

February 29, 2012

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 January 2012**

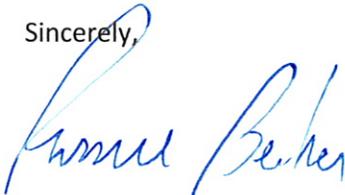
Dear Mr. Fan and Ms. Brown:

Enclosed with this correspondence is the ***Coke Oven Area Interim Measures Progress Report January 2012*** completed for the RG Steel 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. This report was distributed electronically on February 29, 2012 in accordance with the outlined reporting requirements; this correspondence provides paper copies for your use.

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 January 31, 2012.

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

COKE OVEN AREA INTERIM MEASURES PROGRESS REPORT (JANUARY 2012)

Prepared for

RG Steel Sparrows Point, LLC
Sparrows Point, Maryland



February 29, 2012

URS

URS Corporation
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876
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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 January 2012 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 January 2012.

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,
- 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 January 31, 2012, Cells 1, 3, 4 and 6 continue to be operational. 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

Cell 1 consists of a prototype IM, which includes AS/SVE coupled with vapor destruction via an electric catalytic oxidation (CATOX) unit. **Figure 2** shows the system layout of Cell 1 and locations of the major design components including the air sparging wells and vapor collection trenches.

January 2012 Operational Performance

Operational performance of Cell 1 during this reporting period is summarized in **Table 1**. In summary, the CATOX unit operated for 684 hours (91.9 %) during this reporting period. Operations were in conformance with the manufacturer's specifications at all times that soil gases were collected in accordance with the May 20, 2011 modified permit-to-construct conditions.

The hydrocarbon removal rate was calculated to be approximately 0.01 pounds per operating hour (estimated monthly total of 6.66 pounds). Hydrocarbon removal calculations were estimated using the average concentration of the December 2011 analytical results along with the average influent soil gas flow rate observed during system operation in January 2012. Influent soil gas hydrocarbon concentrations, collected on December 22 and 28, 2011, were 6.62 and 4.89 parts per million by volume (ppmv), respectively, as summarized in **Table 2**. **Table 1** also includes a cumulative summary of operational performance since system startup on August 3, 2010. In total, Cell 1 has destroyed approximately 9,109 pounds of recovered hydrocarbons. **Figure 3** presents a graph of the cumulative estimated monthly hydrocarbon recovery in Cell 1 since the startup of the IM system.

The mass removal estimations assume that the average of the two (2) analytical samples is representative of hydrocarbon concentrations for the entire month of January. This assumption is based on the fact that the same sparge wells (AS-1 thru AS-8) and extraction wells (V-2, V-4 and V-5) were online when the system was operational in both December and January.

January 2012 Groundwater Monitoring

Groundwater samples were not collected from Cell 1 during this reporting period.

Figure 4 presents a graph of the total measured VOC concentration in Cell 1 groundwater for each well on a monthly basis since the startup of the IM system. Since system startup in August 2010, a decreasing total VOC concentration trend is documented at well CO18-PZM006 while a generally decreasing trend is observed at wells BP-MW-09 and C002-PZM006. Groundwater

Coke Oven Area Interim Remedial Measures Progress Report

data and associated trends 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

Cell 3 consists of an AS/SVE system coupled with vapor destruction via an electric CATOX unit. **Figure 1** shows the location of the Cell 3 AS/SVE treatment area at the COA. The major design components are described in the Cell 3 final design report (*Coke Oven Area Interim Measures Cell 3 “Cove” Area Air Sparge/Soil Vapor Extraction System Design*), submitted to US EPA on March 1, 2011.

January 2012 Operational Performance

Operational performance of Cell 3 during this reporting period is summarized in **Table 3**. In summary, the CATOX unit operated for 533 hours (71.6 %) during January. Operations were in conformance with the manufacturer’s specifications at all times that soil gases were collected in accordance with the May 20, 2011 modified permit-to-construct conditions.

The hydrocarbon removal rate was calculated to be approximately 0.06 pounds per operating hour (estimated monthly total of 33.3 pounds). Hydrocarbon removal calculations were estimated using the average concentration of the December 2011 analytical results along with the average influent soil gas flow rate observed during system operation in January 2012. Influent soil gas hydrocarbon concentrations, collected on December 22 and 28, 2011, were 50.1 and 34.5 parts per million by volume (ppmv), respectively, as summarized in **Table 4**. **Table 3** also includes a cumulative summary of operational performance since system startup on June 24, 2011. In total, Cell 3 has destroyed approximately 474.2 pounds of recovered hydrocarbons. **Figure 3** presents a graph of the cumulative estimated monthly hydrocarbon recovery in Cell 3 since the startup of the IM system.

The mass removal estimations assume that the average of the two (2) analytical samples is representative of hydrocarbon concentrations for the entire month of January. This assumption is based on the fact that the same sparge wells (AS-2 thru AS-12) and extraction wells (V-2 thru V-4) were online when the system was operational in both December and January.

January 2012 Cell 3 Groundwater Monitoring

Groundwater samples were not collected from Cell 3 during this reporting period.

Figure 5 presents a graph of the total measured VOC concentration in Cell 3 groundwater for each well on a monthly basis relative to the baseline concentrations collected in February 2011. Groundwater data and associated trends for these monitoring wells will continue to be monitored and assessed during system operation in future months.

