RG STEEL, LLC

1430 Sparrows Point Boulevard • Sparrows Point, MD 21219

May 27, 2011

Mr. Andrew Fan
US EPA Region III, 3WC23
1650 Arch Street
Philadelphia, PA 19103-2029

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, Maryland 21230

Re: Consent Decree, Civil Action Nos. JFM-97-558, JFM-97-559
Coke Oven Area Interim Measures Progress Report April 2011

Dear Mr. Fan and Ms. Brown:

Enclosed with this correspondence is the ***Coke Oven Area Interim Measures Progress Report April 2011*** completed for the RG Steel (formerly Severstal) Sparrows Point Facility in accordance with the requirements outlined in US EPA's September 2, 2010 approval letter for the Coke Oven Area Interim Measures work associated with the referenced Consent Decree. The report summarizes implementation progress for the approved interim measures (IMs) that have been developed to address identified environmental conditions at the Coke Oven Area through April 30, 2011.

Please contact me at (410) 388-6622 should questions arise during your review of the enclosed progress report.

Sincerely,

Russell Becker
Division Manager, Environmental Engineering and Affairs

Enclosure

Russell Becker
Division Manager, Environmental Engineering and Affairs
Phone: 410-388-6622
Fax: 410-388-6529

COKE OVEN AREA INTERIM MEASURES PROGRESS REPORT
(APRIL 2011)

Prepared for

RG Steel Sparrows Point, LLC
Sparrows Point, Maryland

May 31, 2011

URS

URS Corporation
200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878
Project no. 15302307

Introduction

In accordance with the United States Environmental Protection Agency's (US EPA)'s September 2, 2010 letter, this document is the monthly progress report for April 2011 for the US EPA-approved interim measures (IMs) that have been developed to address identified environmental conditions at the Coke Oven Area (COA) Special Study Area at the RG Steel Sparrows Point Facility (formerly Severstal Sparrows Point Facility) located in Sparrows Point, Maryland. This progress report summarizes IM progress for April 2011.

For mutual ease of understanding, and as agreed during the June 3, 2010 teleconference with US EPA, the following designations are applied in this document to the six (6) IM "Cells" (**Figure 1**) at the COA:

- Cell 1: Prototype Air Sparge/Soil Vapor Extraction (AS/SVE) System in the Former Benzol Processing Area,
- Cell 2: AS/SVE and Dual Phase Groundwater Extraction System in Former Coal Storage Area,
- Cell 3: AS/SVE System in "Cove" Area,
- Cell 4: In-Situ Anaerobic Bio-treatment Area in Coal Tar Area,
- Cell 5: Groundwater Extraction at the Turning Basin Area, and
- Cell 6: Light Non-Aqueous Phase Liquid (LNAPL) Recovery at the Former Benzol Processing Area.

As of April 30, 2011, Cell 1 and Cell 6 continue to be operational and were operated in compliance with applicable permits. The evaluation and design of the AS/SVE system at Cell 3 was completed in February 2011 and in accordance with the US EPA's revised approval letter dated January 13, 2011, a final design report for Cell 3 was submitted on March 1, 2011. Also, the evaluation and design of the in-situ anaerobic bio-treatment system at Cell 4 was completed in March, 2011 and per the US EPA's request, a final design report for Cell 4 was submitted on April 1, 2011. US EPA approved the submitted designs for Cells 3 and 4 on April 28, 2011. The remaining Cells (Cells 2 and 5) are in various stages of evaluation, design, and under permitting considerations by Maryland Department of the Environment (MDE).

Cell 1: Prototype AS/SVE System in the Former Benzol Processing Area

The US EPA's March 2, 2010 letter approved the AS/SVE interim measure for Cell 1 as originally proposed by RG Steel. This cell consists of a prototype IM, which includes AS/SVE coupled with vapor destruction via an ICE unit. Design of this system includes air sparging groundwater wells and vapor collection trenches as shown schematically on **Figure 2**.

Figure 3 shows the system layout of Cell 1, which consists of the following major components:

- Three (3) generally parallel and interconnected vapor collection trenches approximately 500 feet long and 60 feet apart, fitted with perforated 4-inch DR-17 high-density polyethylene (HDPE) pipe. 15 vertical extraction risers are connected to a common suction header,
- 16 air sparge wells located between the trenches,
- At-grade, 4-inch DR-17 HDPE sparge and suction headers fitted with control valves for 2-inch DR-17 HDPE sparge and suction laterals,
- One (1) ICE unit for extraction vacuum and vapor destruction, which is equipped with an integral Becker KDT series air compressor for sparge air, and
- Perimeter slag berm for system demarcation and protection from vehicular traffic.

April 2011 Operational Performance

Operational performance of Cell 1 during this reporting period is summarized in **Table 1**. In summary, the ICE operated for 354 hours (49.2 %) during this reporting period. Hydrocarbon removal rates averaged approximately 2.01 pounds per operating hour (approximately 48 pounds per operating day for a total of 711 pounds) during this period. The average ICE catalytic converter destruction efficiency exceeded 98 %.

A modified operational approach was examined in March 2011, which consisted of an alternating 4- to 5-day operating period followed by a 2- to 3-day shutdown/recovery period. This approach was tested in April 2011 to evaluate the potential for improved performance of the hydrocarbon vapor recovery system by utilizing intermittent recovery periods. The evaluation of this modified operational approach is on-going, however results have been shown to improve overall hydrocarbon recovery rates. The lower operating percentage noted in **Table 1** during this reporting period occurred as a result of testing this approach.

The revised method for computing hydrocarbon removal rates (as described in the February 2011 Progress Report) has been applied in this April 2011 report. The revised method relies primarily on the analytical data collected in April 2011.

