RG STEEL
Sparrows Point, LLC

1430 Sparrows Point Boulevard | Sparrows Point, MD 21219

January 30, 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 December 2011***

Dear Mr. Fan and Ms. Brown:

Enclosed with this correspondence is the ***Coke Oven Area Interim Measures Progress Report December 2011*** 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 January 30, 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 December 31, 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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Division Manager, Environmental Engineering and Affairs
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# COKE OVEN AREA INTERIM MEASURES PROGRESS REPORT
(DECEMBER 2011)

*Prepared for*

RG Steel Sparrows Point, LLC
Sparrows Point, Maryland


January 31, 2011

URS

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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 December 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 December 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,
- 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 December 31, 2011, Cells 1, 3, 4 and 6 continue to be operational. Groundwater samples were collected from Cell 4 on December 8 and 9, 2011 to evaluate the effects of the third amendment dosing event which occurred from November 15 to 17, 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

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.

### December 2011 Operational Performance

Operational performance of Cell 1 during this reporting period is summarized in **Table 1**. In summary, the CATOX unit operated for 742 hours (99.7 %) 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 7.3 pounds). **Table 1** also includes a cumulative summary of operational performance since system startup on August 3, 2010. In total, Cell 1 has destroyed approximately 9,103 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.

Soil gas samples were collected for laboratory and/or field instrument (e.g., photoionization detector [PID]) analysis to monitor CATOX unit performance. Untreated soil gas samples were collected in Tedlar® bags, which were submitted to TestAmerica Laboratories, Inc. in Knoxville, Tennessee (TestAmerica) for analysis by US EPA Method TO-15. 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**.

Hydrocarbon removal calculations were based entirely on the analytical results and the corresponding field-measured influent flow rate at the time of sampling. The mass removal calculations assume that the average of the two (2) analytical samples is representative of hydrocarbon concentrations for the entire month of December. 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.

### December 2011 Groundwater Monitoring Results

Groundwater samples were collected on December 6 and 8, 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 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. 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

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.

### December 2011 Operational Performance

Operational performance of Cell 3 during this reporting period is summarized in **Table 4**. In summary, the CATOX unit operated for 742 hours (99.7 %) during December. 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 47.6 pounds). **Table 4** also includes a cumulative summary of operational performance since system startup on June 24, 2011. In total, Cell 3 has destroyed approximately 440.9 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.

Soil gas samples were collected for laboratory and/or field instrument (e.g., PID) analysis to monitor CATOX unit performance. Untreated soil gas samples were collected in Tedlar® bags, which were submitted to TestAmerica. Influent soil gas hydrocarbon concentrations collected on December 22 and 28, 2011, were 50.1 and 34.5 ppmv, respectively, as summarized in **Table 5**.

Hydrocarbon removal calculations were based entirely on the analytical results and the corresponding field-measured influent flow rate at the time of sampling. The mass removal calculations assume that the average of the two (2) analytical samples is representative of hydrocarbon concentrations for the entire month of December. 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.

### December 2011 Cell 3 Groundwater Monitoring

Groundwater samples were collected on December 6, 2011 from the following wells (**Figure 1**):

- MW-CELL3-1 (downgradient of Cell 3),
- MW-CELL3-2 (upgradient of Cell 3),
- MW-CELL3-3 (upgradient of Cell 3, and

- CO30-PZM015 (downgradient of Cell 3).

The groundwater samples were submitted to Microbac for the analyses shown in **Table 6**. These data indicate that benzene is the most prevalent VOC constituent.

**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. The 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 including 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**. 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.

**December 2011 Operations**

The third amendment dosing event occurred from November 15 to 17, 2011 and was summarized in the *November 2011 Monthly Progress Report*. As per the approved design concept, groundwater in Cell 4 was monitored in December 2011 to document the potential impacts of the November 2011 dosing event.

**December 2011 Groundwater Monitoring Results**

To monitor the effects of the third nutrient amendment, groundwater samples were collected on December 8 and 9, 2011 (approximately three [3] weeks after the third dosing event) from the following wells (**Figure 7**):

- OBS-6
- OBS-8
- EXT-2
- AS-2
- MW-CELL4-1
- MW-CELL4-3
- MW-CELL4-4
- MW-CELL4-5
- MW-CELL4-6
- MW-CELL4-7

The groundwater samples were submitted to Microbac for the analyses shown in **Table 7**. These data indicate naphthalene is the most prevalent VOC constituent.

**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. Trends for these monitoring wells 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 was monitored approximately weekly during December (five [5] site visits). **Table 8** summarizes LNAPL occurrence and recovery observed during the reporting period along with the cumulative LNAPL recovery since the beginning of the project. **Figure 9** illustrates the well locations.