Cell 4: In-Situ Anaerobic Bio-treatment Area

Cell 4 consists of an in-situ anaerobic bio-treatment system that requires extraction and mixing of groundwater in an above ground storage tank containing a nutrient amendment solution and reinjection of groundwater. A schematic layout of the Cell 4 system is shown on **Figure 6**. **Figure 7** illustrates the well locations. The major design components are described in the Cell 4 final design report (*Coke Oven Area Interim Measures Cell 4 In-Situ Anaerobic Bio-Treatment System Design*), submitted to US EPA on March 31, 2011.

The extraction and reinjection process was conducted on a bi-monthly basis with groundwater monitoring conducted during alternate months since system startup in 2011. This operating practice will continue in 2012. The fourth amendment dosing event at Cell 4 is currently scheduled for mid-February 2012. Groundwater monitoring will be conducted prior to and subsequent to the dosing event per the procedures established in 2011.

Figure 8 presents a graph of the total VOC concentrations in Cell 4 groundwater on a monthly basis, as well as before and after the dosing events. Since system initiation in July 2011, a generally decreasing total VOC concentration trend is observed at each sampling well. Trends will continue to be monitored and assessed during system operation in future months.

Cell 6: LNAPL Extraction at the Former Benzol Processing Area

The Cell 6 LNAPL monitoring and recovery system has been operating continuously since its start up in 2010. **Table 5** summarizes LNAPL occurrence and recovery estimated during the reporting period along with the estimated cumulative LNAPL recovery since the beginning of the project. **Figure 9** illustrates the well locations.

Approximately 60 gallons (441 pounds) of LNAPL was estimated to be recovered during January 2012, bringing the total recovered LNAPL to an estimated 6,783 gallons (49,701 pounds) as of January 31, 2012. January 2012 recovery volumes are estimated based on recent recovery rates measured in December 2011. Actual current recovery rates at Cell 6 will be verified by field measurements in February 2012.

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

Cell 1 January 2012 Estimated Hydrocarbon Recovery

Parameter	Units	Quantity
Total CATOX Operating Time (January 1 - January 31, 2012)	hours	684
Overall CATOX Operational Time	%	91.9
Estimated Total Hydrocarbons Destroyed	pounds	6.66
Estimated Hydrocarbon Removal Rate	pounds/hour	0.01

Cell 1 Cumulative Summary of Estimated Hydrocarbon Recovery

Parameter	Units	Quantity
Total ICE/CATOX Operating Time (August 3, 2010 - January 31, 2012)	hours	9,398
Overall ICE/CATOX Operational Time	%	71.7
Estimated Total Hydrocarbons Destroyed	pounds	9,109
Estimated Average Hydrocarbon Removal Rate	pounds/hour	0.97

Table 2
Summary of Soil Gas Analytical Results (December 2011)
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 Time Dilution Factor Units	CATOX Influent	CATOX Influent
		12/22/2011 14:50 403.88	12/28/2011 13:00 138.04
TO-15 Volatile Organics			
trans-1,3-Dichloropropene	ppb	< 81 U	< 28 U
Acetone	ppb	< 2,000 U	< 690 U
Ethylbenzene	ppb	< 81 U	< 28 U
2-Hexanone	ppb	< 200 U	< 69 U
Methylene Chloride	ppb	< 200 U	350
Benzene	ppb	5,500	3,800
1,1,2,2-Tetrachloroethane	ppb	< 81 U	< 28 U
Tetrachloroethene	ppb	< 81 U	< 28 U
Toluene	ppb	1,000	620
1,1,1-Trichloroethane	ppb	< 81 U	< 28 U
1,1,2-Trichloroethane	ppb	< 81 U	< 28 U
Trichloroethene	ppb	< 81 U	< 28 U
Vinyl Chloride	ppb	< 81 U	< 28 U
o-Xylene	ppb	< 81 U	39
m-Xylene & p-Xylene	ppb	120	82
2-Butanone (MEK)	ppb	< 400 U	< 140 U
4-Methyl-2-pentanone (MIBK)	ppb	< 200 U	< 69 U
Bromoform	ppb	< 81 U	< 28 U
Carbon Disulfide	ppb	< 200 U	< 69 U
Carbon tetrachloride	ppb	< 81 U	< 28 U
Chlorobenzene	ppb	< 81 U	< 28 U
Chloroethane	ppb	< 81 U	< 28 U
Chloroform	ppb	< 81 U	< 28 U
1,1-Dichloroethane	ppb	< 81 U	< 28 U
1,2-Dichloroethane	ppb	< 81 U	< 28 U
1,1-Dichloroethene	ppb	< 81 U	< 28 U
trans-1,2-Dichloroethene	ppb	< 81 U	< 28 U
1,2-Dichloropropane	ppb	< 81 U	< 28 U
cis-1,3-Dichloropropene	ppb	< 81 U	< 28 U
Total Volatile Organics	ppb	6,620	4,891

Notes:

BOLD = Analyte detected

ppb = parts per billion

</U = Analyte not detected above corresponding laboratory reporting limit

Table 3
Summary of Operating Conditions
Cell 3: AS/SVE System in the "Cove" Area
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC

