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2010 INTERIM MEASURES PROGRESS REPORT AOC A NORTHSIDE FLUVIAL DEPOSITS GROUNDWATER MILLINGTON SUPPACT TN
11/1/2010
ENSAFE

2010 INTERIM MEASURES PROGRESS REPORT
AOC A — NORTHSIDE FLUVIAL DEPOSITS GROUNDWATER

NAVAL SUPPORT ACTIVITY MID-SOUTH
MILLINGTON, TENNESSEE

Revision: 1

Prepared for:

Department of the Navy
Naval Facilities Engineering Command Atlantic

and

BRAC Program Management Office Southeast
4130 Faber Place Drive, Suite 202
North Charleston, South Carolina 29405

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Oak Ridge, Tennessee 37830
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November 2010

Spectra Tech Inc.
Engineering & Environmental Services

November 24, 2010

Att: Mr. Stacin Martin
NAVFAC Atlantic
6506 Hampton Blvd
Bldg A
Norfolk, VA 23508

Subject: NSA Mid-South - Area of Concern A
Document Transmittal — *2010 Interim Measures Progress Report; Area of Concern A; NSA Mid-South; Revision 1, November 2010*

Dear Mr. Martin:

This letter is provided to document submittal of the *2010 Interim Measures Progress Report – Area of Concern A – NSA Mid-South; Revision 1, November 2010.* The extra enclosed report is for forwarding to Mr. Elwood Edwards, the offsite property owner that has been providing us with access for downgradient AOC A groundwater monitoring (Ben Brantley with EnSafe has forwarded his address information). If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

Paul H. Gentry

Paul Gentry
Project Manager

Enclosure – 2 copies

Cc: *David Criswell – Navy (1 copy)*
Roger Donovan – TDEC (1 copy and CD)
Charles Burroughs – TDEC (1 copy)
Jack Carmichael – USGS (1 copy)
Jim Heide – NSA Mid-South (1 copy
Ben Brantley – EnSafe (cover letter only)

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Acronyms

AOC	area of concern
DCE	dichloroethene
DO	dissolved oxygen
IM	interim measures
µg/L	micrograms per liter
mg/L	milligrams per liter
MNA	monitored natural attenuation
NSA	Naval Support Activity
ORP	oxidation-reduction potential
PCE	tetrachloroethylene
TCE	trichloroethylene
TOC	total organic carbon
USEPA	U.S. Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound

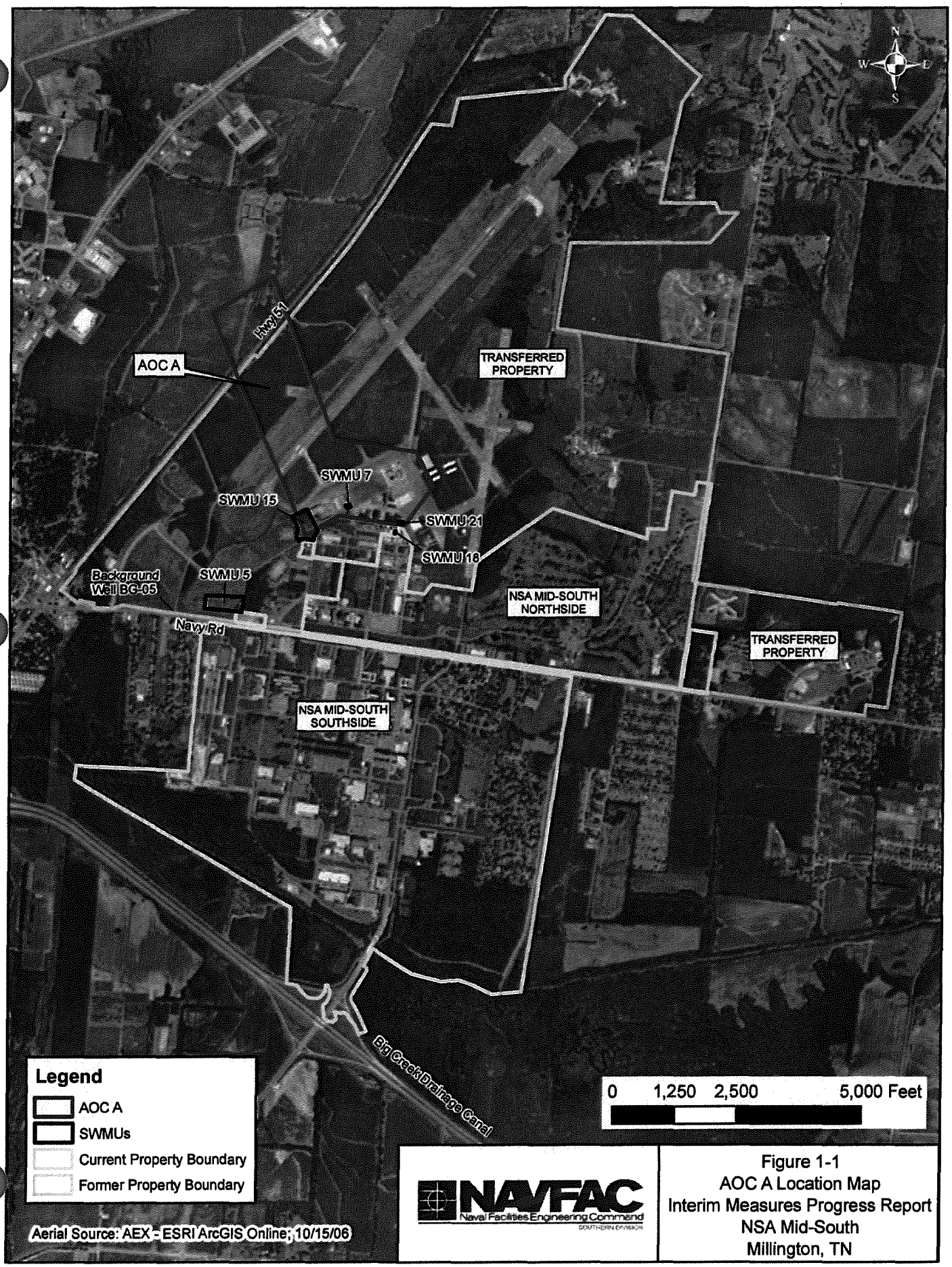
1.0 INTRODUCTION

This is the sixth interim measures (IM) progress report submitted for Area of Concern A (AOC A) since a remedy was implemented in May 2004 to address chlorinated solvent contamination in the fluvial deposits aquifer beneath the Naval Support Activity (NSA) Mid-South's Northside. AOC A is shown on Figure 1-1 along with the NSA Mid-South Northside and Southside base boundaries. This report updates remedial activities and the long-term groundwater monitoring conducted in 2009 and the four quarters of monitoring for the newly constructed Sub-Plume D optimization wells with the latest event being in May 2010.

The AOC A IM consisted of enhanced bioremediation, which entailed the monthly injection of carbon substrate into the fluvial deposits aquifer to stimulate the reductive dechlorination of chlorinated solvents. Figure 1-2 shows the injection wells, the four AOC A sub-plumes, and monitoring wells (MWs) in and near the treatment areas. The base cleanup team (BCT) agreed to suspend carbon substrate injections at the October 2009 meeting while the Navy evaluates the feasibility of transitioning to the monitoring natural attenuation (MNA) portion of the remedy. The remedial treatment goal of 100 µg/L trichloroethylene (TCE) had been achieved in all but seven source-area MWs and continued injections were posited to have had limited effectiveness in further reductions in the non-compliant wells. The BCT agreed to suspending carbon substrate injections to evaluate contaminant rebound and determine whether untreated source areas were present upgradient of the injection wells.

During the contaminant rebound evaluation period, the BCT agreed to evaluate multiple lines of evidence that support transitioning to the MNA only, including (1) volatile organic compound (VOC) reductions associated with the former enhanced bioremediation efforts, (2) outputs from a two-dimensional empirical groundwater solute transport model that shows whether the maximum contaminant levels (MCLs) can be achieved at the offsite property boundary with residual TCE concentrations remaining in the treatment zones, (3) a microbiological analyses of plume areas downgradient of the treatment zones, and (4) install additional MWs in Sub-Plume A to demonstrate the absence of additional source areas and verify the conceptual plume model. The data collection associated with these multiple lines of evidence is currently underway and reporting is anticipated in 2011.

The contaminated groundwater within AOC A is divided into four sub-plumes (shown in Figure 1-2). Sub-Plume A is immediately east of Hangar N-126 and has had the highest TCE concentrations within AOC A (historical maximum of 4,400 micrograms per liter [µg/L]).



NAVFAC
Naval Facilities Engineering Command
SOUTHERN DIVISION

Figure 1-1
AOC A Location Map
Interim Measures Progress Report
NSA Mid-South
Millington, TN

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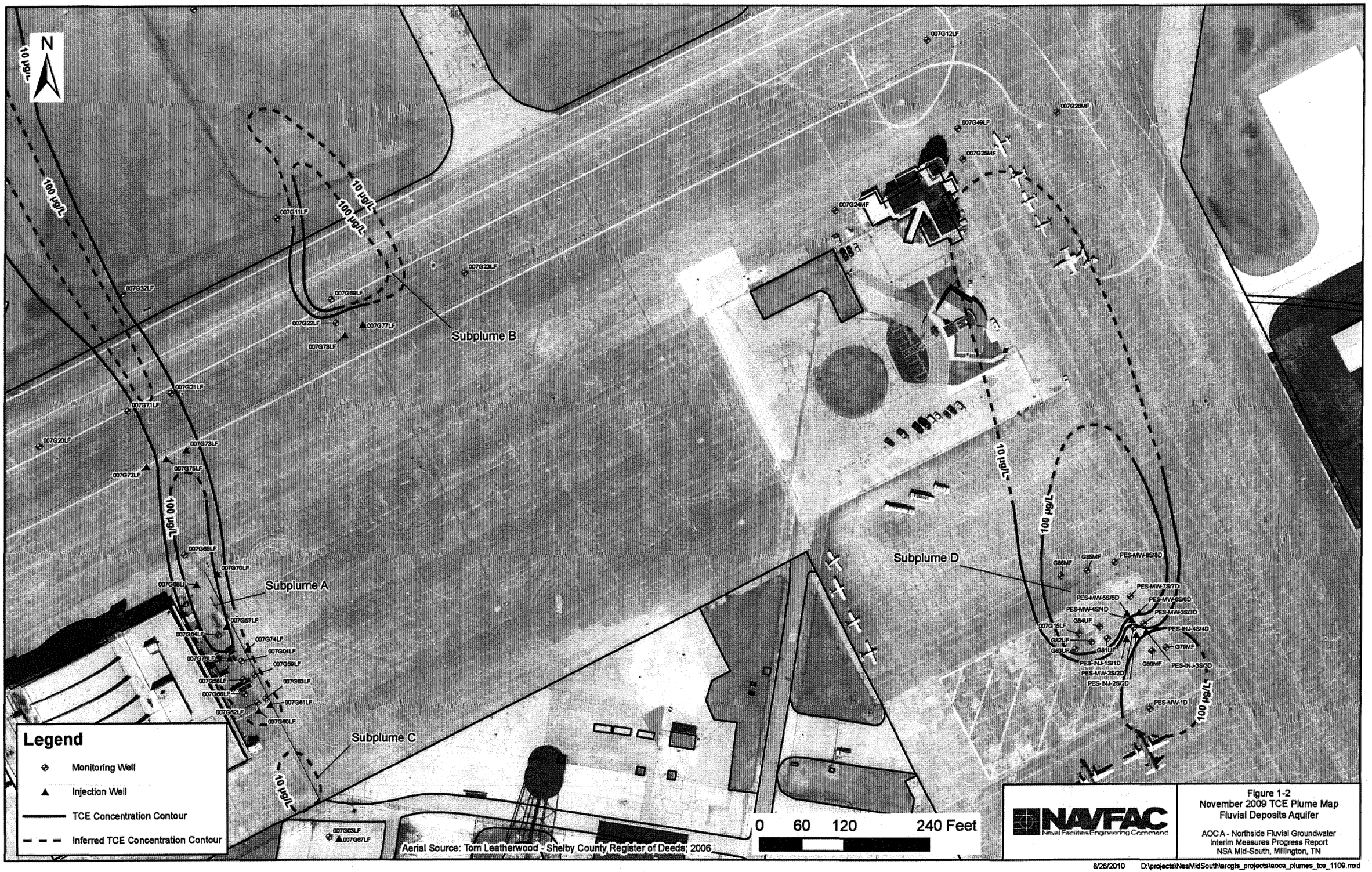

Figure 1-2
November 2009 TCE Plume Map
Fluvial Deposits Aquifer

AOC A - Northside Fluvial Groundwater
Interim Measures Progress Report
NSA Mid-South, Millington, TN

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Three other areas historically exhibiting relatively high TCE concentrations include Sub-Plume B, located northeast of Sub-Plume A in the area of MW 007G22LF; Sub-Plume C, located south of Sub-Plume A in the area of MW 007G03LF; and Sub-Plume D, located east of Sub-Plume B and near the former Hangar N-6. Eight additional MWs were installed at Sub-Plume D as part of the AOC A optimization in July 2009. The objective of the additional wells was to verify the TCE conceptual model before expanding the Sub-Plume D treatment zone. The new Sub-Plume D wells have undergone four quarters of monitoring and data are presented for the first time in Section 4.0 of this progress report.

Section 2.0 of this report summarizes the IM remediation and monitoring activities. Section 3.0 presents a summary of the monitoring data for the AOC A Sub-Plumes A through D. An analysis of the data is in Section 4.0. Section 5.0 contains a status summary of the IMs and recommendations going forward.

A table summarizing historical VOC detections for all AOC A is provided in Appendix A. Laboratory reports are in Appendix B that is electronically formatted on the enclosed compact disc. Appendix C contains the VOC trend analysis associated with IMs treatment of the sub-plumes. Groundwater sampling forms are in Appendix D.

2.0 SUMMARY OF FIELD ACTIVITIES

This section summarizes the carbon substrate injections and groundwater monitoring conducted at AOC A during 2009.

2.1 Substrate Injections

In accordance with the *Long-Term Groundwater Monitoring Work Plan, NSA Mid-South, Millington, Tennessee*, sodium acetate was injected into the fluvial deposits aquifer through selected wells between May 2004 and November 2009 to create the reducing geochemical conditions necessary for TCE biodegradation. As described in the *Interim Measures Work Plan* (EnSafe, 2003), 50 pounds of sodium acetate and 0.5 pound of diammonium phosphate were dissolved in 100 gallons of potable water, and added monthly to each injection well. Mixing and injection activities were performed in about a 4-day span and recorded in a field logbook. Fifty-four injection events occurred throughout Sub-Plumes A, B, and C from the time IMs began (May 2004) to the end of the last injection period (November 2009). A total of 2,700 pounds of sodium acetate were introduced into each injection well.

2.2 Interim Measures Effectiveness and MNA Monitoring

Data from the May 2009 and November 2009 sampling events and the four quarters of Sub-Plume optimization wells are provided in this report. A total of twenty-six MWs were sampled in the May 2009 event, focusing primarily in and downgradient of the airport tarmac and taxiway areas where Sub-Plumes A through D have been undergoing treatment. Monitoring wells downgradient of the treatment areas and along the former base perimeter are also monitored to evaluate plume stability. MWs in the treatment areas are sampled for VOCs and the geochemical/natural attenuation parameters listed in Table 2-1. These wells were also sampled in November 2009 along with thirty-four other MWs from various Northside solid waste management units (SWMUs) that undergo annual monitoring as part of AOC A. These include Northside SWMUs 5, 15, 18, 21, and 60 (shown on Figure 1-1). Fourteen of these wells are also analyzed for the geochemical/natural attenuation parameters listed in Table 2-1 as a result of their proximity to the Sub-Plume A through D treatment areas.

Figure 2-1 shows the AOC A wells undergoing monitoring as part of the IMs associated with Sub-Plumes A through D. Tabulated results from the long-term VOC monitoring associated with the effectiveness monitoring are presented in Section 3.0, while Appendix A contains a summary (hits only) for all the AOC A well data, including AOC A SWMUs 5, 15, 18, 21, and 60 (well locations for these SMWUs are shown in Section 4.6 with the data presentation).

Table 2-1
Enhanced In Situ Bioremediation Effectiveness Sampling Parameters/Analytes

Parameter/Analyte	Method
Laboratory	
Volatile Organic Compounds	SW-846 [a] 8260 B
Hydrogen	Microseeps Inc. (Pittsburg, Pennsylvania), AM20Gax
Methane, ethane, and ethene	SW-846 [a] 8015 (modified)
Nitrate	USEPA[b] 353.2
Total Organic Carbon	USEPA[b] 415.1
Volatile Fatty Acids	Microbial Insights (Rockford, Tennessee), In-House Methods
Total Iron	SW-846 [a] 6010B
Field	
Ferrous iron	portable colorimeter
Sulfate and sulfide	portable colorimeter
Dissolved Oxygen	YSI 55 multi meter calibrated before use per manufacturer's instructions
Oxidation-Reduction Potential (ORP)	YSI 55 multi meter calibrated before use per manufacturer's instructions
pH	YSI 55 multi meter calibrated before use per manufacturer's instructions
Temperature	YSI 55 multi meter calibrated before use per manufacturer's instructions
Alkalinity	portable colorimeter
Chloride	portable colorimeter
Phosphorus and ammonia-nitrogen	portable colorimeter

Notes:
(a) = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, USEPA, 1996
(b) = Methods for Chemical Analysis of Water and Wastes, USEPA/600/4-79.020, USEPA, March 1983

To assess groundwater flow direction, water levels are measured during each monitoring event and water-level data from the comprehensive event in November 2009 was used to construct a potentiometric map that is provided in Figure 2-1. From Figure 2-1, groundwater flow directions are consistent with those historically calculated, and show flow generally in a north-northwest direction; however, evidence of groundwater mounding is noted in the treatment area wells which is likely a result of the years of injections and possibly also the generation of microbes that may have lessened the hydraulic conductivity of the aquifer.

Figure 2-1
Potentiometric Surface Map
November 2009
NSA Mid-South
Millington, TN

3/5/2009 D:\projects\NsaMidSouth\arcgis_projects\aoca_piezo_1109.mxd

Table 3-1 (a)
Sub-Plume A – Groundwater Analytical Results

		Concentrations (µg/L)																													
		Pre-Pilot Study	Pilot Study									Post-Pilot Study					Interim Measures														
Well ID	Parameter	Mar-00	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Mar-01	Jul-01	Feb-02	Sep-02	Sep-03	May-04	Aug-04	Nov-04	Feb-05	May-05	Aug-05	Jun-06	Nov-06	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09
007G62LFB	PCE	NS	NS	NS	NS	NS	28	16	9	7	<3	<3	<5	<5	1	3	2	3	2	1	0.35 J	0.64	<1	<1	1	1	<1	<1	<1	<1
	TCE	NS	NS	NS	NS	NS	820 D	460	270	190	4	<3	<5	1 J	18	10	3	8	8	1	2.8	14	16	8	4	1	2	<1	2	4
	cis-1,2-DCE	NS	NS	NS	NS	NS	880 D	990	1,000	1,100	1,100	1,000	480	40	70	240	11	220	340	38	180	200	81	47	17	2	23	0.9	14	29
	VC	NS	NS	NS	NS	NS	<3	<3	<3	<3	<3	92	190	510	250	71	43	85	44	71	53	20	47	6	9	13	17	51	4	17
007G63LFB	PCE	NS	NS	NS	NS	NS	53	44	38	33	21	<3	<1	0.74 J	<1	1	2 J	1	5	1	0.34 J	0.27 J	2	<1	4	1	<1	<1	<1	<1
	TCE	NS	NS	NS	NS	NS	1,700	1,600	1,300	1,200	560 D	<3	<1	29	0.4 J	2	10 J	2	10	<1	0.58	1.8 J	35	2	1	1	1	0.5 J	4	0.7 J
	cis-1,2-DCE	NS	NS	NS	NS	NS	43	150	140	240 D	520 D	1,200	<1	200	14	290	84	250	410	44	60	140	120	50	20	1	8	15	30	8
	VC	NS	NS	NS	NS	NS	<3	<3	<3	<3	<3	4	<1	420	230	140	48	100	56	42	210	110	38	30	18	23	26	43	42	38
007G66LF	PCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	<0.5	0.3 J	<0.5	4.3	2.8	0.6 J	<1	1	1	<1	<1	<1	<1
	TCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	33	1	0.3 J	1	11	37	11	15	12	0.8	2	2	8	10
	cis-1,2-DCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	330	5	1	1	16	120	78	26	20	2	6	7	9	17
	VC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	33	140	170	100	74	26	17	9	10	35	27	48	22	27
007G58LFB	PCE	3	1 J	6.5	21	63	59	39	13	5	7 J	32 J	6.3 J	<4	0.2 J	4 J	3	1	3 J	3	2.2	<10	2	0.8 J	NA	1	<1	<1	<1	<1
	TCE	210	69	1,200	2,000	2,600	2,500	1,500	400	140	170	1,300	88	16	9	200	160	46	110	160	150	130	51	29	NA	2	26	2	19	17
	cis-1,2-DCE	2 J	<3	2.7 J	5	<60	13	610	930	1,300	1,000	170 J	990	610	320	430	410	350	380	260	260	260	150	45	NA	5	9	22	55	56
	VC	<3	<3	<3	<3	<60	<3	<3	<3	<3	<3	<3	3.3 J	160	380	27 J	43	45	24	10	18	45	37	7	NA	24	10	40	23	18
007G59LFB	PCE	11	3 J	4.2	18	46 J	55	43	33	19	8	25 J	5.7 J	<10	0.4 J	14	32	34	38	38	38	22	5	<1	0.9	0.7	<1	<0.4	<1	<1
	TCE	1,600	44	560	1,800	2,400	2,500	1,700	1,100	850	370	920	19	28	12	140	360	670	1,400	590	350	400	110	13	24	18	23	9	14	46
	cis-1,2-DCE	14	<3	2 J	6	<60	11	230	360	620	880	450	1,100	870	810	570	290	430	390	270	260	110	260	82	80	49	56	200	<1	0.2 J
	VC	<3	<3	<3	<3	<60	<3	<3	<3	<3	<3	1	17	140	200	35	13	15	9	6	8.1	0.62	43	4	18	27	22	27	<1	4
007G04LF	PCE	17	110	5.2	10	35 J	38	49	35	27	<3	22	12	15	24	20	37	46	34	30	36	52 D	37	12	6	2	<1	1	2	2
	TCE	2,000	1,800	240	1,200	2,400	2,400	2,300	1,400	1,100	3 J	930	720	800	960	490	560	500	290	300	220	580	470	150	120	2	33	25	50	35
	cis-1,2-DCE	2 J	2 J	1 J	3 J	<60	12	36	260	540	<3	260	510	210	250	140	99	170	370	290	330	220	160	200 J	99	18	41	25	47	44
	VC	<3	<3	<3	<3	<60	<3	<3	<3	<3	<3	<3	10	<5	<1	5	0.9	6	32	31	18	4.1	10	93	33	160	100	80	75	54
007G57LF	PCE	7	9	45	97	70 J	68	52 J	44	39	38	45	41	5.2	30	26	31	23	18	20	23	15	9	<1	1	1	<1	<1	<1	<1
	TCE	160	2,400	4,400	3,100	2,300	2,500	2,300	1,400	1,500	1,000	1,600	1,200	180	1,200	1,000	890	1,200	1,400	1,200	1,400	1,200	980	58	62	10	13	4	4	1
	cis-1,2-DCE	2 J	4	11	12	<150	12	10	14	24 J	42	83	86	6.4	13	16	16	16	17	22	32	50 D	100	330 J	360	150	170	3	25	3
	VC	<3	<3	<3	<3	<150	<3	<3	<3	<3	<3	<3	<5	3	10	0.2 J	<0.5	<0.5	<0.5	<10	0.44 J	0.6	5	140	72	170	190	100	170	110
007G64LF	PCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	24 J	23	16	20	24	19	12	15	7	6	4	8	9	5
	TCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1,100	1,400	1,000	1,300	1,600	1,300	830	620	270	260	180	260	270	210
	cis-1,2-DCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	40	190	560	390	280	310	250	450 J	430	280	260	290	260	230
	VC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.5	0.6	9	6	9.6	14	11	35	37	34	39	35	39	30
007G65LF	PCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	7	8	10	11	12 J	10	10	11	6	5	4	6	4
	TCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	110	190	220	280	390	370	300	370	400	280	260	230	330	210
	cis-1,2-DCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.8	1	6	3	4.3	11 J	190	290 J	240	210	270	230	200	220
	VC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	2	16	18	28	19	19	15
007G21LF	PCE	6	6	6.4	5	7	6	8	NS	NS	9	12	9.4	10	18	10	12	15	17	14	13	11	10	9	8	7	4 J	3	2	<1
	TCE	26	27	26	21	25	26	31	NS	NS	43	52	43	61	180	200	290	330	310	280	300	300	190	130	150	110	79 J	59	37	12
	cis-1,2-DCE	<3	<3	<3	<3	<3	<3	<3	NS	NS	1 J	<3	0.51 J	<1	0.6 J	1	0.6	4	6	6	6.2	5.6	10	13 J	41	53	87 J	96	120	140
	VC	<3	<3	<3	<3	<3	<3	<3	NS	NS	<3	<3	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7	4	8	29	44 J	39	50	29
007G71LF	PCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.5	1	2	1	1.5	1.3	2	2	2	1	<1	0.5 J	0.6 J	<1
	TCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.5	2	3	3	3.6	4.4	8	7	6	8	6	5	7	6
	cis-1,2-DCE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	3 J	4	7	6	12	10	7
	VC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	0.7	2	2	4	4	2

Notes:

mg/L	micrograms per liter
PCE	tetrachloroethylene
TCE	trichloroethylene
cis-1,2-DCE	cis-1,2-dichloroethene
VC	vinyl chloride
NS	not sampled
J	estimated
<	Undetected at the limit indicated
-	monitoring well not yet installed

3.0 SUMMARY OF DATA

This section tabulates the field and laboratory data collected in 2009. Tables 3-1(a) to 3-4(c) are presented based upon individual sub-plume areas for the analytical, geochemical, and metabolic acids. Monitoring wells are listed in order, based upon their location within the sub-plumes, from upgradient to downgradient. Laboratory analytical results from 2009 are in Appendix A. Trends in parameters/analytes concentrations measured in groundwater samples from individual MWs are in Appendix C. The significance of these results as it relates to the progress of remediation is presented in Section 4.0.

Table 3-1 (b)
Sub-Plume A Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (µg/L)	Ferrous Iron (µg/L)	Total Iron (µg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (µg/L)	Ethene (µg/L)
007G62LF	May-04	2.68	-272	3.4	94	1,550	6,050	26	6 U	2	0.007	165	15	0.035	5.8
	Aug-04	1.26	-179.4	1.3	3,500	3,000	10,500	29	10 U	24	0.053	200	20	0.017	6.4
	Nov-04	1.32	-85.5	1.3	480	4,680	11,000	43	10 U	2	0.036	340	15	0.019	3.6
	Feb-05	1.54	-97.6	3.2	8,100	NA	10,200	NA	410	NA	NA	NA	NA	<0.005	3.3
	May-05	0.32	-115.8	3.1	11,000	1,450	9,780	15	700	26	0.065	520	10	<0.01	3.6
	Aug-05	0	-89.9	2.4	6,000	5,880	8,010	73	10	10	0.078	160	5	<0.01	0.48
	Jun-06	0.79	-77.4	1.3	3,200	4,380	7,130	61	0.81	13	0.028	160	10	<0.010	0.19
	Nov-06	0.2	-99	2.1	4,600	1,760	9,070	19	1.2	10	0.022	180	10	<0.010	0.31
	May-07	0.4	-157	2	7,200	3,090	7,940	39	1.3	11	0.013	180	10	<0.01	0.4
	Nov-07	2.07	-81	1.9	2,500	950	7,860	12	0.9	18	0.044	48	10	0.015	0.18
	May-08	0.7	-65.2	9.6	12,000	5,640	9,580	59	0.8 J	17	0.082	180	15	<0.01	0.51
	Nov-08	0.56	-112	8.6	9,000	1,890	9,120	21	1 U	5	0.043	180	10	<0.01	1.1
	May-09	2.81	-179.5	1	5,000	590	6,350	9	1.2	0	0.097	240	10	<0.01	0.12
	Nov-09	0.28	-76.8	1.5	6,199	1,140	6,440	18	1.2	6	0.071	180	10	<0.01	0.15
007G63LF	May-04	1.16	-95.3	4.4	330	3,210	7,750	41	6 U	1	0.006	225	15	0.28	15
	Aug-04	0.5	-172.4	1.3	1,200	3,000	11,200	27	10 U	70	0.049	300	20	0.047	18
	Nov-04	1.99	-84.7	1.3	350	2,630	13,000	20	10 U	7	0.021	180	15	0.049	28
	Feb-05	0.19	-119.5	1.2	9,000	NA	7,720	NA	19	NA	NA	NA	NA	0.034	6.4
	May-05	0.29	-109.5	1	<0.015	NA	13,600	NA	35	NA	NA	NA	NA	<0.01	<0.01
	Aug-05	0.48	-161.7	2.9	5,900	3,460	13,300	26	10	23	0.035	NA	NA	<0.01	0.3
	Jun-06	0.68	-65.7	1.1	5,100	2,580	14,100	18	1.1	7	0.109	140	5	<0.010	1.6
	Nov-06	0.17	-80.9	4.2	10,000	1,080	10,100	11	1.2	6	0.027	200	5	<0.010	0.4
	May-07	0.3	-169	1.6	6,900	3,290	9,870	33	1.4	76	0.019	160	10	<0.01	0.47
	Nov-07	1.37	-92	1.9	9,800	1,020	9,880	10	0.79	6	0.07	54	5	<0.01	0.79
	May-08	0.52	-94.7	1.5	12,000	3,090	10,700	29	0.98 J	8	0.023	300	10	<0.01	0.25
	Nov-08	0.24	-129	36	12,000	2,200	6,480	34	2.1	9	0.035	320	10	<0.01	0.26
	May-09	0.55	41.7	0.83	7,700	780	8,070	10	1 U	4	0.018	280	10	0.054	<0.01
	Nov-09	0.57	-132.7	1.7	7,799	880	7,260	12	2.5	0	0.134	280	10	<0.01	0.18
007G66LF	May-04	0.5	-264.8	49	150	50	6,020	1	30	0	0.009	230	5	26	42
	Aug-04	0.37	214.6	4.2	1,300	3,110	11,300	28	10 U	70	0.027	260	20	12	32
	Nov-04	0.46	-172.4	2.3	2,800	4,860	17,600	28	10 U	18	0.015	220	15	4.8	21
	Feb-05	0.32	-167.7	1.1	1,100	3,070	18,100	17	10 U	6	0	220	15	0.12	12
	May-05	0.3	-147.2	1.8	1,500	5,420	22,700	24	10 U	0	0.024	220	15	0.42	4.8
	Aug-05	0	-137.7	2.4	2,900	2,760	8,800	31	10 U	9	0.007	180	15	<0.010	2
	Jun-06	0.39	-78	0.84	7,800	3,240	6,680	49	0.73	0	0	140	10	<0.010	1.6
	Nov-06	0.23	-89.3	1.3	10,000	1,050	5,720	18	1	7	0.01	220	10	<0.010	0.92
	May-07	0.55	-78	1.3	7,600	3,050	6,940	44	1.5	9	0.017	160	10	<0.01	0.64
	Nov-07	0.34	-152	1.6	15,000	510	10,300	5	0.61	9	0	48	10	<0.01	1.1
	May-08	0.59	-65	1	13,000	2,570	6,160	42	0.58 J	11	0.004	160	10	<0.01	0.71
	Nov-08	0.57	-132	65	15,000	2,620	10,400	25	1.2	0	0.005	180	10	<0.01	0.93
	May-09	1.13	-133.6	2.2	10,000	1,360	5,860	23	1 U	3	0.000	200	10	<0.01	0.43
	Nov-09	0.17	-102.2	1.6	6,599	940	6,590	14	1 U	54	0.024	180	10	<0.01	0.43

Notes:

DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

J	Estimated value
U	Not detected above laboratory method detection limits
mg/L	milligrams per liter
mV	millivolts
nM	nanoMolar
µg/L	micrograms per liter
%	percent
(1)	Erroneous reading due to equipment malfunction
NA	Not analyzed due to presence of dye in monitoring well
NRD	No reading available due to instrument malfunction
<	undetected at the limit indicated

Table 3-1 (b)
Sub-Plume A Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (µg/L)	Ferrous Iron (µg/L)	Total Iron (µg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (µg/L)	Ethene (µg/L)
007G58LF	May-04	1.02	-254.2	2.1	36	1,180	12,100	10	6 U	14	0.085	255	10	0.16	3.3
	Aug-04	5.95(1)	-71	1	7	0	9,800	0	45	70	0.119	240	20	0.026	0.63
	Nov-04	1.44	-103.8	1.2	24	4,720	6,260	75	10 U	19	0.011	200	10	0.1	0.64
	Feb-05	0.51	3.2	0.82	28	2,670	8,010	33	10 U	18	0	280	15	0.067	0.15
	May-05	0.4	-72	1.1	140	3,780	9,620	39	10 U	14	0.045	240	10	0.057	0.19
	Aug-05	0	-111.3	1.6	1,600	3,200	7,730	41	10 U	8	0.006	180	10	0.047	2.2
	Jun-06	0.52	-91.6	1	5,600	3,270	8,100	40	0.71	1	0.01	160	10	0.034	2.5
	Nov-06	0.27	-70.2	1.4	8,200	1,160	9,050	13	0.89	0	0.009	200	10	<0.010	1.4
	May-07	1.93	-86	1.1	10,000	2,830	NA	NA	NS	14	0.086	240	10	<0.01	0.77
	Nov-07	0.54	-121	17	4,600	670	22,500	3	0.84	14	0.022	66	10	< 0.01	0.81
	May-08	0.22	-90.3	1.3	11,000	4,860	11,800	41	0.76 J	19	0.016	220	10	<0.01	0.45
	Nov-08	0.82	-102.2	72	11,000	1,940	9,680	20	1.4	5	0	200	10	<0.01	1
	May-09	0.92	-132.7	1.9	7,900	1,240	6,780	18	1.2	6	0	220	10	<0.01	0.62
	Nov-09	0.29	-49.1	1.6	9,899	580	5,810	10	1.2	17	0.037	200	10	<0.01	0.32
007G59LF	May-04	1.08	-56.2	2	3	2,640	4,160	63	6 U	17	0	200	20	0.067	0.27
	Aug-04	0.57	-95.7	0.85	3	3,070	4,370	70	10 U	47	0.014	300	20	0.062	0.23
	Nov-04	0.44	-73.3	1.7	3	4,560	5,130	89	10 U	1	0.006	180	10	0.061	0.16
	Feb-05	0.52	-53.3	0.92	2	2,240	4,280	52	10 U	0	0	180	10	0.038	0.1
	May-05	0.27	-57.9	1	3	5,420	4,300	126	10 U	2	0.002	200	15	0.044	0.14
	Aug-05	0	-126.2	2.2	670	2,830	4,940	57	10 U	0	0.007	200	15	0.014	0.12
	Jun-06	0.44	-45.5	5.5	7,900	3,200	7,420	43	1.1	8	0.004	160	10	<0.010	3.7
	Nov-06	6.49(1)	-71.8	1.4	1,300	90	4,970	2	1.1	0	0.009	200	15	<0.010	0.27
	May-07	0.4	-101	4	7,900	4	7,500	0	0.87	13	0.003	160	10	<0.01	1.7
	Nov-07	0.39	-121	2.1	12,000	1,000	13,000	8	0.98	6	0	60	7.5	< 0.01	2.1
	May-08	0.44	-70.4	31	9,200	5,300	7,370	72	0.8 J	9	0.01	220	10	<0.01	1.4
	Nov-08	0.55	-106	74	5,200	3,060	10,700	29	1.3	10	0.007	200	10	<0.01	0.71
	May-09	7.77	89.9	0.6 J	250	0	4,030	0	1.2	4	0	220	10	0.01 U	0.018
	Nov-09	0.45	-73.6	2.2	5,099	140	6,810	2	1 U	15	0	200	10	0.01 U	0.26
007G04LF	May-04	1.46	205.3	9.2	1	0	98.4 J	NA	6 U	1	0.007	370	15	0.041	0.067
	Aug-04	0.33	-47.4	2.8	31	2,490	3,250	77	39	70	0.026	200	20	0.053	7.0
	Nov-04	0.39	-109	1.2	37	5,960	15,200	39	10 U	7	0.007	200	10	0.062	1.0
	Feb-05	1.19	-32.5	1.2	21	2,560	4,410	58	10 U	0	0	160	10	0.013	0.46
	May-05	1.94	-49.9	1.4	100	2,450	5,270	46	28	2	0.007	180	10	0.016	0.38
	Aug-05	0.2	-15.9	1.7	450	830	982	85	10 U	1	0.005	200	75	0.028	0.14
	Jun-06	0.38	63.4	1.2	6,100	140	273	51	0.47	0	0	80	10	<0.010	0.095
	Nov-06	0.85	-7.2	1	9,800	470	1,470	32	1.6	0	0.035	180	10	<0.010	2
	May-07	0.42	-29	1.7	9,100	0	515	NA	1.2	0	0.032	200	10	0.022	1.2
	Nov-07	0.29	-167	2	9,900	490	9,460	5	2.1	3	0.036	90	10	0.031	11
	May-08	0.78	-74.8	3.8	14,000	3,620	6,320	57	28	5	0.074	380	15	0.028	6.6
	Nov-08	0.52	-187	150	14,000	6,140	11,300	54	64	0	0.021	1000	15	0.06	6.5
	May-09	0.41	13.5	0.85	750	1,180	5,490	21	34	0	0.027	760	15	0.01 U	0.45
	Nov-09	0.56	-120.4	2.6	6,999	1,560	2,800	56	9	23	0.023	620	20	0.05	4

Notes:

DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

J	Estimated value
U	Not detected above laboratory method detection limits
mg/L	milligrams per liter
mV	millivolts
nM	nanoMolar
µg/L	micrograms per liter
%	percent
(1)	Erroneous reading due to equipment malfunction
NA	Not analyzed due to presence of dye in monitoring well
NRD	No reading available due to instrument malfunction
<	undetected at the limit indicated

Table 3-1 (b)
Sub-Plume A Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (µg/L)	Ferrous Iron (µg/L)	Total Iron (µg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (µg/L)	Ethene (µg/L)
007G57LF	May-04	1.15	193.7	1.6	17	410	1,810	23	6 U	18	0.002	160	10	0.18	0.059
	Aug-04	0.42	24.1	2.1	19	0	3,340	0	10 U	7	0.014	260	10	0.19	0.054
	Nov-04	3.7(1)	-34.1	1.1	7	100	724	14	10 U	74	0.002	220	10	0.031	0.016
	Feb-05	0.31	10.4	0.91	110	520	4,960	10	10 U	5	0.005	220	10	0.067	0.1
	May-05	0.49	53.5	1	17	0	1,380	0	10 U	3	0.006	260	15	0.17	0.045
	Aug-05	0.09	-66.6	2.9	77	70	1,010	7	200	1	0.028	320	5	0.091	0.043
	Jun-06	0.61	-70	1.6	280	820	3,440	24	0.77	4	0	180	10	0.056	0.025
	Nov-06	0.65	-79.1	2.4	4,300	800	1,510	53	61	0	0.01	280	10	0.093	1.5
	May-07	1.73	-59	1.4	4,000	500	4,660	11	1.1	9	0	240	15	0.088	1.5
	Nov-07	0.61	-155	1.6	6,900	960	6,220	15	1.2	6	0	114	10	0.026	4
	May-08	0.2	-198.9	4.8	10,000	4,360	7,650	57	0.86 J	8	0.036	320	10	0.031	6.6
	Nov-08	0.49	-191	1.6	5,100	460	1,300	35	88	10	0.072	800	15	0.01	0.76
	May-09	0.46	-8.6	0.68	6,100	1,350	5,110	26	2.3	2	0.052	400	15	<0.01	4.1
	Nov-09	0.32	-143.9	3.9	7,799	1,400	5,470	26	1.5	6	0.023	320	15	0.035	7.5
007G64LF	May-04	1.69	-56.3	590	12	240	6,190	4	6 U	32	0.05	200	20	8.3	5
	Aug-04	0.85	-82.8	15	24	2,420	5,400	45	38	18	0.04	220	10	2.2	2.5
	Nov-04	6.71(1)	-82.4	1.3	24	3,000	4,430	68	10 U	12	0.035	200	15	0.5	1.3
	Feb-05	0.42	-26.4	1.2	7	1,000	3,190	31	10 U	3	0.003	240	15	0.061	0.15
	May-05	0.6	-34.9	1	17	770	7,970	10	10 U	3	0.059	260	10	0.16	0.52
	Aug-05	0.17	-39	1.7	610	210	3,670	6	10	2	0.003	220	15	0.064	0.48
	Jun-06	0.58	47.6	7.1	2,500	280	2,450	11	0.84	9	0.003	180	10	0.21	0.29
	Nov-06	0.56	70.9	2.4	4,300	150	1,510	10	1.2	1	0.009	260	10	0.093	1.5
	May-07	1.1	41	1.2	13,000	30	4,180	1	2.3	4	0	260	15	0.59	1.9
	Nov-07	2.14	43	1.7	9,000	0	5,230	NA	4.1	6	0.019	66	10	0.12	2.7
	May-08	0.22	-129.8	1.1	10,000	450	3,530	13	1.1	5	0.005	280	15	0.09	1.5
	Nov-08	0.4	-87	68	1,400	2,200	4,660	47	1.1	9	0.035	320	10	0.006	0.31
	May-09	0.55	106.2	1.6	7,200	1,280	4,890	26	1.5	10	0.014	260	15	0.012	1.4
	Nov-09	0.3	-88.4	1.6	9,599	1,240	7,380	17	1.7	6	0	240	15	0.018	1.8
007G65LF	May-04	0.68	4.6	250	31	230	41,300	1	14	6	0.192	180	10	4.9	2.6
	Aug-04	1.14	47	1.6	32	780	6,420	12	49	10	0.107	260	5	0.48	1.5
	Nov-04	0.96	-109	1.6	88	320	4,580	7	10	8	0.054	220	10	0.42	1.4
	Feb-05	0.45	-106.7	0.87	52	2,110	12,200	17	10 U	0	0.098	260	10	0.089	0.44
	May-05	1.59	-73.9	1.3	5,800	173	7,720	2	10 U	2	0.125	220	10	0.013	0.36
	Aug-05	0.29	-64.8	1.7	7,900	60	2,970	2	10 U	1	0.017	120	10	< 0.010	0.24
	Jun-06	0.73	-94.5	44	0	920	2,840	32	0.77	7	0.021	200	10	< 0.010	< 0.010
	Nov-06	0.33	20.5	1.1	12,000	800	3,640	22	1.2	0	0.026	220	10	0.076	<0.010
	May-07	0.58	-70	1.4	13,000	300	8,380	4	1.3	0	0.061	160	15	<0.01	0.51
	Nov-07	0.96	-118	4.5	10,000	280	17,300	2	1	4	0.342	96	10	< 0.01	0.83
	May-08	0.21	-172.3	2.5	12,000	720	7,530	10	0.87 J	6	0.035	240	10	<0.01	1.7
	Nov-08	0.35	-76.6	2.9	11,000	1,320	7,030	19	1 U	5	0.064	260	10	<0.01	0.94
	May-09	1.17	-177.7	2.1	8,000	960	3,140	31	1.6	2	0.02	300	10	<0.01	0.54
	Nov-09	0.17	-77.8	2.5	6,299	1,380	3,650	38	1.1	13	0.153	260	10	<0.01	0.54

Notes:

DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

J	Estimated value
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mg/L	milligrams per liter
mV	millivolts
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Table 3-1 (b)
Sub-Plume A Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (µg/L)	Ferrous Iron (µg/L)	Total Iron (µg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (µg/L)	Ethene (µg/L)
007G71LF	May-04	2.11	-126.9	46	32	3,010	11,400	26	6 U	39	0.011	480	15	7.4	2.2
	Aug-04	1.75	-153	18	23	3,000	6,880	44	10 U	70	0.37	500	20	1.2	0.31
	Nov-04	1.19	-85.8	1.6	17	3,060	3,700	83	10 U	120	0.092	420	10	0.37	0.21
	Feb-05	0.88	-82.3	0.98	18	2,060	3,690	56	10 U	114	0.027	440	15	0.038	0.013
	May-05	0.64	-54.9	1.7	16	2,000	2,880	69	10 U	126	0.012	400	15	0.056	0.032
	Aug-05	0	3.7	4.2	41	980	2,740	36	10 U	100	0.033	420	10	0.075	0.07
	Jun-06	0.58	-153.5	1.4	4,100	690	1,440	48	0.71	88	0.044	400	10	< 0.010	0.035
	Nov-06	1.87	NRD	1.9	7,800	810	1,450	56	0.85	44	0.122	420	10	<0.010	0.2
	May-07	1.04	-97	1.5	7,000	2,310	3,420	68	1.5	49	0.034	480	15	<0.01	0.15
	Nov-07	0.9	-111	2.1	11,000	1,000	3,720	27	1.2	96	0	168	10	<0.01	1.1
	May-08	0.42	-130.9	1.7	3,600	3,040	4,260	71	0.96 J	96	0	460	15	<0.01	0.064
	Nov-08	0.31	-77	12	2,500	1,030	3,390	30	1.2	63	0.057	440	15	0.13	0.28
	May-09	0.88	101.8	2	820	1,030	3,210	32	1.1	46	0	460	10	0.003 J	0.21
	Nov-09	0.35	-83	2.1	460	740	7,700	10	2.9	77	0.18	340	15	0.002 J	0.14
007G21LF	May-04	1.72	67.1	7.1	13	10	71.4 J	14	6 U	19	0	285	20	0.065	0.02
	Aug-04	0.32	71.2	2.6	14	130	256	51	10 U	30	0.025	800	15	0.062	0.015
	Nov-04	0.68	-72.5	3.4	18	80	611	13	10 U	72	0.04	220	10	0.07	0.025
	Feb-05	0.8	125.4	1.8	12	50	108 J	46	10 U	126	0	220	10	0.042	0.013
	May-05	1.6	-115.6	3.5	16	10	108 J	9	10 U	15	0	240	10	0.055	0.017
	Aug-05	1.28	-26.1	3.7	95	40	1,710	2	10 U	13	0.025	240	10	0.033	0.051
	Jun-06	0.65	157.4	2.7	3,000	4,380	28.8 UJ	NA	0.72	18	0.014	200	10	0.075	0.25
	Nov-06	0.64	157.2	1	23	20	150	13	0.7	8	0.005	240	10	<0.010	<0.010
	May-07	1.1	166	2.1	6,100	20	69	29	1.1	14	0	280	10	0.022	0.67
	Nov-07	0.76	-102	2.4	4,500	250	78	322	1	9	0.006	280	10	0.01 J	1.1
	May-08	0.37	-105.9	5	7,600	60	108	56	1 U	8	0.002	340	10	0.016	2.3
	Nov-08	0.92	118	6.2	6,000	0	119	0	1.8	7	0	260	10	<0.01	1.8
	May-09	0.68	183.4	3.1	5700	190	200	95	1.2	6	0.015	280	10	0.032	2.2
	Nov-09	0.50	-43.4	130 J	1,599	60	205	29	2	16	0.023	240	10	0.032	1.6

Notes:
DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

J	Estimated value
U	Not detected above laboratory method detection limits
mg/L	milligrams per liter
mV	millivolts
nM	nanoMolar
µg/L	micrograms per liter
%	percent
(1)	Erroneous reading due to equipment malfunction
NA	Not analyzed due to presence of dye in monitoring well
NRD	No reading available due to instrument malfunction
<	undetected at the limit indicated

Table 3-1 (c)
Sub-Plume A – Groundwater Metabolic Acids Results

Well ID	Sample Date	Concentrations (mg/L)					
		Pyruvic	Lactic	Formic	Acetic	Propionic	Butyric
007G60LF	Feb-02	<4	<1	<1	<1	<1	<1
	Sep-02	<4	<1	<1	<1	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Aug-05	<40	<1	<1	1,016	<1	<1
	Nov-06	NA	NA	NA	NA	NA	NA
	May-07	NA	NA	NA	NA	NA	NA
	Nov-07	NA	NA	NA	NA	NA	NA
	May-08	NA	NA	NA	NA	NA	NA
	Nov-08	NA	NA	NA	NA	NA	NA
	May-09	NA	NA	NA	NA	NA	NA
	Nov-09	NA	NA	NA	NA	NA	NA
007G62LFB	Feb-02	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	1,025	<1	<1
	May-05	<4	<1	<1	1,852	<1	<1
	Aug-05	<4	<1	<1	1.8	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1
007G63LFB	Feb-02	<4	<1	<1	5	<1	<1
	Sep-02	<4	<1	<1	2.5	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<20	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	119.2	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	0.5 J
007G66LF	May-04	<4	<1	<1	25.1	<1	<1
	Aug-04	<4	<1	<1	6.1	4.1	<1
	Nov-04	<4	<1	<1	4.7	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	1.6 J	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1

Notes:

mg/L	milligrams per liter
<	Undetected at the limit indicated
NA	not analyzed
NR	not reported - Microseeps laboratory does not include formic acid in their VFA suite.

Table 3-1 (c)
Sub-Plume A – Groundwater Metabolic Acids Results

Well ID	Sample Date	Concentrations (mg/L)					
		Pyruvic	Lactic	Formic	Acetic	Propionic	Butyric
007G58LFB	Feb-02	<4	<1	<1	45.0	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1
007G59LFB	Feb-02	<4	<1	<1	<1	<1	<1
	Sep-02	<4	1.5	1.6	3.9	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1
007G04LF	Feb-02	<4	<1	<1	4.0	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	2.0	<1	<1
	May-07	<4	<1	<1	3.0	<1	<1
	Nov-07	<4	<1	<1	2.9	<1	<1
	May-08	<4	<1	<1	72.2	<1	<1
	Nov-08	<4	<1	<1	121.5	<1	<1
	May-09	< 10	<25	NR	74	0.4 J	<1
	Nov-09	< 10	<25	NR	11	<1	<1
007G57LF	Feb-02	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	156.7	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	415.1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	218.1	<1	<1
	May-09	< 10	<25	NR	<1	0.6 J	0.5 J
	Nov-09	< 10	<25	NR	<1	<1	<1

Notes:

mg/L	milligrams per liter
<	Undetected at the limit indicated
NR	not reported - Microseeps laboratory does not include formic acid in their VFA suite.

Table 3-1 (c)
Sub-Plume A — Groundwater Metabolic Acids Results

Well ID	Sample Date	Concentrations (mg/L)					
		Pyruvic	Lactic	Formic	Acetic	Propionic	Butyric
007G64LF	May-04	26.2	<1	<1	7.0	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1
007G65LF	May-04	27.8	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1
007G21LF	Feb-02	<4	<1	<1	<1	<1	<1
	Sep-02	<4	3.9	2.1	20.0	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	24.9	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1
007G71LF	May-04	<4	<1	<1	5.4	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	< 10	<25	NR	<1	<1	<1
	Nov-09	< 10	<25	NR	<1	<1	<1

Notes:

mg/L	milligrams per liter
<	Undetected at the limit indicated
NR	not reported - Microseeps laboratory does not include formic acid in their VFA suite.

Table 3-2 (a)
Sub-Plume B – Groundwater Analytical Results

Well Id	Parameter	Concentrations (µg/L)													
		Interim Measures Results													
		May-04	Aug-04	Nov-04	Feb-05	May-05	Aug-05	Jun-06	Nov-06	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09
007G22LF	PCE	51	2	<0.5	<0.5	0.68	0.21 J	<1	<1	2	2	<1	<1	<1	<1
	TCE	100	4	<0.5	<0.5	1.9	0.28 J	<0.4	0.9 J	4	2	<1	<1	<1	0.4 J
	cis-1,2-DCE	1	130	<0.5	<0.5	<0.5	<0.5	<1	<1	2	0.9	<1	0.2	<1	0.3 J
	VC	<0.5	<0.5	100	40	31	28	24	18	43	31	13 J	13	8	12
007G69LF	PCE	73	73	72	77	70	45	60	56	59	21	50 J	39	26	38
	TCE	200	200	190	220	200	170	140	140	140	64	120 J	94	53	100
	cis-1,2-DCE	2	11	23	16	10	12 J	43	24	70	45	48 J	46	26	25
	VC	<0.5	<0.5	<0.5	6	5	28 J	22	20	5	21	19 J	18	50	12

Notes:

mg/L	micrograms per liter
PCE	tetrachloroethylene
TCE	trichloroethylene
cis-1,2-DCE	cis-1,2-dichloroethene
VC	vinyl chloride
J	Estimated value
<	Undetected at the limit indicated

Table 3-2 (b)
Sub-Plume B — Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (µg/L)	Ferrous Iron (µg/L)	Total Iron (µg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (µg/L)	Ethene (µg/L)
007G22LF	May-04	1.43	-40.3	2.4	3.4	350	6,210	6	6	0	0.064	155	10	0.96	0.72
	Aug-04	1.33	-166.7	1.6	240	2,660	14,700	18	370	0	0.048	800	15	0.019	0.087
	Nov-04	0.48	-190.1	8.7	13,000	2,250	29,800	8	770	0	0.229	800	15	<0.005	0.59
	Feb-05	0.17	-198.3	1.5	12,000	650	19,400	3	100	0	0.287	1,620	15	<0.005	0.23
	May-05	0.97	-44.4	1.6	14,000	120	17,300	1	26	24	0.077	1,460	15	<0.01	0.21
	Aug-05	0	-142	2.5	16,000	890	10,100	9	69	0	0.135	900	10	<0.01	0.21
	Jun-06	4.54*	-130.8	21	3,900	380	7,830	5	1.2	0	0.105	1,260	10	<0.01	0.23
	Nov-06	0.82	-91.1	1.3	14,000	1,890	10,700	18	1.8	0	0.116	110	10	<0.01	<0.01
	May-07	0.76	-127	2.6	11,000	3,500	5,950	59	1	2	0	500	15	<0.01	1.1
	Nov-07	1.67	-144	1.4	11,000	1,310	3,670	36	1.1	0	0.011	580	10	<0.01	0.29
	May-08	0.66	-165.3	13	11,000	250	2050	12	1.5	0	0.041	1,600	40	<0.01	<0.01
	Nov-08	0.33	-155.7	1.7	6,400	390	1,770	22	2.1	0	0.041	2,100	30	<0.01	<0.01
	May-09	0.58	-34.5	0.54 J	7400	220	205	107	2	26	0.044	2,000	30	0.01 U	0.027
	Nov-09	0.21	-160	1.4	9999	860	1530	56	3.7	0	0.08	2540	40	0.01 U	0.51
007G69LF	May-04	1.65	53.5	640	6	2,400	8,500	28	6 U	0	0.088	185	15	4.6	2.3
	Aug-04	0.56	-15.4	690	15	450	6,820	7	10 U	70	0.034	180	15	0.72	1.1
	Nov-04	1.05	20.1	160	8.5	230	5,720	4	10 U	15	0.035	160	10	0.1	0.3
	Feb-05	1.46	-1.4	1.2	7	570	17,700	3	10 U	1	0.158	160	15	0.015	0.14
	May-05	2.07	54.6	1.1	1,000	210	9,710	2	10 U	13	0.039	160	10	0.012	0.16
	Aug-05	0.04	-26.6	1.7	4,300	1,130	1,930	59	12	6	0.005	140	10	0.03	0.53
	Jun-06	0.32	121.9	14	2,700	130	1,840	7	0.8	18	0.001	180	10	<0.01	0.41
	Nov-06	1.25	16.2	0.96	8,400	260	1,820	14	0.63	8	0.008	340	10	<0.01	0.26
	May-07	0.73	-17	1.5	11,000	100	3,180	3	2.4	32	0.024	360	15	<0.01	0.26
	Nov-07	8.15*	-87	1.5	3,500	530	4,540	12	1	13	0.049	300	10	<0.01	0.1
	May-08	0.58	367.7	3.9	8,100	130	786	17	1.9	0	0.041	1,600	40	<0.01	0.27
	Nov-08	1.11	-35.7	1.7	6,400	680	1,110	61	1.1	23	0	180	10	<0.01	0.22
	May-09	0.61	95.6	0.63	7300	119	2180	5	1.2	5	0.014	340	10	0.01 U	0.46
	Nov-09	0.5	49.4	1.7	920	350	2080	17	1 U	23	0	280	10	0.01 U	0.12

Notes:
DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

J	Estimated value
U	Not detected above laboratory method detection limits
mg/L	milligrams per liter
mV	millivolts
nM	nanoMolar
µg/L	micrograms per liter
%	percent
<	undetected at the limit indicated
*	erroneous reading

Table 3-2 (c)
Sub-Plume B — Groundwater Metabolic Acids Results

Well ID	Sample Date	Concentrations (mg/L)					
		Pyruvic	Lactic	Formic	Acetic	Propionic	Butyric
007G22LF	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	1,635	<1	<1
	Feb-05	<4	<1	<1	249.4	3.9	<1
	May-05	<4	<1	<1	98.5	<1	<1
	Aug-05	<4	<1	<1	79.8	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	2.2	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	<10	<25	NR	<1	<1	<1
	Nov-09	<10	<25	NR	<1	<1	<1
007G69LF	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	19.4	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	5.7	<1	<1	<1	<1
	May-09	<10	<25	NR	0.6 J	<1	<1
	Nov-09	<10	<25	NR	<1	<1	<1

Notes:

mg/L	milligrams per liter
<	Undetected at the limits indicated
NR	not reported - Microseeps laboratory does not include formic acid in their VFA suite.

Table 3-3 (a)
Sub-Plume C – Groundwater Analytical Results

Well ID	Parameter	Interim Measures Results (µg/L)													
		May-04	Aug-04	Nov-04	Feb-05	May-05	Aug-05	Jun-06	Nov-06	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09
007G03LF	PCE	110	82	44	47	54	7.6	0.7 J	< 1	< 1	<1	< 1	<1	<1	<1
	TCE	24	15	10	7	10	3.1	0.8 J	0.5 J	1	1	0.7 J	<1	<1	<1
	cis-1,2-DCE	2	8	25	5	15	2.9	0.6 J	< 1	< 1	< 1	0.4 J	<1	21	3
	VC	<0.5	<0.5	46	19	20	21	11	3	0.9	< 2	< 2	< 2	18	13

Notes:

mg/L	micrograms per liter
PCE	tetrachloroethylene
TCE	trichloroethylene
cis-1,2-DCE	cis-1,2-dichloroethene
VC	vinyl chloride
J	Estimated
<	Undetected at the limit indicated

Table 3-3 (b)
Sub-Plume C — Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (mg/L)	Ferrous Iron (mg/L)	Total Iron (mg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (mg/L)	Ethene (mg/L)
007G03LF	May-04	1.73	-65.8	9.4	0.32	10	67.1	14.90	32	12	0.009	105	15	<0.005	0.038
	Aug-04	2.78	156.7	2.2	52	5,720	10,000	57.20	110	8	0.034	500	15	2	0.43
	Nov-04	0.91	-133.8	2.4	13,000	6,480	15,100	42.91	94	11	0.065	540	10	<0.005	0.15
	Feb-05	0.25	-139.1	2.3	9,100	5,520	8,070	68.40	62	2	0.082	540	10	<0.005	0.069
	May-05	1.95	-122.8	1.6	9,600	8,480	14,500	58.48	170	0	1.068	600	15	<0.01	0.043
	Aug-05	0.37	-93.1	1.6	10,000	2,500	4,400	56.82	10	4	0.065	580	50	<0.01	0.17
	Jun-06	0.58	-129.3	18	13,000	1,760	2,960	59.46	1	25	0.039	400	15	<0.01	0.14
	Nov-06	0.63	-127	0.99	10,000	2,330	8,650	26.94	2	9	0.146	280	10	<0.01	0.047
	May-07	1.03	-161	NS	NS	NS	NS	NS	1	NS	NS	NS	NS	NS	NS
	Nov-07	0.82	-188	NS	NS	NS	NS	NS	2	NS	NS	NS	NS	NS	NS
	May-08	0.34	-123.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Nov-08	0.6	-165.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	May-09	0.67	46.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Nov-09	0.47	-134.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

mg/L	milligrams per liter
mV	millivolts
nM	nanoMolar
µg/L	micrograms per liter
%	percent
<	undetected at the limit indicated
NS	not sampled

Table 3-4 (b)
Sub-Plume D — Groundwater Geochemical Results

Well ID	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Hydrogen (nM)	Methane (µg/L)	Ferrous Iron (µg/L)	Total Iron (µg/L)	Percent of Ferrous Iron in Total Iron (%)	Total Organic Carbon (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Ethane (µg/L)	Ethene (µg/L)
PESGMW2S	May-04	0.56	-81	18	6,300	3,040	29,300	10	52	4	0.008	315	25	0.022	2.9
	Aug-04	1.46	-120	NA	8,500	310	30,600	1	71	0	0.021	360	25	<0.025	<0.033
	Nov-04	0.34	-111	9.8	6,800	9,880	31,700	31	78	0	0.011	300	20	0.046	5.8
	Feb-05	0.5	-113	9.2	5,500	6,000	37,700	16	90	210	0.007	36	15	<0.005	3.2
	May-05	0.49	-141	17	4,300	9,900	34,900	28	95	0	0.01	400	25	0.061	2.4
	Aug-05	0	-108.1	12	9,500	7,620	39,700	19	98	0	0.057	260	10	0.06	8.1
	Jun-06	0.62	-118.6	3.3	11,000	5,200	148,000	4	1400	0	0.004	660	5	0.066	9.2
	Nov-06	0.61	-159	3.1	13,000	3,290	131,000	3	960	0	0	1240	5	0.110	8.3
	May-07	0.44	-163	4.0	10,000	43,360	167,000	26	1300	0	0.004	1640	15	0.500	7
	Nov-07	0.37	-156	1.9	4,000	5,740	153,000	4	1100	0	0.023	2060	5	0.170	2.5
	May-08	0.68	-142.7	2.2	8,800	11,920	113,000	11	1400	0	0.031	1920	72	0.230	2.4
	Nov-08	1.7	-132	33	11,000	2,970	16,800	18	1100	14	0.035	2200	65	0.160	4.9
	May-09	2.77	-213.1	1.5	8,000	1,130	5,200	22	200	0	0.026	1640	45	0.067	3.7
	Nov-09	0.15	-124.2	1.2	1,799	160	3,430	5	48	37.5	0.048	1560	40	0.006 J	0.94
PESGMW2D	May-04	0.3	-72	2.1	5,100	2,870	14,900	19	<6	36	0.019	185	15	<0.005	0.034
	Aug-04	1.63	-101	NA	13,000	7,320	17,000	43	<10	8	0.017	200	20	<0.025	<0.033
	Nov-04	0.54	-108	2.8	9,500	8,880	33,800	26	11	8	0.021	240	10	<0.005	0.48
	Feb-05	0.66	-85	0.9	5,300	6,720	17,900	38	<10	0	0.107	220	10	<0.005	0.29
	May-05	0.25	-121	0.88	7,700	2,370	26,100 J	9	<10	3	0.032	220	5	<0.005	0.34
	Aug-05	0	-129.9	1.8	10,000	5,680	61,500	9	16	0	0.017	200	10	<0.01	1.3
	Jun-06	0.95	-62.3	1.4	5,000	2,800	6,700	42	0.97	4	0	100	10	<0.01	0.083
	Nov-06	3.88	-131	1.7	5,400	2,710	14,800	18	13	0	0.015	380	10	<0.01	0.073
	May-07	0.53	-44	2.8	7,900	4,720	8,560	55	1	0	0.015	180	10	<0.01	0.08
	Nov-07	0.31	-111	3.1	9,500	2,930	18,800	16	3.7	1	0	340	10	<0.01	0.26
	May-08	1.63	-148.9	3.3	6,200	3,120	7,700	41	2	0	0.036	200	10	<0.01	0.21
	Nov-08	1.21	126.6	36	9,800	3,000	20,800	14	9.2	0	0.028	440	15	<0.01	0.54
	May-09	1.99	-127	7.3	7,700	1,840	5,360	34	1 U	0	0.098	100	10	0.067	0.01 U
	Nov-09	0.38	-77.4	1.2	5,000	1,950	7,530	26	1.9	0	0.104	300	10	0.01 U	0.17
PESGMW3S	May-04	0.4	-14	4.6	2,300	3,340	3,860	87	6 U	8	0.042	140	20	0.019	0.33
	Aug-04	0.81	-49	7.3	2,000	3,190	3,780	84	<10	19	0.17	160	15	0.043	0.35
	Nov-04	0.5	-16	0.93	1,300	2,560	3,980	64	<10	2	0.012	120	15	0.029	0.36
	Feb-05	0.26	-10	0.74	1,400	2,420	3,320	73	<10	6	0	160	15	0.03	0.25
	May-05	0.66	-29	0.63	1,800	2,820	3,490 J	81	<10	0	0.016	160	15	0.017	0.31
	Aug-05	0	34	1.4	430	3,070	3,740	82	<10	3	0.014	140	5	0.015	0.13
	Jun-06	0.59	21.2	14	2,000	2,890	4,910	59	1.6	1	0.007	100	15	0.033	0.86
	Nov-06	0.51	-63.1	1.7	6,100	3,050	7,940	38	3.3	2	0.241	220	20	<0.01	7.9
	May-07	1.41	-62	3.2	4,900	3,110	5,800	54	5.8	1	0	240	20	<0.01	6.4
	Nov-07	0.52	-105	1.6	9,000	2,260	7,940	28	3.9	2	0.014	220	15	<0.01	12
	May-08	0.78	-182.9	1.6 J	3,485	810	6,620	12	1.6	5	0.007	220	15	<3.125	<2.917
	Nov-08	1.18	-31	1.7	8,900	2,390	6,520	37	1.1	6	0.003	240	15	<0.01	0.54
	May-09	0.57	-124.1	0.66	8100	2,270	9830	23	1	6	0.027	220	15	0.026	4.7
	Nov-09	0.32	-21.4	2.5	11,099	3,020	3,760	80	1.1	4	0.018	220	20	0.047	6.6
PESGMW3D	May-04	0.66	-106	3.5	14,000	10,440	99,400	11	32	12	0.006	400	25	<0.005	0.16
	Aug-04	0.33	-133	5.6	11,000	3,580	105,000	3	87	1	0.034	300	15	0.011	0.25
	Nov-04	0.68	-114	2.6	12,000	8,480	80,300	11	30	0	0	340	25	<0.005	0.29
	Feb-05	0.38	-126	3	11,000	12,880	102,000	13	53	0	0	380	25	<0.005	0.51
	May-05	0.84	-113	1.3	9,700	2,180	107,000 J	2	34	0	0.063	389	5	0.0097	0.72
	Aug-05	0.33	-105.5	1.9	9,600	5,220	111,000	5	41	0	0.58	300	15	0.038	1.1
	Jun-06	0.27	-112.2	42	13,000	6,000	75,400	8	130	0	0.007	620	15	0.11	1.7
	Nov-06	0.96	-145	3.1	11,000	2,250	57,100	4	180	0	0	1000	10	<0.01	0.96
	May-07	0.95	-157	2.5	11,000	78,080	24,700	316	160	0	0.015	1140	20	0.039	0.57
	Nov-07	1.31	-141	3.5	12,000	1,780	26,000	7	260	0	0	1200	15	<0.01	0.44
	May-08	1.24	-148.6	1.4 J	3,062	4,360	13,900	31	150	0	0.009	1660	20	<156	<145
	Nov-08	1.24	-148.3	1.9	8,400	2,940	8,230	36	64	2	0.01	1780	25	<0.01	0.29
	May-09	0.6	-64	1.3	11,000	1,080	7,300	15	38	0	0.009	1760	40	0.028	0.34
	Nov-09	0.53	-120.3	1.6	10,099	170	6,190	3	6.6	0	0.012	1520	45	0.038	0.44
PESGMW4S	May-04	0.42	-93	3.7	5,400	2,100	17,200	12	13	17	0.011	300	20	0.018	2.1
	Aug-04	0.3	-123	5	4,300	5,260	15,900	33	16	8	0.028	320	15	0.042	2.5
	Nov-04	0.47	-95	2.3	1,400	8,760	15,500	57	21	41	0.005	300	20	0.014	2.4
	Feb-05	0.31	-103	7.6	3,400	4,220	19,400	22	20	144	0.01	260	15	0.036	2.9
	May-05	0.4	-106	5.2	3,000	2,360	19,000	12	27	0	0.023	360	20	0.028	3.1
	Aug-05	0.66	112.5	11	1,400	0	270	0	12000	0	0.007	-	10	0.015	0.25
	Jun-06	0.81	-232.1	4.3	13,000	210	2,630	8	24	0	0.028	680	20	<0.01	13
	Nov-06	0.78	170.8	3.2	13,000	0	40,500	0	130	5	0.017	4720	25	<0.01	0.7
	May-07	1.8	-167	5.3	11,000	50	1,560	3	3200	3	0.054	5220	195	<0.01	2.3
	Nov-07	1.05	-203	8.4	12,000	10	1,280	1	5500	3	0.01	5080	75	<0.01	1.9
	May-08	0.26	-184.8	8.1 J	3,325	30	1,260	2	3900	25	0.014	4240	85	<156	<145
	Nov-08	1.1	-185	52	9,100	120	2,280	5	13000	4	0.058	5640	80	<0.01	0.71
	May-09	0.66	81.5	25	9,000	20	1,480	1	4900	0	0.049	5000	45	0.01 U	0.24
	Nov-09	0.23	-44.5	12	12,099	100	2,180	5	2200	34	0.050	4520	30	0.01 U	0.095
PESGMW4D	May-04	0.39	-49	4.8	5,200	2,800	7,170	39	38	1	0.065	120	15	<0.005	0.36
	Aug-04	1.06	-131	NA	12,000	4,800	17,800	27	11	7	0.021	200	15	<0.025	<0.033
	Nov-04	0.87	-84	1.6	5,400	8,670	16,600	52	<10	3	0.014	160	10	<0.005	1.6
	Feb-05	0.55	-77	1.8	5,400	3,080	8,770	35	<10	72	0.059	160	10	<0.005	0.72
	May-05	0.67	-141	1.3	7,300	5,980	10,300	58	<10	0	0.098	180	15	<0.005	0.94
	Aug-05	0	-118.9	2.5	8,800	7,830	29,700	26	130	0	0.101	220	15	<0.01	1.4
	Jun-06	0.69	-173.9	1.3	8,500	7,800	18,800	41	16	1	0.025	120	10	<0.01	0.34
	Nov-06	0.53	-166.6	4.6	11,000	2,410	698	345	9700	0	0.011	680	10	<0.01	4
	May-07	0.54	-170	2.3	24,000	1,780	4,020	44	6.5	5	0.027	560	20	<0.025	0.27
	Nov-07	0.27	-247	2.7	13,000	1,700	7,970	21	140	0	0.206	1820	30	<0.01	0.093
	May-08	0.4	-115.7	1.3 J	21,208	820	2,480	33	6.4	0	0.038	860	20	<156	<145
	Nov-08	1.31	-151.9	6.7	11,000	4,000	5,900	68	8.4	12	0.029	660	20	<0.01	<0.01
	May-09	1.91	-223.5	1.2	7,800	70	3,750	2	3.2	3	0.025	240	10	<0.01	<0.01
	Nov-09	0.45	-59.9	1.5	11099	1,380	2,610	53	1	74	0.054	240	10	<0.01	0.03
PESGMW7S	May-04	3.6	-41	2.6	130	1,120	1,940	58	6 U	64	0.004	400	20	0.016	0.27
	Aug-04	0.24	-98	2.3	400	2,240	2,240	100	<10	19	0	320	20	0.02	0.41
	Nov-04	0.64	-70	2	520	2,030	2,090	97	<10	2	0.016	240	20	0.019	0.41
	Feb-05	4.55	-38	0.76	120	1,060	1,320	80	<10	6	0	260	15	0.0054	0.13
	May-05	0.48	-67	0.71	270	1,460	1,660	88	<10	4	0	160	10	0.0067	0.21
	Aug-05	0.03	-82.6	1.3	330	1,440	1,710	84	16	3	0.005	260	5	0.016	0.32
	Jun-06	1.4	14.4	1.8	270	1,400	1,550	90	0.88	1	0.006	240	15	0.015	0.55
	Nov-06	0.7	-23.6	2.4	190	1,520	1,720	88	2.4	0	0.01	480	15	0.008 J	0.28
	May-07	1.06	-47	1.4	200	1,090	1,210	90	1.1	7	0.005	340	15	0.012	0.44
	Nov-07	0.62	-49	6.4	170	1,270	1,220	104	11	5	0.022	320	20	0.014	0.67
	May-08	0.66	187.3	6.7	150	490	561	87	1	7	0	320	20	0.008 J	0.23
	Nov-08	0.88	-18	1.3	590	490	457	107	1.8	7	0	300	15	0.012	0.39
	May-09	0.47	113.2	1.4	1,300	300	304	99	1.2	3	0.009	360	25	0.008 J	0.28
	Nov-09	1.23	21.3	4	2,399	140	148	95	<1	5	0	280	20	0.011	0.34
PESGMW7D	May-04	0.73	-19	2.2	2,100	1,430	1,450	99	< 6	7	0.003	140	30	0.083	0.066
	Aug-04	0.45	-62	2.1	2,800	920	1,240	74	50	11	0.18	140	25	0.12	0.12
	Nov-04	0.84	-42	2.3	3,500	1,030	1,230	84	< 10	4	0.007	200	35	0.11	0.31
	Feb-05	0.4	-71	1.3	2,800	1,850	2,230	83	< 10	8	0	200	35	0.051	0.78
	May-05	0.27	-92	0.98	4,200	1,710	1,890	90	< 10	53	0.02	240	25	0.043	1.2
	Aug-05	0	-84.9	1.2	5,700	1,890	1,730	109	63	0	0.018	180	10	0.077	2.9
	Jun-06	0.44	-34.3	21	11,000	1,440	1,560	92	38	1	0.028	180	25	<0.01	6.4
	Nov-06	0.44	-68.3	1.7	15,000	1,980	25,200	8	44	1	0.043	280	20	<0.01	12
	May-07	1.06	-151	2.9	14,000	1,820	2,840	64	20	2	0	400	30	<0.01	17
	Nov-07	0.62	-145	3.9	16,000	2,220	4,860	46	59	0	0.019	540	25	<0.01	18
	May-08	0.8	-161.3	3.4	15,000	4,620	8,870	52	98	0	0.02	600	30	<0.01	22
	Nov-08	0.43	-195.7	64	15,000	2,680	9,980	27	62	0	0.041	840	35	<0.01	17
	May-09	0.39	-110.9	2.1	10,000	300	8,990	3	7.3	3	0.009	360	25	<0.01	10
	Nov-09	0.28	-189.9	2.9	12,099	1,320	8,630	15	5.2	0	0.044	1140	45	<0.01	6.4

Notes:
DO concentrations were determined by the YSI meter from May 2004 to May 2005. DO concentrations in August 2005 were determined using the Winkler titration method.

