003	2.78		mg/L
MW-2053	Dissolved Oxygen	9/17/2003	2.81		mg/L
MW-2054	Dissolved Oxygen	1/17/2002	5.54		mg/L
MW-2054	Dissolved Oxygen	2/13/2002	5.01		mg/L
MW-2054	Dissolved Oxygen	3/13/2002	5.79		mg/L
MW-2054	Dissolved Oxygen	5/28/2002	4.94		mg/L
MW-2054	Dissolved Oxygen	7/1/2002	4.56		mg/L
MW-2054	Dissolved Oxygen	9/12/2002	4.34		mg/L
MW-2054	Dissolved Oxygen	11/11/2002	4.71		mg/L
MW-2054	Dissolved Oxygen	3/17/2003	4.06		mg/L
MW-2054	Dissolved Oxygen	6/17/2003	6.91		mg/L
MW-2054	Dissolved Oxygen	9/17/2003	6.57		mg/L
MW-4030	Dissolved Oxygen	5/22/2001	4.33		mg/L
MW-4030	Dissolved Oxygen	7/6/2001	5.46		mg/L
MW-4030	Dissolved Oxygen	10/9/2001	4.84		mg/L
MW-4030	Dissolved Oxygen	12/5/2001	4.15		mg/L
MW-4030	Dissolved Oxygen	1/23/2002	4.78		mg/L
MW-4030	Dissolved Oxygen	3/14/2002	5.65		mg/L
MW-4030	Dissolved Oxygen	5/30/2002	4.9		mg/L
MW-4030	Dissolved Oxygen	8/15/2002	5.06		mg/L
MW-4030	Dissolved Oxygen	11/18/2002	4		mg/L
MW-4030	Dissolved Oxygen	3/18/2003	3.87		mg/L
MW-4030	Dissolved Oxygen	6/18/2003	6.43		mg/L
MW-4030	Dissolved Oxygen	9/18/2003	6.85		mg/L
MW-4039	Dissolved Oxygen	1/17/2002	6.2		mg/L
MW-4039	Dissolved Oxygen	2/13/2002	1.87		mg/L
MW-4039	Dissolved Oxygen	3/13/2002	0.97		mg/L
MW-4039	Dissolved Oxygen	5/29/2002	0.92		mg/L
MW-4039	Dissolved Oxygen	7/1/2002	0.65		mg/L
MW-4039	Dissolved Oxygen	9/16/2002	0.88		mg/L
MW-4039	Dissolved Oxygen	11/14/2002	0.58		mg/L
MW-4039	Dissolved Oxygen	3/19/2003	2.07		mg/L
MW-4039	Dissolved Oxygen	6/19/2003	2.37		mg/L
MW-4039	Dissolved Oxygen	9/18/2003	1.79		mg/L
MW-2049	Oxidation Reduction Potential	1/23/2001	42		mV
MW-2049	Oxidation Reduction Potential	2/21/2001	88		mV
MW-2049	Oxidation Reduction Potential	3/26/2001	46		mV
MW-2049	Oxidation Reduction Potential	6/18/2003	-57.3		mV
MW-2049	Oxidation Reduction Potential	9/16/2003	4.3		mV

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2050	Oxidation Reduction Potential	1/23/2001	26		mV
MW-2050	Oxidation Reduction Potential	2/21/2001	115		mV
MW-2050	Oxidation Reduction Potential	3/26/2001	-11		mV
MW-2050	Oxidation Reduction Potential	6/18/2003	78.3		mV
MW-2050	Oxidation Reduction Potential	9/16/2003	153.8		mV
MW-2052	Oxidation Reduction Potential	6/17/2003	105.5		mV
MW-2052	Oxidation Reduction Potential	9/18/2003	150.7		mV
MW-2053	Oxidation Reduction Potential	6/17/2003	252.9		mV
MW-2053	Oxidation Reduction Potential	9/17/2003	237.3		mV
MW-2054	Oxidation Reduction Potential	6/17/2003	260.3		mV
MW-2054	Oxidation Reduction Potential	9/17/2003	255.6		mV
MW-4030	Oxidation Reduction Potential	1/23/2001	96		mV
MW-4030	Oxidation Reduction Potential	2/21/2001	247		mV
MW-4030	Oxidation Reduction Potential	3/27/2001	119		mV
MW-4030	Oxidation Reduction Potential	6/18/2003	222.3		mV
MW-4030	Oxidation Reduction Potential	9/18/2003	271.9		mV
MW-4039	Oxidation Reduction Potential	6/19/2003	-12		mV
MW-4039	Oxidation Reduction Potential	9/18/2003	55.8		mV
MW-2049	pH	1/23/2001	7.48		s.u.
MW-2049	pH	2/21/2001	7.03		s.u.
MW-2049	pH	3/26/2001	7.75		s.u.
MW-2049	pH	5/22/2001	7.24		s.u.
MW-2049	pH	7/6/2001	7.38		s.u.
MW-2049	pH	10/9/2001	7.46		s.u.
MW-2049	pH	12/5/2001	7.04		s.u.
MW-2049	pH	1/21/2002	7.21		s.u.
MW-2049	pH	3/13/2002	7.51		s.u.
MW-2049	pH	5/28/2002	7.11		s.u.
MW-2049	pH	7/2/2002	7.08		s.u.
MW-2049	pH	9/17/2002	6.91		s.u.
MW-2049	pH	11/18/2002	7.96		s.u.
MW-2049	pH	3/18/2003	7.66		s.u.
MW-2049	pH	6/18/2003	8.07		s.u.
MW-2049	pH	9/16/2003	8.8		s.u.
MW-2050	pH	1/23/2001	7.27		s.u.
MW-2050	pH	2/21/2001	6.58		s.u.
MW-2050	pH	3/26/2001	7.34		s.u.
MW-2050	pH	5/22/2001	7.19		s.u.
MW-2050	pH	7/6/2001	7.36		s.u.
MW-2050	pH	10/9/2001	7.42		s.u.
MW-2050	pH	12/5/2001	7.06		s.u.

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2050	pH	1/21/2002	7.2		s.u.
MW-2050	pH	3/13/2002	7.43		s.u.
MW-2050	pH	5/29/2002	6.95		s.u.
MW-2050	pH	7/2/2002	6.95		s.u.
MW-2050	pH	9/16/2002	6.65		s.u.
MW-2050	pH	11/18/2002	7.51		s.u.
MW-2050	pH	3/18/2003	7.31		s.u.
MW-2050	pH	6/18/2003	7.19		s.u.
MW-2050	pH	9/16/2003	7.15		s.u.
MW-2052	pH	1/17/2002	6.77		s.u.
MW-2052	pH	2/13/2002	6.79		s.u.
MW-2052	pH	3/13/2002	6.86		s.u.
MW-2052	pH	5/28/2002	6.58		s.u.
MW-2052	pH	7/1/2002	6.54		s.u.
MW-2052	pH	9/12/2002	6		s.u.
MW-2052	pH	11/11/2002	6.9		s.u.
MW-2052	pH	3/17/2003	6.97		s.u.
MW-2052	pH	6/17/2003	6.82		s.u.
MW-2052	pH	9/18/2003	6.82		s.u.
MW-2053	pH	1/17/2002	6.67		s.u.
MW-2053	pH	3/13/2002	6.76		s.u.
MW-2053	pH	5/28/2002	6.54		s.u.
MW-2053	pH	7/1/2002	6.46		s.u.
MW-2053	pH	9/12/2002	6.46		s.u.
MW-2053	pH	11/11/2002	6.83		s.u.
MW-2053	pH	3/17/2003	6.96		s.u.
MW-2053	pH	6/17/2003	6.83		s.u.
MW-2053	pH	9/17/2003	6.79		s.u.
MW-2054	pH	1/17/2002	7.03		s.u.
MW-2054	pH	2/13/2002	7.03		s.u.
MW-2054	pH	3/13/2002	7.17		s.u.
MW-2054	pH	5/28/2002	6.99		s.u.
MW-2054	pH	7/1/2002	6.88		s.u.
MW-2054	pH	9/12/2002	6.87		s.u.
MW-2054	pH	11/11/2002	7.17		s.u.
MW-2054	pH	3/17/2003	7.28		s.u.
MW-2054	pH	6/17/2003	7.18		s.u.
MW-2054	pH	9/17/2003	7.16		s.u.
MW-4030	pH	1/23/2001	6.81		s.u.
MW-4030	pH	2/21/2001	6.91		s.u.
MW-4030	pH	3/27/2001	7.16		s.u.