Soil gas and ICE exhaust gas samples were collected to evaluate system performance. Calibrated field instruments (e.g., photoionization detector [PID]) and ICE system-calculated vapor concentrations were also used to evaluate system performance. The untreated soil gas samples were collected in Tedlar® bags and the ICE exhaust sample collected in a 6-liter SUMMA canister. All gas samples were submitted to TestAmerica Laboratories, Inc. Knoxville, Tennessee laboratory for analysis by US EPA Method TO-15. These data are summarized in **Table 2**.

From **Table 2**, influent soil gas hydrocarbon concentrations, collected on April 6, 14, and 21, 2011, were 1,722, 1,504 and 1,248 parts per million by volume (ppmv), respectively. The ICE exhaust sample collected on April 21, 2011 exhibited hydrocarbon concentrations of 15.2 ppmv; demonstrating an average hydrocarbon destruction efficiency greater than 98 %. In accordance with the associated air permit, the internal combustion engine equipped with a catalytic converter operated at all times that soil gases were collected.

April 2011 Groundwater Monitoring Results

Groundwater samples were collected on April 15, 2011 from the following wells:

- BP-MW-09 (upgradient of Cell 1),
- CO18-PZM006 (upgradient of Cell 1 at edge of berm), and
- CO02-PZM006 (downgradient of Cell 1).

The groundwater samples were submitted to Microbac Laboratories, Inc. of Baltimore, Maryland (Microbac) for the analyses shown in **Table 3**. These data indicate benzene is the most prevalent volatile organic compound (VOC) constituent.

Figure 3A presents a graph of the total measured VOC concentration in Cell 1 for each well by month since the startup of the IM system. A decreasing total VOC concentration trend is documented since system start-up in August 2010. The identified trend for these monitoring wells will continue to be monitored and assessed during system operation in future months.

Cell 4: In-Situ Anaerobic Bio-treatment System

US EPA's March 2, 2010 letter approved the in-situ bio-treatment concept for Cell 4 (**Figure 4**), as originally proposed by RG Steel. Baseline groundwater data and a microbial conditions evaluation using Bio-Trap® Samplers (Bio-Traps) were performed in July 2010 as the first step to developing a preliminary conceptual design. Results of this evaluation confirmed that in-situ biological degradation of Cell 4 groundwater constituents (primarily benzene and naphthalene) is viable and can be accelerated by adding commercially available bionutrients approved by US EPA for such applications (i.e., VB591™ from BioNutraTech).

In accordance with EPA's January 13, 2011 letter, RG Steel submitted the proposed final design for Cell 4 on March 31, 2011 and received EPA's acceptance notice on April 18, 2011. RG Steel plans to initiate Cell 4 IM construction activities during the next reporting period, beginning with installation of the seven additional groundwater wells as called for in the design. **Figure 4** displays the groundwater well network design for Cell 4.

Based on the findings of the Cell 4 baseline bio-chemical evaluation, the Cell 4 in-situ anaerobic bio-treatment system will consist of the following basic design elements:

- Extraction and mixing of Cell 4 groundwater in an above-ground storage tank containing the amendment (VB591™) to produce the nutrient amendment solution to be added into Cell 4 groundwater.

- Introduction and circulation of the amended groundwater within the subsurface at Cell 4 by pumping groundwater from three down-gradient extraction wells and recirculating this water into five up-gradient recirculation wells. The nutrient amendment solution (from the storage tank) will be metered into the pipeline used to convey extracted groundwater to the recirculation wells.

- Chemical and biological monitoring.

- Periodically repeating the above activities to replenish the nutrient amendment.

Figure 5 illustrates the extraction and recirculation system that will be used to dose and circulate groundwater to disperse the nutrient amendment. Groundwater dosing and circulation will not be continuous, but will periodically be repeated to maintain groundwater nutrient levels.

In accordance with EPA's January 13, 2011 letter, RG Steel plans to complete construction and begin operation by July 3, 2011. Continued progress has been made in April 2011 coordinating

with drilling contractors, securing materials (VB591™), and finalizing design details of the recirculation system.

Cell 6: LNAPL Extraction at the Former Benzol Processing Area

The Cell 6 LNAPL monitoring and recovery system was monitored approximately weekly during April (five site visits). **Table 4** summarizes LNAPL occurrence and recovery observed during the reporting period and **Figure 6** illustrates the well locations.

During April, approximately 644 gallons (4,719 pounds) of LNAPL was recovered, bringing the total recovered LNAPL to 4,509 gallons (33,036 pounds) as of April 29, 2011. The LNAPL was recovered from the following wells:

Well	LNAPL Recovery (gal / lbs)		Notes
	During April 2011	Total thru April 29, 2011	
BP-MW-05	586 / 4,294	3,958 / 29,001	
RW-04	52 / 383	359 / 2,632	
BP-MW-08	6 / 43	178 / 1,301	
BP-MW-11	0 / 0	8 / 57	(a)
RW-01	0.1 / 1	1.3 / 10	(b)
RW-02	0 / 0	0.8 / 5	(b)
RW-03	0 / 0	4.0 / 29	(b)

(a) Recovery system moved from BP-MW-11 to BP-MW-08 on September 8, 2010.
(b) Manual bailing.

The wells are presented in **Table 4** generally in the order of decreasing LNAPL occurrence/recovery. During the reporting period, the range of LNAPL thicknesses has varied as summarized below (wells are not listed if LNAPL was not present):

- BP-MW-05 (1.20 to 1.45 ft),
- BP-MW-07 (0.00 to 0.03 ft),
- BP-MW-08 (0.10 to 0.25 ft),
- BP-MW-11 (0.28 to 0.45 ft),
- BP-MW-10 (0.06 to 0.15 ft),
- RW-01 (0.08 to 0.40 ft),
- RW-02 (0.08 to 0.12 ft),
- RW-03 (0.12 to 0.20 ft), and

- RW-04 (0.27 to 0.66 ft).