J	Estimated value
U	Not detected above laboratory method detection limits
mg/L	milligrams per liter
mV	millivolts
nM	nanoMolar
µg/L	micrograms per liter
%	percent
NA	Not analyzed due to presence of dye in monitoring well
<	undetected at the limit indicated

Table 3-4(a)
Sub-Plume D – Groundwater Analytical Results

		Concentrations (µg/L)																				
		Pilot Study					Post-Pilot Study		Interim Measures													
Well ID	VOC	July/Aug-00	Nov-00	Feb-01	Aug-01	Jan-02	Sep-02	Sep-03	May-04	Aug-04	Nov-04	Feb-05	May-05	Aug-05	Jun-06	Nov-06	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09
PESGMW1S	PCE	<5	<5	<5	<5	<5	<5	<1	NS	<0.5	NS	NS	NS	<0.5	NS	<1	NS	1	NS	4	NS	<1
	TCE	150	22	53	14	100	13	23	NS	25	NS	NS	NS	62	NS	110	NS	72	NS	93	NS	120
	cis-1,2-DCE	34	9.1	17	34	40	27	25	NS	14	NS	NS	NS	14	NS	18	NS	11	NS	12	NS	18
	VC	<5	<5	<5	<5	<5	<5	0.3 J	NS	<0.5	NS	NS	NS	<0.5	NS	<2	NS	2	NS	<2	NS	<2
PESGMW1D	PCE	<5	<5	<5	<5	<5	<5	0.2 J	NS	<0.5	NS	NS	NS	<0.5	NS	<1	NS	<1	NS	<1	NS	<1
	TCE	26	<5	1.2 J	<5	<5	0.7 J	<1	NS	<0.5	NS	NS	NS	<0.5	NS	<1	NS	<1	NS	<1	NS	<1
	cis-1,2-DCE	2.8 J	<5	<5	<5	<5	<5	<1	NS	<0.5	NS	NS	NS	<0.5	NS	<1	NS	<1	NS	<1	NS	<1
	VC	<5	<5	<5	<5	<5	<5	<1	NS	<0.5	NS	NS	NS	<0.5	NS	<2	NS	<2	NS	<2	NS	<2
PESGMW2S	PCE	<5	1 J	1.3 J	<5	1 J	0.4 J	0.2 J	<0.5	<0.5	<0.5	<0.5	1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
	TCE	680	1,000	1,200	1,300	1,200	350	240	200	80	180	71	270	90	8	<1	<1	<1	<1	<1	<1	<1
	cis-1,2-DCE	4.5 J	14	18	12	250	480	390	230	280	270	220	300	220	27	42	3	0.4	<1	<1	<1	<1
	VC	<5	<5	<5	<5	<5	<5	0.7 J	270	220	240	300	230	340	340	240	200	96	92	18	11	24
PESGMW2D	PCE	<5	<5	<5	<5	<5	<5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
	TCE	180	260	220	40	42	3 J	2	2	2	1	1	1.3	1.2	3	0.6J	1	1	2 J	1	2 J	2
	cis-1,2-DCE	3.6 J	8.8	7.7	7.4	12	10	9	2	4	3	2	1.2	0.78	0.8J	<1	1	0.5	0.7 J	0.9 J	3	4
	VC	<5	<5	<5	<5	<5	<5	<1	8	31	54	60	50	67	6	15	6	15	6 J	20	4	7
PESGMW3S	PCE	1.2 J	<5	<5	<5	1.3 J	0.6 J	1	2	2	2 J	2	2.2	4.9 J	3	1	1	0.8	2 J	1	2	1
	TCE	1,600	350	290	740	1,000	320	420	620	490	560	600	200	680	530	130	100	110	160 J	120	170	100
	cis-1,2-DCE	12	12	14	15	19	13	16	60	28 J	24 J	44	66	46	37	180	64	120	79 J	79	46	48
	VC	<5	<5	<5	<5	<5	<5	0.2 J	<0.5	<0.5	0.4 J	<0.5	0.66	0.66 J	7	190	33	89	100 J	68	42	69
PESGMW3D	PCE	<5	<5	<5	<5	<5	<5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
	TCE	4.5	420	560	230	160	1 J	0.9 J	3	5	2	1	0.45	1.2	0.7 J	<1	<1	<1	<1	<1	<1	0.4 J
	cis-1,2-DCE	<5	9.9	12	7.6	35	26	9	30	22	28 J	17	11	6	1	1	1	1	<1	<1	<1	<1
	VC	<5	<5	<5	<5	<5	<5	0.4 J	3	26	47	70	120	120	50	47	1	1	16 J	0.3	9	13
PESGMW4S	PCE	<5	1 J	1 J	<5	1.1 J	0.7 J	0.5 J	0.6	0.6	0.4 J	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
	TCE	1,600	1,000	990	370	1,000	380	220	270	350	300	230	110	60	5	<1	2	0.6	<1	<1	<1	<1
	cis-1,2-DCE	6.4	13	16	13	21	14	160	210	170	190	170	160	41	4	4	3	0.9	<1	<1	0.6 J	<1
	VC	<5	<5	<5	<5	<5	<5	<1	120	80	160	130	250	17	320	150	120	100	73 J	24	34	14
PESGMW4D	PCE	<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
	TCE	120	140	95	110	67	7	4	2	1	2	2	1.3	4.4	2	0.7 J	1	0.8	2 J	2	3 J	4
	cis-1,2-DCE	1.7 J	3 J	2.9 J	2.2 J	1.5 J	31	4	5	2	1	2	2.3	5	4	0.8 J	1	0.6	2 J	2	6	7
	VC	<5	<5	<5	<5	<5	<5	39	40	110	77	32	30	79	68	160	14	52	6 J	19	3	7
PESGMW7S	PCE	1.2 J	<5	<5	<5	<5	<5	0.4 J	0.5	<5	0.6	<0.5	0.46	0.65	<1	<1	<1	<1	<1	<0.4	<1	<1
	TCE	660	150	95	140	220	180	190	280	340	400	160	280	260	150	80	110	74	200 J	130	180	180
	cis-1,2-DCE	7.2	28	61	28	22	15	13	12	10	14	82	120	100	150	130	120	110	86 J	79	69	54
	VC	<5	<5	<5	<5	<5	<5	<1	<0.5	<5	<0.5	0.5	0.47	0.59	1 J	2	1	2	1 J	4	1 J	2
PESGMW7D	PCE	2 J	<5	<5	<5	<5	0.6	0.9 J	1	<20	0.9	0.9	0.74	0.85	<1	<1	<1	<1	<1	<1	<1	<1
	TCE	570	980	800	670	1,300	1,000	660	1,400	1,200	1,300	1,100	1,100	800	410	180	12	5	<1	<1	1	6
	cis-1,2-DCE	16	4.5 J	6	4.5 J	5	8	78	150	120	160	190	210	240	310	330	180	62	8 J	<1	0.7 J	4
	VC	<5	<5	<5	<5	<5	<5	<1	<0.5	<0.5	17	38	65	92	160	400	460	460	390 J	210	160	190
PESGMW8S	PCE	<5	<5	<5	<5	<5	<5	<1	NS	<5	NS	NS	NS	<10	NS	<1	NS	<1	NS	<1	NS	<1
	TCE	150	98	100	61	220	170	120	NS	210	NS	NS	NS	190 J	NS	240	NS	270	NS	260	NS	180
	cis-1,2-DCE	<5	1 J	<5	<5	1.2 J	1 J	2	NS	<5	NS	NS	NS	<10	NS	2	NS	4	NS	10	NS	17
	VC	<5	<5	<5	<5	<5	<5	<1	NS	<5	NS	NS	NS	<10	NS	<2	NS	2	NS	<0.3	NS	1 J
PESGMW8D	PCE	<5	<5	<5	<5	<5	<5	<1	NS	<10	NS	NS	NS	<5	NS	<1	NS	<1	NS	<1	NS	<1
	TCE	380	720	580	540	980	750	500	NS	560	NS	NS	NS	400	NS	390	NS	250	NS	290	NS	180
	cis-1,2-DCE	1.4 J	2.6 J	<5	3.1 J	4 J	4 J	4	NS	<10	NS	NS	NS	<5	NS	92	NS	130	NS	130	NS	43
	VC	<5	<5	<5	<5	<5	<5	<1	NS	<10	NS	NS	NS	<5	NS	3	NS	12	NS	55	NS	200

Notes:

mg/L	micrograms per liter
PCE	tetrachloroethylene
TCE	trichloroethylene
cis-1,2-DCE	cis-1,2-dichloroethene
VC	vinyl chloride
NS	not sampled
J	estimated
<	Undetected at the limit indicated

Table 3-4 (c)
Sub-Plume D – Groundwater Metabolic Acids Results

Well ID	Date	Concentrations (mg/L)					
		Pyruvic	Lactic	Formic	Acetic	Propionic	Butyric
PESGMW2D	Sep-02	<4	<1	<1	10.3	7.3	<1
	Sep-03	<4	<1	<1	16.6	2.5	<1
	May-04	28.4	<1	<1	6.9	1.2	<1
	Aug-04	<4	<1	<1	3	4.5	<1
	Nov-04	<4	<1	<1	13.0	1.3	<1
	Feb-05	<4	<1	<1	7.1	<1	<1
	May-05	<4	<1	<1	11.3	<1	<1
	Aug-05	<4	<1	<1	23.8	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	29.9	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	2.9	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	16.7	<1	<1
	May-09	1.5 J	<25	NR	<1	0.4 J	<1
	Nov-09	<10	<25	NR	30 J	<1	<1
PESGMW2S	Sep-02	<4	<1	<1	15.8	25.5	<1
	Sep-03	<4	<1	<1	20.4	33.0	<1
	May-04	24.6	<1	1.6	61.8	84.7	<1
	Aug-04	<4	<1	<1	44.9	58.6	<1
	Nov-04	<4	<1	<1	76.7	87.9	<1
	Feb-05	<4	<1	<1	79.9	75.3	<1
	May-05	<4	<1	<1	52.3	107.7	<1
	Aug-05	<4	<1	<1	88.9	92.9	<1
	Jun-06	<4	<1	<1	2,654	137.3	217.4
	Nov-06	<4	<1	<1	1,981	150.7	265.1
	May-07	<4	<1	<1	2,670	112.7	213.6
	Nov-07	<4	<1	<1	3,631	53.4	312
	May-08	<4	<1	<1	3,784	32.1	349.2
	Nov-08	<4	<1	<1	2,610	24	178.8
	May-09	<10	<25	NR	450	3.9	1 J
	Nov-09	<10	<25	NR	74 J	<1	<1
PESGMW3D	Sep-02	<4	<1	<1	216.8	517.2	24.3
	Sep-03	<4	<1	<1	<1	22.1	<1
	May-04	24.7	<1	1.6	78.4	3.0	<1
	Aug-04	<4	<1	<1	81.9	11.2	<1
	Nov-04	<4	<1	<1	22.0	5.6	<1
	Feb-05	<4	<1	<1	100.5	10.4	<1
	May-05	<4	<1	<1	55.6	1.5	<1
	Aug-05	<4	<1	<1	73.5	3.2	<1
	Jun-06	<4	<1	<1	257.3	5.7	4.6
	Nov-06	<4	<1	<1	436.2	7.6	16.0
	May-07	<4	<1	<1	312.8	10.0	14.5
	Nov-07	<4	<1	<1	566.6	17.6	13.6
	May-08	<10	<25	NA	290	5.1	2.8
	Nov-08	<4	<1	<1	185.7	2.2	<1
	May-09	<10	<25	NR	60	0.9 J	<1
	Nov-09	<10	<25	NR	<1	<1	<1
PESGMW3S	Sep-02	<4	<1	<1	<1	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	45.0	1.6	<1
	Nov-06	<4	<1	<1	2.3	<1	<1
	May-07	<4	<1	<1	3.5	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<10	<25	NA	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	1.4 J	<25	NR	<1	<1	<1
	Nov-09	<10	<25	NR	<1	<1	<1

Notes:

mg/L	milligrams per liter
<	Undetected at limit indicated
NS	not sampled
NA	not analyzed

Table 3-4 (c)
Sub-Plume D — Groundwater Metabolic Acids Results

Well ID	Date	Concentrations (mg/L)					
		Pyruvic	Lactic	Formic	Acetic	Propionic	Butyric
PESGMW4D	Sep-02	<4	<1	<1	14.3	16.0	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	5.1	<1	<1
	Aug-04	<4	<1	<1	9.9	4.5	<1
	Nov-04	<4	<1	<1	9.5	<1	<1
	Feb-05	<4	<1	<1	9.9	<1	<1
	May-05	<4	<1	<1	4.6	<1	<1
	Aug-05	<4	<1	<1	265.4	8.3	<1
	Jun-06	<4	<1	<1	35.3	1.7	<1
	Nov-06	<4	<1	<1	24,654	18.0	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	339.8	5.6	<1
	May-08	<10	<25	NA	1.6	<1	<1
	Nov-08	<4	<1	<1	10.2	<1	<1
	May-09	<10	<25	NR	<1	0.6 J	0.7 J
	Nov-09	<10	<25	NR	<1	<1	<1
PESGMW4S	Sep-02	<4	<1	<1	30.7	130	<1
	Sep-03	<4	<1	<1	113.0	21.6	1.4
	May-04	24.4	<1	1.6	22.7	6.9	<1
	Aug-04	<4	<1	<1	18.0	10.7	<1
	Nov-04	<4	<1	<1	19.8	12.8	<1
	Feb-05	<4	<1	<1	18.3	20.7	<1
	May-05	<4	<1	<1	22	20.9	<1
	Aug-05	<80	<20	<20	31,039	<20	<20
	Jun-06	<4	<1	<1	49.8	1.5	<1
	Nov-06	<4	<1	<1	307.9	5.7	4.9
	May-07	<4	<1	<1	5,376	4.2	<1
	Nov-07	<80	<20	<20	20,165	<20	<20
	May-08	<1000	<2500	NA	9,000	<100	<100
	Nov-08	<80	14	3.6	33,303	<200	<200
	May-09	<10	<25	NR	12,000	3.2	<1
	Nov-09	<10	<25	NR	11,000 J	3.3 J	2 J
PESGMW7S	Sep-02	<4	<1	<1	<1	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	24.3	<1	<1	<1	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	<1	<1	<1
	May-05	<4	<1	<1	<1	<1	<1
	Aug-05	<4	<1	<1	2.8	<1	<1
	Jun-06	<4	<1	<1	<1	<1	<1
	Nov-06	<4	<1	<1	<1	<1	<1
	May-07	<4	<1	<1	<1	<1	<1
	Nov-07	<4	<1	<1	<1	<1	<1
	May-08	<4	<1	<1	<1	<1	<1
	Nov-08	<4	<1	<1	<1	<1	<1
	May-09	<10	<25	NR	<1	<1	<1
	Nov-09	<10	<25	NR	<1	<1	0.6 J
PESGMW7D	Sep-02	<4	<1	<1	<1	<1	<1
	Sep-03	<4	<1	<1	<1	<1	<1
	May-04	<4	<1	<1	2.2	<1	<1
	Aug-04	<4	<1	<1	<1	<1	<1
	Nov-04	<4	<1	<1	<1	<1	<1
	Feb-05	<4	<1	<1	6.5	<1	<1
	May-05	<4	<1	<1	3.2	<1	<1
	Aug-05	<4	<1	<1	<1	<1	<1
	Jun-06	<4	<1	<1	99.6	<1	<1
	Nov-06	<4	<1	<1	74.4	<1	<1
	May-07	<4	<1	<1	43.5	<1	<1
	Nov-07	<4	<1	<1	144	<1	<1
	May-08	<4	<1	<1	231.3	<1	<1
	Nov-08	<4	<1	<1	167.7	<1	<1
	May-09	<10	<25	NR	<1	<1	<1
	Nov-09	<10	1.9 J	NR	<1	<1	<1

Notes:

mg/L	milligrams per liter
<	Undetected at limit indicated
NS	not sampled
NA	not analyzed
NR	not reported - Microseeps laboratory does not include formic acid in their VFA suite.

4.0 ANALYSIS OF RESULTS

4.1 Sub-Plume A

Sub-Plume A, the largest of the four sub-plumes, is adjacent to and east of former Hangar N-126 (Figure 1-2). This sub-plume includes the focused area where the anaerobic-aerobic pilot study (EnSafe, 2002) was performed and passive enhanced bioremediation has since been evaluated. Results of groundwater sampling within this sub-plume are presented in Tables 3-1(a) through 3-1(c). Trends in analytical results of groundwater samples from individual MWs are in Appendix C.

4.1.1 VOC Trends

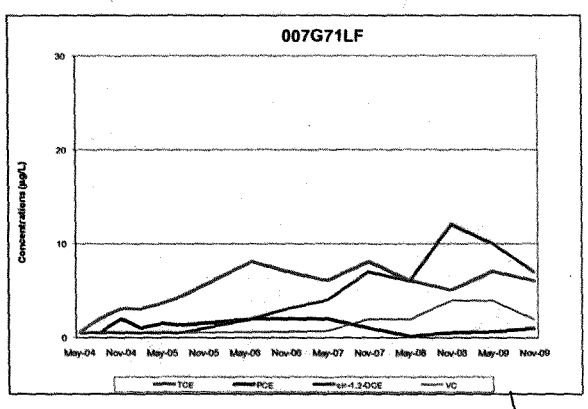
Source Area Wells

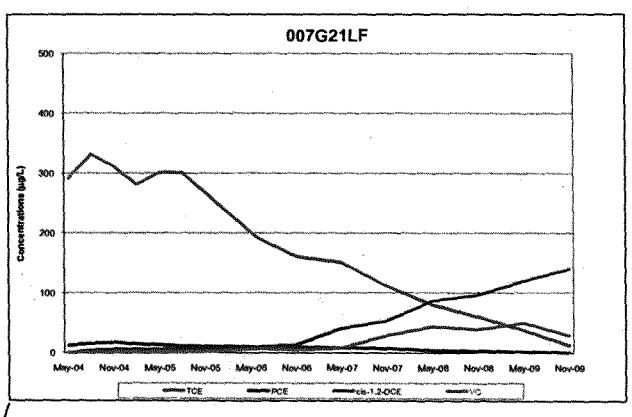
Figure 4-1 shows the PCE, TCE, cis-1,2-DCE, and vinyl chloride (VC) trends for the Sub-Plume A MWs undergoing monitoring in the treatment area. TCE concentrations have shown dramatic reductions from a former high of 4,400 µg/L in one well and several wells with concentrations exceeding 1,000 ug/L to only two wells with concentrations exceeding the 100-µg/L target treatment goal. In May and November 2009 MW 007G64LF contained 270 µg/L and 210 µg/L TCE , respectively, while MW 007G65LF contained 330 µg/L and 210 µg/L, respectively.

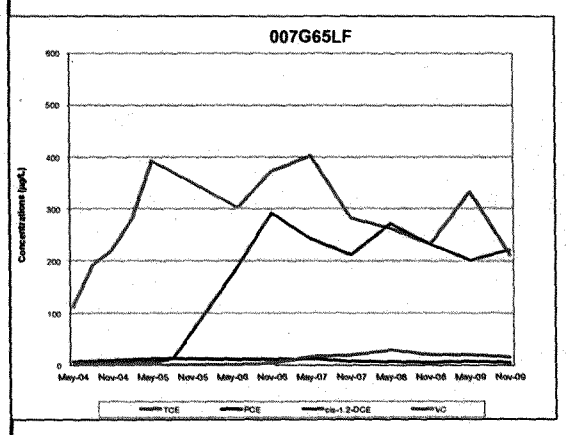
The degradation byproducts cis-1,2-dichloroethylene (DCE) and VC appear to have undergone a life cycle of accumulation followed by degradation/attenuation in most MWs. A cis-1,2-DCE concentration of 140 µg/L was detected in MW 007G21LF (project high for this well) during the November 2009 event. Relatively high DCE concentrations also were present during the November 2009 event in MWs 007G64LF (230 µg/L) and 007G65LF (220 µg/L) indicating TCE is still biodegrading in these monitoring wells.

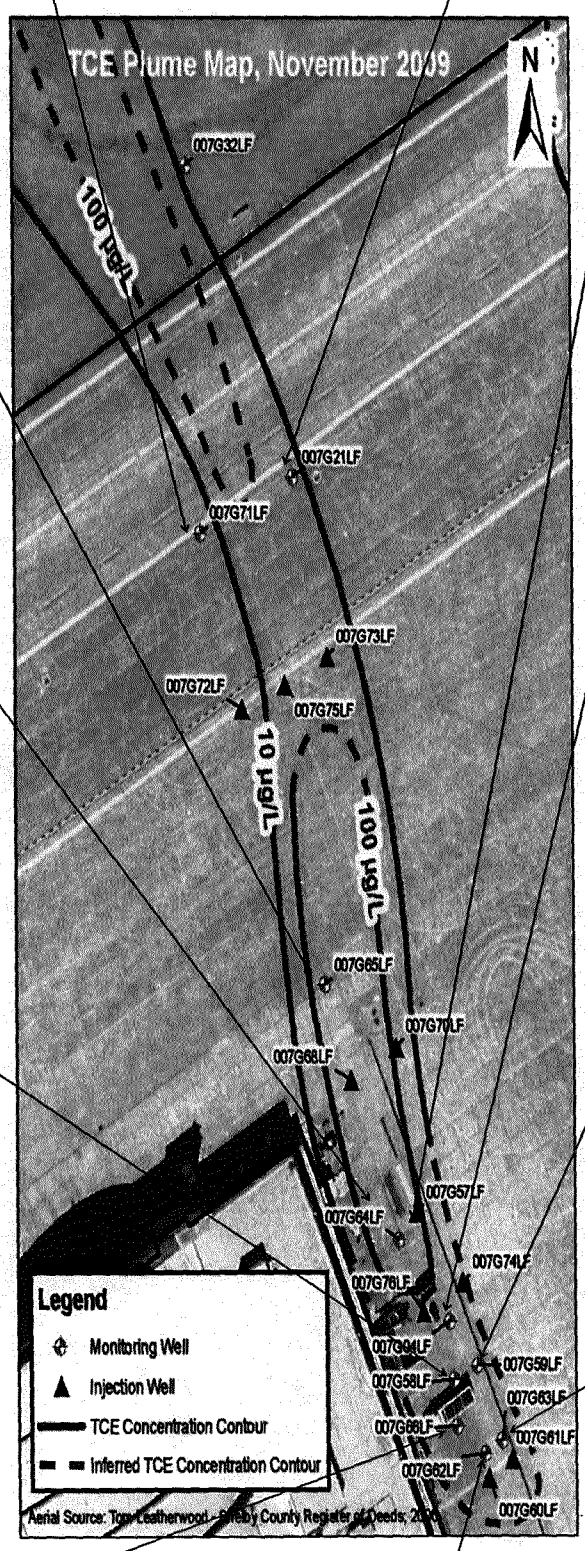
Downgradient Infield Wells

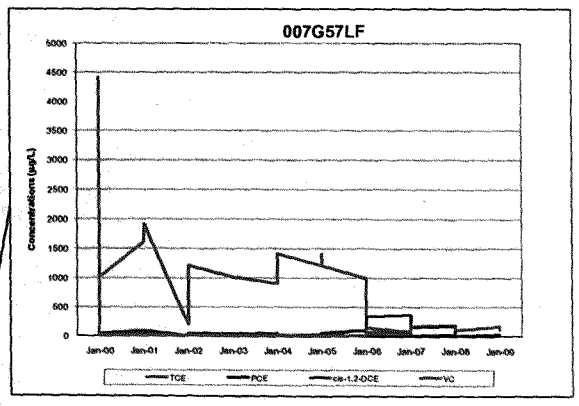
Figure 4-2 shows the VOC trends in the infield monitoring wells, downgradient of the treatment area. Similar TCE declines are noted for infield MWs 007G31LF and 007G32LF, clearly indicating the source-area improvements are affecting downgradient monitoring wells. TCE concentrations in MW 007G31LF have declined from a high of 350 µg/L (in December 2007), to a low of 51 µg/L in May2009. Similarly, TCE concentrations in MW 007G32LF have declined from a high of 240 µg/L (in August 2003) to 3 µg/L in November 2009. Residual DCE is present in both monitoring wells and the accumulation of VC at MW 007G32LF likely is the result of breakdown of DCE in upgradient MW 007G65LF.

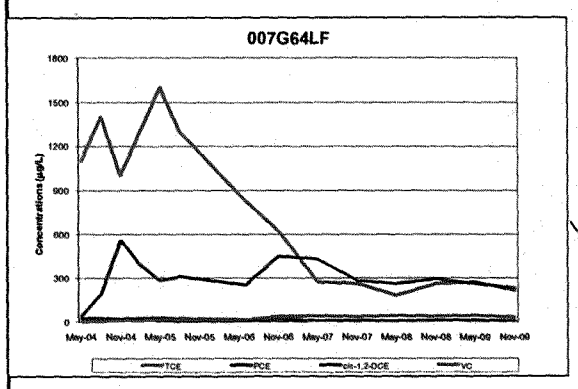


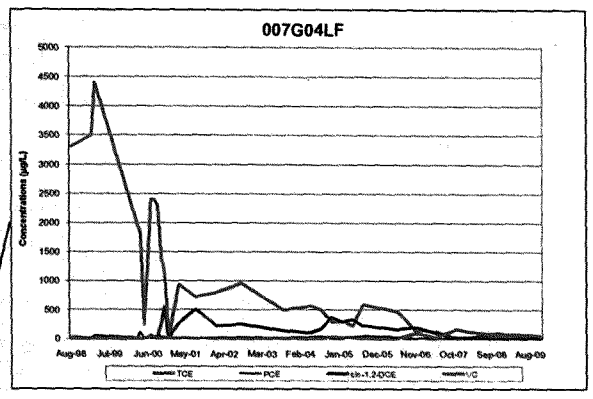


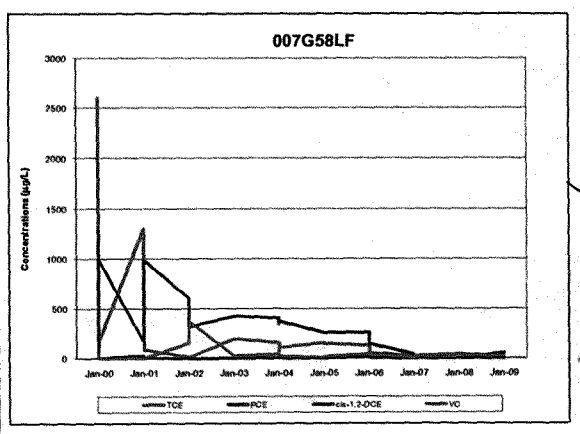


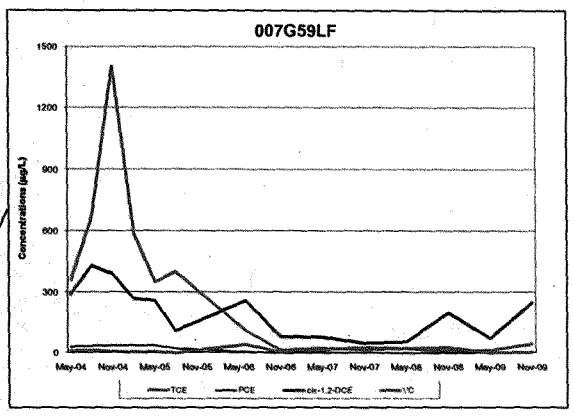


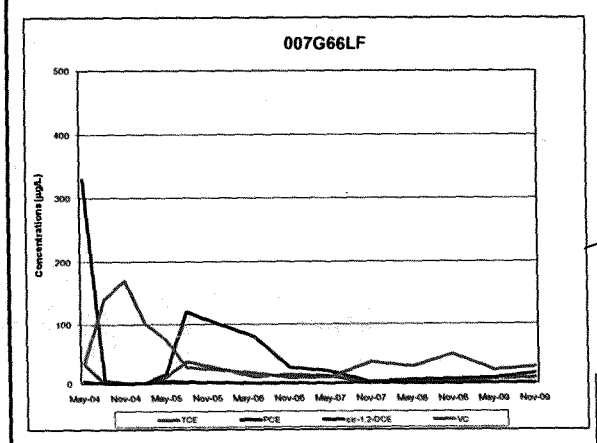


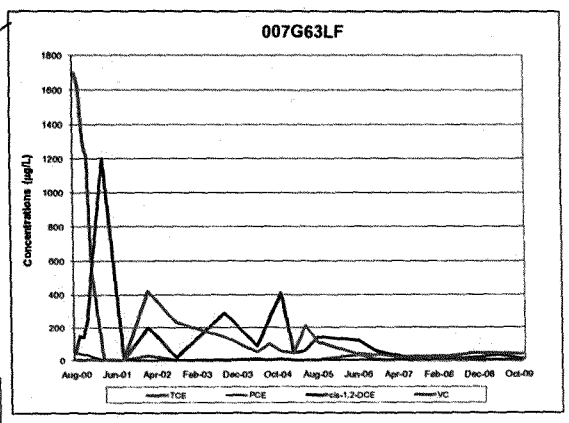












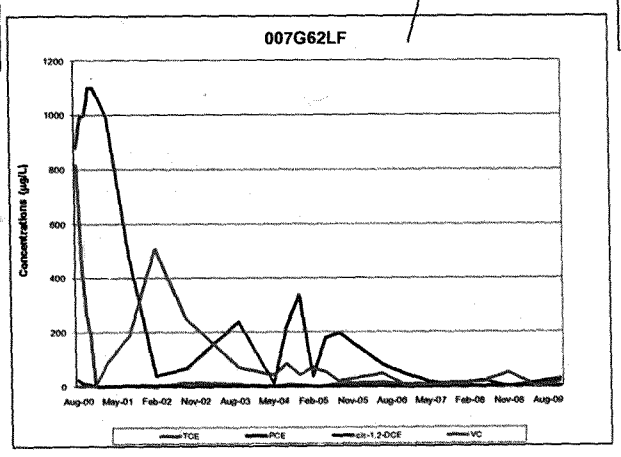
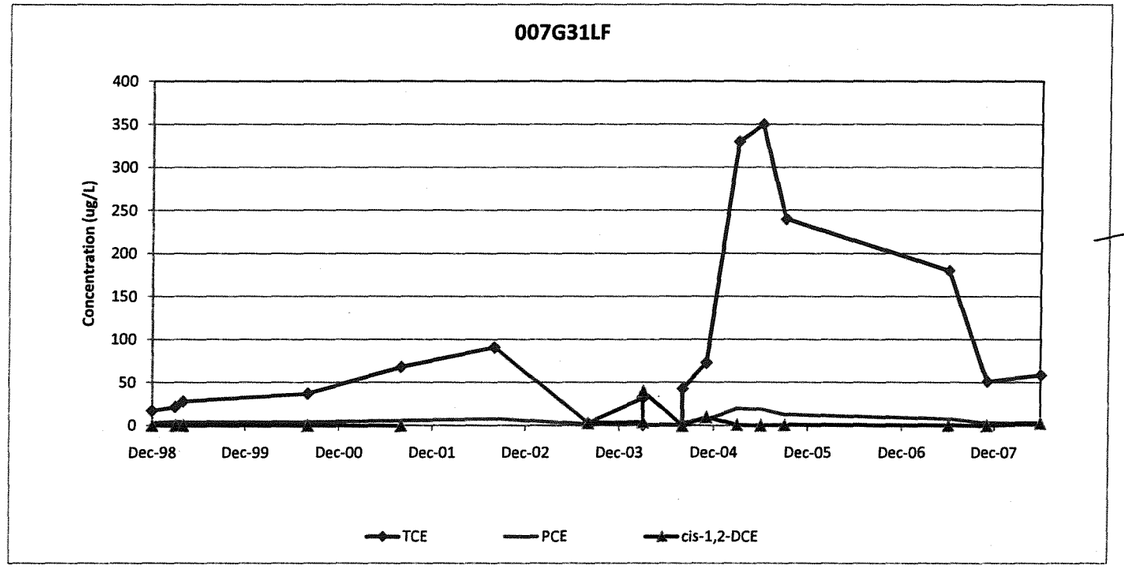
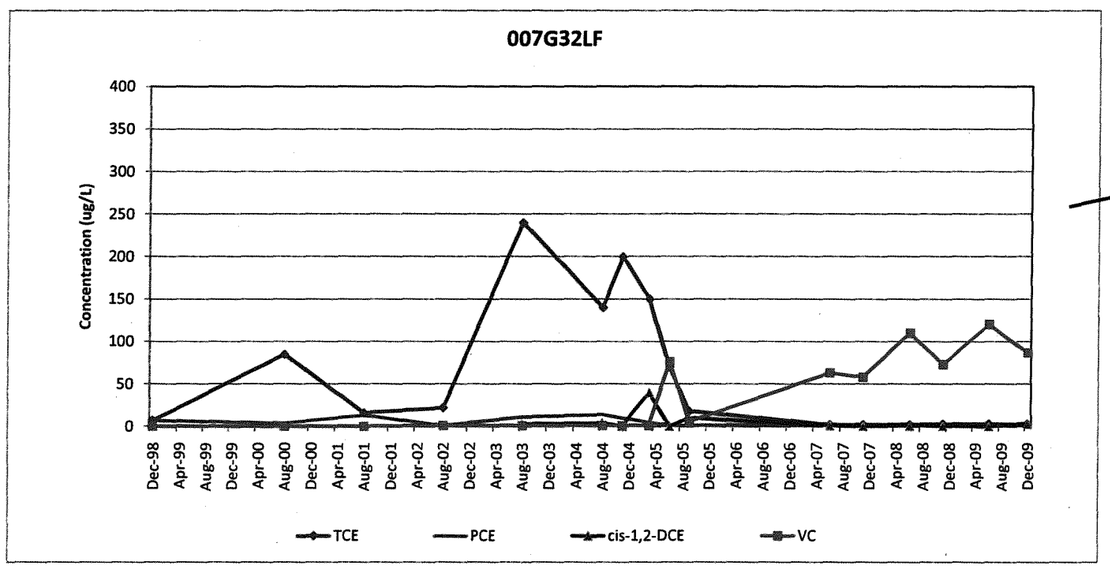


Figure 4-1

VOC Trends in Sub-Plume A Treatment Area Wells Since IMs





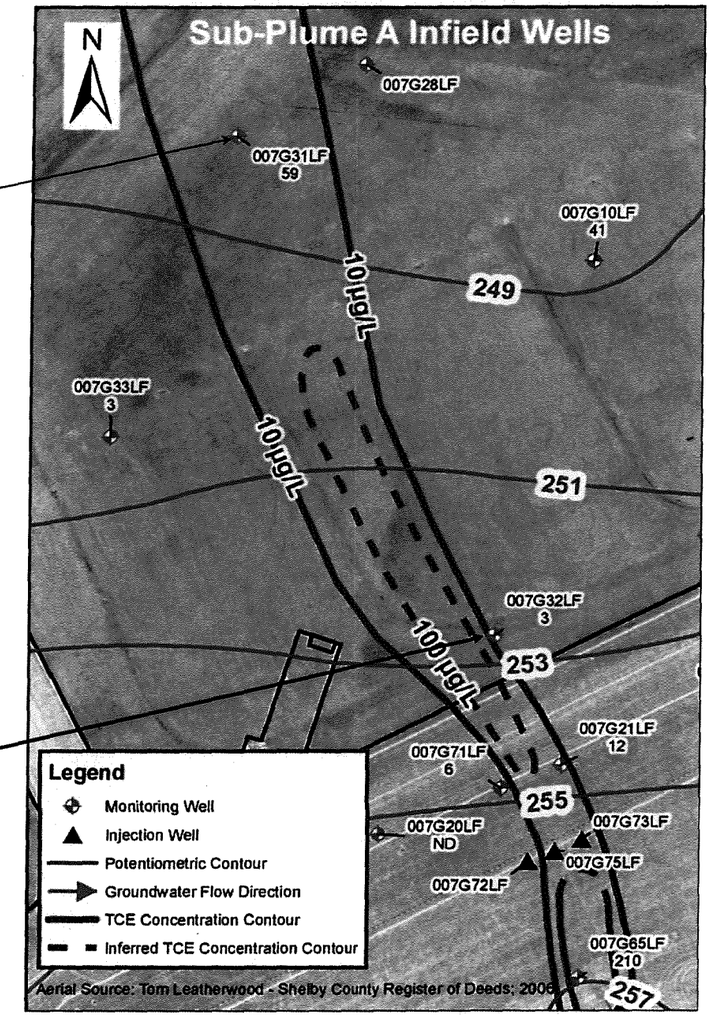


Figure 4-2
VOC Trends in Sub-Plume A Down Gradient Wells

4.1.2 Groundwater Geochemistry

Groundwater geochemistry confirms that the fluvial deposits aquifer within Sub-Plume A remains reductive. Tables 3-1b and 3-1c show that the geochemical conditions, coupled with TCE reduction and degradation-byproduct generation, are indicative of the persistence of strong anaerobic conditions in the aquifer, fostering the continued reductive dechlorination of TCE. TCE degradation is expected to continue in downgradient areas as substrate from injections reaches these areas. Geochemical observations that support these conclusions include:

- Critical field parameters that help identify the redox state of the groundwater, such as dissolved oxygen (DO) and oxidation-reduction potential (ORP), generally indicate that the aquifer is anaerobic, which is necessary for TCE reductive dechlorination. ORP values are negative in most wells, except for the May 2009 event when 6 of the 11 wells had positive ORP values. DO is less than 1 milligram per liter (mg/L) in the wells sampled in November 2009 and in most wells sampled in May 2009.

- Most sampled Sub-Plume A MWs show hydrogen concentrations greater than 1 nanomolar, suggesting sulfate-reducing conditions. Sulfate remains present in Sub-Plume A wells. Sulfate-reducing and methanogenic conditions are conducive to TCE reductive dechlorination because elevated sulfate concentrations can result in competition of sulfate with TCE in the reduction process. Methane concentrations in samples obtained from Sub-Plume A range between 250 and 10,000 µg/L; methanogenic conditions indicate a favorable environment remains for reductive dechlorination of TCE. These conditions also enhance microbial reduction of cis-1,2-DCE and VC.

- On average in 2009, total and ferrous iron concentrations dropped by 50% relative to 2008 levels in Sub-Plume A MWs; however, most monitoring wells have concentrations > 1,000 µg/L which enhances the possibility for cis-1,2-DCE and VC to degrade via direct microbial oxidation in the anaerobic realm. The rapid decrease in cis-1,2-DCE observed in MWs 007G57LF, 007G58LF, and 007G59LF may support the hypothesis that at least some of this decrease is the result of direct oxidation.

Table 3-1(c) summarizes groundwater metabolic acids that are monitored for evaluating the carbon substrate distribution in the aquifer. Low concentrations of metabolic acids were detected in MWs 007G04LF, 007G63LF and 007G57LF in May 2009. Total organic carbon (TOC) levels in 2009 were

roughly one-half those detected in 2008 (injections were suspended one month before the November 2009 groundwater sampling event).

4.2 Sub-Plume B

Sub-Plume B is located adjacent to the airfield and northeast of Sub-Plume A (Figure 1-2). It contains two substrate injection wells (007G77LF and 007G78LF) along a single transect and two downgradient MWs (007G22LF and 007G69LF). Groundwater analytical results within this sub-plume are presented in Tables 3-2(a) through 3-2(c). Trends in sample results for MWs 007G22LF and 007G69LF are presented graphically in Figure 4-3 and are similarly presented in Appendix C with groundwater elevations and geochemical parameters (ORP, ferrous iron, DO, hydrogen, TOC).

4.2.1 VOC Trends

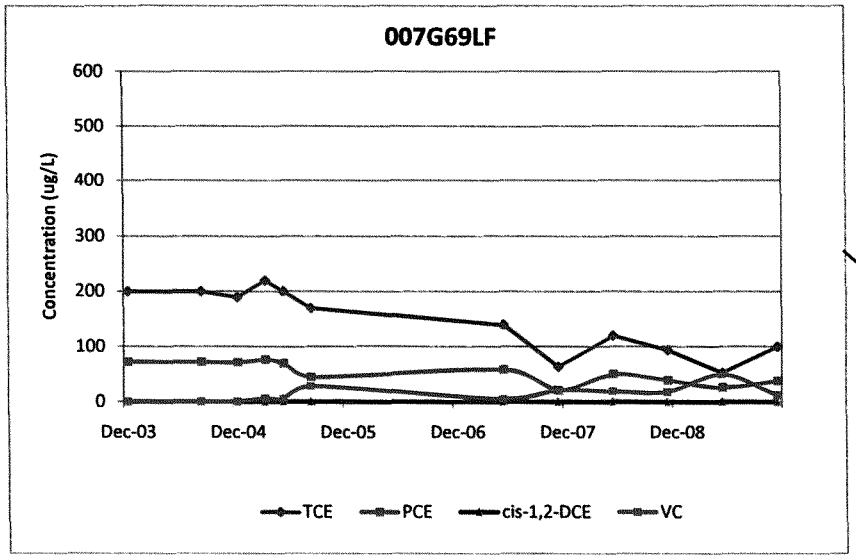
Monitoring wells 007G22LF and 007G69LF are 40 and 100 feet downgradient from the two injection wells (Figure 4-3), and both have responded favorably to the substrate injections. Four months following the start of injections in May 2004, groundwater analytical results indicated very favorable PCE and TCE reductions. TCE concentrations in MW 007G22LF were less than 1 µg/L in both 2009 sampling events. In MW 007G69LF, concentrations were 53 and 100 µg/L in the 2009 events, down from concentrations of 120 and 94 µg/L in 2008. Cis-1,2-DCE concentrations have peaked and continued to decline through 2009. VC concentrations declined in 2009 in MW 007G22LF compared to 2008, while highest VC concentrations of 50 µg/ were detected in MW 007G69LF in May 2009.

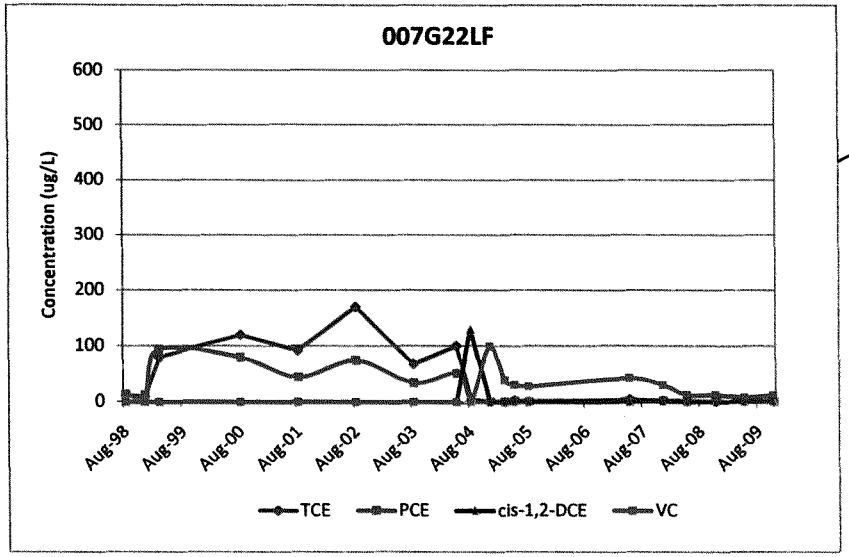
4.2.2 Groundwater Geochemistry

As with Sub-Plume A, groundwater geochemistry data (provided in Table 3-2b) confirms the reductive nature of the aquifer within the area of Sub-Plume B. Additionally, geochemical conditions, coupled with TCE reduction and degradation-byproduct generation, indicates the injectant has functioned as intended. Geochemical observations that support these conclusions include:

- DO and ORP values indicate reducing conditions remain established both near the treatment area (MW 007G22LF) and downgradient (MW 007G69LF).

- Methane concentrations remain three orders of magnitude higher than pre-injection concentrations, indicating the aquifer is methanogenic.





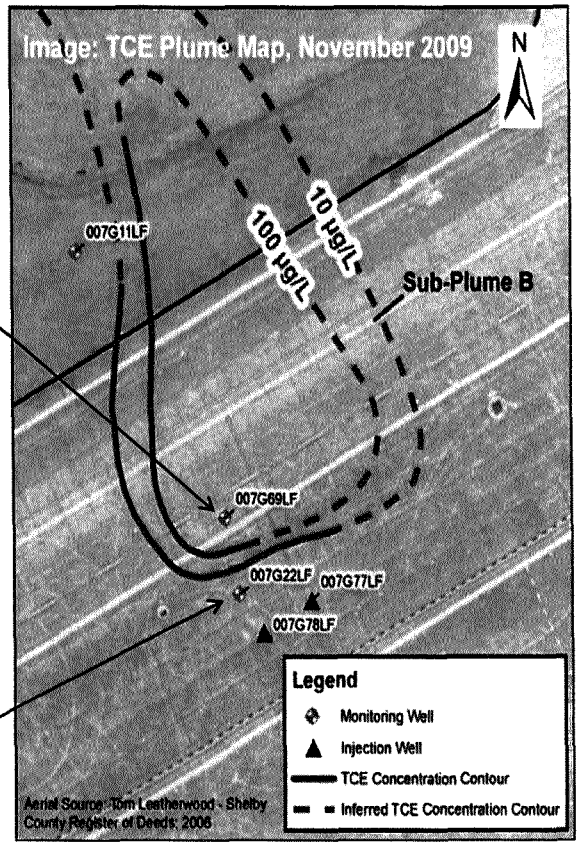


Figure 4-3
VOC Trends in Sub-Plume B Treatment Area Since IMs

The persistent presence of ferrous and total iron indicates that cis-1,2-DCE and VC will degrade via direct microbial oxidation. The lack of accumulation of the degradation-byproduct cis-1,2-DCE and declines in concentrations of VC in MWs 007G22LF and 007G69LF support this assumption.

- In MW 007G22LF, the project high chloride concentration (40 mg/L) for this well was detected again in November 2009. The elevated concentration of chloride ions is the result of the reductive dechlorination of TCE.

- Sulfate continues to be detected indicating sulfate-reducing conditions have been established and are persisting.

- TOC concentrations ranged from non-detect (<1 mg/L) to 3.7 mg/L in Sub-Plume B MWs during 2009, which are consistent with 2008 levels but significantly lower than project-high TOC values (770 mg/L) detected in MW 007G22LF at not long after the start of injections in November 2004.

Table 3-2(c) summarizes groundwater metabolic acids, and indicates a single detection of acetic acid (0.6 mg/L) in May 2009 in MW 007G69LF. The relative absence of volatile fatty acids likely is attributable to the metabolism and rapid consumption of the injected carbon resulting from increased microbial activity.

4.3 Sub-Plume C

Sub-Plume C is the smallest of the four sub-plumes and is located upgradient (southeast) of Sub-Plume A and Hangar N-126 (no map is shown for this sub-plume. This sub-plume contains one substrate injection well (007G67LF) and one downgradient MW (007G03LF). Groundwater analytical results for Sub-Plume C are presented in Tables 3-3(a) and 3-3(b). Trends in sample results are in Appendix C.

4.3.1 VOC Analyses

With the exception of increases in cis-1,2-DCE (non-detect to a maximum of 21 µg/L) and VC (non-detect to a maximum of 18 µg/L) during the May 2009 sampling event, PCE and TCE were not detected during either sampling event in both 2008 and 2009.

4.3.2 Groundwater Geochemistry

TCE concentrations have been less than 1 µg/L since May 2008 in the single Sub-Plume C well 007G03LF, therefore geochemical monitoring for this well consists only of water-quality parameters

collected during well-purging activities prior to sampling. Geochemical observations supporting the ongoing reductive conditions in the aquifer at MW 007G03LF are evident in the DO and ORP readings from this well that indicate conditions in Sub-Plume C downgradient of injection well 007G67LF are strongly anaerobic. Figure C-14 in Appendix C shows historical detections in well 007G03LF.

4.4 Sub-Plume D

4.4.1 Effectiveness Monitoring Wells

Sub-Plume D is located near Hangar N-6 where Parsons Engineering conducted its vegetable oil pilot study from July 2000 to January 2002. Beginning in May 2004, sodium acetate was injected monthly and ended in October 2009. The injection wells installed by Parsons Engineering for their vegetable oil pilot study were used for injecting sodium acetate because of the aquifer's slow response in degrading TCE following the Parsons study. The seven injection wells used for injecting the carbon substrates (PESINJ-1S through PESINJ-4S, and MWs PESMW4S, PESMW5D, and PESMW6D) are shown on Figure 4-4 with the November 2009 TCE plume map.

Analytical data (both VOC and geochemical) from the semiannual effectiveness monitoring are presented in Tables 3-4(a) through 3-4(c) and discussed below. Trends in sample results for effectiveness MWs are presented in Figure 4-5 and in Appendix C with select geochemical data.

Source Area Wells

As for the other sub-plumes, TCE concentrations have successfully been reduced in Sub-Plume D. Before interim measures were implemented, TCE exceeded 100 µg/L in ten (10) Sub-Plume D MWs, two of which contained concentrations equal to or greater than 1,000 µg/L (Table 3-4[a]). The November 2009 data indicate TCE remains at or above 100 µg/L in five MWs with maximum 2009 detections of 100 µg/L (PESMW-3S), 120 µg/L (PESMW-1S), and 180 µg/L (PESMW-7S, PESMW-8S, PESMW8D). Monitoring wells PESMW-2S and PESMW-4S, which historically contained TCE in concentrations exceeding 1,000 µg/L, had concentrations less than 1 µg/L in 2009. Monitoring well PESMW-7D, which also contained TCE concentrations > 1,000 µg/L, contained 6 µg/L TCE in November 2009. As illustrated in Figure 4-6, all monitoring wells located near the injection wells have shown a downward TCE trend. Although their generation was less than measured in the other sub-plumes, the daughter products cis-1,2-DCE and VC, have been generated, then have been destroyed in MWs closest to the treatment area injection wells.

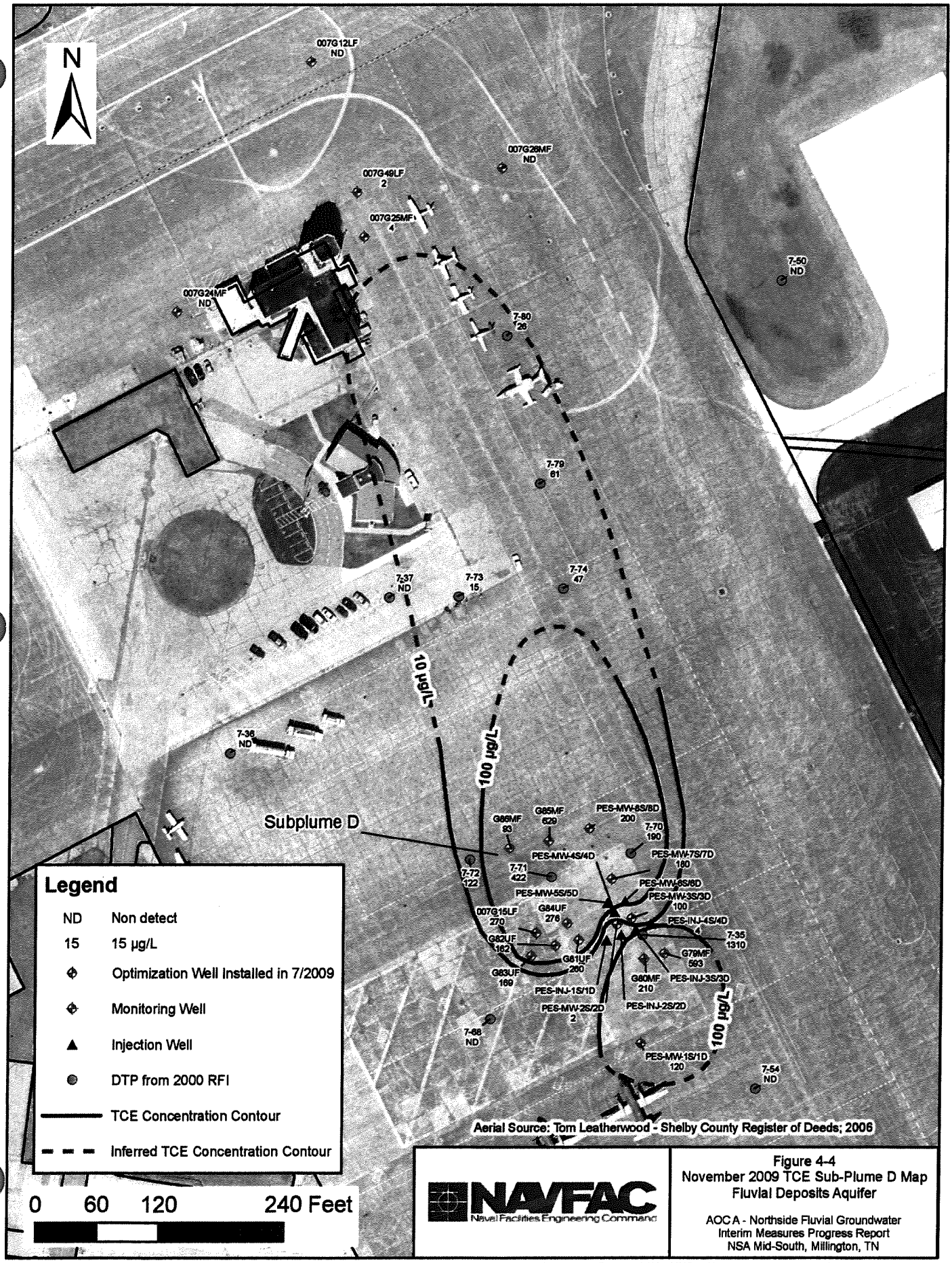


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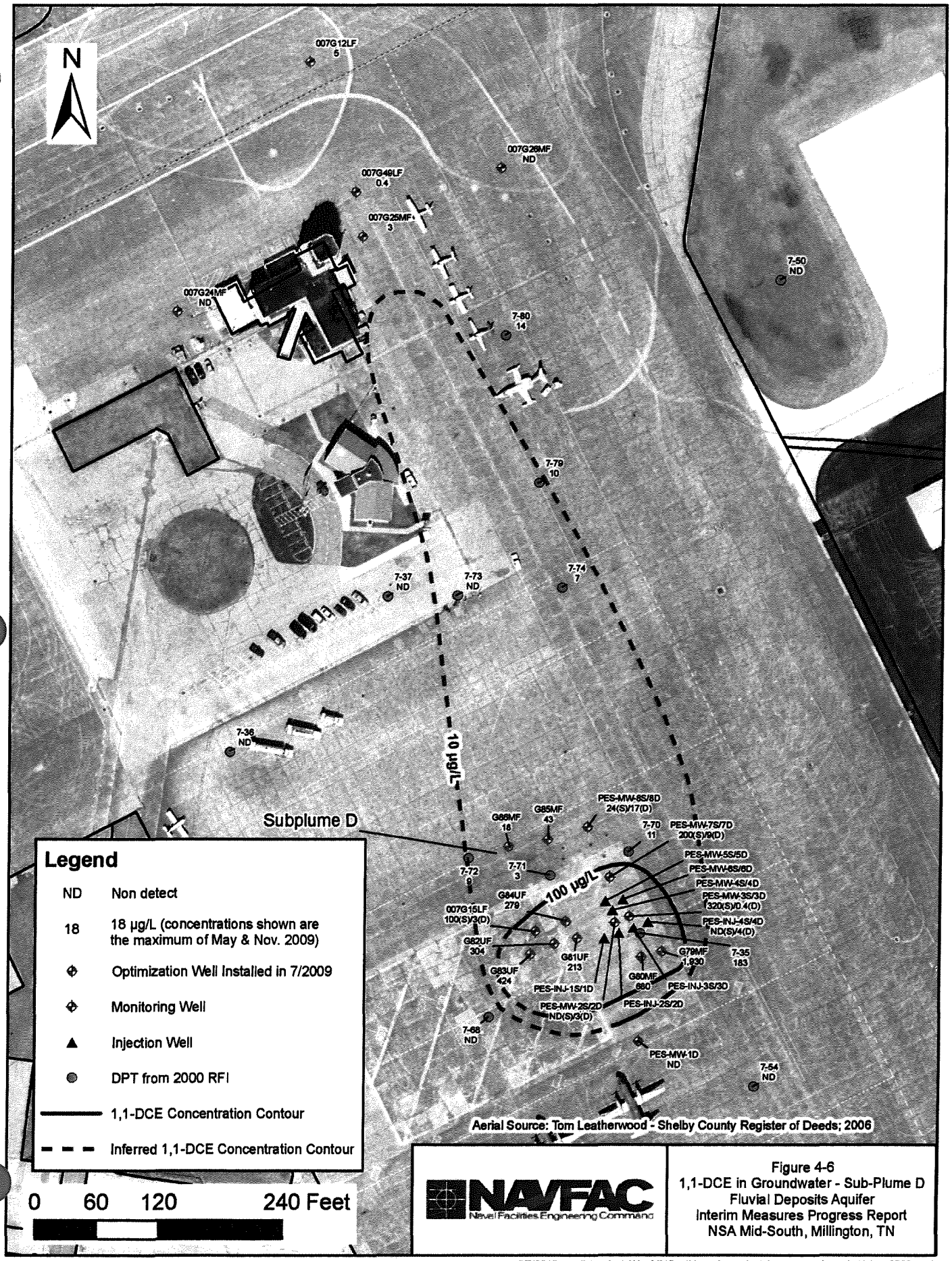
Figure 4-4
November 2009 TCE Sub-Plume D Map
Fluvial Deposits Aquifer

AOC A - Northside Fluvial Groundwater
Interim Measures Progress Report
NSA Mid-South, Millington, TN

9/7/2010 D:\projects\NsaMidSouth\arcgis_projects\aoca_subplumed_tce_2009.mxd



NAVFAC
Naval Facilities Engineering Command

Figure 4-6
1,1-DCE in Groundwater - Sub-Plume D
Fluvial Deposits Aquifer
Interim Measures Progress Report
NSA Mid-South, Millington, TN

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Upgradient Wells

Monitoring well PESMW-1S, upgradient of the treatment area (Figure 4-5), has exhibited a nearly steady increase in TCE concentrations since 2002, with concentrations of 120 µg/L in November 2009. Interestingly, TCE is not detected in the deeper monitoring well (PESMW-1D — not shown on Figure 4-5). Both wells will continue to be monitored to evaluate trends and to determine whether supplemental corrective measures may be warranted in this area.

Downgradient Wells

MWs that have been the slowest to respond are those farthest from the treatment area, namely MWs PESMW-8S and PESMW-8D (Figure 4-5). TCE concentrations in monitoring well PESMW-8S, which had been increasing until 2007, has shown a slow decline since that has been followed by a more dramatic drop in TCE concentrations in 2009, coinciding with the appearance of cis-1,2-DCE which was formerly absent in this monitoring well. Monitoring well PESMW-8D, which has had declining TCE concentrations since 2002, appears to have cycled through the generation and attenuation of cis-1,2-DCE; however VC continues to be generated, reaching a high concentration of 200 µg/L in November 2009. With the continued rise in daughter products in monitoring wells PESMW-8S and 8D, TCE concentrations are expected to continue decreasing in Sub-Plume D.

Groundwater Geochemistry

The groundwater geochemistry in Sub-Plume D (Table 3-4b) reflects the continued reductive nature of the aquifer in this area. The injectant has functioned as intended by creating the reducing conditions necessary for reductive dechlorination of TCE to occur. Geochemical observations that support these conclusions include:

- The tested MWs associated with Sub-Plume D show DO concentrations slightly above or less than 1 mg/L, indicating that the aquifer is in a reducing state. With the exception of monitoring well PESMW-7S and a few miscellaneous positive readings in a couple of other wells, ORP values are negative in all wells.

- Hydrogen concentrations appear to have peaked in the November 2008 sampling event; however, the 2009 hydrogen concentrations generally are comparable to the pre-November 2008 concentrations.

- Methane concentrations are greater than 1,000 µg/L in the tested monitoring wells in Sub-Plume D. Several monitoring wells containing highly elevated methane concentrations

(> 10,000 µg/L) during various sampling events have had corresponding TCE reductions to ≤ 2 µg/L (MWs PESMW-2S, PESMW-2D, PESMW3D, and PESMW4S), indicating methanogens are not out-competing native dechlorinators.

- Ferrous and total iron concentrations indicate a significant fraction of the total iron appears to be in the reduced (ferrous) form in several of the Sub-Plume D MWs. Additionally, total iron concentrations are only elevated (> 5,000 ug/L) in three MWs (PESMW-2D, PESMW-3D, PESMW-7D), indicating the potential for direct microbial oxidation of degradation byproducts.

- Five Sub-Plume D monitoring wells now have sulfate being produced (PESGMW-2S, PESGMW-3S, PESGMW4S, PESGMW-4D, PESGMW-7S), with sulfide results near or less than the detection, indicating carbon and nutrients no longer are being consumed by competing sulfur-reducing bacteria.

- Chloride concentrations in 2009 generally are consistent with 2008 concentrations, with the exception of MWs PESMW-3D and PESMW-7D which had their highest detections measured in 2009. The accumulation of chloride ions is an additional line of evidence that dechlorination processes are active.

Table 3-4(c) summarizes groundwater metabolic acids and indicates inconsistent detections of acetic acid (detected in 4 of 8 MWs), propionic acid (detected in 5 of 8 MWs), and the remaining fatty acids. Detections were not commonly observed consistently in wells during both sampling events and fewer detections and lesser concentrations were generally noted in the November 2009 sampling event which likely is the result of the suspension of injections in October 2009. The generally low number of detections and associated concentrations historically measured likely are attributable to the metabolism and rapid consumption of injected carbon from extensive microbial activity. TOC concentrations (Table 3-4[b]) were less in 2009, particularly in the November event likely because of the cessation of injections one month prior to sampling.

4.4.2 New Sub-Plume D Optimization Wells

To determine whether the gallery of injection wells associated with the Parson pilot study should be expanded, eight MWs were installed in July 2009, with screens installed in the upper and middle sections of the fluvial deposits aquifer at Sub-Plume D. As shown on Figure 4-4, the new MWs were installed at locations west, northwest, and south (upgradient) of the injection gallery. The new wells (designated G79MF through G86MF on Figure 4-4) were installed in the quadrants where limited data,

primarily 1999 RCRA Facility Investigation (RFI) direct push technology (DPT) sample points (locations shown in grey on Figure 4-4), were used to construct the conceptual TCE plume model.

Table 4-1 lists the VOCs detected in the new Sub-Plume D wells and Figure 4-4 shows the TCE concentrations for the new and existing MWs sampled in November 2009[1]. The maximum TCE concentrations were detected in MW 007G79MF (593 µg/L), located upgradient of the treatment area, and MW 007G85MF (629 µg/L), located downgradient of the treatment area. The subsequent three sampling events (shown on Table 4-1) indicate similar results. The new data improves definition of the width of the conceptual model plume that was interpreted in the RFI, in better defining the western edge of the plume. The new wells demonstrate that the length of the Sub-Plume D TCE plume remains confined to the airfield apron area.

Other VOCs detected in the newly installed optimization wells include 1,1-dichloroethane (1,1-DCA; maximum of 186 µg/L in MW 007G79MF), 1,1-dichloroethene (1,1-DCE; maximum of 1,930 µg/L in MW 007G79MF), 1,2-dichloroethane (1,2-DCA; maximum of 2.5 µg/L in MW 007G79MF), carbon tetrachloride (maximum of 29.2 µg/L in MW 007G85MF), chloroform (maximum of 78 µg/L in MW 007G85MF, cis-1,2-DCE (maximum of 23 µg/L at MW 007G79MF), VC (maximum of 18 µg/L in MW 007G81UF and benzene (maximum of 2.4 µg/L in MW 007G79MF). The most prevalent VOC detected in the new wells was 1,1-DCE, which is shown on Figure 4-6 to form a plume that has a similar dimension as the Sub-Plume D TCE plume and which similarly is confined to the airport's tarmac area.

4.5 Perimeter Monitoring

Six perimeter MWs (007G42LF, 007G45LF, 007G48LF, 007G52LF, 007G53LF and 007GPZ03) are included in the annual monitoring of the plume associated with AOC A. Changes observed in PCE, TCE, cis-1,2-DCE, and VC concentrations are summarized in tabular format in Appendix A and shown graphically in Figure 4-7.

VOC concentrations from 2009 appear relatively consistent with 2008. MW 007GPZ03 matched its historical high TCE concentration of 17 µg/L in November 2009 (previously detected in December 2007). MW 007G52LF, located downgradient from 007GPZ03, slightly exceeded its historical high of 15 µg/L (December 2008) in May 2009 with 16 µg/L. The remaining four perimeter MWs (007G42LF, 007G45LF, 007G53LF, 007G48LF) are side gradient relative to the TCE plume core and concentrations were either below the 5 µg/L MCL or the 0.1 µg/L analytical method detection limit.

1 Unlike other AOC A monitoring wells which are undergoing semi-annual monitoring, the new Sub-Plume D wells underwent an initial four quarters of monitoring, all of which are presented in this report and included in the discussion, to establish baseline VOC detections for these new wells. Going forward, wells will be included in semi-annual monitoring.

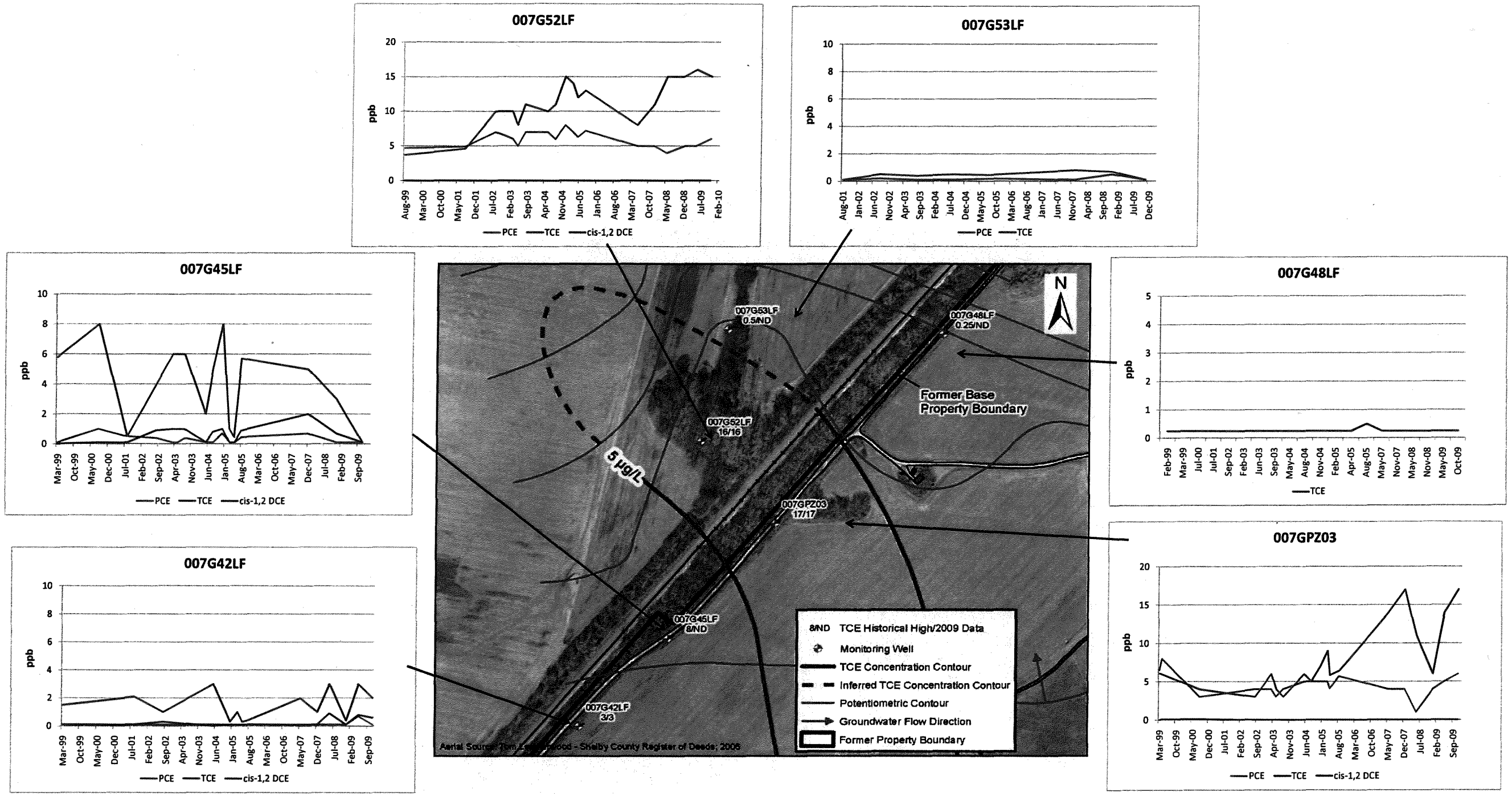


Figure 4-7
VOC Trends in Perimeter Monitoring Wells

Table 4-1
VOCs (hits only) in New Sub-Plume D Optimization Wells
(all units in µg/L)

Location	Analyte	RSL [1]	MCL [2]	Aug-09	Nov-09	Feb-10	May-10
007G79MF	1,1,2-Trichloroethane	0.24	5			**0.8 J**	**0.6J**
	1,1-Dichloroethane	2.4		**129**	**186**	**160**	**180**
	1,1-Dichloroethene	340	7	**1,350**	**1,930**	**1,200**	**970**
	1,2-Dichloroethane	0.15	5	**1.7**	**2.5**	**2**	
	Benzene	0.41	5	**1.9**	**2.4**	**2**	**1**
	Carbon Tetrachloride	0.44	5			**0.4**	
	Chloroform	0.19		**11.6**	**15.4**	**15**	**15**
	Cis-1,2-Dichloroethylene	370	70	21	21.4	23	22
	Trichloroethylene (Tce)	2	5	**475**	**593**	**370**	**400**
	Vinyl Chloride	0.016	2			**0.3 J**	**0.3 J**
007G80MF	1,1-Dichloroethane	2.4		**54.6**	**64.9**	**69**	**86**
	1,1-Dichloroethene	340	7	**617**	**692**	**680**	**680**
	1,2-Dichloroethane	0.15	5			**0.6 J**	
	Benzene	0.41	5		**1.15**	**1**	**0.9 J**
	Carbon Tetrachloride	0.44	5		**1.68**	**2**	**2**
	Chloroform	0.19		**5.4**	**7.95**	**7**	**9**
	Cis-1,2-Dichloroethylene	370	70	6.6	8.59	10	10
	Trichloroethylene (Tce)	2	5	**182**	**210**	**190**	**240**
	Vinyl Chloride	0.016	2				**0.3 J**
007G81UF	1,1-Dichloroethane	2.4		**36.2**	**48.3**	**51**	**52**
	1,1-Dichloroethene	340	7	**172**	**213**	**190**	**160**
	1,2-Dichloroethane	0.15	5			**0.5 J**	
	Benzene	0.41	5	**1.1**	**1.42**	**1**	**0.9 J**
	Carbon Tetrachloride	0.44	5	**1.13**	**2.1**	**2**	**2**
	Chloroform	0.19		**3.52**	**2.76**	**3**	**3**
	Cis-1,2-Dichloroethylene	370	70	5.98	8.48	11	10
	Trans-1,2-Dichloroethene	110	100			0.3 J	
	Trichloroethylene (Tce)	2	5	**221**	**259**	**210**	**230**
	Vinyl Chloride	0.016	2	**15.4**	**11.7**	**12**	**18**
007G82UF	1,1-Dichloroethane	2.4		**46.4**	**52.7**	**49**	**61**
	1,1-Dichloroethene	340	7	**304**	**216**	**250**	**260**
	1,2-Dichloroethane	0.15	5			**0.5 J**	
	Benzene	0.41	5	**1.37**	**1.37**	**1**	**0.9 J**
	Carbon Tetrachloride	0.44	5			**1 J**	**0.7 J**
	Chloroform	0.19		**1.86**	**3.63**	**4**	**4**
	Cis-1,2-Dichloroethylene	370	70	8.31	8.8	10	10
	Trichloroethylene (Tce)	2	5	**210**	**162**	**190**	**200**

Table 4-1
VOCs (hits only) in New Sub-Plume D
Optimization Wells
(all units in µg/L)

Location	Analyte	RSL [1]	MCL [2]	Aug-09	Nov-09	Feb-10	May-10
	1,1-Dichloroethane	2.4		**66.7**	**72.6**	**79**	**89**
	1,1-Dichloroethene	340	7	**290**	**424**	**390**	**340**
	1,2-Dichloroethane	0.15	5			**0.8 J**	
007G83UF	Benzene	0.41	5	**1.12**	**1.02**	**0.9 J**	**0.7 J**
	Chloroform	0.19				**0.6 J**	**0.6 J**
	Cis-1,2-Dichloroethylene	370	70	5.11	5.06	6	6
	Trichloroethylene (Tce)	2	5	**177**	**169**	**170**	**170**
	1,1-Dichloroethane	2.4		**34.2**	**39.9**	**48**	**51**
	1,1-Dichloroethene	340	7	**214**	**279**	**270**	**220**
	1,2-Dichloroethane	0.15	5			**0.5 J**	
	Benzene	0.41	5	**1.4**	**1.6**	**2**	**1**
007G84UF	Carbon Tetrachloride	0.44	5	**1.8**	**3.61**	**4**	**4**
	Chloroform	0.19		**9.51**	**8.55**	**10**	**10**
	Cis-1,2-Dichloroethylene	370	70	7.89	9.11	12	12
	Trichloroethylene (Tce)	2	5	**225**	**276**	**230**	**240**
	Vinyl Chloride	0.016	2			**0.4 J**	**0.4 J**
	1,1-Dichloroethane	2.4		**4.3**	**7.35**	**7**	**8**
	1,1-Dichloroethene	340	7	**21.9**	**37.7**	**38**	**43**
	1,2-Dichloroethane	0.15	5			**0.3 J**	
	Acetone	22,000				2 J	
007G85MF	Benzene	0.41	5	**1.13**	**1.65**	**2**	**1**
	Carbon Tetrachloride	0.44	5	**11.5**	**29.2**	**22**	**27**
	Chloroform	0.19		**49.9**	**71**	**68**	**78**
	Cis-1,2-Dichloroethylene	370	70	1.9	3.23	4	3
	Trichloroethylene (Tce)	2	5	**476**	**629**	**560**	**600**
	1,1-Dichloroethane	2.4		**3.82**	**4.63**	**5**	**5**
	1,1-Dichloroethene	340	7	**12.4**	**15.7**	**18**	**16**
	1,2-Dichloroethane	0.15	5			**0.4 J**	
007G86MF	Carbon Tetrachloride	0.44	5	**10.8**	**19**	**26**	**23**
	Chloroform	0.19		**10.9**	**12.8**	**15**	**15**
	Cis-1,2-Dichloroethylene	370	70	1.27	1.79	3	2
	Trichloroethylene (Tce)	2	5	**60.5**	**92.8**	**98**	**83**

Notes:

[1] — Regional Screening Level (RSL) from U.S. EPA Region 9 Regional Screen Level Tables; updated May 2010. http://www.epa.gov/region9/superfund/prg/

[2] — Maximum Contaminant Level

blank cell designates analyte not detected

bold designates exceedance of RSL or MCL

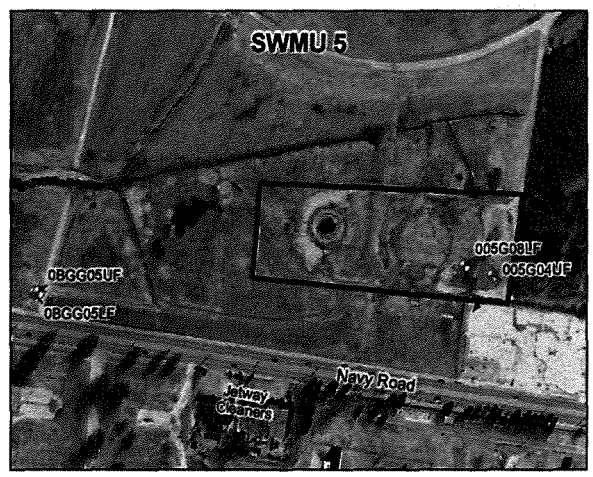
No current receptors are present for water in the fluvial deposits at AOC A or in the nearby downgradient, offsite area; therefore, no immediate heightened risks exist as a result of the TCE detections. Temporary perturbations of increased and decreased concentrations are expected to continue as the dissolved phase plume migrates through the aquifer. Decreases in contaminant concentrations in the source area eventually are expected to be manifested along the property boundary; however, given the distance from the treatment zone (3,300 feet) and the groundwater velocity (estimated at 103 feet per year from 2009 gradients), it likely will be many years before concentration reductions are quantified at the property line.

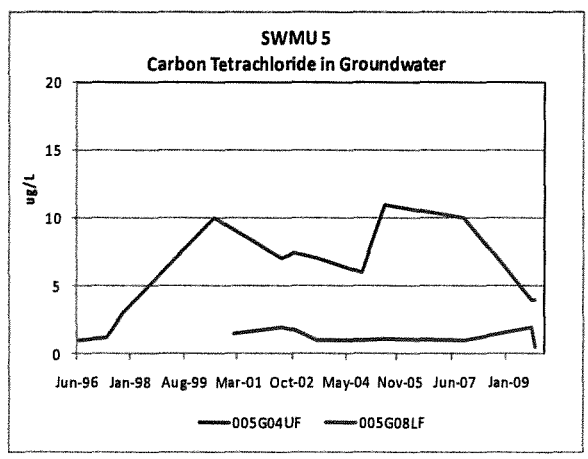
4.6 Other AOC A SWMUs

Other SWMUs that are included under AOC A groundwater monitoring are shown on Figure 1-1 and include SWMUs 5, 15, 18, 21, and background well cluster BG05. A brief discussion of each SWMU and the monitoring data is provided below.

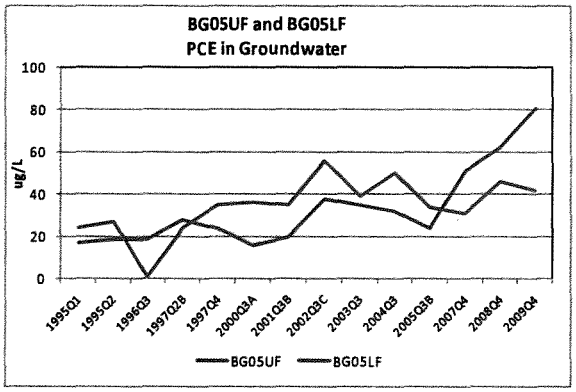
SWMU 5 and Background Location 0BGG05UF/LF

SWMU 5, the former firefighting training area, has two wells (005G04UF and 005G08LF) that are sampled annually for VOCs as a result of carbon tetrachloride detected above the MCL during the RFI. The inset map at right shows the SWMU and locations of the wells that are undergoing monitoring, and the graph below shows the long-term monitoring data for carbon tetrachloride in these wells. The maximum carbon tetrachloride concentration (11 µg/L in 005G04UF) was detected in 2005 and concentrations have been declining since. The November 2009 monitoring data indicates 4 µg/L carbon tetrachloride remains present in this well. Minor detections of other VOCs have also been identified in groundwater (chloroform, benzene, PCE, and TCE) and are presented in Table A-1 (Appendix A); however, concentrations have remained below their respective MCLs.