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-4030	pH	5/22/2001	6.97		s.u.
MW-4030	pH	7/6/2001	7.15		s.u.
MW-4030	pH	10/9/2001	7.26		s.u.
MW-4030	pH	12/5/2001	6.95		s.u.
MW-4030	pH	1/23/2002	6.84		s.u.
MW-4030	pH	3/14/2002	7.09		s.u.
MW-4030	pH	5/30/2002	6.81		s.u.
MW-4030	pH	8/15/2002	6.59		s.u.
MW-4030	pH	11/18/2002	7.49		s.u.
MW-4030	pH	3/18/2003	7.22		s.u.
MW-4030	pH	6/18/2003	7		s.u.
MW-4030	pH	9/18/2003	6.96		s.u.
MW-4039	pH	1/17/2002	7.21		s.u.
MW-4039	pH	2/13/2002	8.61		s.u.
MW-4039	pH	3/13/2002	8.13		s.u.
MW-4039	pH	5/29/2002	7.54		s.u.
MW-4039	pH	7/1/2002	6.95		s.u.
MW-4039	pH	9/16/2002	6.68		s.u.
MW-4039	pH	11/14/2002	7.87		s.u.
MW-4039	pH	3/19/2003	7.29		s.u.
MW-4039	pH	6/19/2003	7.38		s.u.
MW-4039	pH	9/18/2003	7.53		s.u.
MW-2049	Specific Conductance	1/23/2001	1103		umhos/cm
MW-2049	Specific Conductance	2/21/2001	1146		umhos/cm
MW-2049	Specific Conductance	3/26/2001	1014		umhos/cm
MW-2049	Specific Conductance	5/22/2001	1180		umhos/cm
MW-2049	Specific Conductance	7/6/2001	1210		umhos/cm
MW-2049	Specific Conductance	10/9/2001	1270		umhos/cm
MW-2049	Specific Conductance	12/5/2001	1230		umhos/cm
MW-2049	Specific Conductance	1/21/2002	1170		umhos/cm
MW-2049	Specific Conductance	3/13/2002	1160		umhos/cm
MW-2049	Specific Conductance	5/28/2002	1220		umhos/cm
MW-2049	Specific Conductance	7/2/2002	1190		umhos/cm
MW-2049	Specific Conductance	9/17/2002	1170		umhos/cm
MW-2049	Specific Conductance	11/18/2002	1150		umhos/cm
MW-2049	Specific Conductance	3/18/2003	1200		umhos/cm
MW-2049	Specific Conductance	6/18/2003	1103		umhos/cm
MW-2049	Specific Conductance	9/16/2003	1004		umhos/cm
MW-2050	Specific Conductance	1/23/2001	1346		umhos/cm
MW-2050	Specific Conductance	2/21/2001	1405		umhos/cm
MW-2050	Specific Conductance	3/26/2001	1583		umhos/cm

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2050	Specific Conductance	5/22/2001	1430		umhos/cm
MW-2050	Specific Conductance	7/6/2001	1450		umhos/cm
MW-2050	Specific Conductance	10/9/2001	1430		umhos/cm
MW-2050	Specific Conductance	12/5/2001	1430		umhos/cm
MW-2050	Specific Conductance	1/21/2002	1300		umhos/cm
MW-2050	Specific Conductance	3/13/2002	1400		umhos/cm
MW-2050	Specific Conductance	5/29/2002	1420		umhos/cm
MW-2050	Specific Conductance	7/2/2002	1390		umhos/cm
MW-2050	Specific Conductance	9/16/2002	1370		umhos/cm
MW-2050	Specific Conductance	11/18/2002	1400		umhos/cm
MW-2050	Specific Conductance	3/18/2003	1390		umhos/cm
MW-2050	Specific Conductance	6/18/2003	1336		umhos/cm
MW-2050	Specific Conductance	9/16/2003	1317		umhos/cm
MW-2052	Specific Conductance	1/17/2002	3720		umhos/cm
MW-2052	Specific Conductance	2/13/2002	4160		umhos/cm
MW-2052	Specific Conductance	3/13/2002	4480		umhos/cm
MW-2052	Specific Conductance	5/28/2002	4780		umhos/cm
MW-2052	Specific Conductance	7/1/2002	4510		umhos/cm
MW-2052	Specific Conductance	9/12/2002	4450		umhos/cm
MW-2052	Specific Conductance	11/11/2002	4500		umhos/cm
MW-2052	Specific Conductance	3/17/2003	4790		umhos/cm
MW-2052	Specific Conductance	6/17/2003	4632		umhos/cm
MW-2052	Specific Conductance	9/18/2003	4372		umhos/cm
MW-2053	Specific Conductance	1/17/2002	1100		umhos/cm
MW-2053	Specific Conductance	3/13/2002	1150		umhos/cm
MW-2053	Specific Conductance	5/28/2002	1200		umhos/cm
MW-2053	Specific Conductance	7/1/2002	1180		umhos/cm
MW-2053	Specific Conductance	9/12/2002	1230		umhos/cm
MW-2053	Specific Conductance	11/11/2002	1180		umhos/cm
MW-2053	Specific Conductance	3/17/2003	1180		umhos/cm
MW-2053	Specific Conductance	6/17/2003	1125		umhos/cm
MW-2053	Specific Conductance	9/17/2003	1097		umhos/cm
MW-2054	Specific Conductance	1/17/2002	612		umhos/cm
MW-2054	Specific Conductance	2/13/2002	6260		umhos/cm
MW-2054	Specific Conductance	3/13/2002	603		umhos/cm
MW-2054	Specific Conductance	5/28/2002	656		umhos/cm
MW-2054	Specific Conductance	7/1/2002	642		umhos/cm
MW-2054	Specific Conductance	9/12/2002	639		umhos/cm
MW-2054	Specific Conductance	11/11/2002	655		umhos/cm
MW-2054	Specific Conductance	3/17/2003	701		umhos/cm
MW-2054	Specific Conductance	6/17/2003	700		umhos/cm

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2054	Specific Conductance	9/17/2003	646		umhos/cm
MW-4030	Specific Conductance	1/23/2001	972		umhos/cm
MW-4030	Specific Conductance	2/21/2001	1049		umhos/cm
MW-4030	Specific Conductance	3/27/2001	1110		umhos/cm
MW-4030	Specific Conductance	5/22/2001	1060		umhos/cm
MW-4030	Specific Conductance	7/6/2001	1070		umhos/cm
MW-4030	Specific Conductance	10/9/2001	1090		umhos/cm
MW-4030	Specific Conductance	12/5/2001	1130		umhos/cm
MW-4030	Specific Conductance	1/23/2002	1030		umhos/cm
MW-4030	Specific Conductance	3/14/2002	931		umhos/cm
MW-4030	Specific Conductance	5/30/2002	1010		umhos/cm
MW-4030	Specific Conductance	8/15/2002	1050		umhos/cm
MW-4030	Specific Conductance	11/18/2002	1100		umhos/cm
MW-4030	Specific Conductance	3/18/2003	1070		umhos/cm
MW-4030	Specific Conductance	6/18/2003	1022		umhos/cm
MW-4030	Specific Conductance	9/18/2003	1083		umhos/cm
MW-4039	Specific Conductance	1/17/2002	612		umhos/cm
MW-4039	Specific Conductance	2/13/2002	326		umhos/cm
MW-4039	Specific Conductance	3/13/2002	277		umhos/cm
MW-4039	Specific Conductance	5/29/2002	342		umhos/cm
MW-4039	Specific Conductance	7/1/2002	458		umhos/cm
MW-4039	Specific Conductance	9/16/2002	835		umhos/cm
MW-4039	Specific Conductance	11/14/2002	930		umhos/cm
MW-4039	Specific Conductance	3/19/2003	871		umhos/cm
MW-4039	Specific Conductance	6/19/2003	627		umhos/cm
MW-4039	Specific Conductance	9/18/2003	676		umhos/cm
MW-2049	Temperature	1/23/2001	12.4		C
MW-2049	Temperature	2/21/2001	13.5		C
MW-2049	Temperature	3/26/2001	11.1		C
MW-2049	Temperature	5/22/2001	14.6		C
MW-2049	Temperature	7/6/2001	14.7		C
MW-2049	Temperature	10/9/2001	15.4		C
MW-2049	Temperature	12/5/2001	14.3		C
MW-2049	Temperature	1/21/2002	13.2		C
MW-2049	Temperature	3/13/2002	14.7		C
MW-2049	Temperature	5/28/2002	15.1		C
MW-2049	Temperature	7/2/2002	15.6		C
MW-2049	Temperature	9/17/2002	14.7		C
MW-2049	Temperature	11/18/2002	14.8		C
MW-2049	Temperature	3/18/2003	13.7		C
MW-2049	Temperature	6/18/2003	16.7		C

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2049	Temperature	9/16/2003	19.71		C
MW-2050	Temperature	1/23/2001	13.2		C
MW-2050	Temperature	2/21/2001	13.8		C
MW-2050	Temperature	3/26/2001	13.7		C
MW-2050	Temperature	5/22/2001	16.3		C
MW-2050	Temperature	7/6/2001	15.8		C
MW-2050	Temperature	10/9/2001	15.2		C
MW-2050	Temperature	12/5/2001	14.7		C
MW-2050	Temperature	1/21/2002	13.2		C
MW-2050	Temperature	3/13/2002	15.1		C
MW-2050	Temperature	5/29/2002	15.5		C
MW-2050	Temperature	7/2/2002	16.3		C
MW-2050	Temperature	9/16/2002	16.1		C
MW-2050	Temperature	11/18/2002	15		C
MW-2050	Temperature	3/18/2003	14.2		C
MW-2050	Temperature	6/18/2003	18		C
MW-2050	Temperature	9/16/2003	19.29		C
MW-2052	Temperature	1/17/2002	13.3		C
MW-2052	Temperature	2/13/2002	12.5		C
MW-2052	Temperature	3/13/2002	13.7		C
MW-2052	Temperature	5/28/2002	14.4		C
MW-2052	Temperature	7/1/2002	14.9		C
MW-2052	Temperature	9/12/2002	14.5		C
MW-2052	Temperature	11/11/2002	13.8		C
MW-2052	Temperature	3/17/2003	14.4		C
MW-2052	Temperature	6/17/2003	14.23		C
MW-2052	Temperature	9/18/2003	14.87		C
MW-2053	Temperature	1/17/2002	13.1		C
MW-2053	Temperature	3/13/2002	13.6		C
MW-2053	Temperature	5/28/2002	15.1		C
MW-2053	Temperature	7/1/2002	15.7		C
MW-2053	Temperature	9/12/2002	14.7		C
MW-2053	Temperature	11/11/2002	13.8		C
MW-2053	Temperature	3/17/2003	14.4		C
MW-2053	Temperature	6/17/2003	18.27		C
MW-2053	Temperature	9/17/2003	15.68		C
MW-2054	Temperature	1/17/2002	13		C
MW-2054	Temperature	2/13/2002	13.3		C
MW-2054	Temperature	3/13/2002	13.6		C
MW-2054	Temperature	5/28/2002	15.3		C
MW-2054	Temperature	7/1/2002	16.3		C