During December, approximately 216 gallons (1,581 pounds) of LNAPL was recovered, bringing the total recovered LNAPL to 6,723 gallons (49,259 pounds) as of December 28, 2011. The LNAPL was recovered from the following wells:

| Well | LNAPL Recovery (gal / lbs) | | Notes |
|---|---|---|---|
| | During December 2011 | Total thru Dec. 28, 2011 | |
| BP-MW-05 | 80.8 / 592 | 5,499 / 40,294 | |
| RW-04 | 113.2 / 829 | 908 / 6,652 | |
| BP-MW-08 | 21.9 / 160 | 302 / 2,211 | |
| BP-MW-11 | 0 / 0 | 7.8 / 57 | (a) |
| RW-03 | 0 / 0 | 4.0 / 29 | (b) |
| RW-01 | 0 / 0 | 1.3 / 10 | (b) |
| RW-02 | 0 / 0 | 0.8 / 5.5 | (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 8** generally in the order of decreasing LNAPL occurrence/recovery. During the reporting period, the range of LNAPL thicknesses varied as summarized below (wells are not listed if LNAPL was not present):

- RW-04 (0.13 to 1.60 feet),
- BP-MW-05 (0.15 to 0.79 feet),
- BP-MW-08 (0.15 to 2.09 feet),
- BP-MW-11 (0.40 to 0.58 feet)
- BP-MW-10 (0.15 to 0.13 feet),
- RW-02 (0.11 to 0.15 feet),
- RW-03 (0.12 to 0.23 feet),

- RW-01 (0.11 to 0.14 feet), and
- BP-MW-07 (0.00 to 0.02 feet).

No LNAPL was observed in wells RW-05, BP-MW-06, BP-MW-09, or CO19-PZM004.

For all wells in which LNAPL accumulated, **Table 9** 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**

## Cell 1 December 2011 Estimated Hydrocarbon Recovery

| Parameter | Units | Quantity |
|---|---|---|
| Total CATOX Operating Time (December 1 - December 31, 2011) | hours | 742 |
| Overall CATOX Operational Time | % | 99.7 |
| Estimated Total Hydrocarbons Destroyed | pounds | 7.31 |
| 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 - December 31, 2011) | hours | 8,714 |
| Overall ICE/CATOX Operational Time | % | 70.5 |
| Estimated Total Hydrocarbons Destroyed | pounds | 9,103 |
| Estimated Average Hydrocarbon Removal Rate | pounds/hour | 1.04 |

**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**

| | Sample ID | CATOX Influent | CATOX Influent |
|---|---|---|---|
| | Date | 12/22/2011 | 12/28/2011 |
| | Time | 14:50 | 13:00 |
| | Dilution Factor | 403.88 | 138.04 |
| Analyte | Units | | |
| **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 Groundwater 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**

| | Sample ID | CO02-PZM006 | CO18-PZM006 | BP-MW-09 |
|---|---|---|---|---|
| | Date | 12/6/2011 | 12/8/2011 | 12/6/2011 |
| | Time | 15:30 | 10:30 | 9:30 |
| Analyte | Units | | | |
| **Water Quality Parameters** | | | | |
| Temperature | deg C | 20.42 | 26.04 | 16.29 |
| pH | std units | 7.95 | 6.68 | 8.69 |
| ORP | mV | -231 | -33 | -256 |
| Conductivity | mS/cm | 1.81 | 2.23 | 0.681 |
| Turbidity | NTU | -- | -- | -- |
| Dissolved Oxygen | mg/L | 0.05 | 0.70 | 0.10 |
| **Volatile Organics** | | | | |
| Vinyl Chloride | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Chloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,1-Dichloroethene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Acetone | µg/L | < 120,000 U | < 25 U | < 120,000 U |
| Carbon Disulfide | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Methylene Chloride | µg/L | < 25,000 U | < 5.0 U | < 25,000 U |
| trans-1,2-Dichloroethene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,1-Dichloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 2-Butanone (MEK) | µg/L | < 25,000 U | < 5.0 U | < 25,000 U |
| Chloroform | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,1,1-Trichloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Carbon Tetrachloride | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| **Benzene** | µg/L | **610,000** | **40** | **68,000** |
| 1,2-Dichloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Trichloroethene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,2-Dichloropropane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Methyl Isobutyl Ketone (MIBK) | µg/L | < 25,000 U | < 5.0 U | < 25,000 U |
| cis-1,3-Dichloropropene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| **Toluene** | µg/L | **36,000** | **4.9** | **17,000** |
| trans-1,3-Dichloropropene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,1,2-Trichloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 2-Hexanone (MBK) | µg/L | < 25,000 U | < 5.0 U | < 25,000 U |
| Tetrachloroethene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Chlorobenzene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,1,1,2-Tetrachloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Ethylbenzene | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| Bromoform | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| 1,1,2,2-Tetrachloroethane | µg/L | < 5,000 U | < 1.0 U | < 5,000 U |
| **Total Xylenes** | µg/L | < 15,000 U | < 3.0 U | < 15,000 U |
| **Total Volatile Organics** | **µg/L** | **646,000** | **45** | **85,000** |