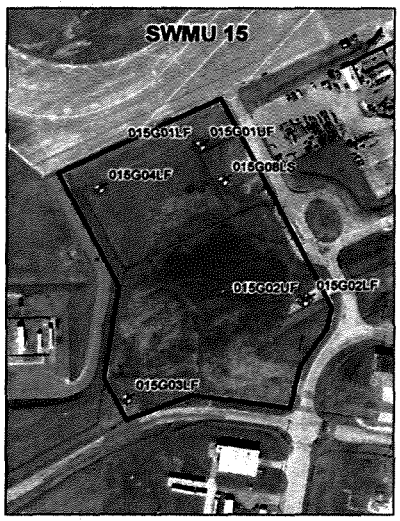


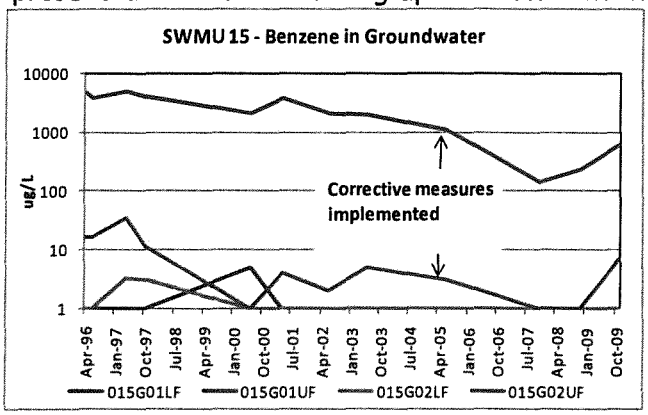
Background wells 0BG05UF and 0BG05LF are located west of SWMU 5, along the north side of Navy Road, and they undergo annual monitoring as a result of PCE contamination identified in these wells during the RFI. The source of the contamination is from a private Laundromat, Jetway Cleaners, located east of the wells along the south side of Navy Road. Jetway Cleaners is in the Tennessee Department of Environment and Conservation's (TDEC's) Drycleaner Environmental Response Program. As illustrated in the graphic, PCE concentrations have fluctuated in BG05LF while concentrations have been increasing since 2005 in the upper fluvial well BG05UF.



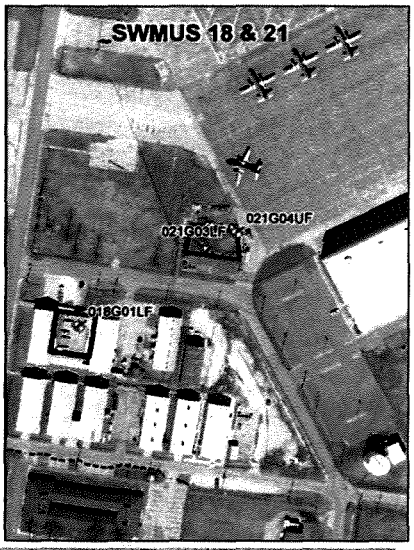
SWMU15 — Former N-94 Fuel Farm

SWMU 15 is the former N-94 underground fuel storage tank farm adjacent to the airfield on the NSA Mid-South Northside. Corrective measures were implemented in 2003/2004 and consisted of removing 57,000 tons of petroleum-contaminated soil. The fluvial deposits groundwater is undergoing monitoring to evaluate the remedy's effectiveness in reducing the effects of benzene contamination that is present in the aquifer. Six MWs are undergoing annual monitoring (inset to right) and the four that have contained consistent benzene detections (015G01LF, 015G01UF, 015G02LF, 015G02UF) are presented on the inset graph below which shows benzene concentrations over time. The most impacted well (015G01UF) is at the north end of the site and as shown on the graph, benzene concentrations generally declined between 2001 and 2007, but have increased in 2008 and 2009. Table A-1 (Appendix A) provides a summary of all the VOC detections in samples from wells at SWMU 15, which includes other petroleum constituents (toluene, xylenes, and ethyl benzene) and other minor detections of non-petroleum VOCs.



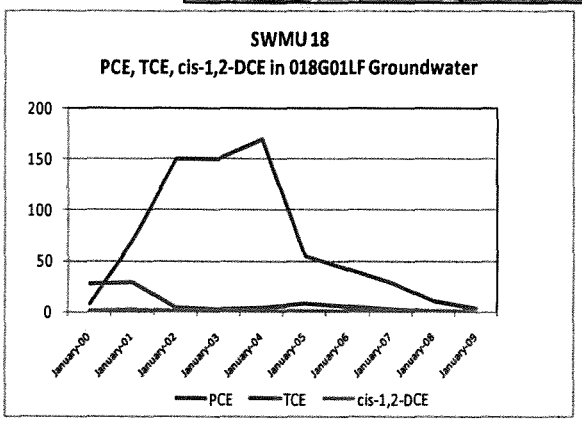


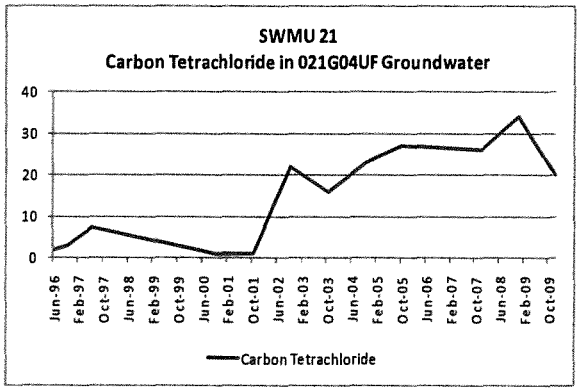
SWMUs 18 and 21 — Former Underground Waste Tanks



SWMU 18 contained an underground waste tank which was removed in 1998 along with 150 cubic yards of impacted soil. Following remedy implementation, PCE, TCE and cis-1,2-DCE detections in the fluvial deposits groundwater resulted in one MW, 018G01LF, being carried forward for annual monitoring under AOC A. As illustrated in the graph at right, the VOC concentrations have fallen significantly. In particular, PCE concentrations which have declined since their peak in June 2004 (170 µg/L), were detected at 4 µg/L in November2009, which is less than the MCL of 5 µg/L.

SWMU 21 contained a 3,000-gallon underground waste tank that was used for storing waste oil and hydraulic fluid. The tank was removed in 1991 and the former tank hold was investigated in the Assembly C RFI. Several VOCs were detected in the fluvial deposits groundwater with carbon tetrachloride being the most notable and consistent. Monitoring wells 021G03UF and 021G04LF undergo annual monitoring as part of AOC A.[2]. Carbon tetrachloride is the only contaminant that has been consistently detected (MW 021G04UF) and as shown on the graph, concentrations generally have increased since 2001 with a slight decline in the recent November 2009 sampling event.





2 Previously four monitoring wells at SWMU 21 underwent annual monitoring; however, the absence of VOC detections in 021G01LF and 021G02LF resulted in the BCT's decision to close them in June 2009.

5.0 IM STATUS AND RECOMMENDATIONS

Since IM implementation in May 2004, significant TCE reductions have been achieved in the four AOC A sub-plumes. The carbon substrate injections have resulted in formation of reducing conditions in the fluvial deposits aquifer; as such the TCE cleanup goal of 100 µg/L has been met or nearly met in most of the AOC A MWs. Additionally, the generation of the daughter products cis-1,2-DCE and VC generally have caused concentrations to peak , then decline as these compounds subsequently are being destroyed.

- Sub-Plume A, which had the highest TCE concentrations of 4,400 µg/L (MW 007G04LF) and 3,400 µg/L (MW 007G61LF), has exhibited reductions to 35 µg/L and 0.3 µg/L, respectively, since IM implementation.

- Eleven of 12 Sub-Plume A wells contained TCE concentrations of greater than 100 µg/L (five of which were greater than 1,000 µg/L) before implementing IMs. As of November 2009, TCE concentrations have been reduced to less than 100 µg/L in all of the Sub-Plume A wells, with the exception of MWs 007G64LF (210 µg/L) and 007G65LF (210 µg/L).

- Improvements are also noted in infield well 007G31LF, approximately 1,000 feet downgradient of the treatment area. TCE concentrations have exhibited a steady decline from their peak of 350 µg/L in November 2007 to 51 and 59 µg/L in May and November, 2009.

- Sub-Plume D has had similar reductions in TCE concentrations from 1,600 µg/L and 1,300 µg/L to below detection limits in PESMW4S and PESMW7D, respectively. PESMW3S has declined from 1,400 to 100 µg/L and PESMW2S has declined from 1,300 to 6 µg/L.

As agreed to during the October 2009 BCT meeting, the carbon substrate injections have been discontinued to evaluate potential contaminant rebound and evaluate whether it is appropriate to transition to the MNA portion of the selected remedy. Several lines of evidence are necessary to justify MNA only, including (1) verification of the conceptual model and the absence of untreated source areas for Sub-Plumes A and D, (2) a microbiological evaluation of key wells downgradient from the treatment zones, and (3) groundwater solute-transport modeling to demonstrate that residual TCE concentrations in the source area would be protective of the 5 µg/L cleanup criteria at the property boundary.

Data from the Sub-Plume D optimization wells, presented in Section 4.0, verified the width of the TCE conceptual model presented in the RFI. A TCE source area (> 1,000 µg/L) also was not indicated

by analytical data from the new wells. Unlike Sub-Plume A, the areal extent of Sub-Plume D is limited to the tarmac area. Significant 1,1-DCE concentrations were detected upgradient of the treatment gallery in the new optimization well MW 007G79MF (1,930 µg/L); however, the rapid drop in concentration across the treatment zone indicates that the DCE plume likely is undergoing anaerobic degradation before migrating any significant distance downgradient. A technical memorandum will be prepared for Sub-Plume D which will contain recommendations for the path forward and any necessary refinements in the active remedy before transitioning to MNA.

Six additional optimization MWs (007G87LF – 007G92LF) were installed at Sub-Plume A in July 2010 with the initial sampling event occurring in August 2010 (Figure 5-1 shows locations of the new wells). Data from these wells are intended to verify whether unidentified source areas are present along the edge of the taxiway or whether the current conceptual model that assumes the narrow plume originating from the former N-126 hangar is the source the downgradient TCE detections. This data will be complemented with a microcosm study and outputs from groundwater modeling to evaluate whether the residual TCE concentrations will be protective of the property boundary and the 5 µg/L target criteria. These data will be submitted with recommendations for the path forward and whether additional corrective measures are warranted before transitioning to MNA. In the interim, semiannual/annual groundwater monitoring will continue at AOC A.

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Appendix A
Long-Term Monitoring Summary Tables

VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
005G04UF	ACETONE	5475	22000		ug/l					6										
005G04UF	BROMOFORM	8.51	8.5		ug/l		1													
005G04UF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	9.2 acb	7 acb	7 acb		6 acb				11 acb		10 acb		4 ab		4 ab
005G04UF	CHLOROFORM	0.166	0.19		ug/l	0.96 J ab	1 ab	1 ab								1 ab		0.7 J ab		0.7 J ab
005G04UF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			0.2 J ab												
005G08LF	BENZENE	0.3539	0.41	5	ug/l	0.13 J														
005G08LF	BROMOFORM	8.51	8.5		ug/l		2													
005G08LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	1.5 ab	2 ab	1 ab		1 ab				1.1 ab		1 J ab		2 ab		0.5 J ab
005G08LF	CHLOROFORM	0.166	0.19		ug/l	0.45 J ab	0.5 J ab	0.4 J ab								0.4 J ab		0.4 J ab		
005G08LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l															
005G08LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l															
007G01LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.7	4 b	3 b		1				0.95				0.4 J		
007G01LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	2.1	5	3		2				1.4		6		4		1 J
007G01LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G01LF	BENZENE	0.3539	0.41	5	ug/l	0.18 J														
007G01LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l			2 ab		1 ab										
007G01LF	CHLOROFORM	0.166	0.19		ug/l	1 ab		1 ab								4 ab		3 ab		2 ab
007G01LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.7 J	1	0.7 J		0.3 J										
007G01LF	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l					0.5										
007G01LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.43 J														
007G01LF	O-XYLENE (1,2-DIMETHYLBENZENE)	205.7	1200	10000	ug/l					0.2 J										
007G01LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	1 ab		0.2 J ab												1 J ab
007G01LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	2.6 ab	2 a	9 acb		6 acb				2.2 ab		5 ab		3 ab		2 a
007G01LF	XYLENES (TOTAL)	205.7	200	10000	ug/l					0.7										
007G01UF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	14 b	15 b	9 b		12 b				7.5 b		9 b		8 J b		5 b
007G01UF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	1.6	1	0.5 J						0.35 J						
007G01UF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l									0.23 J ab				0.3 J ab		0.3 J ab
007G01UF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G01UF	1,2-DICHLOROPROPANE	0.1648	0.39	5	ug/l					0.4 J ab				0.29 J a						
007G01UF	ACETONE	5475	22000		ug/l															3 J
007G01UF	BENZENE	0.3539	0.41	5	ug/l	0.23 J														
007G01UF	BROMOFORM	8.51	8.5		ug/l		0.9 J													
007G01UF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	3.3	5	4		5				3.4		13		10		4
007G01UF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	1.3 ab	5 ab	14 acb		27 acb				16 acb		22 acb		21 J acb		9 J acb
007G01UF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	2.8 ab	3 ab	4 ab		5 ab				4.2 ab		6 acb		5 ab		2 a
007G01UF	VINYL CHLORIDE	0.0198	0.016	2	ug/l			0.4 J ab										2 J ab		7 acb
007G03LF	1,1,2-TRICHLOROETHANE	0.1995	0.24	5	ug/l		0.5 J ab	0.3 J ab												
007G03LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l		60 D acb	23 acb	11 acb	6 acb	11 J acb	8 acb	8.1 acb	1.1 ab					1 ab	0.7 J ab
007G03LF	ACETONE	5475	22000		ug/l													4 J		
007G03LF	BENZENE	0.3539	0.41	5	ug/l		0.2 J	0.3 J												
007G03LF	BROMOFORM	8.51	8.5		ug/l		2													
007G03LF	CARBON DISULFIDE	1043	1000		ug/l								0.63							
007G03LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	9.3 acb	42 D acb	7 acb	0.8 ab											
007G03LF	CHLOROFORM	0.166	0.19		ug/l	4.7 ab	32 ab	8 ab	3 ab	2 ab		1 ab	0.98 J ab							
007G03LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		8	15	2	8	25 J	5	15	2.9			0.4 J		21	3
007G03LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l															
007G03LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	44 acb	170 D acb	200 D acb	110 D acb	82 D acb	44 D acb	47 D acb	54 D acb	7.6 acb						
007G03LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	29 acb	240 D acb	89 D acb	24 acb	15 acb	10 J acb	7 acb	10 acb	3.1 ab	1 a	1 a	0.7 J a			
007G03LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l			1 ab			46 D acb	19 acb	20 acb	21 acb	0.9 J ab				18 acb	13 acb
007G03UF	ACETONE	5475	22000		ug/l															
007G03UF	BROMOFORM	8.51	8.5		ug/l		4													
007G03UF	CARBON DISULFIDE	1043	1000		ug/l															
007G03UF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		1 ab													
007G03UF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	2.7 ab	0.3 J ab													
007G03UF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	12 acb														

Notes:
ug/L = micrograms/Liter
RSLs = EPA Regional Screening Levels dated May 19, 2009.
MCLs = EPA Maximum Contaminant Level (MCL) for Drinking Water
D = Dilution of sample required for analysis
J = Estimated Value
U = Non detect above laboratory method detection limit
a = Exceeds USEPA Preliminary Remediation Goals, October 2004
b = Exceeds RSL
c = Exceeds MCL

VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G04LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.9 J	0.7 J	1	1	1	1	1.3	1.6						
007G04LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	29 c	23 c	24 c	33 D c	58 D c	46 D c	47 D c	56 D c	50 D c	11 c	1 J	4	2	4	4 J
007G04LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G04LF	ACETONE	5475	22000		ug/l															
007G04LF	BENZENE	0.3539	0.41	5	ug/l			0.2 J												
007G04LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	3.1 ab	3 ab	2 ab	1 ab					0.23 J a						
007G04LF	CHLOROFORM	0.166	0.19		ug/l	2.4 ab	2 ab	1 ab		1 ab		0.5 ab	0.38 J ab							
007G04LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	510 D acb	250 D ac	140 D ac	99 D ac	170 D ac	370 D ac	290 D ac	330 D ac	220 D ac	99 ac	18	41	25	47	44
007G04LF	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l													4	1 J	1 J
007G04LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.49 J														
007G04LF	O-XYLENE (1,2-DIMETHYLBENZENE)	205.7	1200	10000	ug/l													0.7 J		
007G04LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	12 acb	24 acb	20 acb	37 D acb	46 D acb	34 acb	30 acb	36 acb	52 D acb	6 acb			1 ab	2 ab	2 ab
007G04LF	TOLUENE	723.4	2300	1000	ug/l												0.3 J	4	1	1
007G04LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l	0.76 J	0.3 J	0.2 J		0.5	0.7	0.8	1.1	0.33 J					0.8 J	
007G04LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	720 D acb	960 D acb	490 D acb	560 D acb	500 D acb	290 D acb	300 D acb	220 D acb	580 D acb	120 acb		33 acb	25 acb	50 acb	35 acb
007G04LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	10 acb		5 acb	0.9 ab	6 acb	32 acb	31 acb	18 acb	4.1 acb	33 acb	160 acb	100 acb	80 acb	75 acb	54 acb
007G04LF	XYLENES (TOTAL)	205.7	200	10000	ug/l													5	1 J	1 J
007G04UF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	0.96 J														
007G04UF	ACETONE	5475	22000		ug/l															4 J
007G04UF	BENZENE	0.3539	0.41	5	ug/l															
007G04UF	BROMOFORM	8.51	8.5		ug/l		0.3 J													
007G04UF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l															
007G04UF	CHLOROFORM	0.166	0.19		ug/l															
007G04UF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l															
007G04UF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G04UF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			0.7 J ab												
007G04UF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l															
007G04UF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	2.5 ab	0.5 J a	0.3 J a						0.59 a		3 ab		1 a		0.7 J a
007G05LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	0.39 J		0.3 J						0.24 J						
007G05LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l		0.5 J	0.6 J		1				1.4		2		2		1 J
007G05LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l	1.4 ab	0.7 J ab	0.6 J ab		0.5 ab				0.26 J ab						
007G05LF	ACETONE	5475	22000		ug/l															2 J
007G05LF	BROMOFORM	8.51	8.5		ug/l		1 J													
007G05LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	4.9 ab	4 J ab	4 ab		3 ab				2.4 ab		2 ab		2 ab		0.9 J ab
007G05LF	CHLOROFORM	0.166	0.19		ug/l	2.5 ab	2 J ab	2 ab		2 ab						2 ab		3 ab		3 ab
007G05LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l			0.5 J		0.7				1.3		3		2		2
007G05LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	2 ab	3 J ab	4 ab		6 acb				4.1 ab		6 acb		3 J ab		5 J ab
007G05LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	37 acb	47 DJ acb	54 acb		76 D acb				75 D acb		100 acb		76 acb		74 acb
007G05UF	ACETONE	5475	22000		ug/l															
007G05UF	BENZENE	0.3539	0.41	5	ug/l													0.6 J ab		
007G05UF	BROMOFORM	8.51	8.5		ug/l		1													
007G05UF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l															
007G06LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	0.44 J	9 c	1								0.6 J		7		7
007G06LF	ACETONE	5475	22000		ug/l															
007G06LF	BENZENE	0.3539	0.41	5	ug/l	0.17 J														
007G06LF	BROMOFORM	8.51	8.5		ug/l		2													
007G06LF	CHLOROFORM	0.166	0.19		ug/l											0.4 J ab				
007G06LF	CHLOROMETHANE	158.2	190		ug/l													0.3 J		
007G06LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	5.8 acb	15 acb	9 acb		4 ab				7.9 acb		13 acb		22 acb		27 acb
007G06LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	1.2 a	2 a	1 a		0.6 a				1.3 a		1 a		2 a		2 a

Notes:

ug/L = micrograms/Liter

RSLs = EPA Regional Screening Levels dated May 19, 2009.

MCLs = EPA Maximum Contaminant Level (MCL) for Drinking Water

D = Dilution of sample required for analysis

J = Estimated Value

U = Non detect above laboratory method detection limit

a = Exceeds USEPA Preliminary Remediation Goals, October 2004

b = Exceeds RSL

c = Exceeds MCL

VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G07LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.6 J	0.6 J	0.4 J						0.42 J		1		0.9 J		0.3 J
007G07LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	2.5				1				1.2		2		1		2
007G07LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G07LF	ACETONE	5475	22000		ug/l															
007G07LF	BROMODICHLOROMETHANE	0.1807	0.12		ug/l	**1.4 ab**														
007G07LF	BROMOFORM	8.51	8.5		ug/l		1													
007G07LF	CARBON DISULFIDE	1043	1000		ug/l															
007G07LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**1 J ab**	**0.3 J a**									**1 ab**		**1 ab**		
007G07LF	CHLOROFORM	0.166	0.19		ug/l	**0.88 J ab**	**0.6 J ab**	**0.4 J ab**								**2 ab**				**0.6 J ab**
007G07LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.86 J	0.8 J	0.6 J		0.5				0.53		0.9 J		0.7 J		0.4 J
007G07LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**14 J acb**	**18 acb**	**14 acb**		**18 acb**				**19 acb**		**15 J acb**		**20 acb**		**22 acb**
007G07LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**8.9 acb**	**5 ab**	**3 ab**		**3 ab**				**3.6 ab**		**8 acb**		**4 ab**		**3 ab**
007G09LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	1												
007G09LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	2.1	2	1		2										
007G09LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l															
007G09LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G09LF	BENZENE	0.3539	0.41	5	ug/l			0.2 J												
007G09LF	BROMOFORM	8.51	8.5		ug/l		3													
007G09LF	CHLOROFORM	0.166	0.19		ug/l	**0.42 J ab**		**0.2 J ab**								**4 ab**		**4 ab**		**5 ab**
007G09LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	6.9	18	9		4				0.3 J						0.5 J
007G09LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l			10												
007G09LF	METHYL ISOBUTYL KETONE (4-METH	1993	2000		ug/l															
007G09LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G09LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**9.7 acb**	**19 acb**	**8 acb**		**4 ab**										
007G09LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**4.1 ab**	**6 acb**	**3 ab**		**3 ab**										**0.4 J a**
007G09LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	**0.57 J ab**	**0.9 J ab**	**0.6 J ab**		**0.5 ab**										
007G09LF	XYLENES (TOTAL)	205.7	200	10000	ug/l															
007G09UF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	0.5 J														
007G09UF	ACETONE	5475	22000		ug/l															3 J
007G09UF	BROMOFORM	8.51	8.5		ug/l		1													
007G09UF	BROMOMETHANE	8.661	8.7		ug/l															
007G09UF	CHLOROFORM	0.166	0.19		ug/l	**1.8 ab**	**3 ab**	**0.4 J ab**								**6 ab**		**6 ab**		**2 J ab**
007G09UF	CHLOROMETHANE	158.2	190		ug/l													0.3 J		
007G09UF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.66 J														
007G09UF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G10LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l					0.4 J				0.51		0.7 J		0.4 J		
007G10LF	BROMOFORM	8.51	8.5		ug/l		0.5 J													
007G10LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**17 acb**	**14 acb**	**4 ab**		**12 acb**				**13 acb**		**15 acb**		**17 acb**		**9 J acb**
007G10LF	CHLOROFORM	0.166	0.19		ug/l	**5.2 ab**	**6 ab**	**2 ab**		**5 ab**				**5.2 J ab**		**8 ab**		**6 ab**		**5 ab**
007G10LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.3 J			0.3 J				0.54		0.7 J		0.6 J		1
007G10LF	METHYL ISOBUTYL KETONE (4-METH	1993	2000		ug/l															
007G10LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**11 J acb**	**17 acb**	**4 ab**		**14 acb**				**24 acb**		**14 acb**		**18 acb**		**16 acb**
007G10LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**21 acb**	**31 acb**	**7 acb**		**27 acb**				**34 D acb**		**40 acb**		**30 acb**		**41 acb**
007G10LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l											**3 acb**		**3 acb**		**6 acb**
007G11LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G11LF	BENZENE	0.3539	0.41	5	ug/l	0.15 J														
007G11LF	BROMOFORM	8.51	8.5		ug/l		2													
007G11LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**6.1 acb**	**11 acb**	**9 acb**		**12 acb**			**11 acb**	**5.9 acb**						
007G11LF	CHLOROFORM	0.166	0.19		ug/l	**5.9 ab**	**8 ab**	**7 ab**		**10 ab**			**8.6 J ab**	**5.6 J ab**						
007G11LF	CHLOROMETHANE	158.2	190		ug/l									3.5						
007G11LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	1.1	0.7 J	0.7 J		0.7			5.3	5.2	4	5	6 J	8	6	5
007G11LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**31 acb**	**10 acb**	**18 acb**		**21 acb**			**25 acb**	**19 acb**	**10 acb**	**12 acb**	**7 J acb**	**6 acb**	**4 ab**	**2 ab**
007G11LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**87 acb**	**24 acb**	**50 D acb**		**57 D acb**			**65 D acb**	**41 D acb**	**23 acb**	**20 acb**	**14 J acb**	**13 acb**	**10 acb**	**7 acb**
007G11LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l								**7.2 acb**	**14 acb**	**28 acb**	**58 acb**	**63 J acb**	**48 acb**	**33 acb**	**35 acb**

Notes:

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G12LF	ACETONE	5475	22000		ug/l											3 J				
007G12LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		0.5 J ab	0.3 J a		0.3 J a										0.3 J a
007G12LF	CHLOROFORM	0.166	0.19		ug/l		0.3 J ab	0.2 J ab												
007G14LF	BENZENE	0.3539	0.41	5	ug/l	0.15 J														
007G14LF	ETHYLBENZENE	1340	1.5	700	ug/l	0.25 J														
007G14LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l	0.32 J														
007G14LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	0.28 J a														
007G14LF	XYLENES (TOTAL)	205.7	200	10000	ug/l	0.61 J														
007G15LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.2	1	2		1				1.6		3 b		3 b		2
007G15LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	3.1	3	5		4				4.1		7		6		5
007G15LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l			0.7 J ab		0.3 J ab				0.31 J ab		0.6 J ab				0.9 J ab
007G15LF	ACETONE	5475	22000		ug/l															4 J
007G15LF	BROMOFORM	8.51	8.5		ug/l															
007G15LF	CARBON DISULFIDE	1043	1000		ug/l			0.3 J												
007G15LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	22 acb	28 acb	33 acb		22 acb				25 acb		23 acb		24 acb		24 J acb
007G15LF	CHLOROFORM	0.166	0.19		ug/l	5.1 ab	7 ab	8 ab		5 ab				4.8 J ab		7 ab		7 ab		6 ab
007G15LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.5 J	0.9 J		0.4 J				0.57		3		8		7
007G15LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l															
007G15LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	3.2 ab	4 ab	6 acb		3 ab				3 ab		7 acb		6 acb		5 ab
007G15UF	1,1,2-TRICHLOROETHANE	0.1995	0.24	5	ug/l			0.4 J ab												0.3 J ab
007G15UF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	70 b	82 D b	49 D b		63 D b				81 b		18 b		90 b		100 b
007G15UF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	430 acb	460 D acb	270 D c		410 D acb				410 acb		89 c		460 D acb		510 acb
007G15UF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l		0.9 J ab			0.7 ab										1 J ab
007G15UF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G15UF	ACETONE	5475	22000		ug/l											33				2 J
007G15UF	BENZENE	0.3539	0.41	5	ug/l	4.4 ab	5 ab	4 ab		3 ab						0.7 J ab		3 ab		3 ab
007G15UF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	8.9 acb	10 acb	4 ab		2 ab								1 ab		0.6 J ab
007G15UF	CHLOROFORM	0.166	0.19		ug/l	22 ab	20 ab	12 ab		7 ab								3 ab		2 ab
007G15UF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	15	18	16		13				12		9		22		15
007G15UF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		1 ab													
007G15UF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l											5				
007G15UF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	1.4 J														
007G15UF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		1 ab	0.7 J ab		0.6 ab								0.4 J ab		
007G15UF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	580 acb	630 D acb	310 D acb		400 D acb				340 acb		53 acb		290 D acb		270 acb
007G15UF	VINYL CHLORIDE	0.0198	0.016	2	ug/l															60 acb
007G16LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l													0.4 J		
007G16LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l											12 acb		0.4 J ab		5 ab
007G16LF	ACETONE	5475	22000		ug/l															4 J
007G16LF	BROMODICHLOROMETHANE	0.1807	0.12		ug/l		0.3 J ab													
007G16LF	BROMOFORM	8.51	8.5		ug/l		2													
007G16LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	17 acb		6 acb		5 ab				3.4 ab		3 J ab		1 ab		
007G16LF	CHLOROFORM	0.166	0.19		ug/l	3.4 ab		2 ab		2 ab				2.1 J ab		4 ab				
007G16LF	CHLOROMETHANE	158.2	190		ug/l					4 J										
007G16LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l											6				
007G16LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		3 ab													
007G16LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l		0.5 J													
007G16LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			0.5 J ab		1 ab				0.64 ab		200 acb		0.9 J ab		39 acb
007G16LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	10 acb		12 acb		20 acb				6.9 acb		83 acb		2 a		
007G18LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l					0.2 J				0.26 J		0.4 J		0.3 J		
007G18LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	0.88 J								0.48 J						
007G18LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l	1.8 ab	0.7 J ab	2 ab		0.9 ab				0.71 ab				0.5 J ab		
007G18LF	BENZENE	0.3539	0.41	5	ug/l	2 ab	0.2 J	0.8 J ab		0.3 J										
007G18LF	CARBON DISULFIDE	1043	1000		ug/l	0.56 J														
007G18LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	1.5 ab	0.5 J ab	1 ab		0.8 ab				0.74 ab		0.5 J ab		0.4 J a		0.3 J a
007G18LF	CHLOROFORM	0.166	0.19		ug/l	2 ab	1 ab	2 ab								1 J ab				1 J ab
007G18LF	CHLOROMETHANE	158.2	190		ug/l									4.9						
007G18LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.56 J		0.4 J		0.3 J				0.37 J		0.7 J		0.4 J		0.4 J
007G18LF	METHYL ISOBUTYL KETONE (4-METH	1993	2000		ug/l															
007G18LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	1.8 ab	0.4 J ab	2 ab		2 ab				1.3 ab		2 ab		3 ab		4 ab
007G18LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l	0.2 J														
007G18LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	13 acb	6 acb	13 acb		10 acb				9.6 acb		10 acb		9 acb		10 acb

Notes:

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G20LF	BENZENE	0.3539	0.41	5	ug/l	0.2 J														
007G20LF	CHLOROMETHANE	158.2	190		ug/l									0.98						
007G20LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			0.1 J												
007G21LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.5 J	0.3 J		0.2 J									0.2 J	
007G21LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l		0.5 J	1	2	2	3	3	3.4	4.1	4	5	5 J	4	4	4
007G21LF	BENZENE	0.3539	0.41	5	ug/l	0.28 J														
007G21LF	BROMODICHLOROMETHANE	0.1807	0.12		ug/l		**0.2 J ab**													
007G21LF	BROMOFORM	8.51	8.5		ug/l		5													
007G21LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**0.36 J a**	**0.6 J ab**	**0.4 J a**		**0.5 ab**	**0.5 ab**		**0.46 J ab**	**0.61 ab**						
007G21LF	CHLOROFORM	0.166	0.19		ug/l	**0.27 J ab**	**0.5 J ab**	**0.5 J ab**					**0.43 J ab**							
007G21LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.51 J	0.6 J	1	0.6	4	6	6	6.2	5.6	41	53	**87 J ac**	**96 ac**	**120 ac**	**140 ac**
007G21LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		**2 ab**													
007G21LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l															
007G21LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.48 J														
007G21LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**9.4 acb**	**18 acb**	**10 acb**	**12 acb**	**15 acb**	**17 acb**	**14 acb**	**13 acb**	**11 acb**	**8 acb**	**7 acb**	**4 J ab**	**3 ab**	**2 ab**	
007G21LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l														0.6 J	0.5 J
007G21LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**43 acb**	**180 D acb**	**200 D acb**	**290 D acb**	**330 D acb**	**310 D acb**	**280 D acb**	**300 D acb**	**300 D acb**	**150 acb**	**110 acb**	**79 J acb**	**59 acb**	**37 acb**	**12 acb**
007G21LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l										**8 acb**	**29 acb**	**44 J acb**	**39 acb**	**50 acb**	**29 acb**
007G22LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l					0.4 J										
007G22LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l						**0.3 J ab**									
007G22LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G22LF	ACETONE	5475	22000		ug/l												27 J	6		
007G22LF	BENZENE	0.3539	0.41	5	ug/l	0.14 J	**2 ab**	0.2 J												
007G22LF	CARBON DISULFIDE	1043	1000		ug/l		2					0.7	0.58							
007G22LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**13 acb**	**2 ab**	**5 ab**	**11 acb**											
007G22LF	CHLOROFORM	0.166	0.19		ug/l	**6.4 ab**	**2 ab**	**2 ab**	**7 ab**						**0.5 J ab**					
007G22LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	2.6	4	0.8 J	1	**130 D ac**					2	0.9 J				0.3 J
007G22LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.36 J														
007G22LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**44 acb**	**75 D acb**	**34 acb**	**51 D acb**	**2 ab**			**0.68 ab**	**0.21 J ab**	**2 ab**	**2 ab**				
007G22LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**92 acb**	**170 D acb**	**68 D acb**	**100 D acb**	**4 ab**			**1.9 a**	**0.28 J a**	**4 ab**	**2 a**				**0.4 J a**
007G22LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l						**100 D acb**	**40 D acb**	**31 D acb**	**28 acb**	**43 acb**	**31 acb**	**13 J acb**	**13 acb**	**8 acb**	**12 acb**
007G23LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l			0.5 J		0.7				1.1		2		1		0.8 J
007G23LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l					3				6.1		**9 c**		6		3
007G23LF	BROMOFORM	8.51	8.5		ug/l		0.9 J													
007G23LF	CARBON DISULFIDE	1043	1000		ug/l															
007G23LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**22 acb**	**38 acb**	**25 acb**		**22 acb**				**27 acb**		**18 acb**		**10 acb**		**9 acb**
007G23LF	CHLOROFORM	0.166	0.19		ug/l	**2.5 ab**	**5 ab**	**3 ab**		**3 ab**				**4 J ab**		**4 ab**		**4 ab**		**4 ab**
007G23LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.4 J	0.5 J		0.8				1.4		1		1		1
007G23LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l					**0.8 ab**										
007G23LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**2 J ab**	**4 ab**	**3 ab**		**2 ab**				**3 ab**		**8 acb**		**10 acb**		**13 acb**
007G23LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**23 acb**	**22 acb**	**17 acb**		**19 acb**				**27 acb**		**32 acb**		**39 acb**		**31 acb**

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G24MF	BENZENE	0.3539	0.41	5	ug/l			**0.5 J ab**												
007G24MF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		**3 ab**													
007G25MF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.8 J	0.7 J		1				1.1		1		1 J		0.9 J
007G25MF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	3.4	6	2		4				4		4		4		3
007G25MF	ACETONE	5475	22000		ug/l															4 J
007G25MF	BROMOFORM	8.51	8.5		ug/l		2													
007G25MF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**1.5 ab**	**2 ab**	**2 ab**		**1 ab**				**1.3 ab**		**0.9 J ab**		**0.8 J ab**		**0.6 J ab**
007G25MF	CHLOROFORM	0.166	0.19		ug/l	**2.9 ab**	**2 ab**	**1 ab**								**1 ab**				**0.9 J ab**
007G25MF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.65 J	0.4 J			0.3 J						0.8 J		0.9 J		0.7 J
007G25MF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		**0.3 J ab**													
007G25MF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**25 acb**	**16 acb**	**8 acb**		**11 acb**				**6.1 acb**		**6 acb**		**5 ab**		**4 ab**
007G25MF	VINYL CHLORIDE	0.0198	0.016	2	ug/l		**0.4 J ab**													**0.8 J ab**
007G26MF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	0.73 J														
007G26MF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l											**0.3 J ab**				
007G26MF	ACETONE	5475	22000		ug/l			5												4 J
007G26MF	TOLUENE	723.4	2300	1000	ug/l	1.5														
007G26MF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**2.8 ab**														
007G27LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.2 J	0.3 J		0.2 J				0.24 J				0.2 J		
007G27LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l		**0.5 J ab**	**0.4 J ab**						**0.33 J ab**				**0.3 J ab**		
007G27LF	ACETONE	5475	22000		ug/l			3 J												
007G27LF	BENZENE	0.3539	0.41	5	ug/l			0.2 J												
007G27LF	BROMOFORM	8.51	8.5		ug/l		0.9 J													
007G27LF	CHLOROMETHANE	158.2	190		ug/l													0.3 J		
007G27LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.7 J	0.7 J		0.7				0.67		0.7 J		0.8 J		
007G27LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G27LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		**0.2 J ab**	**0.3 J ab**		**0.2 J ab**				**0.24 J ab**						
007G27LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**1.1 a**	**2 a**	**2 a**		**2 a**				**2.1 ab**		**2 a**		**2 a**		
007G28LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l														1	
007G28LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l														**2 ab**	
007G28LF	CHLOROFORM	0.166	0.19		ug/l														**2 ab**	
007G28LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l														5	
007G28LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l														**27 acb**	
007G28LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l														**58 acb**	
007G28LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l														**5 acb**	
007G29LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l														0.5 J	
007G29LF	CHLOROFORM	0.166	0.19		ug/l														**1 ab**	
007G29LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l														**3 ab**	
007G31LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.4	0.8 J			0.4 J			0.5	0.88	2	2	2 J	2	0.5 J	0.6 J
007G31LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	1.9	1						1.3	2.7	**12 c**	**14 c**	**12 J c**	**8 c**	2	2
007G31LF	CARBON DISULFIDE	1043	1000		ug/l	0.48 J														
007G31LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**0.75 J ab**	**0.6 J ab**	**0.7 J ab**		**0.7 ab**			**0.68 ab**	**0.61 ab**	**1 ab**	**2 ab**	**2 J ab**	**1 J ab**		**0.8 J ab**
007G31LF	CHLOROFORM	0.166	0.19		ug/l	**0.34 J ab**	**0.5 J ab**	**0.4 J ab**					**0.38 J ab**		**0.8 J ab**	**0.9 J ab**	**1 J ab**	**0.7 J ab**		**0.5 J ab**
007G31LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l			0.6 J		0.5				0.29 J	1	2	1 J	2	2	0.5 J
007G31LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**5.6 J acb**	**8 acb**	**2 ab**		**3 ab**			**3.8 ab**	**6.8 acb**	**20 acb**	**19 acb**	**13 J acb**	**8 acb**	**3 ab**	**3 ab**
007G31LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**68 acb**	**91 D acb**	**3 ab**		**32 acb**			**43 D acb**	**73 D acb**	**330 acb**	**350 acb**	**240 J acb**	**180 acb**	**51 acb**	**59 acb**

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G32LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	0.86 J		1 J		0.8	0.8	0.9	0.96	0.29 J	1	0.6 J	1 J		1	0.9 J
007G32LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	0.61 J		2 J		1	2	2	1.1							
007G32LF	ACETONE	5475	22000		ug/l								18							
007G32LF	BENZENE	0.3539	0.41	5	ug/l	0.18 J														
007G32LF	CARBON DISULFIDE	1043	1000		ug/l	0.9 J														
007G32LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**3.7 ab**		**2 J ab**		**2 ab**	**3 ab**	**2 ab**	**0.58 ab**							
007G32LF	CHLOROFORM	0.166	0.19		ug/l	**1.2 ab**		**0.8 J ab**				**1 ab**	**0.76 J ab**							
007G32LF	CHLOROMETHANE	158.2	190		ug/l									1.7						
007G32LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l			3 J		4	2	40 D	22	10		0.4 J		0.7 J	2	3
007G32LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**13 acb**	**1 ab**	**16 acb**		**11 acb**	**14 acb**	**10 acb**	**4.8 ab**	**1.3 ab**	**1 ab**	**3 ab**		**0.9 J ab**	**0.6 J ab**	
007G32LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l												0.8 J	0.6 J	1	0.8 J
007G32LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**85 acb**	**7 acb**	**240 D acb**		**140 D acb**	**200 D acb**	**150 D acb**	**70 D acb**	**18 acb**	**2 a**	**2 a**	**2 J a**	**3 ab**	**3 ab**	**3 ab**
007G32LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l								**76 D acb**	**5.4 acb**	**63 acb**	**58 acb**	**110 J acb**	**73 acb**	**120 acb**	**87 acb**
007G33LF	ACETONE	5475	22000		ug/l															2 J
007G33LF	CARBON DISULFIDE	1043	1000		ug/l															
007G33LF	CHLOROFORM	0.166	0.19		ug/l		**0.2 J ab**													
007G33LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l					**0.2 J ab**								**0.5 J ab**		
007G33LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**0.84 J a**	**1 a**			**2 a**				**1.5 a**		**2 a**		**1 a**		**1 a**
007G35LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l			2		2				1.3				0.6 J		1
007G35LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l			0.8 J		1				0.76						
007G35LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l			**0.7 J ab**		**0.6 ab**				**0.64 ab**				**0.8 J ab**		**0.4 J ab**
007G35LF	ACETONE	5475	22000		ug/l															4 J
007G35LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**0.43 J a**		**3 ab**		**2 ab**				**1.5 ab**				**1 ab**		**0.5 J ab**
007G35LF	CHLOROFORM	0.166	0.19		ug/l	**0.4 J ab**		**2 ab**		**2 ab**						**0.6 J ab**				**1 ab**
007G35LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l			8		8				6.2		0.6 J		3		7
007G35LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**0.59 J ab**		**6 acb**		**6 acb**				**4.1 ab**				**2 ab**		**5 ab**
007G35LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l					0.3 J										
007G35LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**5.5 acb**		**14 acb**		**15 acb**				**12 acb**		**6 acb**		**8 acb**		**9 acb**
007G36LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	**4.6 b**	0.2 J	2		2				1.7		2		2		1
007G36LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	1.4		0.9 J		1				1.4		2		2		1
007G36LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l			**0.5 J ab**		**0.4 J ab**				**0.39 J ab**				**0.4 J ab**		**0.4 J ab**
007G36LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G36LF	ACETONE	5475	22000		ug/l															3 J
007G36LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**7.7 acb**	**0.4 J a**	**4 ab**		**3 ab**				**1.9 ab**		**2 ab**		**2 ab**		**1 ab**
007G36LF	CHLOROFORM	0.166	0.19		ug/l	**3 ab**	**0.2 J ab**	**2 ab**		**2 ab**						**2 ab**				**1 ab**
007G36LF	CHLOROMETHANE	158.2	190		ug/l									1.8 J						
007G36LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	7.8	0.8 J	8		8				9.5		11		11		11
007G36LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**4.8 J ab**	**0.5 J ab**	**4 ab**		**4 ab**				**4.8 ab**		**5 ab**		**6 acb**		**6 acb**
007G36LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l					0.7										
007G36LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**26 acb**	**2 a**	**22 acb**		**24 acb**				**23 acb**		**20 acb**		**18 acb**		**15 acb**

Notes:

ug/L = micrograms/Liter

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G41LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	2		0.9				0.76				1		2
007G41LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l		0.5 J	1		0.9				0.73		0.9 J		2		3
007G41LF	1,2,3-TRICHLOROBENZENE	7.157	29		ug/l															
007G41LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l			**0.3 J ab**										**0.3 J ab**		
007G41LF	ACETONE	5475	22000		ug/l															2 J
007G41LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**2 ab**	**3 ab**	**4 ab**		**2 ab**				**1.8 ab**		**2 ab**		**3 ab**		**1 J ab**
007G41LF	CHLOROFORM	0.166	0.19		ug/l	**1 ab**	**2 ab**	**2 ab**		**1 ab**						**2 ab**		**2 ab**		**1 ab**
007G41LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	1 J	3	4		2				2		4		5		7
007G41LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**1.2 ab**	**2 ab**	**2 ab**		**2 ab**				**1.1 ab**		**2 ab**		**3 ab**		**5 ab**
007G41LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**5 ab**	**10 acb**	**14 acb**		**9 acb**				**7.4 acb**		**11 acb**		**13 acb**		**12 acb**
007G42LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.4 J		1			0.6		0.3 J	1		2		2	2
007G42LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l				1					0.26 J	2	0.8 J	3	0.4 J	4	2 J
007G42LF	BROMOFORM	8.51	8.5		ug/l		0.9 J													
007G42LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		**0.2 J a**													
007G42LF	CHLOROFORM	0.166	0.19		ug/l	**0.28 J ab**	**0.2 J ab**													
007G42LF	CHLOROMETHANE	158.2	190		ug/l									1.8						
007G42LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.3 J		0.8								0.9 J		0.8 J	0.6 J
007G42LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		**1 ab**													
007G42LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l														**0.7 J ab**	
007G42LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**2.1 ab**	**1 a**		**3 ab**		**0.3 J a**	**1 a**	**0.31 J a**	**0.45 J a**	**2 a**	**1 a**	**3 ab**	**0.4 J a**	**3 ab**	**2 a**
007G44LF	CARBON DISULFIDE	1043	1000		ug/l	0.41 J														
007G44LF	CHLOROFORM	0.166	0.19		ug/l															
007G44LF	CHLOROMETHANE	158.2	190		ug/l									4.4						
007G45LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.4 J	0.6 J		0.5	0.8			0.66		0.9 J				
007G45LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l					0.6	1			0.92		2		0.8 J		
007G45LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G45LF	ACETONE	5475	22000		ug/l															3 J
007G45LF	BENZENE	0.3539	0.41	5	ug/l	0.22 J														
007G45LF	BROMOFORM	8.51	8.5		ug/l		0.3 J													
007G45LF	CARBON DISULFIDE	1043	1000		ug/l	0.62 J														
007G45LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**0.3 J a**	**2 ab**	**1 ab**		**0.9 ab**	**1 ab**			**0.86 ab**		**0.6 J ab**				
007G45LF	CHLOROFORM	0.166	0.19		ug/l	**0.24 J ab**	**1 ab**	**0.8 J ab**								**0.7 J ab**				
007G45LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.9 J	1		0.8	1			0.89		2		0.7 J		
007G45LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.38 J														
007G45LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**0.52 J ab**	**0.4 J ab**	**0.4 J ab**			**0.7 ab**			**0.45 J ab**		**0.7 J ab**				
007G45LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**0.49 J a**	**4 ab**	**6 acb**	**2 a**	**5 ab**	**8 acb**	**1 a**	**0.46 J a**	**5.7 acb**		**5 ab**		**3 ab**		
007G48LF	BROMOFORM	8.51	8.5		ug/l		1													
007G48LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l									**0.5 ab**						
007G48LF	CHLOROFORM	0.166	0.19		ug/l															
007G48LF	CHLOROMETHANE	158.2	190		ug/l									1.5						
007G48LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		**0.7 J ab**													
007G48LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l									**0.25 J a**						
007G49LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l									0.5						0.4 J
007G49LF	BROMOFORM	8.51	8.5		ug/l		0.7 J													
007G49LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**0.44 J a**	**0.3 J a**	**0.7 J ab**		**0.4 J a**				**0.45 J ab**						**0.6 J ab**
007G49LF	CHLOROMETHANE	158.2	190		ug/l									2.3						
007G49LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l															0.2 J
007G49LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**0.82 J a**	**0.8 J a**	**0.8 J a**		**0.2 J a**				**0.84 a**						**0.6 J a**
007G49LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l															**0.4 J ab**

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G52LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.4	2	2	2	2	3 b	3 b	2.5 b	2.4	2	1	2	2	2	2
007G52LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l		0.8 J		0.9	0.9	1	1	1	1.1	0.9 J		0.9 J	0.9 J	1	0.7 J
007G52LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l		0.5 J ab	0.5 J ab			0.6 ab	0.6 ab	0.49 J ab	0.38 J ab			0.5 J ab	0.4 J ab	0.4 J ab	0.4 J ab
007G52LF	1,2-DICHLOROPROPANE	0.1648	0.39	5	ug/l			0.3 J a						0.24 J a						
007G52LF	CARBON DISULFIDE	1043	1000		ug/l	0.38 J														
007G52LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	3 ab	2 ab	4 ab	5 ab	4 ab	5 ab	5 ab	4.4 ab	4.9 ab	5 ab	7 acb	4 ab	4 ab	4 ab	3 ab
007G52LF	CHLOROFORM	0.166	0.19		ug/l	2.8 ab	3 ab	3 ab		2 ab		3 ab	2.5 J ab	2.4 ab	3 ab	2 ab	3 ab	2 ab	2 ab	2 ab
007G52LF	CHLOROMETHANE	158.2	190		ug/l									1.7						
007G52LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	2.1	5	5	4	4	6	6	5	5	3	3	5	6	6	5
007G52LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	4.9 J ab	7 acb	7 acb	7 acb	6 acb	8 acb	7 acb	6.3 acb	7.2 acb	5 ab	5 ab	4 ab	5 ab	5 ab	6 acb
007G52LF	TOLUENE	723.4	2300	1000	ug/l															
007G52LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l														0.6 J	
007G52LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	4.6 ab	10 acb	11 acb	10 acb	11 acb	15 acb	14 acb	12 acb	13 acb	8 acb	11 acb	15 J acb	15 acb	16 acb	15 acb
007G53LF	ACETONE	5475	22000		ug/l													3 J		4 J
007G53LF	CARBON DISULFIDE	1043	1000		ug/l	0.64 J														
007G53LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	1.7 ab	2 ab	0.3 J a		2 ab				1.5 ab		5 ab		3 ab		
007G53LF	CHLOROFORM	0.166	0.19		ug/l	0.47 J ab	0.8 J ab	0.3 J ab								0.6 J ab				
007G53LF	CHLOROMETHANE	158.2	190		ug/l									2.5						
007G53LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		0.5 J ab	0.4 J ab		0.5 ab				0.46 J ab		0.8 J ab		0.7 J ab		
007G53LF	TOLUENE	723.4	2300	1000	ug/l															
007G53LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		0.2 J a							0.21 J a				0.5 J a		
007G54LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.1	0.9 J	0.8 J		0.8				0.66				0.4 J		
007G54LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l		1 ab	0.9 J ab		0.7 ab				0.67 ab				0.7 J ab		0.5 J ab
007G54LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007G54LF	BROMOFORM	8.51	8.5		ug/l		0.7 J													
007G54LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	1.8 ab	1 ab	0.9 J ab		0.8 ab				0.69 ab		0.5 J ab				0.2 J a
007G54LF	CHLOROFORM	0.166	0.19		ug/l	1.5 ab	2 ab	2 ab								1 ab				1 ab
007G54LF	CHLOROMETHANE	158.2	190		ug/l									4.1						
007G54LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	2.5 J	4	3		4				3.5		3		2		3
007G54LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	2.1 ab	3 ab	2 ab		4 ab				3.1 ab		2 ab		3 ab		3 ab
007G54LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	7.2 acb	9 acb	7 acb		9 acb				8.1 acb		7 acb		7 acb		7 acb
007G55LF	CHLOROMETHANE	158.2	190		ug/l													0.3 J		
007G55LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l					0.6 ab				0.61 ab				0.5 J ab		
007G57LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l			2	2	2	1		1.8	1.4	1		0.8 J		0.5 J	
007G57LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	48 c		22 c	25 c	20 c	14 c	19 c	22 c	19 c	9 c	4	6		1	0.4 J
007G57LF	ACETONE	5475	22000		ug/l															6
007G57LF	BENZENE	0.3539	0.41	5	ug/l									0.59 ab						
007G57LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l			0.4 J a												
007G57LF	CHLOROFORM	0.166	0.19		ug/l	3 J ab		2 ab	2 ab	2 ab	2 ab		2 J ab	1.6 J ab						
007G57LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	86 ac		16	16	16	14	22	32	50 D	360 ac	150 ac	170 ac	3	25	3
007G57LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l															
007G57LF	ETHYLBENZENE	1340	1.5	700	ug/l															
007G57LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l					3 J										
007G57LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	41 acb		26 acb	31 acb	23 acb	18 acb	20 acb	23 acb	15 acb						
007G57LF	TOLUENE	723.4	2300	1000	ug/l															
007G57LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.2 J							2	0.8 J	0.6 J		0.4 J	
007G57LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	1200 D acb		1000 D acb	890 D acb	1200 D acb	1400 D acb	1200 D acb	1400 D acb	1200 D acb	62 acb	10 acb	13 acb	4 ab	4 ab	1 a
007G57LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l			0.2 J ab					0.44 J ab	0.6 ab	72 acb	170 acb	190 acb	100 acb	170 acb	110 acb
007G57LF	XYLENES (TOTAL)	205.7	200	10000	ug/l															

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

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007G58LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	2 J	1	0.9	1 J	0.9	1.1							
007G58LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	**34 c**	**10 c**	**19 J c**	**15 c**	**10 c**	**15 J c**	**9 c**	**11 c**					0.5 J	0.6 J	0.8 J
007G58LF	BENZENE	0.3539	0.41	5	ug/l			**0.4 J a**			0.3 J									
007G58LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l															
007G58LF	CHLOROFORM	0.166	0.19		ug/l															
007G58LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	**990 acb**	**320 D ac**	**430 D acb**	**410 D acb**	**350 D ac**	**380 D acb**	**260 D ac**	**260 D ac**	**260 ac**		5	9	22	55	56
007G58LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**6.3 J acb**	**0.2 J ab**	**4 J ab**	**3 ab**	**1 ab**	**3 J ab**	**3 ab**	**2.2 ab**							
007G58LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l	3.8 J	0.4 J	1 J	2	1	1 J	0.9	0.91						0.8 J	
007G58LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**88 acb**	**9 acb**	**200 D acb**	**160 D acb**	**46 D acb**	**110 D acb**	**160 D acb**	**150 D acb**	**130 acb**		**2 a**	**26 acb**	**2 a**	**19 acb**	**17 acb**
007G58LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	**3.3 J acb**	**380 D acb**	**27 J acb**	**43 D acb**	**45 D acb**	**24 J acb**	**10 acb**	**18 acb**	**45 acb**		**24 acb**	**10 acb**	**40 acb**	**23 acb**	**18 acb**
007G59LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		2	2	2	2	2	2	2	1.3						0.5 J
007G59LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	**35 c**	**34 c**	**42 D c**	**34 D c**	**55 D c**	**39 D c**	**36 D c**	**39 D c**	**21 c**	2	2	1	2		3 J
007G59LF	ACETONE	5475	22000		ug/l															
007G59LF	BENZENE	0.3539	0.41	5	ug/l		0.2 J	0.2 J			**0.5 ab**									
007G59LF	BROMOFORM	8.51	8.5		ug/l		0.2 J													
007G59LF	CARBON DISULFIDE	1043	1000		ug/l															
007G59LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l															
007G59LF	CHLOROFORM	0.166	0.19		ug/l															
007G59LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	**1100 acb**	**810 D acb**	**570 D acb**	**290 D ac**	**430 D acb**	**390 D acb**	**270 D ac**	**260 D ac**	**110 D ac**	**80 ac**	49	56	**200 ac**	**74 ac**	**250 ac**
007G59LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G59LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**5.7 J acb**	**0.4 J ab**	**14 acb**	**32 acb**	**34 acb**	**38 acb**	**38 acb**	**38 acb**	**22 acb**	**0.9 J ab**	**0.7 J ab**				
007G59LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l		2	2	3	0.9	0.8	0.6	0.8			0.6 J		0.9 J	2	0.8 J
007G59LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**19 acb**	**12 acb**	**140 D acb**	**360 D acb**	**670 D acb**	**1400 D acb**	**590 D acb**	**350 D acb**	**400 D acb**	**24 acb**	**18 acb**	**23 acb**	**9 acb**	**14 acb**	**46 acb**
007G59LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	**17 acb**	**200 D acb**	**35 D acb**	**13 acb**	**15 acb**	**9 acb**	**6 acb**	**8.1 acb**	**0.62 ab**	**18 acb**	**27 acb**	**22 acb**	**27 acb**	**0.6 J ab**	**5 acb**
007G60LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	0.5 J												
007G60LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l		0.6 J							0.45 J						
007G60LF	ACETONE	5475	22000		ug/l															12
007G60LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l															
007G60LF	CHLOROFORM	0.166	0.19		ug/l															
007G60LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		19	0.5 J						6.5				2		0.2 J
007G60LF	ETHYLBENZENE	1340	1.5	700	ug/l															
007G60LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l															
007G60LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G60LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		**0.2 J ab**													
007G60LF	TOLUENE	723.4	2300	1000	ug/l	0.59 J	0.2 J	1 J												
007G60LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**0.61 J a**	**0.3 J a**	**0.4 J a**		**0.4 J a**				**2 a**				**4 ab**		
007G60LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	**190 D acb**	**150 D acb**	**52 D acb**		**8 acb**				**50 D acb**		**6 acb**		**4 acb**		**4 acb**
007G60LF	XYLENES (TOTAL)	205.7	200	10000	ug/l															

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G61LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.5 J	1		0.7 J				0.91						
007G61LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l															
007G61LF	ACETONE	5475	22000		ug/l											6 J		4 J		10
007G61LF	BENZENE	0.3539	0.41	5	ug/l		0.2 J	0.3 J												
007G61LF	CARBON DISULFIDE	1043	1000		ug/l													0.4 J		
007G61LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l															
007G61LF	CHLOROETHANE	4.637	21000		ug/l															
007G61LF	CHLOROFORM	0.166	0.19		ug/l															
007G61LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		0.3 J	0.4 J		4 J				2				4		
007G61LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l					280 J										
007G61LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.45 J														
007G61LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l															
007G61LF	TOLUENE	723.4	2300	1000	ug/l	0.72 J	0.4 J	1												
007G61LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.4 J						0.51						
007G61LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l			**0.4 J a**		**0.8 J a**				**0.89 a**		**0.6 J a**		**1 a**		**0.3 J a**
007G61LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	**200 acb**	**140 D acb**	**310 D acb**		**580 D acb**				**300 D acb**		**2 J ab**		**14 acb**		**2 ab**
007G62LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	1	0.5	0.7	1		0.83	0.75						
007G62LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	**12 c**	2	4		6	6	0.7	3.4	4.4						0.4 J
007G62LF	ACETONE	5475	22000		ug/l													2 J		4 J
007G62LF	BENZENE	0.3539	0.41	5	ug/l		**0.5 J ab**	0.2 J												
007G62LF	BROMOFORM	8.51	8.5		ug/l		0.4 J													
007G62LF	CHLOROFORM	0.166	0.19		ug/l															
007G62LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	**480 acb**	**70 D a**	**240 D ac**	11	**220 D ac**	**340 D ac**	38	**180 D ac**	**200 D ac**	17	2 J	23	0.9 J	14	29
007G62LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G62LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		**1 ab**	**3 ab**	**2 ab**	**3 ab**	**2 ab**	**1 ab**	**0.35 J ab**	**0.64 ab**						
007G62LF	TOLUENE	723.4	2300	1000	ug/l				0.6											
007G62LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.4 J			0.6		0.36 J	0.32 J						
007G62LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		**18 acb**	**10 acb**	**3 ab**	**8 acb**	**8 acb**	**1 a**	**2.8 ab**	**14 acb**	**4 ab**	**1 a**	**2 a**		**2 a**	**4 ab**
007G62LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	**190 acb**	**250 D acb**	**71 D acb**	**43 D acb**	**85 D acb**	**44 D acb**	**71 D acb**	**53 D acb**	**20 acb**	**9 acb**	**13 acb**	**17 acb**	**51 acb**	**4 acb**	**17 acb**
007G63LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	1	0.8 J	1	2		0.86	0.8 J						
007G63LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l			5		7	**13 c**		0.87	2.4 J	0.4 J				0.3 J	
007G63LF	BENZENE	0.3539	0.41	5	ug/l			0.2 J					0.21 J							
007G63LF	CHLOROFORM	0.166	0.19		ug/l															
007G63LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		14	**290 D ac**	**84 D ac**	**250 D ac**	**410 D acb**	44	60 D	**140 D ac**	20	1	8	15	30	8
007G63LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
007G63LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			**1 ab**	**2 J ab**	**1 ab**	**5 ab**	**1 ab**	**0.34 J ab**	**0.27 J ab**						
007G63LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.6 J			0.7		0.33 J	0.38 J					0.5 J	
007G63LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		**0.4 J a**	**2 a**	**10 J acb**	**2 a**	**10 acb**		**0.58 a**	**1.8 J a**	**4 ab**		**1 a**	**0.5 J a**	**4 ab**	**0.7 J a**
007G63LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l		**230 D acb**	**140 D acb**	**48 D acb**	**100 D acb**	**56 D acb**	**42 acb**	**210 D acb**	**110 D acb**	**18 acb**	**23 J acb**	**26 acb**	**43 acb**	**42 acb**	**38 acb**

Notes:

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007G64LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l				1	1	2	2	1.8	1.4	2	1	1	0.9 J	1 J	0.8 J
007G64LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l				30 c	28 c	27 c	26 c	33 c	27 c	18 c	17 c	16 c	18 c	20 c	15 J c
007G64LF	BENZENE	0.3539	0.41	5	ug/l					0.2 J	0.3 J		0.34 J	0.3 J						
007G64LF	CHLOROFORM	0.166	0.19		ug/l				1 ab	2 ab	2 ab	2 ab	0.86 J ab							
007G64LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l				40	190 D ac	560 D acb	390 D acb	280 D ac	310 D ac	430 acb	280 ac	260 ac	290 D ac	260 ac	230 ac
007G64LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l				24 DJ acb	23 acb	16 acb	20 acb	24 acb	19 acb	7 acb	6 acb	4 ab	8 acb	9 acb	5 ab
007G64LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l					0.4 J	0.8	0.6	0.65	0.57	2	2	1	1 J	1	0.5 J
007G64LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l				1100 D acb	1400 D acb	1000 D acb	1300 D acb	1600 D acb	1300 D acb	270 acb	260 acb	180 acb	260 D acb	270 acb	210 acb
007G64LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l					0.6 ab	9 acb	6 acb	9.6 acb	14 acb	37 acb	34 acb	39 acb	35 acb	39 acb	30 acb
007G65LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l						0.4 J		0.64	0.44 J	0.7 J		0.8 J		0.7 J	0.6 J
007G65LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l				5	7	8 c	10 c	11 c	11 J c	16 c	12 c	17 c	12 c	12 c	11 J c
007G65LF	ACETONE	5475	22000		ug/l															3 J
007G65LF	CARBON DISULFIDE	1043	1000		ug/l				0.8											
007G65LF	CHLOROFORM	0.166	0.19		ug/l						0.3 J ab		0.47 J ab		0.8 J ab	0.7 J ab	0.6 J ab		0.5 J ab	
007G65LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l				0.8	1	6	3	4.3	11 J	240 ac	210 ac	270 ac	230 D ac	200 ac	220 ac
007G65LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l				6 acb	7 acb	8 acb	10 acb	11 acb	12 J acb	11 acb	6 acb	5 ab	4 ab	6 acb	4 ab
007G65LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l										2	1	0.8 J	0.9 J	0.8 J	0.8 J
007G65LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l				110 D acb	190 D acb	220 D acb	280 D acb	390 D acb	370 D acb	400 acb	280 acb	260 acb	230 D acb	330 acb	210 acb
007G65LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l										16 acb	18 acb	28 acb	19 acb	19 acb	15 acb
007G66LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l				0.6	0.5	0.6	0.5	0.52	0.54						
007G66LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l				7				2	4.7	0.8 J			0.3 J		0.5 J
007G66LF	BENZENE	0.3539	0.41	5	ug/l						0.4 J a									
007G66LF	CARBON DISULFIDE	1043	1000		ug/l				2	0.7	0.3 J									
007G66LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l				330 D ac	5	1	1	16	120 D ac	20	2	6	7	9	17
007G66LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l					87 D										
007G66LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l				4 ab		0.3 J ab		4.3 ab	2.8 ab						
007G66LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l				33 D acb	1 a	0.3 J a	1 a	11 acb	37 D acb	12 acb	0.8 J a	2 a	2 a	8 acb	10 acb
007G66LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l				33 acb	140 D acb	170 D acb	100 D acb	74 D acb	26 acb	10 acb	35 acb	27 acb	48 acb	22 acb	27 acb
007G69LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l									0.23 J						
007G69LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l						0.6	0.6	0.65	0.43 J	1	0.3 J	0.5 J	0.6 J	0.3 J	0.4 J
007G69LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l													0.3 J ab		
007G69LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l				0.9 ab	1 ab	2 ab	2 ab	2.6 ab	1.6 J ab					0.8 J ab	1 ab
007G69LF	CHLOROFORM	0.166	0.19		ug/l				4 ab	3 ab	4 ab	3 ab	3.8 J ab	2.6 J ab		0.5 J ab	0.4 J ab		0.8 J ab	0.9 J ab
007G69LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l				2	11	23	16	10	12 J	70 a	45	48 J	46	26	25
007G69LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l				73 D acb	73 D acb	72 D acb	77 D acb	70 D acb	45 D acb	59 acb	21 acb	50 J acb	39 acb	26 acb	38 acb
007G69LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l										0.7 J	0.4 J				
007G69LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l				200 D acb	200 D acb	190 D acb	220 D acb	200 D acb	170 D acb	140 acb	64 acb	120 J acb	94 acb	53 acb	100 acb
007G69LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l							6 acb	5 acb	28 J acb	5 acb	21 acb	19 J acb	18 acb	50 acb	12 acb
007G71LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l													0.4 J	0.5 J	0.4 J
007G71LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l										4	7	6	12	10	7
007G71LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l					1 ab	2 ab	1 ab	1.5 ab	1.3 ab	2 ab	1 ab		0.5 J ab	0.6 J ab	
007G71LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l					2 a	3 ab	3 ab	3.6 ab	4.4 ab	6 acb	8 acb	6 acb	5 ab	7 acb	6 acb
007G71LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l										0.7 J ab	2 J ab	2 ab	4 acb	4 acb	2 ab

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
007GPZ03	1,1-DICHLOROETHANE	811.1	2.4		ug/l		0.7 J	0.7 J	1	0.8	2	2		1.6	3 b	2	2	1	2	2
007GPZ03	1,1-DICHLOROETHENE	338.8	340	7	ug/l					0.7	0.6	0.8		0.72	1	0.8 J	1 J	0.4 J	1 J	0.9 J
007GPZ03	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l						0.4 J ab	0.6 ab		0.32 J ab	0.6 J ab		0.5 J ab	0.4 J ab	0.4 J ab	0.4 J ab
007GPZ03	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
007GPZ03	BROMOFORM	8.51	8.5		ug/l		0.2 J													
007GPZ03	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		4 ab	3 ab	4 ab	5 ab	4 ab	6 acb		5.2 acb	6 acb	8 acb	6 acb	4 ab	6 acb	4 ab
007GPZ03	CHLOROFORM	0.166	0.19		ug/l		1 ab	2 ab	1 ab	0.9 ab	2 ab	2 ab			3 ab	2 ab	2 ab		2 ab	2 ab
007GPZ03	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		2	1	2	2	3	4		2.9	6	5	4	2 J	5	6
007GPZ03	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		4 ab	4 ab	5 ab	5 ab	5 ab	5 ab		5.7 acb	4 ab	4 ab	1 ab	4 ab	5 ab	6 acb
007GPZ03	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		3 ab	3 ab	6 acb	5 ab	7 acb	9 acb		6.4 acb	14 acb	17 acb	11 acb	6 acb	14 acb	17 acb
015G01LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	4.7 b	2 J	1		0.7				0.53 J						
015G01LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	3.9	2 J	1		1						0.8 J		0.8 J		0.6 J
015G01LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
015G01LF	BENZENE	0.3539	0.41	5	ug/l															
015G01LF	BROMOFORM	8.51	8.5		ug/l		0.8 J													
015G01LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		2 J ab	1 ab		0.7 ab				0.51 J ab		0.5 J ab		0.8 J ab		0.6 J ab
015G01LF	CHLOROBENZENE	106.1	91	100	ug/l	0.12 J														
015G01LF	CHLOROFORM	0.166	0.19		ug/l		0.9 J ab									0.8 J ab				0.8 J ab
015G01LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	1.4	1 J	0.8 J		2				3.5 J		56		36 J		20
015G01LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
015G01LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	0.83 J ab	9 J acb	10 acb		9 acb				5.9 J acb		3 ab		3 J ab		6 J acb
015G01LF	TOLUENE	723.4	2300	1000	ug/l	0.42 J														
015G01LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l											0.8 J		0.6 J		0.3 J
015G01LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	1.9 a	10 J acb	7 acb		5 ab				4.3 J ab		27 acb		20 J acb		11 acb
015G01LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l	0.34 J ab														
015G01LF	XYLENES (TOTAL)	205.7	200	10000	ug/l	0.73 J														
015G01UF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l															
015G01UF	ACETONE	5475	22000		ug/l															
015G01UF	BENZENE	0.3539	0.41	5	ug/l	3800 acb	2100 D acb	2000 D acb		1600 acb				1100 D acb		140 acb		230 DJ acb		600 J acb
015G01UF	BROMOFORM	8.51	8.5		ug/l		2													
015G01UF	CHLOROMETHANE	158.2	190		ug/l													6		
015G01UF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		2 ab													
015G01UF	ETHYLBENZENE	1340	1.5	700	ug/l	150 b	46 D b	53 DJ b		48 b				88 D b		16 b		37 b		180 b
015G01UF	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l		6											1 J		
015G01UF	O-XYLENE (1,2-DIMETHYLBENZENE)	205.7	1200	10000	ug/l													0.3 J		
015G01UF	TOLUENE	723.4	2300	1000	ug/l		2	0.5 J										0.6 J		
015G01UF	XYLENES (TOTAL)	205.7	200	10000	ug/l	40 J	6											1 J		
015G02LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	4 b	1	0.7 J		0.8				2.3 J		3 b		1 J		0.7 J
015G02LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	3.7	0.9 J	0.7 J		0.6				1.9 J		5		0.9 J		
015G02LF	ACETONE	5475	22000		ug/l															4 J
015G02LF	BENZENE	0.3539	0.41	5	ug/l															
015G02LF	BROMOFORM	8.51	8.5		ug/l		6													
015G02LF	CARBON DISULFIDE	1043	1000		ug/l	0.42 J														
015G02LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	1.2				0.3 J				0.77 J		1		0.4 J		
015G02LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		2 ab													
015G02LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	0.58 J ab										5 ab		0.8 J ab		
015G02LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	1.6 a	0.6 J a	0.4 J a		0.4 J a				1 J a		1 a		0.5 J a		

Notes:

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
015G02UF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	0.67 J		0.6 J												
015G02UF	1,1-DICHLOROETHENE	338.8	340	7	ug/l															
015G02UF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
015G02UF	2-HEXANONE		47		ug/l															
015G02UF	ACETONE	5475	22000		ug/l															
015G02UF	BENZENE	0.3539	0.41	5	ug/l	**4 ab**	**2 ab**	**5 J ab**						**3 ab**		**1 ab**		**1 J ab**		**7 acb**
015G02UF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l															1
015G02UF	ETHYLBENZENE	1340	1.5	700	ug/l	**39 b**	**44 D b**	**53 DJ b**		**44 b**				**35 b**		**25 b**		**24 b**		**34 b**
015G02UF	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l		2	2 J		0.9 J				1.8				0.8 J		2
015G02UF	TOLUENE	723.4	2300	1000	ug/l	0.5 J		0.5 J												0.8 J
015G02UF	XYLENES (TOTAL)	205.7	200	10000	ug/l	4.9	2	2 J		0.9 J				1.8				0.8 J		2 J
015G03LF	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l													**0.5 J ab**		**0.4 J ab**
015G03LF	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l		**1 ab**													
015G03LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			**0.2 J ab**												
015G03UF	ACETONE	5475	22000		ug/l															
015G04LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l		1	1		0.8				0.93		2		1		0.9 J
015G04LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	1.4				0.5				0.74		2		1 J		
015G04LF	ACETONE	5475	22000		ug/l															3 J
015G04LF	BROMOFORM	8.51	8.5		ug/l		2													
015G04LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	0.56 J	0.5 J									0.8 J		0.4 J		0.4 J
015G04LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l											**1 ab**		**0.8 J ab**		
015G04LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**2 a**	**1 a**	**1 a**		**1 a**				**1.1 a**		**2 a**		**1 a**		**1 J a**
015G04UF	ACETONE	5475	22000		ug/l															
015G04UF	BROMOFORM	8.51	8.5		ug/l		2													
018G01LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l									0.84						
018G01LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
018G01LF	ACETONE	5475	22000		ug/l															2 J
018G01LF	BENZENE	0.3539	0.41	5	ug/l	0.16 J														
018G01LF	BROMOFORM	8.51	8.5		ug/l		1													
018G01LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	**0.64 J ab**	**0.3 J a**	**0.4 J a**												
018G01LF	CHLOROFORM	0.166	0.19		ug/l	**3.6 ab**	**6 ab**	**3 J ab**		**2 ab**				**1.4 J ab**		**0.8 J ab**		**2 ab**		**1 ab**
018G01LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	2.9	0.9 J	0.8 J		0.9				1.2		0.4 J		0.3 J		0.3 J
018G01LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l	0.8 J														
018G01LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	**70 acb**	**150 D acb**	**150 D acb**		**170 D acb**				**55 D acb**		**29 J acb**		**10 J acb**		**4 ab**
018G01LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	**29 acb**	**4 ab**	**2 J a**		**4 ab**				**7.3 acb**		**2 a**		**1 a**		**1 a**
021G01LF	BROMOFORM	8.51	8.5		ug/l		2													
021G01LF	TOLUENE	723.4	2300	1000	ug/l	0.72 J														
021G02LF	BROMOFORM	8.51	8.5		ug/l		2													
021G02LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l															
021G02LF	TOLUENE	723.4	2300	1000	ug/l	0.56 J														
021G02LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l															
021G03LF	BROMOFORM	8.51	8.5		ug/l		0.3 J													
021G03LF	CHLOROFORM	0.166	0.19		ug/l											**0.5 J ab**				**0.5 J ab**
021G03LF	CHLOROMETHANE	158.2	190		ug/l													0.5 J		
021G03LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l															
021G03LF	TOLUENE	723.4	2300	1000	ug/l	0.47 J														
021G03LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l															

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
021G04UF	ACETONE	5475	22000		ug/l															2 J
021G04UF	BROMOFORM	8.51	8.5		ug/l		0.8 J													
021G04UF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		22 acb	16 acb		23 acb				27 acb		26 acb		34 acb		20 acb
021G04UF	CHLOROFORM	0.166	0.19		ug/l											0.5 J ab				0.4 J ab
021G04UF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l															0.3 J a
060G02LF	1,1,1-TRICHLOROETHANE	3172	9100	200	ug/l															
060G02LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l															
060G02LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l															
060G02LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
060G02LF	ACETONE	5475	22000		ug/l			3 J												
060G02LF	CHLOROFORM	0.166	0.19		ug/l															
060G02LF	ETHYLBENZENE	1340	1.5	700	ug/l															
060G02LF	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l															
060G02LF	METHYL ISOBUTYL KETONE (4-METH	1993	2000		ug/l															
060G02LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
060G02LF	TOLUENE	723.4	2300	1000	ug/l	0.51 J														
060G02LF	XYLENES (TOTAL)	205.7	200	10000	ug/l															
060G04LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	0.34 J a				0.3 J a				0.27 J a						
0BGG05LF	BROMOFORM	8.51	8.5		ug/l		1													
0BGG05LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		0.3 J a													
0BGG05LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	35 J acb	56 D acb	39 acb		50 D acb				34 acb		31 J acb		46 J acb		42 acb
0BGG05LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		0.2 J a			0.2 J a								0.4 J a		
0BGG05UF	1,1-DICHLOROETHENE	338.8	340	7	ug/l															
0BGG05UF	BROMOFORM	8.51	8.5		ug/l		2													
0BGG05UF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		0.2 J a													
0BGG05UF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l													0.6 J		0.7 J
0BGG05UF	ETHYLBENZENE	1340	1.5	700	ug/l															
0BGG05UF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	20 J acb	38 acb	35 acb		32 acb				24 acb		51 J acb		62 J acb		81 acb
0BGG05UF	TOLUENE	723.4	2300	1000	ug/l															
0BGG05UF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l											0.9 J a		1 J a		1 a
0BGG05UF	XYLENES (TOTAL)	205.7	200	10000	ug/l															
0BGG10UF	BROMOFORM	8.51	8.5		ug/l		2													
0BGG10UF	CARBON DISULFIDE	1043	1000		ug/l	0.66 J														
N12G01LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	6.6 b	2	1						0.56		1		3 J b		1
N12G01LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l	2.2								1.3				1		0.8 J
N12G01LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
N12G01LF	BROMOFORM	8.51	8.5		ug/l		0.5 J													
N12G01LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	5.5 acb	2 ab	1 ab						0.36 J a		7 acb		3 ab		0.6 J ab
N12G01LF	CHLOROFORM	0.166	0.19		ug/l	1.7 ab	2 ab	2 ab		1 ab						3 ab		4 ab		2 ab
N12G01LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	1.5 J	1	0.9 J		0.3 J				0.71		0.9 J		1		0.6 J
N12G01LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	4.1 ab	10 acb	11 acb		4 ab				14 acb		2 ab		6 J acb		7 acb
N12G01LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	19 acb	10 acb	7 acb		2 a				5.2 acb		24 acb		7 acb		4 ab
N12G02LF	1,1-DICHLOROETHANE	811.1	2.4		ug/l	1.1	1	0.8 J		0.4 J						1		1 J		0.6 J
N12G02LF	1,1-DICHLOROETHENE	338.8	340	7	ug/l					1				1.2		1		1 J		0.8 J
N12G02LF	1,2-DICHLOROETHYLENES (TOTAL)		330		ug/l															
N12G02LF	ACETONE	5475	22000		ug/l					4 J										
N12G02LF	BENZENE	0.3539	0.41	5	ug/l	0.16 J														
N12G02LF	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l	0.96 J ab	1 ab	0.7 J ab								5 ab		4 ab		4 ab
N12G02LF	CHLOROFORM	0.166	0.19		ug/l	0.41 J ab	0.5 J ab	0.5 J ab								2 ab		2 ab		2 ab
N12G02LF	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l	21	12	18		38				28		18		24		41
N12G02LF	METHYLENE CHLORIDE	4.276	4.8	5	ug/l															
N12G02LF	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l	2.7 ab	6 acb	7 acb		5 ab				4.1 ab		5 ab		3 ab		3 ab
N12G02LF	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l	0.26 J														0.7 J
N12G02LF	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l	13 acb	10 acb	11 acb		14 acb				15 acb		18 acb		17 acb		23 acb
N12G02LF	VINYL CHLORIDE	0.0198	0.016	2	ug/l															0.3 J ab

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
PESGMW1D	ACETONE	5475	22000		ug/l															3 J
PESGMW1D	TETRACHLOROETHYLENE(PCE).	0.1042	0.11	5	ug/l			0.2 J ab												
PESGMW1D	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		0.7 J a													
PESGMW1S	1,1,1-TRICHLOROETHANE	3172	9100	200	ug/l									0.2 J				1		
PESGMW1S	1,1,2-TRICHLOROETHANE	0.1995	0.24	5	ug/l													0.4 J ab		0.6 J ab
PESGMW1S	1,1-DICHLOROETHANE	811.1	2.4		ug/l		21 b	42 D b		20 b				41 D b		41 b		55 b		69 b
PESGMW1S	1,1-DICHLOROETHENE	338.8	340	7	ug/l		41 c	160 D c		130 D c				210 D c		210 c		330 D c		330 c
PESGMW1S	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l									0.52 ab		0.5 J ab		0.6 J ab		0.6 J ab
PESGMW1S	ACETONE	5475	22000		ug/l															3 J
PESGMW1S	BENZENE	0.3539	0.41	5	ug/l		0.5 J ab	0.4 J a		0.3 J				0.48 J ab		0.6 J ab		0.7 J ab		0.8 J ab
PESGMW1S	CHLOROETHANE	4.637	21000		ug/l			0.3 J												
PESGMW1S	CHLOROFORM	0.166	0.19		ug/l															1 ab
PESGMW1S	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		27	25		14				14		11		12		18
PESGMW1S	DIBROMOCHLOROMETHANE	0.1334	0.15		ug/l					0.4 J ab										
PESGMW1S	STYRENE	1641	1600	100	ug/l			0.1 J												
PESGMW1S	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l		27	23		12				4.5		1		1 J		1
PESGMW1S	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		13 acb	23 acb		25 acb				62 D acb		72 acb		93 acb		120 acb
PESGMW1S	VINYL CHLORIDE	0.0198	0.016	2	ug/l			0.3 J ab												
PESGMW2D	1,1-DICHLOROETHANE	811.1	2.4		ug/l		4 J b	2	2	4 b	3 b	6 b	3.3 b	2.1	3 b	2	3 J b	2	3 b	2
PESGMW2D	1,1-DICHLOROETHENE	338.8	340	7	ug/l		18 c	13 c	10 c	13 c	6	10 c	6.3	4.4	3	3	5 J	3	4	3
PESGMW2D	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l														0.3 J ab	
PESGMW2D	ACETONE	5475	22000		ug/l													2 J	4 J	
PESGMW2D	BENZENE	0.3539	0.41	5	ug/l			0.2 J		0.3 J	0.4 J a	0.6 ab	0.3 J	0.44 J ab				0.4 J a		
PESGMW2D	CHLOROETHANE	4.637	21000		ug/l			2	3 J		4	4	4.3	7.7 a			0.5 J	4		0.9 J
PESGMW2D	CHLOROFORM	0.166	0.19		ug/l		0.4 J ab	0.2 J ab												
PESGMW2D	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		10	9	2	4	3	2	1.2	0.78		0.5 J	0.7 J	0.9 J	3	4
PESGMW2D	ETHYLBENZENE	1340	1.5	700	ug/l									0.21 J				0.3 J		
PESGMW2D	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l				0.6	0.6	2	0.5	1	3.3		2		2		1 J
PESGMW2D	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l			18												
PESGMW2D	O-XYLENE (1,2-DIMETHYLBENZENE)	205.7	1200	10000	ug/l						0.4 J			0.39 J				0.3 J		
PESGMW2D	STYRENE	1641	1600	100	ug/l			0.09 J												
PESGMW2D	TOLUENE	723.4	2300	1000	ug/l					0.4 J			0.62	1.5	0.4 J	2	0.5 J	3	0.5 J	1
PESGMW2D	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l									0.26 J						
PESGMW2D	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		3 J ab	2 a	2 a	2 a	1 a	1 a	1.3 a	1.2 a	1 a	1 a	2 J a	1 a	2 J a	2 a
PESGMW2D	VINYL CHLORIDE	0.0198	0.016	2	ug/l				8 acb	31 acb	54 D acb	60 D acb	50 D acb	67 D acb	6 acb	15 acb	6 J acb	20 acb	4 acb	7 acb
PESGMW2D	XYLENES (TOTAL)	205.7	200	10000	ug/l				0.6	0.6	3	0.5		3.7		2 J		2 J		1 J
PESGMW2S	1,1-DICHLOROETHANE	811.1	2.4		ug/l		34 b	34 b	22 b	32 b	28 J b	34 b	38 b	30 b	1	0.4 J				
PESGMW2S	1,1-DICHLOROETHENE	338.8	340	7	ug/l		190 D c	180 D c	170 D c	190 D c	170 D c	120 D c	200 D c	100 D c	2	0.6 J				
PESGMW2S	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l				0.6 ab				0.65 ab							
PESGMW2S	ACETONE	5475	22000		ug/l			10								40	78 J	46	80	28
PESGMW2S	BENZENE	0.3539	0.41	5	ug/l		6 acb	5 ab	5 ab	5 ab	6 J acb	6 acb	5.8 acb	5.6 acb	2 ab	2 ab	2 J ab	2 ab	1 ab	1 ab
PESGMW2S	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		18 acb	2 ab	0.9 ab	0.5 ab	0.6 J ab	0.6 ab	4.5 ab	1.4 ab						
PESGMW2S	CHLOROETHANE	4.637	21000		ug/l			4	11 a		5 J a	7 a	5 a	9.4 a	34 J a		33 J a	16 a	13 a	10 a
PESGMW2S	CHLOROFORM	0.166	0.19		ug/l		57 ab	23 ab	12 ab	5 ab	7 J ab	6 ab	24 J ab							
PESGMW2S	CHLOROMETHANE	158.2	190		ug/l										0.7 J					
PESGMW2S	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		480 D acb	390 D acb	230 D ac	280 D ac	270 D ac	220 D ac	300 D ac	220 D ac	3	0.4 J				
PESGMW2S	ETHYLBENZENE	1340	1.5	700	ug/l										1	1	1 J	1	0.6 J	0.8 J
PESGMW2S	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l										10	8	6 J	7	3	4
PESGMW2S	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l			21			14 J				14	12	10 J	11	6	4 J
PESGMW2S	O-XYLENE (1,2-DIMETHYLBENZENE)	205.7	1200	10000	ug/l										1	1	0.9 J	1	0.6 J	0.7 J

Notes:

ug/L = micrograms/Liter

RSLs = EPA Regional Screening Levels dated May 19, 2009.

