Severstal
International

March 31, 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 February 2011

Dear Mr. Fan and Ms. Brown:

Enclosed with this correspondence is the ***Coke Oven Area Interim Measures Progress Report February 2011***completed for the 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 February 28, 2011.

As of February 28, 2011, Cell 1 and Cell 6 are operational, Cell 3 design is complete and Cell 4 is in the process of being evaluated and designed. The other Cells are in various stages of evaluation, design, and under permitting considerations by Maryland Department of the Environment (MDE) in accordance with the schedule requirements outlined in the revised approval letter for the IMs received from US EPA dated January 13, 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

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COKE OVEN AREA INTERIM MEASURES PROGRESS REPORT
(FEBRUARY 2011)

Prepared for

Severstal-Sparrows Point, LLC
Sparrows Point, Maryland

March 31, 2011

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 February 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 Severstal Sparrows Point Facility located in Sparrows Point, Maryland. This progress report summarizes IM progress for February 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 February 28, 2011, Cell 1 and Cell 6 continue to be operational. 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. The remaining Cells (Cells 2, 4 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 Severstal. 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.

February 2011 Operational Performance

Operational performance of Cell 1 during this reporting period is summarized in **Table 1**. In summary, the ICE operated for 629 hours (93.7 %) during this reporting period. Hydrocarbon removal rates averaged approximately 3.38 pounds per operating hour (approximately 81 pounds per operating day for a total of 2,129 pounds) during this period.

A revised method to compute hydrocarbon removal rates was used in February 2011 and is described in detail below. The ICE catalytic converter destruction efficiency exceeded 96 %.

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 February 17 and 23, 2011, were 4,167 and 4,812 parts per million by volume (ppmv), respectively. The ICE exhaust sample collected on February 17, 2011 exhibited hydrocarbon concentrations of 159.6 ppmv; demonstrating a hydrocarbon destruction efficiency greater than 96%.

A revised method for estimating hydrocarbon removal has been employed for this February 2011 report that was developed from closer examination of all the data (e.g., ICE, PID, and analytical) collected during operation of Cell 1. It is apparent that the previous methodology for estimating hydrocarbon removal rates (described in Attachment 1 of the November 2010 Progress Report) underestimates actual mass removed. This previous method used a vapor concentration correction factor (i.e., ratio between ICE-calculated and PID data) as well as an influent flow correction factor (ratio between measured flow and ICE-calculated soil gas flow) to adjust the hydrocarbon destruction rate.

The revised method relies primarily on the analytical data collected in February 2011 rather than previous PID data for the vapor concentration correction factor. The analytical data is considered to be more accurate for use in the removal calculations. The influent flow correction factor methodology used previously remains in the calculations. The calculations assume that the average concentration of the two (2) influent analytical samples for February is representative of hydrocarbon concentrations for the entire month. This assumption is based on two (2) facts:

1. During February 2011, the system has been continuously sparging and extracting from the same area (AS-1, AS-2, AS-5, V-1, V-2, V-4, and V-5), and

2. The two (2) influent analytical hydrocarbon concentrations for February 2011 were similar (4,167 and 4,812 ppmv, respectively).

February 2011 Groundwater Monitoring Results

Groundwater samples were collected on February 11, 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 generally 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 3: AS/SVE System in the "Cove" Area

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 under separate cover.

During this evaluation period, a total of four (4) groundwater monitoring wells (MW-CELL3-1 through MW-CELL3-4) were installed in locations proximate to Cell 3 to further delineate groundwater impacts in February 2011 (**Figure 4**). These wells were installed using hollow-stem auger drilling techniques and are constructed of 2-inch diameter PVC with screens installed across the unconfined water table which occurs at approximately 10 feet below ground surface.

Groundwater samples were collected from the above-mentioned wells, in addition to CO30-PZM015 and CO32-PZM004 on February 14, 2011 and were submitted to Microbac for VOC analyses via USEPA Method 8260B. Analytical results for benzene, the most prevalent VOC constituent in this area, are also shown on **Figure 4**.