**Notes:**

-- = Not Measured
**Bold** = Analyte Detected
deg C = degrees Celcius
mg/L =Milligram per liter
mS/cm = Microsiements per Centimeter
mV = Millivolts
NTU = Nephelometric Turbidity Units
ORP = Oxidation Reduction Potential
std units = standard units
</U = Analyte not detected above corresponding laboratory reporting limit
µg/L = Micrograms per liter

**Table 4**
**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 December 2011 Estimated Hydrocarbon Recovery

| Parameter | Units | Quantity |
|---|---|---|
| Total CATOX Operating Time (December 1 - December 31, 2011) | hours | 742 |
| Overall CATOX Operational Time | % | 99.7 |
| Estimated Total Hydrocarbons Destroyed | pounds | 47.6 |
| 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 - December 31, 2011) | hours | 3,419 |
| Overall CATOX Operational Time | % | 66.6 |
| Estimated Total Hydrocarbons Destroyed | pounds | 440.9 |
| Estimated Hydrocarbon Removal Rate | pounds/hour | 0.13 |

**Table 5**
**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 6**
**Summary of Groundwater 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 | CO30-PZM015 | MW-CELL 3-1 | MW-CELL 3-2 | MW-CELL 3-3 |
|---|---|---|---|---|---|
| | Date | 12/6/2011 | 12/6/2011 | 12/6/2011 | 12/6/2011 |
| | Time | 12:33 | 14:50 | 13:12 | 14:07 |
| Analyte | Units | | | | |
| **Water Quality Parameters** | | | | | |
| Temperature | deg C | 18.26 | 18.81 | 18.63 | 17.78 |
| pH | std units | 12.21 | 12.02 | 11.97 | 12.48 |
| ORP | mV | -277 | -233 | -239 | -249 |
| Conductivity | mS/cm | 2.70 | 2.34 | 2.07 | 3.66 |
| Turbidity | NTU | -- | -- | -- | -- |
| Dissolved Oxygen | mg/L | 7.28 | 0.00 | 0.00 | 0.00 |
| **Volatile Organics** | | | | | |
| Vinyl Chloride | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Chloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,1-Dichloroethene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Acetone | µg/L | < 25,000 U | < 12,000 U | < 25,000 U | < 25,000 U |
| Carbon Disulfide | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Methylene Chloride | µg/L | < 5,000 U | < 2,500 U | < 5,000 U | < 5,000 U |
| trans-1,2-Dichloroethene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,1-Dichloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 2-Butanone (MEK) | µg/L | < 5,000 U | < 2500 U | < 5,000 U | < 5,000 U |
| Chloroform | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,1,1-Trichloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Carbon Tetrachloride | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| **Benzene** | µg/L | **11,000** | **10,000** | **17,000** | **49,000** |
| 1,2-Dichloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Trichloroethene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,2-Dichloropropane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Methyl Isobutyl Ketone (MIBK) | µg/L | < 5,000 U | < 2,500 U | < 5,000 U | < 5,000 U |
| cis-1,3-Dichloropropene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| **Toluene** | µg/L | < 1,000 U | **740** | **1,200** | **3,900** |
| trans-1,3-Dichloropropene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,1,2-Trichloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 2-Hexanone (MBK) | µg/L | < 5,000 U | < 2,500 U | < 5,000 U | < 5,000 U |
| Tetrachloroethene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Chlorobenzene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,1,1,2-Tetrachloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Ethylbenzene | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Bromoform | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| 1,1,2,2-Tetrachloroethane | µg/L | < 1,000 U | < 500 U | < 1,000 U | < 1,000 U |
| Xylenes, Total | µg/L | < 3,000 U | < 1,500 U | < 3,000 U | < 3,000 U |
| **Total Volatile Organics** | **µg/L** | **11,000** | **10,740** | **18,200** | **52,900** |

**Notes:**

-- = Not Measured
**Bold** = Analyte Detected
deg C = degrees Celcius
mg/L =Milligram per liter
mS/cm = Microsiements per Centimeter
mV = Millivolts
NTU = Nephelometric Turbidity Units
ORP = Oxidation Reduction Potential
std units = standard units
</U = Analyte not detected above corresponding laboratory reporting limit
µg/L = Micrograms per liter