MCLs = EPA Maximum Contaminant Level (MCL) for Drinking Water

D = Dilution of sample required for analysis

J = Estimated Value

U = Non detect above laboratory method detection limit

a = Exceeds USEPA Preliminary Remediation Goals, October 2004

b = Exceeds RSL

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
PESGMW2S	STYRENE	1641	1600	100	ug/l			0.09 J												
PESGMW2S	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		0.4 J ab	0.2 J ab					1 ab							
PESGMW2S	TOLUENE	723.4	2300	1000	ug/l					0.2 J					27	22	21 J	22	10	14
PESGMW2S	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.4 J			0.3 J		0.47 J	0.28 J						
PESGMW2S	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		350 D acb	240 D acb	200 D acb	80 D acb	180 D acb	71 D acb	270 D acb	90 D acb						
PESGMW2S	VINYL CHLORIDE	0.0198	0.016	2	ug/l			0.7 J ab	270 D acb	220 D acb	240 D acb	300 D acb	230 D acb	340 D acb	200 acb	96 acb	92 J acb	18 acb	11 acb	24 acb
PESGMW2S	XYLENES (TOTAL)	205.7	200	10000	ug/l										12	9	7 J	9	4	5
PESGMW3D	1,1-DICHLOROETHANE	811.1	2.4		ug/l			0.5 J	2	1	3 J b	3 b	1.7	2.5 b						
PESGMW3D	1,1-DICHLOROETHENE	338.8	340	7	ug/l		5	6	37 D c	46 D c	44 D c	36 c	20 c	18 c	1	1			0.4 J	0.4 J
PESGMW3D	ACETONE	5475	22000		ug/l		40									27	24 J	18	11	
PESGMW3D	BENZENE	0.3539	0.41	5	ug/l					0.3 J	0.6 J ab		0.54 ab	0.69 ab		0.5 J ab		0.4 J a	0.4 J a	0.3 J
PESGMW3D	CARBON DISULFIDE	1043	1000		ug/l												1 J			
PESGMW3D	CHLOROETHANE	4.637	21000		ug/l			0.7 J	4	4	7 J a	8 a	11 a	14 a	12 J a	8 a	6 J a	6 a	8 a	4
PESGMW3D	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		26	9	30	22	28 J	17	11	6	1	1 J				
PESGMW3D	ETHYLBENZENE	1340	1.5	700	ug/l										0.9 J	0.9 J	1 J	1	1	0.8 J
PESGMW3D	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l					0.3 J	0.7 J	1	1.2	1.5	5	6	6 J	8	7	5
PESGMW3D	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l		74								5	13	10 J	5 J	3 J	
PESGMW3D	O-XYLENE (1,2-DIMETHYLBENZENE)	205.7	1200	10000	ug/l										0.7 J	0.8 J	0.8 J	1	1 J	0.8 J
PESGMW3D	STYRENE	1641	1600	100	ug/l			0.1 J												
PESGMW3D	TOLUENE	723.4	2300	1000	ug/l				2	1		2	2.3	2.2	6	4	5 J	6	6	3
PESGMW3D	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l						0.4 J		0.44 J	0.36 J						
PESGMW3D	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		1 J a	0.9 J a	3 ab	5 ab	2 J a	1 a	0.45 J a	1.2 a						0.4 J a
PESGMW3D	VINYL CHLORIDE	0.0198	0.016	2	ug/l			0.4 J ab	3 acb	26 acb	47 D acb	70 D acb	120 D acb	120 D acb	25 acb	23 acb	16 J acb	18 acb	9 acb	13 acb
PESGMW3D	XYLENES (TOTAL)	205.7	200	10000	ug/l					0.3 J	0.7 J	1		1.5	6	7	6 J	9	8	6
PESGMW3S	1,1,2-TRICHLOROETHANE	0.1995	0.24	5	ug/l			0.4 J ab			0.3 J ab									
PESGMW3S	1,1-DICHLOROETHANE	811.1	2.4		ug/l		49 b	52 D b	75 D b	62 D b	82 D b	100 D b	140 D b	160 D b	53 b	75 b	86 J b	77 b	73 b	60 b
PESGMW3S	1,1-DICHLOROETHENE	338.8	340	7	ug/l		170 D c	310 D c	710 D acb	660 D acb	670 D acb	890 D acb	1300 D acb	1000 D acb	170 c	450 acb	580 J acb	550 D acb	420 acb	320 J c
PESGMW3S	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l				1 ab			1 ab		1.1 J ab	0.6 J ab	0.7 J ab		0.6 J ab	0.7 J ab	0.4 J ab
PESGMW3S	BENZENE	0.3539	0.41	5	ug/l		3 J ab	4 ab	6 acb	6 acb	4 J ab	6 acb	6.7 acb	7.2 J acb	2 ab	3 ab	3 J ab	3 ab	2 ab	2 ab
PESGMW3S	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		0.7 J ab	1 ab	3 ab	2 ab	0.5 J ab	2 ab	2 ab	1.8 J ab			3 J ab			
PESGMW3S	CHLOROETHANE	4.637	21000		ug/l										2 J		4 J	3		4
PESGMW3S	CHLOROFORM	0.166	0.19		ug/l		2 J ab	4 ab	8 ab	7 ab	2 J ab	6 ab	6.8 J ab			0.5 J ab	2 J ab		1 ab	0.9 J ab
PESGMW3S	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		13	16	60 D	28 DJ	24 J	44 D	66 D a	46 D	64 a	120 ac	79 J ac	79 ac	46	48
PESGMW3S	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		0.6 J ab	1 ab	2 ab	2 ab	2 J ab	2 ab	2.2 ab	4.9 J ab		0.8 J ab	2 J ab	1 ab	2 ab	1 ab
PESGMW3S	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l															0.4 J
PESGMW3S	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		320 D acb	420 D acb	620 D acb	490 D acb	560 D acb	600 D acb	200 D acb	680 D acb	100 acb	110 acb	160 J acb	120 acb	170 acb	100 acb
PESGMW3S	VINYL CHLORIDE	0.0198	0.016	2	ug/l			0.2 J ab			0.4 J ab		0.66 ab	0.66 J ab	33 acb	89 acb	100 J acb	68 acb	42 acb	69 acb
PESGMW4D	1,1-DICHLOROETHANE	811.1	2.4		ug/l		4 J b	2	2	0.9	1	2	1.3	2.8 b	2	2	2 J	2	3 b	3 b
PESGMW4D	1,1-DICHLOROETHENE	338.8	340	7	ug/l		22 c	7	8 c	5	3	5	4.8	15 c	2	2	4 J	2	4	4
PESGMW4D	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l														0.6 J ab	0.6 J ab
PESGMW4D	ACETONE	5475	22000		ug/l											7	6 J	3 J	2 J	2 J
PESGMW4D	BENZENE	0.3539	0.41	5	ug/l			0.2 J		0.4 J a	0.4 J a			0.66 ab		0.6 J ab				
PESGMW4D	CARBON DISULFIDE	1043	1000		ug/l											0.8 J				
PESGMW4D	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l			1 ab	0.6 ab	0.5 ab	0.8 ab	0.9 ab	0.42 J a	0.41 J a			1 J ab		0.4 J a	0.6 J ab
PESGMW4D	CHLOROETHANE	4.637	21000		ug/l			2	3	5 a	5 a	3	2.8	8.3 a	1 J			2		
PESGMW4D	CHLOROFORM	0.166	0.19		ug/l		2 J ab	2 ab			1 ab	0.9 ab	0.64 J ab				1 J ab		0.7 J ab	0.8 J ab
PESGMW4D	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		31	4	5	2	1	2	2.3	5		0.6 J	2 J	2	6	7
PESGMW4D	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l						3 J					3 J				
PESGMW4D	STYRENE	1641	1600	100	ug/l			0.1 J												
PESGMW4D	TOLUENE	723.4	2300	1000	ug/l		1 J	0.2 J												
PESGMW4D	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		7 acb	4 ab	2 a	1 a	2 a	2 a	1.3 a	4.4 ab	1 a	0.8 J a	2 J a	2 a	3 J ab	4 ab
PESGMW4D	VINYL CHLORIDE	0.0198	0.016	2	ug/l			39 D acb	40 D acb	110 D acb	77 D acb	32 D acb	30 acb	79 D acb	14 acb	52 acb	6 J acb	19 acb	3 acb	7 acb

Notes:

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VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
PESGMW4S	1,1-DICHLOROETHANE	811.1	2.4		ug/l		31 b	28 b	36 b	30 b	35 b	38 D b	37 D b	15 b	6 b	2		0.4 J	2	1
PESGMW4S	1,1-DICHLOROETHENE	338.8	340	7	ug/l		140 c	170 D c	260 D c	250 D c	240 D c	250 D c	170 D c	63 D c	2	0.9 J		0.7 J		
PESGMW4S	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l				0.9 ab	0.6 ab										
PESGMW4S	ACETONE	5475	22000		ug/l					4 J						30	11 J	7		11 J
PESGMW4S	BENZENE	0.3539	0.41	5	ug/l		3 J ab	4 ab	6 acb	5 ab	5 ab	6 acb	5.7 acb	1.4 ab	2 ab	2 ab	2 J ab	0.5 J ab	1 ab	0.6 J ab
PESGMW4S	BROMOFORM	8.51	8.5		ug/l									1.9						
PESGMW4S	CARBON DISULFIDE	1043	1000		ug/l													0.8 J		
PESGMW4S	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l			0.7 J ab		2 ab	1 ab	1 ab	0.37 J a							
PESGMW4S	CHLOROETHANE	4.637	21000		ug/l			8 a	13 a	8 a	6 a	7 a	12 a		20 J a	13 a	10 J a	3	5 a	3
PESGMW4S	CHLOROFORM	0.166	0.19		ug/l		33 ab	13 ab	8 ab	8 ab	4 ab	4 ab	1.3 J ab						0.4 J ab	
PESGMW4S	CHLOROMETHANE	158.2	190		ug/l									0.73						
PESGMW4S	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		14	160 D ac	210 D ac	170 D ac	190 D ac	170 D ac	160 D ac	41 D	3	0.9 J			0.6 J	
PESGMW4S	M,P-XYLENE (SUM OF ISOMERS)	205.7	200	10000	ug/l														1 J	0.8 J
PESGMW4S	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l		56								5 J	6	4 J			
PESGMW4S	METHYLENE CHLORIDE	4.276	4.8	5	ug/l		4 J									0.6 J				
PESGMW4S	STYRENE	1641	1600	100	ug/l			0.1 J												
PESGMW4S	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		0.7 J ab	0.5 J ab	0.6 ab	0.6 ab	0.4 J ab									
PESGMW4S	TOLUENE	723.4	2300	1000	ug/l			0.2 J							2	2	2 J	2	4	2
PESGMW4S	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.8 J												
PESGMW4S	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		380 D acb	220 D acb	270 D acb	350 D acb	300 D acb	230 D acb	110 D acb	60 D acb	2 a	0.6 J a				
PESGMW4S	VINYL CHLORIDE	0.0198	0.016	2	ug/l			1 ab	120 D acb	80 D acb	160 D acb	130 D acb	250 D acb	17 acb	120 acb	100 acb	73 J acb	24 acb	34 acb	14 acb
PESGMW4S	XYLENES (TOTAL)	205.7	200	10000	ug/l														1 J	0.8 J
PESGMW7D	1,1,2-TRICHLOROETHANE	0.1995	0.24	5	ug/l			0.3 J ab					0.43 J ab							
PESGMW7D	1,1-DICHLOROETHANE	811.1	2.4		ug/l		11 b	20 J b	19 b		18 b	17 b	17 b	19 b	13 b	9 b	11 J b	3 b	5 b	9 b
PESGMW7D	1,1-DICHLOROETHENE	338.8	340	7	ug/l		60 c	56 D c	130 D c	97 c	100 D c	88 D c	100 D c	77 D c	22 c	7	1 J		0.6 J	4
PESGMW7D	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l				0.7 ab											
PESGMW7D	ACETONE	5475	22000		ug/l											5 J	8 J	4 J	2 J	5
PESGMW7D	BENZENE	0.3539	0.41	5	ug/l		2 J ab	5 ab	5 ab		6 acb	6 acb	5.9 acb	6.2 acb	5 ab	5 ab	4 J ab	4 ab	3 ab	3 ab
PESGMW7D	BROMOFORM	8.51	8.5		ug/l		2 J													
PESGMW7D	CARBON DISULFIDE	1043	1000		ug/l			0.7 J	5									0.5 J		
PESGMW7D	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		220 D acb	92 D acb	140 D acb	99 acb	100 D acb	66 D acb	55 D acb	58 D acb						
PESGMW7D	CHLOROETHANE	4.637	21000		ug/l							0.5	0.79				8 J a	9 a	7 a	4
PESGMW7D	CHLOROFORM	0.166	0.19		ug/l		130 ab	99 D ab	130 D ab	100 ab	140 D ab	99 D ab	88 DJ ab	76 DJ ab	2 ab	1 ab				0.4 J ab
PESGMW7D	CHLOROMETHANE	158.2	190		ug/l									1.7						
PESGMW7D	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		8	78 D ac	150 D ac	120 ac	160 D ac	190 D ac	210 D ac	240 D ac	180 ac	62 a	8 J		0.7 J	4
PESGMW7D	METHYL ETHYL KETONE (2-BUTANON	6968	7100		ug/l											2 J	4 J	2 J		
PESGMW7D	METHYLENE CHLORIDE	4.276	4.8	5	ug/l		1 J													
PESGMW7D	STYRENE	1641	1600	100	ug/l			0.1 J												
PESGMW7D	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l		0.6 J ab	0.9 J ab	1 ab		0.9 ab	0.9 ab	0.74 ab	0.85 ab						
PESGMW7D	TOLUENE	723.4	2300	1000	ug/l			0.2 J										0.5 J	0.8 J	0.8 J
PESGMW7D	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l									0.25 J	0.6 J					
PESGMW7D	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		1000 D acb	660 D acb	1400 D acb	1200 acb	1300 D acb	1100 D acb	1100 D acb	800 D acb	12 acb	5 ab			1 a	6 acb
PESGMW7D	VINYL CHLORIDE	0.0198	0.016	2	ug/l						17 acb	38 D acb	65 D acb	92 D acb	460 acb	460 acb	390 J acb	210 J acb	160 acb	190 acb
PESGMW7S	1,1,2-TRICHLOROETHANE	0.1995	0.24	5	ug/l			0.6 J ab			0.3 J ab									
PESGMW7S	1,1-DICHLOROETHANE	811.1	2.4		ug/l		99 b	54 D b	39 D b	36 b	38 b	27 b	38 D b	40 D b	52 b	44 b	60 J b	46 b	46 b	37 b
PESGMW7S	1,1-DICHLOROETHENE	338.8	340	7	ug/l		120 c	78 D c	97 D c	110 c	130 D c	81 D c	140 D c	140 D c	200 c	160 c	190 J c	180 c	180 c	200 c
PESGMW7S	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l				0.6 ab					0.54 ab	0.5 J ab	0.4 J ab		0.4 J ab	0.4 J ab	
PESGMW7S	BENZENE	0.3539	0.41	5	ug/l		1 J ab	2 ab	2 ab		2 ab	2 ab	3 ab	3 ab	2 ab	2 ab	2 J ab	2 ab	1 ab	2 ab
PESGMW7S	BROMOFORM	8.51	8.5		ug/l									0.35 J						
PESGMW7S	CARBON DISULFIDE	1043	1000		ug/l			0.3 J												
PESGMW7S	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		0.7 J ab	2 ab	10 acb	8 acb	10 acb	4 ab	9 acb	14 acb	1 ab	0.7 J ab	4 J ab	3 ab	2 ab	2 J ab
PESGMW7S	CHLOROFORM	0.166	0.19		ug/l		1 J ab	3 ab	12 ab	11 ab	14 ab	5 ab	12 J ab	14 J ab	2 ab	1 ab	6 J ab	3 ab	3 ab	3 ab
PESGMW7S	CHLOROMETHANE	158.2	190		ug/l									1.8						
PESGMW7S	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		15	13	12	10	14	82 D ac	120 D ac	100 D ac	120 ac	110 ac	86 J ac	79 ac	69 a	54
PESGMW7S	TETRACHLOROETHYLENE(PCE)	0.1042	0.11	5	ug/l			0.4 J ab	0.5 ab		0.6 ab		0.46 J ab	0.65 ab						
PESGMW7S	TOLUENE	723.4	2300	1000	ug/l			0.1 J												
PESGMW7S	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			2	1				1.4	0.2 J	2	2	1 J	1	0.9 J	0.8 J
PESGMW7S	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		180 acb	190 D acb	280 D acb	340 acb	400 D acb	160 D acb	280 D acb	260 D acb	110 acb	74 acb	200 J acb	130 acb	180 acb	180 acb
PESGMW7S	VINYL CHLORIDE	0.0198	0.016	2	ug/l							0.5 ab	0.47 J ab	0.59 ab	1 J ab		1 J ab	4 acb	1 J ab	2 ab

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b = Exceeds RSL

c = Exceeds MCL

VOLATILE ORGANIC COMPOUNDS (µg/l)
LONG-TERM GROUNDWATER MONITORING RESULTS
NSA MID-SOUTH NORTHSIDE
Through November 2009

Location	Analyte	PRG (a)	RSL (b)	MCL (c)	Units	2001Q3B	2002Q3C	2003Q3	2004Q2	2004Q3	2004Q4	2005Q1B	2005Q2B	2005Q3B	2007Q2	2007Q4	2008Q2	2008Q4	2009Q2	2009Q4
PESGMW8D	1,1-DICHLOROETHANE	811.1	2.4		ug/l		**6 b**	**6 b**						**6.9 b**		**12 b**		**17 b**		**11 b**
PESGMW8D	1,1-DICHLOROETHENE	338.8	340	7	ug/l		**34 c**	**22 c**		**39 c**				**44 c**		**67 c**		**64 c**		**15 c**
PESGMW8D	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l													**0.3 J ab**		
PESGMW8D	ACETONE	5475	22000		ug/l													1 J		3 J
PESGMW8D	BENZENE	0.3539	0.41	5	ug/l		**1 J ab**	**1 ab**								**1 ab**		**1 ab**		**1 ab**
PESGMW8D	BROMOFORM	8.51	8.5		ug/l		1 J													
PESGMW8D	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		**110 acb**	**46 D acb**		**42 acb**				**37 acb**		**21 acb**		**7 acb**		**1 J ab**
PESGMW8D	CHLOROFORM	0.166	0.19		ug/l		**89 ab**	**58 D ab**		**52 ab**				**43 J ab**		**35 ab**		**11 ab**		**3 ab**
PESGMW8D	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		4 J	4								**130 ac**		**130 ac**		43
PESGMW8D	METHYLENE CHLORIDE	4.276	4.8	5	ug/l											0.8 J				
PESGMW8D	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.6 J								0.7 J				
PESGMW8D	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		**750 D acb**	**500 D acb**		**560 acb**				**400 acb**		**250 acb**		**290 D acb**		**180 acb**
PESGMW8D	VINYL CHLORIDE	0.0198	0.016	2	ug/l											**12 acb**		**55 acb**		**200 acb**
PESGMW8S	1,1-DICHLOROETHANE	811.1	2.4		ug/l		**25 b**	**23 b**		**22 b**				**19 J b**		**25 b**		**24 b**		**17 b**
PESGMW8S	1,1-DICHLOROETHENE	338.8	340	7	ug/l		**49 c**	**29 c**		**42 c**				**36 J c**		**49 c**		**52 c**		**40 c**
PESGMW8S	1,2-DICHLOROETHANE	0.1231	0.15	5	ug/l											**0.4 J ab**		**0.3 J ab**		
PESGMW8S	ACETONE	5475	22000		ug/l			11												3 J
PESGMW8S	BENZENE	0.3539	0.41	5	ug/l		**0.4 J a**	**0.5 J ab**								**1 ab**		**0.9 J ab**		**0.8 J ab**
PESGMW8S	CARBON TETRACHLORIDE	0.1713	0.44	5	ug/l		**22 acb**	**12 acb**		**19 acb**				**19 J acb**		**35 acb**		**32 acb**		**18 J acb**
PESGMW8S	CHLOROFORM	0.166	0.19		ug/l		**11 ab**	**9 ab**		**16 ab**				**17 J ab**		**27 ab**		**24 ab**		**11 ab**
PESGMW8S	CIS-1,2-DICHLOROETHYLENE	60.83	370	70	ug/l		1 J	2								4		10		17
PESGMW8S	TRANS-1,2-DICHLOROETHENE	121.7	110	100	ug/l			0.2 J												
PESGMW8S	TRICHLOROETHYLENE (TCE)	0.028	2	5	ug/l		**170 acb**	**120 D acb**		**210 acb**				**190 J acb**		**270 acb**		**260 D acb**		**200 acb**
PESGMW8S	VINYL CHLORIDE	0.0198	0.016	2	ug/l															**1 J ab**

Notes:

ug/L = micrograms/Liter

RSLs = EPA Regional Screening Levels dated May 19, 2009.

MCLs = EPA Maximum Contaminant Level (MCL) for Drinking Water

D = Dilution of sample required for analysis

J = Estimated Value

U = Non detect above laboratory method detection limit

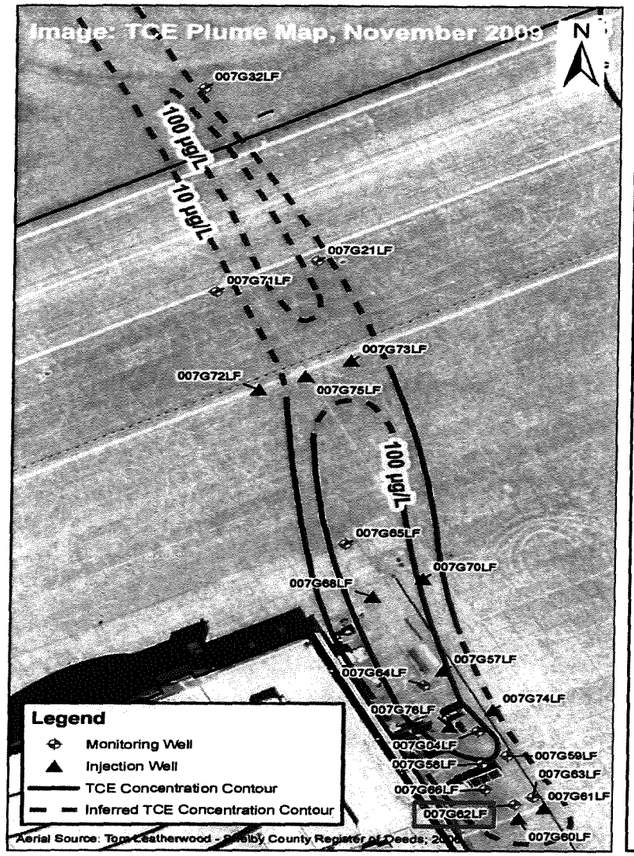
a = Exceeds USEPA Preliminary Remediation Goals, October 2004

b = Exceeds RSL

c = Exceeds MCL

Appendix B
Laboratory Datasheets
(Included on Compact Disc)

Appendix C
Monitoring Well Trends for Sub-Plumes A through D



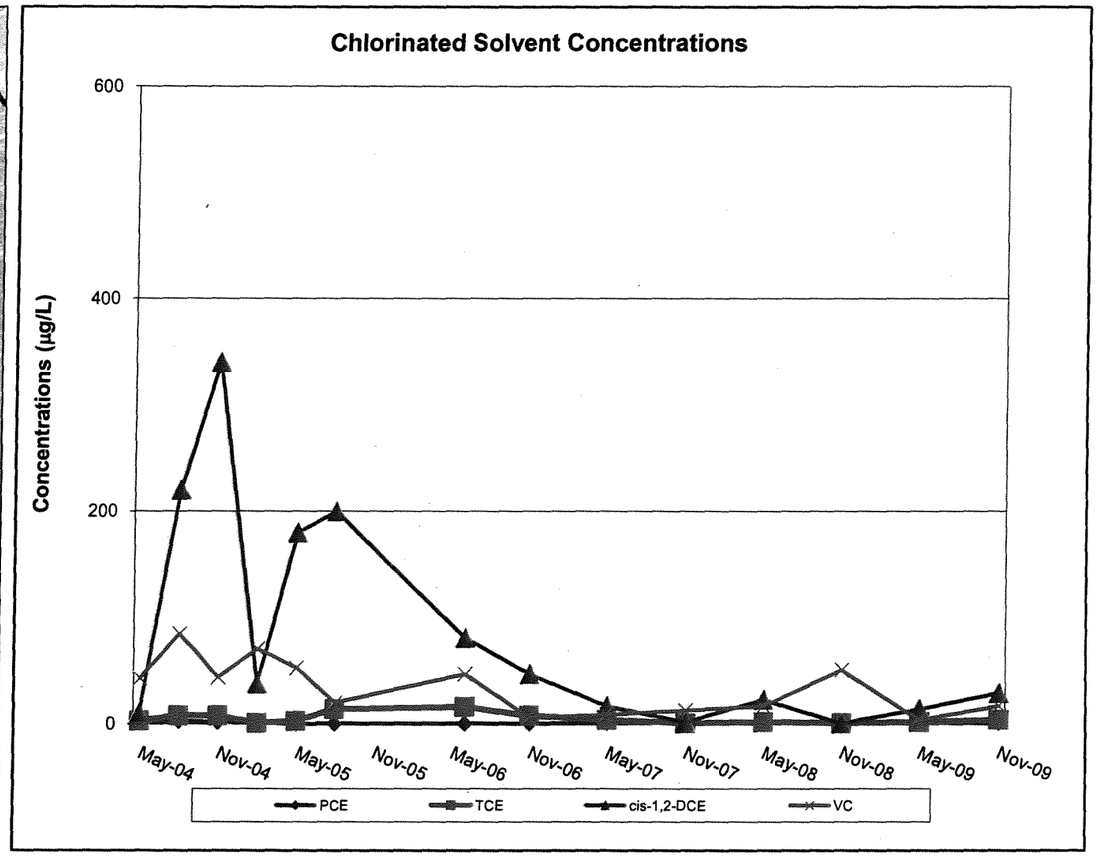
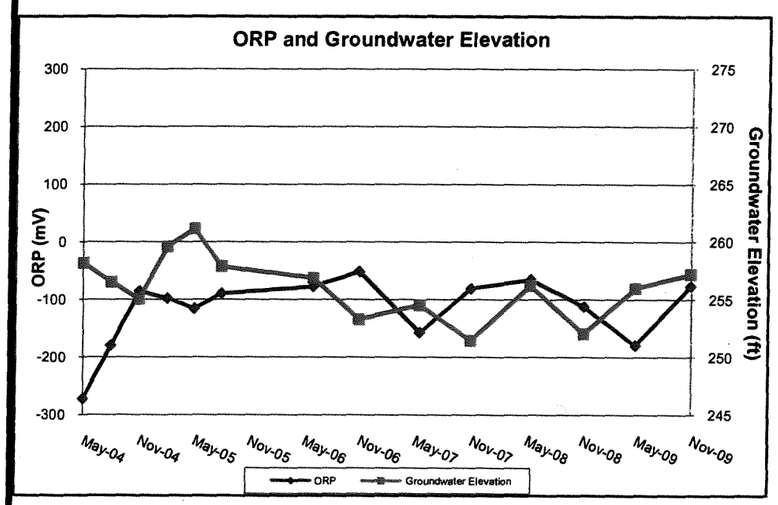


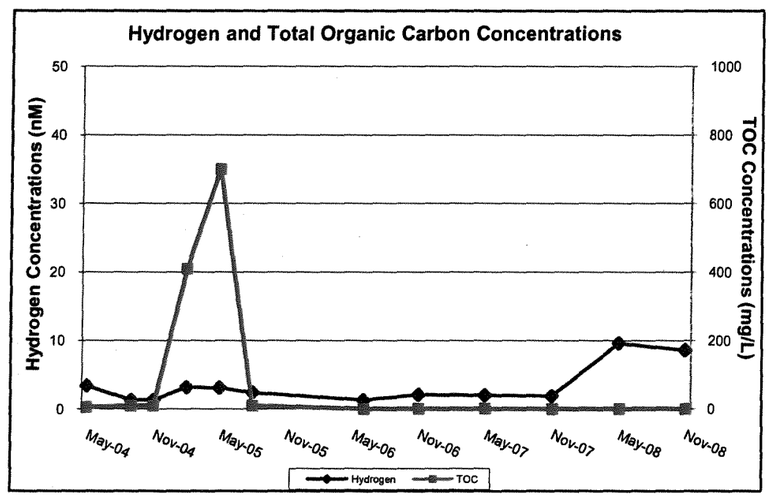
Figure C-1
Sub-Plume A:
MW 007G62LF

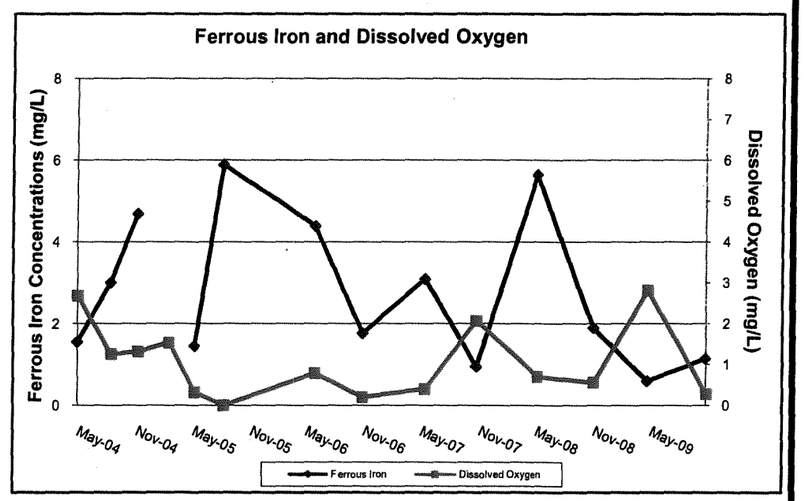
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	2	3	11	43
Aug-04	3	8	220	85
Nov-04	2	8	340	44
Feb-05	1	1	38	71
May-05	0.35 J	2.8	180	53
Aug-05	0.64	14	200	20
Jun-06	< 1	16	81	47
Nov-06	< 1	8	47	6
May-07	< 1	4	17	9
Nov-07	< 1	1	2	13
May-08	< 1	2	23	17
Nov-08	< 1	< 1	0.9	51
May-09	< 1	2	14	4
Nov-09	< 1	4	29	17

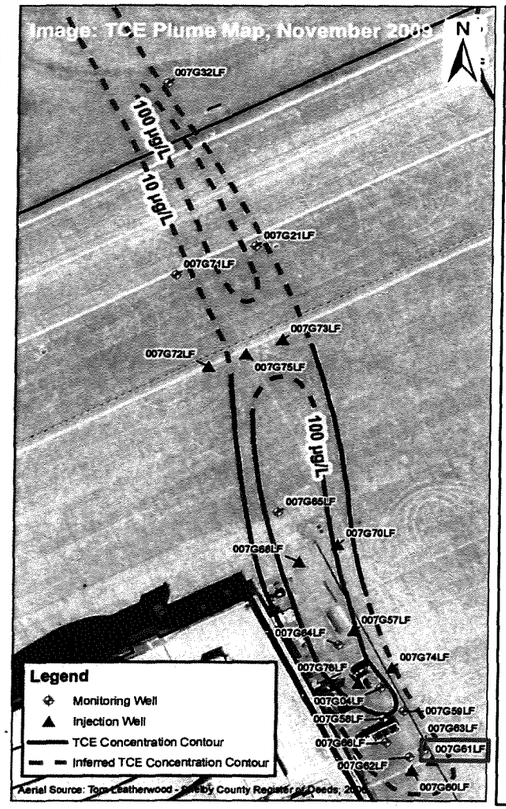
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









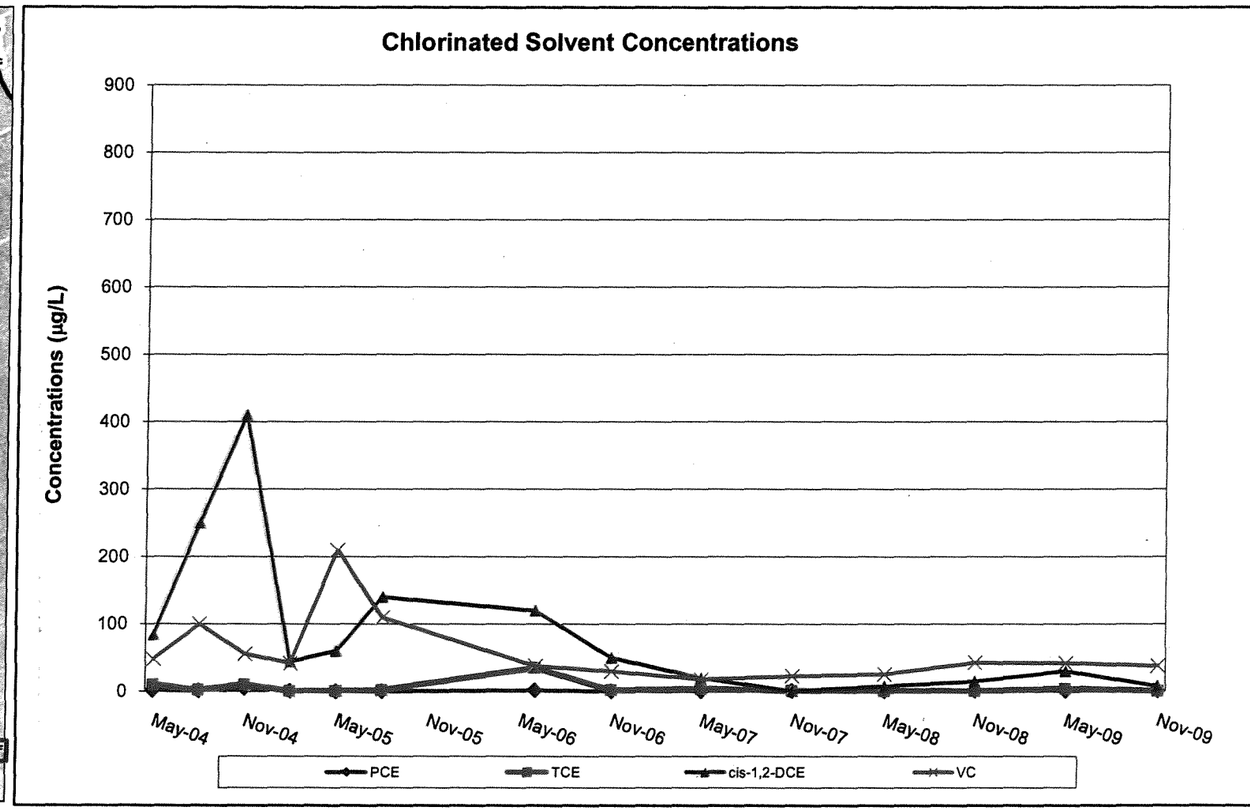


Figure C-2
Sub-Plume A:
MW 007G63LF

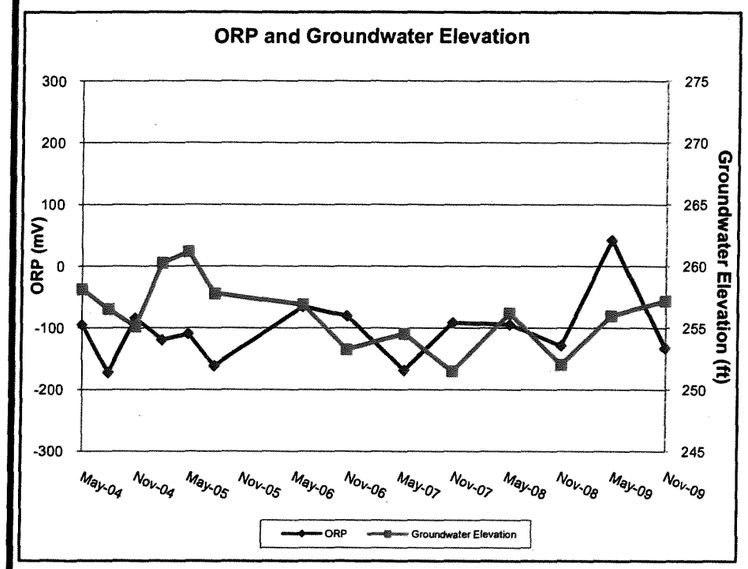
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	2 J	10 J	84	48
Aug-04	1	2	250	100
Nov-04	5	10	410	56
Feb-05	1	<1	44	42
May-05	0.34 J	0.58	60	210
Aug-05	0.27 J	1.8 J	140	110
Jun-06	2	35	120	38
Nov-06	< 1	2	50	30
May-07	< 1	4	20	18
Nov-07	< 1	< 1	1	23 J
May-08	< 1	1	8	26
Nov-08	< 1	0.5 J	15	43
May-09	4	1	30	42
Nov-09	0.7	1	8	38

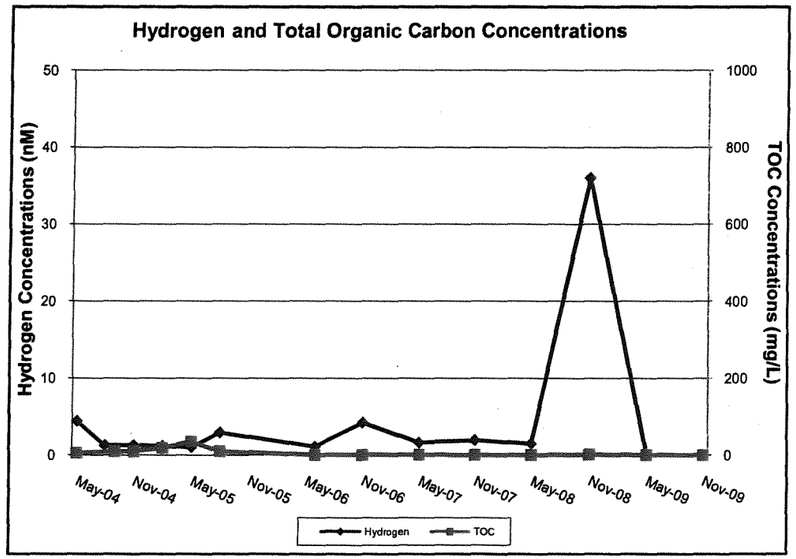
Notes:

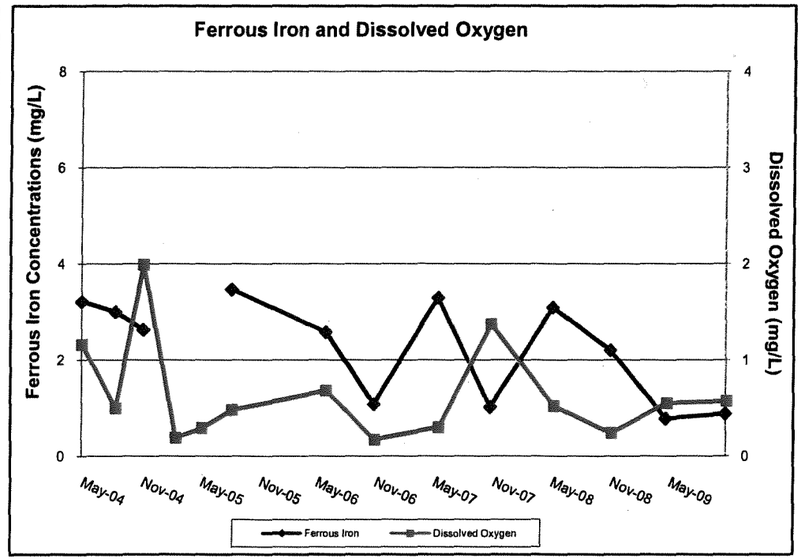
µg/L micrograms per liter

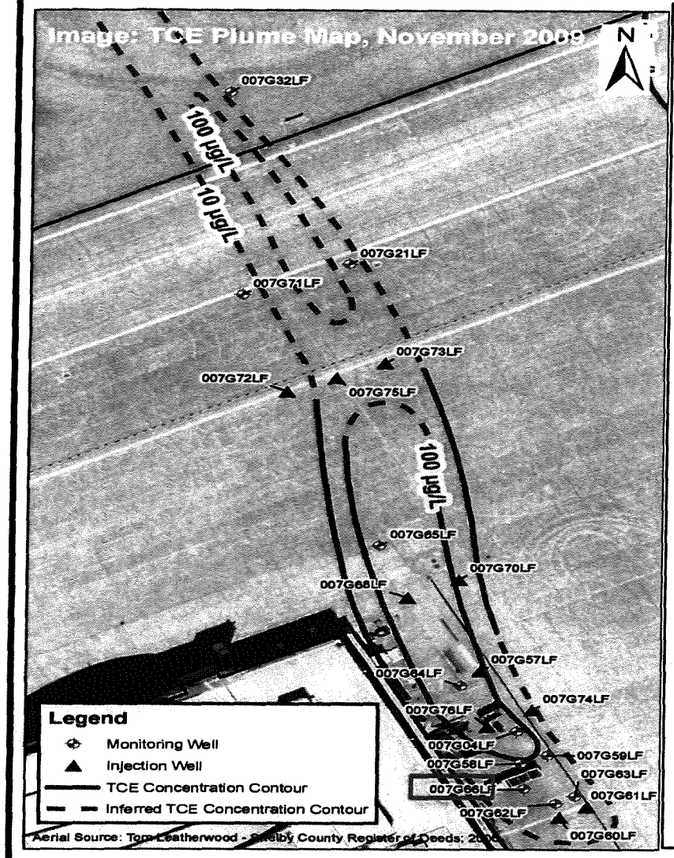
J Estimated

< Undetected at the limit indicated









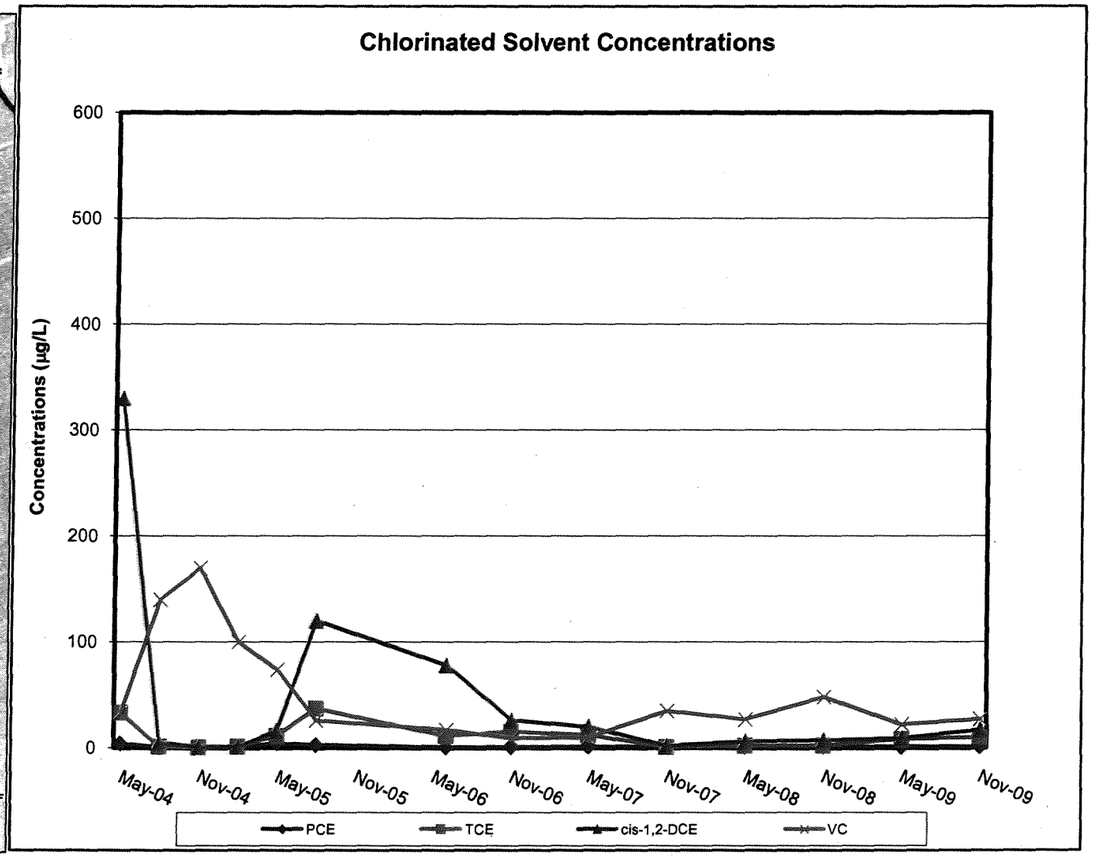


Figure C-3
Sub-Plume A:
MW 007G66LF

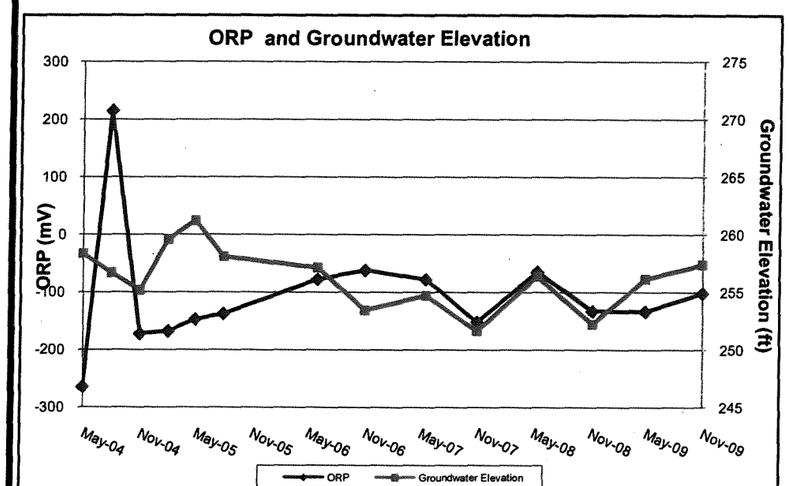
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	4	33	330	33
Aug-04	< 0.5	1	5	140
Nov-04	0.3 J	0.3 J	1	170
Feb-05	< 0.5	1	1	100
May-05	4.3	11	16	74
Aug-05	2.8	37	120	26
Jun-06	0.6 J	11	78	17
Nov-06	< 1	15	26	9
May-07	< 1	12	20	10
Nov-07	< 1	0.8 J	2	35
May-08	< 1	2	6	27
Nov-08	< 1	2	7	48
May-09	< 1	8	9	22
Nov-09	< 1	10	17	27

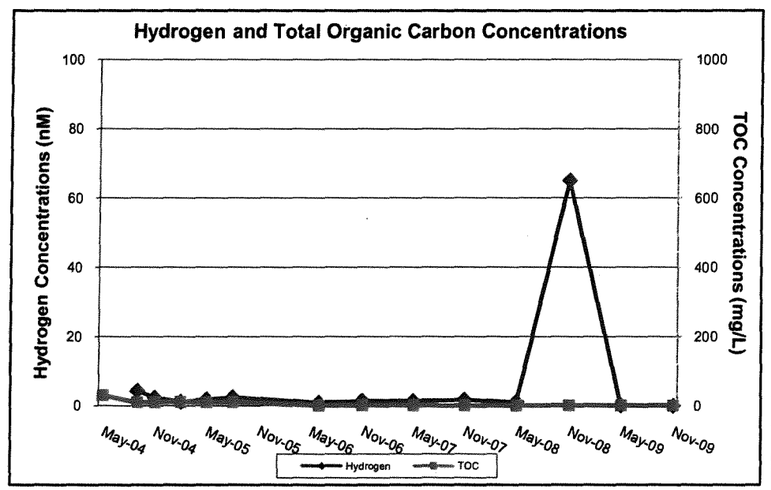
Notes:

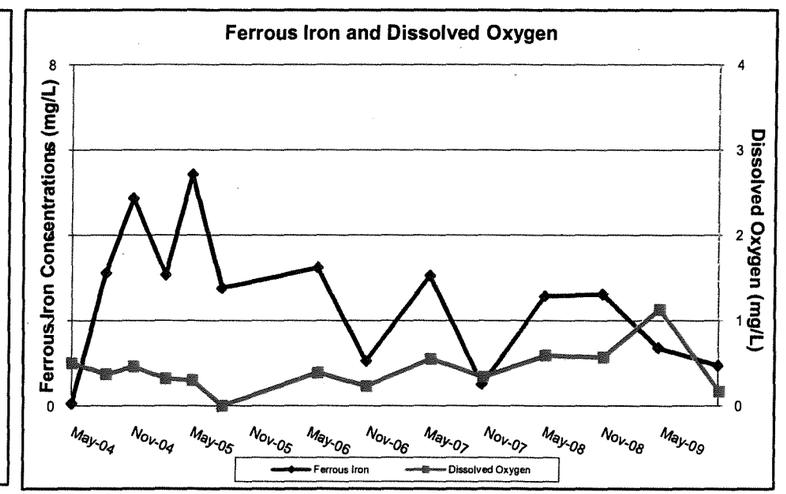
µg/L micrograms per liter

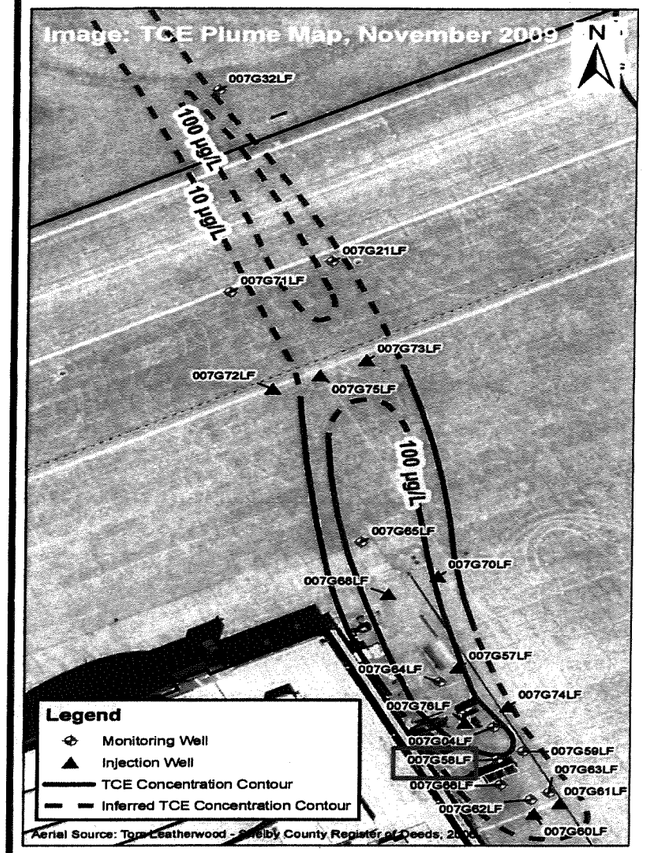
J Estimated

< Undetected at the limit indicated









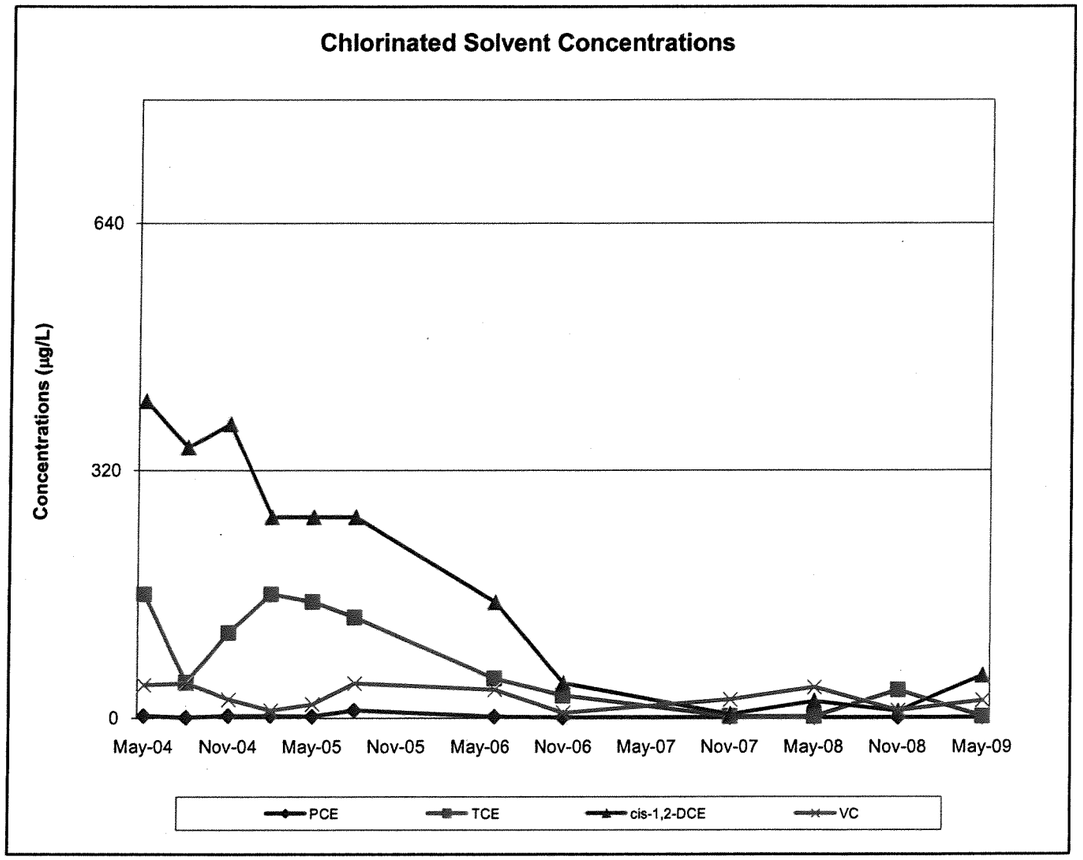
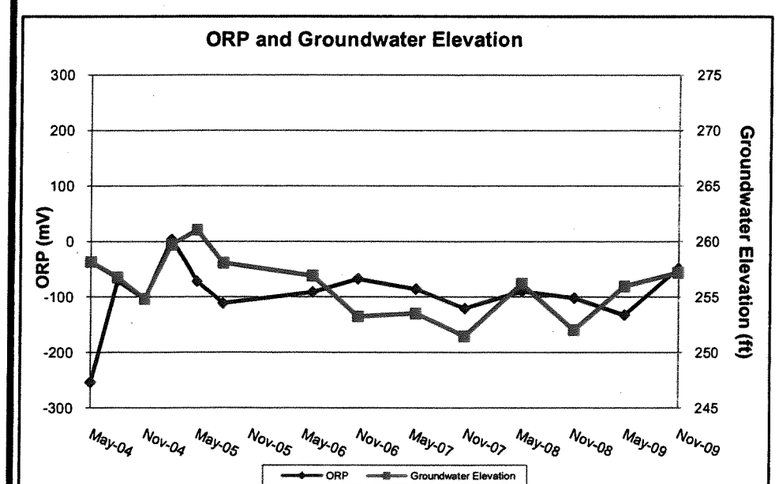


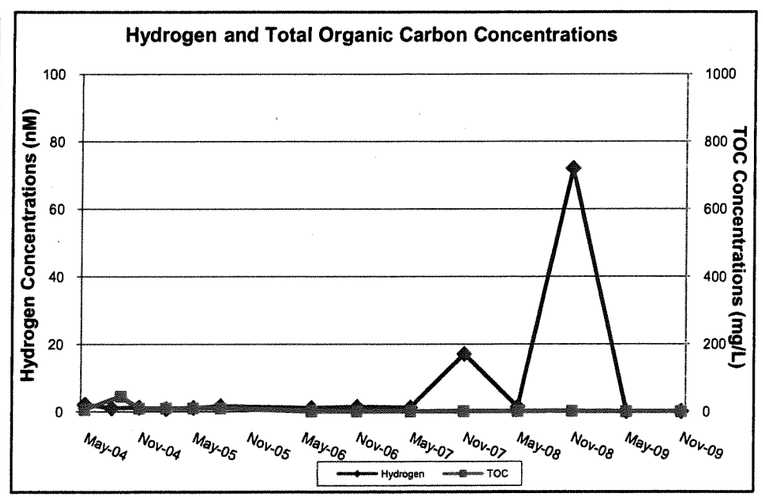
Figure C-4
Sub-Plume A:
MW 007G58LF

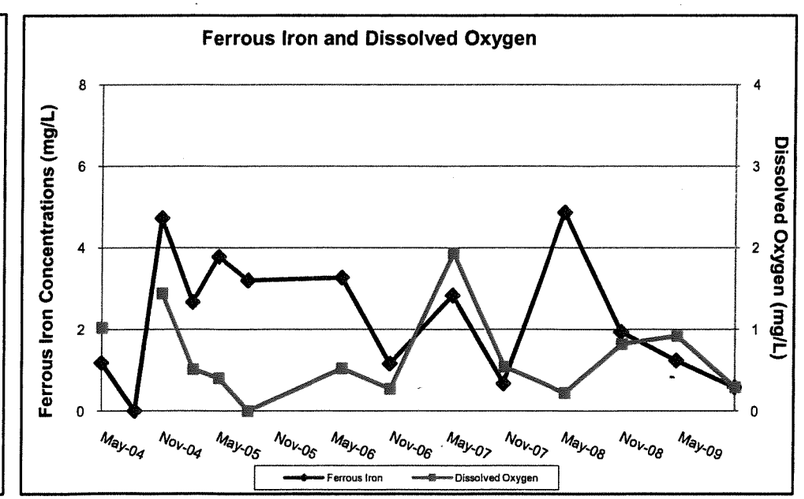
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	3	160	410	43
Aug-04	1	46	350	45
Nov-04	3 J	110	380	24 J
Feb-05	3	160	260	10
May-05	2.2	150	260	18
Aug-05	< 10	130	260	45
Jun-06	2	51	150	37
Nov-06	0.8 J	29	45	7
May-07	NS	NS	NS	NS
Nov-07	< 1	2	5	24
May-08	< 1	36	9	10
Nov-08	< 1	2	22	40
May-09	< 1	19	55	23
Nov-09	< 1	17	56	18

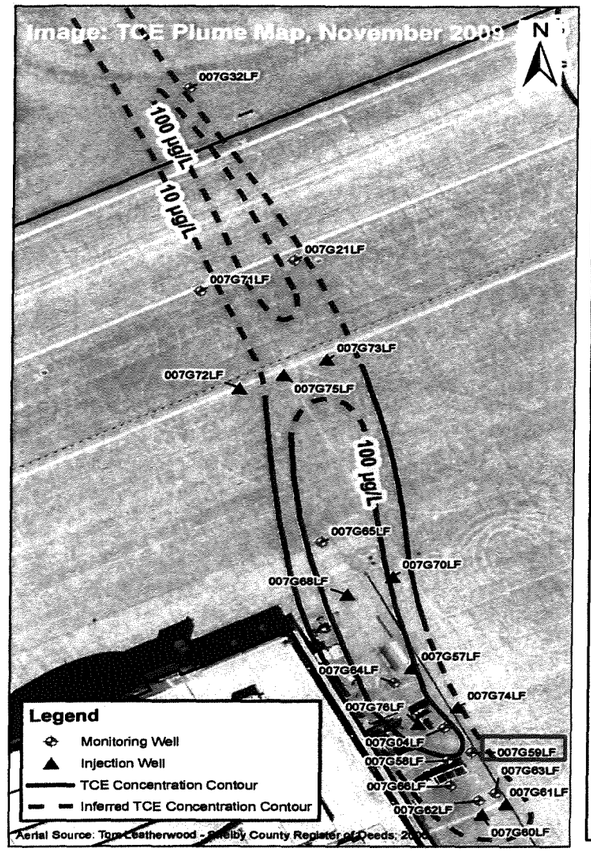
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated
NS	not sampled









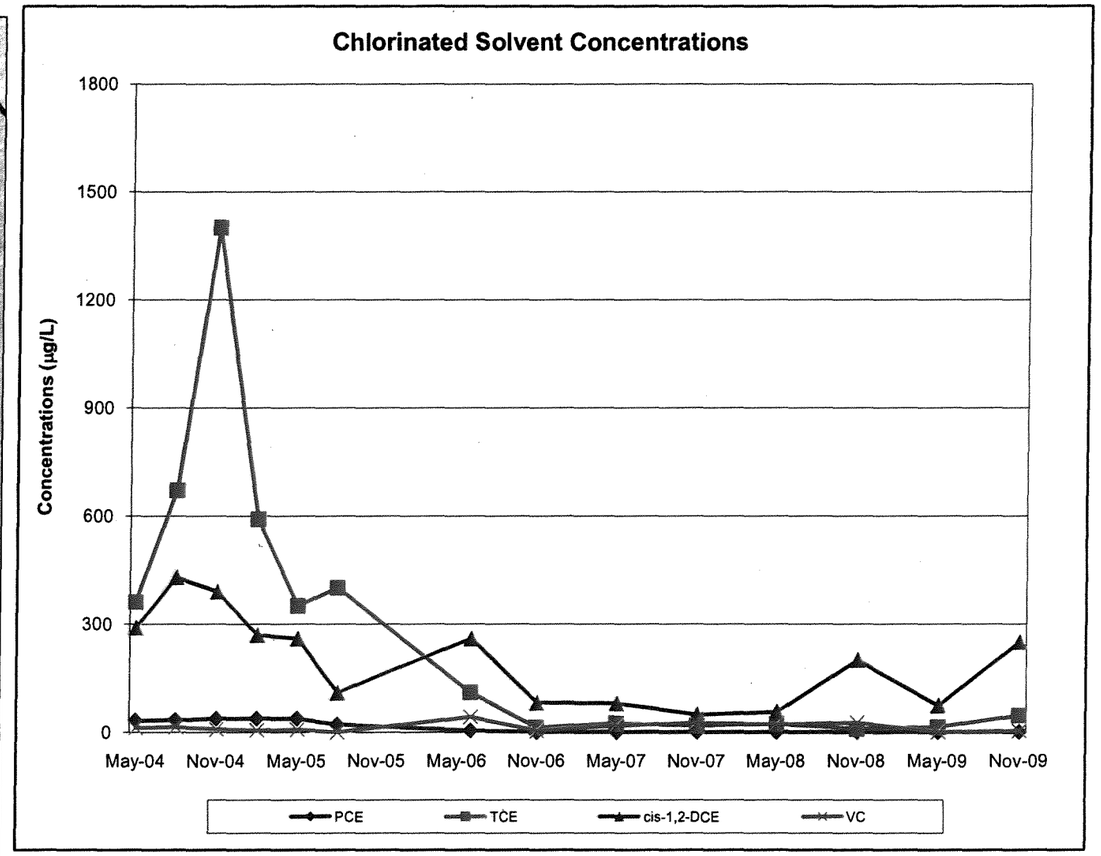
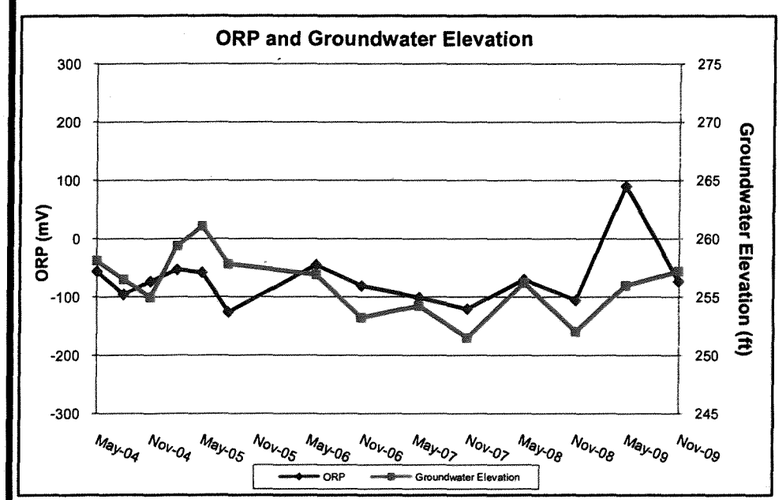


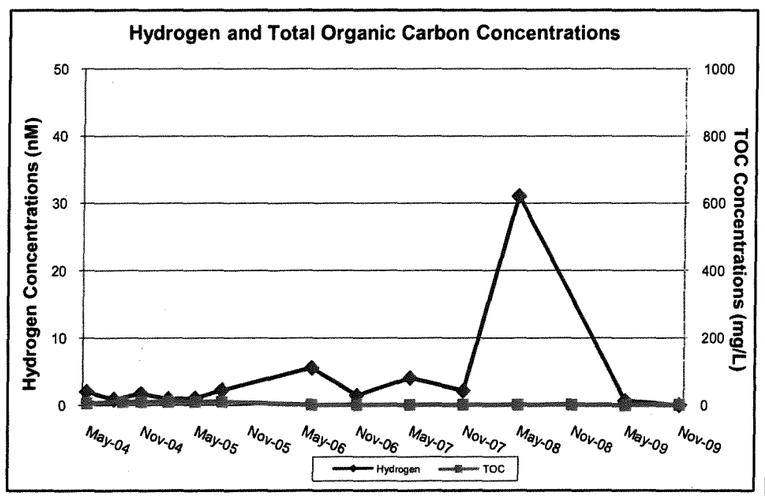
Figure C-5
Sub-Plume A:
MW 007G59LF

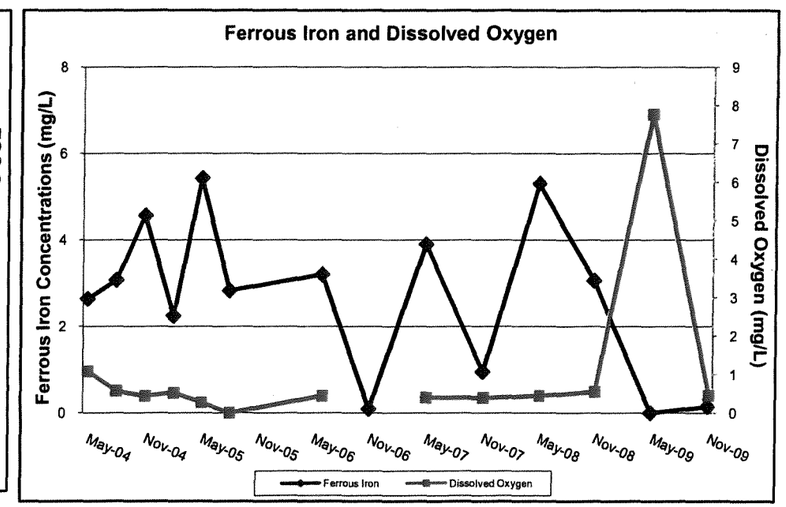
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	32	360	290	13
Aug-04	34	670	430	15
Nov-04	38	1,400	390	9
Feb-05	38	590	270	6
May-05	38	350	260	8.1
Aug-05	22	400	110	0.62
Jun-06	5	110	260	43
Nov-06	< 1	13	82	4
May-07	0.9 J	24	80	18
Nov-07	0.7 J	18	49	27
May-08	< 1	23	56	22
Nov-08	< 1	9	200	27
May-09	< 1	14	74	<1
Nov-09	< 1	46	250	4