Cell 3 January 2012 Estimated Hydrocarbon Recovery

Parameter	Units	Quantity
Total CATOX Operating Time (January 1 - January 31, 2012)	hours	533
Overall CATOX Operational Time	%	71.6
Estimated Total Hydrocarbons Destroyed	pounds	33.3
Estimated Hydrocarbon Removal Rate	pounds/hour	0.06

Cell 3 Cumulative Summary of Estimated Hydrocarbon Recovery

Parameter	Units	Quantity
Total CATOX Operating Time (June 24, 2011 - January 31, 2012)	hours	3,952
Overall CATOX Operational Time	%	67.2
Estimated Total Hydrocarbons Destroyed	pounds	474.2
Estimated Hydrocarbon Removal Rate	pounds/hour	0.12

Table 4
Summary of Soil Gas Analytical Results (December 2011)
Cell 3: AS/SVE System in the "Cove" Area
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC

Sample ID		CATOX Influent	CATOX Influent
Date		12/22/2011	12/28/2011
Time		15:00	13:20
Dilution Factor		1309.22	2704.84
Analyte	Units		
TO-15 Volatile Organics			
trans-1,3-Dichloropropene	ppb	< 260 U	< 540 U
Acetone	ppb	< 6,500 U	< 14,000 U
Ethylbenzene	ppb	< 260 U	< 540 U
2-Hexanone	ppb	< 650 U	< 1,400 U
Methylene Chloride	ppb	< 650 U	< 1,400 U
Benzene	ppb	47,000	33,000
1,1,2,2-Tetrachloroethane	ppb	< 260 U	< 1,500 U
Tetrachloroethene	ppb	< 260 U	< 540 U
Toluene	ppb	2,600	1,500
1,1,1-Trichloroethane	ppb	< 260 U	< 540 U
1,1,2-Trichloroethane	ppb	< 260 U	< 540 U
Trichloroethene	ppb	< 260 U	< 540 U
Vinyl Chloride	ppb	< 260 U	< 540 U
o-Xylene	ppb	< 260 U	< 540 U
m-Xylene & p-Xylene	ppb	520	< 540 U
2-Butanone (MEK)	ppb	< 1,300 U	< 2,700 U
4-Methyl-2-pentanone (MIBK)	ppb	< 650 U	< 1,400 U
Bromoform	ppb	< 260 U	< 540 U
Carbon Disulfide	ppb	< 650 U	< 1,400 U
Carbon tetrachloride	ppb	< 260 U	< 540 U
Chlorobenzene	ppb	< 260 U	< 540 U
Chloroethane	ppb	< 260 U	< 540 U
Chloroform	ppb	< 260 U	< 540 U
1,1-Dichloroethane	ppb	< 260 U	< 540 U
1,2-Dichloroethane	ppb	< 260 U	< 540 U
1,1-Dichloroethene	ppb	< 260 U	< 540 U
trans-1,2-Dichloroethene	ppb	< 260 U	< 540 U
1,2-Dichloropropane	ppb	< 260 U	< 540 U
cis-1,3-Dichloropropene	ppb	< 260 U	< 540 U
Total Volatile Organics	ppb	50,120	34,500

Notes:

BOLD = Analyte detected

ppb = parts per billion

</U = Analyte not detected above corresponding laboratory reporting limit

Table 5
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	Total LNAPL Recovery Period		Cumulative Total LNAPL Recovered thru January 31, 2012		Estimated LNAPL Recovered During January 2012 (d)	
	Begin	End	(gal)	(lbs) (a)	(gal)	(lbs) (a)
RW-04	23-Jul-10	On-going (b)	953	6,985	45.3	332
BP-MW-05	28-Jan-10	On-going (b)	5,501	40,304	1.7	12
BP-MW-08	8-Sep-10	On-going (b)	315	2,310	13.3	97
BP-MW-11	23-Jul-10	8-Sep-10	7.8	57	0	0
RW-02	1/28/2011	On-going (c)	0.8	5.5	0	0
RW-03	11/24/2010	On-going (c)	4.0	29	0	0
RW-01	28-Oct-10	On-going (c)	1.3	10	0	0
BP-MW-10	na	na	0	0	0	0
BP-MW-07	na	na	0	0	0	0
RW-05	na	na	0	0	0	0
BP-MW-06	na	na	0	0	0	0
BP-MW-09	na	na	0	0	0	0
CO19-PZM004	na	na	0	0	0	0
Total Recovery:			6,783	49,701	60	441

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
- (d) January recovery volumes are estimated based on recent recovery rates measured in December.

Figures



- Legend**
- New Monitoring Well
 - Existing Monitoring Well
 - AS/SVE Treatment Area
 - Special Study Area

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



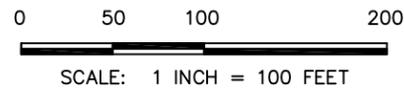
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GIS: AER	 12420 Milestone Center Drive Germantown, MD 20876
CHECKED: RL	
SENIOR: BE	

Figure 1
Interim Measures Treatment Areas

Image source: World Imagery, ESRI, GeoEye, 2009.