# Table 7
# Summary of Groundwater Analytical Results (December 2011)
# Cell 4: In-Situ Anaerobic Bio-Treatment Area
# Former Coke Oven Area Interim Remedial Measures
# RG Steel Sparrows Point, LLC

| Sample ID | | OBS-6 | OBS-8 | EXT-2 | AS-2 | Cell 4-1 | Cell 4-3 | Cell 4-4 | Cell 4-5 | Cell 4-6 | Cell 4-7 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | | 12/09/11 | 12/08/11 | 12/09/11 | 12/08/11 | 12/08/11 | 12/09/11 | 12/08/11 | 12/09/11 | 12/09/11 | 12/08/11 |
| Time | | 10:30 | 15:36 | 11:15 | 16:09 | 13:15 | 14:30 | 14:30 | 12:30 | 11:55 | 15:07 |
| Units | | | | | | | | | | | |
| **Water Quality Parameters** | | | | | | | | | | | |
| Temperature | deg C | 17.39 | 16.79 | 17.68 | 16.51 | 16.78 | 18.80 | 17.00 | 18.30 | 18.25 | 16.89 |
| pH | std units | 12.02 | 11.76 | 10.34 | 11.31 | 9.67 | 9.68 | 11.46 | 11.61 | 12.06 | 12.24 |
| ORP | mV | -242 | -187 | -218 | -181 | -143 | -232 | -239 | -231 | -189 | -179 |
| Conductivity | mS/cm | 2.28 | 1.91 | 1.29 | 3.18 | 1.47 | 1.42 | 1.46 | 1.68 | 2.60 | 3.08 |
| Turbidity | NTU | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Oxygen | mg/L | 0.20 | 2.10 | 0.25 | 6.09 | 0.10 | 0.00 | 2.58 | 1.01 | 6.03 | 1.04 |
| **Volatile Organics** | | | | | | | | | | | |
| Vinyl Chloride | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Chloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,1-Dichloroethene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Acetone | µg/L | < 2,500 U | < 2,500 U | < 2,500 U | < 25,000 U | < 2,500 U | < 2,500 U | < 2,500 U | < 12,000 U | < 2,500 U | < 2,500 U |
| Carbon Disulfide | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Methylene Chloride | µg/L | < 500 U | < 500 U | < 500 U | < 5,000 U | < 500 U | < 500 U | < 500 U | < 2,500 U | < 500 U | < 500 U |
| trans-1,2-Dichloroethene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,1-Dichloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 2-Butanone (MEK) | µg/L | < 500 U | < 500 U | < 500 U | < 5,000 U | < 500 U | < 500 U | < 500 U | < 2,500 U | < 500 U | < 500 U |
| Chloroform | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,1,1-Trichloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Carbon Tetrachloride | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| **Benzene** | µg/L | **450** | **540** | **650** | **5,300** | **930** | **420** | **630** | **720** | **320** | **790** |
| 1,2-Dichloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Trichloroethene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,2-Dichloropropane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Methyl Isobutyl Ketone (MIBK) | µg/L | < 500 U | < 500 U | < 500 U | < 5,000 U | < 500 U | < 500 U | < 500 U | < 2,500 U | < 500 U | < 500 U |
| cis-1,3-Dichloropropene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| **Toluene** | µg/L | **240** | **260** | **300** | **4,000** | **580** | **200** | **290** | < 500 U | **220** | **470** |
| trans-1,3-Dichloropropene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,1,2-Trichloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 2-Hexanone (MBK) | µg/L | < 500 U | < 500 U | < 500 U | < 5,000 U | < 500 U | < 500 U | < 500 U | < 2,500 U | < 500 U | < 500 U |
| Tetrachloroethene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Chlorobenzene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,1,1,2-Tetrachloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Ethylbenzene | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| Bromoform | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| 1,1,2,2-Tetrachloroethane | µg/L | < 100 U | < 100 U | < 100 U | < 1,000 U | < 100 U | < 100 U | < 100 U | < 500 U | < 100 U | < 100 U |
| **Xylenes, Total** | µg/L | **420** | **460** | **600** | < 3,000 U | **600** | **380** | **530** | < 1,500 U | **400** | **890** |
| **Semi-Volatiles** | | | | | | | | | | | |
| **Naphthalene** | µg/L | **6,500** | **3,600** | **5,100** | **22,000** | **5,000** | **4,100** | **4,500** | **8,000** | **4,300** | **16,000** |
| **Total Volatile Organics** | µg/L | **7,610** | **4,860** | **6,650** | **31,300** | **7,110** | **5,100** | **5,950** | **8,720** | **5,240** | **18,150** |
| **Wet Chemistry** | | | | | | | | | | | |
| **Ferric Iron** | mg/L | **0.18** | **0.30** | **0.19** | **0.25** | **1.4** | **0.21** | **0.22** | **0.48** | < 0.10 U | **0.13** |
| **Ferrous Iron** | mg/L | < 0.10 U | **0.11** | **0.15** | **0.19** | **0.22** | **0.20** | **0.16** | **0.11** | **0.27** | **0.18** |
| **Nitrite-N** | mg/L | **0.20** | **0.075** | **0.038** | **0.130** | **0.037** | **0.025** | **0.072** | **0.18** | **0.055** | **0.23** |
| **Nitrate-N** | mg/L | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U |
| **Nitrate/Nitrite-N** | mg/L | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | < 0.050 U | **0.17** |
| **Orthophosphate as P** | mg/L | **0.016** | **0.044** | **0.11** | **0.036** | **0.51** | **0.34** | **0.051** | **0.028** | **0.016** | **0.015** |
| **Total Kjeldahl Nitrogen** | mg/L | **15** | **24** | **38** | **240** | **63** | **53** | **23** | **39** | **42** | **37** |
| **Metals** | | | | | | | | | | | |
| **Iron, Total** | mg/L | **0.18** | **0.41** | **0.34** | **0.44** | **1.6** | **0.41** | **0.38** | **0.59** | **0.19** | **0.31** |