Based on the results of the additional groundwater data and observations made from Cell 1 performance, Cell 3 AS/SVE system will consist of the following major components:

- One (1) vapor collection trench (generally parallel to the cove shoreline) approximately 600 feet long and 3 feet wide fitted with a horizontal perforated 4-inch diameter DR-17 HDPE vapor collection pipe locate on the cove-side of the trench. Five (5) vertical vapor-extraction risers are connected to a common suction header.

- 14 air sparge wells located within the trench, opposite the vapor collection pipe. These 14 air sparge wells, each spaced approximately 40 feet apart, will be constructed of 2-inch, schedule 40 PVC with a 2 foot screen of the appropriate slot size and sand pack.

- At-grade, 3-inch DR-17 HDPE sparge and suction headers fitted with control valves for 2-inch DR-17 HDPE sparge and suction laterals. Means for freeze protection will be incorporated into the installation.

- One (1) electric CATOX unit for extraction vacuum and vapor destruction. The CATOX unit will be sized to handle at least the volume of sparge air delivered to the subsurface.

- One (1) electric air compressor for sparge air sized to have the capability to activate all sparge wells.

- Perimeter slag berm for system demarcation and protection from vehicular traffic.

Modification of the existing MDE air discharge permit for the COA will be requested from MDE for the Cell 3 CATOX system. The modified permit will define system operating conditions. Cell 3 is on schedule to be operational by July 3, 2011 in accordance with the revised approval letter dated January 13, 2011 from US EPA.

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

US EPA's March 2, 2010 letter approved the in-situ bio-treatment concept for Cell 4, as originally proposed by Severstal. As discussed in September's progress report, 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.

Severstal is continuing efforts toward designing, installing and operating the planned in-situ enhanced anaerobic bioremediation system at Cell 4. These activities include:

1. Design and install a groundwater re-circulation system to deliver bionutrients to the subsurface.

2. Supplement the depleted nutrients that are necessary to support general microbial activities, including nitrate and phosphorous. Commercially available bionutrients (such as VB591 from BioNutra Tech) are being evaluated.

In accordance with EPA's January 13, 2011 revised approval letter, Severstal plans to submit the proposed final design for Cell 4 by April 1, 2011 and complete construction and begin operation by July 3, 2011.

Cell 6: LNAPL Extraction at the Former Benzol Processing Area

The Cell 6 LNAPL monitoring and recovery system was monitored approximately weekly during February (four site visits). **Table 4** summarizes LNAPL occurrence and recovery observed during the reporting period and **Figure 5** illustrates the well locations.

During February, approximately 308 gallons (2,255 pounds) of LNAPL was recovered, bringing the total recovered LNAPL to 3,294 gallons (24,132 pounds) as of February 24, 2011. The LNAPL was recovered from the following wells:

Well	LNAPL Recovery (gal / lbs)		Notes
	During February 2011	Total thru February 24, 2011	
BP-MW-05	299 / 2,191	2,857 / 20,934	
RW-04	5 / 37	271 / 1,986	
BP-MW-08	1 / 7	153 / 1,121	
BP-MW-11	0 / 0	8 / 57	(a)
RW-01	0.3 / 2	1.2 / 9	(b)
RW-02	0.3 / 2	0.4 / 3	(b)
RW-03	2.2 / 16	3.0 / 22	(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 (1.30 to 1.55 feet),
- RW-04 (0.27 to 1.75 feet),
- BP-MW-08 (0.06 to 2.28 feet),
- BP-MW-11 (0.24 to 0.24 feet),
- RW-01 (0.07 to 0.20 feet),
- RW-03 (0.17 to 0.98 feet),
- RW-02 (0.20 to 0.38 feet),
- BP-MW-10 (0.19 to 0.23 feet), and

- BP-MW-07 (0.00 to 0.03 feet).