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)



URS
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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

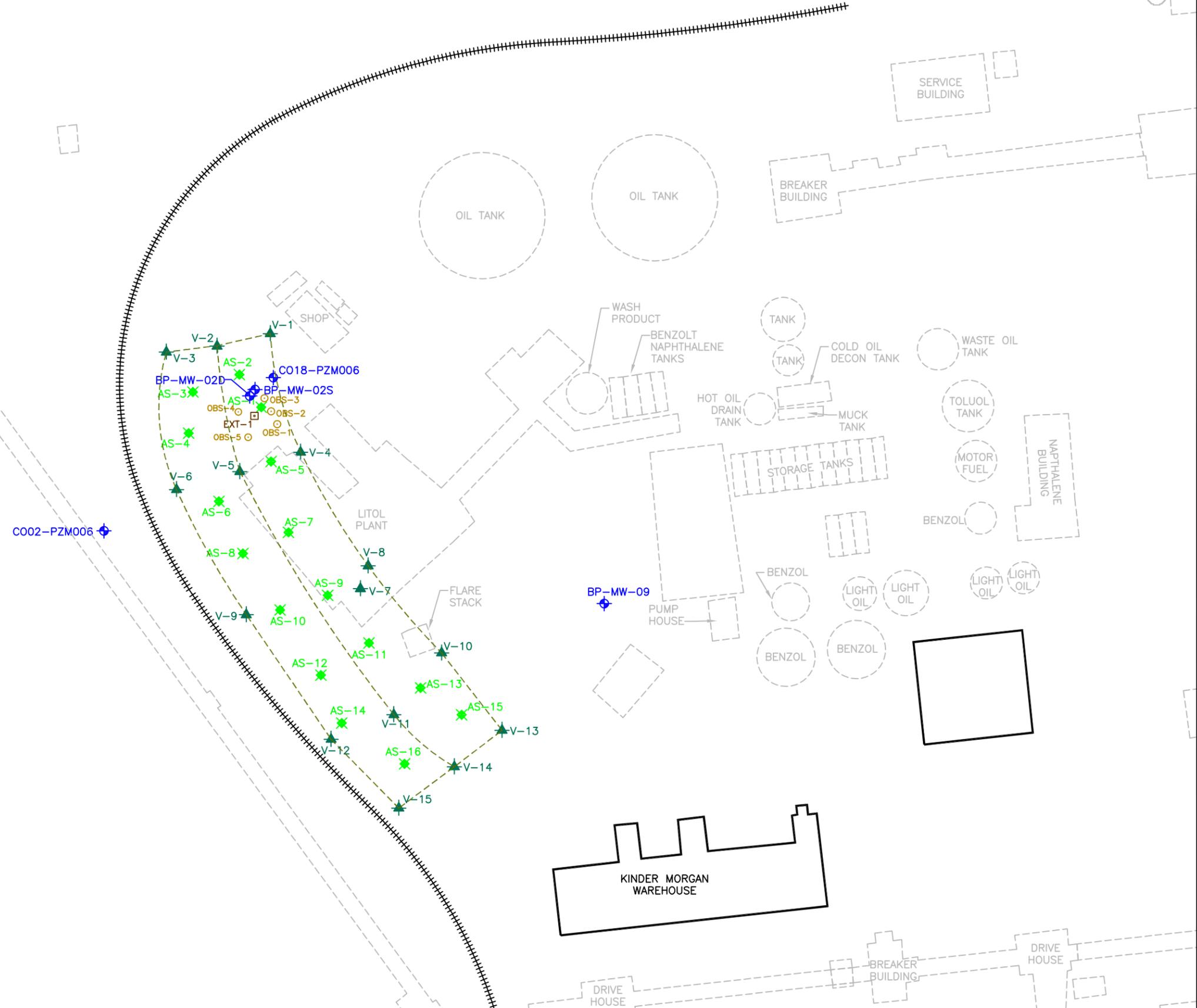


Figure 3
Cumulative Summary of Estimated Hydrocarbon Recovery
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC

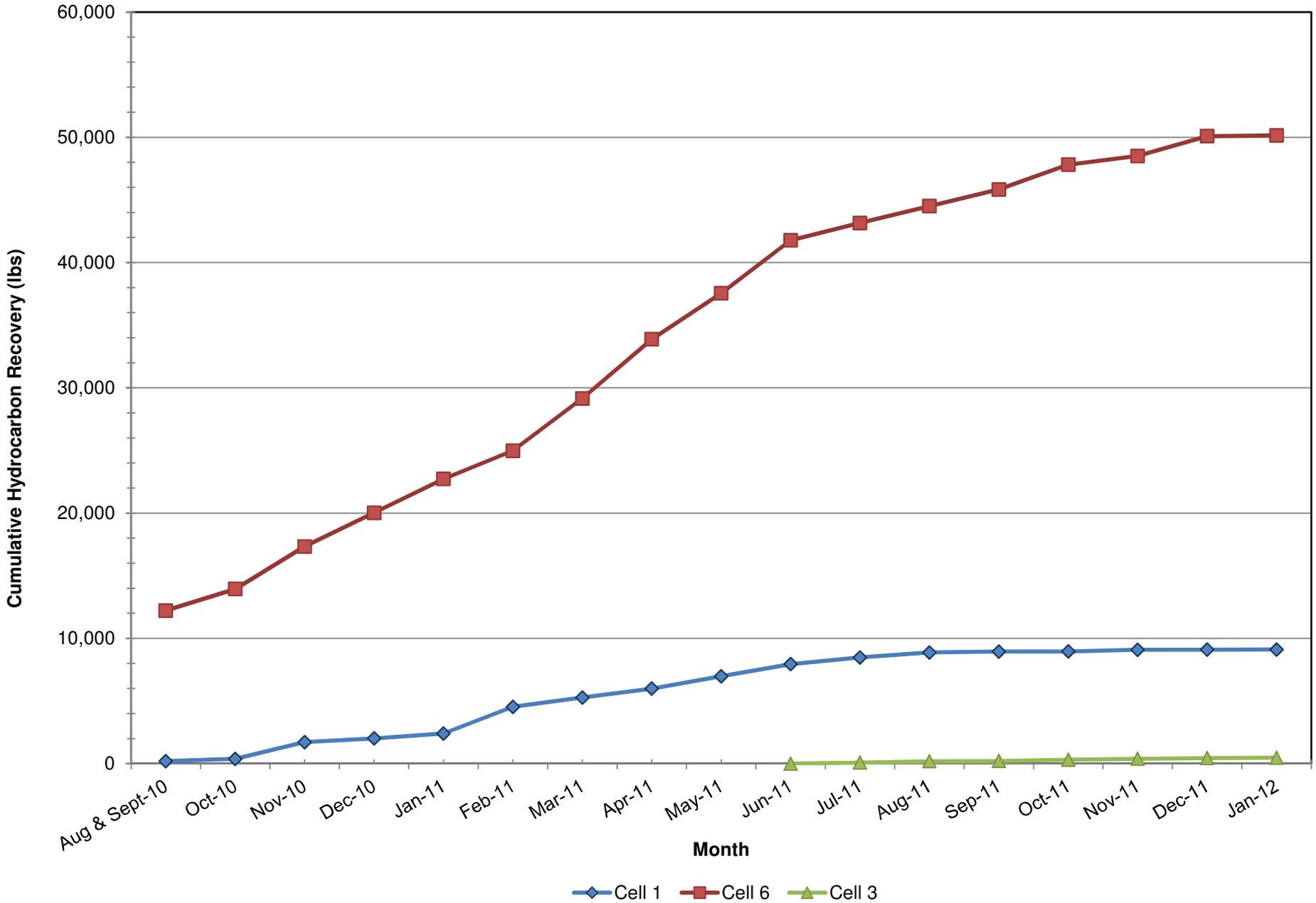


Figure 4
Measured Groundwater VOC Concentration by Month
Cell 1: Prototype AS/SVE System in the "Cove" Area
RG Steel Sparrows Point, LLC