LNAPL was not observed in wells RW-05, BP-MW-06, BP-MW-09, or CO19-PZM004.

For all wells in which LNAPL accumulated, **Table 5** provides well-specific details concerning the measured depths to LNAPL, the water table, and calculated LNAPL thicknesses.

Tables

Table 1
Summary of Operating Conditions
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC

Parameter	Units	Quantity
Total ICE Operating Time (April 1 - April 30, 2011)	hours	354
Overall ICE Operational Time	%	49.2
Estimated Total Hydrocarbons Destroyed	pounds	711
Estimated Hydrocarbon Removal Rate	pounds/hour	2.01

Table 2
Summary of Soil Gas Analytical Results
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC

Analyte	Units	Sample ID: ICE Influent	ICE Influent	ICE Influent	ICE Exhaust
		Date: 4/6/2011	4/14/2011	4/21/2011	4/21/2011
		Time: 14:25	14:25	14:26	14:32
		Dilution Factor: 67464.80	95647.70	94238.90	903.24
TO-15 Volatile Organics					
trans-1,3-Dichloropropene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Acetone	ppb	< 340,000 U	< 480,000 U	< 470,000 U	< 4,500 U
Ethylbenzene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
2-Hexanone	ppb	< 34,000 U	< 48,000 U	< 47,000 U	< 450 U
Methylene Chloride	ppb	**42,000**	< 48,000 U	< 47,000 U	< 450 U
Benzene	ppb	**1,300,000**	**1,300,000**	**1,100,000**	**14,000**
1,1,2,2-Tetrachloroethane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Tetrachloroethene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Toluene	ppb	**320,000**	**170,000**	**120,000**	**1,000**
1,1,1-Trichloroethane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
1,1,2-Trichloroethane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Trichloroethene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Vinyl Chloride	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
o-Xylene	ppb	**14,000**	< 19,000 U	< 19,000 U	< 180 U
m-Xylene & p-Xylene	ppb	**46,000**	**34,000**	**28,000**	**200**
2-Butanone (MEK)	ppb	< 67,000 U	< 96,000 U	< 94,000 U	< 900 U
4-Methyl-2-pentanone (MIB	ppb	< 34,000 U	< 48,000 U	< 47,000 U	< 450 U
Bromoform	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Carbon Disulfide	ppb	< 34,000 U	< 48,000 U	< 47,000 U	< 450 U
Carbon tetrachloride	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Chlorobenzene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Chloroethane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Chloroform	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
1,1-Dichloroethane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
1,2-Dichloroethane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
1,1-Dichloroethene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
trans-1,2-Dichloroethene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
1,2-Dichloropropane	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
cis-1,3-Dichloropropene	ppb	< 13,000 U	< 19,000 U	< 19,000 U	< 180 U
Total Volatile Organics	ppb	**1,722,000**	**1,504,000**	**1,248,000**	**15,200**
Hydrocarbons					
Methane	%				

Notes:

<Blank> = Not measured
BOLD = Analyte detected
ppb = parts per billion
</U = Analyte not detected above corresponding Reporting Limit
% = Percent

Table 3
Summary of Groundwater Analytical Results
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC

Analyte	Sample ID / Date / Units	MDE GW Stds[1]	CO02-PZM006 4/15/2011	CO18-PZM006 4/15/2011	BP-MW-09 4/15/2011
Water Quality Parameters					
Temperature	deg C	*NA*	17.36	23.90	15.10
pH	std units	*NA*	7.52	7.47	10.73
ORP	mV	*NA*	-268	-3	-398
Conductivity	mS/cm	*NA*	1.850	2.580	2.140
Turbidity	NTU	*NA*	4.4	20.9	17.8
DO	mg/L	*NA*	0.00	7.78	0.00
Volatile Organics					
Acetone	µg/L	*550*	< 120,000 U	< 120,000 U	< 120,000 U
Benzene	µg/L	*5*	**470,000**	**140,000**	**190,000**
Bromoform	µg/L	*80*	< 5,000 U	< 5,000 U	< 5,000 U
2-Butanone (MEK)	µg/L	*700*	< 25,000 U	< 25,000 U	< 25,000 U
Carbon Disulfide	µg/L	*100*	< 5,000 U	< 5,000 U	< 5,000 U
Carbon Tetrachloride	µg/L	*5*	< 5,000 U	< 5,000 U	< 5,000 U
Chlorobenzene	µg/L	*100*	< 5,000 U	< 5,000 U	< 5,000 U
Chloroethane	µg/L	*3.6*	< 5,000 U	< 5,000 U	< 5,000 U
Chloroform	µg/L	*80*	< 5,000 U	< 5,000 U	< 5,000 U
1,1-Dichloroethane	µg/L	*90*	< 5,000 U	< 5,000 U	< 5,000 U
1,2-Dichloroethane	µg/L	*5*	< 5,000 U	< 5,000 U	< 5,000 U
1,1-Dichloroethene	µg/L	*7*	< 5,000 U	< 5,000 U	< 5,000 U
trans-1,2-Dichloroethene	µg/L	*100*	< 5,000 U	< 5,000 U	< 5,000 U
1,2-Dichloropropane	µg/L	*5*	< 5,000 U	< 5,000 U	< 5,000 U
cis-1,3-Dichloropropene	µg/L	*0.44*	< 5,000 U	< 5,000 U	< 5,000 U
trans-1,3-Dichloropropene	µg/L	*0.44*	< 5,000 U	< 5,000 U	< 5,000 U
Ethylbenzene	µg/L	*700*	< 5,000 U	< 5,000 U	< 5,000 U
2-Hexanone (MBK)	µg/L	*NA*	< 25,000 U	< 25,000 U	< 25,000 U
4-Methyl-2-Pentanone (MIBK)	µg/L	*630*	< 25,000 U	< 25,000 U	< 25,000 U
Methylene Chloride	µg/L	*5*	< 25,000 U	< 25,000 U	< 25,000 U
1,1,1,2-Tetrachloroethane	µg/L	*NA*	< 5,000 U	< 5,000 U	< 5,000 U
1,1,2,2-Tetrachloroethane	µg/L	*0.05*	< 5,000 U	< 5,000 U	< 5,000 U
Tetrachloroethene	µg/L	*5*	< 5,000 U	< 5,000 U	< 5,000 U
Toluene	µg/L	*1,000*	**41,000**	**19,000**	**50,000**
Xylenes, Total	µg/L	*10,000*	< 15,000 U	< 15,000 U	**29,700**
1,1,1-Trichloroethane	µg/L	*200*	< 5,000 U	< 5,000 U	< 5,000 U
1,1,2-Trichloroethane	µg/L	*5*	< 5,000 U	< 5,000 U	< 5,000 U
Trichloroethene	µg/L	*5*	< 5,000 U	< 5,000 U	< 5,000 U
Vinyl Chloride	µg/L	*2*	< 5,000 U	< 5,000 U	< 5,000 U
Total Volatile Organics	**µg/L**	**--**	**511,000**	**159,000**	**269,700**