LNAPL was not observed in wells RW-5, 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
Severstal Sparrows Point, LLC

Parameter	Units	Quantity
Total ICE Operating Time (February 1 - February 28, 2011)	hours	629
Overall ICE Operational Time	%	93.7
Estimated Total Hydrocarbons Destroyed	pounds	2,129
Estimated Hydrocarbon Removal Rate	pounds/hour	3.38

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
Severstal Sparrows Point, LLC

Analyte	Units	Sample ID: ICE Influent	ICE Exhaust	ICE Influent
		Date: 2/17/2011	2/17/2011	2/23/2011
		Time: 13:45	13:55	13:05
		Dilution Factor: 171505.50	18220.22	117979.24
TO-15 Volatile Organics				
trans-1,3-Dichloropropene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Acetone	ppb	< 860,000 U	< 91,000 U	< 590,000 U
Ethylbenzene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
2-Hexanone	ppb	< 86,000 U	< 9,100 U	< 59,000 U
Methylene Chloride	ppb	< 86,000 U	< 9,100 U	< 59,000 U
Benzene	ppb	**3,600,000**	**140,000**	**4,100,000**
1,1,2,2-Tetrachloroethane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Tetrachloroethene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Toluene	ppb	**500,000**	**15,000**	**600,000**
1,1,1-Trichloroethane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
1,1,2-Trichloroethane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Trichloroethene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Vinyl Chloride	ppb	< 34,000 U	< 3,600 U	< 24,000 U
o-Xylene	ppb	< 34,000 U	< 3,600 U	**26,000**
m-Xylene & p-Xylene	ppb	**67,000**	**4,600**	**86,000**
2-Butanone (MEK)	ppb	< 170,000 U	< 18,000 U	< 120,000 U
4-Methyl-2-pentanone (MIBK)	ppb	< 86,000 U	< 9,100 U	< 59,000 U
Bromoform	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Carbon Disulfide	ppb	< 86,000 U	< 9,100 U	< 59,000 U
Carbon tetrachloride	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Chlorobenzene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Chloroethane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Chloroform	ppb	< 34,000 U	< 3,600 U	< 24,000 U
1,1-Dichloroethane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
1,2-Dichloroethane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
1,1-Dichloroethene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
trans-1,2-Dichloroethene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
1,2-Dichloropropane	ppb	< 34,000 U	< 3,600 U	< 24,000 U
cis-1,3-Dichloropropene	ppb	< 34,000 U	< 3,600 U	< 24,000 U
Total Volatile Organics	ppb	**4,167,000**	**159,600**	**4,812,000**
Hydrocarbons				
Methane	%	< 0.18 U		< 0.20 U

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
Severstal Sparrows Point, LLC

Analyte	Sample ID / Date / Units	MDE GW Stds[1]	CO02-PZM006 2/11/2011	CO18-PZM006 2/11/2011	BP-MW-09 2/11/2011
Water Quality Parameters					
Temperature	deg C	*NA*	16.63	21.76	13.13
pH	std units	*NA*	7.64	7.74	9.07
ORP	mV	*NA*	-216	69	-68
Conductivity	mS/cm	*NA*	1.790	2.070	1.440
Turbidity	NTU	*NA*	--	--	--
DO	mg/L	*NA*	0.00	5.12	0.00
Volatile Organics					
Acetone	µg/L	*550*	< 120,000 U	< 120,000 U	< 120,000 U
Benzene	µg/L	*5*	**620,000**	**260,000**	**260,000**
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*	**56,000**	**29,000**	**49,000**
Xylenes, Total	µg/L	*10,000*	< 15,000 U	< 15,000 U	**27,600**
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**	**--**	**676,000**	**289,000**	**336,600**

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
*	= revised laboratory report