**Notes:**

-- = Not Measured
**Bold** = Analyte Detected
deg C = degrees Celcius
mg/L =Milligram per liter
mS/cm = Microsiements 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 laboratory reporting limit
µg/L = Micrograms per liter

**Table 8**
**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 December 2011 (ft) | Total LNAPL Recovery Period | | Cumulative Total LNAPL Recovered thru December 28, 2011 | | LNAPL Recovered During December 2011 | |
|---|---|---|---|---|---|---|---|
| | | Begin | End | (gal) | (lbs) (a) | (gal) | (lbs) (a) |
| RW-04 | 0.13 to 1.60 | 23-Jul-10 | On-going (b) | 908 | 6,652 | 113.2 | 829 |
| BP-MW-05 | 0.15 to 0.79 | 28-Jan-10 | On-going (b) | 5,499 | 40,294 | 80.8 | 592 |
| BP-MW-08 | 0.15 to 2.09 | 8-Sep-10 | On-going (b) | 302 | 2,211 | 21.9 | 160 |
| BP-MW-11 | 0.40 to 0.58 | 23-Jul-10 | 8-Sep-10 | 7.8 | 57 | 0 | 0 |
| RW-02 | 0.11 to 0.15 | 1/28/2011 | On-going (c) | 0.8 | 5.5 | 0 | 0 |
| RW-03 | 0.12 to 0.23 | 11/24/2010 | On-going (c) | 4.0 | 29 | 0 | 0 |
| RW-01 | 0.11 to 0.14 | 28-Oct-10 | On-going (c) | 1.3 | 10 | 0 | 0 |
| BP-MW-10 | 0.15 to 0.13 | na | na | 0 | 0 | 0 | 0 |
| BP-MW-07 | 0.00 to 0.02 | 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 |
| | | | **Total Recovery:** | **6,723** | **49,259** | **216** | **1,581** |

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 9**
**Depths (feet) to Water and LNAPL (December 2011)**
**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 |
| 12/2/2011 | 10.50 | 10.61 | 0.11 | 10.10 | 10.25 | 0.15 | 9.02 | 9.25 | 0.23 |
| 12/9/2011 | 10.65 | 10.78 | 0.13 | 10.60 | 10.71 | 0.11 | 8.73 | 8.85 | 0.12 |
| 12/16/2011 | 10.78 | 10.89 | 0.11 | 10.85 | 10.97 | 0.12 | 8.83 | 9.00 | 0.17 |
| 12/22/2011 | 10.88 | 10.99 | 0.11 | 10.95 | 11.07 | 0.12 | 8.95 | 9.13 | 0.18 |
| 12/28/2011 | 10.75 | 10.89 | 0.14 | 10.85 | 11.00 | 0.15 | 8.85 | 9.06 | 0.21 |

| 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 |
| 12/2/2011 | 10.00 | 11.60 | 1.60 | 10.76 | 11.55 | 0.79 | 10.68 | 10.70 | 0.02 |
| 12/9/2011 | 8.90 | 9.41 | 0.51 | 10.45 | 10.77 | 0.32 | 10.33 | 10.33 | 0.00 |
| 12/16/2011 | 9.18 | 9.50 | 0.32 | 10.60 | 10.75 | 0.15 | 10.43 | 10.43 | 0.00 |
| 12/22/2011 | 9.18 | 9.50 | 0.32 | 10.87 | 11.55 | 0.68 | 10.53 | 10.53 | 0.00 |
| 12/28/2011 | 9.08 | 9.21 | 0.13 | 10.75 | 11.41 | 0.66 | 10.41 | 10.41 | 0.00 |