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2054	Temperature	9/12/2002	15		C
MW-2054	Temperature	11/11/2002	14.2		C
MW-2054	Temperature	3/17/2003	15		C
MW-2054	Temperature	6/17/2003	17.32		C
MW-2054	Temperature	9/17/2003	16.47		C
MW-4030	Temperature	1/23/2001	13.3		C
MW-4030	Temperature	2/21/2001	12.8		C
MW-4030	Temperature	3/27/2001	13.6		C
MW-4030	Temperature	5/22/2001	14.2		C
MW-4030	Temperature	7/6/2001	14.5		C
MW-4030	Temperature	10/9/2001	14.5		C
MW-4030	Temperature	12/5/2001	14.2		C
MW-4030	Temperature	1/23/2002	14.3		C
MW-4030	Temperature	3/14/2002	14.1		C
MW-4030	Temperature	5/30/2002	15.2		C
MW-4030	Temperature	8/15/2002	15.7		C
MW-4030	Temperature	11/18/2002	13.7		C
MW-4030	Temperature	3/18/2003	13.8		C
MW-4030	Temperature	6/18/2003	18.04		C
MW-4030	Temperature	9/18/2003	16.83		C
MW-4039	Temperature	1/17/2002	12.3		C
MW-4039	Temperature	2/13/2002	13		C
MW-4039	Temperature	3/13/2002	14		C
MW-4039	Temperature	5/29/2002	14.9		C
MW-4039	Temperature	7/1/2002	16.7		C
MW-4039	Temperature	9/16/2002	15.9		C
MW-4039	Temperature	11/14/2002	14.2		C
MW-4039	Temperature	3/19/2003	15		C
MW-4039	Temperature	6/19/2003	17.88		C
MW-4039	Temperature	9/18/2003	18.05		C
MW-2049	Turbidity	5/22/2001	2		NTU
MW-2049	Turbidity	7/6/2001	11		NTU
MW-2049	Turbidity	10/9/2001	9		NTU
MW-2049	Turbidity	1/21/2002	2		NTU
MW-2049	Turbidity	3/13/2002	12		NTU
MW-2049	Turbidity	7/2/2002	0		NTU
MW-2049	Turbidity	9/17/2002	7		NTU
MW-2049	Turbidity	11/18/2002	0		NTU
MW-2049	Turbidity	3/18/2003	0		NTU
MW-2049	Turbidity	6/18/2003	0.41		NTU
MW-2049	Turbidity	9/16/2003	1.41		NTU

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-2050	Turbidity	5/22/2001	41		NTU
MW-2050	Turbidity	7/6/2001	36		NTU
MW-2050	Turbidity	10/9/2001	41		NTU
MW-2050	Turbidity	1/21/2002	4		NTU
MW-2050	Turbidity	3/13/2002	390		NTU
MW-2050	Turbidity	7/2/2002	65		NTU
MW-2050	Turbidity	9/16/2002	9		NTU
MW-2050	Turbidity	11/18/2002	0		NTU
MW-2050	Turbidity	3/18/2003	1		NTU
MW-2050	Turbidity	6/18/2003	0.59		NTU
MW-2050	Turbidity	9/16/2003	1.35		NTU
MW-2052	Turbidity	1/17/2002	25		NTU
MW-2052	Turbidity	2/13/2002	6		NTU
MW-2052	Turbidity	3/13/2002	8		NTU
MW-2052	Turbidity	9/12/2002	15		NTU
MW-2052	Turbidity	11/11/2002	13		NTU
MW-2052	Turbidity	3/17/2003	7		NTU
MW-2052	Turbidity	6/17/2003	7.76		NTU
MW-2052	Turbidity	9/18/2003	9.91		NTU
MW-2053	Turbidity	1/17/2002	17		NTU
MW-2053	Turbidity	3/13/2002	15		NTU
MW-2053	Turbidity	11/11/2002	2		NTU
MW-2053	Turbidity	3/17/2003	2		NTU
MW-2053	Turbidity	6/17/2003	1.14		NTU
MW-2053	Turbidity	9/17/2003	8.64		NTU
MW-2054	Turbidity	1/17/2002	2		NTU
MW-2054	Turbidity	2/13/2002	0		NTU
MW-2054	Turbidity	3/13/2002	5		NTU
MW-2054	Turbidity	9/12/2002	0		NTU
MW-2054	Turbidity	11/11/2002	0		NTU
MW-2054	Turbidity	3/17/2003	0		NTU
MW-2054	Turbidity	6/17/2003	0.71		NTU
MW-2054	Turbidity	9/17/2003	0.4		NTU
MW-4030	Turbidity	5/22/2001	19		NTU
MW-4030	Turbidity	7/6/2001	3		NTU
MW-4030	Turbidity	10/9/2001	17		NTU
MW-4030	Turbidity	1/23/2002	2		NTU
MW-4030	Turbidity	3/14/2002	15		NTU
MW-4030	Turbidity	11/18/2002	0		NTU
MW-4030	Turbidity	3/18/2003	0		NTU
MW-4030	Turbidity	6/18/2003	0.41		NTU

LOCATION	ANALYTE	DATE_SAMPLED	RESULT	LAB_QUALIFIERS	UNITS
MW-4030	Turbidity	9/18/2003	0.52		NTU
MW-4039	Turbidity	1/17/2002	21		NTU
MW-4039	Turbidity	2/13/2002	186		NTU
MW-4039	Turbidity	3/13/2002	359		NTU
MW-4039	Turbidity	9/16/2002	140		NTU
MW-4039	Turbidity	11/14/2002	129		NTU
MW-4039	Turbidity	3/19/2003	74		NTU
MW-4039	Turbidity	6/19/2003	23		NTU
MW-4039	Turbidity	9/18/2003	46.8		NTU