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

Well	LNAPL Occurrence During February 2011 (ft)			Total LNAPL Recovery Period		Total LNAPL Recovered thru February 24, 2011		LNAPL Recovered During February 2011	
				Begin	End	(gal)	(lbs) (a)	(gal)	(lbs) (a)
BP-MW-05	1.30	to	1.55	28-Jan-10	On-going (b)	2,857	20,934	299	2,191
RW-04	0.27	to	1.75	23-Jul-10	On-going (b)	271	1,986	5	37
BP-MW-08	0.06	to	2.28	8-Sep-10	On-going (b)	153	1,121	1	7
BP-MW-11	0.24	to	0.24	23-Jul-10	8-Sep-10	8	57	0	0
RW-01	0.07	to	0.20	28-Oct-10	On-going (c)	1.2	9	0.3	2
RW-03	0.17	to	0.98	11/24/2010	On-going (c)	3.0	22	2.2	16
RW-02	0.20	to	0.38	1/28/2011	On-going (c)	0.4	3	0.3	2
BP-MW-10	0.19	to	0.23	na	na	0	0	0	0
BP-MW-07	0.00	to	0.03	na	na	0	0	0	0
RW-5	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
Severstal 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
2/4/2011	11.90	11.97	0.07	12.14	12.41	0.27	9.80	10.46	0.66
2/11/2011	11.20	11.40	0.20	11.55	11.85	0.30	9.22	10.20	0.98
2/16/2011	11.34	11.47	0.13	11.79	11.99	0.20	9.46	9.99	0.53
2/24/2011	11.68	11.80	0.12	12.03	12.41	0.38	9.75	9.92	0.17

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
2/4/2011	10.25	10.52	0.27	11.46	12.80	1.34	11.43	11.43	0.00
2/11/2011	9.35	11.10	1.75	10.95	12.25	1.30	10.91	10.91	0.00
2/16/2011	9.61	10.80	1.19	11.05	12.60	1.55	11.09	11.09	0.00
2/24/2011	10.08	10.36	0.28	11.41	12.95	1.54	11.35	11.38	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
2/4/2011	12.59	13.10	0.51	10.22	10.45	0.23	11.66	11.90	0.24
2/11/2011	11.89	12.66	0.77	9.40	9.62	0.22	- -	- -	- -
2/16/2011	12.15	12.21	0.06	9.65	9.84	0.19	- -	- -	- -
2/24/2011	12.22	14.50	2.28	9.91	10.11	0.20	- -	- -	- -