| 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 |
| 12/2/2011 | 11.83 | 11.98 | 0.15 | 7.45 | 7.65 | 0.20 | 11.21 | 11.61 | 0.40 |
| 12/9/2011 | 11.05 | 11.41 | 0.36 | 7.45 | 7.60 | 0.15 | 10.31 | 10.79 | 0.48 |
| 12/16/2011 | 11.30 | 13.10 | 1.80 | 7.55 | 7.70 | 0.15 | 10.40 | 10.90 | 0.50 |
| 12/22/2011 | 11.71 | 13.80 | 2.09 | 7.66 | 7.96 | 0.30 | 10.51 | 11.09 | 0.58 |
| 12/28/2011 | 11.61 | 11.91 | 0.30 | 7.55 | 7.85 | 0.30 | 10.41 | 10.89 | 0.48 |

# Figures


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**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

200 0 200 400 Feet

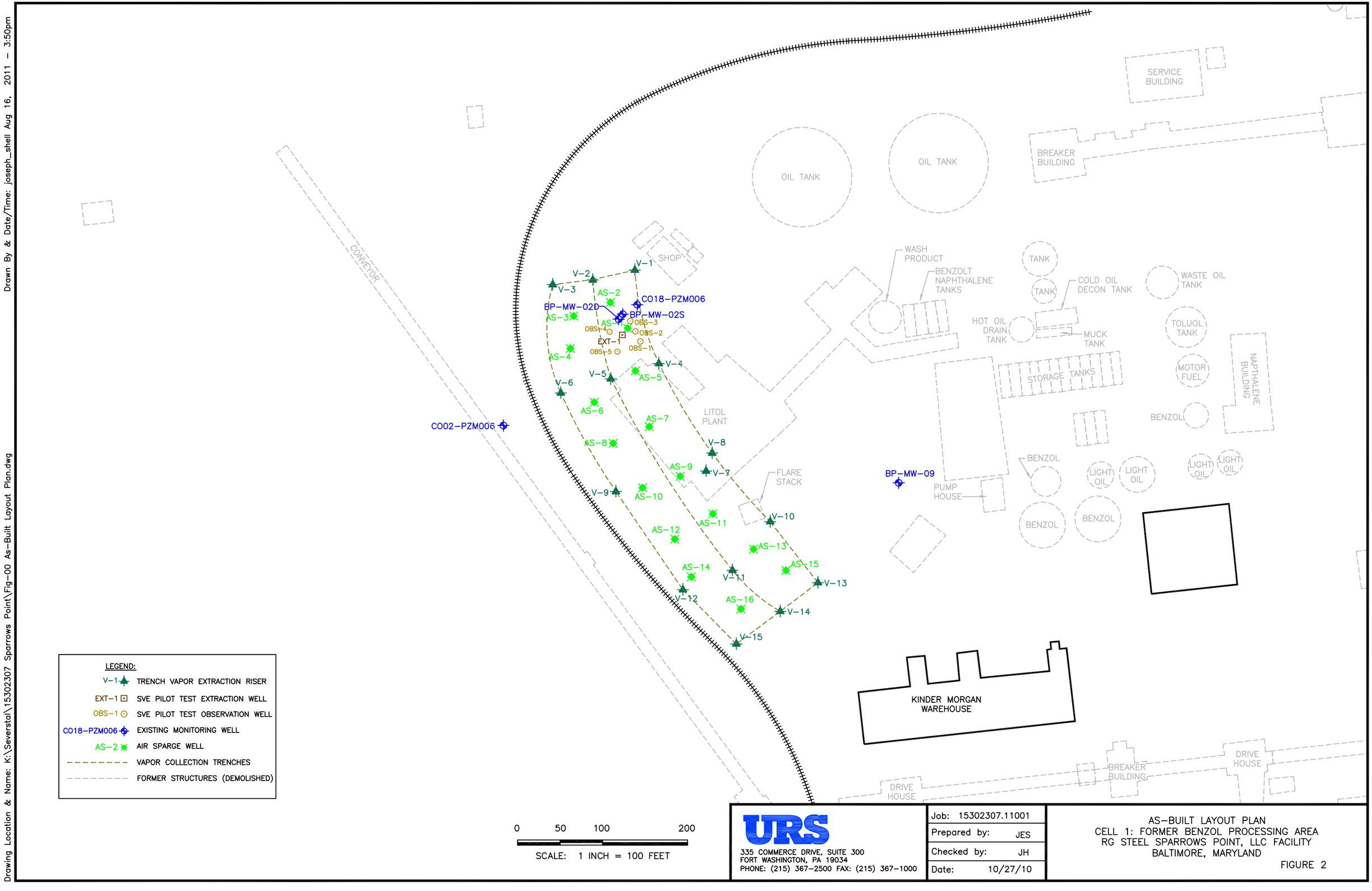
| | |
|---|---|
| CLIENT: Sparrows Point | LOCATION: Baltimore, MD |
| DATE: 11/21/2011 | FILE: G:\Projects\SparrowsPoint\Projects\2011\CokeOven-and-CokePoint-6Prototype Cells_rev4.mxd |
| GIS: AER | |
| CHECKED: RL | |
| SENIOR: BE | |