Notes:

--	= Not measured
Bold	= Analyte Detected
deg C	= Degree Celcius
mg/L	= milligrams per liter
mS/cm	= Microsiemens per Centimeter
mV	= Millivolts
NA	= Standard not available or not currently established
NTU	= Nephelometric Turbidity Units
ORP	= Oxidation Reduction Potential
std units	= Standard units
</U	= Analyte not detected above corresponding Reporting Limit
µg/L	= micrograms per liter

Table 4
LNAPL Occurrence and Recovery
Cell 6: LNAPL Recovery System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
RG Steel-Sparrows Point, LLC

Well	LNAPL Occurrence During April 2011 (ft)			Total LNAPL Recovery Period		Total LNAPL Recovered thru April 29, 2011		LNAPL Recovered During April 2011	
				Begin	End	(gal)	(lbs) (a)	(gal)	(lbs) (a)
BP-MW-05	1.20	to	1.45	28-Jan-10	On-going (b)	3,958	29,001	586	4,294
RW-04	0.27	to	0.66	23-Jul-10	On-going (b)	359	2,632	52	383
BP-MW-08	0.10	to	0.25	8-Sep-10	On-going (b)	178	1,301	6	43
BP-MW-11	0.28	to	0.45	23-Jul-10	8-Sep-10	8	57	0	0
RW-01	0.08	to	0.40	28-Oct-10	On-going (c)	1.3	10	0.1	1
RW-03	0.12	to	0.20	11/24/2010	On-going (c)	4.0	29	0.0	0
RW-02	0.08	to	0.12	1/28/2011	On-going (c)	0.8	5	0.0	0
BP-MW-10	0.06	to	0.15	na	na	0	0	0	0
BP-MW-07	0.00	to	0.03	na	na	0	0	0	0
RW-05	none			na	na	0	0	0	0
BP-MW-06	none			na	na	0	0	0	0
BP-MW-09	none			na	na	0	0	0	0
CO19-PZM004	none			na	na	0	0	0	0

Notes:

(a) Weight is calculated based on average BP-MW-05 and BP-MW-08 oil density of 0.878 grams per cubic centimeter, measured by EA (2009) by ASTM method D1481.

(b) Skimmer

(c) Bailing

Table 5
Depths (feet) to Water and LNAPL
Cell 6: LNAPL Recovery System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
RG Steel-Sparrows Point, LLC

Date	RW-01			RW-02			RW-03		
	Depth to LNAPL	Depth to Water	LNAPL Thickness	Depth to LNAPL	Depth to Water	LNAPL Thickness	Depth to LNAPL	Depth to Water	LNAPL Thickness
4/1/2011	9.92	10.00	0.08	11.50	11.58	0.08	9.28	9.40	0.12
4/8/2011	11.40	11.80	0.40	11.53	11.61	0.08	9.46	9.60	0.14
4/15/2011	11.29	11.68	0.39	11.44	11.55	0.11	9.35	9.55	0.20
4/21/2011	11.20	11.31	0.11	11.33	11.45	0.12	9.30	9.48	0.18
4/29/2011	11.30	11.40	0.10	11.41	11.52	0.11	9.36	9.48	0.12

Date	RW-04			BP-MW-05			BP-MW-07		
	Depth to LNAPL	Depth to Water	LNAPL Thickness	Depth to LNAPL	Depth to Water	LNAPL Thickness	Depth to LNAPL	Depth to Water	LNAPL Thickness
4/1/2011	9.43	10.04	0.61	10.88	12.33	1.45	10.70	10.70	0.00
4/8/2011	9.64	10.30	0.66	11.10	12.45	1.35	11.03	11.05	0.02
4/15/2011	9.55	9.99	0.44	11.00	12.29	1.29	10.95	10.96	0.01
4/21/2011	9.61	9.88	0.27	10.95	12.15	1.20	10.85	10.86	0.01
4/29/2011	9.54	10.15	0.61	11.03	12.31	1.28	10.93	10.96	0.03

Date	BP-MW-08			BP-MW-10			BP-MW-11		
	Depth to LNAPL	Depth to Water	LNAPL Thickness	Depth to LNAPL	Depth to Water	LNAPL Thickness	Depth to LNAPL	Depth to Water	LNAPL Thickness
4/1/2011	11.93	12.18	0.25	8.11	8.20	0.09	10.34	10.62	0.28
4/8/2011	12.18	12.28	0.10	9.18	9.29	0.11	11.30	11.75	0.45
4/15/2011	12.10	12.25	0.15	9.00	9.15	0.15	- -	- -	- -
4/21/2011	12.02	12.21	0.19	8.88	9.03	0.15	- -	- -	- -
4/29/2011	11.10	11.25	0.15	9.15	9.21	0.06	11.13	- -	- -