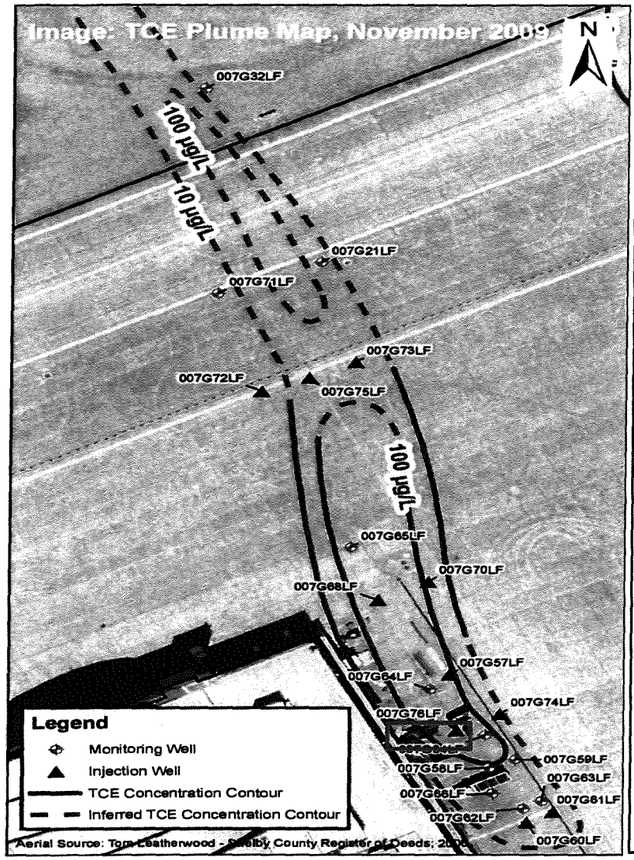
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









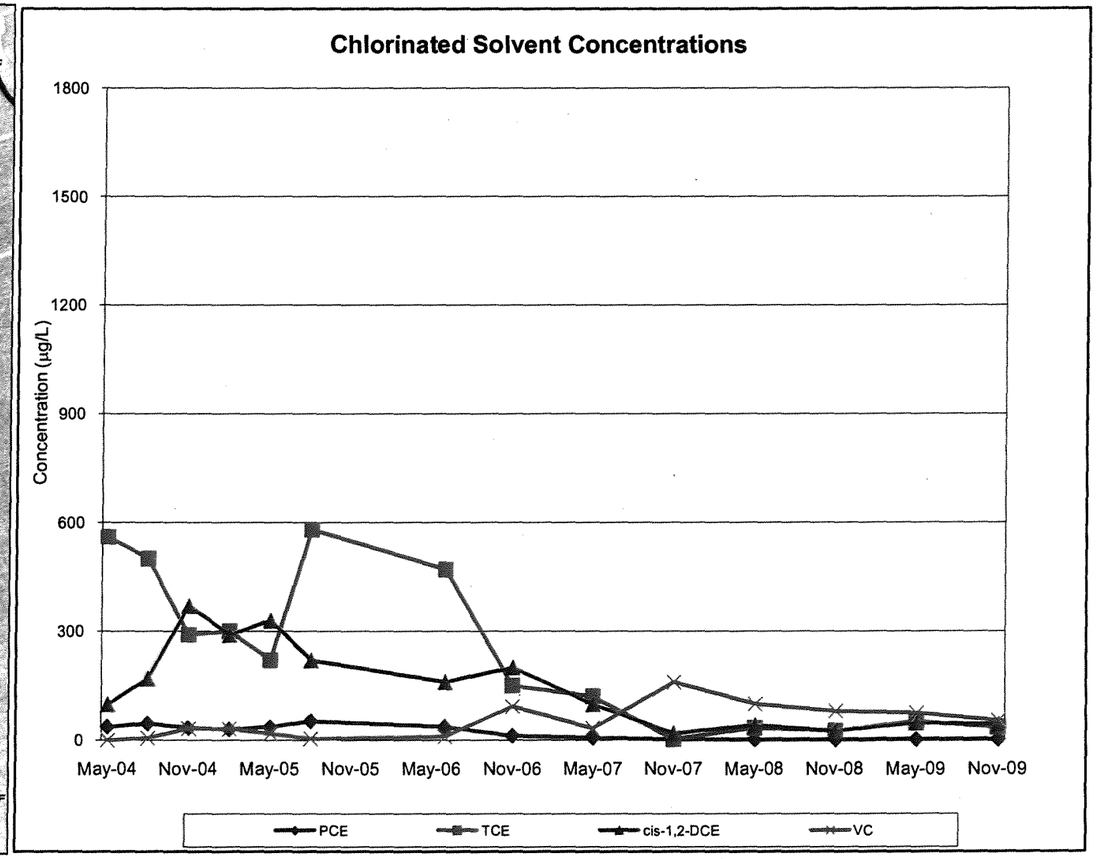
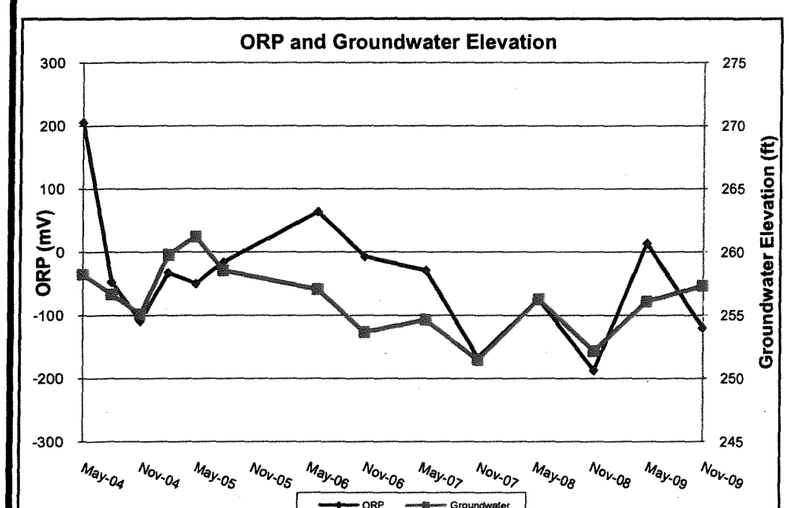


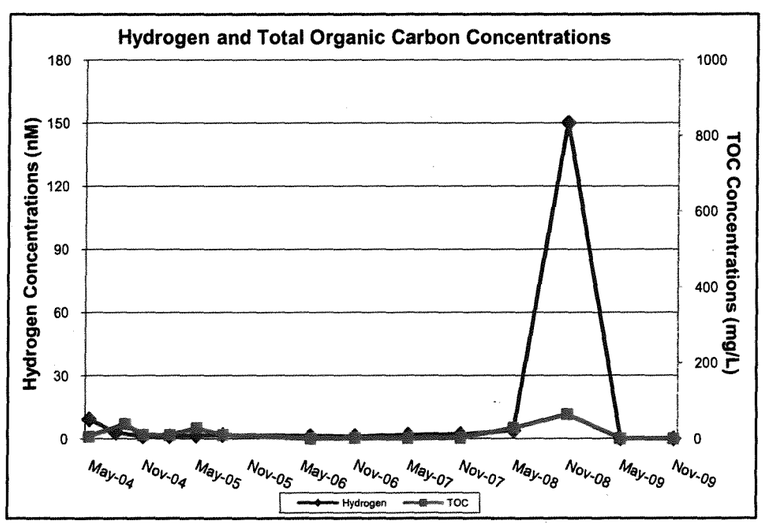
Figure C-6
Sub-Plume A:
MW 007G04LF

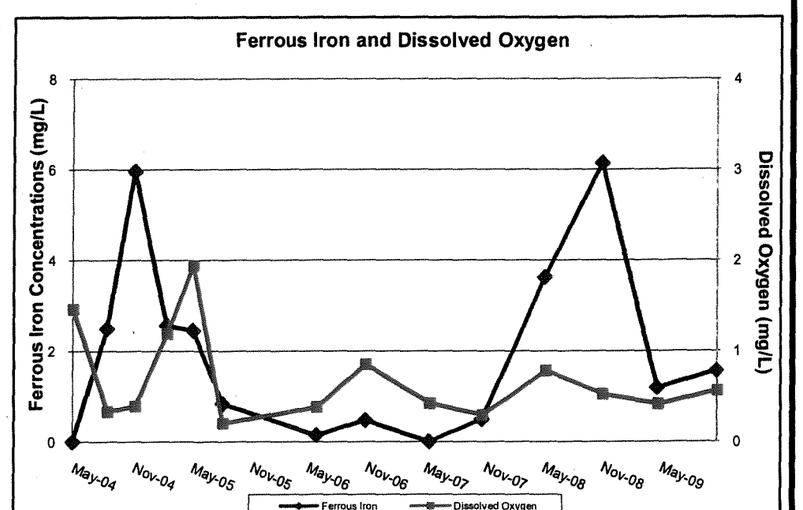
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	37	560	99	0.9
Aug-04	46	500	170	6
Nov-04	34	290	370	32
Feb-05	30	300	290	31
May-05	36	220	330	18
Aug-05	52	580	220	4.1
Jun-06	37	470	160	10
Nov-06	12	150	200 J	93
May-07	6	120	99	33
Nov-07	< 2	< 2	18	160
May-08	< 1	33	41	100
Nov-08	1	25	25	80
May-09	2	50	47	75
Nov-09	2	35	44	54

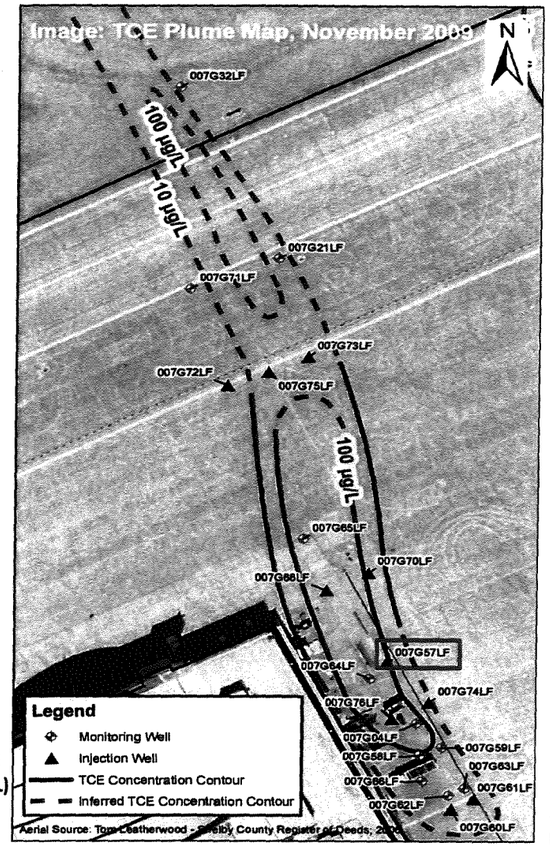
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









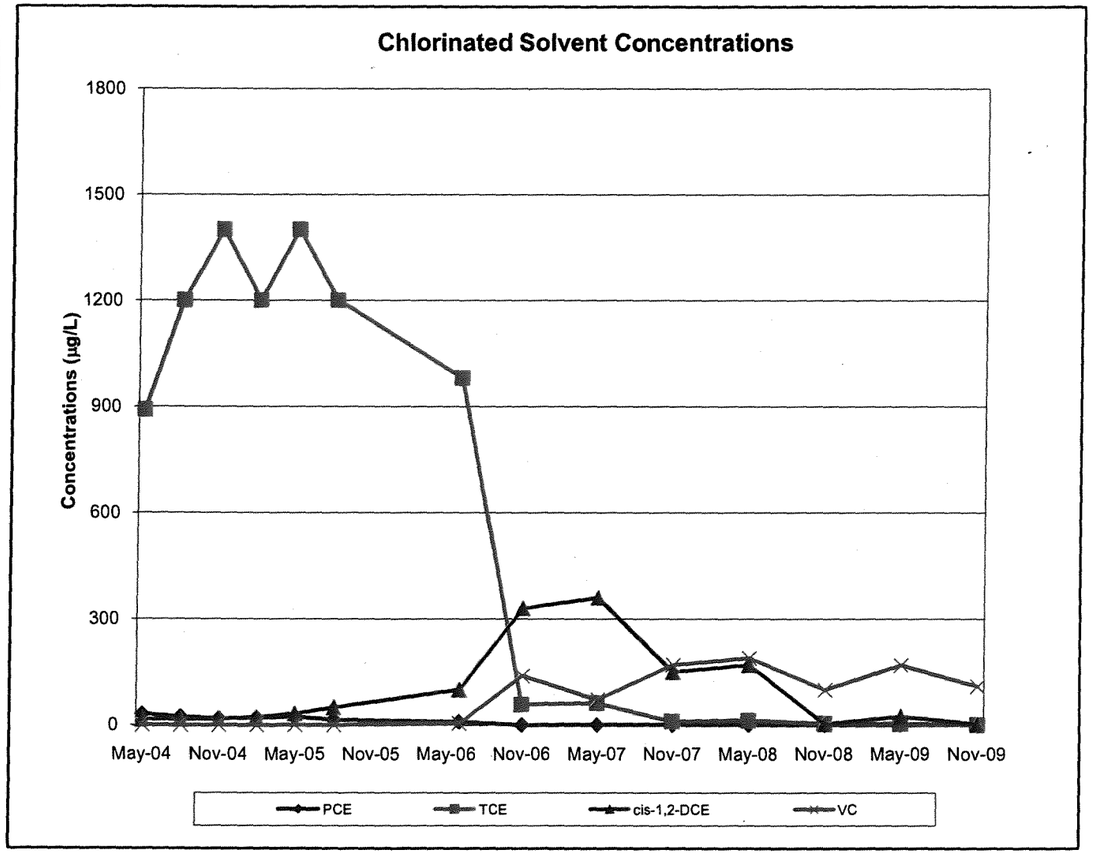
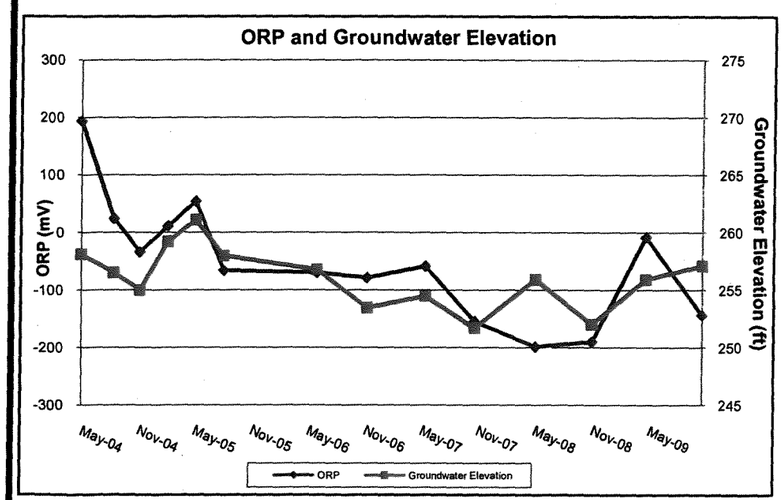


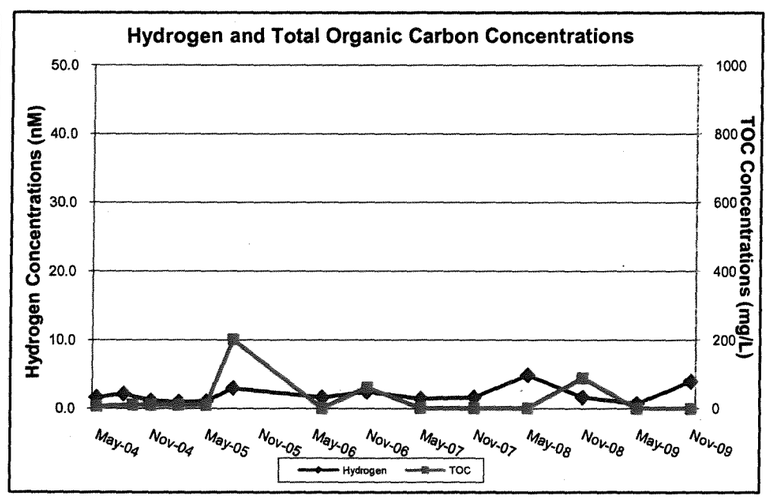
Figure C-7
Sub-Plume A:
MW 007G57LF

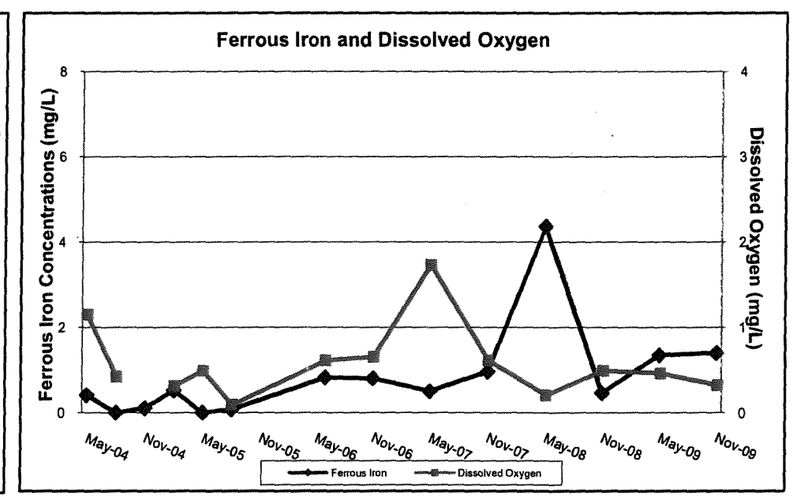
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	31	890	16	<0.5
Aug-04	23	1,200	16	<0.5
Nov-04	18	1,400	14	<0.5
Feb-05	20	1,200	22	<10
May-05	23	1,400	32	0.44 J
Aug-05	15	1,200	50	0.6
Jun-06	9	980	100	5
Nov-06	< 1	58	330 J	140
May-07	< 1	62	360	72
Nov-07	< 1	10	150	170
May-08	< 1	13	170	190
Nov-08	< 1	4	3	100
May-09	< 1	4	25	170
Nov-09	< 1	1	3	110

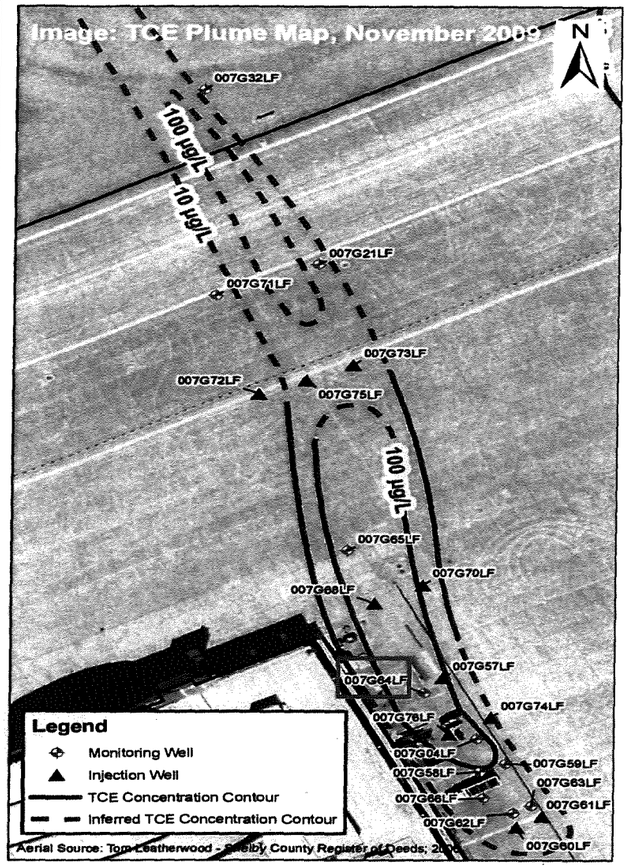
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









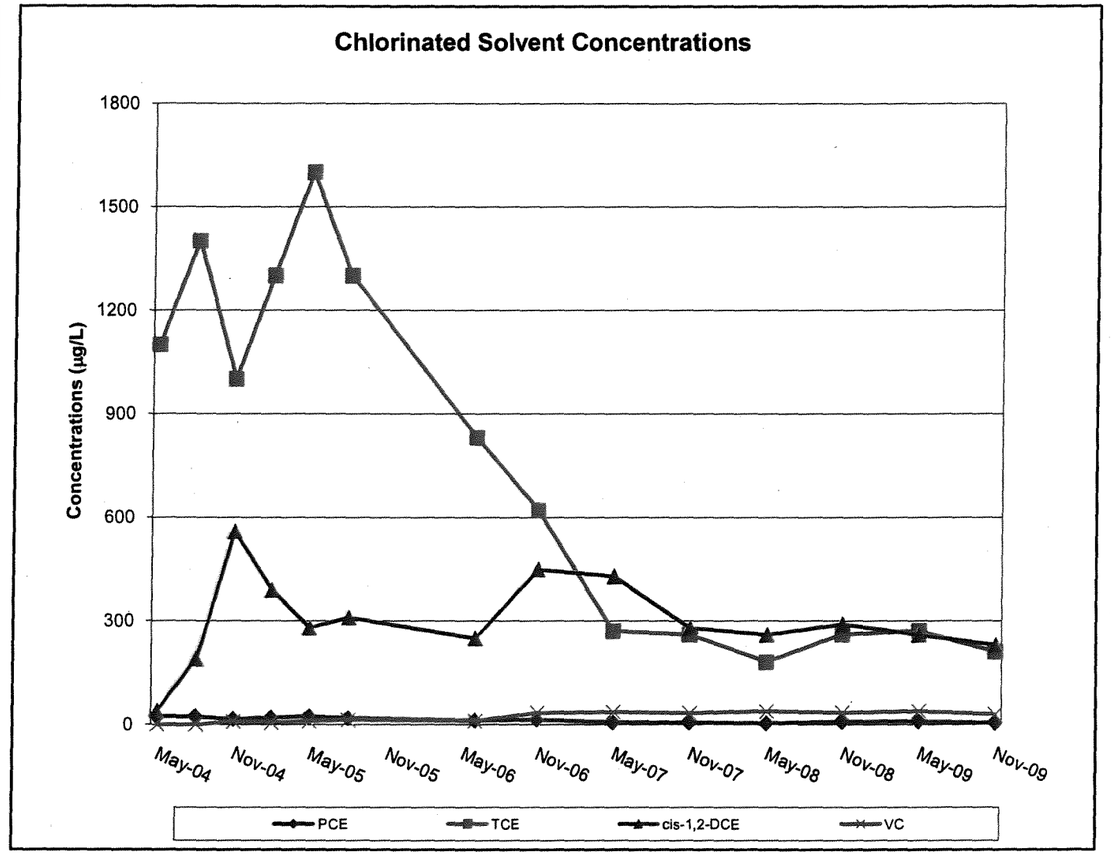


Figure C-8
Sub-Plume A:
MW 007G64LF

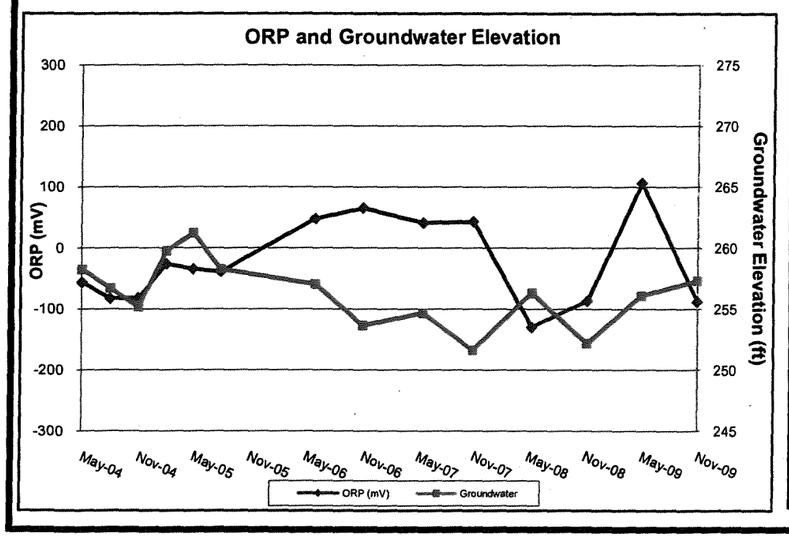
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	24 J	1,100	40	< 0.5
Aug-04	23	1,400	190	0.6
Nov-04	16	1,000	560	9
Feb-05	20	1,300	390	6
May-05	24	1,600	280	9.6
Aug-05	19	1,300	310	14
Jun-06	12	830	250	11
Nov-06	15	620	450 J	35
May-07	7	270	430	37
Nov-07	6	260	280	34
May-08	4	180	260	39
Nov-08	8	260	290	35
May-09	9	270	260	39
Nov-09	5	210	230	30

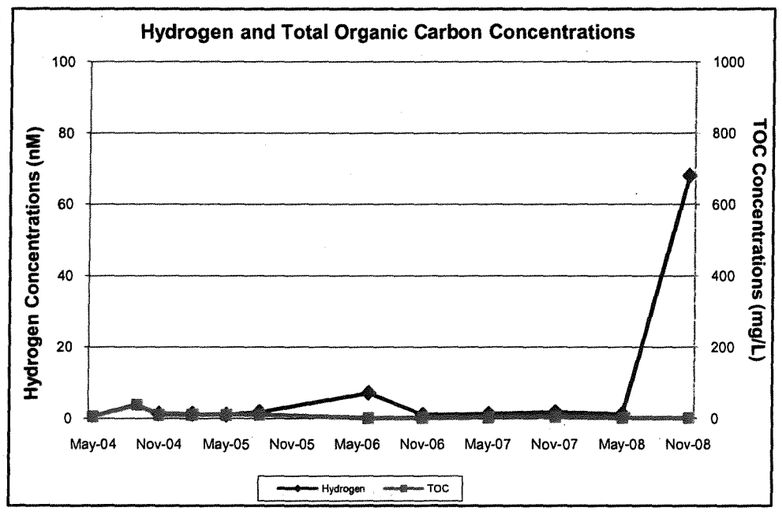
Notes:

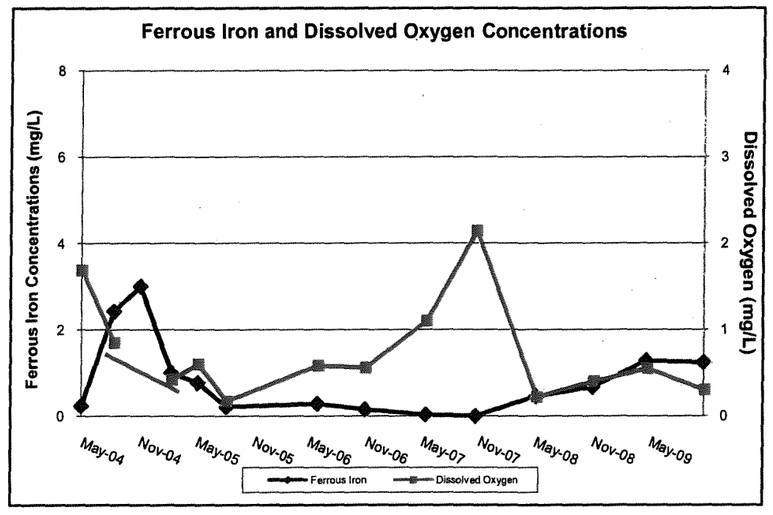
µg/L micrograms per liter

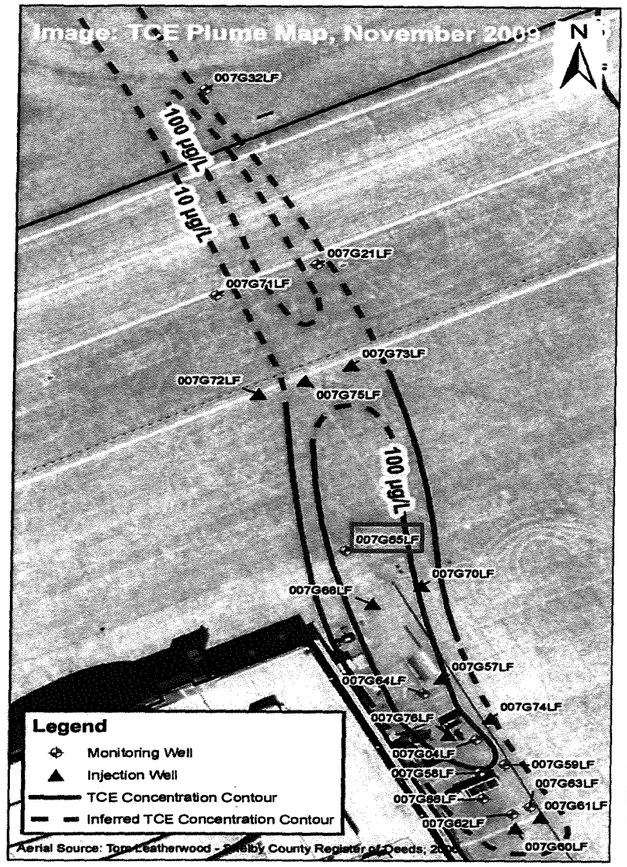
J Estimated

< Undetected at the limit indicated









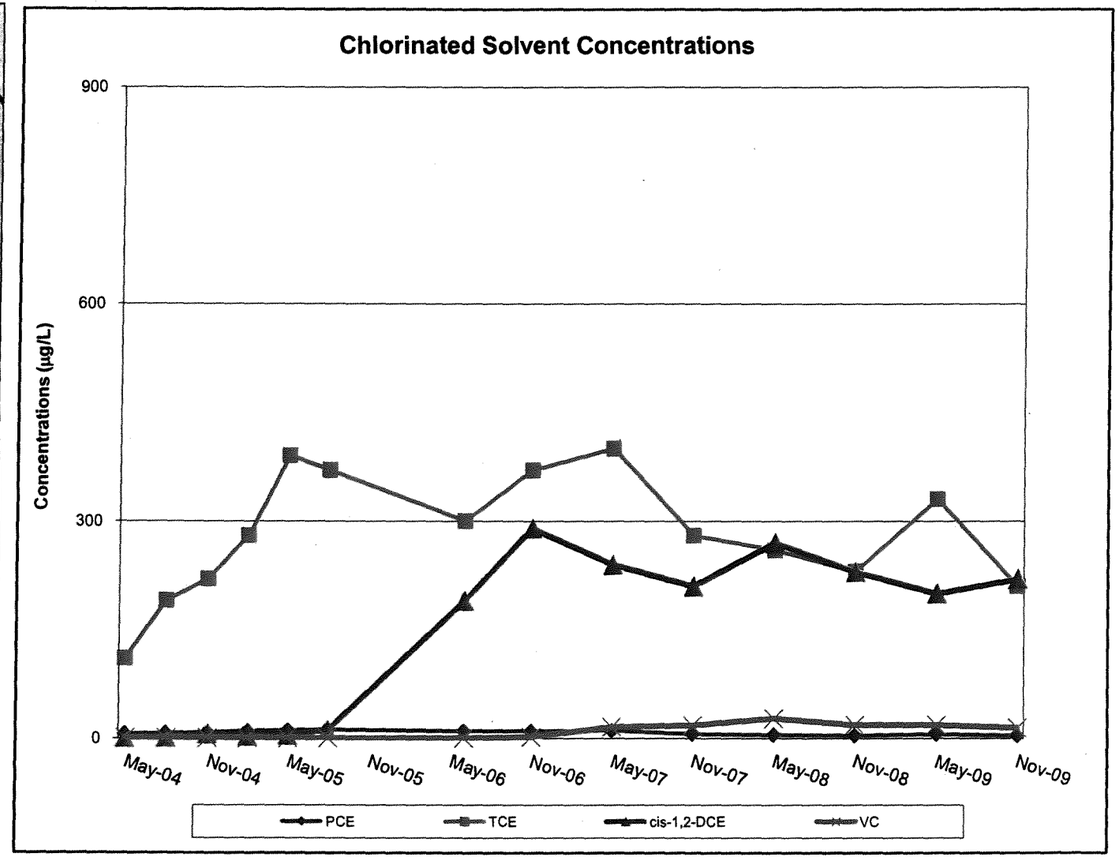
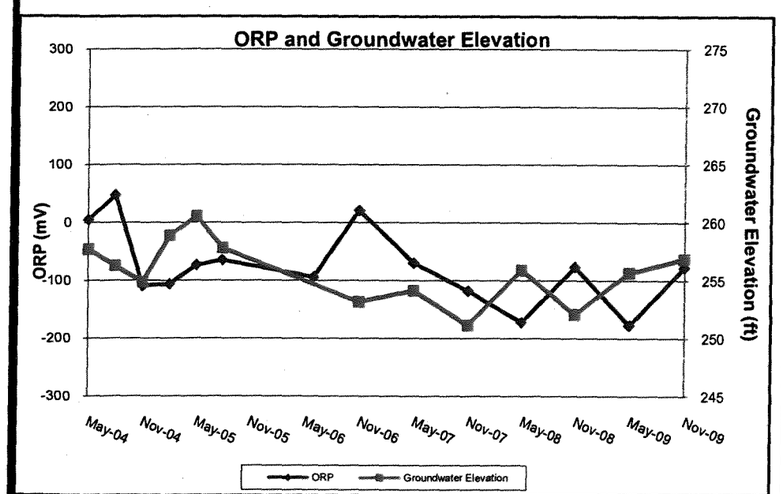


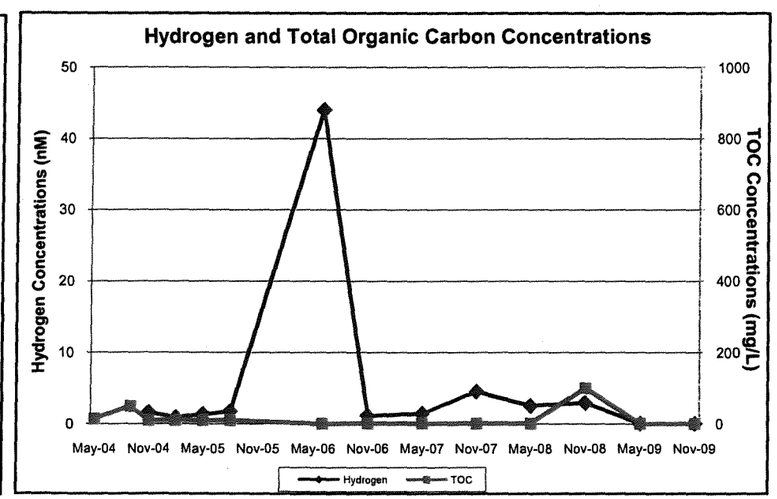
Figure C-9
Sub-Plume A:
MW 007G65LF

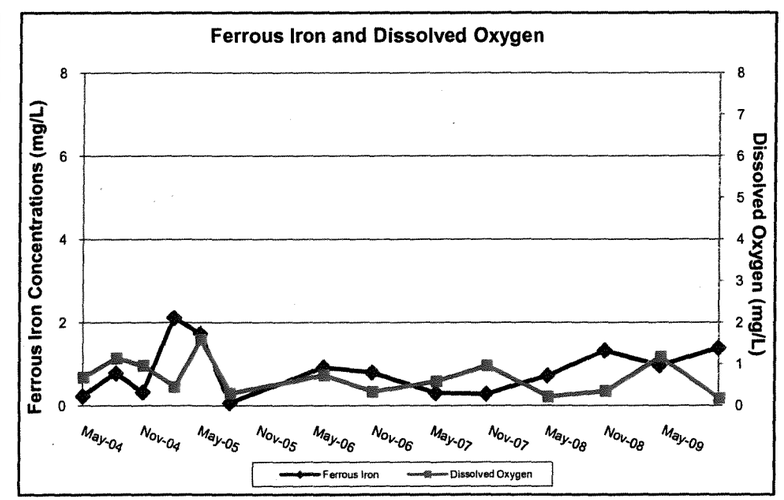
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	6	110	0.8	< 0.5
Aug-04	7	190	1	< 0.5
Nov-04	8	220	6	< 0.5
Feb-05	10	280	3	< 0.5
May-05	11	390	4.3	< 0.5
Aug-05	12 J	370	11 J	< 0.5
Jun-06	10	300	190	< 2
Nov-06	10	370	290 J	2
May-07	11	400	240	16
Nov-07	6	280	210	18
May-08	5	260	270	28
Nov-08	4	230	230	19
May-09	6	330	200	19
Nov-09	4	210	220	15

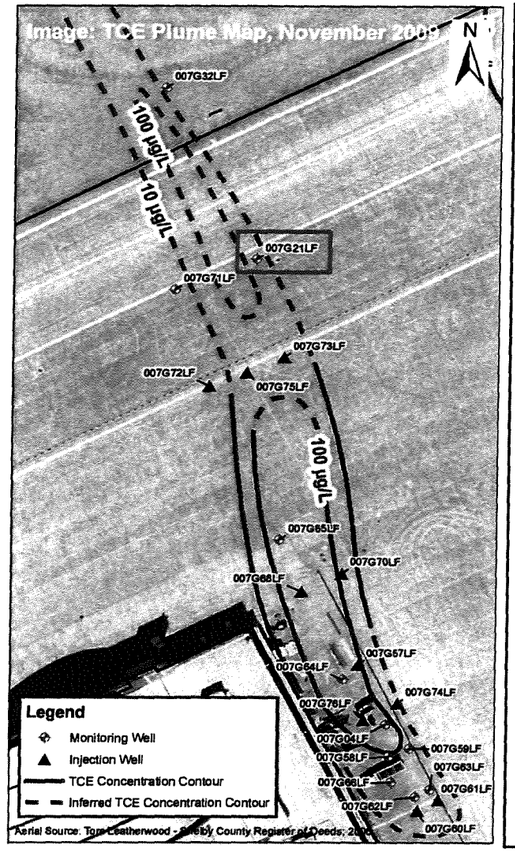
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









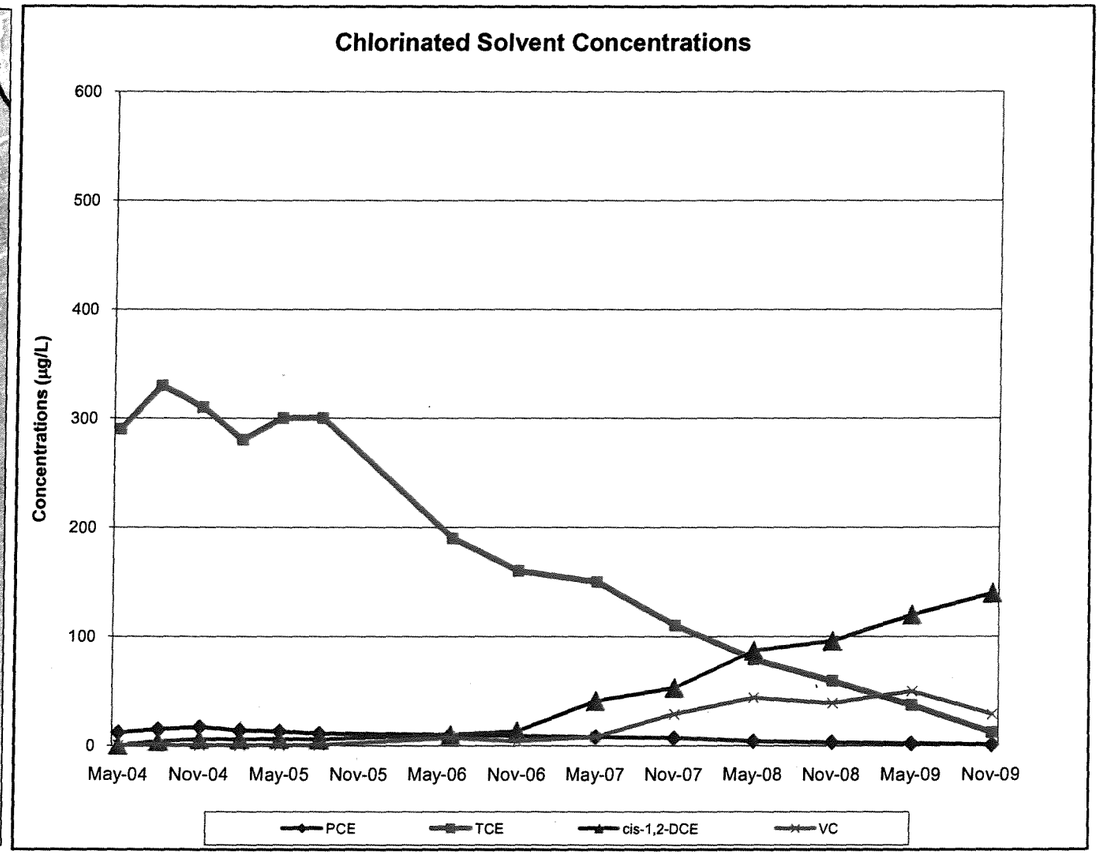
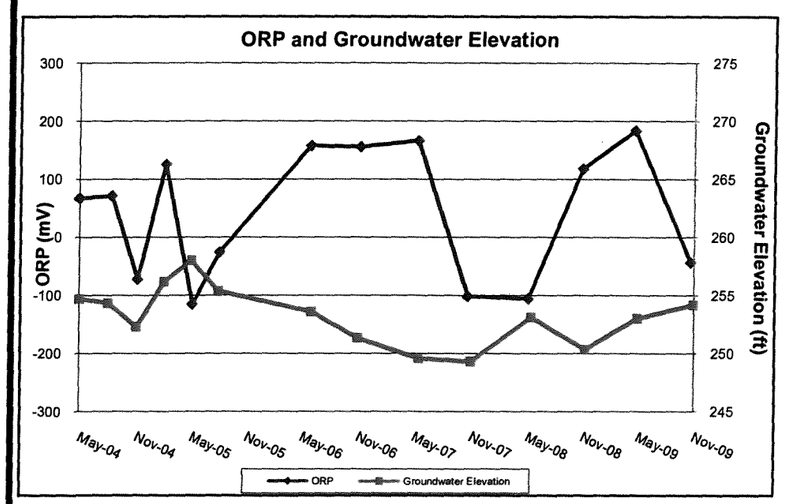


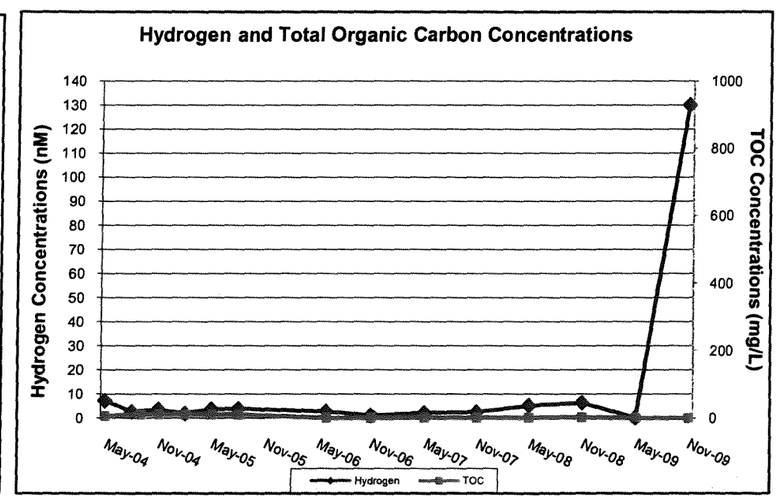
Figure C-10
Sub-Plume A:
MW 007G21LF

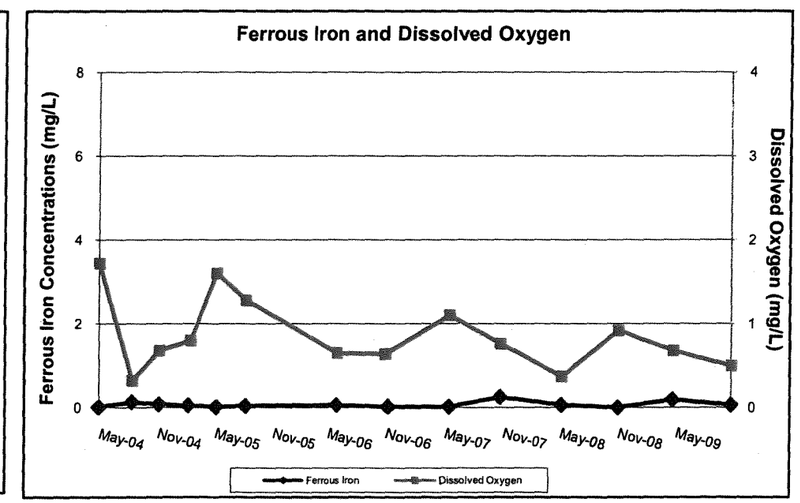
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	12	290	0.6	< 0.5
Aug-04	15	330	4	< 0.5
Nov-04	17	310	6	< 0.5
Feb-05	14	280	6	< 0.5
May-05	13	300	6.2	< 0.5
Aug-05	11	300	5.6	< 0.5
Jun-06	10	190	10	7
Nov-06	9	160	13 J	4
May-07	8	150	41	8
Nov-07	7	110	53	29
May-08	4 J	79 J	87 J	44 J
Nov-08	3	59	96	39
May-09	2	37	120	50
Nov-09	1	12	140	29

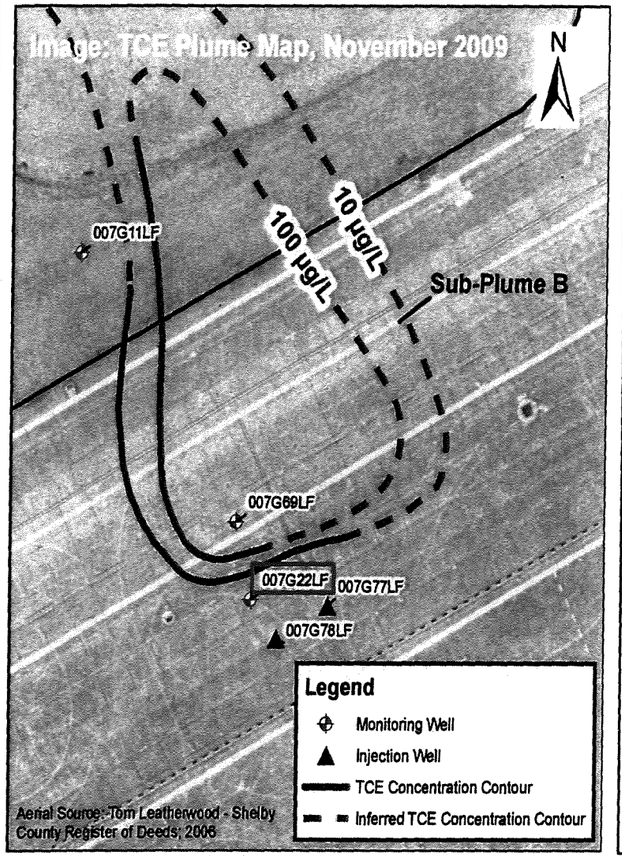
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









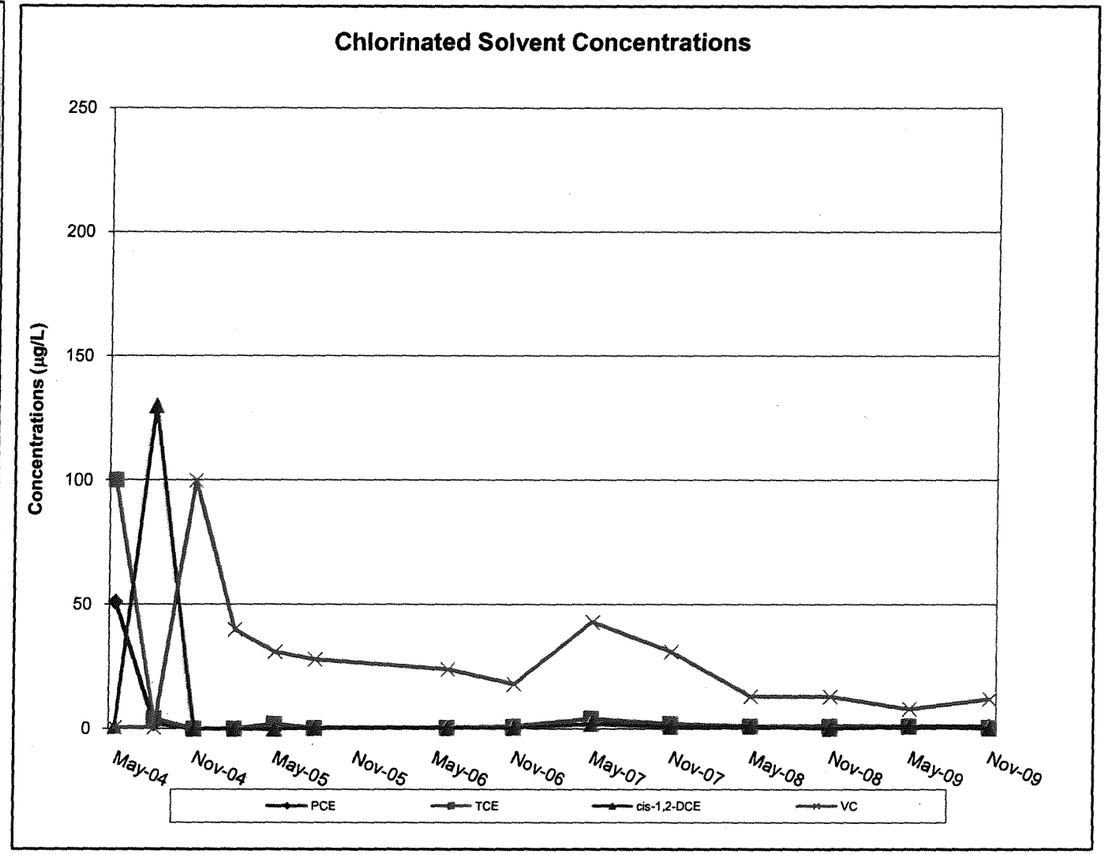
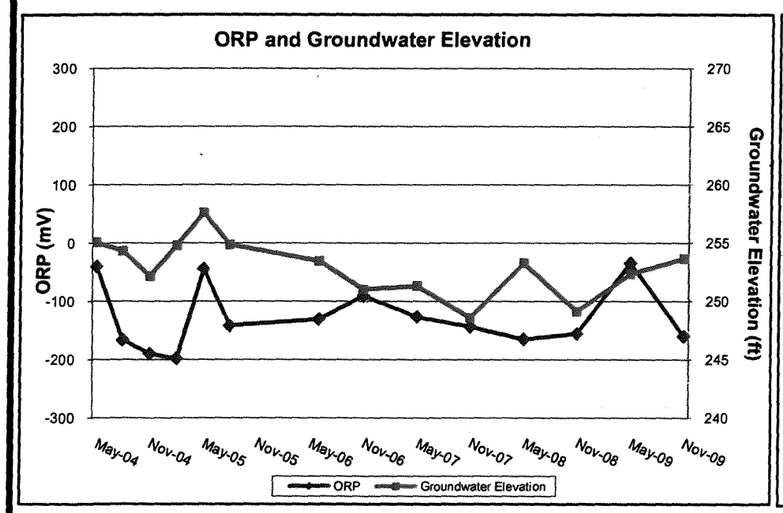


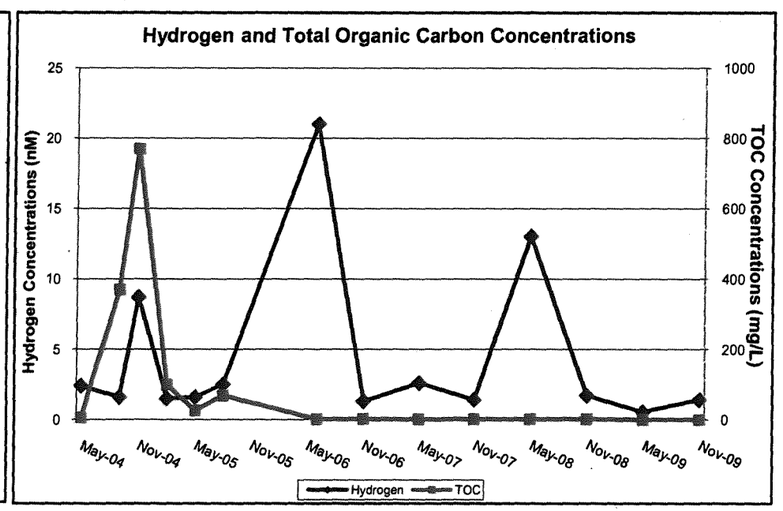
Figure C-12
Sub-Plume B:
MW 007G22LF

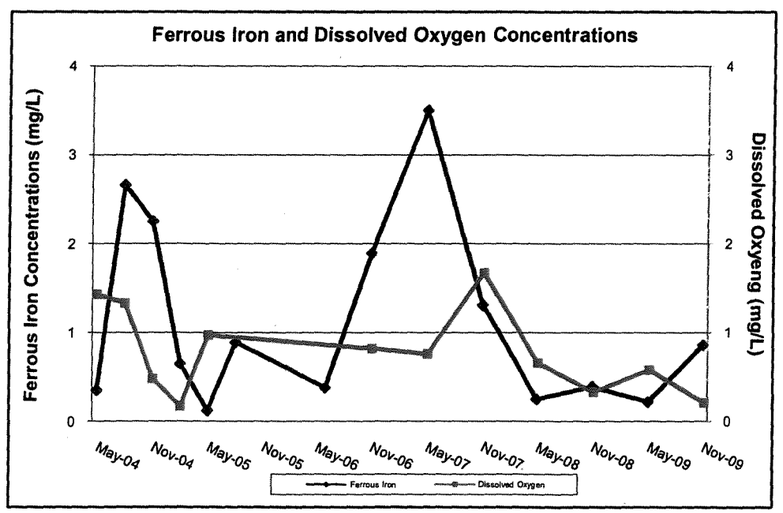
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	51	100	1	< 0.5
Aug-04	2	4	130	< 0.5
Nov-04	< 0.5	< 0.5	< 0.5	100
Feb-05	< 0.5	< 0.5	< 0.5	40
May-05	0.68	1.9	< 0.5	31
Aug-05	0.21 J	0.28 J	< 0.5	28
Jun-06	< 1	<0.4	< 1	24
Nov-06	< 1	0.9 J	< 1	18
May-07	2	4	2	43
Nov-07	2	2	0.9 J	31
May-08	< 1	< 1	< 1	13 J
Nov-08	< 1	< 1	0.2 J	13
May-09	<1	<1	<1	8
Nov-09	<1	0.4 J	0.3 J	12

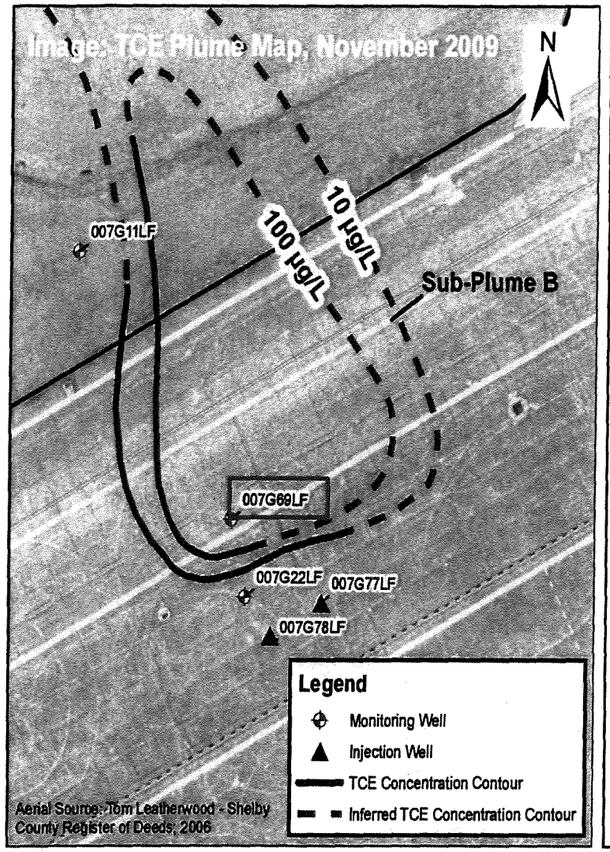
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









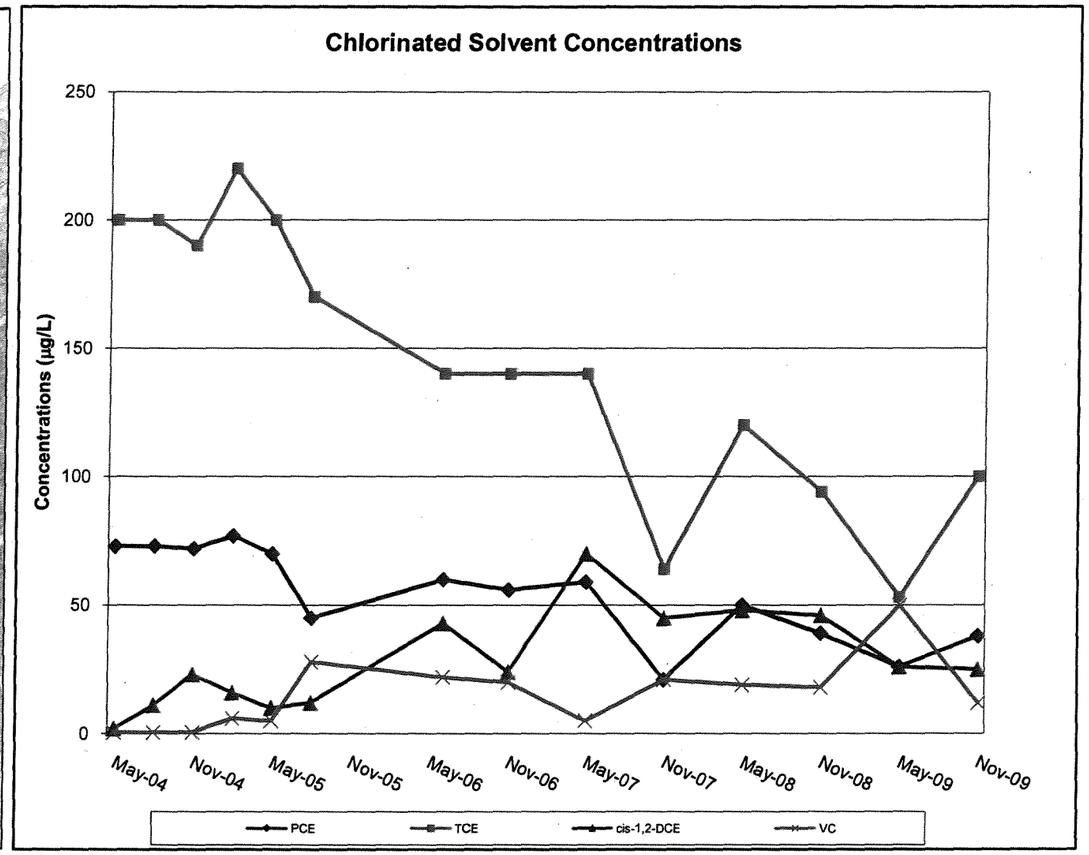
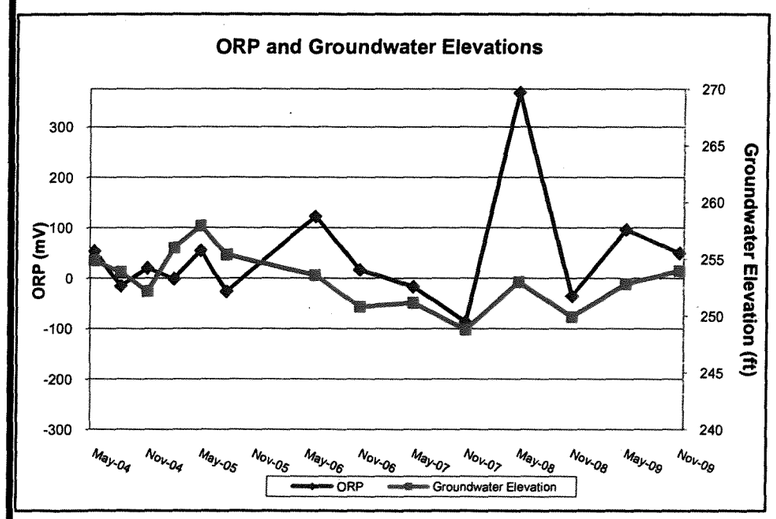


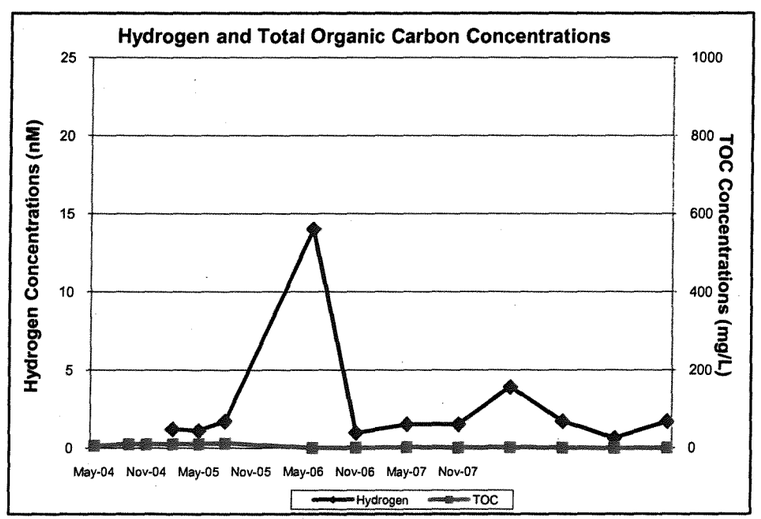
Figure C-13
Sub-Plume B:
MW 007G69LF

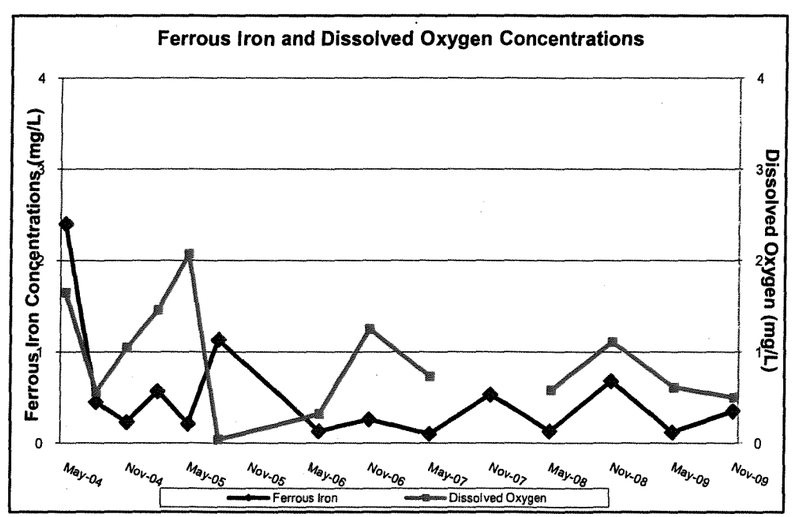
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	73	200	2	< 0.5
Sep-04	73	200	11	< 0.5
Nov-04	72	190	23	< 0.5
Feb-05	77	220	16	6
May-05	70	200	10	5
Aug-05	45	170	12 J	28 J
Jun-06	60	140	43	22
Nov-06	56	140	24	20
May-07	59	140	70	5
Nov-07	21	64	45	21
May-08	50 J	120 J	48 J	19 J
Nov-08	39	94	46	18
May-09	26	53	26	50
Nov-09	38	100	25	12

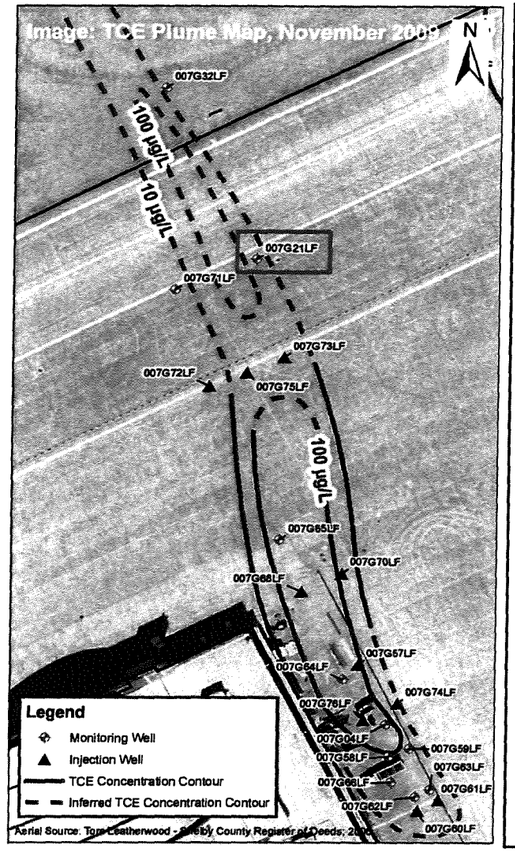
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









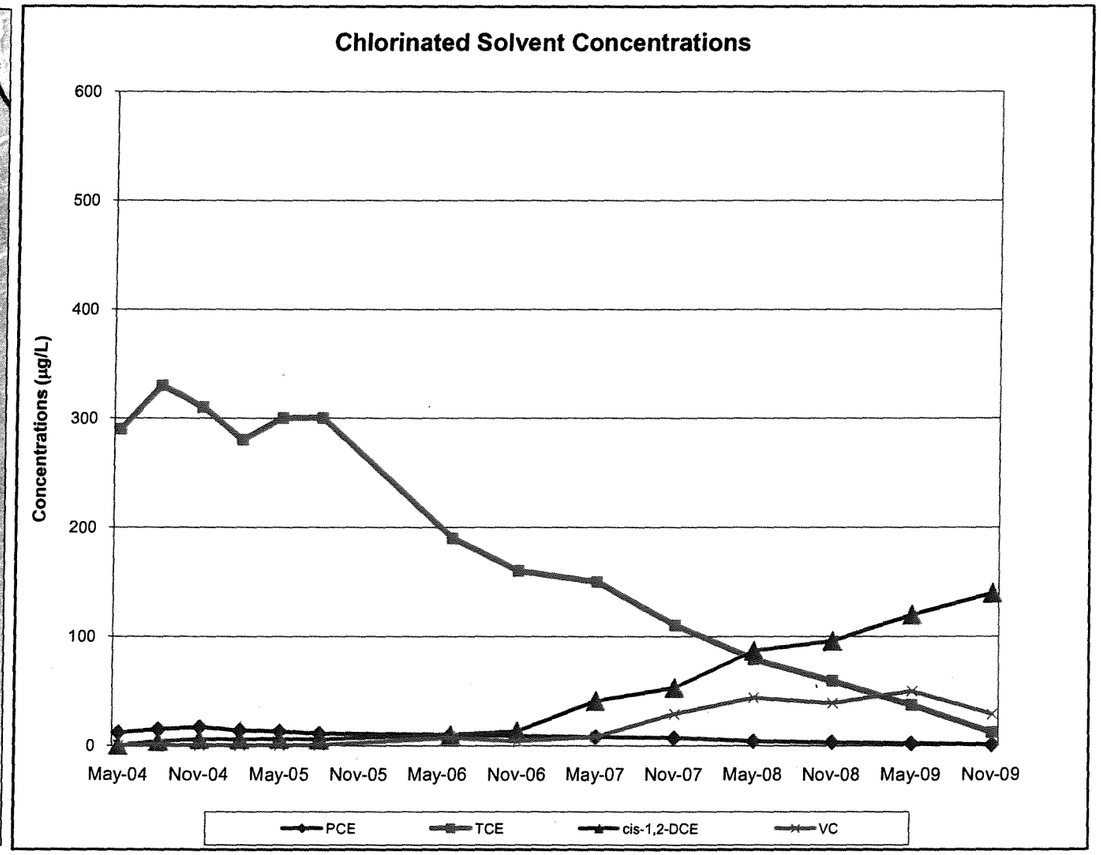
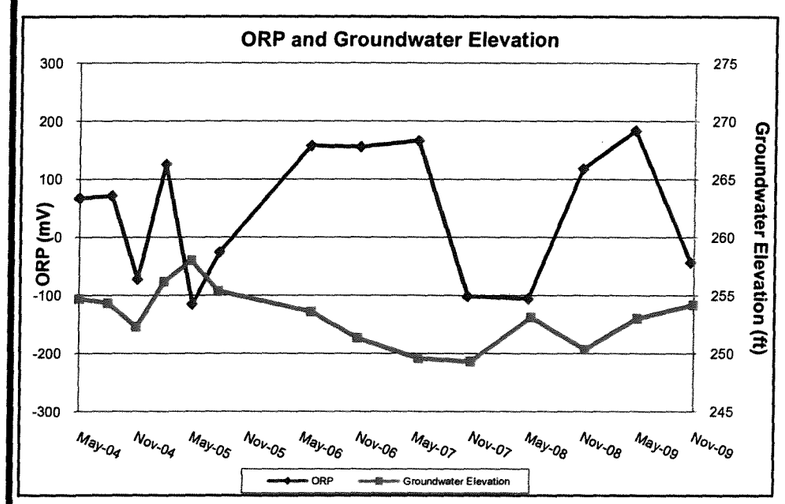


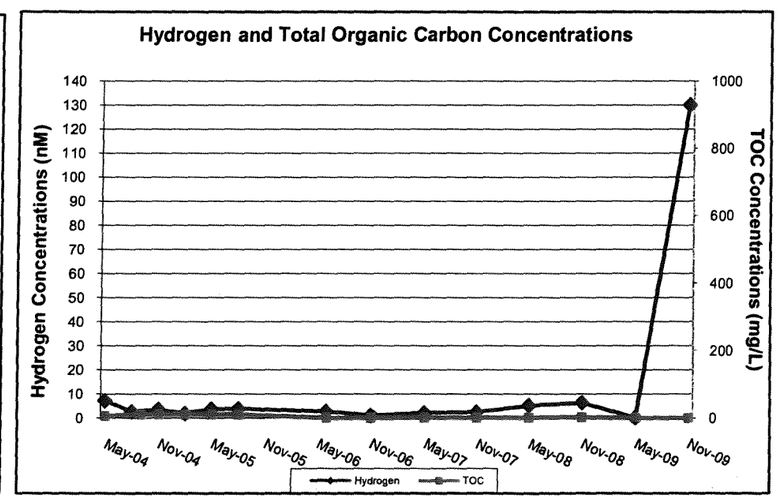
Figure C-10
Sub-Plume A:
MW 007G21LF

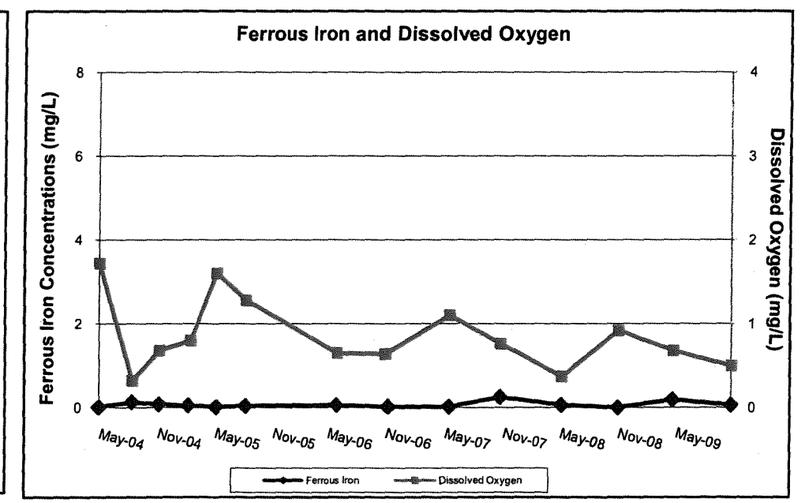
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	12	290	0.6	< 0.5
Aug-04	15	330	4	< 0.5
Nov-04	17	310	6	< 0.5
Feb-05	14	280	6	< 0.5
May-05	13	300	6.2	< 0.5
Aug-05	11	300	5.6	< 0.5
Jun-06	10	190	10	7
Nov-06	9	160	13 J	4
May-07	8	150	41	8
Nov-07	7	110	53	29
May-08	4 J	79 J	87 J	44 J
Nov-08	3	59	96	39
May-09	2	37	120	50
Nov-09	1	12	140	29

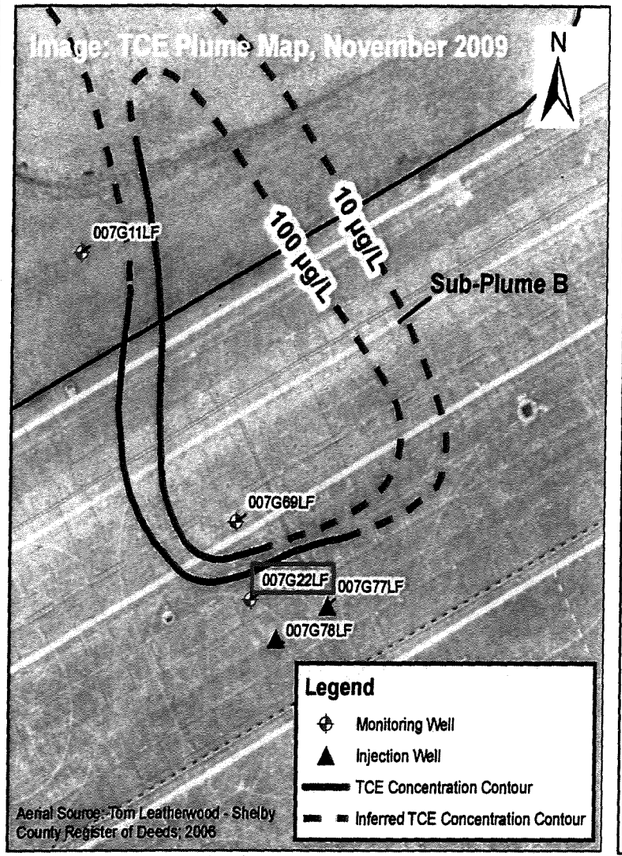
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









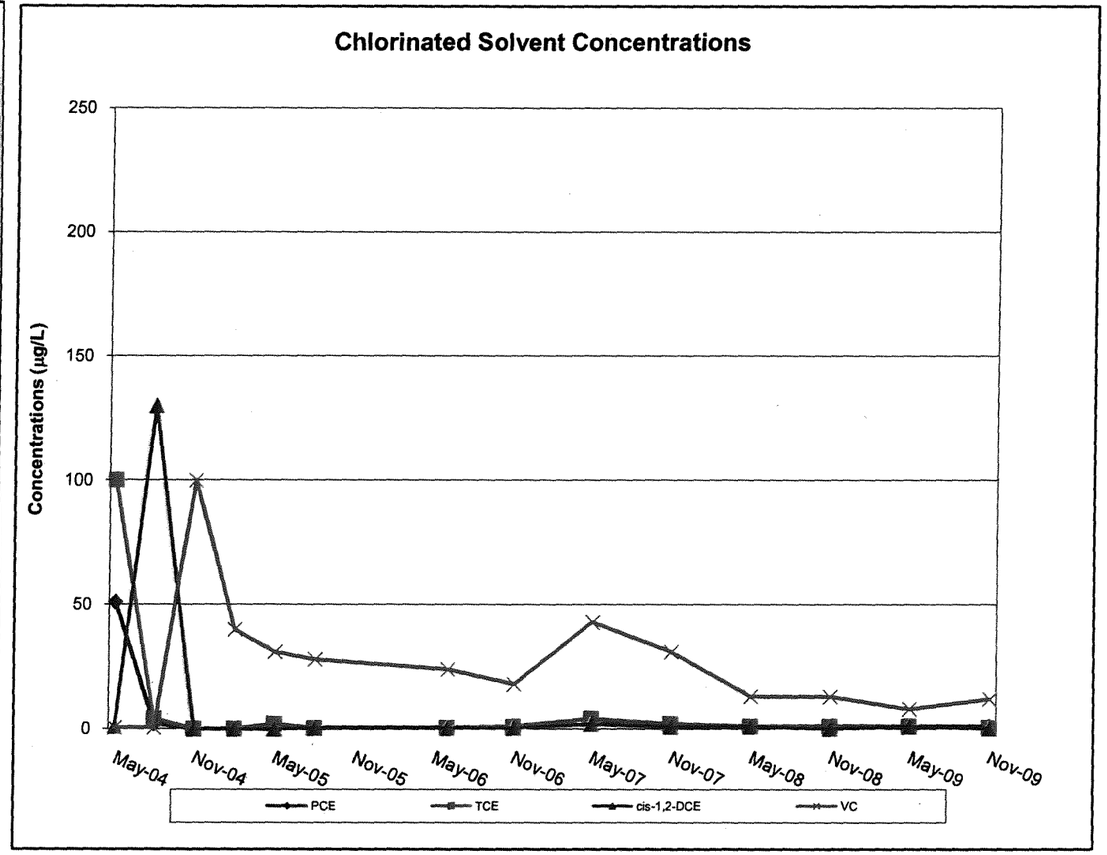
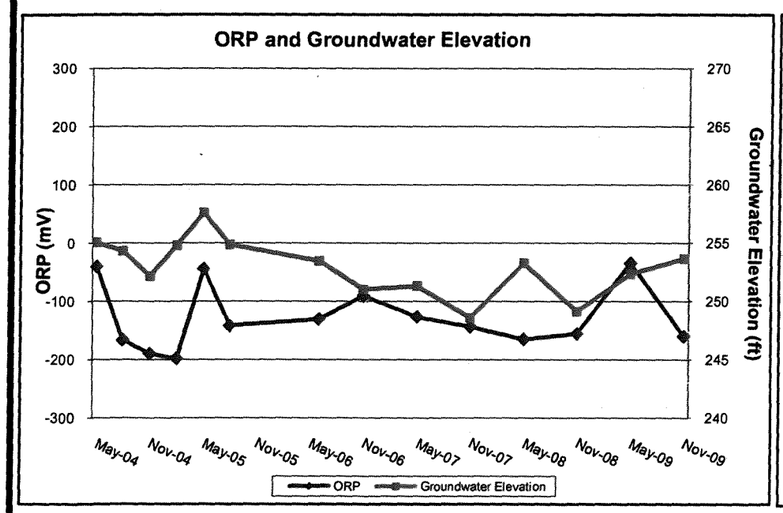