URS
12420 Milestone Center Drive
Germantown, MD 20876

**Figure 1**

**Interim Measures Treatment Areas**

Drawing Location & Name: K:\Severstal\15302307 Sparrows Point\Fig-00 As-Built Layout Plan.dwg
Drawn By & Date/Time: joseph_shell Aug 16, 2011 - 3:50pm




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
RG STEEL SPARROWS POINT, LLC FACILITY
BALTIMORE, MARYLAND
FIGURE 2

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

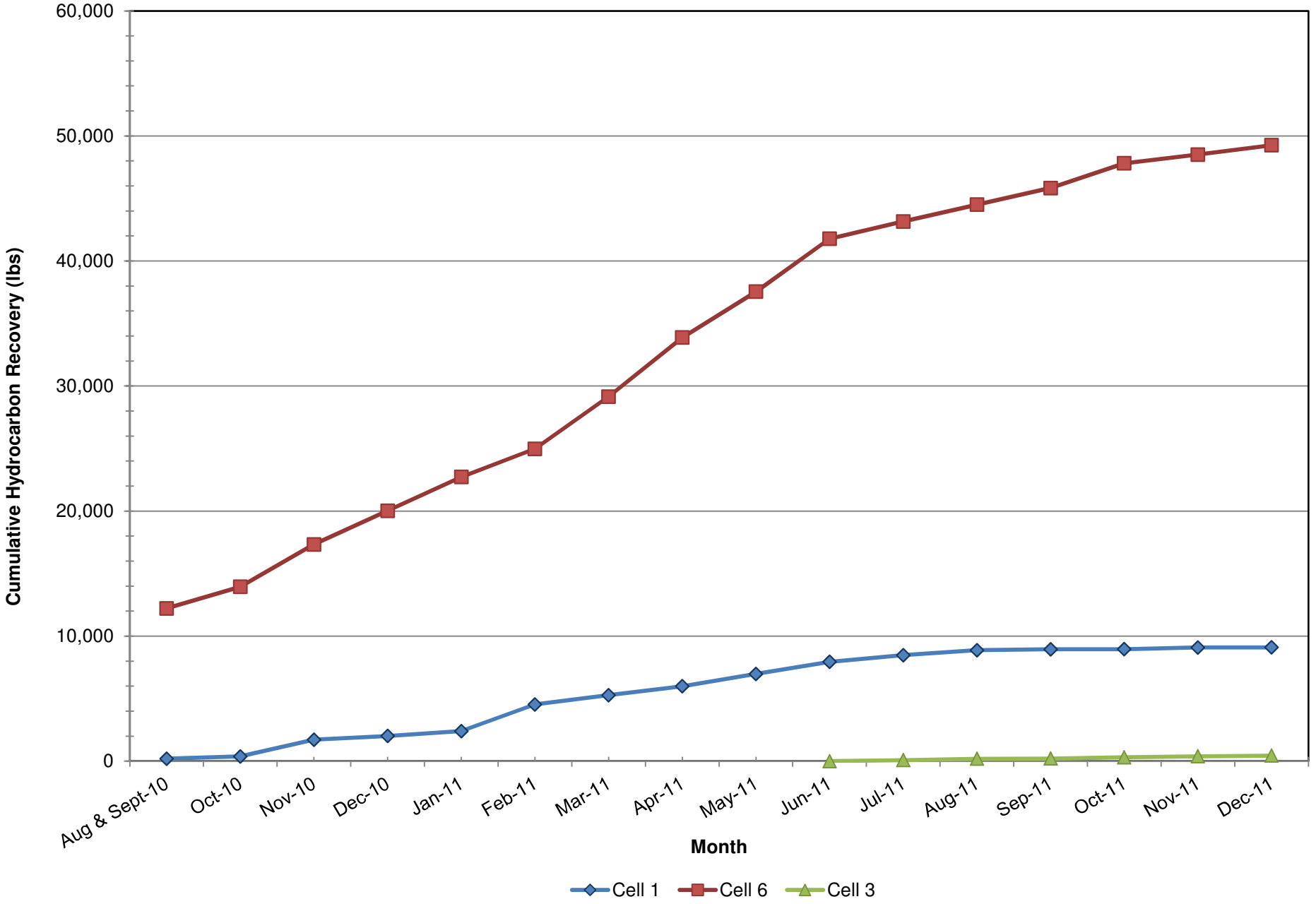


**Figure 4**
**Measured Groundwater VOC Concentration by Month**
**Cell 1: Prototype AS/SVE System in the "Cove" Area**
**RG Steel Sparrows Point, LLC**