Figures

N
W E
S

Legend

- Existing Monitoring Well

INTERIM MEASURES TREATMENT CELLS

"Cell 1": Prototype AS/SVE System in Benzol Area

"Cell 2": AS/SVE and Dual Phase GW Treatment/Injection System in the Former Coal Storage Area

"Cell 3": AS/SVE System in the "Cove" Area

"Cell 4": In-Situ Anaerobic Bio-treatment System in the Coal Tar Area

"Cell 5": Groundwater Extraction/Treatment/ Injection at the Turning Basin Area

"Cell 6": LNAPL Recovery at the Former Benzol Processing Area

200 0 200 400 Feet

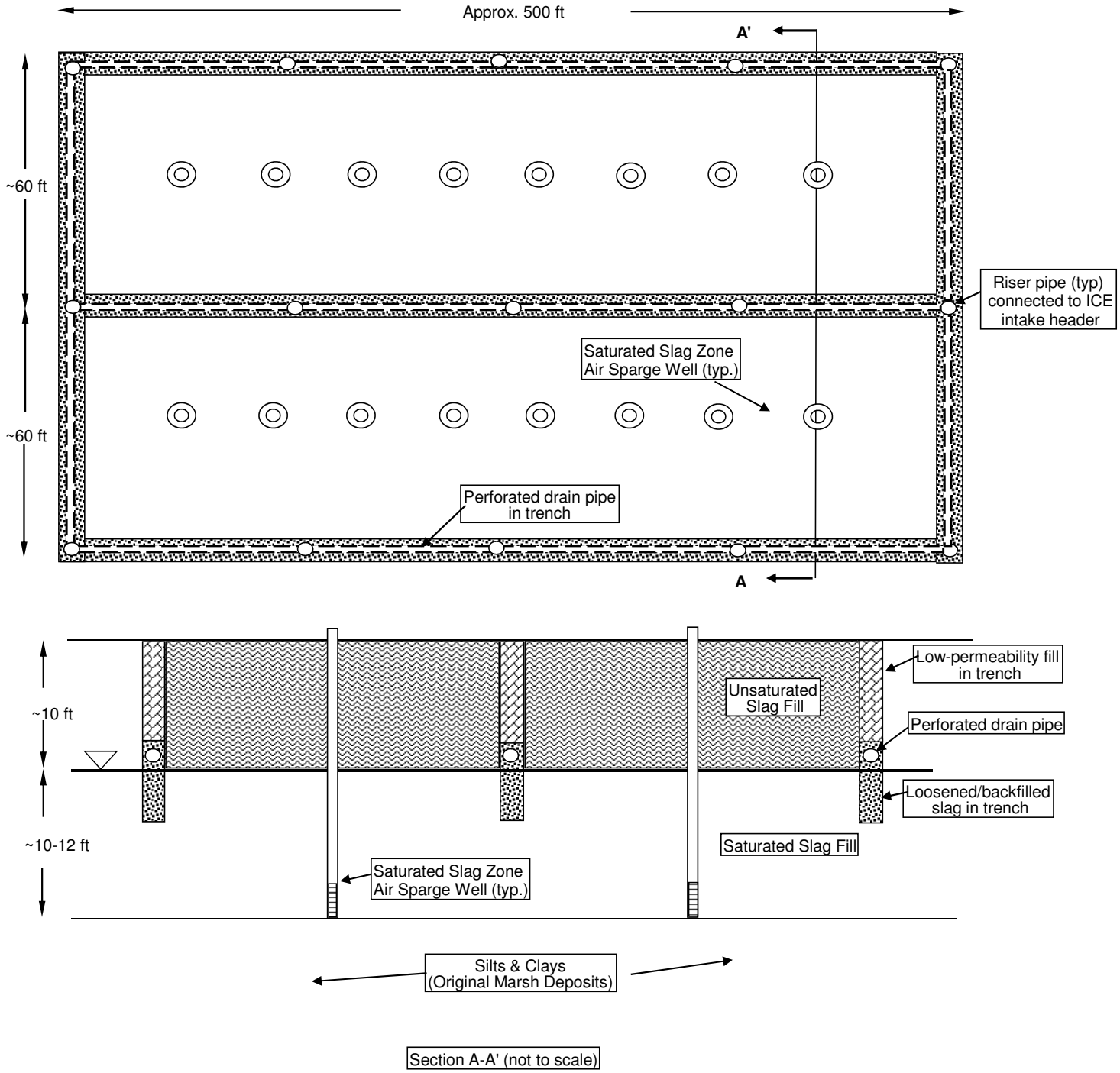
CLIENT: Sparrows Point	LOCATION: Baltimore, MD
DATE: 06/11/10	FILE: G:\Projects\SparrowsPoint\Projects\2010\CokeOven-and-CokePoint-6Prototype Cells_rev1.mxd
GIS: AER	
CHECKED: RL	
SENIOR: BE	