APPENDIX C

Quality Control Data

WSSRAP_ID	QC_ID	LOCATION	DATE_SAM	PARAMETER	CONC	ERR	DL	UNITS	COMMENTS
GW-2013-031402-DU	DU	2013	3/14/2002	URANIUM, TOTAL	0.712	0.0231	0.0744	PCI/L	RPD=4
GW-2014-B301-DU	DU	2014	5/23/2001	URANIUM, TOTAL	0.451	0.045	0.677	PCI/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	ALUMINUM	193		34.3	UG/L	RPD = 10
GW-2053-011702-DU	DU	2053	1/17/2002	ANTIMONY	ND		3.3	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	ARSENIC	ND		1.2	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	BARIUM	228		10.8	UG/L	RPD = 2.0
GW-2053-011702-DU	DU	2053	1/17/2002	BERYLLIUM	0.94		0.22	UG/L	RPD = 31
GW-2053-011702-DU	DU	2053	1/17/2002	CADMIUM	ND		0.31	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	CALCIUM	151000		93.4	UG/L	RPD = 0.003
GW-2053-011702-DU	DU	2053	1/17/2002	CHROMIUM	1.1		0.73	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	COBALT	4.6		1.6	UG/L	RPD = 6.3
GW-2053-011702-DU	DU	2053	1/17/2002	COPPER	ND		1.4	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	IRON	521		26.9	UG/L	RPD = 1.1
GW-2053-011702-DU	DU	2053	1/17/2002	LEAD	ND		0.99	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	LITHIUM	23.4		10.4	UG/L	RPD = 51
GW-2053-011702-DU	DU	2053	1/17/2002	MAGNESIUM	29800		141	UG/L	RPD = 2.0
GW-2053-011702-DU	DU	2053	1/17/2002	MANGANESE	31.4		0.4	UG/L	RPD = 1.7
GW-2053-011702-DU	DU	2053	1/17/2002	MERCURY	ND		0.1	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	MOLYBDENUM	ND		1.3	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	NICKEL	9.1		1.3	UG/L	RPD = 55
GW-2053-011702-DU	DU	2053	1/17/2002	NITRATE-N	1.5		0.1	MG/L	RPD = 0.66
GW-2053-011702-DU	DU	2053	1/17/2002	POTASSIUM	8270		1840	UG/L	RPD = 32
GW-2053-011702-DU	DU	2053	1/17/2002	SELENIUM	ND		1.2	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	SILVER	ND		1.7	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	SODIUM	54400		125	UG/L	RPD = 0.037
GW-2053-011702-DU	DU	2053	1/17/2002	THALLIUM	9.1		2.2	UG/L	RPD = 17
GW-2053-011702-DU	DU	2053	1/17/2002	URANIUM, TOTAL	3.68	0.37	0.68	PCI/L	RPD = 1
GW-2053-011702-DU	DU	2053	1/17/2002	VANADIUM	ND		1.8	UG/L	RPD = NC
GW-2053-011702-DU	DU	2053	1/17/2002	ZINC	8.2		1.3	UG/L	RPD = 7.2
GW-2006-B302-MD	MD	2006	5/28/2002	1,3,5-TRINITROBENZENE	5.08		0.2	UG/L	%REC = 0.0; RPD = 0.0
GW-2006-B302-MD	MD	2006	5/28/2002	1,3-DINITROBENZENE	1.4		0.2	UG/L	%REC = 70; RPD = 47
GW-2006-B302-MD	MD	2006	5/28/2002	2,4,6-TRINITROTOLUENE	1.19		0.2	UG/L	%REC = 31; RPD = 52
GW-2006-B302-MD	MD	2006	5/28/2002	2,4-DINITROTOLUENE	1.01		0.2	UG/L	%REC = 46; RPD = 57
GW-2006-B302-MD	MD	2006	5/28/2002	2,6-DINITROTOLUENE	1.56		0.2	UG/L	%REC = 24; RPD = 58
GW-2006-B302-MD	MD	2006	5/28/2002	NITROBENZENE	0.917		0.2	UG/L	%REC = 46; RPD = 53
GW-2012-B502-MD	MD	2012	9/16/2002	1,3,5-TRINITROBENZENE	206		0.2	UG/L	%REC = 0.0; RPD = 0.9
GW-2012-B502-MD	MD	2012	9/16/2002	1,3-DINITROBENZENE	3.11		0.2	UG/L	%REC = 71; RPD = 2.8
GW-2012-B502-MD	MD	2012	9/16/2002	2,4,6-TRINITROTOLUENE	216		0.2	UG/L	%REC = 85; RPD = 1.9
GW-2012-B502-MD	MD	2012	9/16/2002	2,4-DINITROTOLUENE	1200		0.2	UG/L	%REC = 400; RPD = 1.6
GW-2012-B502-MD	MD	2012	9/16/2002	2,6-DINITROTOLUENE	951		0.2	UG/L	%REC = 0.0; RPD = 2.1
GW-2012-B502-MD	MD	2012	9/16/2002	NITROBENZENE	1.07		0.2	UG/L	%REC = 54; RPD = 11
GW-2013-031402-MD	MD	2013	3/14/2002	1,3,5-TRINITROBENZENE	3.21		0.04	UG/L	%REC = 60; RPD = 1.7

WSSRAP_ID	QC_ID	LOCATION	DATE_SAM	PARAMETER	CONC	ERR	DL	UNITS	COMMENTS
GW-2013-031402-MD	MD	2013	3/14/2002	1,3-DINITROBENZENE	1.56		0.09	UG/L	%REC = 78; RPD = 1.6
GW-2013-031402-MD	MD	2013	3/14/2002	2,4,6-TRINITROTOLUENE	1.63		0.08	UG/L	%REC = 64; RPD = 0.55
GW-2013-031402-MD	MD	2013	3/14/2002	2,4-DINITROTOLUENE	1.47		0.06	UG/L	%REC = 66; RPD = 1.8
GW-2013-031402-MD	MD	2013	3/14/2002	2,6-DINITROTOLUENE	1.98		0.1	UG/L	%REC = 55; RPD = 0.75
GW-2013-031402-MD	MD	2013	3/14/2002	2-AMINO-4,6-DNT	1.65		0.03	UG/L	%REC = 53; RPD = 1.5
GW-2013-031402-MD	MD	2013	3/14/2002	2-NITROTOLUENE	1.35		0.03	UG/L	%REC = 68; RPD = 4.1
GW-2013-031402-MD	MD	2013	3/14/2002	3-NITROTOLUENE	1.35		0.03	UG/L	%REC = 67; RPD = 1.9
GW-2013-031402-MD	MD	2013	3/14/2002	4-AMINO-2,6-DNT	1.92		0.03	UG/L	%REC = 56; RPD = 3.8
GW-2013-031402-MD	MD	2013	3/14/2002	4-NITROTOLUENE	1.3		0.03	UG/L	%REC = 65; RPD = 2.2
GW-2013-031402-MD	MD	2013	3/14/2002	NITROBENZENE	1.38		0.08	UG/L	%REC = 69; RPD = 0.43
GW-2014-B301-MD	MD	2014	5/23/2001	1,3,5-TRINITROBENZENE	2.44		0.03	UG/L	%REC = 57; RPD = 1.8
GW-2014-B301-MD	MD	2014	5/23/2001	1,3-DINITROBENZENE	1.09		0.09	UG/L	%REC = 54; RPD = 2.5
GW-2014-B301-MD	MD	2014	5/23/2001	2,4,6-TRINITROTOLUENE	1.36		0.03	UG/L	%REC = 68; RPD = 1.9
GW-2014-B301-MD	MD	2014	5/23/2001	2,4-DINITROTOLUENE	1.18		0.04	UG/L	%REC = 54; RPD = 1.4
GW-2014-B301-MD	MD	2014	5/23/2001	2,6-DINITROTOLUENE	1.45		0.06	UG/L	%REC = 55; RPD = 0.75
GW-2014-B301-MD	MD	2014	5/23/2001	NITROBENZENE	1.01		0.03	UG/L	%REC = 51; RPD = 0.19
GW-2053-011702-MD	MD	2053	1/17/2002	1,3,5-TRINITROBENZENE	9.9		0.03	UG/L	%REC = 79; RPD = 1.2
GW-2053-011702-MD	MD	2053	1/17/2002	1,3-DINITROBENZENE	1.94		0.09	UG/L	%REC = 97; RPD = 0.97
GW-2053-011702-MD	MD	2053	1/17/2002	2,4,6-TRINITROTOLUENE	8.2		0.03	UG/L	%REC = 30; RPD = 2.7
GW-2053-011702-MD	MD	2053	1/17/2002	2,4-DINITROTOLUENE	2.16		0.04	UG/L	%REC = 91; RPD = 3.0
GW-2053-011702-MD	MD	2053	1/17/2002	2,6-DINITROTOLUENE	25.8		0.06	UG/L	%REC = 38; RPD = 1.8
GW-2053-011702-MD	MD	2053	1/17/2002	2-AMINO-4,6-DNT	4.28		0.03	UG/L	%REC = 214; RPD = 4.5
GW-2053-011702-MD	MD	2053	1/17/2002	2-NITROTOLUENE	2.47		0.03	UG/L	%REC = 84; RPD = 4.3
GW-2053-011702-MD	MD	2053	1/17/2002	3-NITROTOLUENE	1.84		0.03	UG/L	%REC = 92; RPD = 7.0
GW-2053-011702-MD	MD	2053	1/17/2002	4-AMINO-2,6-DNT	4.09		0.03	UG/L	%REC = 74; RPD = 7.0
GW-2053-011702-MD	MD	2053	1/17/2002	4-NITROTOLUENE	1.81		0.03	UG/L	%REC = 90; RPD = 0.94
GW-2053-011702-MD	MD	2053	1/17/2002	NITROBENZENE	1.66		0.03	UG/L	%REC = 83; RPD = 1.7
GW-2006-B302-MS	MS	2006	5/28/2002	1,3,5-TRINITROBENZENE	7.3		0.2	UG/L	%REC = 94
GW-2006-B302-MS	MS	2006	5/28/2002	1,3-DINITROBENZENE	2.26		0.2	UG/L	%REC = 113
GW-2006-B302-MS	MS	2006	5/28/2002	2,4,6-TRINITROTOLUENE	2.04		0.2	UG/L	%REC = 73
GW-2006-B302-MS	MS	2006	5/28/2002	2,4-DINITROTOLUENE	1.82		0.2	UG/L	%REC = 86
GW-2006-B302-MS	MS	2006	5/28/2002	2,6-DINITROTOLUENE	2.84		0.2	UG/L	%REC = 88
GW-2006-B302-MS	MS	2006	5/28/2002	NITROBENZENE	1.58		0.2	UG/L	%REC = 79
GW-2012-B502-MS	MS	2012	9/16/2002	1,3,5-TRINITROBENZENE	208		0.2	UG/L	%REC = 10
GW-2012-B502-MS	MS	2012	9/16/2002	1,3-DINITROBENZENE	3.03		0.2	UG/L	%REC = 66
GW-2012-B502-MS	MS	2012	9/16/2002	2,4,6-TRINITROTOLUENE	212		0.2	UG/L	%REC = 0.0
GW-2012-B502-MS	MS	2012	9/16/2002	2,4-DINITROTOLUENE	1180		0.2	UG/L	%REC = 0.0
GW-2012-B502-MS	MS	2012	9/16/2002	2,6-DINITROTOLUENE	931		0.2	UG/L	%REC = 0.0
GW-2012-B502-MS	MS	2012	9/16/2002	NITROBENZENE	0.962		0.2	UG/L	%REC = 48
GW-2013-031402-MS	MS	2013	3/14/2002	1,3,5-TRINITROBENZENE	3.27		0.04	UG/L	%REC = 63
GW-2013-031402-MS	MS	2013	3/14/2002	1,3-DINITROBENZENE	1.58		0.09	UG/L	%REC = 79
GW-2013-031402-MS	MS	2013	3/14/2002	2,4,6-TRINITROTOLUENE	1.64		0.08	UG/L	%REC = 64