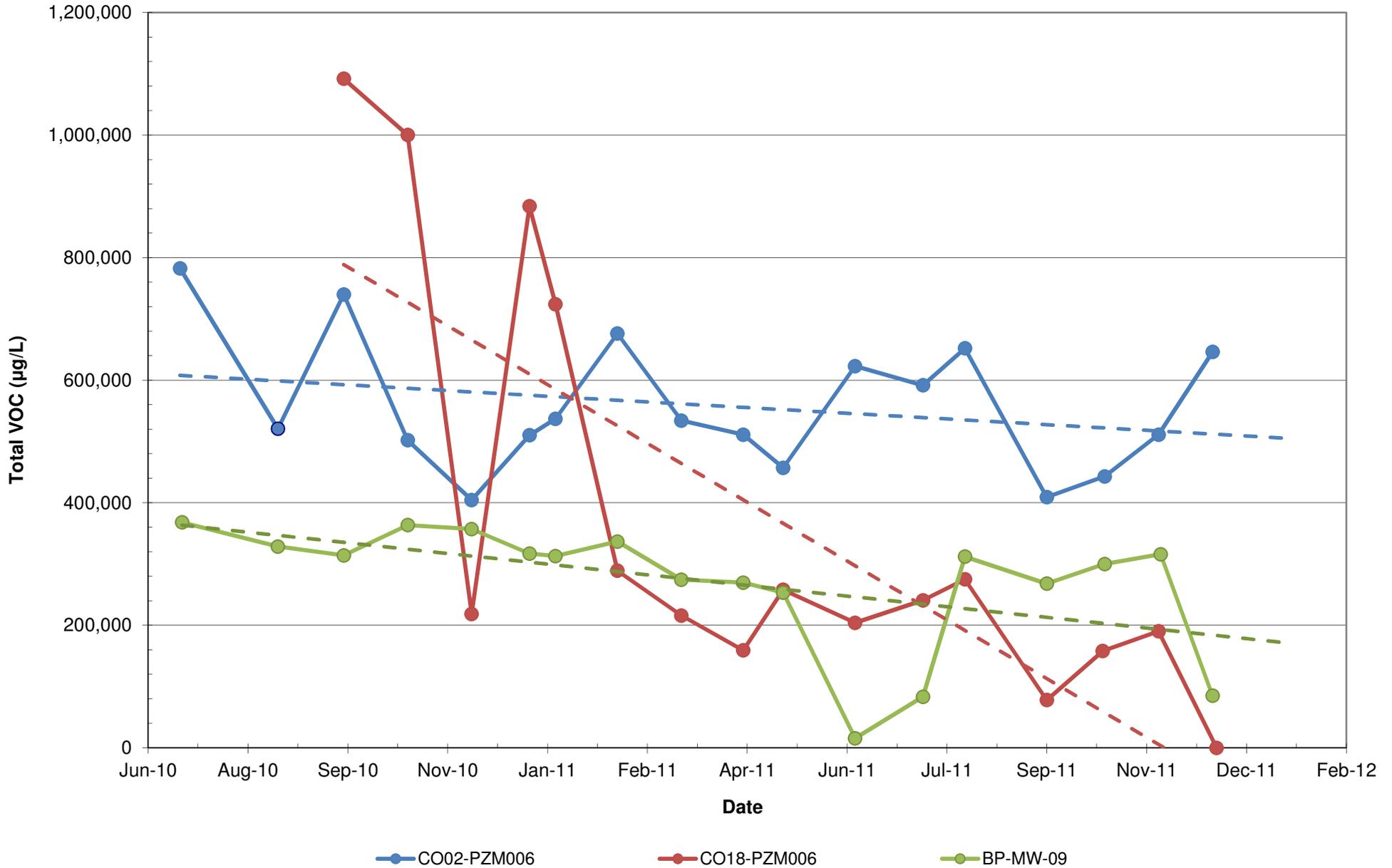


Figure 5
Measured Groundwater VOC Concentration by Month
Cell 3: Prototype AS/SVE System in the "Cove" Area
RG Steel Sparrows Point, LLC