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

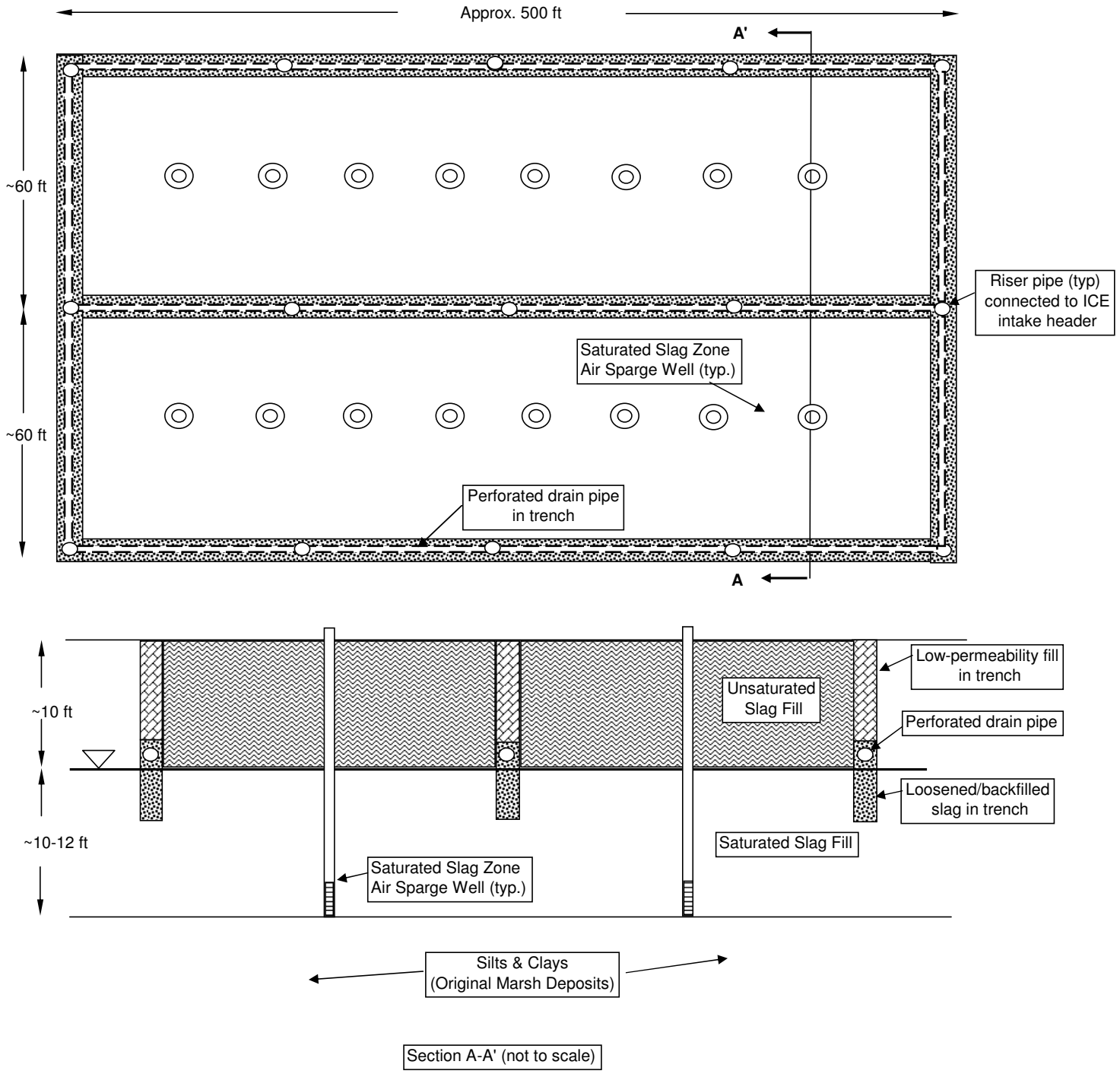
CLIENT: Sparrows Point	LOCATION: Baltimore, MD
DATE: 06/11/10	FILE: G:\Projects\SparrowsPoint\Projects\2010\CokeOven-and-CokePoint-6Prototype Cells_rev1.mxd
GIS: AER	
CHECKED: RL	
SENIOR: BE	