URS
200 Orchard Ridge Drive
Gaithersburg, MD 20878

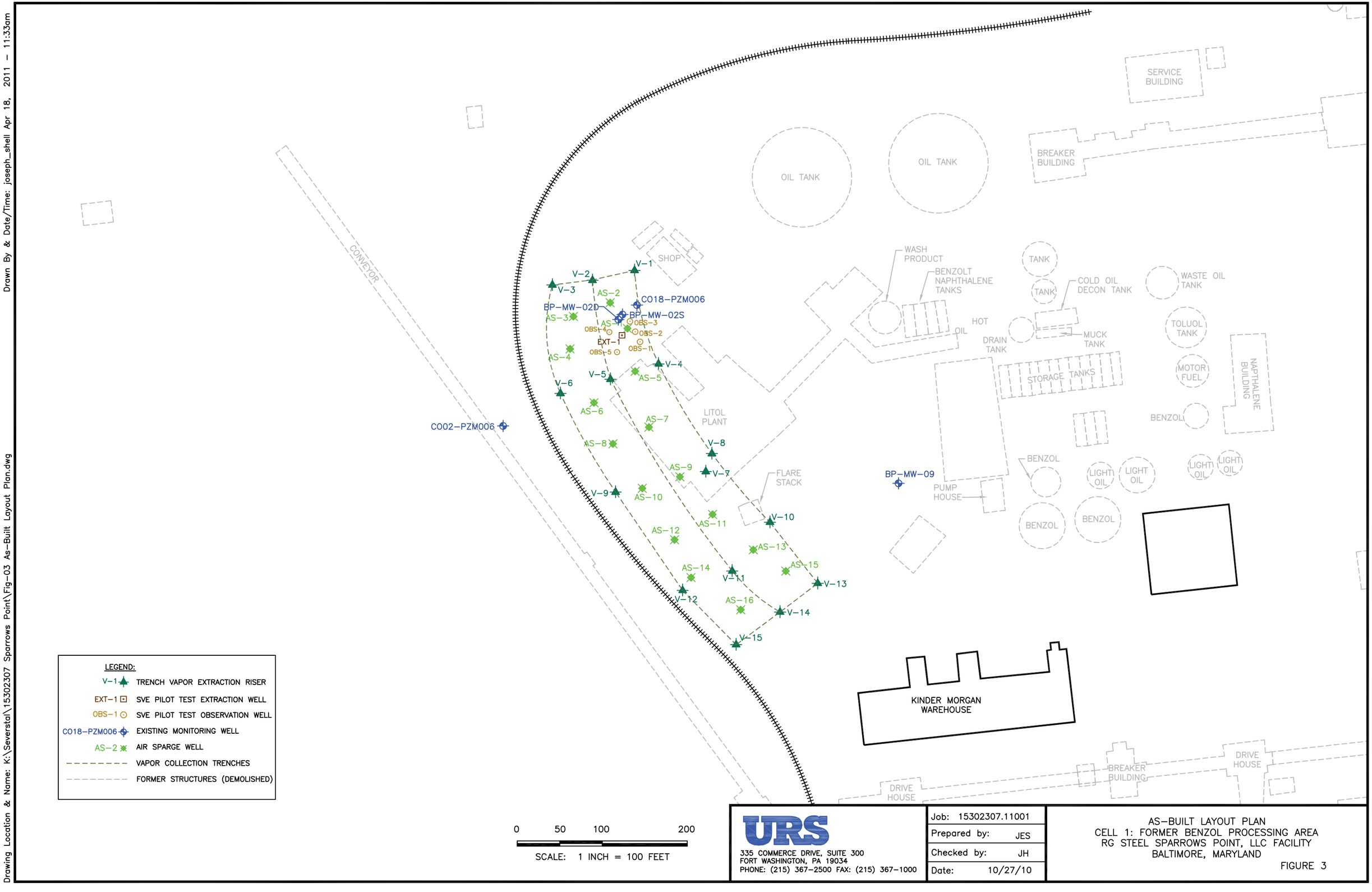
Figure 1

Interim Measures Treatment Areas

Figure 2
Schematic Diagram
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC



Section A-A' (not to scale)



LEGEND:

- V-1 — TRENCH VAPOR EXTRACTION RISER
- EXT-1 — SVE PILOT TEST EXTRACTION WELL
- OBS-1 — SVE PILOT TEST OBSERVATION WELL
- CO18-PZM006 — EXISTING MONITORING WELL
- AS-2 — AIR SPARGE WELL
- VAPOR COLLECTION TRENCHES
- FORMER STRUCTURES (DEMOLISHED)

0 50 100 200

SCALE: 1 INCH = 100 FEET

URS
335 COMMERCE DRIVE, SUITE 300
FORT WASHINGTON, PA 19034
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Job:	15302307.11001
Prepared by:	JES
Checked by:	JH
Date:	10/27/10