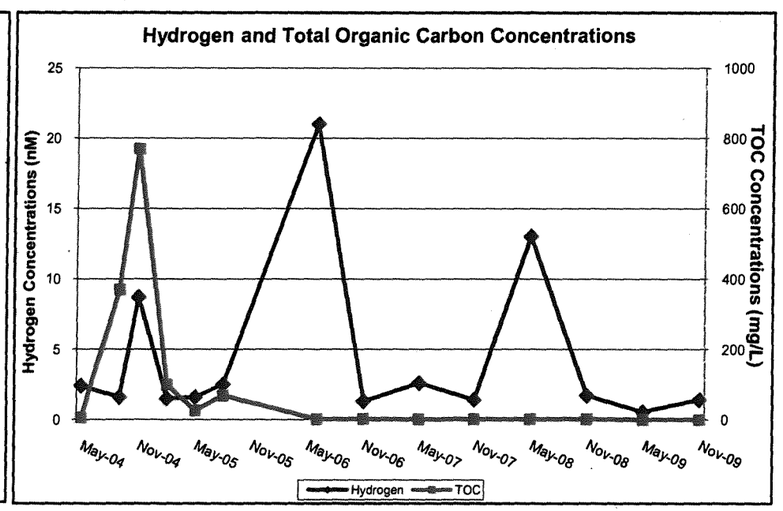
Figure C-12
Sub-Plume B:
MW 007G22LF

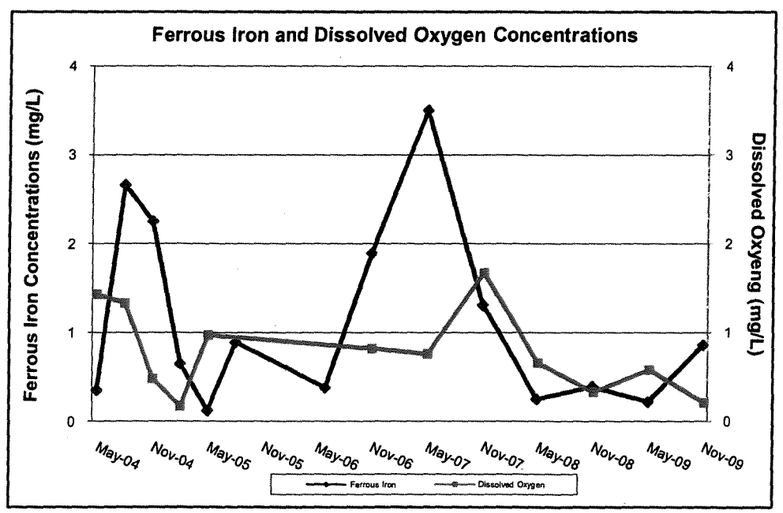
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	51	100	1	< 0.5
Aug-04	2	4	130	< 0.5
Nov-04	< 0.5	< 0.5	< 0.5	100
Feb-05	< 0.5	< 0.5	< 0.5	40
May-05	0.68	1.9	< 0.5	31
Aug-05	0.21 J	0.28 J	< 0.5	28
Jun-06	< 1	<0.4	< 1	24
Nov-06	< 1	0.9 J	< 1	18
May-07	2	4	2	43
Nov-07	2	2	0.9 J	31
May-08	< 1	< 1	< 1	13 J
Nov-08	< 1	< 1	0.2 J	13
May-09	<1	<1	<1	8
Nov-09	<1	0.4 J	0.3 J	12

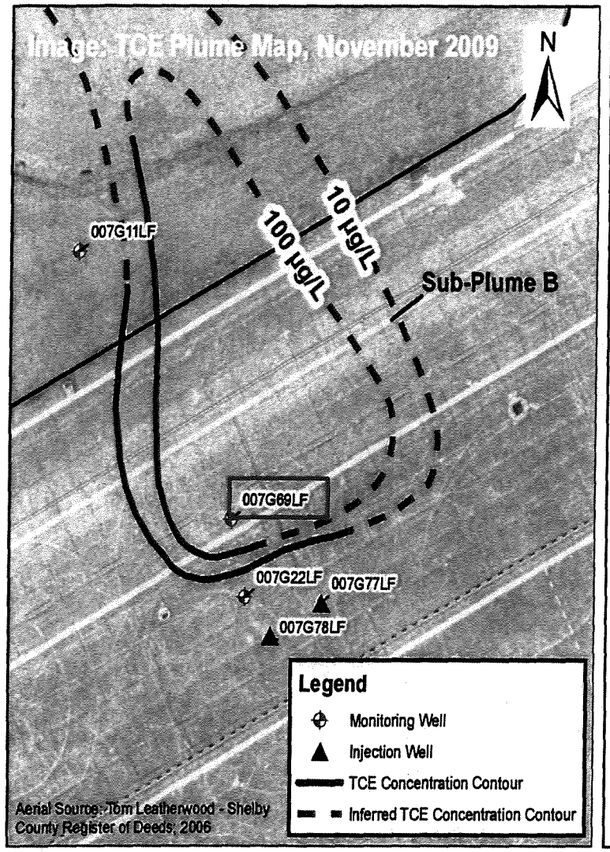
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









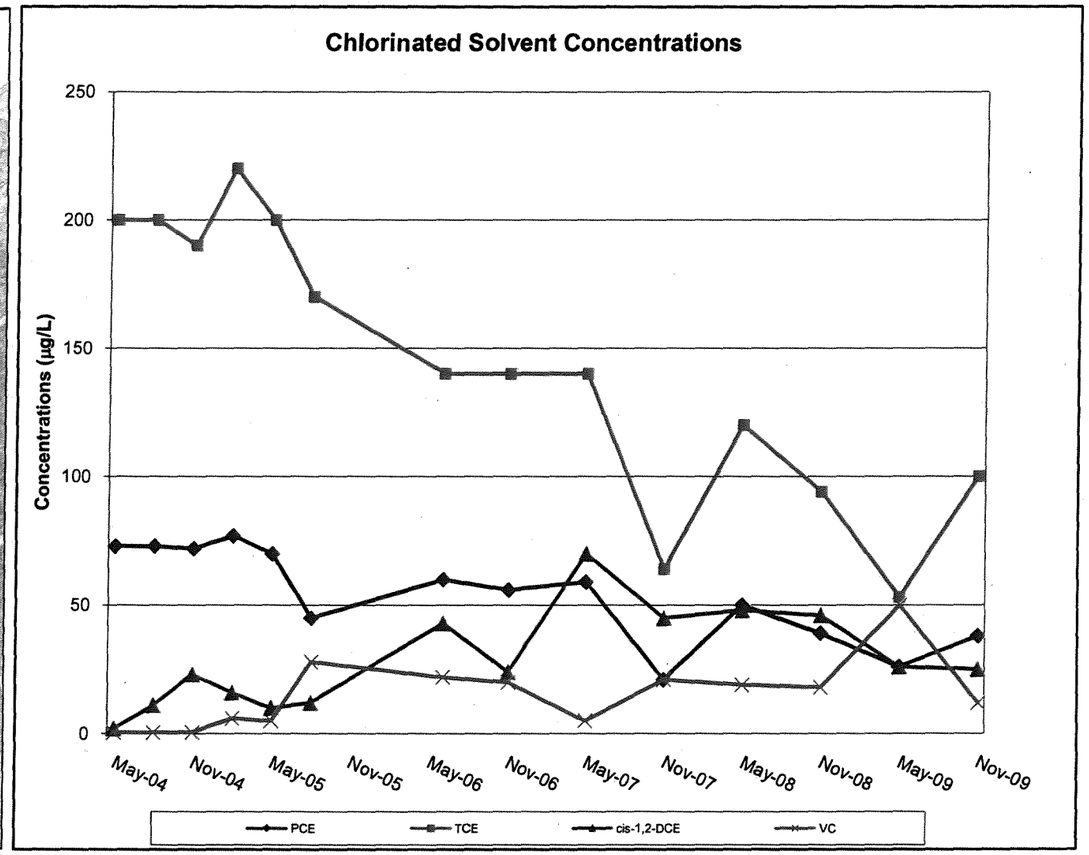
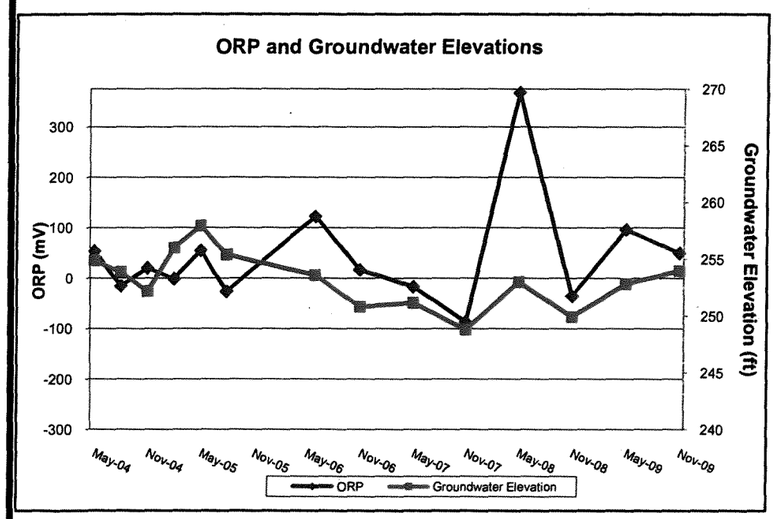


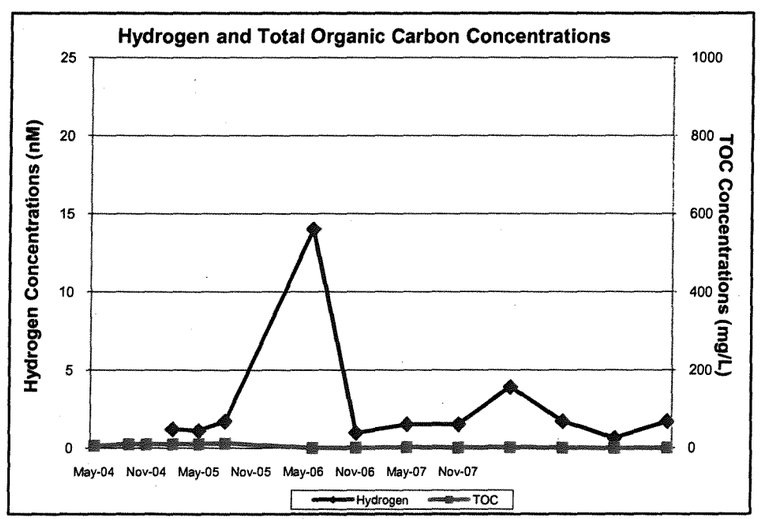
Figure C-13
Sub-Plume B:
MW 007G69LF

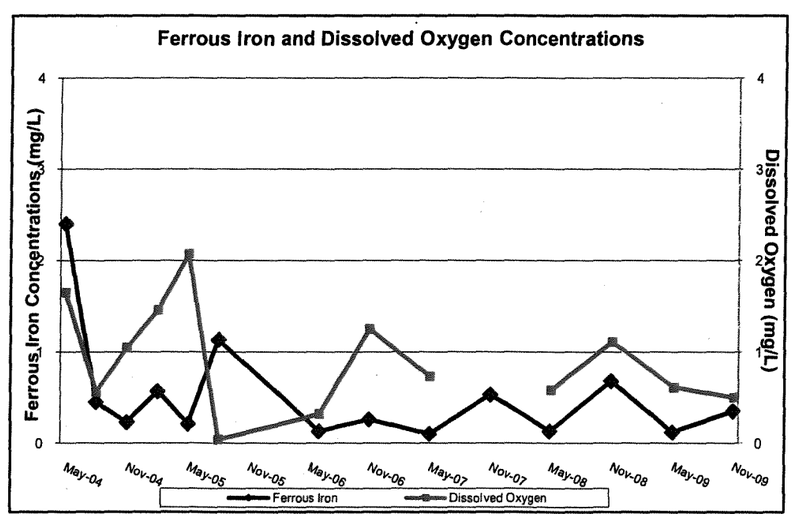
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	73	200	2	< 0.5
Sep-04	73	200	11	< 0.5
Nov-04	72	190	23	< 0.5
Feb-05	77	220	16	6
May-05	70	200	10	5
Aug-05	45	170	12 J	28 J
Jun-06	60	140	43	22
Nov-06	56	140	24	20
May-07	59	140	70	5
Nov-07	21	64	45	21
May-08	50 J	120 J	48 J	19 J
Nov-08	39	94	46	18
May-09	26	53	26	50
Nov-09	38	100	25	12

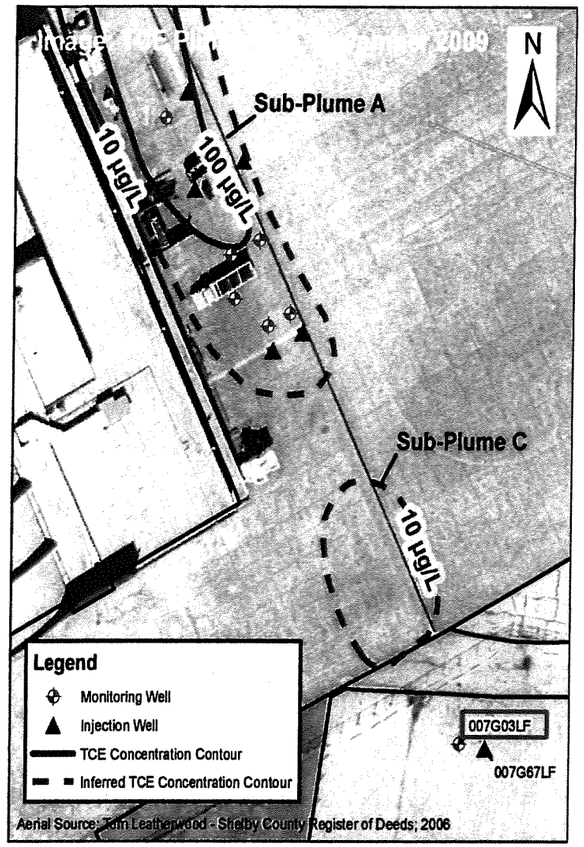
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









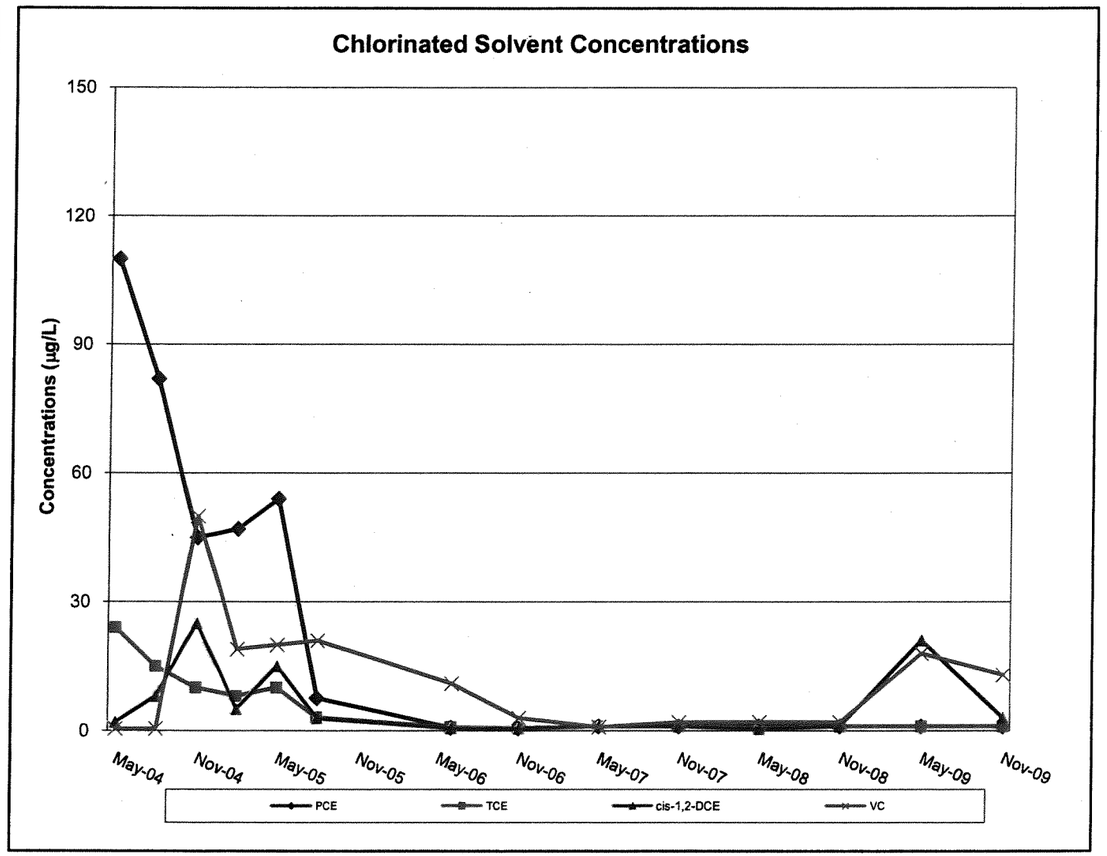


Figure C-14
Sub-Plume C:
MW 007G03LF

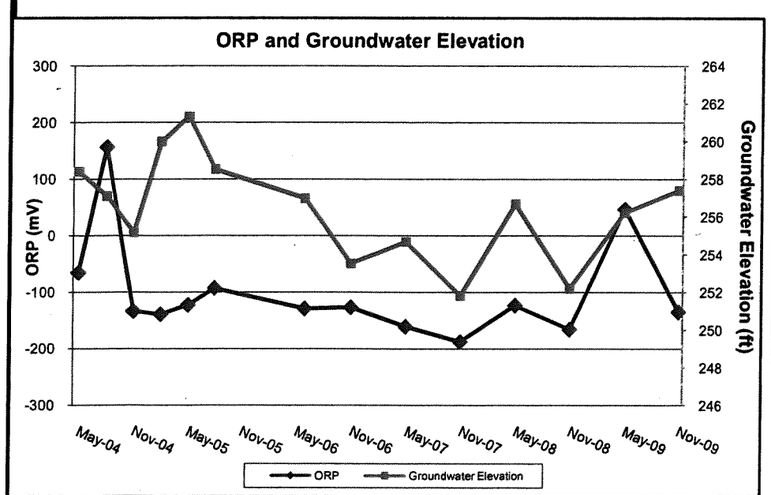
Date	Contaminants (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	110	24	2	< 0.5
Aug-04	82	15	8	< 0.5
Nov-04	44	10 J	25 J	46
Feb-05	47	7	5	19
May-05	54	10	15	20
Aug-05	7.6	3.1	2.9	21
Jun-06	0.7 J	0.8 J	0.6 J	11
Nov-06	< 1	0.5 J	< 1	3
May-07	< 1	1	< 1	0.9 J
Nov-07	< 1	1	< 1	< 2
May-08	< 1	0.7 J	0.4 J	< 2
Nov-08	< 1	< 1	< 1	< 2
May-09	< 1	< 1	21	18
Nov-09	< 1	< 1	3	13

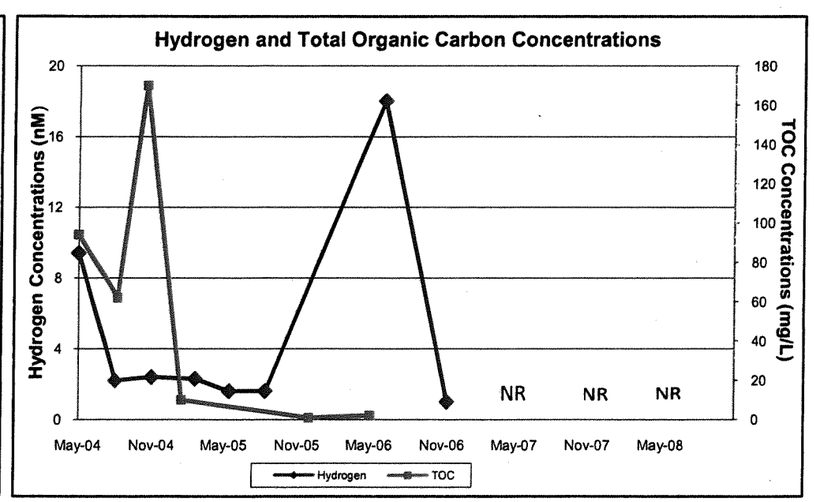
Notes:

µg/L micrograms per liter

< Undetected at the limit indicated

J Estimated





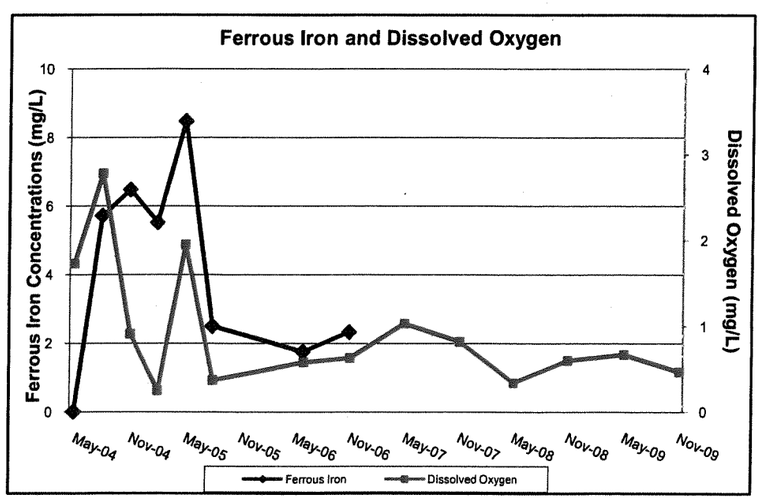
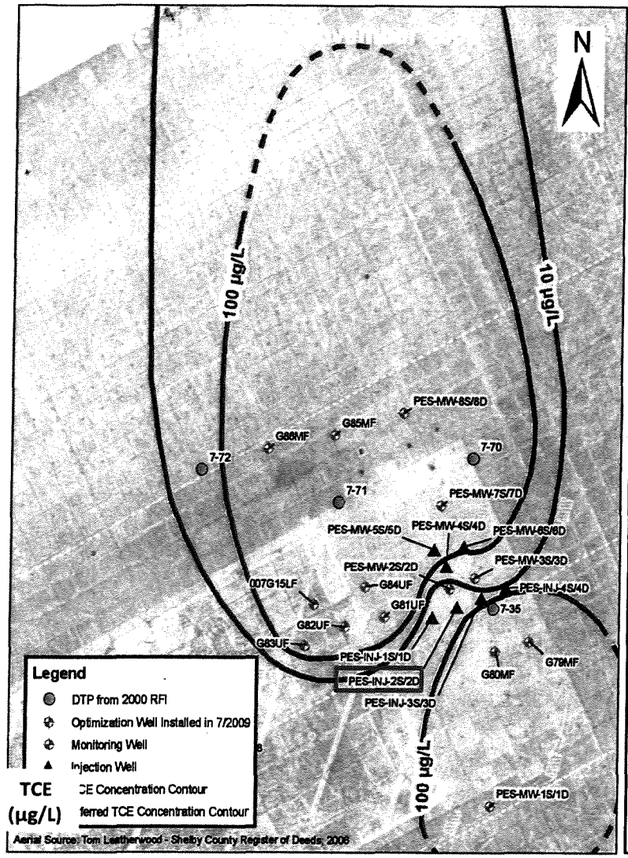
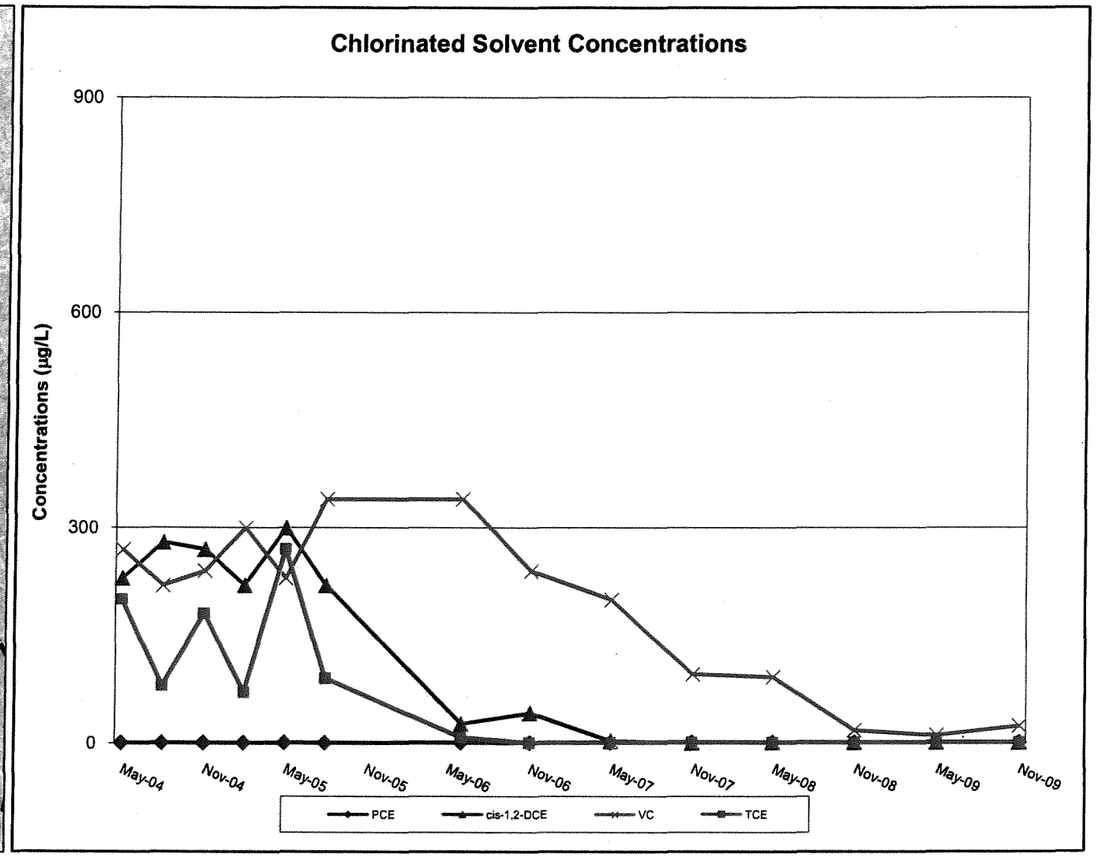


Figure C-15
Sub-Plume D:
MW PESMW2S



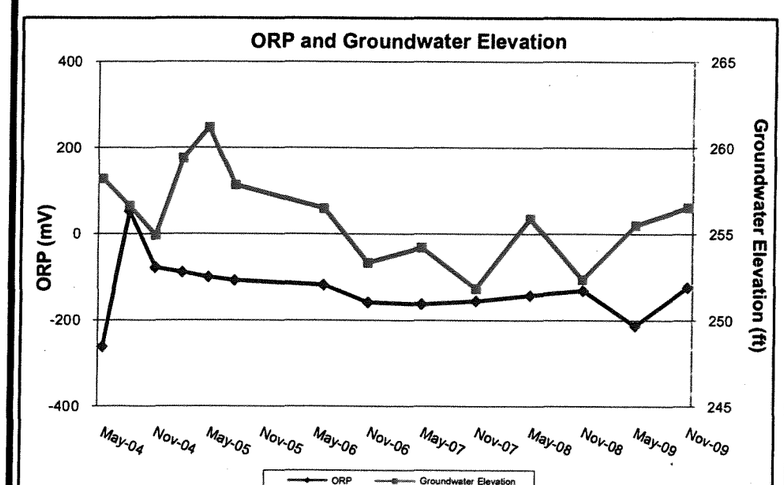


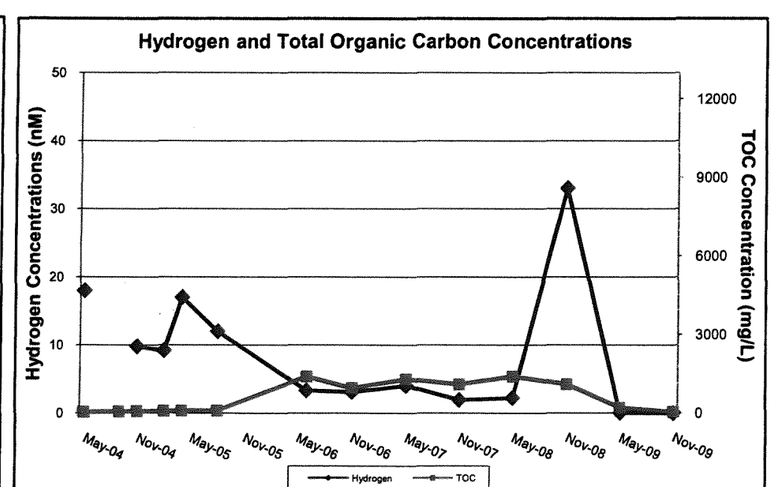
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	< 0.5	200	230	270
Aug-04	< 0.5	80	280	220
Nov-04	< 0.5	180	270	240
Feb-05	< 0.5	71	220	300
May-05	< 1	270	300	230
Aug-05	< 0.5	90	220	340
Jun-06	< 1	8	27	340
Nov-06	< 1	< 1	42	240
May-07	< 1	< 1	3	200
Nov-07	< 1	< 1	0.4 J	96
May-08	< 1	< 1	< 1	92 J
Nov-08	< 1	< 1	< 1	18
May-09	<1	<1	<1	11
Nov-09	<1	<1	<1	24

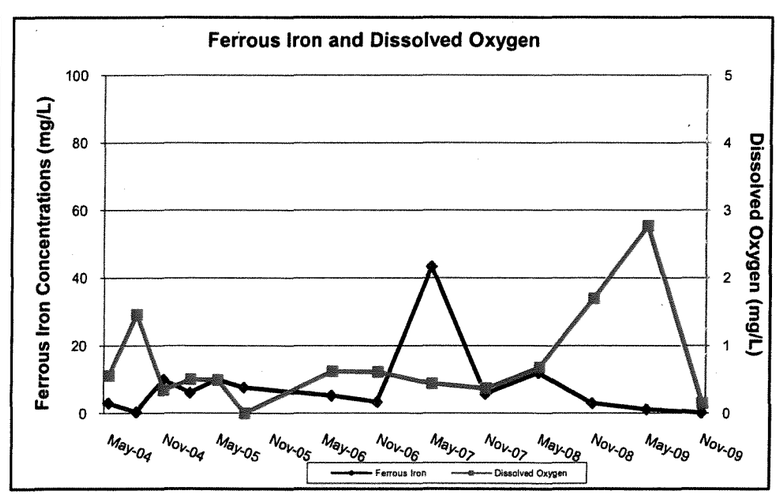
Notes:

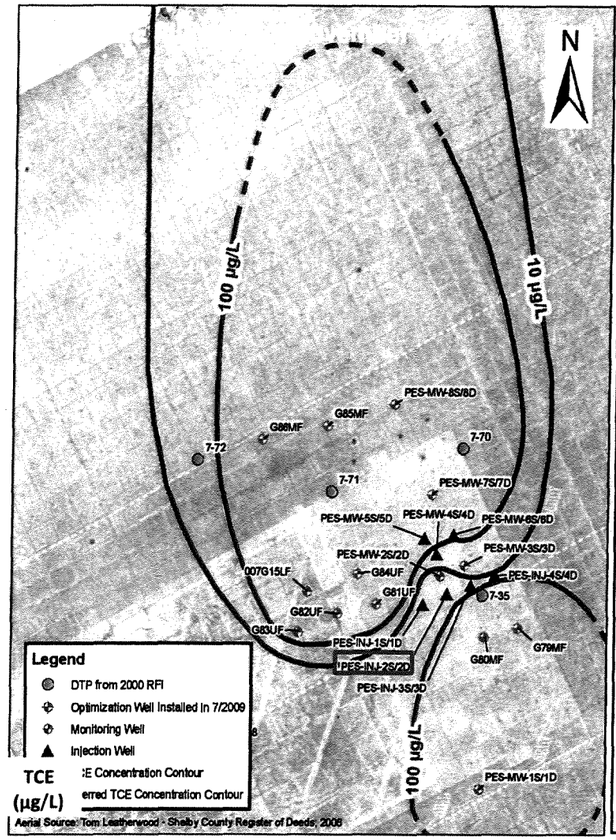
µg/L micrograms per liter

< Undetected at the limit indicated









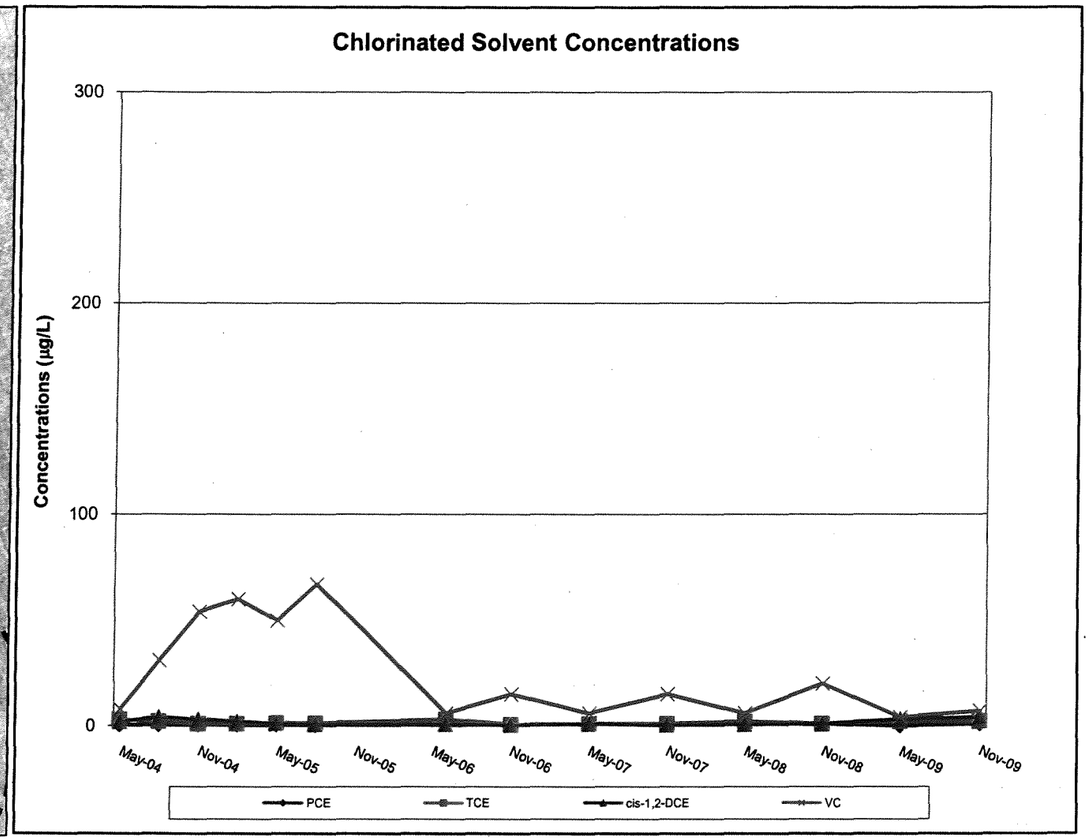
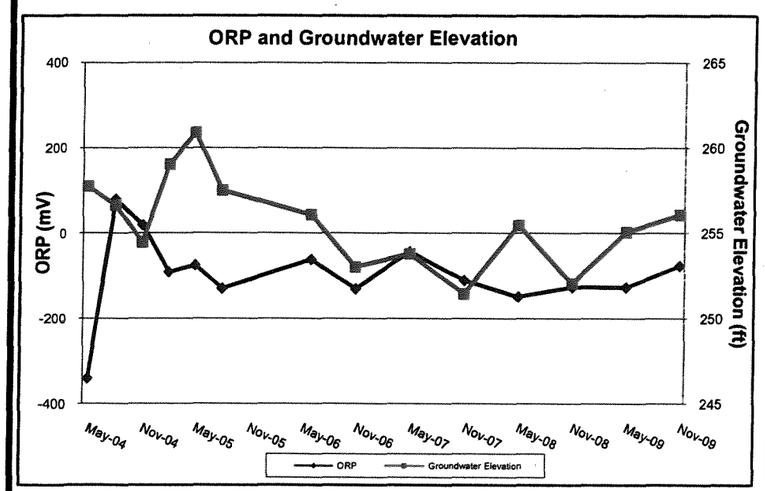


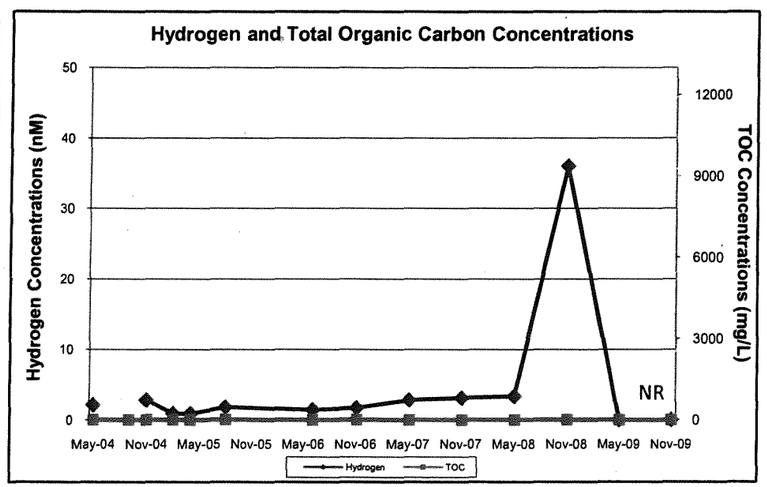
Figure C-16
Sub-Plume D:
MW PESMW2D

Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	< 0.5	2	2	8
Aug-04	< 0.5	2	4	31
Nov-04	< 0.5	1	3	54
Feb-05	< 0.5	1	2	60
May-05	< 0.5	1.3	1.2	50
Aug-05	< 0.5	1.2	0.78	67
Jun-06	< 1	3	0.8 J	6
Nov-06	< 1	0.6 J	< 1	15
May-07	< 1	1	< 1	6
Nov-07	< 1	1	0.5 J	15
May-08	< 1	2 J	0.7 J	6 J
Nov-08	< 1	1	0.9 J	20
May-09	< 1	2 J	3	4
Nov-09	< 1	2	4	7

Notes:

µg/L	micrograms per liter
<	Undetected at the limit indicated
J	Estimated





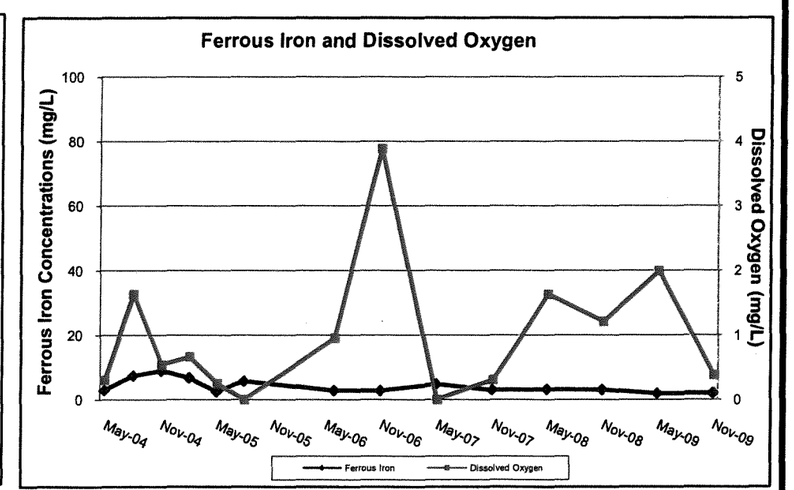
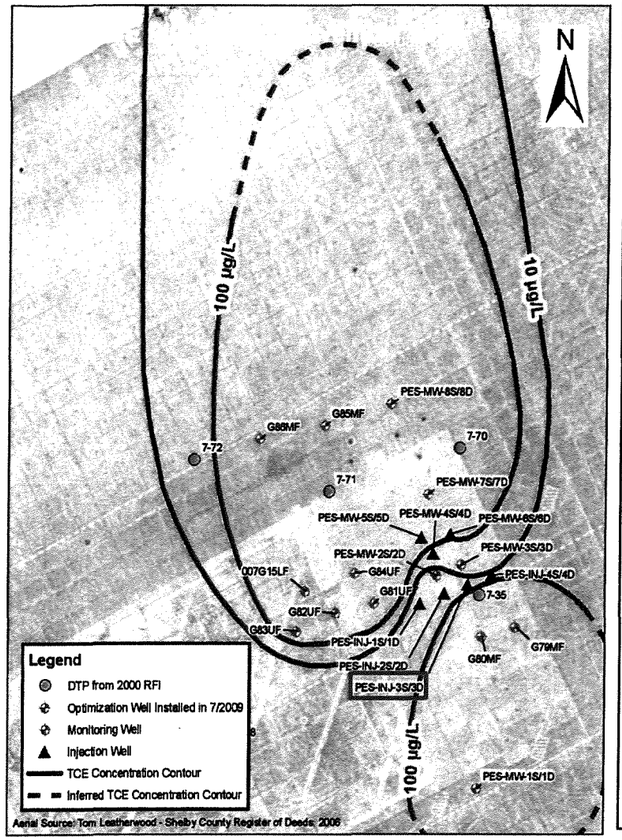
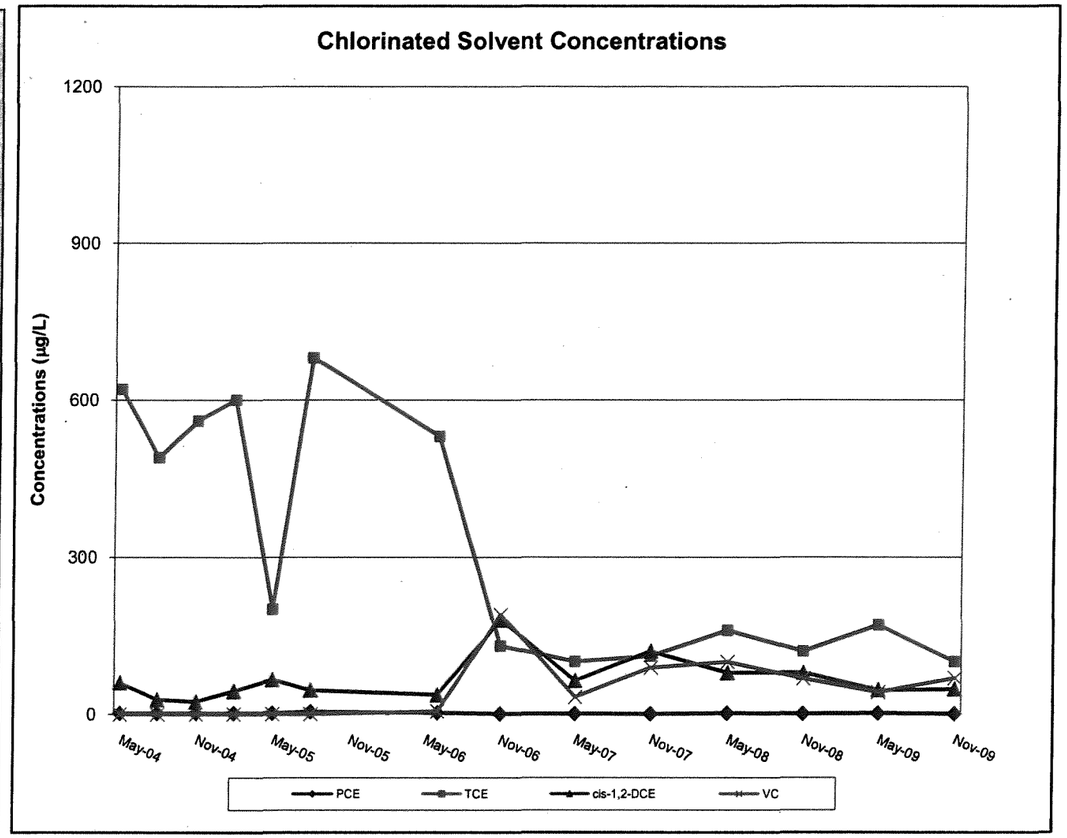


Figure C-17
Sub-Plume D:
MW PESMW3S





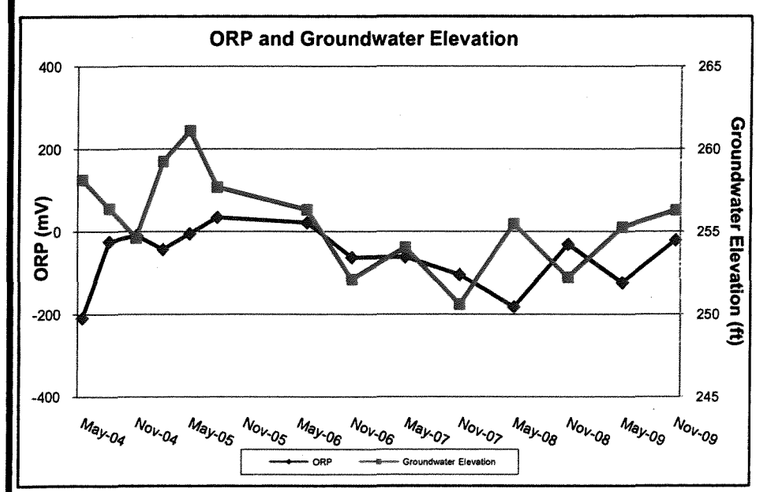
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	2	620	60	<0.5
Aug-04	2	490	28 J	<0.5
Nov-04	2 J	560	24 J	0.4 J
Feb-05	2	600	44	<0.5
May-05	2.2	200	66	0.66
Aug-05	4.9 J	680	46	0.66 J
Jun-06	3	530	37	7
Nov-06	1	130	180	190
May-07	< 1	100	64	33
Nov-07	0.8 J	110	120	89
May-08	2 J	160 J	79 J	100 J
Nov-08	1	120	79	68
May-09	2	170	46	42
Nov-09	1	100	48	69

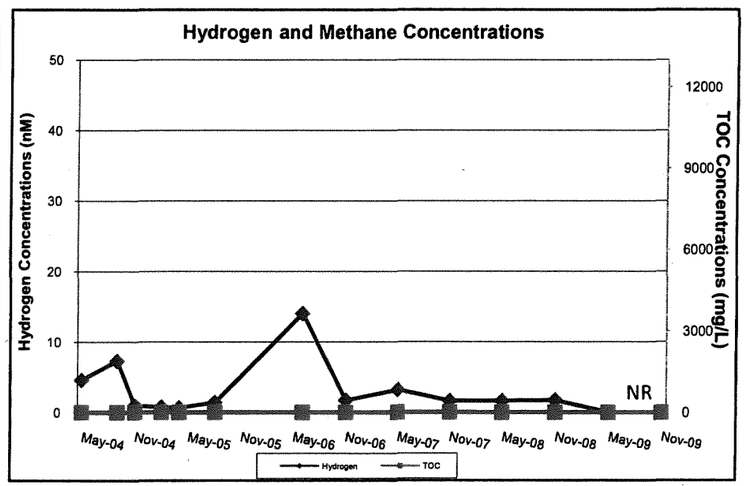
Notes:

µg/L micrograms per liter

J Estimated

< Undetected at the limit indicated





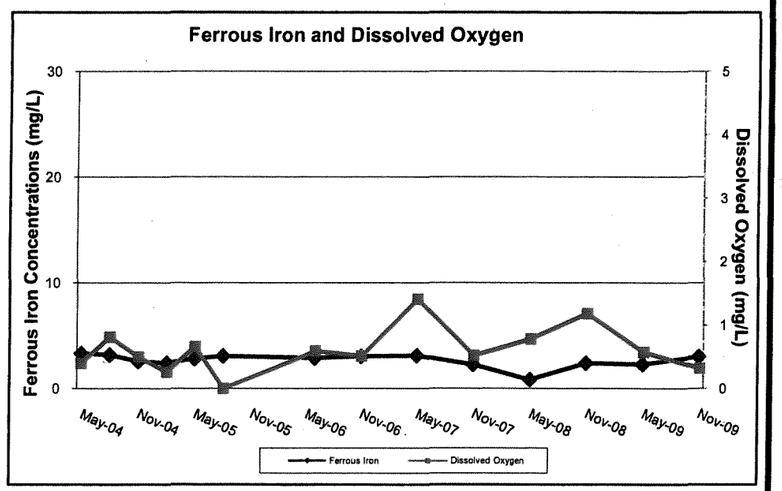
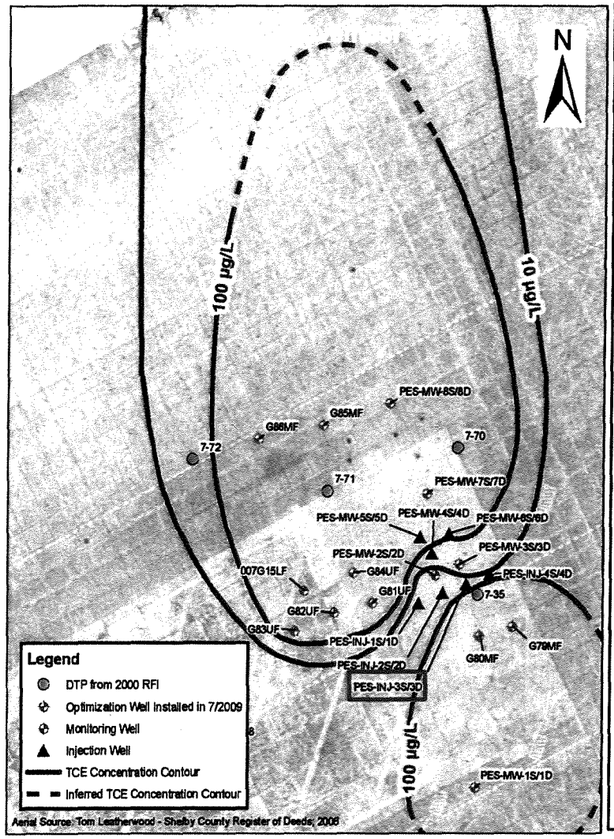
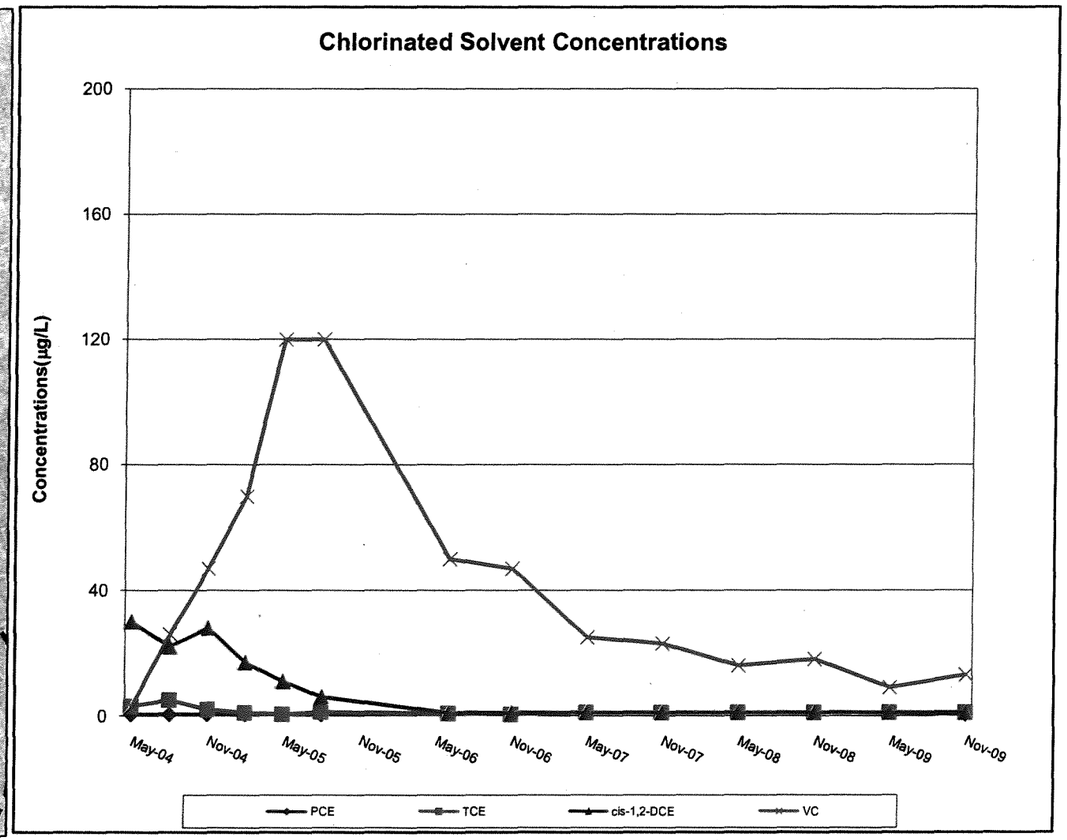


Figure C-18
Sub-Plume D:
MW PESMW3D





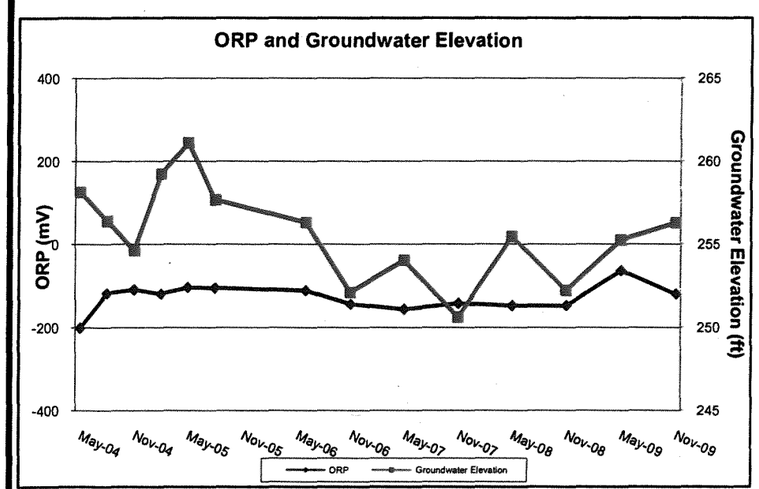
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	< 0.5	3	30	3
Aug-04	< 0.5	5	22	26
Nov-04	< 0.5	2 J	28 J	47
Feb-05	< 0.5	1	17	70
May-05	< 0.5	0.45 J	11	120
Aug-05	< 0.5	1.2	6	120
Jun-06	< 1	0.7 J	1	50
Nov-06	< 1	< 1	1	47
May-07	< 1	< 1	1	25
Nov-07	< 1	< 1	1 J	23
May-08	< 1	< 1	< 1	16 J
Nov-08	< 1	< 1	< 1	18
May-09	< 1	< 1	< 1	9
Nov-09	0.4 J	< 1	< 1	13

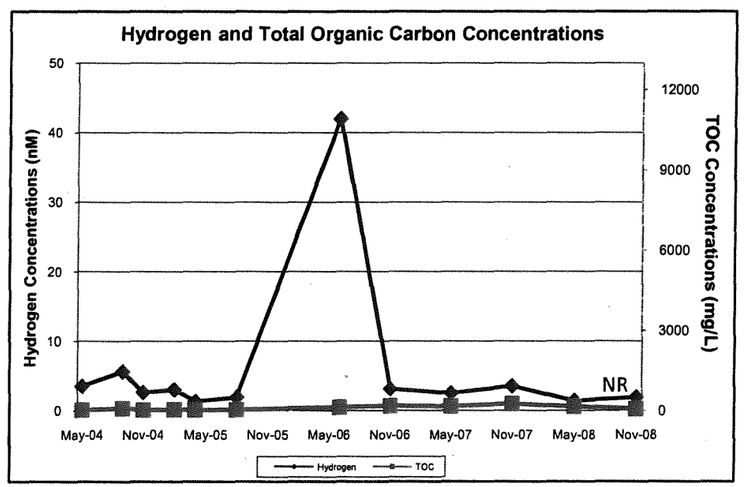
Notes:

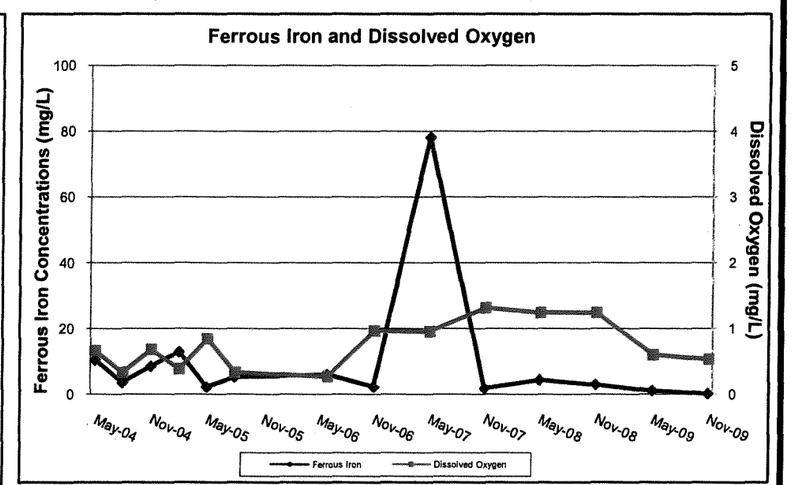
µg/L micrograms per liter

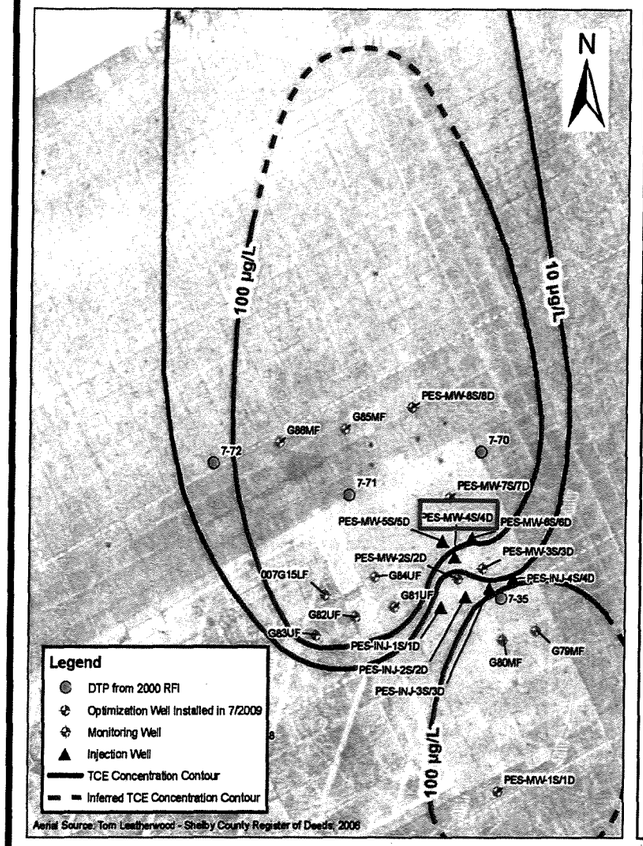
J Estimated

< Undetected at the limit indicated









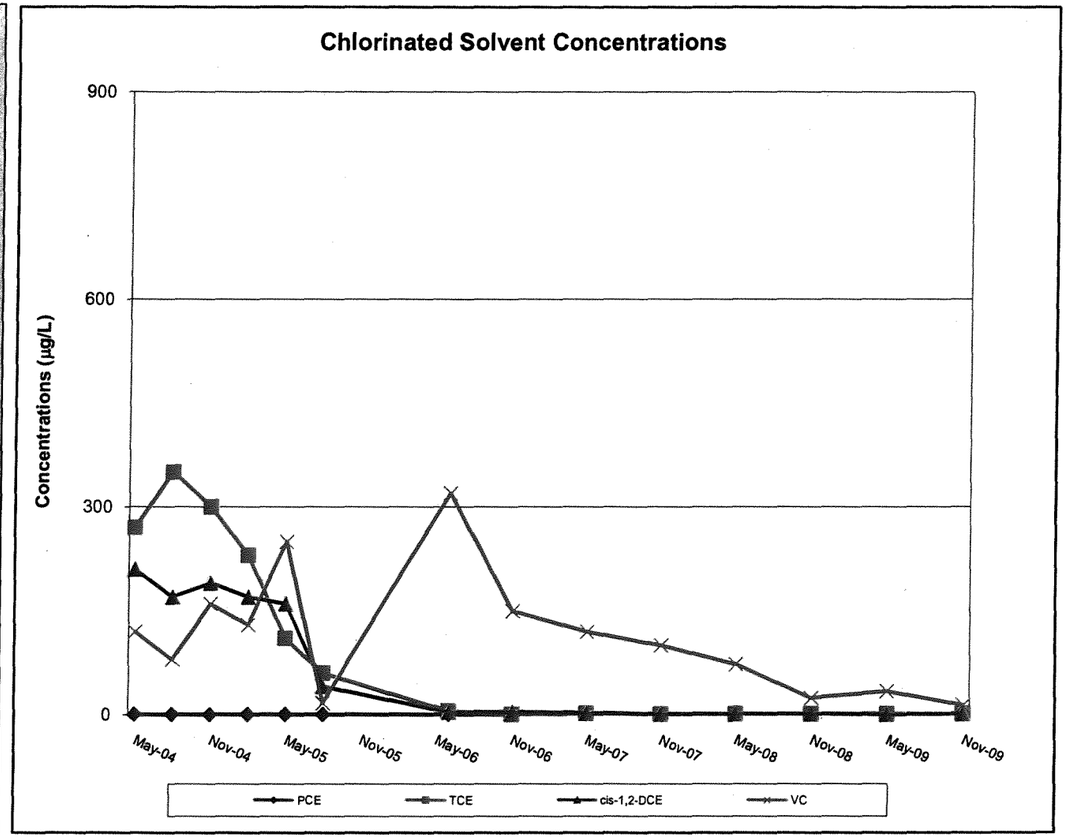
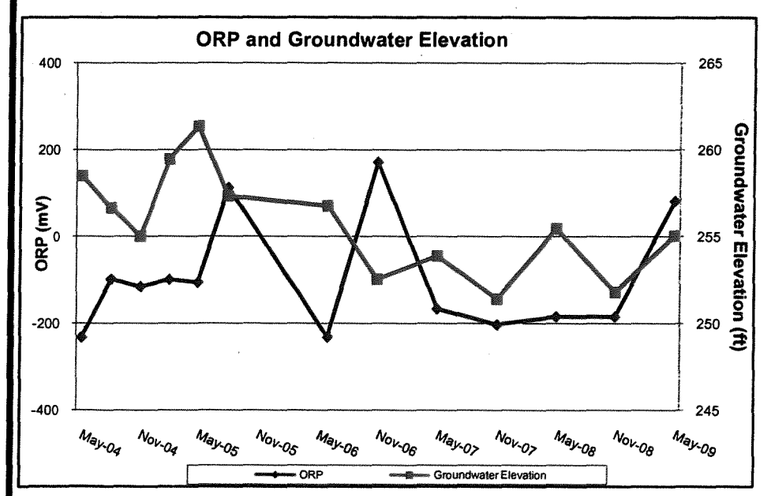


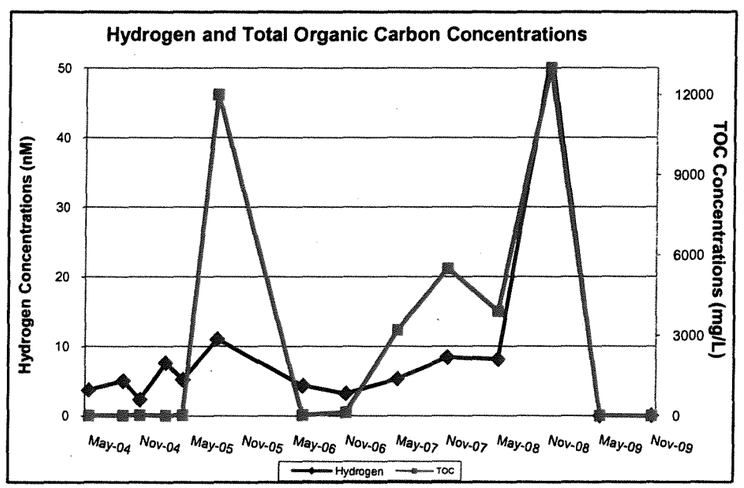
Figure C-19
Sub-Plume D:
MW PESMW4S

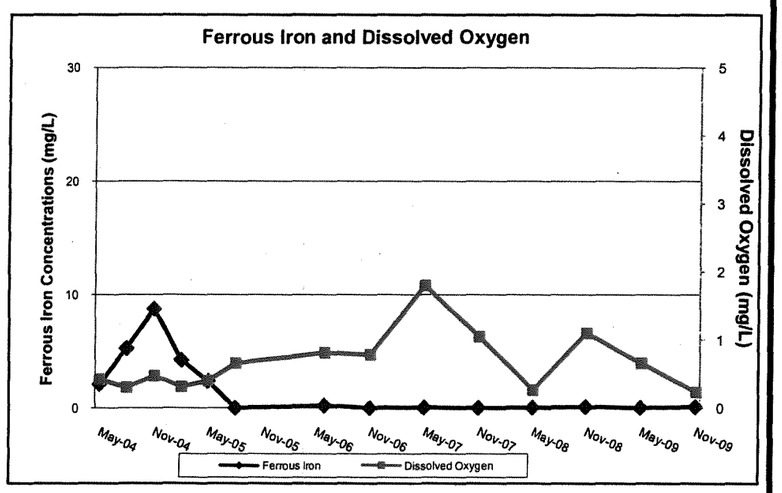
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	0.6	270	210	120
Aug-04	0.6	350	170	80
Nov-04	0.4 J	300	190	160
Feb-05	< 0.5	230	170	130
May-05	< 0.5	110	160	250
Aug-05	< 0.5	60	41	17
Jun-06	< 1	5	4	320
Nov-06	< 1	< 1	4	150
May-07	< 1	2	3	120
Nov-07	< 1	0.6 J	0.9 J	100
May-08	< 1	< 1	< 1	73 J
Nov-08	< 1	< 1	< 1	24
May-09	< 1	< 1	0.6 J	34
Nov-09	< 1	< 1	< 1	14

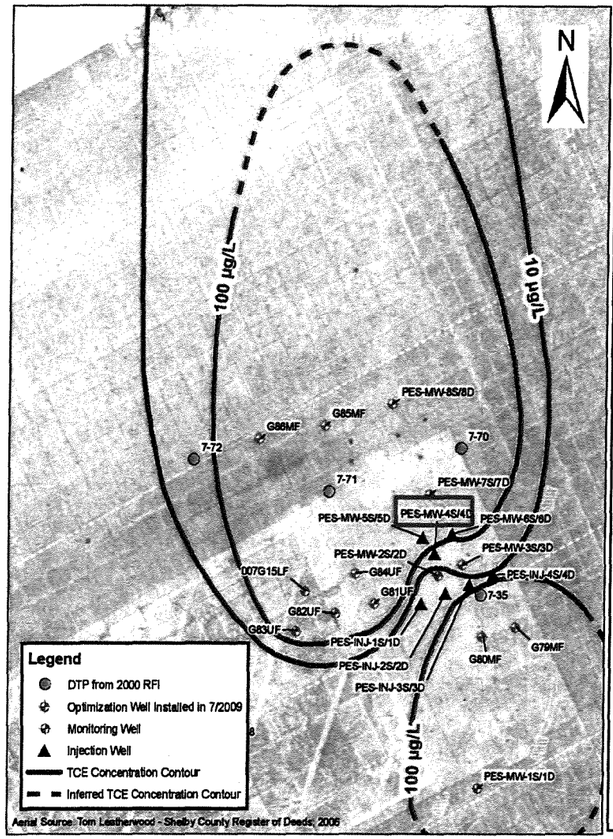
Notes:

µg/L	micrograms per liter
J	Estimated
<	Undetected at the limit indicated









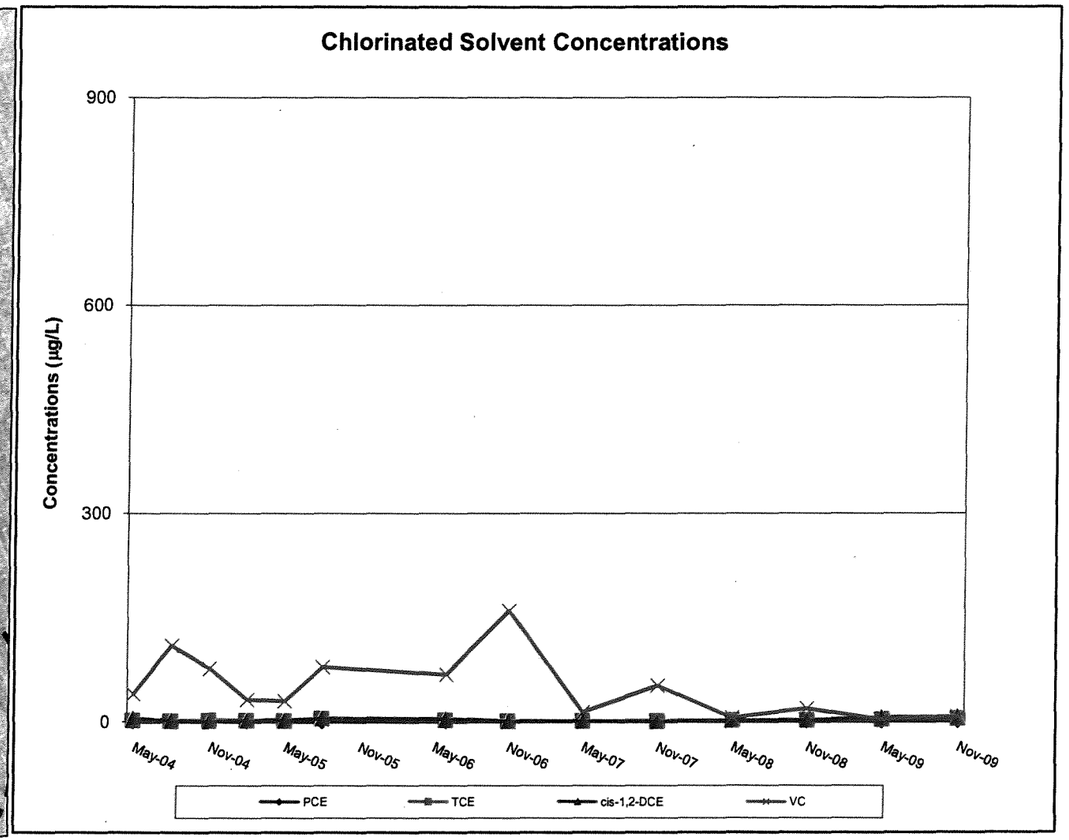
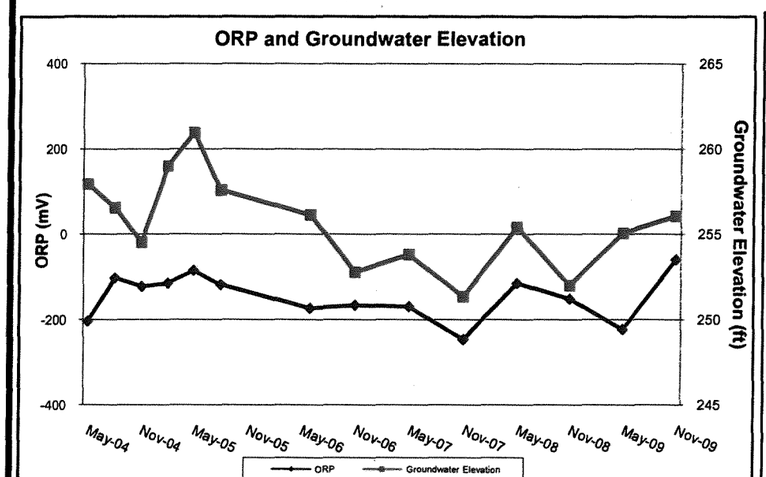


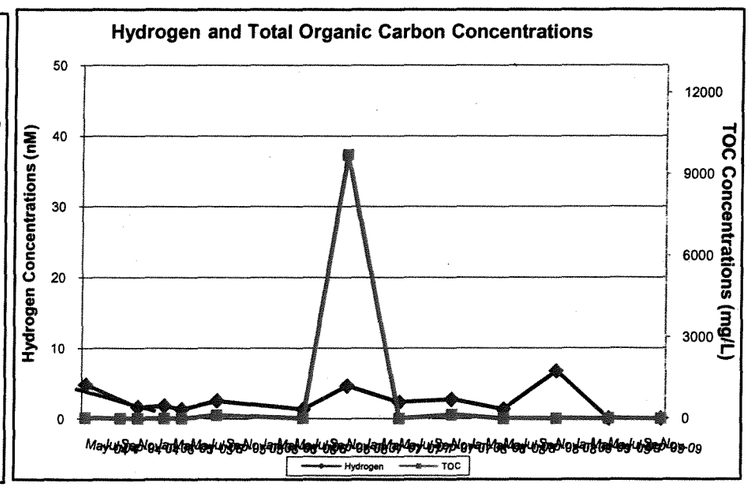
Figure C-20
Sub-Plume D:
MW PESMW4D

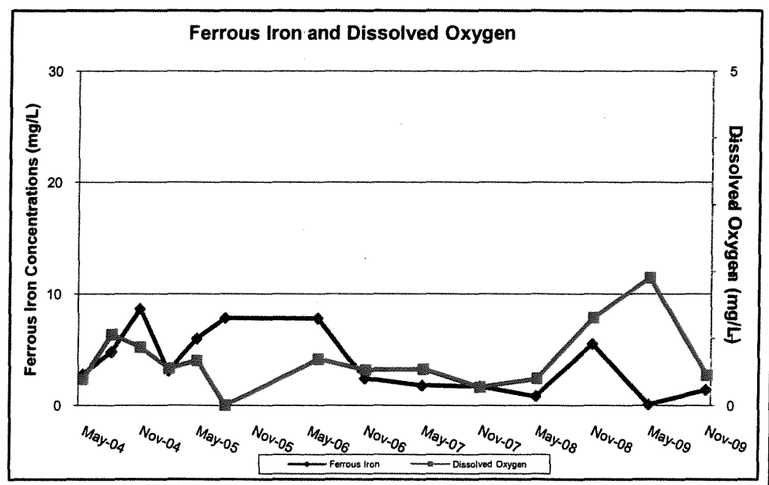
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	< 0.5	2	5	40
Aug-04	< 0.5	1	2	110
Nov-04	< 0.5	2	1	77
Feb-05	< 0.5	2	2	32
May-05	< 0.5	1.3	2.3	30
Aug-05	< 0.5	4.4	5	79
Jun-06	< 1	2	4	68
Nov-06	< 1	0.7 J	0.8 J	160
May-07	< 1	1	< 1	14
Nov-07	< 1	0.8 J	0.6 J	52
May-08	< 1	2 J	2 J	6 J
Nov-08	< 1	2	2	19
May-09	< 1	3	6	3
Nov-09	< 1	4	7	7

Notes:

µg/L	micrograms per liter
<	Undetected at the limit indicated
J	Estimated value

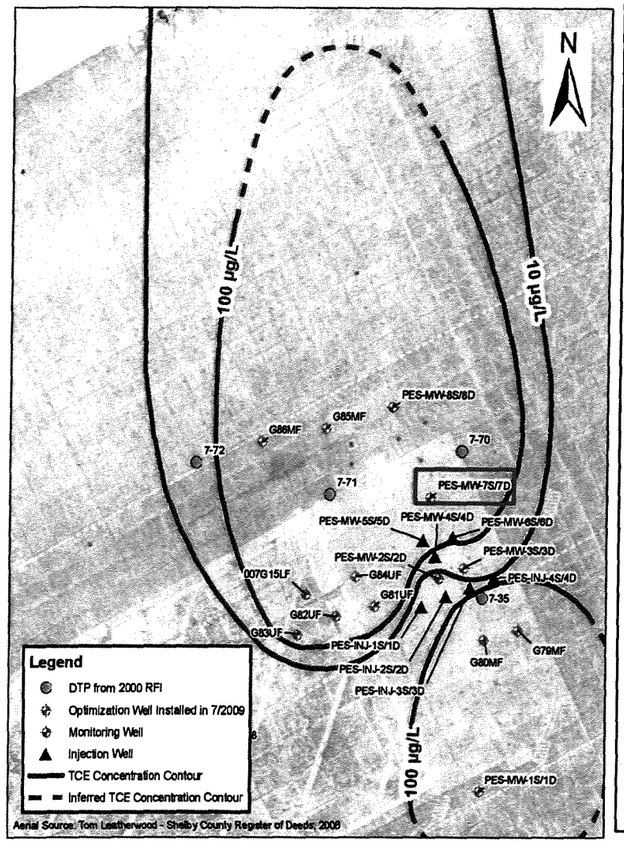


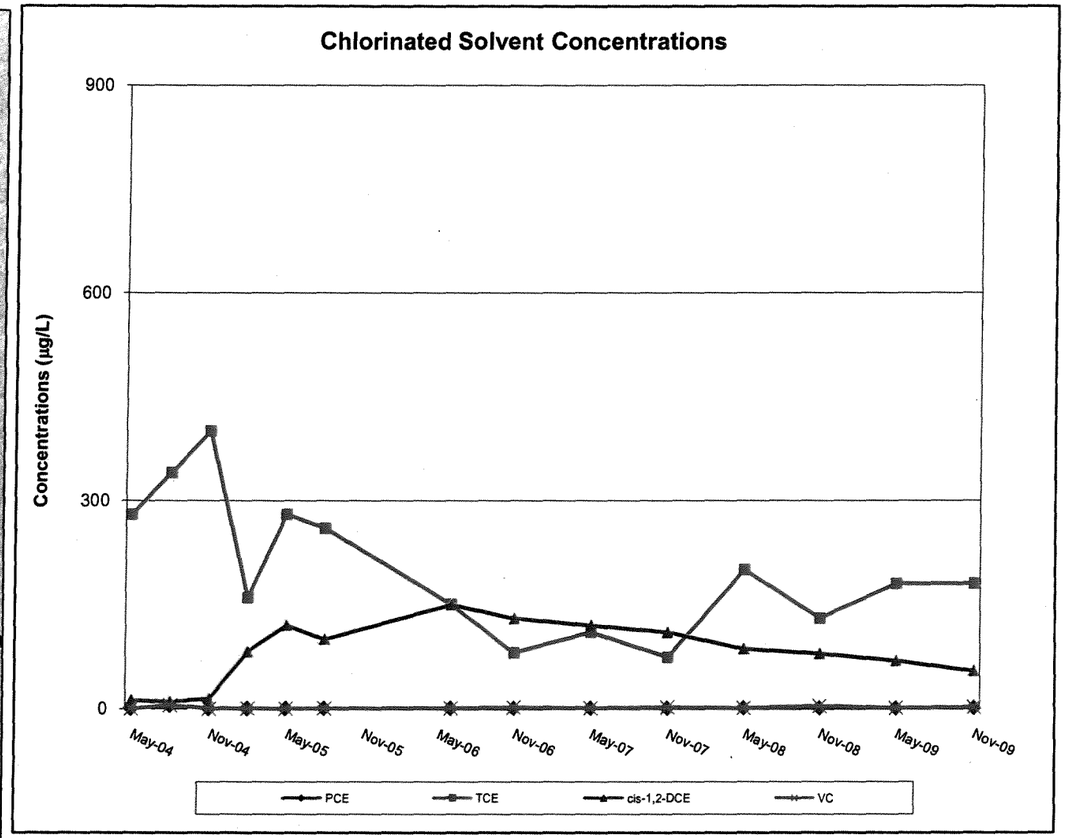




Note: August 2005 DO measurements were collected using the Winkler titration method.