URS
200 Orchard Ridge Drive
Gaithersburg, MD 20878

Figure 1

Interim Measures Treatment Areas

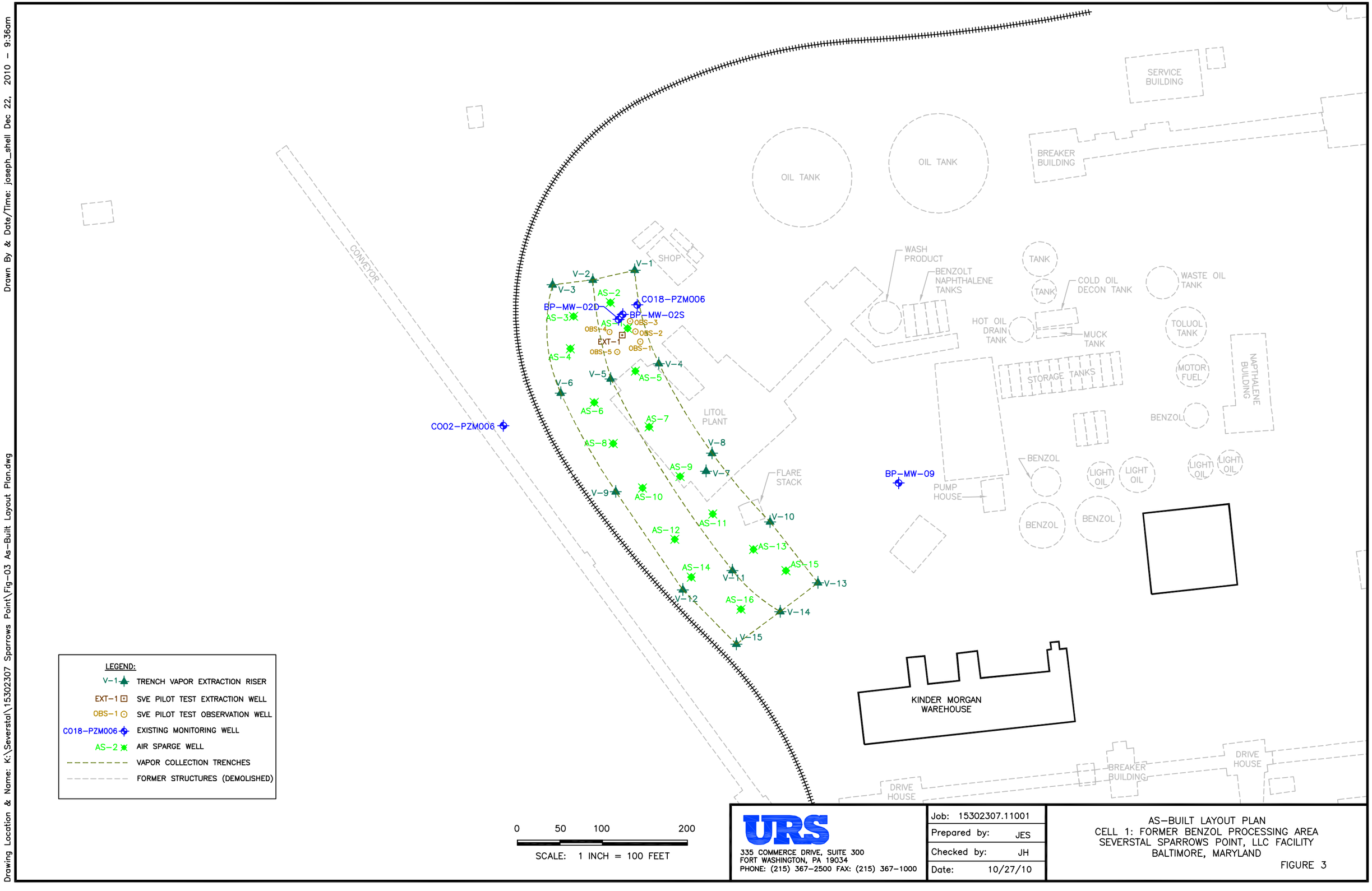
Figure 2
Schematic Diagram
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
Former Coke Oven Area Interim Remedial Measures
Severstal Sparrows Point, LLC



Section A-A' (not to scale)