WSSRAP_ID	QC_ID	LOCATION	DATE_SAM	PARAMETER	CONC	ERR	DL	UNITS	COMMENTS
GW-2013-031402-MS	MS	2013	3/14/2002	2,4-DINITROTOLUENE	1.5		0.06	UG/L	%REC = 67
GW-2013-031402-MS	MS	2013	3/14/2002	2,6-DINITROTOLUENE	2		0.1	UG/L	%REC = 55
GW-2013-031402-MS	MS	2013	3/14/2002	2-AMINO-4,6-DNT	1.68		0.03	UG/L	%REC = 54
GW-2013-031402-MS	MS	2013	3/14/2002	2-NITROTOLUENE	1.41		0.03	UG/L	%REC = 70
GW-2013-031402-MS	MS	2013	3/14/2002	3-NITROTOLUENE	1.37		0.03	UG/L	%REC = 69
GW-2013-031402-MS	MS	2013	3/14/2002	4-AMINO-2,6-DNT	1.99		0.03	UG/L	%REC = 60
GW-2013-031402-MS	MS	2013	3/14/2002	4-NITROTOLUENE	1.33		0.03	UG/L	%REC = 67
GW-2013-031402-MS	MS	2013	3/14/2002	NITROBENZENE	1.39		0.08	UG/L	%REC = 69
GW-2013-031402-MS	MS	2013	3/14/2002	URANIUM, TOTAL	31.5	1.09	0.0744	PCI/L	%REC=91
GW-2014-B301-MS	MS	2014	5/23/2001	1,3,5-TRINITROBENZENE	2.48		0.03	UG/L	%REC = 60
GW-2014-B301-MS	MS	2014	5/23/2001	1,3-DINITROBENZENE	1.12		0.09	UG/L	%REC = 56
GW-2014-B301-MS	MS	2014	5/23/2001	2,4,6-TRINITROTOLUENE	1.38		0.03	UG/L	%REC = 69
GW-2014-B301-MS	MS	2014	5/23/2001	2,4-DINITROTOLUENE	1.2		0.04	UG/L	%REC = 55
GW-2014-B301-MS	MS	2014	5/23/2001	2,6-DINITROTOLUENE	1.46		0.06	UG/L	%REC = 56
GW-2014-B301-MS	MS	2014	5/23/2001	NITROBENZENE	1.01		0.03	UG/L	%REC = 51
GW-2014-B301-MS	MS	2014	5/23/2001	URANIUM, TOTAL	23.7	2.7	0.677	PCI/L	%REC = 86
GW-2053-011702-MS	MS	2053	1/17/2002	1,3,5-TRINITROBENZENE	10		0.03	UG/L	%REC = 85
GW-2053-011702-MS	MS	2053	1/17/2002	1,3-DINITROBENZENE	1.96		0.09	UG/L	%REC = 98
GW-2053-011702-MS	MS	2053	1/17/2002	2,4,6-TRINITROTOLUENE	8.42		0.03	UG/L	%REC = 41
GW-2053-011702-MS	MS	2053	1/17/2002	2,4-DINITROTOLUENE	2.23		0.04	UG/L	%REC = 95
GW-2053-011702-MS	MS	2053	1/17/2002	2,6-DINITROTOLUENE	26.3		0.06	UG/L	%REC = 62
GW-2053-011702-MS	MS	2053	1/17/2002	2-AMINO-4,6-DNT	4.47		0.03	UG/L	%REC = 224
GW-2053-011702-MS	MS	2053	1/17/2002	2-NITROTOLUENE	2.58		0.03	UG/L	%REC = 90
GW-2053-011702-MS	MS	2053	1/17/2002	3-NITROTOLUENE	1.98		0.03	UG/L	%REC = 99
GW-2053-011702-MS	MS	2053	1/17/2002	4-AMINO-2,6-DNT	4.39		0.03	UG/L	%REC = 89
GW-2053-011702-MS	MS	2053	1/17/2002	4-NITROTOLUENE	1.79		0.03	UG/L	%REC = 90
GW-2053-011702-MS	MS	2053	1/17/2002	ALUMINUM	2430		34.3	UG/L	%REC = 111
GW-2053-011702-MS	MS	2053	1/17/2002	ANTIMONY	517		3.3	UG/L	%REC = 103
GW-2053-011702-MS	MS	2053	1/17/2002	ARSENIC	2190		1.2	UG/L	%REC = 109
GW-2053-011702-MS	MS	2053	1/17/2002	BARIUM	2250		10.8	UG/L	%REC = 101
GW-2053-011702-MS	MS	2053	1/17/2002	BERYLLIUM	54.1		0.22	UG/L	%REC = 107
GW-2053-011702-MS	MS	2053	1/17/2002	CADMIUM	50.3		0.31	UG/L	%REC = 101
GW-2053-011702-MS	MS	2053	1/17/2002	CALCIUM	191000		93.4	UG/L	%REC = 80
GW-2053-011702-MS	MS	2053	1/17/2002	CHROMIUM	192		0.73	UG/L	%REC = 96
GW-2053-011702-MS	MS	2053	1/17/2002	COBALT	492		1.6	UG/L	%REC = 97
GW-2053-011702-MS	MS	2053	1/17/2002	COPPER	254		1.4	UG/L	%REC = 102
GW-2053-011702-MS	MS	2053	1/17/2002	IRON	1490		26.9	UG/L	%REC = 97
GW-2053-011702-MS	MS	2053	1/17/2002	LEAD	510		0.99	UG/L	%REC = 102
GW-2053-011702-MS	MS	2053	1/17/2002	LITHIUM	1910		10.4	UG/L	%REC = 95
GW-2053-011702-MS	MS	2053	1/17/2002	MAGNESIUM	80100		141	UG/L	%REC = 99
GW-2053-011702-MS	MS	2053	1/17/2002	MANGANESE	528		0.4	UG/L	%REC = 99
GW-2053-011702-MS	MS	2053	1/17/2002	MERCURY	0.903		0.1	UG/L	%REC = 80

WSSRAP_ID	QC_ID	LOCATION	DATE_SAM	PARAMETER	CONC	ERR	DL	UNITS	COMMENTS
GW-2053-011702-MS	MS	2053	1/17/2002	MOLYBDENUM	997		1.3	UG/L	%REC = 100
GW-2053-011702-MS	MS	2053	1/17/2002	NICKEL	495		1.3	UG/L	%REC = 99
GW-2053-011702-MS	MS	2053	1/17/2002	NITRATE-N	1.91		0.05	MG/L	%REC = 41
GW-2053-011702-MS	MS	2053	1/17/2002	NITROBENZENE	1.68		0.03	UG/L	%REC = 84
GW-2053-011702-MS	MS	2053	1/17/2002	POTASSIUM	57600		1840	UG/L	%REC = 103
GW-2053-011702-MS	MS	2053	1/17/2002	SELENIUM	2290		1.2	UG/L	%REC = 115
GW-2053-011702-MS	MS	2053	1/17/2002	SILVER	47.9		1.7	UG/L	%REC = 96
GW-2053-011702-MS	MS	2053	1/17/2002	SODIUM	99900		125	UG/L	%REC = 91
GW-2053-011702-MS	MS	2053	1/17/2002	THALLIUM	2090		2.2	UG/L	%REC = 104
GW-2053-011702-MS	MS	2053	1/17/2002	URANIUM, TOTAL	30.1	3.5	0.7	PCI/L	%REC = 97
GW-2053-011702-MS	MS	2053	1/17/2002	VANADIUM	486		1.8	UG/L	%REC = 97
GW-2053-011702-MS	MS	2053	1/17/2002	ZINC	547		1.3	UG/L	%REC = 108

APPENDIX D

Nitroaromatic Soil/Source Investigations in the Frog Pond Area

MORRISON KNUDSEN CORPORATION
Federal Programs Division

INTER-OFFICE CORRESPONDENCE

DATE: November 7, 2001

TO: Distribution

FROM: Earl Dowell (Ext. 3134)

SUBJECT: **RESULTS OF THE NITROAROMATIC COMPOUND INVESTIGATION TRENCHING IN THE FROG POND AREA**

Nitroaromatic contamination is increasing in select monitoring wells in the frog pond area of the site. On October 18-19, 2001, investigative trenching was performed at former ordnance works facilities and drainage features in the frog pond area to locate possible sources of the localized groundwater contamination. Attached for your information is the laboratory data, trenching details, trench locations map, Scope of Work, and Waste Analysis Plan addendum.

At each of the eight trenches the excavated materials were inspected visually for nitroaromatics contamination, and a composite sample of soil was taken from the bottom. At trench FP-08, a biased sample was also obtained.

Results:
Trenches FP01-FP07 - no visible nitroaromatics contamination. Composite samples for all nitroaromatics reported at less than 1 mg/kg (ppm) or undetected.

Trench FP-08 - nitroaromatics contamination noted in small pockets in east portion of trench at two separate elevations. Total volume estimated at approximately 2 cubic feet. Composite sample from soils at bottom of trench 2,4,6-TNT result of 210 mg/kg; biased sample of contaminated soil 2,4,6-TNT result of 1300 mg/kg.