Figure C-21
Sub-Plume D:
MW PESMW7S

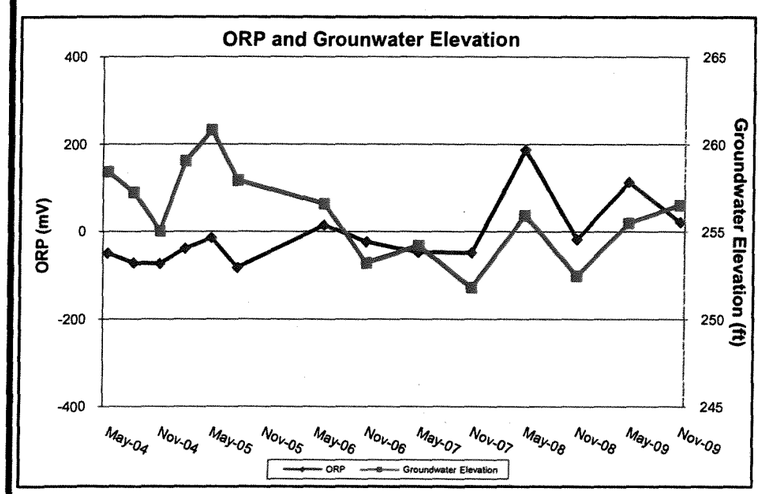


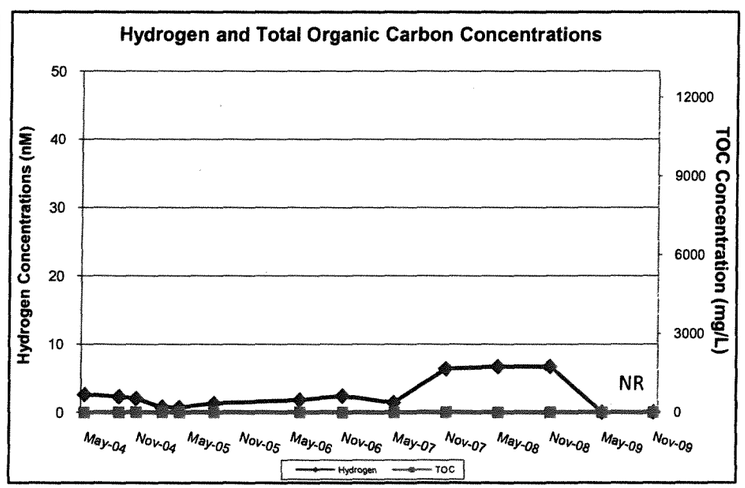


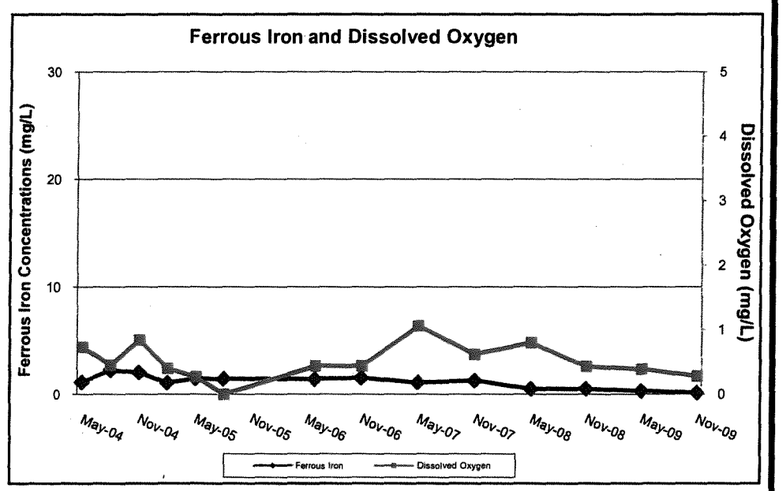
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	0.5	280	12	< 0.5
Aug-04	<5	340	10	<5
Nov-04	0.6	400	14	< 0.5
Feb-05	< 0.5	160	82	0.5
May-05	0.46 J	280	120	0.47
Aug-05	0.65	260	100	0.59
Jun-06	< 1	150	150	1 J
Nov-06	< 1	80	130	2
May-07	< 1	110	120	1 J
Nov-07	< 1	74	110	<2
May-08	< 1	200 J	86 J	1 J
Nov-08	< 1	130	79	4
May-09	< 1	180	69	1 J
Nov-09	< 1	180	54	2

Notes:

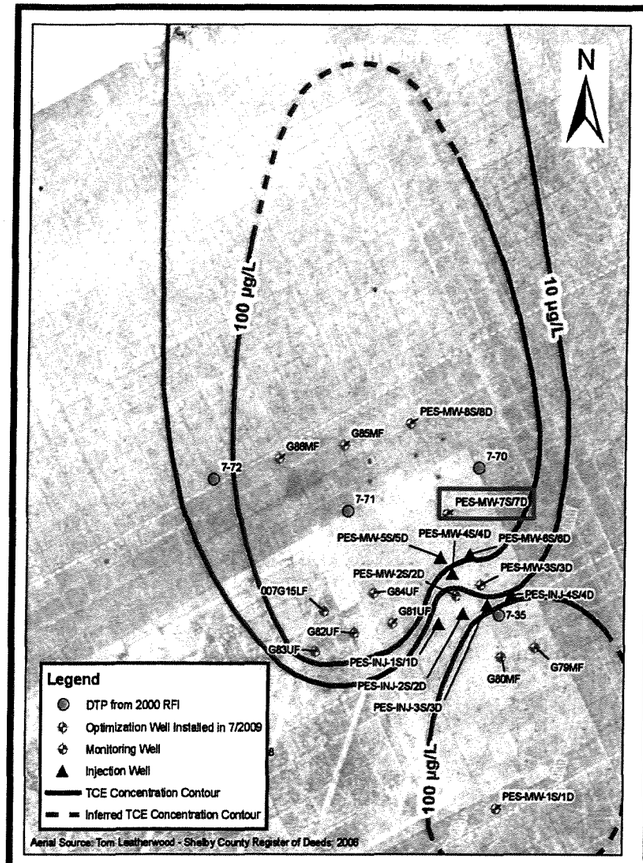
µg/L	micrograms per liter
<	Undetected at the limit indicated
J	Estimated value







Note: August 2005 DO measurements were collected using the Winkler titration method.



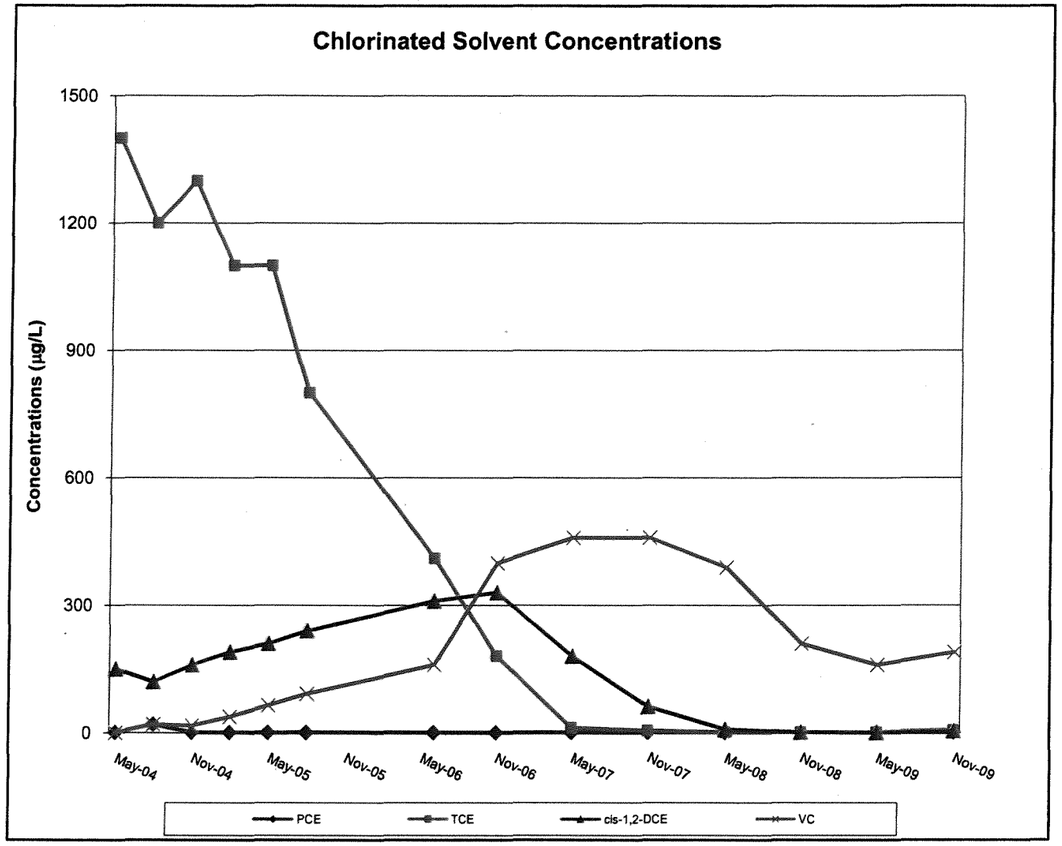


Figure C-22
Sub-Plume D:
MW PESMW7D

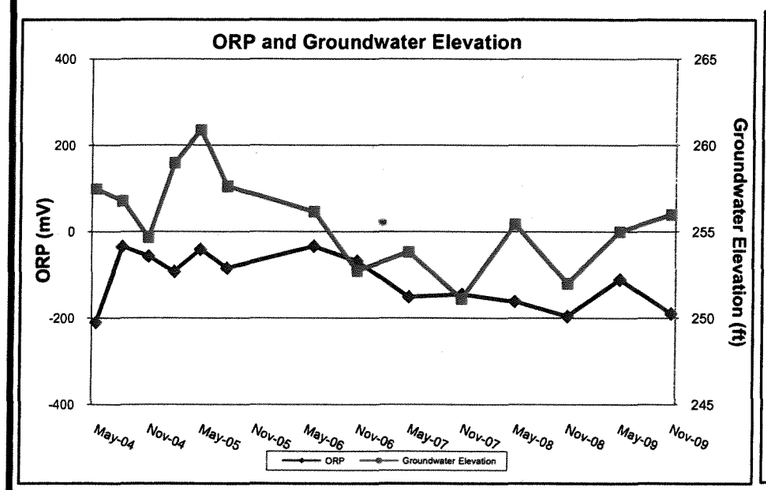
Date	Constituents (µg/L)			
	PCE	TCE	cis-1,2-DCE	VC
May-04	1	1,400	150	< 0.5
Aug-04	<20	1,200	120	< 0.5
Nov-04	0.9	1,300	160	17
Feb-05	0.9	1,100	190	38
May-05	0.74	1,100	210	65
Aug-05	0.85	800	240	92
Jun-06	< 1	410	310	160
Nov-06	< 1	180	330	400
May-07	< 1	12	180	460
Nov-07	< 1	5	62	460
May-08	< 1	< 1	8 J	390 J
Nov-08	< 1	< 1	< 1	210
May-09	< 1	< 1	0.7	160
Nov-09	1	6	4	190

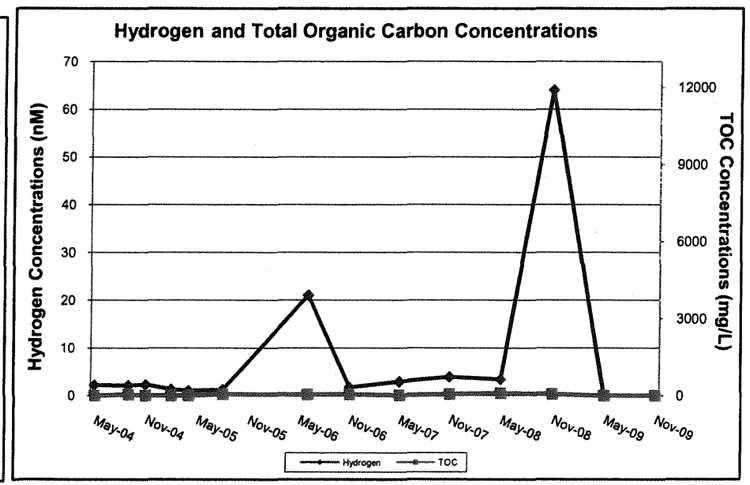
Notes:

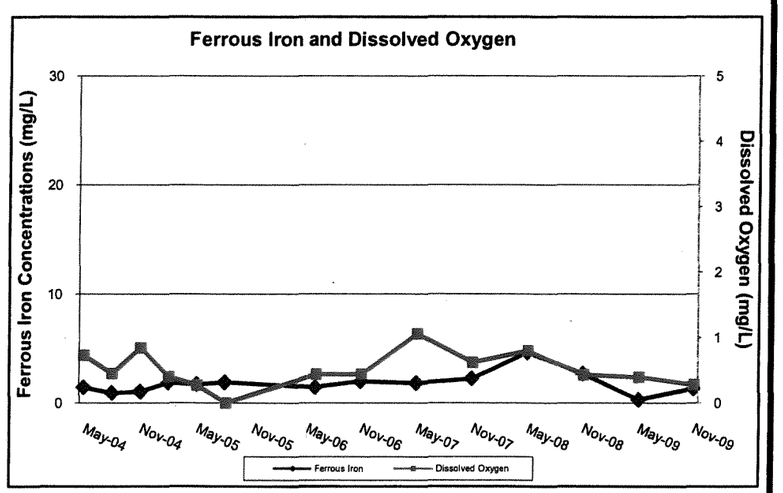
µg/L micrograms per liter

< Undetected at the limit indicated

J Estimated value







Appendix D
Groundwater Sampling Forms

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/15/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: MAY 09		
WELL ID: 007-03-LF	LOCATION: AOC-A		
WEATHER CONDITIONS: Mostly Clear Windy	AMBIENT TEMP: 80		
REVIEWED BY:	PERSONNEL: CGH JAB LC		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: 12:55	FINISH:
DEPTH TO WATER from TOC (ft.): ~~37.7~~ 27.11	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1303	FINISH: 1333
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 1.8	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: BLADDER

Time (hh:mm):	1303	1308	1313	1318	1323							
pH (units):	7.11	7.11	7.10	7.15	7.16							
Conductivity (mS/cm):	0.717	0.762	0.815	0.895	0.960							
Turbidity (NTU):	5.06	3.52	3.88	3.65	3.83							
DO (mg/L):	1.26	0.99	0.84	0.75	0.67							
Temperature (C°):	22.16	22.10	22.01	21.99	21.99							
ORP (mV):	-14.8	24.4	-7.5	-29.9	-46.7							
Volume Purged (gal):	0.5	0.9	1.1	1.4	1.8							
Depth to Water (ft):	27.14	27.14	27.14	27.14	27.14							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G03LF29	5/15/09	1303	3		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/21/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: ~~07-04-LF~~ NSA MID SOUTH	EVENT: May 2002		
WELL ID: 07-04-LF	LOCATION: AOC-4		
WEATHER CONDITIONS: Sunny 70s	AMBIENT TEMP: 70s		
REVIEWED BY:	PERSONNEL: CLH JAB		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 27.02	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0915	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Form Tens, Nitrate, Microbes, VFA	

MNA FIELD RESULTS

FERROUS IRON	1.18	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	4.33	mg/L
SULFIDE	0.027	mg/L	ALKALINITY	760	mg/L	AMMONIA-NITROGEN	0.78	mg/L
SULFATE	Ø	mg/L	CO_2	150	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	0921	0926	0931	0936	0941	0946	0951					
pH (units):	6.88	6.91	6.96	6.97	7.01	7.02	7.03					
Conductivity (mS/cm):	0.877	0.999	1.115	1.229	1.288	1.342	1.404					
Turbidity (NTU):	11.5	10.33	12.9	15.7	15.9	16.2	14.9					
DO (mg/L):	1.04	0.73	0.59	0.54	0.47	0.44	0.41					
Temperature (C°):	21.12	21.10	21.05	21.01	21.00	21.00	20.99					
ORP (mV):	183.0	145.2	95.8	62.6	38.0	22.8	13.5					
Volume Purged (gal):	0.5	1.25	1.8	2.4	3.6	3.85	4.4					
Depth to Water (ft):	27.25	27.25	27.25	27.25	27.25	27.25	27.25					
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G04LF29	05/21/09	0915	11		

Purging/Sampling Device Decon Process:

COMMENTS: Green tint to water

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-20-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-11-LF	LOCATION: ABCA		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 80°F		
REVIEWED BY:	PERSONNEL: R.A & D.H		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 32.44	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1405	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, M.E.G.	

MNA FIELD RESULTS

FERROUS IRON	0.06	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	Q	mg/L
SULFIDE	0.037	mg/L	ALKALINITY	480	mg/L	AMMONIA-NITROGEN	0.78	mg/L
SULFATE	39	mg/L	CO_2	210	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1417	1422	1427	1432	1437							
pH (units):	6.65	6.65	6.64	6.64	6.63							
Conductivity (mS/cm):	0.782	0.784	0.785	0.788	0.788							
Turbidity (NTU):	0.84	0.61	0.76	0.73	0.56							
DO (mg/L):	10.22	2.69	2.00	2.06	2.08							
Temperature (C°):	21.00	20.87	20.94	20.84	20.68							
ORP (mV):	-190.6	-191.1	-190.0	-190.0	-188.5							
Volume Purged (gal):	0.50	0.70	0.80	0.95	1.05							
Depth to Water (ft):	32.45	32.45	32.45	32.45	32.45							

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076-11 LF 20	05/20/09	1445	9	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/20/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID SOUTH	EVENT: MAY 2009		
WELL ID: 7-21-LF	LOCATION: AOC A		
WEATHER CONDITIONS: SUNNY LT WIND	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CGH JAB LC		

WELL DIA: 2" FLUSH	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: 0	FINISH:
DEPTH TO WATER from TOC (ft.): 30.61	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0943	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, NITRATE, TOTAL IRON, VFA, METHANE	

MNA FIELD RESULTS

FERROUS IRON	0.19	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	0.015	mg/L	ALKALINITY	280	mg/L	AMMONIA-NITROGEN	1.3	mg/L
SULFATE	6	mg/L	CO_2	75	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	0958	1003	1008	1013	1018							
pH (units):	7.57	7.21	7.07	6.99	6.95							
Conductivity (mS/cm):	0.507	0.514	0.515	0.516	0.516							
Turbidity (NTU):	2.7	1.71	2.36	2.12	2.42							
DO (mg/L):	0.88	0.81	0.77	0.71	0.68							
Temperature (C°):	21.44	21.42	21.40	21.42	21.41							
ORP (mV):	197.1	197.2	194.9	189.0	183.4							
Volume Purged (gal):	1.4	1.9	2.35	2.85	3.4							
Depth to Water (ft):	31.61	31.61	31.61	31.61	31.61							

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G21LF29	5/20/09	0943	11		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/19/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID SOUTH	EVENT: MAY 2009		
WELL ID: 7-22-LF	LOCATION: AOCA		
WEATHER CONDITIONS: CLEAR, LT WIND	AMBIENT TEMP: 70's		
REVIEWED BY:	PERSONNEL: CGH, JAB, LNC		

WELL DIA: 2" FLUSH	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: 1204	FINISH:
DEPTH TO WATER from TOC (ft.): 32.55	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, TOTAL IRON, NITRATE, MICROSEEP, VFA	

MNA FIELD RESULTS

FERROUS IRON	0.22	mg/L	CHLORIDE	30	mg/L	PHOSPHORUS	8.7	mg/L
SULFIDE	0.044	mg/L	ALKALINITY	2000	mg/L	AMMONIA-NITROGEN	Over range	mg/L
SULFATE	26	mg/L	CO_2	150	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1216	1221	1226	1231	1236	1241	1246					
pH (units):	7.25	7.33	7.26	7.41	7.47	7.51	7.54					
Conductivity (mS/cm):	2.158	2.158	2.324	2.922	3.290	3.590	3.760					
Turbidity (NTU):	7.83	37.5	20.8	6.09	11.1	10.4	4.52					
DO (mg/L):	0.97	0.75	0.65	0.63	0.61	0.60	0.58					
Temperature (C°):	22.25	22.22	22.25	22.21	22.18	22.28	22.34					
ORP (mV):	112.0	25.3	-0.5	0.63	-26.8	-32.6	-34.5					
Volume Purged (gal):	0.5	0.8	0.95	1.2	1.35	1.5	1.7					
Depth to Water (ft):	33.01	33.01	33.15	33.16	33.2	33.2	33.2					
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G22LF29	5/19/09	1204			

Purging/Sampling Device Decon Process:

COMMENTS: Microseeps lost water

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/22/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MIDSOUTH	EVENT: MAY 2009		
WELL ID: D07G 28LF	LOCATION: ADCA		
WEATHER CONDITIONS: CLOUDY, LT BREEZE	AMBIENT TEMP: 70's		
REVIEWED BY:	PERSONNEL: LNC DH		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~0928~~	FINISH:
DEPTH TO WATER from TOC (ft.): 34.55	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0955	FINISH: 1030
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC ONLY	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: BLADDER

Time (hh:mm):	0955	1000	1005	1010	1015	1020	1025					
pH (units):	6.55	6.55	6.54	6.54	6.55	6.54	6.54					
Conductivity (mS/cm):	0.536	0.535	0.536	0.536	0.535	0.535	0.536					
Turbidity (NTU):	7.1	39.3	31.7	24.8	21.0	14.5	12.8					
DO (mg/L):	2.05	1.37	1.18	1.07	1.02	1.03	1.12					
Temperature (C°):	17.17	17.19	17.28	17.40	17.37	17.35	17.44					
ORP (mV):	-238.1	-238.7	-240.1	-240.8	-241.4	-242.1	-242.4					
Volume Purged (gal):	2.5	3.2	3.65	4.2	4.8	5.2	5.7					
Depth to Water (ft):	34.58	34.58	34.58	34.58	34.58	34.58	34.58					
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
D07G28LF07	5/22/09	1030	3		

Purging/Sampling Device Decon Process:

COMMENTS:

rge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/22/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: May 2009		
WELL ID: 007G29LF07	LOCATION: AOC-A		
WEATHER CONDITIONS: Cloudy windy	AMBIENT TEMP: 70s		
REVIEWED BY:	PERSONNEL: CGH JAB		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 34.95	START: ~~0935~~	FINISH:
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0935	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1007	1012	1017	1022	1027	1032						
pH (units):	7.34	7.20	7.06	6.98	6.91	6.86						
Conductivity (mS/cm):	0.454	0.466	0.479	0.489	0.501	0.509						
Turbidity (NTU):	112.0	109.3	101.3	88.5	73.5	65.2						
DO (mg/L):	2.17	2.04	1.95	1.87	1.62	1.64						
Temperature (C°):	19.12	19.34	19.35	19.43	19.37	19.49						
ORP (mV):	197.4	194.5	193.3	192.7	191.8	109.3						
Volume Purged (gal):	1.0	1.15	1.35	1.4	1.55	1.68						
Depth to Water (ft):	35.0	35.0	35.0	35.0	35.0	35.0						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G29LF07	5/22/09	0935	3		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-20-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-31-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 70°F		
REVIEWED BY:	PERSONNEL: R.A. & O.H.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /	
DEPTH TO WATER from TOC (ft.): 33.56	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1050	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, M.E.E		

MNA FIELD RESULTS

FERROUS IRON	0.01	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	5	mg/L
SULFIDE	0.007	mg/L	ALKALINITY	440	mg/L	AMMONIA-NITROGEN	0.91	mg/L
SULFATE	31	mg/L	CO_2	175	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1105	1110	1115	1120	1125							
pH (units):	6.59	6.61	6.61	6.55	6.52							
Conductivity (mS/cm):	0.733	0.736	0.735	0.735	0.737							
Turbidity (NTU):	1.65	2.09	1.58	2.38	2.06							
DO (mg/L):	2.32	2.10	2.07	1.98	1.87							
Temperature (C°):	19.19	19.14	19.05	19.12	19.09							
ORP (mV):	-209.3	-212.9	-202.0	-194.1	-190.5							
Volume Purged (gal):	0.50	0.75	0.80	0.90	1.0							
Depth to Water (ft):	33.51	33.51	33.51	33.51	33.51							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 31 LF 19	05/20/09	1130	9	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-20-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-32-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 75°F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /	
DEPTH TO WATER from TOC (ft.): 31.09	VOLUME PURGED (gal): /		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START:	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS:		

MNA FIELD RESULTS

FERROUS IRON	0.15	mg/L	CHLORIDE	20	mg/L	PHOSPHORUS	5	mg/L
SULFIDE	0.003	mg/L	ALKALINITY	640	mg/L	AMMONIA-NITROGEN	1.56	mg/L
SULFATE	31	mg/L	CO_2		mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1240	1245	1250	1255	1300	1305						
pH (units):	6.69	6.72	6.77	6.89	6.89	6.92						
Conductivity (mS/cm):	.715	.803	.870	0.946	0.982	1.001						
Turbidity (NTU):	2.06	1.73	2.66	2.89	2.40	2.66						
DO (mg/L):	9.43	6.64	2.62	1.88	1.84	1.87						
Temperature (C°):	19.35	19.99	19.99	20.07	20.11	19.98						
ORP (mV):	-227.2	-226.1	-224.5	-218.2	-216.9	-212.6						
Volume Purged (gal):	.60	.70	.80	0.95	1.10	1.25						
Depth to Water (ft):	31.16	31.16	31.16	31.16	31.16	31.16						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007632LF21	05/20/09	1310	9	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-19-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-42-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 75° F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 32.74'	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1435	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1503	1508	1513	1518	1523							
pH (units):	6.46	6.42	6.37	6.41	6.40							
Conductivity (mS/cm):	0.620	0.623	0.624	0.622	0.622							
Turbidity (NTU):	21.4	19.5	17.4	15.4	14.8							
DO (mg/L):	1.62	1.58	1.65	1.69	1.78							
Temperature (C°):	20.92	21.19	21.21	20.86	20.82							
ORP (mV):	-251.2	-250.0	-246.0	-242.2	-234.5							
Volume Purged (gal):	0.50	0.70	0.85	0.95	1.05							
Depth to Water (ft):	32.74	32.74	32.74	32.74	32.74							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G42LF24	05/19/09	1530	3	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-19-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-45-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny, Windy	AMBIENT TEMP: 75°F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 32.61	VOLUME PURGED (gal): /	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1245	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC + DUP	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☒ Bailer ☒ Pump Description: QED

Time (hh:mm):	1310	1315	1320	1325	1330	1335						
pH (units):	6.86	6.87	6.93	6.92	6.92	6.92						
Conductivity (mS/cm):	0.445	0.443	0.442	0.442	0.442	0.440						
Turbidity (NTU):	5.85	6.55	6.99	7.88	8.24	9.91						
DO (mg/L):	3.97	2.52	2.05	1.78	1.60	1.52						
Temperature (C°):	19.28	19.22	19.24	19.21	19.32	19.18						
ORP (mV):	-238.2	-232.5	-233.2	-229.1	-224.9	-220.5						
Volume Purged (gal):	0.50	0.70	0.85	1.00	1.15	1.30						
Depth to Water (ft):	32.61	32.61	32.61	32.61	32.61	32.61						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 45LF 24	05/19/09	1340	3	—	
0076 45LF 24	05/19/09	1345	3	—	Dup.

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-19-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-48-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 65°F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 38.78	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1017	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: GEO

Time (hh:mm):	1041	1046	1051	1056	1101							
pH (units):	6.71	6.71	6.70	6.70	6.70							
Conductivity (mS/cm):	0.675	0.671	0.663	0.659	0.656							
Turbidity (NTU):	20.6	18.1	14.0	11.9	9.99							
DO (mg/L):	2.59	2.36	2.10	1.99	1.92							
Temperature (C°):	20.10	19.64	19.32	19.11	18.85							
ORP (mV):	-236.0	-235.3	-236.7	-236.4	-233.7							
Volume Purged (gal):	0.50	0.60	0.70	0.80	0.90							
Depth to Water (ft):	38.84	38.84	38.84	38.85	38.86							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: GEO

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G48LF 24	05/19/09	1110	3	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5-15-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: 07-52-LF	LOCATION:		
WEATHER CONDITIONS: Sunny, hot	AMBIENT TEMP: 83°		
REVIEWED BY:	PERSONNEL: BR, DH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 34.49	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1255	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC only	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1304	1309	1314	1319	1324							
pH (units):	6.29	6.10	6.20	6.24	6.26							
Conductivity (mS/cm):	0.688	0.681	0.676	0.673	0.672							
Turbidity (NTU):	48.60	33.80	21.50	13.50	9.99							
DO (mg/L):	5.62	3.31	2.73	2.56	2.57							
Temperature (C°):	19.56	19.08	18.59	18.25	18.14							
ORP (mV):	-272.6	-276.0	-288.7	-294.6	-296.7							
Volume Purged (gal):	0.20	0.35	0.50	0.65	0.80							
Depth to Water (ft):	34.52	34.52	34.52	34.52	34.52							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G52LF24	5-15-09	1330	3	Ø	

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/20/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 09		
WELL ID: 07-57-LF	LOCATION: AOC-A		
WEATHER CONDITIONS: Sunny Lt Wind	AMBIENT TEMP: 70s		
REVIEWED BY:	PERSONNEL: CLH JAB LC		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.80	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1507	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs, TOC, Total Fe, Nitrate, Microbes VFAs	

MNA FIELD RESULTS

FERROUS IRON	1.35	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	10	mg/L
SULFIDE	0.052	mg/L	ALKALINITY	400	mg/L	AMMONIA-NITROGEN	2.6	mg/L
SULFATE	2	mg/L	CO_2	140	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Bladder

(hh:mm):	1516	1521	1526	1531	1536	1541	1546					
pH (units):	6.97	6.99	6.99	6.99	7.00	6.99	6.99					
Conductivity (mS/cm):	0.691	0.686	0.688	0.690	0.688	0.687	0.693					
Turbidity (NTU):	15.9	14.1	13.1	12.7	11.9	11.6	16.4					
DO (mg/L):	1.03	0.68	0.54	0.51	0.50	0.48	0.46					
Temperature (C°):	21.61	21.47	21.57	21.69	21.74	21.61	21.70					
ORP (mV):	37.1	20.2	9.4	2.9	-2.4	-5.6	-8.6					
Volume Purged (gal):	0.8	1.25	1.75	2.2	2.6	3.0	3.5					
Depth to Water (ft):	26.01	26.01	26.01	26.01	26.01	26.01	26.01					

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 57LF30	5/20/09	1507	11		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-21-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-58-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 75°F		
REVIEWED BY:	PERSONNEL: R.A. + DH.		

WELL DIA: 4"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /	
DEPTH TO WATER from TOC (ft.): 27.23	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 0923	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, VFA, Hydrogen, M.E.E., M.E.E (bubble)		

MNA FIELD RESULTS

FERROUS IRON	1.24	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	Q mg/L
SULFIDE	Q	mg/L	ALKALINITY	220	mg/L	AMMONIA-NITROGEN	0.91 mg/L
SULFATE	6	mg/L	CO_2	125	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	0938	0943	0948	0953	0958	1003						
pH (units):	6.56	6.56	6.56	6.56	6.56	6.56						
Conductivity (mS/cm):	0.385	0.383	0.383	0.383	0.382	0.383						
Turbidity (NTU):	2.70	2.78	2.78	2.87	2.78	2.59						
DO (mg/L):	2.05	1.71	1.36	1.09	1.02	0.92						
Temperature (C°):	23.11	23.00	23.10	23.06	23.09	23.13						
ORP (mV):	-134.1	-138.9	-134.2	-134.6	-132.3	-132.7						
Volume Purged (gal):	0.5	0.65	0.85	1.00	1.15	1.30						
Depth to Water (ft):	27.25	27.20	27.25	27.25	27.25	27.25						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G58LFBR	05/21/09	1010	10	—	
007G58LFBR	05/21/09	1010	1	—	MICROBES

Purging/Sampling Device Decon Process:

COMMENTS: 20mm Mushroom (160 ml/min) Slight pink tint in sample

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/21/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-59-LF	LOCATION: AOC-A		
WEATHER CONDITIONS: Sunny Windy	AMBIENT TEMP: 70s		
REVIEWED BY:	PERSONNEL: CAH JAB LC		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 27.18	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: ~~0954~~ 1054	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, Microscopes, VFAs	

MNA FIELD RESULTS

FERROUS IRON	Ø mg/L	CHLORIDE	10 mg/L	PHOSPHORUS	Ø mg/L
SULFIDE	Ø mg/L	ALKALINITY	220 mg/L	AMMONIA-NITROGEN	0.52 mg/L
SULFATE	4 mg/L	CO_2	Pink sample mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1107	1112	1117	1122	1127	1132						
pH (units):	6.80	6.88	6.97	7.08	7.16	7.21						
Conductivity (mS/cm):	0.376	0.368	0.364	0.359	0.357	0.359						
Turbidity (NTU):	9.23	12.6	14.8	19.7	23.0	24.3						
DO (mg/L):	6.78	7.36	7.55	7.72	7.77	7.77						
Temperature (C°):	22.51	22.30	22.44	22.29	22.33	22.46						
ORP (mV):	122.4	110.3	99.7	90.5	88.8	89.9						
Volume Purged (gal):	0.5	0.7	0.95	1.15	1.35	1.6						
Depth to Water (ft):	26.78	26.78	26.78	26.78	26.78	26.78						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 59LF BR	5/21/09	~~0954~~ 1054	11		

Purging/Sampling Device Decon Process:

COMMENTS: Visibly pink sample

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-21-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-62-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 85°F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 27.35	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1327	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, VFA, Hydrogen, ME.E., MEE (methane)	

MNA FIELD RESULTS

FERROUS IRON	0.59	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	0.097	mg/L	ALKALINITY	240	mg/L	AMMONIA-NITROGEN	1.04	mg/L
SULFATE	Ø	mg/L	CO_2	135	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1346	1351	1356	1401	1406							
pH (units):	6.59	6.58	6.50	6.53	6.54							
Conductivity (mS/cm):	0.316	0.316	0.313	0.298	0.301							
Turbidity (NTU):	3.48	3.57	3.45	2.86	2.23							
DO (mg/L):	3.13	3.21	3.31	2.98	2.81							
Temperature (C°):	25.22	24.76	22.35	22.21	22.35							
ORP (mV):	-173.3	-170.3	-177.6	-185.9	-179.5			- - -	- - -	- - -		
Volume Purged (gal):	0.50	0.55	0.90	1.05	1.30							
Depth to Water (ft):	27.35	27.35	26.93	26.93	26.93							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076G2LFBP	05/21/09	1410	10	—	
0076G2LFBR	05/21/09	1410	1	—	Microscopy

Purging/Sampling Device Decon Process:

COMMENTS: Suds on top of water column in well.
Pressure release at the end of the cycle.
20 mm microscopy (160 mm/min)
Purge water placed in drum# _____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/21/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: 07-63-LF	LOCATION: ADC-A		
WEATHER CONDITIONS: Sunny Windy	AMBIENT TEMP: 70s-80s		
REVIEWED BY:	PERSONNEL: CLH JAB LC		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 27.38	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1241	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, Microbes, VFA	

MNA FIELD RESULTS

FERROUS IRON	0.78	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	3	mg/L
SULFIDE	0.018	mg/L	ALKALINITY	280	mg/L	AMMONIA-NITROGEN	2.99	mg/L
SULFATE	4	mg/L	CO_2	Pink sample	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1245	1250	1255	1300	1305							
pH (units):	6.77	6.75	6.74	6.74	6.74							
Conductivity (mS/cm):	0.511	0.508	0.506	0.505	0.508							
Turbidity (NTU):	10.94	10.71	10.32	10.01	10.0							
DO (mg/L):	1.39	0.91	0.69	0.62	0.55							
Temperature (C°):	21.71	21.54	21.53	21.47	21.45							
ORP (mV):	98.4	78.2	61.4	50.0	41.7							
Volume Purged (gal):	0.5	1.05	1.65	2.1	2.6							
Depth to Water (ft):	28.5	28.5	28.5	28.5	28.5							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 63LF BR	5/21/09	1241	11		

Purging/Sampling Device Decon Process:

COMMENTS: Pink sample (dye trace area)

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/20/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA M.O -South	EVENT: May 2009		
WELL ID: D7-G4-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny Lt Wind	AMBIENT TEMP: 70s		
REVIEWED BY:	PERSONNEL: CLH JKB LC		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 27.44	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1327	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs TOCs Total Iron, Nitrate, Microscopic VFAs	

MNA FIELD RESULTS

FERROUS IRON	1.28	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	4.33	mg/L
SULFIDE	0.014	mg/L	ALKALINITY	260	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	10	mg/L	CO_2	140	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1336	1341	1346	1351	1356	1401						
pH (units):	6.99	6.90	6.84	6.79	6.76	6.74						
Conductivity (mS/cm):	0.482	0.477	0.473	0.468	0.465	0.461						
Turbidity (NTU):	36.2	33.8	33.2	27.9	25.6	16.1						
DO (mg/L):	1.17	0.81	0.68	0.62	0.57	0.55						
Temperature (C°):	21.99	21.84	21.85	21.72	21.76	21.81						
ORP (mV):	146.9	135.3	126.4	117.8	111.8	106.2						
Volume Purged (gal):	0.5	1.0	1.4	1.8	2.3	2.7						
Depth to Water (ft):	27.6	27.6	27.6	27.6	27.6	27.6						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G64LF19	05/20/09	1327	11		

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-20-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-65-LF	LOCATION: SwMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 80°F		
REVIEWED BY:	PERSONNEL: RA & DH.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /	
DEPTH TO WATER from TOC (ft.): 27.38	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1528	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, MEE (bubble), Hydrogen, VFA		

MNA FIELD RESULTS

FERROUS IRON	0.96	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	0.020	mg/L	ALKALINITY	300	mg/L	AMMONIA-NITROGEN	1.3	mg/L
SULFATE	2	mg/L	CO_2	125	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1541	1546	1551	1556	1601	1606						
pH (units):	6.85	6.82	6.84	6.82	6.83	6.87						
Conductivity (mS/cm):	0.492	0.492	0.491	0.488	0.487	0.487						
Turbidity (NTU):	11.5	11.2	11.3	9.36	8.09	8.00						
DO (mg/L):	9.45	6.24	1.94	1.21	1.09	1.17						
Temperature (C°):	25.06	25.25	24.86	24.87	24.91	24.91						
ORP (mV):	-180.9	-180.2	-180.8	-180.5	-179.4	-177.7						
Volume Purged (gal):	0.50	0.65	0.75	0.90	1.05	1.20						
Depth to Water (ft):	27.49	27.49	27.49	27.49	27.49	27.49						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076G5LF14	05/20/09	1615	10	—	
0076G5LF14	05/20/09	1615	1	—	Microscopy

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-21-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-66-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: R.A. & O.H.		

WELL DIA: 4"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 27.21	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1119	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, VFA, Hydrogen, MEE, MEE (Jackson)	

MNA FIELD RESULTS

FERROUS IRON	1.36	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	3.33	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	200	mg/L	AMMONIA-NITROGEN	0.65	mg/L
SULFATE	3	mg/L	CO_2	70	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1133	1138	1143	1148	1153	1158						
pH (units):	6.63	6.64	6.64	6.64	6.64	6.63						
Conductivity (mS/cm):	0.340	0.338	0.338	0.340	0.339	0.350						
Turbidity (NTU):	5.59	5.90	4.89	4.97	5.20	5.53						
DO (mg/L):	2.66	7.41	2.76	1.49	1.13	1.13						
Temperature (C°):	23.52	23.22	23.40	23.52	23.44	23.54						
ORP (mV):	-138.4	-140.4	-137.9	-137.0	-135.1	-133.6						
Volume Purged (gal):	0.50	0.70	0.85	1.00	1.15	1.30						
Depth to Water (ft):	27.23	27.23	27.23	27.23	27.23	27.23						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
087G66LF14	05/21/09	1165	10	—	
087G66LF14	05/21/09	1165	1	—	Microscops

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/19/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: MAY 2009		
WELL ID: 07-69-LF	LOCATION: AOC-A		
WEATHER CONDITIONS:	AMBIENT TEMP: 75		
REVIEWED BY:	PERSONNEL: CGH JAB LC		

WELL DIA: 2" FLUSH	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 32.19	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1402	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, TOTAL IRON, NITRATE, VFA, MICROBIOLOGY	

MNA FIELD RESULTS

FERROUS IRON	1.19	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	3.7	mg/L
SULFIDE	0.014	mg/L	ALKALINITY	340	mg/L	AMMONIA-NITROGEN	0.78	mg/L
SULFATE	5	mg/L	CO_2	125	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1414	1419	1424	1429	1434	1439						
pH (units):	6.83	6.82	6.82	6.83	6.81	6.85						
Conductivity (mS/cm):	0.629	0.665	0.672	0.680	0.681	0.685						
Turbidity (NTU):	2.02	5.10	[illegible]	6.12	3.29	3.65						
DO (mg/L):	0.76	[illegible]	0.82	0.63	0.63	0.68						
Temperature (C°):	21.88	21.88	21.92	21.90	21.84	21.84						
ORP (mV):	175.3	166.3	143.0	125.2	111.1	95.6						
Volume Purged (gal):	1.2	1.8	2.3	2.8	[illegible]	4.1						
Depth to Water (ft):	33.03	33.03	33.06	33.06	33.06	33.06						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 69LF 14	5/19/09	1402	11		

Purging/Sampling Device Decon Process:

COMMENTS:

[illegible] water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/20/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: MAY 2009		
WELL ID: 07-71-LF	LOCATION: AOC-A		
WEATHER CONDITIONS: SUNNY LT WIND	AMBIENT TEMP: 70s		
REVIEWED BY:	PERSONNEL: C&H JAB LC		

WELL DIA: 2" FLUSH	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 30.27	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1128	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Iron, Lead, Nitrate, Microbes VFAs		

MNA FIELD RESULTS

FERROUS IRON	1.03	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	460	mg/L	AMMONIA-NITROGEN	0.78	mg/L
SULFATE	46 (1)	mg/L	CO_2	150	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1140	1145	1150	1155	1200	1205						
pH (units):	6.65	6.64	6.63	6.63	6.63	6.62						
Conductivity (mS/cm):	0.888	0.885	0.889	0.890	0.890	0.888						
Turbidity (NTU):	3.73	3.64	3.34	3.53	2.39	2.66						
DO (mg/L):	1.06	1.01	0.97	0.92	0.88	0.88						
Temperature (C°):	21.82	21.79	21.97	22.06	22.06	21.97						
ORP (mV):	197.0	163.8	137.7	122.1	108.8	101.8						
Volume Purged (gal):	1.0	1.5	1.85	2.20	2.65	3.00						
Depth to Water (ft):	30.71	30.71	30.71	30.71	30.71	30.71						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076 71 LF 14	5/20/09	1128	11		

Purging/Sampling Device Decon Process:

COMMENTS:

water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-19-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: 07-PZ03	LOCATION: SWMU 7		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 65°F		
REVIEWED BY:	PERSONNEL: R.A. & O.H.		

WELL DIA: 1"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal): /	
LENGTH OF WATER COL. (ft.): ~~35~~ 34.61	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1130	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 2.1	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☒ Bailer ☐ Pump Description:

Time (hh:mm):												
pH (units):												
Conductivity (mS/cm):												
Turbidity (NTU):												
DO (mg/L):												
Temperature (C°):												
ORP (mV):												
Volume Purged (gal):												
Depth to Water (ft):												

Well Goes Dry While Purging ☐

SAMPLE DATA

☒ Bailer ☐ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
~~0076O323~~	05/19/09	1200	3	—	
007GPZ0323					

Purging/Sampling Device Decon Process:

COMMENTS: 85' − 34.61' = 50.39' (0.04 gal/ft) = 2.02 gal

urge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-18-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: MW-2S	LOCATION: AOLA		
WEATHER CONDITIONS: Sunny, windy	AMBIENT TEMP: 70°F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.04	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1226	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, VFA, Hydrogen, M.E.E, M.E.E (backup)	

MNA FIELD RESULTS

FERROUS IRON	1.13	mg/L	CHLORIDE	45	mg/L
SULFIDE	0.026	mg/L	ALKALINITY	1640	mg/L
SULFATE	Ø	mg/L	CO_2	285	mg/L
AMMONIA-NITROGEN	Over range	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1247	1252	1257	1302	1307							
pH (units):	6.94	6.95	6.95	6.95	6.95							
Conductivity (mS/cm):	2.962	2.983	3.017	3.040	3.069							
Turbidity (NTU):	3.62	3.43	3.80	4.00	3.67							
DO (mg/L):	4.14	2.78	2.53	2.64	2.77							
Temperature (C°):	22.32	22.32	22.38	22.20	22.21							
ORP (mV):	-214.2	-214.9	-215.3	-215.6	-213.1							
Volume Purged (gal):	0.50	0.65	0.75	0.85	0.95							
Depth to Water (ft):	38.74	38.76	38.78	38.80	38.82							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW2S16	05/18/09	1315	10	—	
PESGMW2S16	05/18/09	1315	1	—	Microscop

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-18-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: PES-MW-2D	LOCATION: ACCA		
WEATHER CONDITIONS: Sunny, Windy	AMBIENT TEMP: 64°F		
REVIEWED BY:	PERSONNEL: R.A. & D.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.33	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0955	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, M.E.E., M.E.E. (back-up), VFA, Hydrogen	

MNA FIELD RESULTS

FERROUS IRON	1.84	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.098	mg/L	ALKALINITY	100	mg/L
SULFATE	Ø	mg/L	CO_2	150	mg/L
AMMONIA-NITROGEN	0.91	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	~~1016~~ ~~1023~~	1021	1026	1031	1036							
pH (units):	~~6.30~~ ~~6.47~~	5.99	6.28	6.32	6.32							
Conductivity (mS/cm):	0.333	0.329	0.326	0.323	0.322							
Turbidity (NTU):	0.90	0.72	0.72	0.51	0.51							
DO (mg/L):	2.25	2.04	1.92	2.07	1.99							
Temperature (C°):	21.30	21.33	21.41	21.37	21.46							
ORP (mV):	-127.4	-127.2	-126.8	-127.0	-127.0							
Volume Purged (gal):	0.50	0.65	0.75	0.90	1.00							
Depth to Water (ft):	38.43	38.43	38.43	38.43	38.43							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW2D16	05/18/09	1040	10	—	
PESGMW2D16	05/18/09	1040	1	—	Microscopic

COMMENTS: Established low flow at 1000

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID SOUTH	EVENT: MAY 2009		
WELL ID: PSS-MW-3S	LOCATION: AOC-A		
WEATHER CONDITIONS: Clear Windy	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CGH JAB LC		

WELL DIA: 2" FLUSH	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.): 37.92	START:	FINISH:	
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 0950	FINISH: 1030	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.8		
	ANALYSIS: VOC, TOC, TOTAL IRON, NITRATE, VFA, MICROBIOS		

MNA FIELD RESULTS

FERROUS IRON	2.27	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	Q	mg/L
SULFIDE	0.027	mg/L	ALKALINITY	220	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	6	mg/L	CO_2	150	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ■ Pump Description: Bladder

Time (hh:mm):	0957	1002	1007	1012	1017							
pH (units):	6.21	6.17	6.14	6.14	6.13							
Conductivity (mS/cm):	0.414	0.406	0.389	0.395	0.389							
Turbidity (NTU):	45.8	42.1	32.1	35.6	36.4							
DO (mg/L):	1.12	1.02	0.84	0.69	0.57							
Temperature (C°):	21.34	21.36	21.34	21.35	21.29							
ORP (mV):	165.9	146.6	135.4	127.3	124.1							
Volume Purged (gal):	0.5	1.3	2.0	2.6	3.3							
Depth to Water (ft):	38.15	38.15	38.15	38.15	38.15							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
PSSGMW3S16	5/18/09	0950			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA - Mid-South	EVENT: May 2009		
WELL ID: PES GMW3D	LOCATION: A&C-A		
WEATHER CONDITIONS: Sunny Windy	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CGH JAG LC		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.29	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1120	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, MNA, Total Iron, Nitrate, Methane	

MNA FIELD RESULTS

FERROUS IRON	1.08	mg/L	CHLORIDE	40	mg/L	PHOSPHORUS	11.7	mg/L
SULFIDE	0.009	mg/L	ALKALINITY	1760	mg/L	AMMONIA-NITROGEN	Overrange	mg/L
SULFATE	0	mg/L	CO_2	250	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1130	1135	1140	1145	1150							
pH (units):	7.06	7.07	7.08	7.09	7.10							
Conductivity (mS/cm):	2.919	2.950	3.0	3.057	3.294							
Turbidity (NTU):	1.73	2.33	2.51	2.97	3.32							
DO (mg/L):	0.97	0.88	0.80	0.70	0.60							
Temperature (C°):	21.75	21.70	21.73	21.76	21.85							
ORP (mV):	-16.8	-38.4	-53.7	-57.9	-64.0							
Volume Purged (gal):	0.5	0.7	0.8	1.0	1.2							
Depth to Water (ft):	38.81	38.81	38.81	38.81	38.81							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
PES GMW3D46	5/18/09	11:55	11		☺

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/19/07	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID SOUTH	EVENT: MAY 2009		
WELL ID: PESGMW4S	LOCATION: AOC-1		
WEATHER CONDITIONS: Clear	AMBIENT TEMP: 70		
REVIEWED BY:	PERSONNEL: CGH JAB LC		

WELL DIA: 2" FLUSH	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.38	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0940	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Tot. Ferr, Nitrate Microscopes	

MINA FIELD RESULTS

FERROUS IRON	0.02	mg/L	CHLORIDE	45	mg/L	PHOSPHORUS	∅ mg/L
SULFIDE	0.049	mg/L	ALKALINITY	5000	mg/L	AMMONIA-NITROGEN	Over range mg/L
SULFATE	∅	mg/L	CO_2	200	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1005	1010	1015	1020	1025	1030						
pH (units):	7.84	7.80	7.80	7.87	7.82	7.81						
Conductivity (mS/cm):	18.38	18.38	18.40	18.39	18.38	18.60						
Turbidity (NTU):	6.82	8.03	18.2	7.06	18.8	7.43						
DO (mg/L):	0.83	0.78	0.75	0.72	0.70	0.66						
Temperature (C°):	22.04	22.22	22.38	22.39	22.46	22.78						
ORP (mV):	163.1	160.7	145.0	116.9	91.4	81.5						
Volume Purged (gal):	0.6	0.7	0.8	0.9	1.0	1.05						
Depth to Water (ft):	38.69	38.69	38.69	38.69	38.69	38.69						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
PESGMW4S 110	5/19/09	0940	11		

Purging/Sampling Device Decon Process:

COMMENTS: Microscopes lost water

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 05-18-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: ~~MW~~ PES-MW-4D	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny, Windy	AMBIENT TEMP: 70°F		
REVIEWED BY:	PERSONNEL: R.A. & O.H.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 38.37	VOLUME PURGED (gal): /	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1440	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, VFA, Hydrogen,	
	M.E.E., M.E.E. (bacteria)	

MNA FIELD RESULTS

FERROUS IRON	0.07	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.025	mg/L	ALKALINITY	240	mg/L
SULFATE	3	mg/L	CO_2	140	mg/L
AMMONIA-NITROGEN	1.04	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1457	1502	1507	1512	1517	1522						
pH (units):	6.66	6.56	6.62	6.61	6.63	6.57						
Conductivity (mS/cm):	0.470	0.461	0.446	0.438	0.433	0.427						
Turbidity (NTU):	1.39	1.33	1.11	1.22	1.16	1.16						
DO (mg/L):	10.25	4.72	2.24	1.97	1.86	1.91						
Temperature (°C):	22.82	22.69	22.53	22.50	22.50	22.25						
ORP (mV):	-263.9	-252.0	-241.1	-233.8	-229.4	-223.5						
Volume Purged (gal):	0.55	0.70	0.85	1.00	1.15	1.30						
Depth to Water (ft):	38.51	38.51	38.51	38.51	38.51	38.51						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW4016	05/18/09	1530	10	—	
PESGMW4016	05/18/09	1530	1	—	Microseeps

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: May 2009		
WELL ID: PESGMW7S16	LOCATION: AOC-A		
WEATHER CONDITIONS: Clear Windy	AMBIENT TEMP: 70		
REVIEWED BY:	PERSONNEL: CGit JTB LC		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.66	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1440	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC VFA, Total Iron, Nitrate, Microseeps	

MNA FIELD RESULTS

FERROUS IRON	0.30	mg/L	CHLORIDE	25	mg/L	PHOSPHORUS	8	mg/L
SULFIDE	0.009	mg/L	ALKALINITY	360	mg/L	AMMONIA-NITROGEN	0.26	mg/L
SULFATE	3	mg/L	CO_2	185	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1493	1448	1453	1458	1503	1508						
pH (units):	7.00	6.58	6.50	6.47	6.46	6.45						
Conductivity (mS/cm):	0.580	0.595	0.594	0.594	0.591	0.587						
Turbidity (NTU):	2.99	1.11	0.46	0.78	0.21	0.41						
DO (mg/L):	1.92	0.80	0.60	0.55	0.51	0.47						
Temperature (C°):	21.85	21.58	21.50	21.54	21.52	21.56						
ORP (mV):	138.0	131.8	129.4	123.5	117.3	113.2						
Volume Purged (gal):	0.5	1.30	1.80	2.40	3.05	3.80						
Depth to Water (ft):	38.35	38.35	38.35	38.35	38.35	38.35						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW7S16	5/18/09	1440	11		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: PESGMW-TD16	LOCATION: AOC-A		
WEATHER CONDITIONS: Sunny Windy	AMBIENT TEMP: 70°		
REVIEWED BY:	PERSONNEL: CGH GAA		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.45	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1305	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC, VFA, Tot. Iron, Nitrate, Microbial	

MNA FIELD RESULTS

FERROUS IRON	1.11	mg/L	CHLORIDE	35	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	0.010	mg/L	ALKALINITY	920	mg/L	AMMONIA-NITROGEN	0.91	mg/L
SULFATE	2	mg/L	CO_2	150	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1318	1318	1323	1328	1333	1338						
pH (units):	7.29	7.30	7.30	7.31	7.30	7.29						
Conductivity (mS/cm):	1.597	1.657	1.693	1.713	1.693	1.667						
Turbidity (NTU):	15.4	12.2	9.70	8.08	7.91	7.63						
DO (mg/L):	0.87	0.65	0.52	0.45	0.40	0.39						
Temperature (C°):	21.61	21.60	21.50	21.70	21.91	21.77						
ORP (mV):	-56.8	-84.6	-97.9	-103.6	-106.9	-110.9						
Volume Purged (gal):	0.6	0.9	1.3	1.5	1.7	2.0						
Depth to Water (ft):	38.80	38.80	38.80	38.80	38.80	38.80						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
PESGMWTD16	5/18/09	1305	11		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

4.5
.8
5.3

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Memphis	EVENT: Nov 2009		
WELL ID: 07-01LF	LOCATION: AOCA		
WEATHER CONDITIONS: Clear cool	AMBIENT TEMP: 56		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.): 27.41	START:	FINISH:	
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1226	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC TOC MEE Total Fe Nitrate		

MNA FIELD RESULTS

FERROUS IRON	Ø	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	Ø mg/L
SULFIDE	Ø	mg/L	ALKALINITY	180	mg/L	AMMONIA-NITROGEN	0.39 mg/L
SULFATE	16	mg/L	CO_2	140	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description:

Time (hh:mm):	~~1233~~	1238	1241	1246	1251							
pH (units):	6.69	6.61	6.60	6.55	6.54							
Conductivity (mS/cm):	0.387	0.395	0.396	0.397	0.399							
Turbidity (NTU):	3.6	0.0	0.36	2.23	0							
DO (mg/L):	4.48	3.27	2.91	2.48	2.22							
Temperature (C°):	20.79	20.68	20.68	20.71	20.69							
ORP (mV):	46.7	52.4	53.1	53.9	54.0							
Volume Purged (gal):	0.9	2.2	3.4	5.2	6.3							
Depth to Water (ft):	27.5	27.51	27.5	27.51	27.51							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☐ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076011LF16	11/12/09	1300			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 2009		
WELL ID: 07-01-UF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny Clear Cool	AMBIENT TEMP: 60		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 27.42	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1352	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, MEE, Total Iron, TOC	

MNA FIELD RESULTS

FERROUS IRON	0.05	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	6	mg/L
SULFIDE	0.007	mg/L	ALKALINITY	100	mg/L	AMMONIA-NITROGEN	0.65	mg/L
SULFATE	7	mg/L	CO_2	150	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1359	1404	1409	1414	1419	1424						
pH (units):	5.85	5.80	5.80	5.79	5.79	5.78						
Conductivity (mS/cm):	0.218	0.215	0.215	0.212	0.213	0.212						
Turbidity (NTU):	17.5	5.77	0.0	0.0	0.39	0						
DO (mg/L):	0.85	0.62	0.43	0.32	0.32	0.30						
Temperature (C°):	21.24	21.73	21.76	21.83	21.45	21.37						
ORP (mV):	31.30	44.70	49.0	50.5	51.7	54.7						
Volume Purged (gal):	0.5	1.10	1.50	2.0	2.6	3.10						
Depth to Water (ft):	30.12	30.32	30.86	31.49	31.41	30.07						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076011UF16	11/12/09	1426			

Purging/Sampling Device Decon Process:

COMMENTS: Water level fluctuating. Unsure if it is a consequence of the well or the pump.

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/16/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 7-3-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Cloudy Windy	AMBIENT TEMP: 50		
REVIEWED BY:	PERSONNEL: RM CLA		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.59	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1500	FINISH: 1600
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.25 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED Bladder

Time (hh:mm):	1505	1510	1515	1520	1525	1530	1535	1540				
pH (units):	6.89	6.94	6.97	7.00	7.02	7.05	7.08	7.10				
Conductivity (mS/cm):	0.487	0.539	0.593	0.638	0.681	0.726	0.775	0.818				
Turbidity (NTU):	4.25	3.09	2.42	2.20	2.29	3.31	2.51	2.23				
DO (mg/L):	0.73	0.46	0.42	0.51	0.48	0.44	0.48	0.47				
Temperature (C°):	20.19	20.19	20.21	20.20	20.17	20.19	20.17	20.16				
ORP (mV):	-99.7	-115.9	-123.0	-125.3	-127.9	-129.3	-132.2	-134.7				
Volume Purged (gal):	0.50	1.00	1.40	1.65	2.00	2.25	2.55	2.80				
Depth to Water (ft):	25.62	25.62	25.62	25.62	25.62	25.62	25.62	25.62				
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G03LF30	11/16/09	1545	3	—	—

COMMENTS:

Purge water placed in drum# Yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: 07-04LF	LOCATION: AOC A		
WEATHER CONDITIONS: Cloudy Windy	AMBIENT TEMP: 40s		
REVIEWED BY:	PERSONNEL: RM CGW		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.58	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1106	FINISH: 1204
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 5.5	
	ANALYSIS: VOC TOC Total Fe Nitrate	
	Microscop Diss H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	1.56	mg/L	CHLORIDE	20	mg/L
SULFIDE	0.023	mg/L	ALKALINITY	620	mg/L
SULFATE	46 (1)	mg/L	CO_2	100	mg/L
AMMONIA-NITROGEN	1.3	mg/L	PHOSPHORUS	3	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	1115	1120	1125	1130	1135	1140						
pH (units):	6.98	7.08	7.14	7.17	7.19	7.20						
Conductivity (mS/cm):	0.651	0.835	0.992	1.076	1.159	1.189						
Turbidity (NTU):	21.6	13.5	9.25	7.69	8.00	7.73						
DO (mg/L):	0.46	0.33	0.32	0.41	0.56	0.56						
Temperature (C°):	20.12	20.26	20.25	20.31	20.31	20.34						
ORP (mV):	-85.0	-103.5	-112.5	-115.4	-120.2	-120.4						
Volume Purged (gal):	0.75	1.4	1.75	2.35	3.2	3.50						
Depth to Water (ft):	25.90	25.90	25.90	25.90	25.90	25.90						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
D07G04LF30	11/18/09	1145	11	—	—

COMMENTS:

Purge water placed in drum# 105

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 07-04-UF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny, Clear	AMBIENT TEMP: 70		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.68	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1437	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC only	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1444	1449	1454	1459	1504	1509						
pH (units):	6.91	6.83	6.82	6.82	6.82	6.82						
Conductivity (mS/cm):	0.420	0.427	0.430	0.431	0.431	0.430						
Turbidity (NTU):	13.0	6.04	2.41	1.43	1.79	1.85						
DO (mg/L):	2.00	0.81	0.65	0.64	0.76	0.83						
Temperature (C°):	21.87	21.84	21.80	21.82	21.87	22.31						
ORP (mV):	-84.9	-88.1	-89.4	-88.7	-86.1	-84.8						
Volume Purged (gal):	0.5	1.40	2.2	2.85	3.2	3.65						
Depth to Water (ft):	26.35	26.35	26.32	25.88	26.11	26.00						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G04UF23	11/13/09	1511			

Purging/Sampling Device Decon Process:

COMMENTS:

water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 07-05-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny, Cool	AMBIENT TEMP: 56		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.16	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, MEE, Total Iron	

MNA FIELD RESULTS

FERROUS IRON	Ø	mg/L	CHLORIDE	20	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	0.022	mg/L	ALKALINITY	140	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	6	mg/L	CO_2	100	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT / SAMPLING ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1025	1030	1035	1040	1045	1050						
pH (units):	6.38	6.41	6.41	6.41	6.40	6.42						
Conductivity (mS/cm):	0.269	0.290	0.294	0.293	0.293	0.293						
Turbidity (NTU):	120	68	38.9	15	8.67	4.7						
DO (mg/L):	3.76	3.41	3.37	3.17	3.39	3.34						
Temperature (C°):	21.13	21.2	21.35	21.42	21.42	21.45						
ORP (mV):	88.6	90.4	91.2	91.8	89.5	90.1						
Volume Purged (gal):	0.5	1.0	1.7	2.6	3.5	4.4						
Depth to Water (ft):	26.32	26.32	26.32	26.32	26.32	26.32						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0076051F16	11/12/09	1055			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/10/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: NOV 2009		
WELL ID: 07-06-LF	LOCATION: Millington		
WEATHER CONDITIONS: Mostly Sunny W, way	AMBIENT TEMP: 60's		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 28.90	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1235	FINISH: 1325
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 9.0 gal	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: MONSOON

Time (hh:mm):	1250	1255	1300	1305	1310	1315						
pH (units):	6.37	6.32	6.31	6.30	6.30	6.30						
Conductivity (mS/cm):	0.268	0.271	0.272	0.274	0.274	0.275						
Turbidity (NTU):	63.3	14.0	5.78	2.81	2.14	2.05						
DO (mg/L):	2.34	1.95	4.32	4.00	3.86	3.66						
Temperature (C°):	19.93	19.95	20.00	20.08	19.82	19.96						
ORP (mV):	137.1	115.5	118.4	122.2	129.8	127.7						
Volume Purged (gal):	1.50	3.25	4.70	5.75	7.00	8.25						
Depth to Water (ft):	28.92	28.92	28.92	28.92	28.92	28.92						
									Well Goes Dry While Purging ☐			

35 235

Sample Data

☐ Bailer ☒ Pump Description: MONSOON

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076 06LF 16	11/10/09	1320	3	—	—

COMMENTS:

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/10/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: ~~07G07F19~~	EVENT: Nov 2009		
WELL ID: 07-07 LF	LOCATION: Mullington		
WEATHER CONDITIONS: Windy Prty Cloudy	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: Coll		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.39	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1130	FINISH: 1220
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 6.0 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1140	~~1145~~	1150	1155	1200	1205	1210					
pH (units):	6.30		6.27	6.26	6.24	6.24	6.25					
Conductivity (mS/cm):	0.249		0.250	0.252	0.252	0.252	0.253					
Turbidity (NTU):	212		73.5	29.9	13.7	70.8	43.8					
DO (mg/L):	1.08		1.50	1.30	1.20	1.06	1.10					
Temperature (C°):	20.41		20.34	20.08	20.08	20.20	20.23					
ORP (mV):	68.9		100.00	81.4	73.9	78.6	85.6					
Volume Purged (gal):	0.75		1.75	2.75	3.35	4.25	5.00					
Depth to Water (ft):	26.40		26.45	26.45	26.44	26.43	26.43					
								Well Goes Dry While Purging ☐				

3.5 gal

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076071LF19	11/10/09	12:15	3	—	—

COMMENTS: 1140 INSITU TESTING NOT VALID FLOW STOPPED

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4Q 2009		
WELL ID: 07-9-LF	LOCATION: Millington, TN		
WEATHER CONDITIONS: Cloudy/Windy	AMBIENT TEMP: ↑40's		
REVIEWED BY:	PERSONNEL: JB/BB		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.76	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0944	FINISH: 1025
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Bladder

Time (hh:mm):	0951	0956	1001	1006	1011	1016	1021					
pH (units):	6.54	6.62	6.62	6.61	6.59	6.58	6.57					
Conductivity (mS/cm):	0.153	0.159	0.160	0.161	0.162	0.163	0.164					
Turbidity (NTU):	2.27	1.90	0.86	2.07	6.26	7.73	7.14					
DO (mg/L):	4.75	5.07	4.48	3.98	3.53	3.36	3.30					
Temperature (C°):	20.62	20.65	20.58	20.62	20.76	20.72	20.70					
ORP (mV):	55.5	62.0	68.1	72.8	76.2	76.9	77.1					
Volume Purged (gal):	0.70	1.20	1.90	2.85	3.40	4.2	4.8					
Depth to Water (ft):	25.79	25.79	25.79	25.79	25.79	25.79	25.7					
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G09LF16	11/18/09	1025	3	—	

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 2009		
WELL ID: 07-09-UF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny, Clear, Light Wind	AMBIENT TEMP: 70		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.32	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1520	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC only	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1526	1531	1536	1541	1546							
pH (units):	5.85	5.81	5.81	5.80	5.80							
Conductivity (mS/cm):	0.088	0.088	0.088	0.089	0.089							
Turbidity (NTU):	341	272	190	171	154							
DO (mg/L):	3.50	3.37	3.04	3.25	3.16							
Temperature (C°):	22.16	22.31	22.31	22.17	22.60							
ORP (mV):	69.0	71.5	74.2	76.6	79.3							
Volume Purged (gal):	0.5	1.0	1.50	1.70	2.30							
Depth to Water (ft):	25.41	25.42	25.40	25.40	25.41							

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G09UF16	11/12/09	1549			

Purging/Sampling Device Decon Process:

COMMENTS: 1541 - Lost flow

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-16-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: 4th Quarter 2009		
WELL ID: 07-10-LF	LOCATION: ~~Swamp 7~~ AOCA		
WEATHER CONDITIONS: Overcast, Slight Breeze	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B.B., J.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 32.87	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1330	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, Nitrate, TOC, Total Iron, M.E.E.	