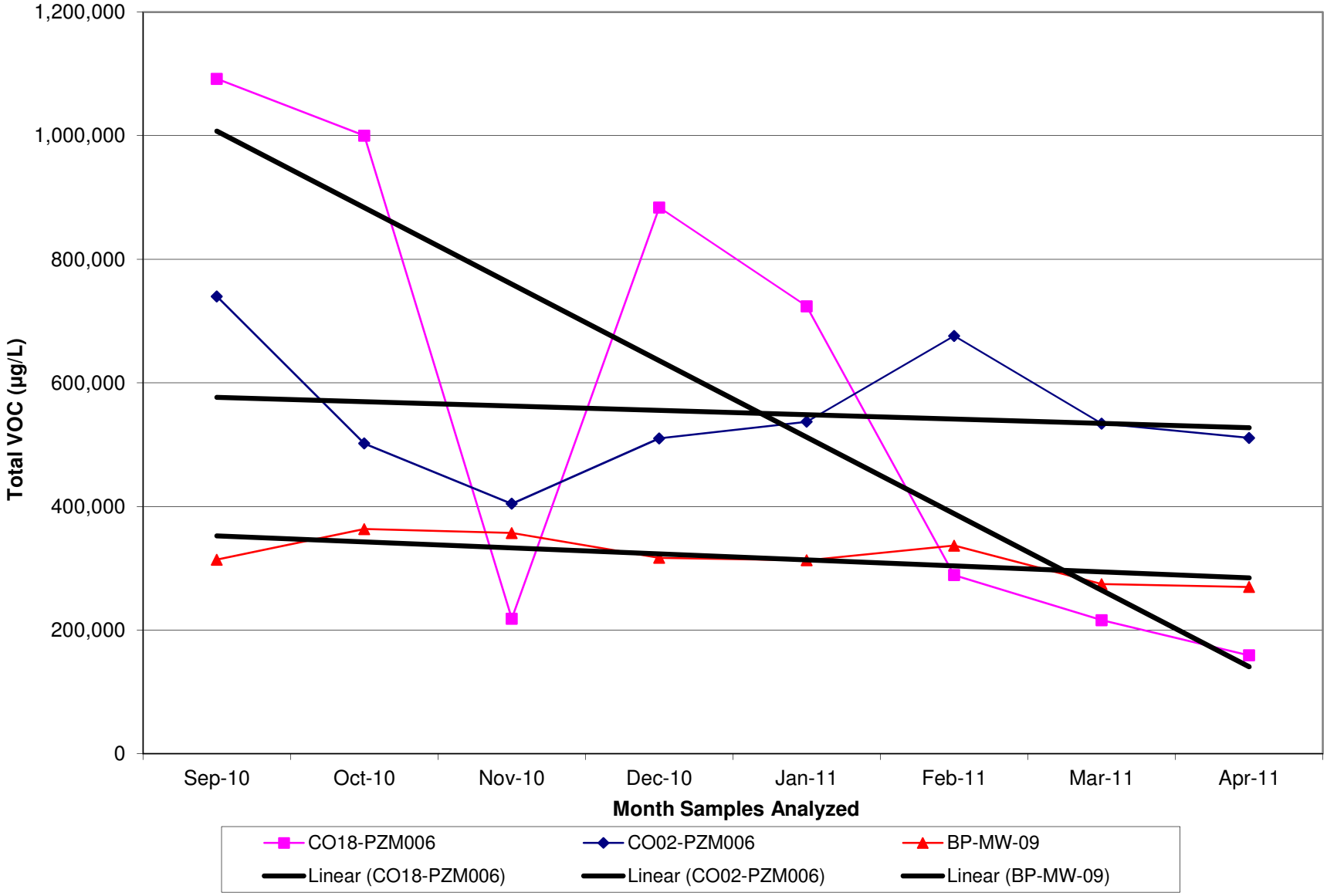
AS-BUILT LAYOUT PLAN
CELL 1: FORMER BENZOL PROCESSING AREA
RG STEEL SPARROWS POINT, LLC FACILITY
BALTIMORE, MARYLAND

FIGURE 3

Drawing Location & Name: K:\Severstal\15302307 Sparrows Point\Fig-03 As-Built Layout Plan.dwg

Drawn By & Date/Time: joseph_shell Apr 18, 2011 - 11:33am

Figure 3A
Measured Groundwater VOC Concentration per Month
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
RG Steel Sparrows Point, LLC