Distribution:
Cato-Johnston, Becky
Delaney, Joe
Hamilton, Karl
Hixson, Dave
Kerr, Mike
Lutz, Melissa
Meier, Jim
Thompson, Jack
Uhlmeyer, Terri
Warren, Steve

Cc: Anderson, Scott
Bailey, Ray
Enger, Linda
Pauling, Tom
EC 2.1.19
Attachments

Lionville Laboratory, Inc.
Explosives by HPLC / Method 8330

RFW Batch Number: 0110L175 Client: MK FERGUSON WSSRAP Work Order: 05541005004 Page: 1 Report Date: 10/30/01 14:42

	Cust ID:	WM-D269-1018 01	WM-D270-1018 01	WM-D271-1018 01	WM-D272-1018 01	WM-D272-1018 01	WM-D272-1018 01
Sample Information	RFW#:	001	002	003	004	004 MS	004 MSD
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,2-Dinitrobenzene		88 %	91 %	95 %	91 %	94 %	91 %
1,3,5-Trinitrobenzene		250 U	250 U	250 U	250 U	100 %	99 %
1,3-Dinitrobenzene		250 U	250 U	250 U	250 U	100 %	98 %
Nitrobenzene		260 U	260 U	260 U	260 U	107 %	104 %
2,4,6-Trinitrotoluene		250 U	590	250 U	250 U	100 %	97 %
2,6-Dinitrotoluene		260 U	260 U	260 U	260 U	98 %	97 %
2,4-Dinitrotoluene		250 U	250 U	250 U	250 U	104 %	101 %

	Cust ID:	WM-D273-1018 01	WM-D274-1019 01	WM-D275-1019 01	WM-D276-1019 01	WM-D276-1019 01	WM-D277-1019 01
Sample Information	RFW#:	005	006	007	008	008 DL	009
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	2.00	20.0	10.0
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,2-Dinitrobenzene		89 %	91 %	94 %	91 %	D %	D %
1,3,5-Trinitrobenzene		250 U	250 U	250 U	500 U	NA	1800 J
1,3-Dinitrobenzene		250 U	250 U	250 U	500 U	NA	2500 U
Nitrobenzene		260 U	260 U	260 U	520 U	NA	2600 U
2,4,6-Trinitrotoluene		250 U	250 U	250 U	E	210000	E
2,6-Dinitrotoluene		260 U	260 U	260 U	520 U	NA	2600 U
2,4-Dinitrotoluene		250 U	250 U	250 U	500 U	NA 210 mg/kg	2500 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

"Preliminary DATA" DATE 10/30/01 INT BS

10-31-01 08:50am From-LIONVILLE LABORATORY INCORPORATED 6102803041 T-458 P.02/03 F-156

Lionville Laboratory, Inc.
Explosives by HPLC / Method 8330

Report Date: 10/30/01 14:42

RFW Batch Number: 0110L175 Client: MK FERGUSON WSSRAP Work Order: 05541005004 Page: 2

	Cust ID:	WM-D277-1019 01	BLK	BLK BS
Sample Information	RFW#:	009 DL	01LLC032-MB1	01LLC032-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	100	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg

1,2-Dinitrobenzene	D	%	94	%	96	%						
1,3,5-Trinitrobenzene	NA		250	U	103	%						
1,3-Dinitrobenzene	NA		250	U	98	%						
Nitrobenzene	NA		260	U	104	%						
2,4,6-Trinitrotoluene	1300000		250	U	98	%						
2,6-Dinitrotoluene	NA		260	U	96	%						
2,4-Dinitrotoluene	NA	1300 mg/kg	250	U	101	%						

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

"Preliminary DATA"
DATE 10/30/01 INT BS

10-31-01 09:50am From-LIONVILLE LABORATORY INCORPORATED 6102803041 T-459 P.03/03 F-156

TRENCHING DETAILS

FP-01 TRAM LINE RELAY HOUSE

Sample #WM-D274-101901
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than detection limits
- Trench excavated to depth of approximately 8 feet
- Vitrified clay pipe at depth of approximately 5 feet, radioactively contaminated
- No perched water

FP-02 CONFLUENCE OF DRAINAGE DITCHES

Sample #WM-D269-101801
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than detection limits
- Trench excavated to depth of 14-15 feet
- Residuum encountered at west end of trench
- Trench length extended 10-15 feet at west end
- No perched water

FP-03 NORTH DRAINAGE DITCH

Sample #WM-D270-101801
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than 1 mg/kg (ppm)
- Trench excavated to depth of approximately 10 feet
- Debris encountered includes concrete, metal straps, rebar
- No perched water

FP-04 SOUTH DRAINAGE DITCH/ROAD CULVERT

Sample #WM-D271-101801
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than detection limits
- Trench excavated to depth of approximately 12 feet at west end, approximately 18 feet at east end
- Remnants of metal culvert pipe found
- No perched water

FP-05 SOUTH DRAINAGE DITCH, MIDDLE SECTION

Sample #WM-D272-101801
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than detection limits
- Trench excavated to depth of approximately 18 feet
- Debris encountered includes brick, gravel
- No perched water

FP-06 SOUTH DRAINAGE DITCH, SOUTH END

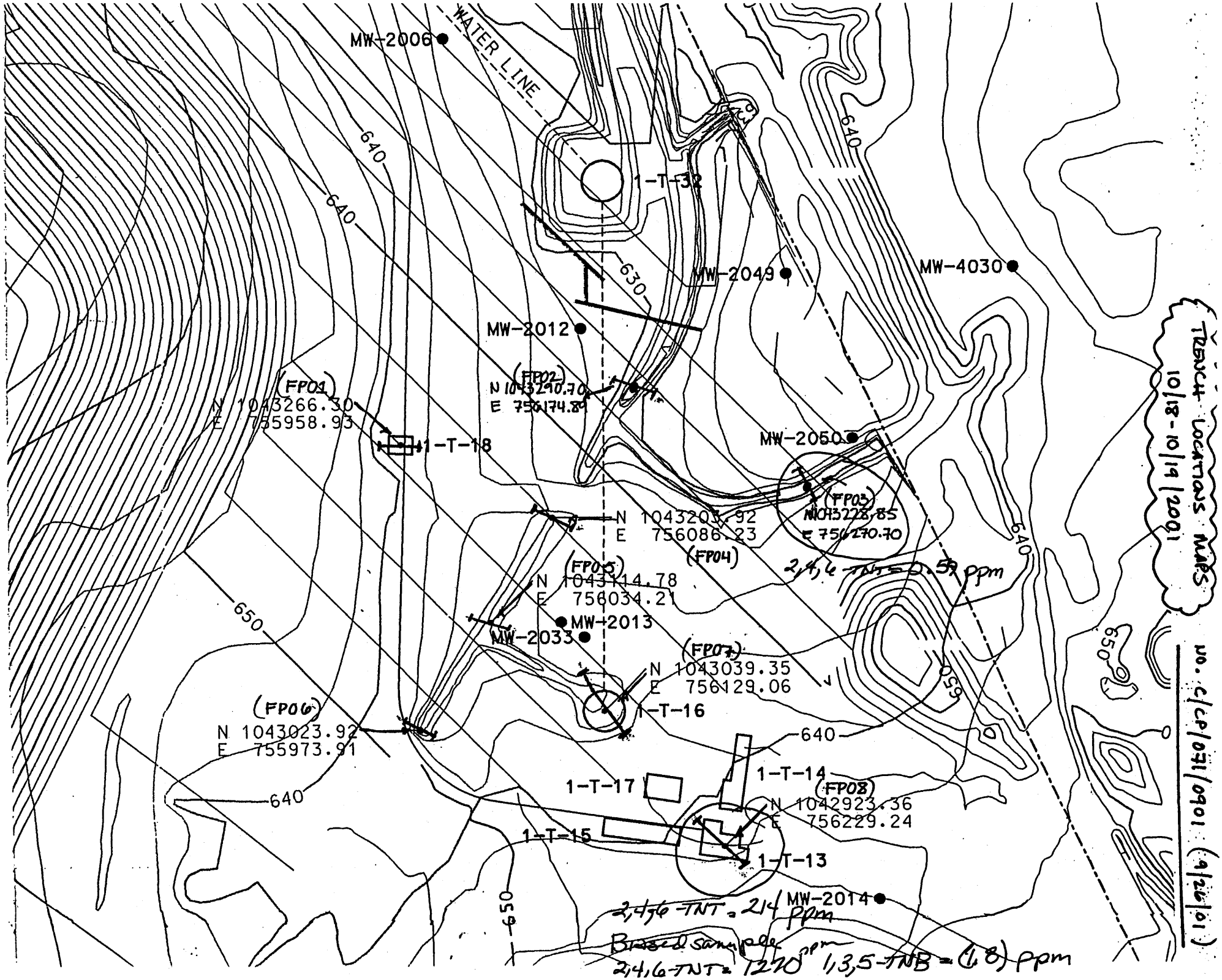
Sample #WM-D273-101801
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than detection limits
- Trench excavated to depth of approximately 19 feet
- Bedrock encountered at east end of trench
- No perched water