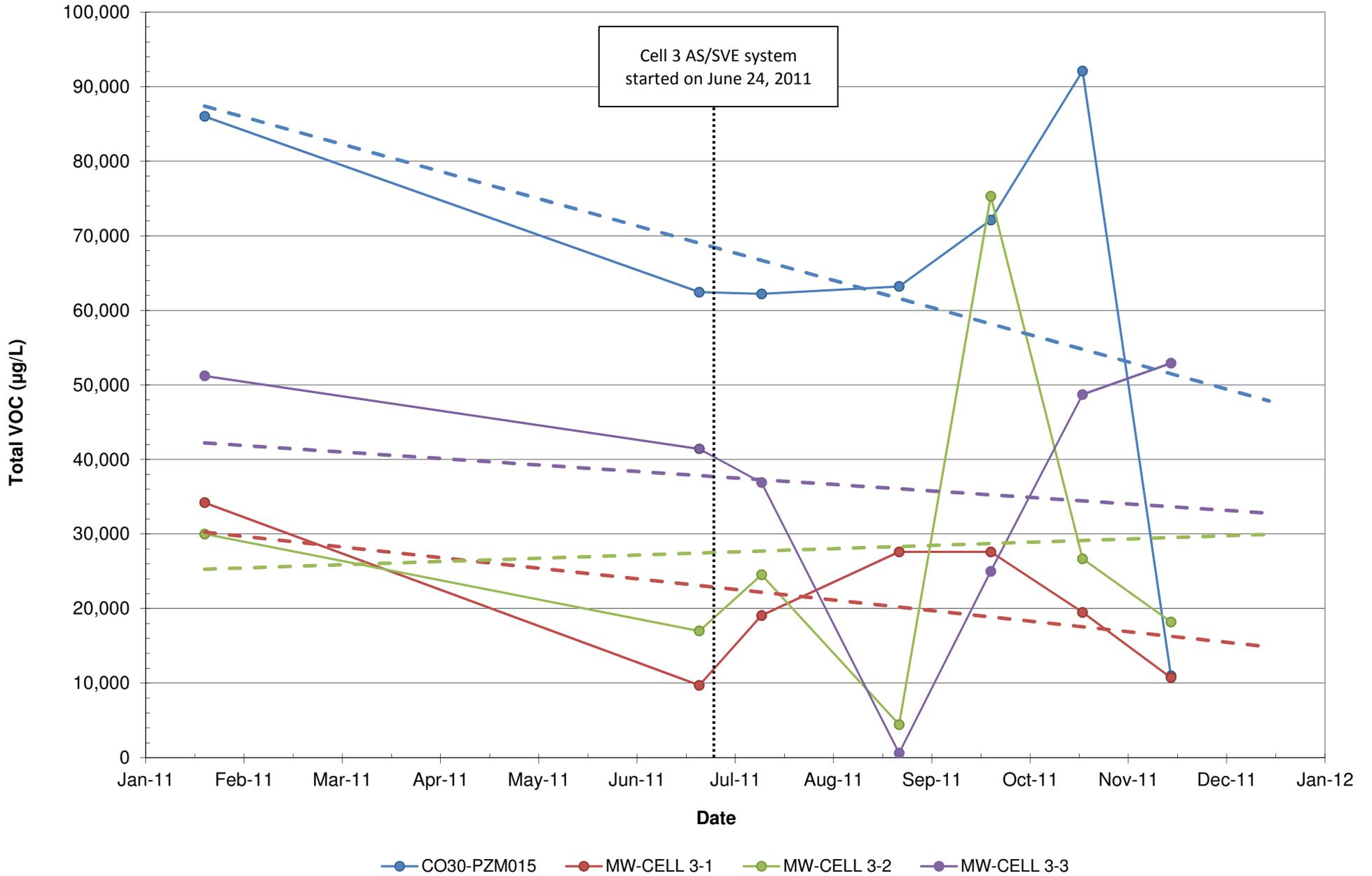
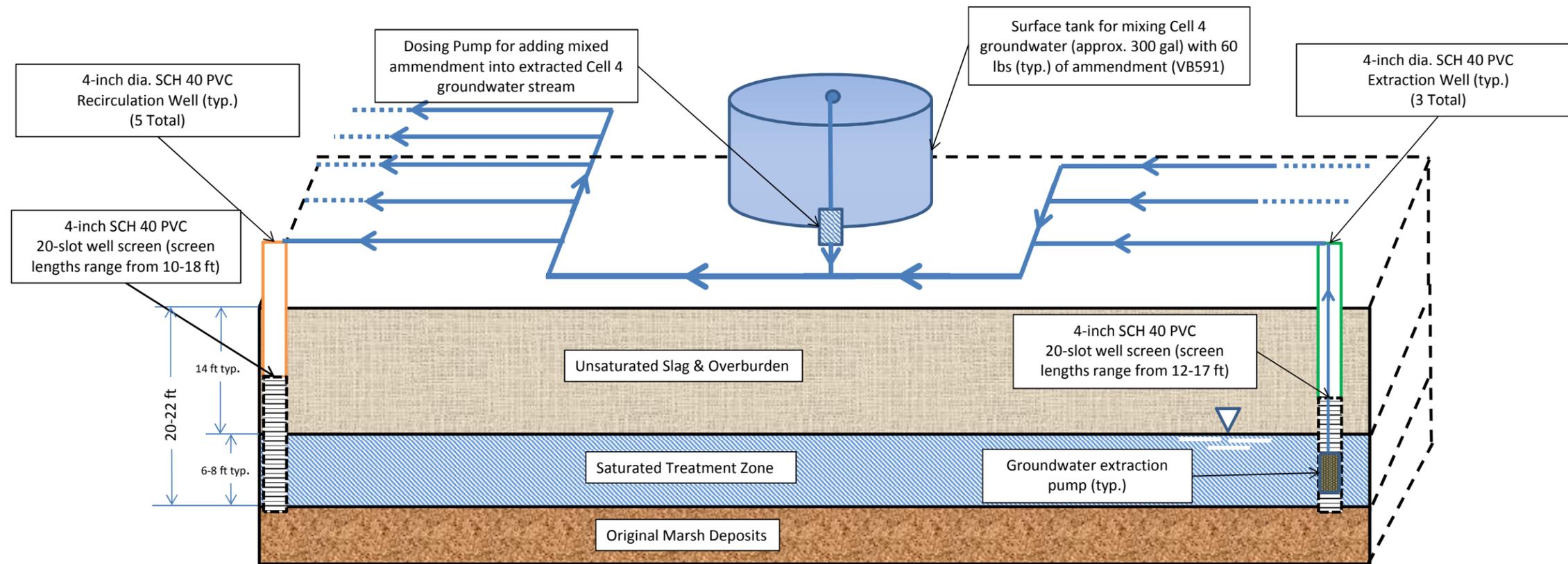
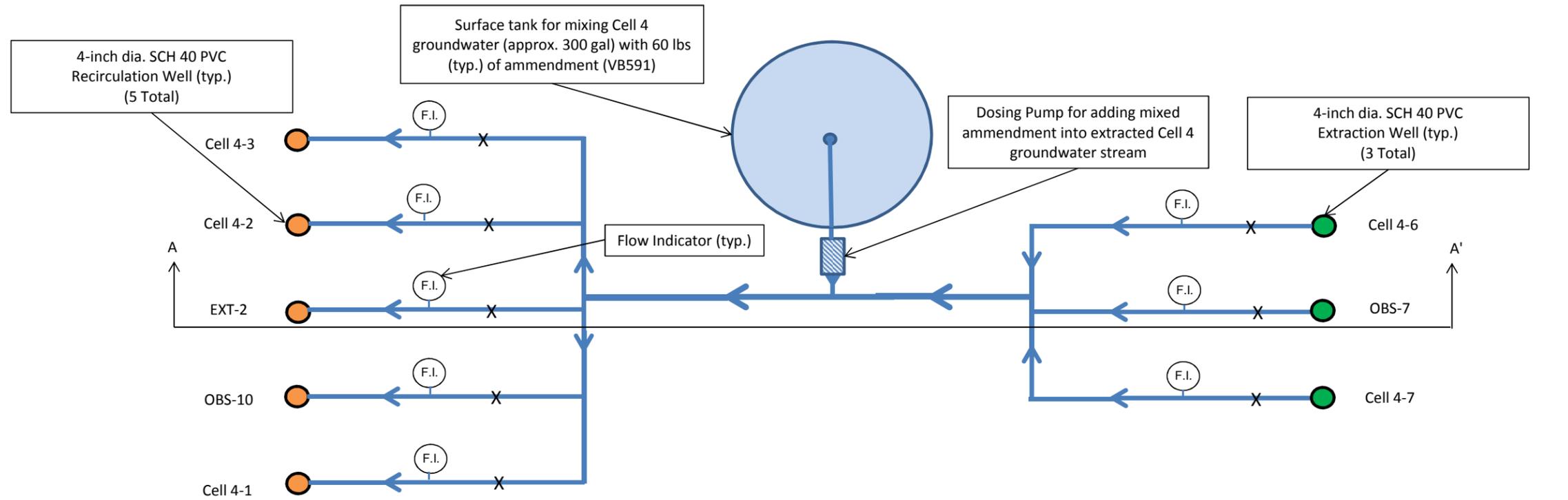


Figure 6
Schematic Layout and Sections
Cell 4 In-Situ Anaerobic Bio-Treatment System
Former Coke Oven Area Interim Remedial Measures
RG Steel Sparrows Point, LLC



Section A-A' (not to scale)

Cell 4

In-Situ Anaerobic Bio-System



Image source: World Imagery, ESRI, GeoEye, 2009.