MNA FIELD RESULTS

FERROUS IRON	0.66	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	240	mg/L	AMMONIA-NITROGEN	0.78	mg/L
SULFATE	12	mg/L	CO_2		mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1343	1348	1353	1358	1403							
pH (units):	6.55	6.56	6.56	6.56	6.56							
Conductivity (mS/cm):	0.498	0.495	0.497	0.497	0.498							
Turbidity (NTU):	191.00	124.00	63.80	41.20	21.30							
DO (mg/L):	0.30	0.20	0.16	0.16	0.14							
Temperature (C°):	17.30	17.28	17.27	17.27	17.27							
ORP (mV):	-31.1	-29.4	-27.5	-26.0	-24.4							
Volume Purged (gal):	3.00	4.40	5.50	6.50	7.70							
Depth to Water (ft):	33.09	33.09	33.09	33.09	33.09							

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☑ Pump Description: monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G10LF16	11-16-09	1408	9	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/17/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: ~~11-17-09~~ NSA MidSouth	EVENT: 4th Quarter 2009		
WELL ID: 07-11-LE	LOCATION: AOCA		
WEATHER CONDITIONS: mostly Cloudy	AMBIENT TEMP: 48		
REVIEWED BY:	PERSONNEL: BB, JM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 30.85	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1341	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, MEE, Total Iron	

MNA FIELD RESULTS

FERROUS IRON	0.07	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	1.33	mg/L
SULFIDE	Q	mg/L	ALKALINITY	440	mg/L	AMMONIA-NITROGEN	1.43	mg/L
SULFATE	5	mg/L	CO_2	75	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1347	1352	1357	1402	1407							
pH (units):	6.77	6.75	6.75	6.76	6.77							
Conductivity (mS/cm):	0.818	0.822	0.826	0.830	0.832							
Turbidity (NTU):	31.40	17.10	7.62	7.02	6.91							
DO (mg/L):	1.15	0.63	0.45	0.31	0.29							
Temperature (C°):	17.93	18.19	18.23	18.25	18.27							
ORP (mV):	20.6	1.10	9.40	9.70	7.90							
Volume Purged (gal):	0.50	1.10	1.60	2.20	2.80							
Depth to Water (ft):	30.96	30.96	30.96	30.96	30.96							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G11LF21	11-17-09	1412		Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TRAK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: NJ 2009		
WELL ID: 7-12 LF	LOCATION: AOCA		
WEATHER CONDITIONS:	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: Rm Cell		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 36.44	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1435	FINISH: 1515
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1444	1449	1454	1459	1504							
pH (units):	6.61	6.60	6.60	6.60	6.60							
Conductivity (mS/cm):	0.261	0.262	0.263	0.263	0.263							
Turbidity (NTU):	150	83.9	36.2	22.9	14.06							
DO (mg/L):	0.10	0.08	0.12	0.11	0.11							
Temperature (C°):	20.72	20.72	20.74	20.69	20.65							
ORP (mV):	99.1	100.2	95.4	93.7	95.7							
Volume Purged (gal):	2.0	3.25	5.0	6.25	8.0							
Depth to Water (ft):	36.51	36.51	36.51	36.51	36.51							

Well Goes Dry While Purging ☐

3.5

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G12LF14	11/13/09	1505	3	C	

COMMENTS:

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/5/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 2009		
WELL ID: 007G15LF[redacted]	LOCATION: Millington, TN		
WEATHER CONDITIONS: Sunny, windy	AMBIENT TEMP: 60's		
REVIEWED BY:	PERSONNEL: CH/JM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.45'	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0945	FINISH: 1040
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Iron, Nitrate, Microscope	
	Dissolved H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	0.02	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.022	mg/L	ALKALINITY	140	mg/L
SULFATE	1	mg/L	CO_2	70	mg/L
AMMONIA-NITROGEN	0.26	mg/L	PHOSPHORUS	0	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1003	1008	1013	1018	1023						
pH (units):	6.44	6.42	6.41	6.40	6.39						
Conductivity (mS/cm):	0.274	0.272	0.270	0.268	0.265						
Turbidity (NTU):	63.7	67.7	40.6	37.2	28.0						
DO (mg/L):	1.21	0.80	0.74	0.66	0.62						
Temperature (C°):	21.08	21.12	21.13	21.07	21.13						
ORP (mV):	120.6	116.0	114.8	116.2	117.4						
Volume Purged (gal):	0.5	1.0	1.5	1.75	2.0						
Depth to Water (ft):	37.60	37.60	37.60	37.60	37.60						
									Well Goes Dry While Purging ☐		

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G15LF17	11/05/2009	10:30	11	No	

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/5/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 07-15 UF	LOCATION: Millington, TN		
WEATHER CONDITIONS:	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: CH, JM		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~1155~~	FINISH:
DEPTH TO WATER from TOC (ft.): 36.70	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1125	FINISH: 1230
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Fe Nitrate Microbiology VFA	

MNA FIELD RESULTS

FERROUS IRON	1.63	mg/L	CHLORIDE	20	mg/L
SULFIDE	0.017	mg/L	ALKALINITY	200	mg/L
SULFATE	6	mg/L	CO_2	75	mg/L
AMMONIA-NITROGEN	0.26	mg/L	PHOSPHORUS	6.67	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	1130	1135	1140	1145	1150	1155						
pH (units):	4.77	4.62	4.60	4.49	6.09	6.13						
Conductivity (mS/cm):	0.452	0.444	0.437	0.432	0.428	0.427						
Turbidity (NTU):	107.2	47.2	28.8	15.1	10.56	6.34						
DO (mg/L):	1.75	0.20	0.21	0.19	0.19	0.18						
Temperature (C°):	21.16	21.14	21.08	21.08	21.10	21.05						
ORP (mV):	-17.4	-7.3	-3.3	0.4	3.5	4.7						
Volume Purged (gal):	1.0	1.40	1.80	2.40	2.80	3.40						
Depth to Water (ft):	36.86	36.86	36.86	36.86	36.86	36.86						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076154E17	11/5/09	1200	11	—	—

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid	EVENT: Nov 2009		
WELL ID: 07-16-LF	LOCATION: Mullinglton		
WEATHER CONDITIONS: Windy Clear	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: RM CGIL		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 30.14	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1100	FINISH: 1140
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.5 gal	
	ANALYSIS: VOC TOC Iron, Nitrate, MEE, VFA	

MNA FIELD RESULTS

FERROUS IRON	0.06	mg/L	CHLORIDE	20	mg/L
SULFIDE	0.004	mg/L	ALKALINITY	80	mg/L
SULFATE	23	mg/L	CO_2	125	mg/L
AMMONIA-NITROGEN	0.13	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1115	1120	1125	1130	1135							
pH (units):	5.63	5.69	5.68	5.68	5.68							
Conductivity (mS/cm):	0.164	0.164	0.165	0.165	0.167							
Turbidity (NTU):	15.4	11.7	7.81	5.68	4.39							
DO (mg/L):	1.51	1.46	1.26	1.30	1.28							
Temperature (C°):	19.43	19.50	19.55	19.59	19.62							
ORP (mV):	213.7	214.9	216.0	217.5	218.6							
Volume Purged (gal):	1.50	1.75	2.125	2.375	3.125							
Depth to Water (ft):	30.15	30.15	30.15	30.15	30.15							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0071116LF16	11/11/09	1140	11	—	—

COMMENTS:

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South 1	EVENT: NJJ 2009		
WELL ID: 07-18-LF	LOCATION: AOC-K		
WEATHER CONDITIONS: Clear Windy	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: CGH RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 24.09	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1010	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 6.0 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1020	1025	1030	1035	1040							
pH (units):	6.40	6.40	6.39	6.39	6.39							
Conductivity (mS/cm):	0.361	0.367	0.369	0.369	0.369							
Turbidity (NTU):	48.7	66.3	92.8	92.8	102.7							
DO (mg/L):	0.33	0.29	0.26	0.24	0.23							
Temperature (C°):	18.99	18.56	18.61	18.62	18.58							
ORP (mV):	160.4	143.6	137.9	130.0	1.258							
Volume Purged (gal):	2.75	3.00	4.00	4.75	5.50							
Depth to Water (ft):	24.15	24.15	24.15	24.15	24.15							

Well Goes Dry While Purging ☐

3.5

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0074 18LF16	11/13/09		3	—	—

COMMENTS:

Purge water placed in drum# Yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/17/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: 7-21-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Windy Cloudy	AMBIENT TEMP: Low 40s		
REVIEWED BY:	PERSONNEL: CGH / RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 29.25	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1220	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Fe, Nitrate, Microscop	
	Diss H2	

MNA FIELD RESULTS

FERROUS IRON	0.06	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.023	mg/L	ALKALINITY	240	mg/L
SULFATE	64 (4)	mg/L	CO_2	80	mg/L
AMMONIA-NITROGEN	0.65	mg/L	PHOSPHORUS	2.67	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED Bladder

Time (hh:mm):	1230	1235	1240	1245	1250	1255						
pH (units):	7.83	7.48	7.37	7.37	7.40	7.39						
Conductivity (mS/cm):	0.399	0.442	0.452	0.451	0.445	0.443						
Turbidity (NTU):	20.70	19.80	10.94	8.27	8.11	7.30						
DO (mg/L):	0.83	0.61	0.48	0.44	0.46	0.50						
Temperature (C°):	19.81	19.94	19.87	19.78	19.89	19.87						
ORP (mV):	24.4	-5.2	-34.6	-40.7	-45.0	-43.4						
Volume Purged (gal):	0.50	0.75	1.00	1.25	1.50	1.75						
Depth to Water (ft):	29.60	29.60	29.60	29.60	29.60	29.60						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G21LF30	11/17/09	1300	11	—	—

COMMENTS:

Purge water placed in drum# Yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-17-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: 4th Quarter 2009		
WELL ID: 07-22-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 48°		
REVIEWED BY:	PERSONNEL: BB, JM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 30.66	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1453	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, M.E.E. VFA, Hydrogen (Air vial)	

MNA FIELD RESULTS

FERROUS IRON	0.86	mg/L	CHLORIDE	40	mg/L	PHOSPHORUS	12	mg/L
SULFIDE	0.080	mg/L	ALKALINITY	2540	mg/L	AMMONIA-NITROGEN	Overrange	mg/L
SULFATE	0	mg/L	CO_2	190	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1505	1510	1515	1520	1525	1530	1535	1540				
pH (units):	7.29	7.29	7.42	7.52	7.56	7.59	7.60	7.61				
Conductivity (mS/cm):	1.540	1.624	2.193	3.199	3.660	3.930	4.058	4.190				
Turbidity (NTU):	0.0	0.59	0.31	0.48	1.11	0.66	0.05	1.79				
DO (mg/L):	9.5	0.46	0.38	0.33	0.30	0.28	0.25	0.21				
Temperature (C°):	20.27	20.30	20.26	20.29	20.21	20.12	20.13	20.06				
ORP (mV):	-135.7	-144.6	-157.4	-166.2	-165.1	-165.4	-165.6	-166.0				
Volume Purged (gal):	0.50	0.80	1.10	1.30	1.50	1.70	1.90	2.10				
Depth to Water (ft):	31.30	31.35	31.29	31.29	31.29	31.29	31.29	31.29				
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G22LF30	11-17-09	1545		Ø	

Purging/Sampling Device Decon Process:

COMMENTS: 1511: Turn pump down.

rge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 2009		
WELL ID: T-23-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny Light Wind	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 31.21	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1315	FINISH: 1345
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1325	1330	1335	1340	1345							
pH (units):	6.35	6.32	6.33	6.33								
Conductivity (mS/cm):	0.472	0.487	0.490	0.492								
Turbidity (NTU):	18.9	15.3	9.93	9.01								
DO (mg/L):	0.30	0.26	0.25	0.25								
Temperature (C°):	21.48	21.49	21.45	21.47								
ORP (mV):	109.5	109.3	109.0	108.4								
Volume Purged (gal):	1.50	2.50	3.00	3.70								
Depth to Water (ft):	31.67	31.67	31.67	31.67								

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G23LF14	11/13/09	1348	3	—	—

COMMENTS: Had To Cut Sampling Events Short Due To C-130 Landing And Requiring Use of Taxiway Alpha

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/10/2009	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 007MW24MF	LOCATION: Millington, TN		
WEATHER CONDITIONS: Sunny Slight Wind	AMBIENT TEMP: 60's		
REVIEWED BY:	PERSONNEL: CH/JM		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~[illegible]~~	FINISH:
DEPTH TO WATER from TOC (ft.): 36.40'	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 955	FINISH: 1105
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1020	1025	1030	1035	1040							
pH (units):	6.64	6.64	6.64	6.64	6.64							
Conductivity (mS/cm):	0.943	0.970	0.983	0.989	0.994							
Turbidity (NTU):	35.7	22.6	15.7	13.9	11.9							
DO (mg/L):	0.85	0.49	0.44	0.37	0.35							
Temperature (C):	21.48	21.54	21.55	21.66	21.76							
ORP (mV):	170.6	129.5	109.7	100.1	95.8							
Volume Purged (gal):	0.7	0.9	1.1	1.3	1.5							
Depth to Water (ft):	36.40	36.40	36.40	36.40	36.40							
										Well Goes Dry While Purging ☐		

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007624MF15	11/5/2009	1050	3	No	

COMMENTS:

Purge water placed in drum#_____

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NW

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/16/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID SOUTH	EVENT: Nov 2009		
WELL ID: 7-25-MF	LOCATION: AOCA		
WEATHER CONDITIONS: Cloudy Windy	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 36.79	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1315	FINISH: 1425
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.2 gal	
	ANALYSIS: VOC TOC Total Fe Nitrate	
	Microscopes Dis H_2 ~~Nitrate~~	

MNA FIELD RESULTS

FERROUS IRON	X	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.010	mg/L	ALKALINITY	120	mg/L
SULFATE	2	mg/L	CO_2	125	mg/L
AMMONIA-NITROGEN	0.39	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED Bladder

Time (hh:mm):	1330	1335	1340	1345	1350							
pH (units):	6.21	6.21	6.21	6.20	6.19							
Conductivity (mS/cm):	0.177	0.194	0.196	0.197	0.198							
Turbidity (NTU):	59.6	25.2	15.0	11.90	8.70							
DO (mg/L):	1.09	0.83	0.79	0.76	0.71							
Temperature (C°):	20.37	20.42	20.39	20.35	20.33							
ORP (mV):	119.3	133.2	139.9	144.6	150.7							
Volume Purged (gal):	0.70	1.20	1.50	1.75	2.20							
Depth to Water (ft):	36.80	36.80	36.80	36.80	36.80							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☐ Pump Description: QED Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G25MF15	11/16/09	1355	9	—	—

COMMENTS:

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/6/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: NOV 2009		
WELL ID: 07-26-MF	LOCATION: Millington TN		
WEATHER CONDITIONS: Clear S. wind 60s	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: CA JM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.66	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 11:10	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1135	1140	1146	1150	1155							
pH (units):	6.94	6.46	6.46	6.46	6.46							
Conductivity (mS/cm):	0.414	0.404	0.399	0.395	0.394							
Turbidity (NTU):	10.99	8.84	8.07	7.09	5.79							
DO (mg/L):	0.50	0.46	0.39	0.37	0.37							
Temperature (C°):	21.54	21.55	21.69	21.86	21.88							
ORP (mV):	-33.8	-25.5	-21.2	-13.7	-11.7							
Volume Purged (gal):	0.50	0.80	1.10	1.30	1.50							
Depth to Water (ft):	37.77	37.77	37.77	37.77	37.77							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: PNEUMATIC

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007GRDMF15	11/5/09	12:05	3	—	—

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-17-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA-midSouth	EVENT: 4th Quarter 2009		
WELL ID: 07-31-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Cool, Windy	AMBIENT TEMP: 45°		
REVIEWED BY:	PERSONNEL: B.B., J.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 32.15	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1016	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, M.E.E., Nitrate	

MNA FIELD RESULTS

FERROUS IRON	0.03	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	320	mg/L	AMMONIA-NITROGEN	0.91	mg/L
SULFATE	64 (#)	mg/L	CO_2	100	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1056	1101	1106	1111	1116							
pH (units):	6.67	6.67	6.67	6.67	6.67							
Conductivity (mS/cm):	0.741	0.737	0.733	0.732	0.732							
Turbidity (NTU):	0.64	0.34	0.00	0.00	0.00							
DO (mg/L):	0.59	0.30	0.24	0.22	0.20							
Temperature (C°):	15.94	16.01	15.98	15.99	15.97							
ORP (mV):	117.0	100.2	95.3	92.2	89.6							
Volume Purged (gal):	5.10	5.70	6.30	6.90	7.50							
Depth to Water (ft):	32.15	32.15	32.15	32.15	32.15							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G31LF20	11-17-09	1122		Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-17-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA mid South	EVENT: 4th Quarter 2009		
WELL ID: 07-32-LF	LOCATION: AOCA		
WEATHER CONDITIONS:	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: BB, JM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 29.62	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1231	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	0.35	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	0.009	mg/L	ALKALINITY	540	mg/L	AMMONIA-NITROGEN	2.08	mg/L
SULFATE	70 (5)	mg/L	CO_2	110	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1235	1240	1245	1250	1255							
pH (units):	6.76	6.73	6.75	6.81	6.85							
Conductivity (mS/cm):	0.849	0.873	0.889	0.929	0.931							
Turbidity (NTU):	12.10	9.12	9.91	11.60	10.8							
DO (mg/L):	1.78	0.96	0.73	0.58	0.50							
Temperature (C°):	17.25	17.56	17.55	17.55	17.53							
ORP (mV):	61.6	33.3	17.2	-9.0	-12.1							
Volume Purged (gal):	0.20	0.50	0.80	1.10	1.90							
Depth to Water (ft):	29.73	29.73	29.73	29.73	29.73							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G32LF22	11-17-09	1300		Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 2009		
WELL ID: 7-33-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny & Windy	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 30.59	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1200	FINISH: 1300
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 5.75	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1220	1225	1230	1235	1240	1245						
pH (units):	6.80	6.77	6.77	6.75	6.72	6.72						
Conductivity (mS/cm):	0.747	0.775	771	0.769	0.771	0.775						
Turbidity (NTU):	101.0	113	91.1	107.4	95.6	94.0						
DO (mg/L):	3.59	3.48	4.46	5.06	4.88	4.75						
Temperature (C°):	17.59	17.81	18.30	17.77	17.66	17.71						
ORP (mV):	25.9	27.7	25.8	23.8	21.2	22.1						
Volume Purged (gal):	2.25	2.75	3.25	3.50	4.50	5.50						
Depth to Water (ft):	30.59	30.59	30.59	30.59	30.59	30.59						
									Well Goes Dry While Purging ☐			

3.5

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007633LF14	11/13/09	1250	3	—	—

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 07-35-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny, Cool, Light Wind	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 34.27	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC Only	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1203	1208	1213	1218	1223	1228						
pH (units):	6.42	6.4	6.39	6.40	6.40	6.40						
Conductivity (mS/cm):	0.449	0.460	0.460	0.454	0.461	0.461						
Turbidity (NTU):	74.3	66.6	63.9	56.3	53.6	44.0						
DO (mg/L):	3.56	0.96	0.73	1.67	0.98	0.93						
Temperature (C°):	18.57	18.80	18.94	19.58	18.92	18.70						
ORP (mV):	63.1	52.5	44.0	34.7	30.6	27.4						
Volume Purged (gal):	.5	1.0	1.2	1.3	1.4	1.5						
Depth to Water (ft):	34.30	34.30	34.3	34.3	34.3	34.3						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
07G35LF15	11/13/09	1230			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____ Page __ of __

Lost Circulation @ 1217

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 07-36-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny, Cool	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 33.14	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1035	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC only		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1045	1050	1055	1100	1105	1110	1115	1120				
pH (units):	6.27	6.31	6.33	6.33	6.46	6.33	6.33	6.31				
Conductivity (mS/cm):	0.498	0.487	0.493	0.494	0.463	0.485	0.493	0.494				
Turbidity (NTU):	35.4	45.2	35.3	20.1	[illegible]	9.09	5.23	3.46				
DO (mg/L):	2.57	1.03	0.69	0.55	3.29	1.15	0.63	0.44				
Temperature (C°):	18.33	18.5	19.01	18.68	19.84	18.51	18.58	18.96				
ORP (mV):	108.5	98	90.5	85.01	83.7	82.7	79.9	78.7				
Volume Purged (gal):	.5	1.0	1.4	1.7	1.85	2.1	2.5	3.4				
Depth to Water (ft):	33.16	33.16	33.16	33.16	33.16	33.16	33.16	33.16				

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G36LF16	11/13/09	1122			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

Page __ of __

Turbidity 1105 - 17.8
Temp Lost Flow @ 1102

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MidSouth	EVENT: Nov 2009		
WELL ID: 07-38-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny, Light Wind	AMBIENT TEMP: 68		
REVIEWED BY:	PERSONNEL: CC, AJ		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 32.04	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1256	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC Only	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1315	1320	1325	1330	1335							
pH (units):	6.53	6.43	6.43	6.43	6.43							
Conductivity (mS/cm):	0.675	0.671	0.669	0.668	0.669							
Turbidity (NTU):	245	276	301	267	267							
DO (mg/L):	2.02	0.52	0.43	0.42	0.41							
Temperature (C°):	18.87	18.88	18.97	19.07	19.07							
ORP (mV):	54.6	48.5	46.6	44.1	41.5							
Volume Purged (gal):	1.80	2.70	3.0	3.50	3.95							
Depth to Water (ft):	32.08	32.08	32.08	32.05	32.05							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G38LF16	11/13/09	1387			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/16/2009	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 2009		
WELL ID: 07-41-LF	LOCATION: Millington, TN		
WEATHER CONDITIONS: Overcast, Sl Rain	AMBIENT TEMP: 59°		
REVIEWED BY:	PERSONNEL: B. Brister / J. McKnight		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 34.59'	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1022	FINISH: 1100
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 10 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Monsoon

Time (hh:mm):	1032	1037	1042	1047	1052							
pH (units):	6.32	6.34	6.34	6.34	6.34							
Conductivity (mS/cm):	0.534	0.533	0.533	0.532	0.532							
Turbidity (NTU):	1031	66.8	48.3	35.0	29.7							
DO (mg/L):	0.76	0.39	0.30	0.27	0.22							
Temperature (C°):	18.12	18.30	18.36	18.41	18.36							
ORP (mV):	115.0	104.2	103.6	103.1	103.2							
Volume Purged (gal):	3.20	5.00	6.30	7.90	9.60							
Depth to Water (ft):	34.61	34.60	34.60	34.60	34.60							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G41LF16	11/16/2009	1057	3	No	

Purging/Sampling Device Decon Process: Liquinox / DI H_2O

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Memphis	EVENT: 4th Quarter 2009		
WELL ID: 07-42-LF	LOCATION: SWMU 7		
WEATHER CONDITIONS:	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B. Brister & Alex Jacobs		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 31.04	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1416	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1425	1430	1435	1440	1445							
pH (units):	6.68	6.60	6.58	6.56	6.55							
Conductivity (mS/cm):	0.636	0.633	0.634	0.636	0.643							
Turbidity (NTU):	36.1	33.9	24.9	21.2	21.5							
DO (mg/L):	1.53	0.61	0.53	0.42	0.37							
Temperature (C°):	17.96	17.12	16.92	16.96	16.92							
ORP (mV):	-45.8	-38.4	-35.0	-30.5	-26.5							
Volume Purged (gal):	0.40	0.90	1.40	1.90	2.40							
Depth to Water (ft):	31.00	31.00	31.00	31.00	31.00							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G42LF25	11-11-09	1448	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-16-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: 4th Quarter 2009		
WELL ID: 07-45-LF	LOCATION:		
WEATHER CONDITIONS:	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: BB, JM		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 31.49	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: ~~1550~~ 1548	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC only		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1556	1601	1606	1611	1616							
pH (units):	6.91	6.89	6.89	6.89	6.89							
Conductivity (mS/cm):	0.455	0.458	0.460	0.460	0.461							
Turbidity (NTU):	50.0	40.8	43.2	41.5	31.7							
DO (mg/L):	1.02	0.89	0.72	0.63	0.51							
Temperature (C°):	16.57	16.56	16.55	16.54	16.53							
ORP (mV):	-39.0	-41.0	-43.8	-44.9	-46.9							
Volume Purged (gal):	0.70	1.10	1.60	2.10	2.60							
Depth to Water (ft):	31.50	31.50	31.50	31.50	31.50							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G45LF25	11-16-09	1620	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/06/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov 2009		
WELL ID: 007-48-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 65°		
REVIEWED BY:	PERSONNEL: B.S., R.M., J.C.C.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.04	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	1115	1120	1125	1130	1135							
pH (units):	6.74	6.74	6.74	6.74	6.74							
Conductivity (mS/cm):	0.695	0.697	0.698	0.699	0.700							
Turbidity (NTU):	66.7	39.4	29.4	25.4	19.4							
DO (mg/L):	1.60	1.37	1.26	1.21	1.16							
Temperature (C°):	18.65	18.75	18.81	18.76	18.87							
ORP (mV):	-46.3	-47.0	-47.0	-46.9	-47.4							
Volume Purged (gal):	0.5	0.6	0.7	0.8	0.9							
Depth to Water (ft):	38.20	38.20	38.20	38.20	38.20							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G48LF25	11/06/09	1140	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/16/2009	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Millington	EVENT: ~~KG~~ Nov 2009		
WELL ID: 007649LF	LOCATION: Millington, TN		
WEATHER CONDITIONS: Overcast, windy	AMBIENT TEMP: 50's		
REVIEWED BY:	PERSONNEL: BB, JM		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 36.72	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1434	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, MEE		

MNA FIELD RESULTS

FERROUS IRON	0.23	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	X	mg/L
SULFIDE	0.068	mg/L	ALKALINITY	160	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	5	mg/L	CO_2	120	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1445	1450	1455	1500	1505	1510						
pH (units):	6.62	6.62	6.61	6.60	6.60	6.59						
Conductivity (mS/cm):	0.386	0.381	0.361	0.341	0.335	0.324						
Turbidity (NTU):	159	150	95.9	65.2	55.1	51.9						
DO (mg/L):	1.45	0.95	0.67	0.46	0.41	0.34						
Temperature (C°):	20.37	20.39	20.50	20.51	20.55	20.54						
ORP (mV):	29.7	25.5	26.4	29.1	29.9	31.7						
Volume Purged (gal):	2.0	2.5	3.30	4.50	5.0	6.0						
Depth to Water (ft):	36.71	36.72	36.71	36.71	36.71	36.71						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007649LF16	11/16/09	1520	9	no	

Purging/Sampling Device Decon Process: DI H_2O/Liquinox

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Memphis	EVENT: 4th Qtr 2009		
WELL ID: 07-52-LF	LOCATION:		
WEATHER CONDITIONS: Clear Cool	AMBIENT TEMP: 63°		
REVIEWED BY:	PERSONNEL: Bryan Brister ; Alan Jacobs		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.): 33.82	START:	FINISH:	
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1305	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS:		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1306	1311	1316	1321	1326	1331						
pH (units):	6.49	6.44	6.43	6.49	6.43	6.43						
Conductivity (mS/cm):	0.647	0.644	0.642	0.641	0.642	0.640						
Turbidity (NTU):	93.5	20.5	1.7	0.18	0.00	0.9						
DO (mg/L):	0.96	0.45	0.3	0.25	0.21	0.21						
Temperature (C°):	16.10	16.15	16.16	16.14	16.13	16.12						
ORP (mV):	-23.2	-8.4	11.7	20.4	24.2	25.4						
Volume Purged (gal):	0.50	1.80	3.25	5.0	6.4	7.9						
Depth to Water (ft):	34.01	34.01	34.01	34.05	34.07	34.06						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0707652LF25	11-11-09	1335	3	Ø	
Purging/Sampling Device Decon Process:					

COMMENTS:

Purge water placed in drum# tank.

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-11-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 07-53-LF	LOCATION:		
WEATHER CONDITIONS: Sunny, cool	AMBIENT TEMP: 620		
REVIEWED BY:	PERSONNEL: B. Brister, A. Jacobs		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 36.27	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1216	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC only		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1219	1224	1229	1234	1239							
pH (units):	6.81	6.79	6.78	6.77	6.76							
Conductivity (mS/cm):	0.514	.539	.537	.536	.533							
Turbidity (NTU):	0.00	0.19	0.01	0.00	0							
DO (mg/L):	0.96	0.68	.42	0.35	0.30							
Temperature (C°):	16.09	16.19	16.23	16.25	16.31							
ORP (mV):	45.2	37	31.0	29.2	28.5							
Volume Purged (gal):	0.80	1.5	2.4	3.3	3.75							
Depth to Water (ft):	36.83	36.87	36.87	36.79	36.79							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076 53LF18	11-11-09	1240	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: 07-54-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny Lt Wind	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 28.25	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1105	FINISH: 1145	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1115	1120	1125	1130	1135							
pH (units):	6.41	6.35	6.34	6.34	6.33							
Conductivity (mS/cm):	0.408	0.406	0.410	0.415	0.417							
Turbidity (NTU):	152.0	96.0	64.4	36.5	22.4							
DO (mg/L):	0.32	0.21	0.17	0.14	0.13							
Temperature (C°):	17.43	17.49	17.48	17.47	17.49							
ORP (mV):	41.5	46.4	49.2	55.2	58.7							
Volume Purged (gal):	1.50	2.50	3.50	4.75	5.50							
Depth to Water (ft):	28.38	28.40	28.41	28.41	28.41							

Well Goes Dry While Purging ☐

3.5

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0754LF16	11/13/09	1140	3	—	—

COMMENTS:

Purge water placed in drum# 165

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/07	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: 4th Qt 2009		
WELL ID: 07-55-LF	LOCATION:		
WEATHER CONDITIONS: Clear Cool	AMBIENT TEMP: 56°		
REVIEWED BY:	PERSONNEL: Bryan Bruster : Alex Jacobs		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 53.79	START:	FINISH:
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Baller ☑ Pump Description:

Time (hh:mm):	955	1000	1005	1010	1015	1020						
pH (units):	6.68	6.72	6.70	6.71	6.71	6.72						
Conductivity (mS/cm):	0.555	.558	.568	.576	.579	.582						
Turbidity (NTU):	12.1	12.6	7.45	7.45	2.02	3.27						
DO (mg/L):	2.1	1.6	~~1.49~~ 1.4	0.51	1.9	1.34						
Temperature (C°):	16.29	16.74	17.4	17.9	17.93	17.82						
ORP (mV):	87.9	78.5	65.5	53.1	46.4	48.8						
Volume Purged (gal):	.5	.9	1.5	2.25	3.25	3.75						
Depth to Water (ft):	54.65	54.65	54.81		54.72	55.39						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Baller ☑ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0007G55LF16	11/11/09	1020	VOA		

Purging/Sampling Device Decon Process:

COMMENTS: Pump starts & stops multiple times while purging.

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Qt 2009		
WELL ID: 07-56-LF	LOCATION:		
WEATHER CONDITIONS: Clear Cool	AMBIENT TEMP: 56°		
REVIEWED BY:	PERSONNEL: Bryan Brister; Alan Jacobs		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 56.69	START:	FINISH:
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description:

Time (hh:mm):	1050	1055	1100	1105	1110							
pH (units):	6.77	6.76	6.75	6.75	6.75							
Conductivity (mS/cm):	.492	.496	.496	.496	.497							
Turbidity (NTU):	9.89	15.3	23.7	15.8	14.6							
DO (mg/L):	.91	0.41	0.33	0.26	0.21							
Temperature (C°):	16.73	17.72	17.60	17.58	17.37							
ORP (mV):	-24.8	5.7	6.5	7.8	16.5							
Volume Purged (gal):	.5	1.5	2.90	4.70	5.91							
Depth to Water (ft):	58.8	60.00	60.03	60.20	60.32							
									Well Goes Dry While Purging ☐			

SAMPLE DATA

☐ Bailer ☑ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G56LF16	11-11-09	1115	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS: Pump starts & stops multiple times over the course of the five readings.

Purge water placed in drum# TANK

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NAS Mid South	EVENT: 4Q 2009		
WELL ID: 07-57-LF	LOCATION: Millington, TN		
WEATHER CONDITIONS: Cloudy / Windy	AMBIENT TEMP: ↑40s		
REVIEWED BY:	PERSONNEL: JB / BD		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 24.47	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1225	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Fe, Nitrate, MEE, Hydrogen, VFA	

MNA FIELD RESULTS

FERROUS IRON	1.40	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.023	mg/L	ALKALINITY	320	mg/L
SULFATE	6	mg/L	CO_2	100	mg/L
AMMONIA-NITROGEN	2.34	mg/L	PHOSPHORUS	10.67	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Bladder

Time (hh:mm):	1230	1235	1240	1245	1250	1255						
pH (units):	7.00	7.02	7.03	7.03	7.01	7.01						
Conductivity (mS/cm):	0.609	0.616	0.613	0.610	0.608	0.606						
Turbidity (NTU):	3.59	0.94	1.77	1.25	1.44	0.73						
DO (mg/L):	1.58	0.49	0.44	0.44	0.36	0.32						
Temperature (C°):	19.74	20.00	20.07	20.07	20.07	20.05						
ORP (mV):	-125.7	-139.7	-142.5	-143.7	-143.6	-143.9						
Volume Purged (gal):	0.50	1.20	2.30	2.50	3.10	3.80						
Depth to Water (ft):	24.65	24.70	24.70	24.70	24.70	24.70						

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076 57LF31	11/18/09	1300	10	—	

COMMENTS: Turn pressure down on pump @ 1240

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-18-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 07-58-LF	LOCATION: AOCA		
WEATHER CONDITIONS:	AMBIENT TEMP: 49°		
REVIEWED BY:	PERSONNEL: BB, JB		

WELL DIA: 4"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 25.90	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1416	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, M.E.E., VFAs, Hydrogen	

MNA FIELD RESULTS

FERROUS IRON	0.58	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	0.037	mg/L	ALKALINITY	200	mg/L	AMMONIA-NITROGEN	0.65	mg/L
SULFATE	51 (3)	mg/L	CO_2	90	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1426	1431	1436	1441	1446							
pH (units):	6.71	6.69	6.68	6.67	6.67							
Conductivity (mS/cm):	0.372	0.371	0.371	0.371	0.370							
Turbidity (NTU):	33.4	37.3	35.2	33.8	31.9							
DO (mg/L):	0.78	0.46	0.39	0.33	0.29							
Temperature (C°):	20.05	20.12	20.14	20.17	20.08							
ORP (mV):	-49.9	-49.7	-49.3	-49.1	-49.1							
Volume Purged (gal):	0.50	1.00	1.60	2.20	2.70							
Depth to Water (ft):	25.94	25.94	25.94	25.94	25.94							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007GS8LFBS	11-18-09	1450	10	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 00759LF	LOCATION: AOCA		
WEATHER CONDITIONS: cloudy, windy	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: CGH / RM		

WELL DIA: 4"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	~~FINISH:~~
DEPTH TO WATER from TOC (ft.): 25.85	~~VOLUME PURGED (gal):~~	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 12:30	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.5 gal	
	ANALYSIS: VOC, TOC, Total Fe, Nitrate, Microbes	
	Diss. H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	0.14	mg/L	CHLORIDE	10	mg/L
SULFIDE	~~0~~	mg/L	ALKALINITY	200	mg/L
SULFATE	15	mg/L	CO_2	Pink sample	mg/L
AMMONIA-NITROGEN	0.78	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	1250	1255	1300	1305	1310	1315						
pH (units):	6.74	6.71	6.70	6.69	6.69	6.69						
Conductivity (mS/cm):	0.372	0.373	0.373	0.373	0.373	0.374						
Turbidity (NTU):	5.70	5.41	5.13	5.04	5.08	4.94						
DO (mg/L):	1.21	0.83	0.74	0.63	0.51	0.45						
Temperature (C°):	19.45	19.68	19.69	19.76	19.73	19.76						
ORP (mV):	-71.6	-71.5	-71.1	-71.9	-71.5	-73.6						
Volume Purged (gal):	0.50	0.75	1.00	1.25	1.50	1.80						
Depth to Water (ft):	25.88	25.88	25.88	25.88	25.88	25.88						

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
00759LFBS	11/18/09	1320	11	—	—

COMMENTS: Pink water

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-19-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 07-60-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny, Cool	AMBIENT TEMP: 54°		
REVIEWED BY:	PERSONNEL: B. Bister, J. McKnight		

WELL DIA: 4"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 25.33	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1103	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC only		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1109	1114	1119	1124	1129							
pH (units):	8.27	8.26	8.26	8.26	8.26							
Conductivity (mS/cm):	7.193	7.306	7.316	7.314	7.309							
Turbidity (NTU):	7.86	8.45	6.08	8.73	4.78							
DO (mg/L):	0.58	0.37	0.36	0.34	0.32							
Temperature (C°):	20.83	20.52	20.50	20.50	20.40							
ORP (mV):	-71.0	-85.4	-87.5	-89.0	-90.0							
Volume Purged (gal):	0.40	0.50	0.60	0.70	0.80							
Depth to Water (ft):	26.05	26.05	26.05	26.05	26.05							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G60LF23	11-19-09	1135	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/19/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: 07-61 LF	LOCATION: AOC A		
WEATHER CONDITIONS: Clear, Sunny	AMBIENT TEMP: 50-60s		
REVIEWED BY:	PERSONNEL: RM CLH		

WELL DIA: 4"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.80	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1055	FINISH: 1145
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 1.5 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	1100	1105	1110	1115	1120	1125	1130					
pH (units):	8.17	8.17	8.17	8.16	8.17	8.17						
Conductivity (mS/cm):	9.99	10.04	10.06	10.11	10.10	10.09						
Turbidity (NTU):	5.23	5.59	5.72	6.01	6.12	6.33						
DO (mg/L):	2.49	2.05	1.80	1.64	1.43	1.29						
Temperature (C°):	20.39	20.47	20.49	20.50	20.53	20.57						
ORP (mV):	-83.9	-90.4	-93.6	-97.5	-99.4	-98.8						
Volume Purged (gal):	0.25	0.50	0.65	0.75	0.85	1.00						
Depth to Water (ft):	25.88	25.90	25.92	25.92	25.93	25.93						
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076 61LF22	11/19/09	1135	~~8~~ 6		

COMMENTS: DUPLICATE SAMPLE COLLECTED (007H61LF22)

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-19-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 07-62-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny, Cool, Nice!	AMBIENT TEMP: 52°		
REVIEWED BY:	PERSONNEL: B.B., J.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.11	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0939	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, M.E.E., Hydrogen, VFAs	

MNA FIELD RESULTS

FERROUS IRON	1.14	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	4.67	mg/L
SULFIDE	0.071	mg/L	ALKALINITY	180	mg/L	AMMONIA-NITROGEN	1.43	mg/L
SULFATE	6	mg/L	CO_2	100	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	0944	0949	0954	0959	1004							
pH (units):	6.49	6.56	6.57	6.57	6.58							
Conductivity (mS/cm):	0.301	0.302	0.301	0.301	0.305							
Turbidity (NTU):	0.00	0.00	0.00	0.00	1.82							
DO (mg/L):	0.99	0.53	0.39	0.31	0.28							
Temperature (C°):	20.75	20.87	20.95	20.79	20.75							
ORP (mV):	-62.2	-71.9	-75.1	-76.2	-76.8							
Volume Purged (gal):	0.40	1.00	1.60	2.20	2.80							
Depth to Water (ft):	26.37	26.37	26.37	26.37	26.37							

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007G62LFBS	11-19-09	1010	10	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# TANK

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/19/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: 07-63 LF	LOCATION: AOC A		
WEATHER CONDITIONS: Clear Sunny	AMBIENT TEMP: 50's		
REVIEWED BY:	PERSONNEL: Rm Cell		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.16	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0920	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Tot Fe, Nitrate	
	Microscops, Diss H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	0.88	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.134	mg/L	ALKALINITY	280	mg/L
SULFATE	0	mg/L	CO_2	Pink sample	mg/L
AMMONIA-NITROGEN	2.6	mg/L	PHOSPHORUS	0	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	0930	0935	0940	0945	0950	0955						
pH (units):	6.81	6.86	6.87	6.88	6.88	6.88						
Conductivity (mS/cm):	0.485	0.483	0.481	0.482	0.482	0.482						
Turbidity (NTU):	5.27	5.37	4.81	4.73	4.83	5.28						
DO (mg/L):	0.41	0.25	0.20	0.40	0.45	0.57						
Temperature (C°):	20.59	20.81	20.75	20.75	20.74	20.69						
ORP (mV):	-111.9	-120.6	-123.5	-127.7	-128.0	-132.7						
Volume Purged (gal):	0.70	1.20	1.75	2.25	2.75	3.25						
Depth to Water (ft):	26.25	26.25	26.25	26.50	26.50	26.53						

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007663LFB5	11/19/09	10:00	7	—	—

COMMENTS: MS/MSD collected @ THIS LOCATION

Purge water placed in drum# Yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: HQ 2009		
WELL ID: 07-64-LF	LOCATION: Millington, TN		
WEATHER CONDITIONS: Cloudy/Windy	AMBIENT TEMP: 40's		
REVIEWED BY:	PERSONNEL: JB/BB		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 26.13	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1101	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Nitrate, Total Fe, MEE, Hydrogen, VFA		

MNA FIELD RESULTS

FERROUS IRON	1.24	mg/L	CHLORIDE	15	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	240	mg/L
SULFATE	6	mg/L	CO_2	70	mg/L
AMMONIA-NITROGEN	0.78	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Bladder

Time (hh:mm):	1107	1112	1117	1122	1127						
pH (units):	6.81	6.83	6.83	6.82	6.82						
Conductivity (mS/cm):	0.469	0.469	0.466	0.466	0.466						
Turbidity (NTU):	26.1	36.6	58.1	53.4	31.2						
DO (mg/L):	1.24	0.53	0.40	0.33	0.30						
Temperature (C°):	19.73	19.97	20.02	19.97	20.00						
ORP (mV):	-78.1	-87.4	-89.0	-89.2	-88.4						
Volume Purged (gal):	0.50	1.3	1.70	2.50	3.00						
Depth to Water (ft):	26.21	26.22	26.22	26.22	26.22						
									Well Goes Dry While Purging ☐		

Sample Data

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0076 64LF15	11/18/09	1130	10		

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID SOUTH	EVENT: Nov 2009		
WELL ID: 7-65-LF	LOCATION: AOC A		
WEATHER CONDITIONS:	AMBIENT TEMP: 40s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.95	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0935	FINISH: 1037
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 4.75	
	ANALYSIS: VOC TOC Total Fe Nitrate Microseeps	
	Dis H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	1.38	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.153	mg/L	ALKALINITY	260	mg/L
SULFATE	13	mg/L	CO_2	40	mg/L
AMMONIA-NITROGEN	1.69	mg/L	PHOSPHORUS	X	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	0952	0957	1002	1007	1012							
pH (units):	6.91	6.93	6.93	6.94	6.94							
Conductivity (mS/cm):	0.470	0.469	0.468	0.467	0.466							
Turbidity (NTU):	112.0	81.7	60.9	52.3	47.4							
DO (mg/L):	0.43	0.26	0.21	0.20	0.17							
Temperature (C°):	20.67	20.68	20.73	20.70	20.67							
ORP (mV):	-69.2	-74.9	-77.0	-77.5	-77.8							
Volume Purged (gal):	1.00	1.50	2.00	2.50	3.15							
Depth to Water (ft):	26.31	26.31	26.31	26.31	26.3							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007665LF15	11/18/09	1015	11	—	—

COMMENTS:

Purge water placed in drum# Yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/18/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: NOV 2009		
WELL ID: 07-66-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Cloudy Windy	AMBIENT TEMP: 40s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 4"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 25.89	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1415	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.5 gal	
	ANALYSIS: VOC TOC Total Fe, Nitrate	
	Microseeps Diss. Hydrogen VFA	

MNA FIELD RESULTS

FERROUS IRON	0.94	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.024	mg/L	ALKALINITY	180	mg/L
SULFATE	54	mg/L	CO_2	75	mg/L
AMMONIA-NITROGEN	0.78	mg/L	PHOSPHORUS	233	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT ~~SAMPLING~~ ☐ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	1420	1425	1430	1435	1440							
pH (units):	6.86	6.82	6.82	6.81	6.81							
Conductivity (mS/cm):	0.331	0.331	0.330	0.330	0.330							
Turbidity (NTU):	2.26	1.35	1.77	1.41	0.72							
DO (mg/L):	0.64	0.27	0.21	0.19	0.17							
Temperature (C°):	19.99	20.23	20.34	20.34	20.34							
ORP (mV):	-98.2	-96.7	-99.2	-100.6	-102.2							
Volume Purged (gal):	0.50	1.00	1.50	2.35	2.60							
Depth to Water (ft):	25.95	25.95	25.95	25.95	25.95							
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G66LF15	11/18/09	1445	11	—	—

COMMENTS:

Purge water placed in drum# 1/05

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/17/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 07-69-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Cloudy windy	AMBIENT TEMP: 40s		
REVIEWED BY:	PERSONNEL: CH, RM		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: ~~1030~~	FINISH:	
DEPTH TO WATER from TOC (ft.): 30.37	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 0930	FINISH: 1140	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, Nitrate		
	Microscop, Diss. H_2		

MNA FIELD RESULTS

FERROUS IRON	0.35	mg/L	CHLORIDE	10	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	280	mg/L
SULFATE	46 (2)	mg/L	CO_2	90	mg/L
AMMONIA-NITROGEN	0.91	mg/L	PHOSPHORUS	0.67	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ~~☐~~ Bailer ☒ Pump Description: QED BLADDER

Time (hh:mm):	1040	1045	1050	1055	1100							
pH (units):	6.68	6.67	6.67	6.67	6.67							
Conductivity (mS/cm):	0.620	0.633	0.632	0.632	0.600							
Turbidity (NTU):	24.2	17.7	11.5	6.88	4.51							
DO (mg/L):	0.88	0.64	0.52	0.52	0.50							
Temperature (C°):	19.03	19.13	19.04	19.16	19.23							
ORP (mV):	31.6	47.3	55.2	56.3	49.4							
Volume Purged (gal):	0.70	1.00	1.30	1.60	2.00							
Depth to Water (ft):	30.93	30.94	30.94	30.94	30.94							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: QED BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007669LF15	11/17/09	1105	11	—	—

COMMENTS:

Purge water placed in drum# 405

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/17/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 7-71-LF	LOCATION: AOC A		
WEATHER CONDITIONS: Cloudy Windy	AMBIENT TEMP: 40s		
REVIEWED BY:	PERSONNEL: CGH RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	~~FINISH:~~
DEPTH TO WATER from TOC (ft.): 28.75	~~VOLUME PURGED (gal):~~	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1355	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Fe Nitrate, Microbio	
	Diss H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	0.74	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.180	mg/L	ALKALINITY	340	mg/L
SULFATE	77	mg/L	CO_2	65	mg/L
AMMONIA-NITROGEN	0.78	mg/L	PHOSPHORUS	3	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED Bladder

Time (hh:mm):	1420	1425	1430	1435	1440
pH (units):	6.77	6.76	6.76	6.76	6.76
Conductivity (mS/cm):	0.906	0.910	0.911	0.913	0.912
Turbidity (NTU):	8.75	8.16	7.03	6.61	6.35
DO (mg/L):	0.74	0.54	0.44	0.37	0.35
Temperature (C°):	19.60	19.43	19.57	19.55	19.60
ORP (mV):	-78.8	-79.7	-81.0	-80.7	-83.0
Volume Purged (gal):	0.50	0.75	1.00	1.25	1.50
Depth to Water (ft):	28.99	28.99	28.99	28.99	28.99

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☑ Pump Description: QED Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
007G71LF15	11/17/09	1445	11	Ø	

COMMENTS:

Purge water placed in drum# TEMP

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/16/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: PESGMW15	LOCATION: ADCA		
WEATHER CONDITIONS: Cloudy Rain Windy	AMBIENT TEMP: 50's		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 36.02	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1135	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 6.25		
	ANALYSIS: VOC TOC Nitrate Total Fe, Microscope		
	Dissolved H_2 VFA		

MNA FIELD RESULTS

FERROUS IRON	1.44	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.014	mg/L	ALKALINITY	60	mg/L
SULFATE	12	mg/L	CO_2	120	mg/L
AMMONIA-NITROGEN	0.39	mg/L	PHOSPHORUS	1.33	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED Bladder

Time (hh:mm):	1145	1150	1155	1200	1205	1210						
pH (units):	5.68	5.69	5.70	5.71	5.71	5.71						
Conductivity (mS/cm):	0.148	0.151	0.152	0.153	0.153	0.153						
Turbidity (NTU):	16.7	7.85	4.95	3.84	3.02	2.52						
DO (mg/L):	0.61	0.45	0.39	0.35	0.34	0.33						
Temperature (C°):	21.21	21.22	21.22	21.17	21.21	21.19						
ORP (mV):	110.0	80.9	76.8	70.8	64.3	64.5						
Volume Purged (gal):	1.00	1.50	2.00	2.75	3.50	4.25						
Depth to Water (ft):	36.61	36.61	36.61	36.61	36.61	36.61						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW15 14	11/16/09	1215	11	—	

COMMENTS:

Purge water placed in drum# Yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/16/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: PESGMW01D	LOCATION: AOCA		
WEATHER CONDITIONS: Cloudy Windy Rain	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: CLH RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 36.12	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1015	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 6.40	
	ANALYSIS: VOC TOC Nitrate Total Iron	
	Microseeps Dis H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	0.02	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.011	mg/L	ALKALINITY	80	mg/L
SULFATE	1.0	mg/L	CO_2	150	mg/L
AMMONIA-NITROGEN	0.26	mg/L	PHOSPHORUS	3.33	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED Bladder

Time (hh:mm):	1027	1032	1037	1042	1047							
pH (units):	5.69	5.69	5.70	5.71	5.71							
Conductivity (mS/cm):	0.103	0.101	0.102	0.103	0.103							
Turbidity (NTU):	13.6	12.1	11.0	8.90	6.07							
DO (mg/L):	1.91	1.68	1.63	1.61	1.59							
Temperature (C°):	20.77	20.96	21.09	20.89	20.91							
ORP (mV):	214.6	210.1	207.6	207.0	206.8							
Volume Purged (gal):	1.00	1.50	2.50	3.25	4.0							
Depth to Water (ft):	36.22	36.22	36.22	36.22	36.22							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: QED Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW01D14	11/16/09	1050	11	—	—

COMMENTS:

Purge water placed in drum# Yes

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/04/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: USA midsouth	EVENT: Nov 2009		
WELL ID: PESGMW2S17	LOCATION: Millington, TN		
WEATHER CONDITIONS: Sunny, Slight breeze	AMBIENT TEMP: 70's		
REVIEWED BY:	PERSONNEL: JM, CH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.02"	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1410	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Iron, Nitrate Microbes	
	VFA Diss Hydrogen	

MNA FIELD RESULTS

FERROUS IRON	0.16	mg/L	CHLORIDE	40	mg/L
SULFIDE	0.048	mg/L	ALKALINITY	1560	mg/L
SULFATE	75 (2)	mg/L	CO_2	290	mg/L
AMMONIA-NITROGEN	3.9	mg/L	PHOSPHORUS	3	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED Pneumatic

Time (hh:mm):	1420	1425	1430	1435	1440							
pH (units):	7.14	7.14	7.14	7.15	7.16							
Conductivity (mS/cm):	2.917	3.060	3.223	3.422	3.466							
Turbidity (NTU):	9.81	7.63	9.24	10.50	10.39							
DO (mg/L):	0.24	0.16	0.14	0.14	0.15							
Temperature (C°):	21.65	21.71	21.68	21.69	21.71							
ORP (mV):	-120.3	-123.7	-124.6	-125.2	-124.2							
Volume Purged (gal):	1.25	1.50	1.75	2.0	2.25							
Depth to Water (ft):	38.11	38.11	38.11	38.11	38.11							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: QED Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW2S17	11/04/09	1445	11	NO	

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/4/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: NOV 2009		
WELL ID: PESGMW2D17	LOCATION: MILLINGTON, TN		
WEATHER CONDITIONS: CLEAR WINDY 60s	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CGH JM		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 37.15	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1215	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, TOTAL IRON, NITRATE, METHANE, VFA, DISS H_2		

MNA FIELD RESULTS

FERROUS IRON	1.95	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.104	mg/L	ALKALINITY	300	mg/L
SULFATE	Ø	mg/L	CO_2	150	mg/L
AMMONIA-NITROGEN	1.04	mg/L	PHOSPHORUS	4.7	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1250	1255	1200	1305	1310							
pH (units):	6.8	6.63	6.62	6.61	6.60							
Conductivity (mS/cm):	0.734	0.718	0.694	0.671	0.650							
Turbidity (NTU):	24.9	18.5	12.10	10.61	9.24							
DO (mg/L):	0.58	0.47	0.40	0.39	0.38							
Temperature (C°):	21.77	21.65	21.62	21.58	21.57							
ORP (mV):	-75.2	-76.7	-78.3	-77.41	-77.4							
Volume Purged (gal):	0.5	0.75	1.0	1.25	1.50							
Depth to Water (ft):	37.27	37.27	37.27	37.27	37.27							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
[redacted]	11/4/09	1315	11	—	
PESGMW2D17					

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/04/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov. 2009		
WELL ID: RESGMW35	LOCATION: AOCA		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 65°		
REVIEWED BY:	PERSONNEL: B.S., RM		

WELL DIA: 2"	~~WELL DEVELOPMENT~~	
TOTAL DEPTH from TOC (ft.):	~~START:~~	~~FINISH:~~
DEPTH TO WATER from TOC (ft.): 37.62	~~VOLUME PURGED (gal):~~	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1215	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, Dis. Mgx, VFA,	
	Methane, Ethane, Ethene	

MNA FIELD RESULTS

FERROUS IRON	3.02	mg/L	CHLORIDE	20	mg/L
SULFIDE	0.018	mg/L	ALKALINITY	220	mg/L
SULFATE	4	mg/L	CO_2	155	mg/L
AMMONIA-NITROGEN	0.26	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	1231	1236	1241	1246	1251							
pH (units):	6.24	6.22	6.23	6.22	6.22							
Conductivity (mS/cm):	0.365	0.362	0.366	0.371	0.371							
Turbidity (NTU):	4.46	2.34	5.22	2.60	2.13							
DO (mg/L):	0.43	0.37	0.34	0.33	0.32							
Temperature (C°):	21.86	21.74	21.70	21.76	21.75							
ORP (mV):	-12.3	-14.6	-19.1	-21.3	-21.4							
Volume Purged (gal):	0.9	1.3	1.6	1.8	2.0							
Depth to Water (ft):	36.86	36.86	36.86	36.86	36.86							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW35S17	11/04/09	1255	11	NO	

COMMENTS: 100 ml/min - 30 min Start - 1308 End - 1338

Purge water placed in drum# TEMP

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/04/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: NOVEMBER 2009		
WELL ID: PESGMW3D	LOCATION: AOC A		
WEATHER CONDITIONS: SUNNY	AMBIENT TEMP: 65°		
REVIEWED BY:	PERSONNEL: B.S., R.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.20	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1401	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: Nitrate, Total Iron, VOC, TOC, Methane, Ethane, Ethene,	
	Dis. Hydrogen, VFA	

MNA FIELD RESULTS

FERROUS IRON	0.17	mg/L	CHLORIDE	45	mg/L
SULFIDE	0.012	mg/L	ALKALINITY	1528	mg/L
SULFATE	Ø	mg/L	CO_2	325	mg/L
AMMONIA-NITROGEN	Over range	mg/L	PHOSPHORUS	10	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1422	1427	1432	1437	1442	1447						
pH (units):	7.22	7.21	7.21	7.22	7.21	7.21						
Conductivity (mS/cm):	2.982	2.985	3.002	3.013	3.029	3.071						
Turbidity (NTU):	14.6	11.7	9.57	10.02	9.75	9.63						
DO (mg/L):	0.96	0.82	0.67	0.58	0.54	0.53						
Temperature (C°):	22.95	22.61	22.50	22.70	22.85	22.96						
ORP (mV):	-95.2	-111.1	-115.0	-115.6	-121.8	-120.3						
Volume Purged (gal):	0.4	0.5	0.6	0.7	0.8	0.9						
Depth to Water (ft):	37.41	37.42	37.42	37.42	37.42	37.42						

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: PNEUMATIC

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGmw3D 17	11/04/09	1449	11	Ø	

COMMENTS: 30 min - Start - 1512 End - 1542

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/05/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov 2009		
WELL ID: ~~PESGMW45~~ PESMW45	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 60°		
REVIEWED BY:	PERSONNEL: B.S., R.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): ~~[illegible]~~ 37.37	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1324	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, VFA, Nitrate, Total Iron, Methane, Ethane, Ethene, Dis. Hyd.	

MNA FIELD RESULTS

FERROUS IRON	0.10	mg/L	CHLORIDE	30	mg/L
SULFIDE	0.050	mg/L	ALKALINITY	4520	mg/L
SULFATE	34 (with precip) [0 after 1 dilution]	mg/L	CO_2	280	mg/L
AMMONIA-NITROGEN	Over range	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1335	1340	1345	1350	1355	1400						
pH (units):	8.12	8.11	8.10	8.10	8.09	8.09						
Conductivity (mS/cm):	17.07	16.76	16.60	16.52	16.37	16.30						
Turbidity (NTU):	12.4	10.76	10.24	10.31	10.46	11.7						
DO (mg/L):	0.53	0.34	0.30	0.26	0.24	0.23						
Temperature (C°):	22.26	22.17	22.15	21.87	22.13	22.11						
ORP (mV):	-36.9	-43.3	-46.0	-44.0	-44.5	-44.5						
Volume Purged (gal):	1.7	2.0	2.3	2.5	2.6	2.8						
Depth to Water (ft):	38.10	38.20	38.24	38.24	38.28	38.27						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: PNEUMATIC

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW45 17	11/05/09	1406	11	Ø	

COMMENTS: Airplane running near well while sampling.

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/05/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov. 2009		
WELL ID: PESMW4D	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 62°		
REVIEWED BY:	PERSONNEL: B.S., R.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.25	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1454	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total iron, Methane, Ethane, Ethene,	
	Diss. Hydr, VFA	

MNA FIELD RESULTS

FERROUS IRON	1.38	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.054	mg/L	ALKALINITY	240	mg/L
SULFATE	74 (1)	mg/L	CO_2	130	mg/L
AMMONIA-NITROGEN	0.26	mg/L	PHOSPHORUS	6.67	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1507	1512	1517	1522	1527	1532						
pH (units):	6.58	6.52	6.48	6.48	6.46	6.47						
Conductivity (mS/cm):	0.315	0.331	0.319	0.316	0.317	0.321						
Turbidity (NTU):	5.98	4.29	2.05	1.58	1.67	1.41						
DO (mg/L):	0.93	0.66	0.53	0.47	0.46	0.45						
Temperature (C°):	21.59	21.60	21.53	21.40	21.31	21.41						
ORP (mV):	-66.5	-62.4	-59.3	-58.4	-58.5	-59.9						
Volume Purged (gal):	0.5	0.7	1.1	1.4	1.7	2.0						
Depth to Water (ft):	37.40	37.40	37.40	37.40	37.40	37.40						
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☒ Pump Description: PNEUMATIC

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW4D17	11/05/09	1535	11	Ø	

COMMENTS: Plane is running next to well while sampling.

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/05/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov. 2009		
WELL ID: PESG MW075	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 58°		
REVIEWED BY:	PERSONNEL: B.S., R.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.57	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0930	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: Nitrate, Total iron, VOC, TOC, Diss. Oxy., Methane	
	Ethane, Ethene	

MNA FIELD RESULTS

FERROUS IRON	0.14	mg/L	CHLORIDE	20	mg/L
SULFIDE	Ø	mg/L	ALKALINITY	280	mg/L
SULFATE	5	mg/L	CO_2	155	mg/L
AMMONIA-NITROGEN	0.91	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	0940	0945	0950	0955	1000	1005	1010	1015	1020			
pH (units):	6.66	6.61	6.60	6.59	6.59	6.58	6.57	6.57	6.57			
Conductivity (mS/cm):	0.472	0.526	0.529	0.531	0.533	0.533	0.534	0.534	0.535			
Turbidity (NTU):	1.02	0.70	0.76	0.41	0.18	0.00	0.00	0.00	0.00			
DO (mg/L):	0.71	1.78	1.61	1.53	1.41	1.34	1.27	1.22	1.23			
Temperature (C°):	20.87	20.90	20.95	20.92	20.93	20.94	20.98	20.97	20.96			
ORP (mV):	2.0	27.3	28.2	27.3	26.0	25.1	23.7	21.8	21.3			
Volume Purged (gal):	1.1	1.4	2.2	2.4	2.8	3.4	4.0	4.6	5.2			
Depth to Water (ft):	37.12	37.12	37.12	37.12	37.12	37.12	37.12	37.12	37.12			
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESG MW075 17	11/05/09	10:25	11	Ø	

COMMENTS: 30 min Microsep Start 1035 END: 1105

Purge water placed in drum# TEMP

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/05/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov 2009		
WELL ID: PESGMW7D	LOCATION: ACC A		
WEATHER CONDITIONS: SUNNY	AMBIENT TEMP: 58°		
REVIEWED BY:	PERSONNEL: B.S, J.B.M.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 37.23	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1135	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, Methane, Ethane, Ethene	
	VFA, Dis. Hydr.	

MNA FIELD RESULTS

FERROUS IRON	1.32	mg/L	CHLORIDE	45	mg/L
SULFIDE	0.044	mg/L	ALKALINITY	1140	mg/L
SULFATE	~~0~~	mg/L	CO_2	110	mg/L
AMMONIA-NITROGEN	3.33	mg/L	PHOSPHORUS	7.33	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1145	1150	1155	1200	1205	1210						
pH (units):	7.54	7.53	7.52	7.52	7.51	7.50						
Conductivity (mS/cm):	2.351	2.251	2.207	2.163	2.112	2.088						
Turbidity (NTU):	12.6	6.46	2.65	7.47	6.70	6.36						
DO (mg/L):	0.48	0.32	0.27	0.28	0.30	0.28						
Temperature (C°):	21.24	21.22	21.26	21.21	21.24	21.17						
ORP (mV):	-196.6	-193.4	-192.9	-190.8	-190.7	-189.9						
Volume Purged (gal):	1.0	1.5	1.9	2.3	2.7	3.2						
Depth to Water (ft):	37.98	37.98	37.98	37.98	37.98	37.98						
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☒ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW7D17	11/05/09	1215	11	✓	

COMMENTS: [illegible] [illegible] Start: 1230 End: 1255

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/5/2009	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA mid South	EVENT: Nov 2009		
WELL ID: MW85I4	LOCATION: Millington TN		
WEATHER CONDITIONS: Sunny Slight Wind	AMBIENT TEMP: 70's		
REVIEWED BY:	PERSONNEL: CH/JM		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: 1510	FINISH: 1730
DEPTH TO WATER from TOC (ft.): 37.40'	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, Microseep, VFA Dissolved Hydrogen	

MNA FIELD RESULTS

FERROUS IRON	1.72	mg/L	CHLORIDE	25	mg/L
SULFIDE	0.124	mg/L	ALKALINITY	340	mg/L
SULFATE	11	mg/L	CO_2	105	mg/L
AMMONIA-NITROGEN	0.52	mg/L	PHOSPHORUS	3.67	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1530	1535	1540	1545	1550	1555						
pH (units):	6.83	6.79	6.79	6.79	6.80	6.79						
Conductivity (mS/cm):	0.672	0.670	0.664	0.661	0.657	0.653						
Turbidity (NTU):	146	110	87.1	88.8	133	169.8						
DO (mg/L):	1.05	0.23	0.16	0.14	0.11	0.10						
Temperature (C°):	21.60	21.55	21.53	21.51	21.46	21.43						
ORP (mV):	-96.7	-94.2	-93.4	-92.0	-91.9	-90.6						
Volume Purged (gal):	1.40	1.60	2.00	2.50	2.90	3.10						
Depth to Water (ft):	39.20	39.20	39.20	39.20	39.20	39.20						
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☒ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESEMW85I4	11/5/2009	1600	11	No	

COMMENTS: let parked w/ engine running next to well while sampling.

Purge water placed in drum#_____

Page __ of __

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/5/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Nov 200		
WELL ID: ~~87~~ PESGMW8D	LOCATION: Millington		
WEATHER CONDITIONS: Clear / Fr Wind	AMBIENT TEMP: 60		
REVIEWED BY:	PERSONNEL: AGH JM		

WELL DIA:	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: 1308	FINISH:
DEPTH TO WATER from TOC (ft.): 37.12"	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1308	FINISH: 1405
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Fe, Nitrate, Microbeps	
	Dissolved H_2 VFA	

MNA FIELD RESULTS

FERROUS IRON	0.76	mg/L	CHLORIDE	25	mg/L
SULFIDE	~~0~~	mg/L	ALKALINITY	260	mg/L
SULFATE	1	mg/L	CO_2	130	mg/L
AMMONIA-NITROGEN	1.3	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	1326	1331	1336	1341	1346							
pH (units):	4.98	5.14	5.13	5.11	4.94							
Conductivity (mS/cm):	0.538	0.526	0.516	0.515	0.512							
Turbidity (NTU):	4.24	2.60	1.44	0.94	0.87							
DO (mg/L):	1.12	0.66	0.55	0.49	0.49							
Temperature (C°):	22.57	21.98	21.72	21.79	21.82							
ORP (mV):	-73.1	-70.8	-72.1	-75.4	-82.6							
Volume Purged (gal):	0.5	0.6	0.75	0.85	1.0							
Depth to Water (ft):	37.21	37.21	37.21	37.21	37.21							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
PESGMW8D09	11/5/09	1400	11		

COMMENTS: Left parked & running engine next to well while sampling.

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-10-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA midsouth	EVENT: 4th Quarter 2009		
WELL ID: BG-05-LF	LOCATION:		
WEATHER CONDITIONS: Partly Sunny	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B. Bister, B. Bentley		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 14.55	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1439	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC only		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1453	1458	1503	1508	1513	1518						
pH (units):	6.27	6.27	6.26	6.25	6.25	6.26						
Conductivity (mS/cm):	0.342	0.341	0.340	0.341	0.340	0.339						
Turbidity (NTU):	23.50	12.80	10.89	8.69	6.24							
DO (mg/L):	1.12	1.02	0.95	0.88	0.82	0.84						
Temperature (C°):	19.26	19.12	18.93	18.90	19.02	19.04						
ORP (mV):	42.8	41.9	40.4	40.1	42.6	43.0						
Volume Purged (gal):	4.50	5.50	6.50	7.50	8.50	9.50						
Depth to Water (ft):	17.45											
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
OBGG05LF14	11-10-09	1525	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-10-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: BG-05-UF	LOCATION:		
WEATHER CONDITIONS: Partly Sunny	AMBIENT TEMP: upper 60's		
REVIEWED BY:	PERSONNEL: B. Brister, B. Brantly		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 15.22	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1537	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS:	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1542	1547	1552	1557	1602							
pH (units):	6.34	6.27	6.26	6.27	6.26							
Conductivity (mS/cm):	0.285	0.285	0.285	0.286	0.286							
Turbidity (NTU):	0.32	5.54	7.84	6.98	5.18							
DO (mg/L):	2.07	1.30	1.20	1.17	1.14							
Temperature (C°):	18.43	18.57	18.76	18.80	18.82							
ORP (mV):	49.8	50.9	51.6	51.5	51.2							
Volume Purged (gal):	1.70	2.55	3.40	4.50	5.35							
Depth to Water (ft):	15.54	15.46	15.46	15.46	15.46							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
OBGG05UF14	11-10-09	1607	3	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/10/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: N12-01-LF	LOCATION: Millington		
WEATHER CONDITIONS: Windy Rny Cloudy	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: CLA Rm		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 27.97	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1340	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1400	1405	1410	1415	1420	1425	1430	1435	1440	1445		
pH (units):	9.43	9.50	9.29	9.12	8.86	7.44	7.08	6.80	6.67	6.57		
Conductivity (mS/cm):	0.171	0.172	0.172	0.173	0.177	0.185	0.190	0.193	0.196	0.197		
Turbidity (NTU):	14.6	15.1	14.1	18.7	21.8	20.8	15.2	16.9	16.5	13.1		
DO (mg/L):	4.58	4.96	4.38	5.42	5.33	5.05	5.22	4.60	4.57	4.22		
Temperature (C°):	20.03	20.22	19.90	20.10	20.05	19.90	19.73	19.74	19.75	19.80		
ORP (mV):	56.1	56.9	49.4	57.3	62.9	89.7	112.4	128.9	138.2	146.2		
Volume Purged (gal):	1.00	1.25	1.50	1.75	2.25	3.00	3.50	4.25	5.75	7.00		
Depth to Water (ft):	27.97	27.97	27.97	27.97	27.97	27.97	27.97	27.97	27.97	27.97		

Well Goes Dry While Purging ☐

3.5

Sample Data

☐ Bailer ☑ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
N12G01LF14	11/10/09	1450	3	—	—

COMMENTS:

Purge water placed in drum#_____

Page __ of __

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/10/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov 2009		
WELL ID: N12-02-LF	LOCATION: Millington		
WEATHER CONDITIONS: Mostly Sunny Windy	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL:		

WELL DIA: 2	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 29.18	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1605	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1615	1620	1625	1630	1635	1640						
pH (units):	6.62	6.60	6.58	6.58	6.56	6.55						
Conductivity (mS/cm):	0.550	0.571	0.596	0.616	0.639	0.651						
Turbidity (NTU):	8.49	8.28	7.57	7.43	7.69	6.87						
DO (mg/L):	1.74	1.60	1.39	1.52	1.49	1.46						
Temperature (C°):	19.82	20.00	20.04	19.76	19.55	19.39						
ORP (mV):	148.1	146.2	143.9	142.2	141.7	141.9						
Volume Purged (gal):	0.75	1.25	1.50	1.75	2.00	2.50						
Depth to Water (ft):	29.15	29.15	29.15	29.15	29.15	29.15						

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
N12-02-LF	~~1445~~	1445	3	—	—
	11/10/09				

COMMENTS:

Purge water placed in drum#_____

Page __ of __

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-10-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: PZ-03	LOCATION: SWMU 9 "AOCA"		
WEATHER CONDITIONS: Partly Sunny	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B. Brister, C. Coleman		

WELL DIA: 1"		WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 85.00		START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 33.71		VOLUME PURGED (gal): /	
LENGTH OF WATER COL. (ft.): 51.29		GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal): 2.10		START: 1114	FINISH:
3 VOLUMES OF WATER (gal): 6.30		VOLUME PURGED (gal):	
		ANALYSIS: VOC only	

MNA FIELD RESULTS

FERROUS IRON	/ mg/L	CHLORIDE	/ mg/L	PHOSPHORUS	/ mg/L
SULFIDE	/ mg/L	ALKALINITY	/ mg/L	AMMONIA-NITROGEN	/ mg/L
SULFATE	/ mg/L	CO_2	/ mg/L		/ mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☑ Bailer ☐ Pump Description:

Time (hh:mm):												
pH (units):												
Conductivity (mS/cm):												
Turbidity (NTU):												
DO (mg/L):												
Temperature (C°):												
ORP (mV):												
Volume Purged (gal):												
Depth to Water (ft):												
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☑ Bailer ☐ Pump Description: Bailer

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
007GPZ0324	11/10/09	1325			

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/10/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Nov. 2009		
WELL ID: ~~05 MW04 LF~~ 05 04 UF	LOCATION: Millington		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 60's		
REVIEWED BY:	PERSONNEL: CH RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 12.30	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0935	FINISH: 1030
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	0950	0955	1000	1005	1010	1015						
pH (units):	6.26	6.24	6.23	6.25	6.25	6.24						
Conductivity (mS/cm):	0.291	0.281	0.283	0.283	0.283	0.287						
Turbidity (NTU):	704	113	57.1	26.8	14.3	10.71						
DO (mg/L):	1.72	1.38	1.34	1.22	1.35	1.41						
Temperature (C°):	18.34	17.86	17.73	18.05	17.95	17.86						
ORP (mV):	195.5	181.2	183.7	173.2	167.0	164.4						
Volume Purged (gal):	2.10	3.10	4.20	5.30	6.60	7.70						
Depth to Water (ft):	12.40	12.41	12.40	12.38	12.40	12.39						
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
~~0056 05 UF14~~	11/10/09	1020	3	—	—
0056044F17					

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11-10-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 05-08-LF	LOCATION:		
WEATHER CONDITIONS: Partly Sunny	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B. Brister, B. Brantley		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 14.02	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1307	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC only		

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	PHOSPHORUS	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	AMMONIA-NITROGEN	mg/L
SULFATE	mg/L	CO_2	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: monsoon

Time (hh:mm):	1309	1314	1319	1324	1329	1334	1339	1344				
pH (units):	6.29	6.14	6.18	6.27	6.21	6.20	6.21	6.21				
Conductivity (mS/cm):	0.269	0.258	0.255	0.258	0.255	0.254	0.254	0.253				
Turbidity (NTU):	108.4	112.0	100.2	95.4	62.4	54.0	34.3	31.7				
DO (mg/L):	1.97	1.71	1.59	1.66	1.64	1.62	1.56	1.56				
Temperature (C°):	18.27	17.92	18.21	18.26	18.00	17.89	17.97	18.02				
ORP (mV):	10.0	25.6	28.7	35.4	38.7	40.8	44.1	45.7				
Volume Purged (gal):	0.40	1.20	2.00	2.70	3.40	4.10	4.80	5.50				
Depth to Water (ft):	14.02	14.06	14.06	14.06	14.06	14.06	14.06	14.06				
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
005G08LF17	11-10-09	1350	3	~~3~~ Ø	
Purging/Sampling Device Decon Process:					

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 15-01-LF	LOCATION: AOC-A		
WEATHER CONDITIONS: Sunny Windy	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.70	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1315	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 6.50 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1325	1330	1335	1340	1345							
pH (units):	6.53	6.51	6.49	6.49	6.49							
Conductivity (mS/cm):	0.997	0.959	0.945	0.936	0.933							
Turbidity (NTU):	79.0	46.7	27.0	20.3	11.4							
DO (mg/L):	0.40	0.45	0.48	0.48	0.49							
Temperature (C°):	19.38	19.34	19.37	19.36	19.30							
ORP (mV):	99.8	100.1	102.0	103.5	106.4							
Volume Purged (gal):	2.25	3.50	4.25	5.25	6.25							
Depth to Water (ft):	26.73	26.73	26.73	26.74	26.74							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0156 01LF 16	11/12/09	1350	3	—	—

COMMENTS:

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA	EVENT: Nov 2009		
WELL ID: 15-01-4F	LOCATION: AOC A		
WEATHER CONDITIONS: Sunny Light Wind	AMBIENT TEMP: 60's		
REVIEWED BY:	PERSONNEL:		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	~~FINISH:~~
DEPTH TO WATER from TOC (ft.): 25.86	~~VOLUME PURGED (gal):~~	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1400	FINISH: 1450
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Monsoon

Time (hh:mm):	1425	1430	1435	1440	1445							
pH (units):	6.85	6.85	6.85	6.85	6.84							
Conductivity (mS/cm):	0.764	0.764	0.761	0.761	0.761							
Turbidity (NTU):	40.8	37.0	26.3	20.3	18.0							
DO (mg/L):	0.86	0.78	0.68	0.58	0.51							
Temperature (C°):	19.16	19.19	19.30	19.28	19.27							
ORP (mV):	-105.2	-105.9	-106.6	-106.5	-108.0							
Volume Purged (gal):	1.75	2.00	2.25	2.50	2.75							
Depth to Water (ft):	30.46	30.49	30.56	30.57	30.55							
		30.49	~~30.56~~									
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☐ Pump Description:

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
D15G01UF16	11/12/09	1450	3	—	—
Ø15HØ1UF16	11/12/09	1450	3	—	Field dup

COMMENTS:

Purge water placed in drum# 485

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: Nov 2009		
WELL ID: 15-02-LF	LOCATION: Millington AOC A		
WEATHER CONDITIONS: Windy Clear	AMBIENT TEMP: 50-60s		
REVIEWED BY:	PERSONNEL:		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.80	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1455	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 2.5 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1500	1505	1510	1515	1520							
pH (units):	6.59	6.55	6.56	6.56	6.57							
Conductivity (mS/cm):	0.969	0.985	1.013	1.025	1.034							
Turbidity (NTU):	99.8	29.4	15.1	10.13	9.93							
DO (mg/L):	0.55	0.39	0.32	0.29	0.25							
Temperature (C°):	19.77	19.81	19.85	19.81	19.83							
ORP (mV):	48.7	54.8	57.7	61.4	57.4							
Volume Purged (gal):	0.75	1.50	1.875	2.25	2.375							
Depth to Water (ft):	26.80	26.80	26.80	26.80	26.80							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
015602LF16	11/11/09	1525	3	—	—

COMMENTS:

Purge water placed in drum# 105

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 15-02 UF	LOCATION: Millington		
WEATHER CONDITIONS: Windy Cool	AMBIENT TEMP: ~60		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.26 26.26	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1340	FINISH: 1425
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 7.5 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsood

Time (hh:mm):	1345	1350	1355	1400	1405	1410	1415	1420				
pH (units):	6.65	6.63	—	6.62	6.65	6.65	6.68	6.69				
Conductivity (mS/cm):	0.597	0.599	—	0.597	0.604	0.608	0.610	0.612				
Turbidity (NTU):	21.7	18.8	—	6.49	3.76	3.12	2.09	1.54				
DO (mg/L):	0.37	0.31	—	0.23	0.11	—	0.08	0.73				
Temperature (C°):	20.00	20.03	—	19.96	19.98	19.86	19.81	19.87				
ORP (mV):	-122.9	-126.3	—	-118.3	-125.5	-127.5	-118.0	-119.3				
Volume Purged (gal):	1.50	2.00	—	3.75	4.25	5.50	6.75	7.25				
Depth to Water (ft):	26.43	26.46	—	26.46	26.46	26.46	26.46	26.46				
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
015G02UF16	11/11/09	1425	3	—	—

COMMENTS: Pump stopped producing @ 1355 intervene (Low Flow)

Purge water placed in drum# yes

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 15-03-LF	LOCATION: Millington		
WEATHER CONDITIONS: Windy Sunny	AMBIENT TEMP: 50-60		
REVIEWED BY:	PERSONNEL: RM CGH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 26.53	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1215	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1240	1245	1250	1255	1300							
pH (units):	6.68	6.68	6.68	6.69	6.68							
Conductivity (mS/cm):	0.701	0.702	0.702	0.703	0.704							
Turbidity (NTU):	91.4	54.7	43.0	36.0	27.9							
DO (mg/L):	0.79	0.77	0.91	0.99	0.91							
Temperature (C°):	19.12	19.41	19.67	19.75	19.85							
ORP (mV):	57.5	56.3	57.4	58.1	58.6							
Volume Purged (gal):	1.425	1.50	1.625	1.75	1.875							
Depth to Water (ft):	26.56	26.55	26.55	26.55	26.55							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
015G03LF14	11/11/09	1305	3	—	—

COMMENTS:

Purge water placed in drum# 105

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MD South	EVENT: Nov 2009		
WELL ID: 15-04-LF	LOCATION: AOC-A		
WEATHER CONDITIONS: Sunny Windy	AMBIENT TEMP: 60		
REVIEWED BY:	PERSONNEL: RM CLH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 27'	START:	~~FINISH:~~
DEPTH TO WATER from TOC (ft.): 25.64	~~VOLUME PURGED (gal):~~	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1215	1220	1225	1230	1235	1240	1245					
pH (units):	6.63	6.62	6.58	6.59	6.59	6.59	6.59					
Conductivity (mS/cm):	0.872	0.886	0.887	0.888	0.887	0.888	0.888					
Turbidity (NTU):	131	74.2	23.4	6.52	2.39	1.56	2.08					
DO (mg/L):	0.51	1.54	1.46	1.28	1.10	0.99	0.82					
Temperature (C°):	18.65	18.44	18.43	18.57	18.56	18.56	18.52					
ORP (mV):	71.1	79.8	85.7	85.9	88.8	90.4	92.2					
Volume Purged (gal):	1.75	2.2	3.0	3.5	4.1	4.8	5.6					
Depth to Water (ft):	25.66	25.67	25.67	25.67	25.65	25.66	25.66					
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
Ø15G04LF14	11/12/09	12:50	3	—	—

COMMENTS:

Purge water placed in drum# TEMP

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 18-01-LF	LOCATION: Mellington		
WEATHER CONDITIONS: Overcast Windy	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: RM GH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 31.57	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1005	1010	1015	1020	1025							
pH (units):	5.64	5.64	5.64	5.63	5.63							
Conductivity (mS/cm):	0.120	0.120	0.120	0.120	0.120							
Turbidity (NTU):	26.0	19.0	16.5	12.5	9.90							
DO (mg/L):	0.24	0.22	0.22	0.20	0.20							
Temperature (C°):	19.59	19.69	19.69	19.61	19.73							
ORP (mV):	185.5	198.9	204.9	209.9	211.7							
Volume Purged (gal):	1.75	2.65	3.50	4.60	5.50							
Depth to Water (ft):	31.61	31.61	31.61	13.61	13.61							

Well Goes Dry While Purging ☐

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Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
018G01LF16	11/11/09	1030	3	—	—

COMMENTS:

Purge water placed in drum# 183

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 21-03-LF	LOCATION: AOCA		
WEATHER CONDITIONS: Clear Light Wind	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: RM CLH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 36.82	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0000	FINISH: 1040
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 6.5 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Monsoon

Time (hh:mm):	1015	1020	1025	1030	1035							
pH (units):	6.41	6.40	6.40	6.41	6.39							
Conductivity (mS/cm):	0.302	0.302	0.301	0.300	0.300							
Turbidity (NTU):	213	116	57.3	37.5	29.8							
DO (mg/L):	0.97	0.84	0.88	0.86	0.85							
Temperature (C°):	18.70	18.71	18.74	18.72	18.73							
ORP (mV):	215.9	142.9	130.3	134.8	136.6							
Volume Purged (gal):	1.75	2.50	3.50	5.25	5.75							
Depth to Water (ft):	36.87	36.87	36.87	36.87	36.88							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☑ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
0216G03LF14	11/12/09	1040	9	—	orig and MS/MSD

COMMENTS: Collected MS/MSD, Field, Equipment Blanks for QA/QC at this location

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 11/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009		
WELL ID: 21-A-UF	LOCATION: AOC A		
WEATHER CONDITIONS: Windy Clear	AMBIENT TEMP: 50-60s		
REVIEWED BY:	PERSONNEL:		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 38.15	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1110	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 7.0 gal	
	ANALYSIS: VOC	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO_2	mg/L
AMMONIA-NITROGEN	mg/L	PHOSPHORUS	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Monsoon

Time (hh:mm):	1100	1125	1120	1135	1140							
pH (units):	5.92	5.92	5.94	5.95	5.96							
Conductivity (mS/cm):	0.101	0.103	0.109	0.113	0.115							
Turbidity (NTU):	99.1	39.0	64.9	40.4	25.2							
DO (mg/L):	5.90	5.70	5.30	5.19	5.08							
Temperature (C°):	20.1	19.86	19.99	19.98	20.07							
ORP (mV):	158.9	167.0	170.2	175.1	176.6							
Volume Purged (gal):	1.75	2.75	3.50	5.50	6.75							
Depth to Water (ft):	38.25	38.25	38.24	38.24	38.24							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☒ Pump Description: Monsoon

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
021G04UF14	11/12/09	1145	3	—	—

COMMENTS:

Purge water placed in drum#_____

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