FP-07 SOUTH DRAINAGE DITCH, FORMER TANK LOCATION

Sample #WM-D275-101901
- No visible indication of nitroaromatics contamination
- Nitroaromatics analytical results all less than detection limits
- Trench excavated to depth of approximately 12 feet
- Small amount of debris
- No perched water

FP-08 FORMER T-13 TRI-NITRATION HOUSE LOCATION

East half trenched 10/18/01, west half trenched 10/19/01
Sample #WM-D276-101901 (composite)
#WM-D277-101901 (biased)
- Visible nitroaromatics contamination in east end of trench at approximate 5 foot elevation and near bottom of trench, though small amount (approx. 2 cubic foot volume). No visible indications of nitroaromatics contamination in west end of trench
- 2,4,6-TNT results for composite sample 210 mg/kg (ppm)
- 2,4,6-TNT results for biased sample 1300 mg/kg (ppm)
- Trench excavated to depth of approximately 12 feet
- Trench length extended approximately 25 feet at west end (total 55 feet)
- No perched water


MW-2006
WATER LINE
640
640
640
630
1-T-32
MW-2049
MW-4030
MW-2012
(FP02)
N 1043290.70
E 756174.80
(FP01)
N 1043266.30
E 755958.93
1-T-18
MW-2050
(FP03)
N 1043228.85
E 756270.70
N 1043205.92
E 756086.23
(FP04)
2,4,6-TNT = 0.52 ppm
(FP05)
N 1043114.78
E 756034.21
MW-2013
MW-2033
650
(FP07)
N 1043039.35
E 756129.06
1-T-16
(FP06)
N 1043023.92
E 755973.91
640
1-T-14
1-T-17
(FP08)
N 1042923.36
E 756229.24
1-T-15
1-T-13
650
MW-2014
2,4,6-TNT = 214 ppm
Biased sample
2,4,6-TNT = 1270 ppm
1,3,5-TNB = (1.8) ppm
TRENCH LOCATIONS MAPS
10/18-10/19/2001
no. c/cp/021/0901 (9/26/01)

SCOPE OF WORK
NITROAROMATIC COMPOUND INVESTIGATION
TRENCHING IN THE FROG POND AREA

Purpose and Scope

Nitroaromatic contamination is increasing in select monitoring wells in the frog pond area of the site. Possible sources include former Ordnance Works process building locations and surface drainage features, associated with TNT Line #1. The purpose of this proposed investigation is to locate possible sources of this localized groundwater contamination by exposing subsurface regions of possible sources for visual inspection and sampling of soil and water, as appropriate.

Trenching

The possible sources of contamination to be investigated include former Ordnance Works process building locations, surface drainage features, and waste pond drainage associated with line #1. Trenching is proposed at the following locations (Figure 1):

1. Building T-13 location
2. Building T-16 location
3. Building T-18 location
4. Various surface drainage locations (total of 5)

A summary of the coordinates of the center point of each trench and estimated maximum depth are presented in Table 1. All locations will be staked in the field by DHO prior to field activities. The orientation of each trench is shown on Figure 1.

Table 1 Trench Locations

Trench ID	Location	Northing	Easting	Estimated Depth
FP01	T-18 – Wet Powder Holdover	1043266.30	755958.93	8 ft
FP02	Drainage	1043290.70	756174.89	13 ft
FP03	Drainage	1043228.85	756270.70	8 ft
FP04	Drainage	1043203.92	756086.23	10 ft
FP05	Drainage	1043114.78	756034.21	16 ft
FP06	Drainage	1043023.92	755973.91	17 ft
FP07	T-16 – Wash Wastewater Settling Tank	1043039.35	756129.06	12 ft
FP08	T-13 – Wash House	1042923.36	756229.24	6 ft

At each location, a trench will be excavated and soils inspected for discoloration associated with nitroaromatic compounds. During trenching operations soils will be placed in individual piles for visual inspection by the PMC. Trench walls and excavated soil will be inspected for evidence of ordnance-era surface soils to assist locating sampling horizons. There is a possibility that concrete foundations and/or piers may be encountered during this activity.

After inspection and possible sampling by the PMC, the soils will be returned to the trench. Efforts will be made to replace soils so that the bottom soils are returned to the base of the trench. No trenches will remain open overnight.

SAMPLING

If discolored soil or perched groundwater is encountered during trenching activities, samples will be collected as outlined in the addendum to the *Waste Analysis Plan*, Rev. 10, DOE/OR/21548-128.

MORRISON KNUDSEN CORPORATION
Environmental/Government Group

INTER-OFFICE CORRESPONDENCE

DATE: September 25, 2001

TO: Distribution

FROM: Earl Dowell

SUBJECT: **WASTE ANALYSIS PLAN, DOE/OR/21548-128 REV. 10: ADDENDUM FOR CHARACTERIZATION OF NITROAROMATIC SOILS DURING TRENCHING INVESTIGATION IN THE NORTHEAST REGION OF THE SITE**

The following Waste Analysis Plan Addendum outlines the waste analyses that will be performed to characterize any nitroaromatics contamination during trenching investigation in the frog pond area. The sampling activity will be conducted under the *Waste Analysis Plan*, Rev. 10, DOE/OR/21548-128.

Nitroaromatic contamination is increasing in select monitoring wells in the frog pond area of the site. Possible sources include former Ordnance Works process building locations and surface drainage features, associated with TNT Line #1. The purpose of this proposed investigation is to locate possible sources of this localized groundwater contamination by exposing subsurface regions of possible sources for visual inspection and sampling of soil and water, as appropriate.

Historical info indicates TNT/DNT contamination was frequently washed from the Ordnance Works process buildings into the surface drainages/ditches. Overflows or leaks occurred from waste ponds, settling tanks, and piping. Soils surrounding the process buildings were contaminated.

During trenching operations, the PMC will inspect the trench walls and excavated soil for evidence of ordnance-era surface soils to assist locating sampling horizons. Soil and water samples will be collected if suspected

(discolored soil and/or water) is visually identified during trenching. To reach former surface elevations it is expected trenching depths of 10-20 feet will be necessary. Trenching will be performed at the following locations (see attached drawing):

1. Building T-13 location
2. Building T-16 location
3. Building T-18 location
4. Various surface drainage locations (total of 5)

Soil and water samples will be placed in containers listed in below table. Each soil sample will consist of 3 aliquots from the sampled area, using plastic scoops. Samples will be assigned a unique waste management identification number. Sample depths and other pertinent information will be documented on Field Sampling Data Forms. Quality control samples will be obtained at a rate of 1 per 20 samples, or one per project. All record keeping requirements presented in the Waste Analysis Plan will be adhered to as part of this sampling addendum.

Analysis (soil)	Container	Preservative
Isotopic thorium, Radium-226, Radium-228, Uranium-238	Plastic bag (1000 grams)	NA
Nitroaromatics, TCLP Semi-VOA	500 gram amber glass jars (QC sample-1L amber glass)	Cool (4 degrees C)

Analysis (water)	Container	Preservative
Uranium, total	500 ml plastic bottle	PH < 2, nitric acid
Nitroaromatics (GWOU list)	1 liter amber glass bottle (QC sample-3L amber glass)	Cool (4 degrees C)
TCE (if needed)	2 x 40 ml Vial	2 drops HCL, Cool (4 degrees C)

APPROVALS

John R. Thompson 9/26/01

Data Administration Coordinator - Randy Thompson

David Hixson 9/26/01

ES&H Manager - David Hixson

Marjorie L. Oaks 9-26-01

Engineering Manager - Marjorie Oaks

Phil D. Cate 9/26/2001

Quality Manager - Phil Cate

Steve Warren 9/27/01

Deputy Project Director - Steve Warren

Distribution:

Signatories
Becky Cato-Johnston
Jim Meier
Terri Uhlmeyer

ALARA Committee Meeting Minutes
November 13, 2001

Attendees: T. Pauling * JCO. [redacted] D. Hixson *
E. Dowell G. Valett * GLV J. Meier
L. Enger M. Lutz * MDL S. Warren * SDW

* - Denotes ALARA committee members

The ALARA committee met on November 13, 2001 to discuss three issues. The first issue concerned the results of exploratory trenching for nitroaromatic sources in the Frog Pond area of the Chemical Plant. The second issue concerned the uranium concentration in a core sample collected near a vicinity property location. The third issue concerned utility samples collected in Ash Pond work zone CU297.

ISSUE 1:

Exploratory trenching was conducted in the Frog Pond work zone in an attempt to identify a possible nitroaromatic source which could potentially cause elevated concentration in nearby monitoring wells. Of the three trenches excavated in August, 2000 and the eight trenches excavated in November, 2001, samples in only one trench yielded any significant level of nitroaromatics. The trench was located at the former site of ordinance works building T-13 (wash house). The site was selected in order to indicate whether any large nitroaromatic sources were evident near the building footprint and the drainage in that area.

The soil was a very dark fill material until a depth of 12 feet, where natural soils were observed. Red stained soil was identified at a depth of approximately 4 - 5 feet in the excavation, which was initially excavated to approximately 30' x 12' x 3-4' in size. Two samples were collected; one biased with regard to the red soil and one a composite of red and surrounding soil. The trench was expanded to 55' x 12' x 3-4' and then backfilled, with the stained soil being returned to the excavation first.