Drawn By & Date/Time: joseph_shell Dec 22, 2010 - 9:36am

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



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

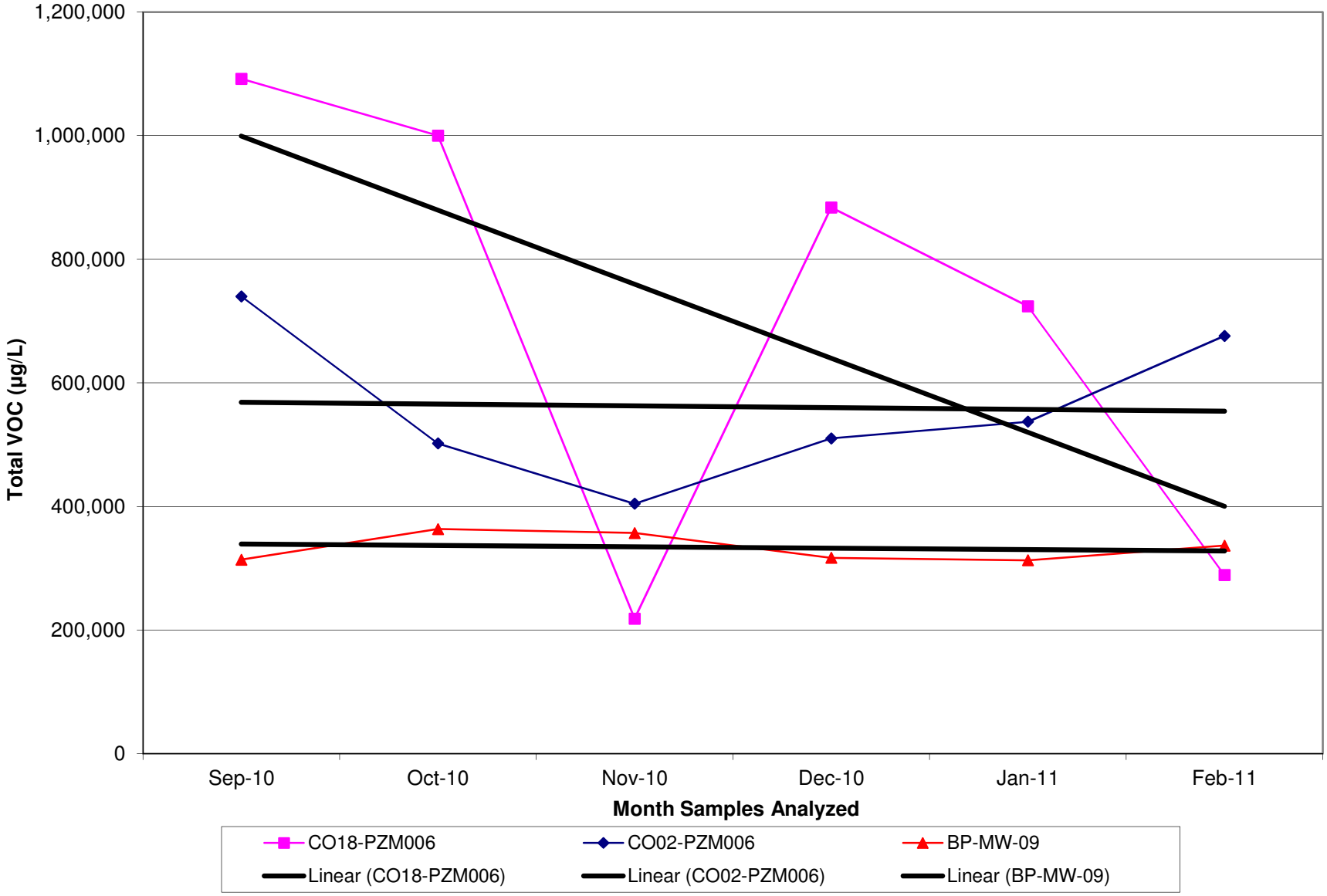
URS
335 COMMERCE DRIVE, SUITE 300
FORT WASHINGTON, PA 19034
PHONE: (215) 367-2500 FAX: (215) 367-1000