CLIENT	Severstal Sparrows Point, LLC
LOCATION	Baltimore, MD

URS
200 Orchard Ridge Drive
Gaithersburg, MD 20878

GIS BY	JK	03/08/2011
CHK BY	BE	03/08/2011
PM	BE	03/08/2011

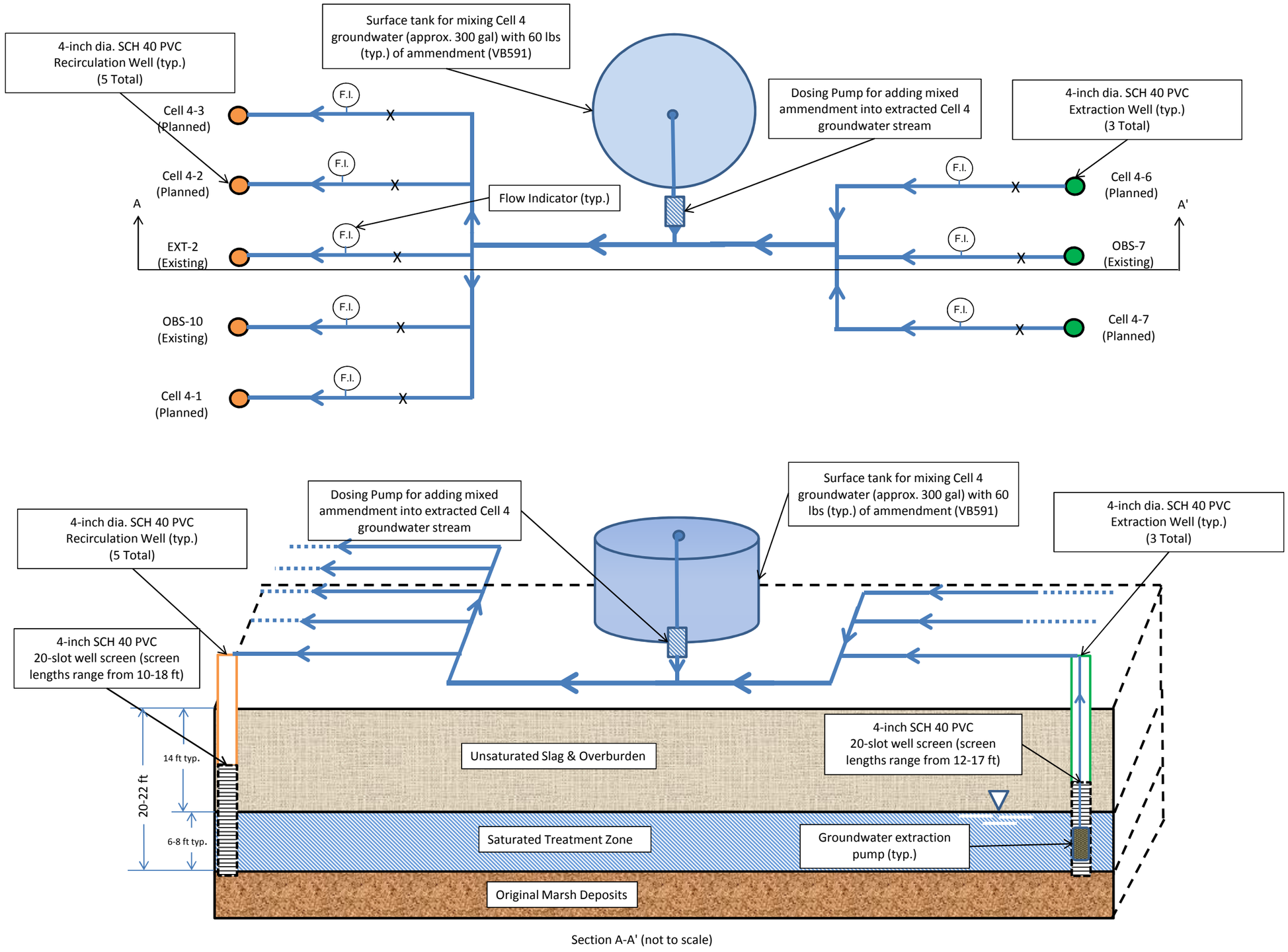
N

Figure 4

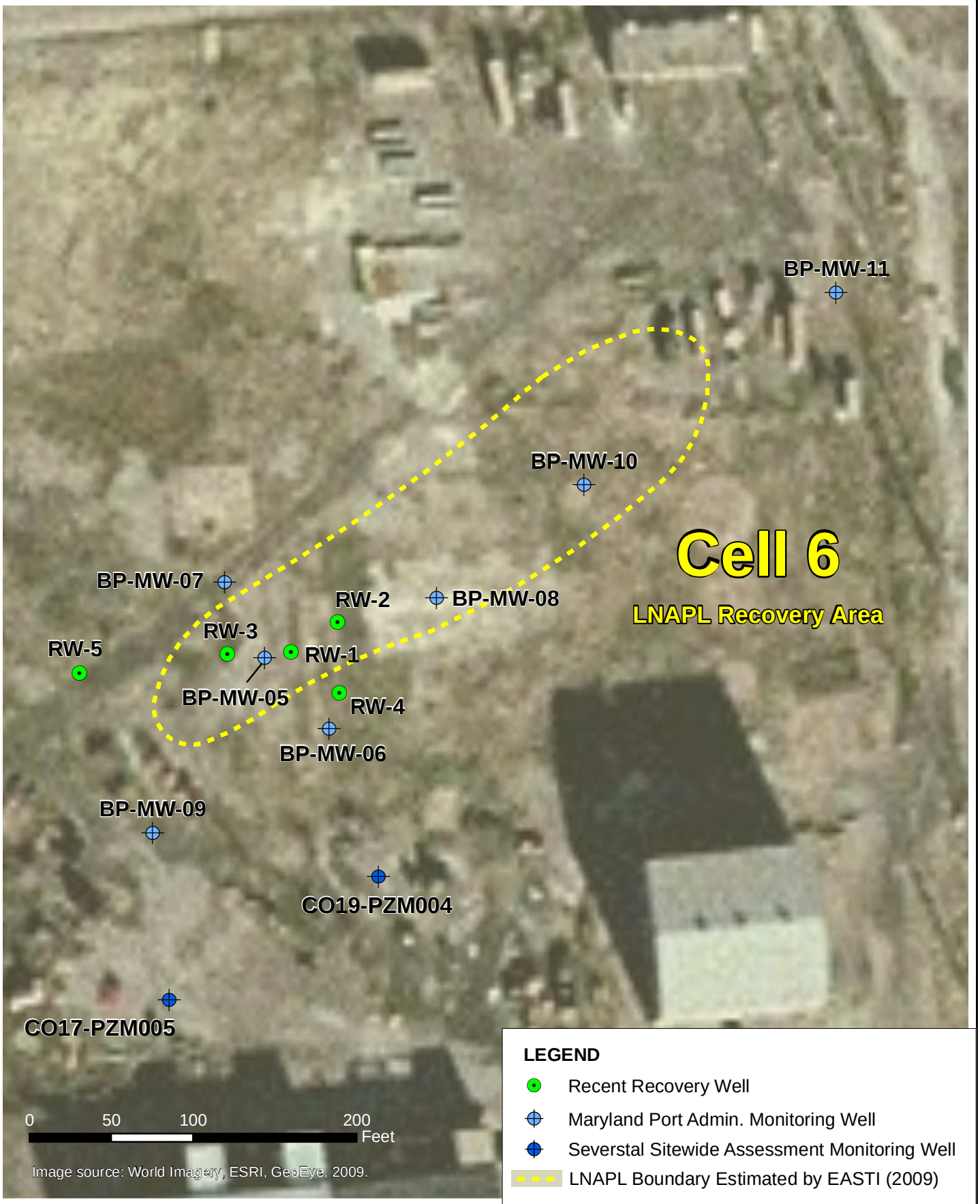
Cell 4 Wells

G:\Projects\SparrowsPoint\Projects\2010\CokeOven-and-CokePoint-Cell4closeup_ExistingandPlanned_Wells.mxd

Figure 5
Schematic Layout and Sections
Cell 4: In-Situ Anaerobic Bio-Treatment System
RG Steel Sparrows Point, LLC



Section A-A' (not to scale)



CLIENT	Sparrows Point
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200 Orchard Ridge Drive
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GIS BY	JK	10/13/10
CHK BY	BE	10/14/10
PM	BE	10/14/10

N

Figure 6

LNAPL Monitoring and Recovery Wells

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