The samples were analyzed at an off-site laboratory for the six nitroaromatic compounds. The results indicated 2,4,6-trinitrotoluene (TNT) concentrations of 1270 and 214 ug/g. Criteria levels for TNT are identified in the *Chemical Plant Area Cleanup Attainment Confirmation Plan* as 140 ug/g for surface and 1,400 ug/g for subsurface. Therefore, the sample results are below subsurface criteria.

In determining whether to excavate the material, several things were considered. First, it was determined that applying subsurface criteria is consistent with the logic used in past similar situations with respect to raffinate pits 3 and 4. Second, it was determined that the likely locations of nitroaromatic sources in the Frog Pond work zone have been investigated and the ALARA committee members are confident that all reasonable actions have been taken to identify any specific large nitroaromatic sources in that area. Additionally, four new monitoring wells are scheduled for installation in locations bounding this area and the wells will be monitored bi-monthly, similar to the existing wells in the area. The committee agreed that it is not reasonable to conduct additional excavations or further remediation in this area. The data will be forwarded to ANL.

ISSUE 2:

On November 7, 2001, a drill rig pulled a sample core from a boring near Vicinity Property 9. Drilling was being performed to support geochemical characterization of the area north of the Femme Osage slough. Beta-gamma measurements were taken along the length of the sample core. At approximately the 8 foot level, at the interface between the oxidation and reduction zones, beta-gamma concentration levels up to 11,200 dpm were detected. The core was sampled and analyzed in the site laboratory. Qualitative results of the core sample were 148.36 pCi/g uranium.

ALARA Committee Meeting
May 20, 2002

Attendees:	Dave Hixson*	Gene Valett*	Tom Pauling* (DOE)
	Steve Warren*	Melissa Lutz*	Dave Fleming
	~~Becky Eaton~~	Terri Uhlmeyer	Earl Dowell
	Karl Hamilton	Mike Kerr	

* ALARA committee member

Topic: Nitroaromatics identified during Storm Sewer construction

Background – On Saturday, May 18, 2002, DHO encountered TNT contaminated soils and a 12 inch CMP during excavation for the northern portion of the storm water drainage installation. The 2-3" TNT contaminated soil lens was located approximately 6 – 12 inches above the CMP (approximately 2 ft below the surface) and also at the end of the pipe. The eastern end of the CMP, approximately 2 – 3 feet, was removed. The remaining portion of the CMP, length unknown, contained water and was left in place. A qualitative TNT test was conducted on soil from both locations. Both samples had positive results. The approximately 2 cubic yards of material showing visible TNT contamination was placed on plastic and covered. The ditch was backfilled so as not to collect any water. DHO then moved about 150 feet south and started work again on the drainage. No additional suspect soils have been encountered as of this meeting.

DHO will be directed to excavate the remaining drainage under the observation of ES&H representative(s). Upon removal, the soils are to be made available for inspection. Any suspect TNT contaminated soils or debris will be removed and placed into a separate pile (sheet poly liner and cover). Any TNT-contaminated soils or debris in the excavation sidewalls or bottom will be removed to a distance not exceeding 3 feet and placed into the suspect pile (chasing soils beyond 3 feet of the trench requires approval from PM – Management and DOE). Soils removed that do not demonstrate TNT contamination will be placed into a "clean" stockpile or otherwise handled by DHO.

ES&H will sample the TNT-contaminated stockpile once excavation activities are completed. Final disposition will be burial on-site at a depth of at least 2 feet, pending analytical verification that a representative sample of the suspect material does not exceed subsurface criteria for 2,4,6-TNT (1400 mg/kg). The corrugated metal pipe encountered last weekend will be exposed and ES&H will sample the water for uranium and nitroaromatics. DHO will be notified if this water is to be managed or removed from the excavation based upon uranium KPA results. If uranium is less than 600 pCi/l, it can be discharged to the surface in accordance with ES&H procedures.

cc: S. Anderson
M. Oaks
B. Moore (MDNR)

Becky Cato

From: Earl Dowell
Sent: Thursday, May 30, 2002 5:14 PM
To: Steve Warren; Thomas Pauling; David Hixson; Terri Uhlmeyer; Melissa Lutz; Becky Cato
Cc: David Fleming; James Harvey; Clark Oberlag
Subject: Stormwater Drainage - TNT Soil Removal and Culvert

TNT contaminated soils were removed today from the area previously discovered in the stormwater drainage, north end. Approximately 12 yards have been removed to date, now stored on and under poly sheeting in the former TSA region. As typical, much of the material removed is not nitros since cannot be efficiently separated during excavation. Approximately 30 feet of trenching was accomplished.

The culvert was found and 150 gallons of water removed and placed in drums upon secondary containment. KPA results non-detect at 0.7 pCi/L. Clark obtained filtered/unfiltered samples for offsite nitros analysis.

The exposed end of the culvert was surveyed with 44-9; interior/exterior results <60 cpm (<1000 dpm), and left in place.

DHO will begin trenching at the south end tomorrow, and work back towards the nitros area.

Please pass this info along to anyone I may have missed. Thanks

MK-FERGUSON COMPANY

Client Sample ID: WM-D284-060202 501C

HPLC

Lot-Sample #...: F2F040215-003	**Work Order #...:** E2E651AC	**Matrix.....:** SOLID
Date Sampled...: 06/02/02	**Date Received..:** 06/04/02	
Prep Date.....: 06/12/02	**Analysis Date..:** 06/17/02	
Prep Batch #...: 2162578		
Dilution Factor: 1		
% Moisture.....: 17	**Method.....:** SW846 8330	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,3-Dinitrobenzene	ND	0.11	ug/g
2,4-Dinitrotoluene	ND	0.073	ug/g
2,6-Dinitrotoluene	ND	0.12	ug/g
Nitrobenzene	ND	0.097	ug/g
1,3,5-Trinitrobenzene	**0.78**	**0.048**	**ug/g**
2,4,6-Trinitrotoluene	**750 E**	**0.097**	**ug/g**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dinitrobenzene	90	(69 - 111)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

E Estimated result. Result concentration exceeds the calibration range.

MK-FERGUSON COMPANY

Client Sample ID: WM-D284-060202

HPLC

Lot-Sample #...: F2F040215-003	**Work Order #...:** E2E652AC	**Matrix.....:** SOLID
Date Sampled...: 06/02/02	**Date Received..:** 06/04/02	
Prep Date.....: 06/12/02	**Analysis Date..:** 06/28/02	
Prep Batch #...: 2162578		
Dilution Factor: 100		
% Moisture.....: 17	**Method.....:** SW846 8330	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,3-Dinitrobenzene	ND	11	ug/g
2,4-Dinitrotoluene	ND	7.3	ug/g
2,6-Dinitrotoluene	ND	12	ug/g
Nitrobenzene	ND	9.7	ug/g
1,3,5-Trinitrobenzene	ND	4.8	ug/g
2,4,6-Trinitrotoluene	**850**	**9.7**	**ug/g**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dinitrobenzene	0.0 DIL	(69 - 111)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

MK-FERGUSON COMPANY

Client Sample ID: WM-D283-053002 WATER

HPLC

Lot-Sample #...: F2F040215-001 Work Order #...: E2E601AC Matrix.....: WATER
Date Sampled...: 05/30/02 Date Received..: 06/04/02
Prep Date.....: 06/06/02 Analysis Date..: 06/14/02
Prep Batch #...: 2157228
Dilution Factor: 1 Method.....: SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	1200 E	0.030	ug/L
4-Amino-2,6-dinitrotoluene	670 E	0.030	ug/L
1,3-Dinitrobenzene	0.23	0.090	ug/L
2,4-Dinitrotoluene	4.0	0.060	ug/L
2,6-Dinitrotoluene	ND	0.10	ug/L
Nitrobenzene	ND	0.080	ug/L
2-Nitrotoluene	ND	0.030	ug/L
3-Nitrotoluene	ND	0.030	ug/L
4-Nitrotoluene	ND	0.030	ug/L
1,3,5-Trinitrobenzene	2.2	0.040	ug/L
2,4,6-Trinitrotoluene	1600 E	0.080	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dinitrobenzene	89	(41 - 124)

NOTE(S):

E Estimated result. Result concentration exceeds the calibration range.

MK-FERGUSON COMPANY

Client Sample ID: WM-D283-053002

HPLC

Lot-Sample #...: F2F040215-001	**Work Order #...:** E2E602AC	**Matrix.....:** WATER
Date Sampled...: 05/30/02	**Date Received..:** 06/04/02	
Prep Date.....: 06/06/02	**Analysis Date..:** 06/28/02	
Prep Batch #...: 2157228		
Dilution Factor: 200	**Method.....:** SW846 8330	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	**820**	**6.0**	**ug/L**
4-Amino-2,6-dinitrotoluene	**470**	**6.0**	**ug/L**
1,3-Dinitrobenzene	ND	18	ug/L
2,4-Dinitrotoluene	ND	12	ug/L
2,6-Dinitrotoluene	ND	20	ug/L
Nitrobenzene	ND	16	ug/L
2-Nitrotoluene	ND	6.0	ug/L
3-Nitrotoluene	ND	6.0	ug/L
4-Nitrotoluene	ND	6.0	ug/L
1,3,5-Trinitrobenzene	ND	8.0	ug/L
2,4,6-Trinitrotoluene	**1200**	**16**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dinitrobenzene	0.0 DIL	(41 - 124)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.