Job:	15302307.11001
Prepared by:	JES
Checked by:	JH
Date:	10/27/10

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

FIGURE 3

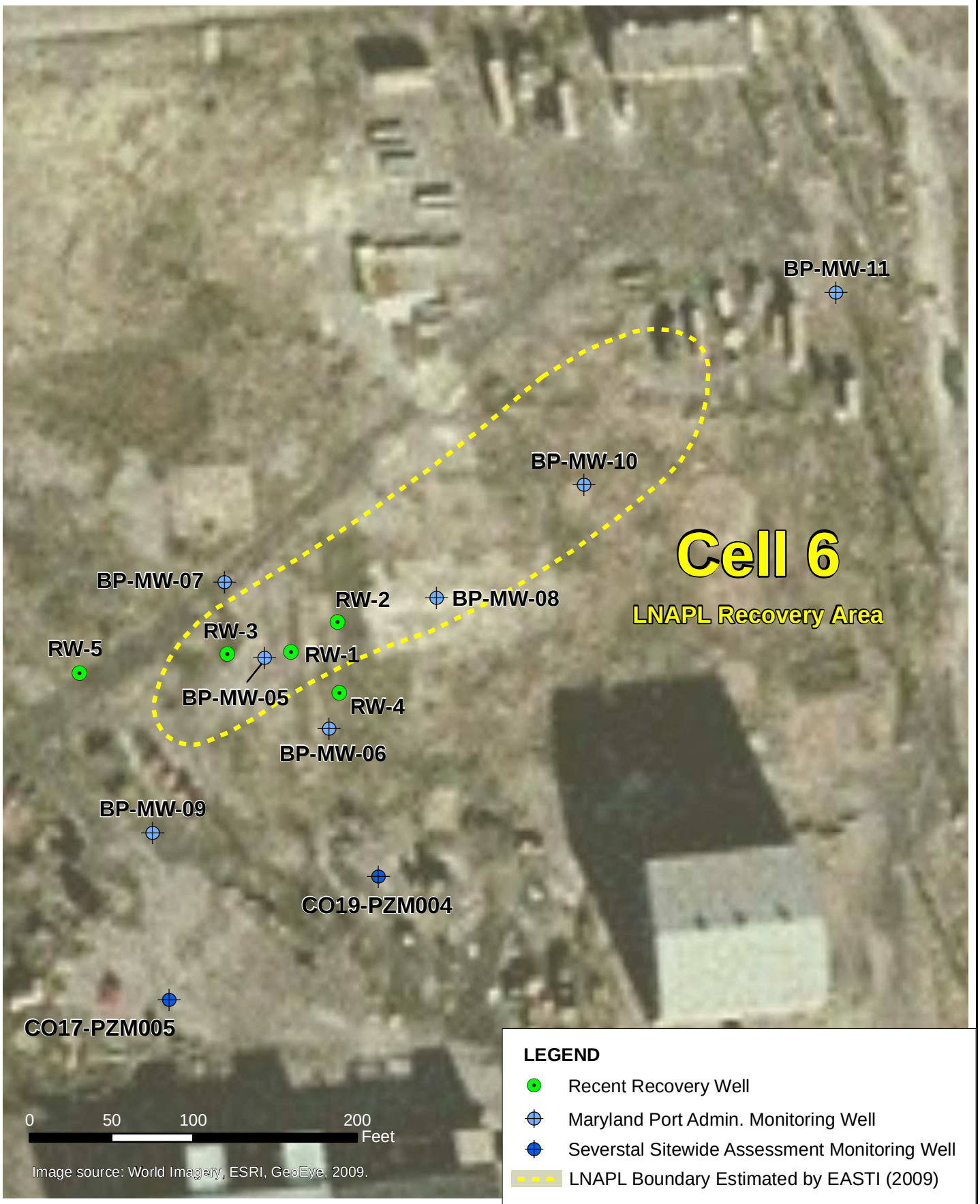
Figure 3A
Measured Groundwater VOC Concentration per Month
Cell 1: Prototype AS/SVE System in Former Benzol Processing Area
Severstal Sparrows Point, LLC



G:\Projects\SparrowsPoint\Projects\2009\6-2CokeOven-and-CokePointBenzene-focusareas-wWells-Jan11_rev2.mxd 02/21/2011 JK

Figure 4

Cell 3 AS/SVE Treatment Area



CLIENT	Sparrows Point
LOCATION	Baltimore, MD

URS
200 Orchard Ridge Drive
Gaithersburg, MD 20878

GIS BY	JK	10/13/10
CHK BY	BE	10/14/10
PM	BE	10/14/10

N

Figure 5

LNAPL Monitoring and Recovery Wells

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