Legend

- Extraction Well (Existing)
- Extraction Well (New)
- Recirculation Well (Existing)
- Recirculation Well (New)
- ⊕ Monitoring Well (Existing)
- ⊕ Monitoring Well (New)
- ➔ Groundwater Flow Direction

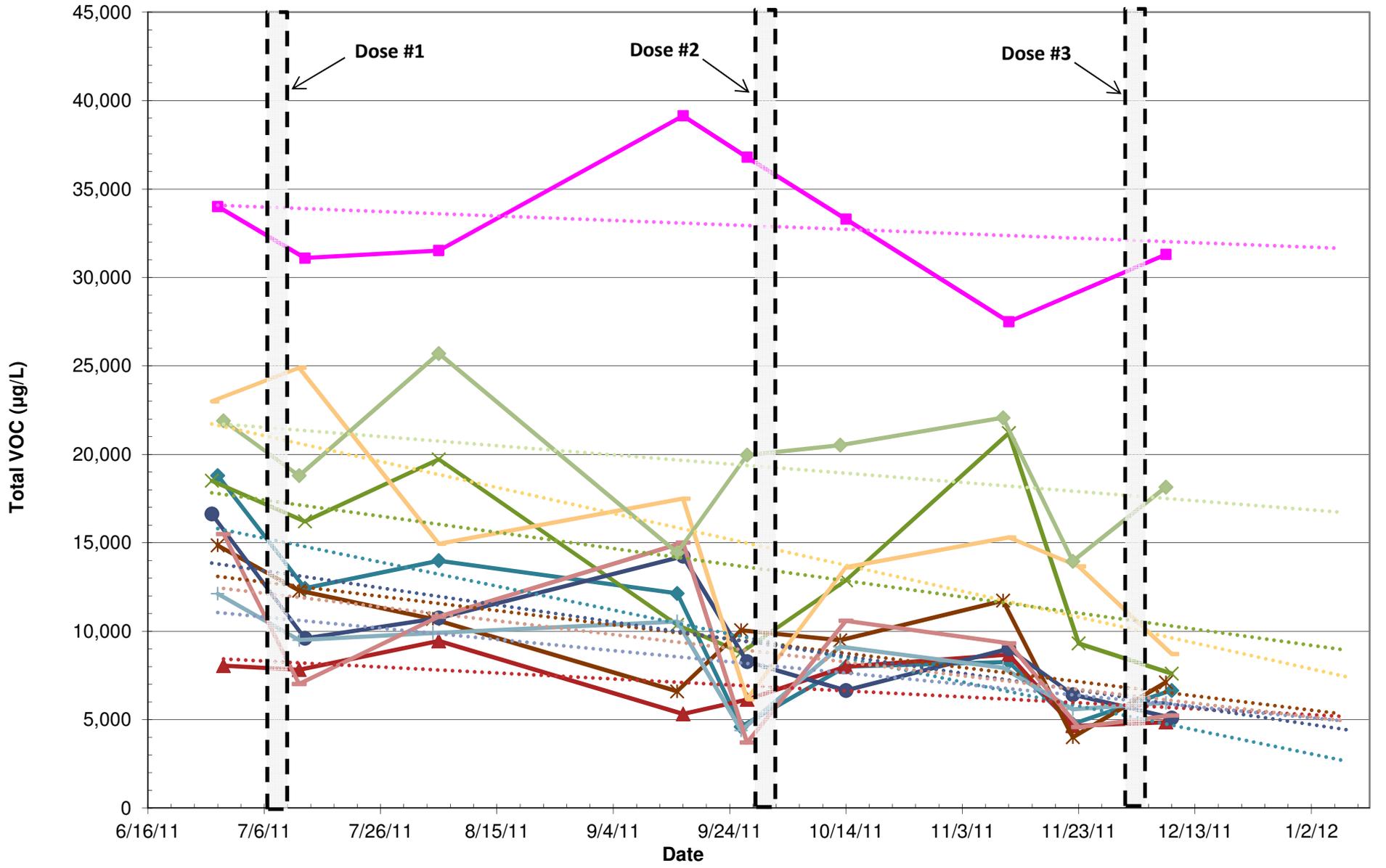
CLIENT	Severstal Sparrows Point, LLC		
LOCATION	Baltimore, MD		
 12420 Milestone Center Drive Germantown, MD 20876	GIS BY	JK/aer	11/18/2011
	CHK BY	BE	11/18/2011
	PM	BE	11/18/2011



Figure 7
Cell 4 Wells

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Figure 8
Measured Groundwater VOC Concentration per Month
Cell 4: In-Situ Anaerobic Bio-Treatment Area
RG Steel Sparrows Point, LLC



AS-2 EXT-2 OBS-6 OBS-8 Cell 4-1 Cell 4-3 Cell 4-4 Cell 4-5 Cell 4-6 Cell 4-7



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



LEGEND

- Recent Recovery Well
- ⊕ Maryland Port Admin. Monitoring Well
- ⊕ Severstal Sitewide Assessment Monitoring Well
- - - LNAPL Boundary Estimated by EASTI (2009)

Figure 9

LNAPL Monitoring and Recovery Wells

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