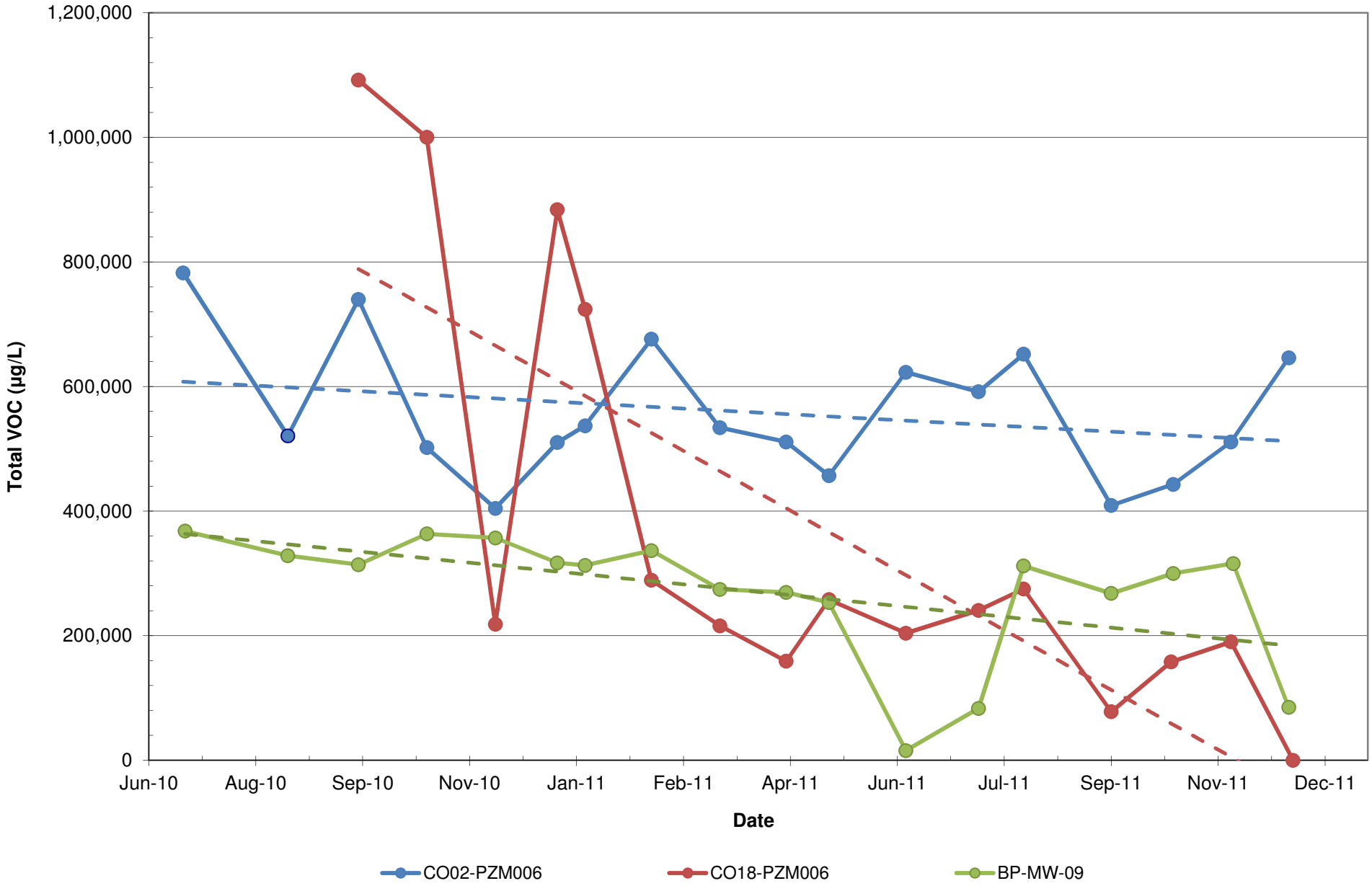


**Figure 5**
**Measured Groundwater VOC Concentration by Month**
**Cell 3: Prototype AS/SVE System in the "Cove" Area**
**RG Steel Sparrows Point, LLC**

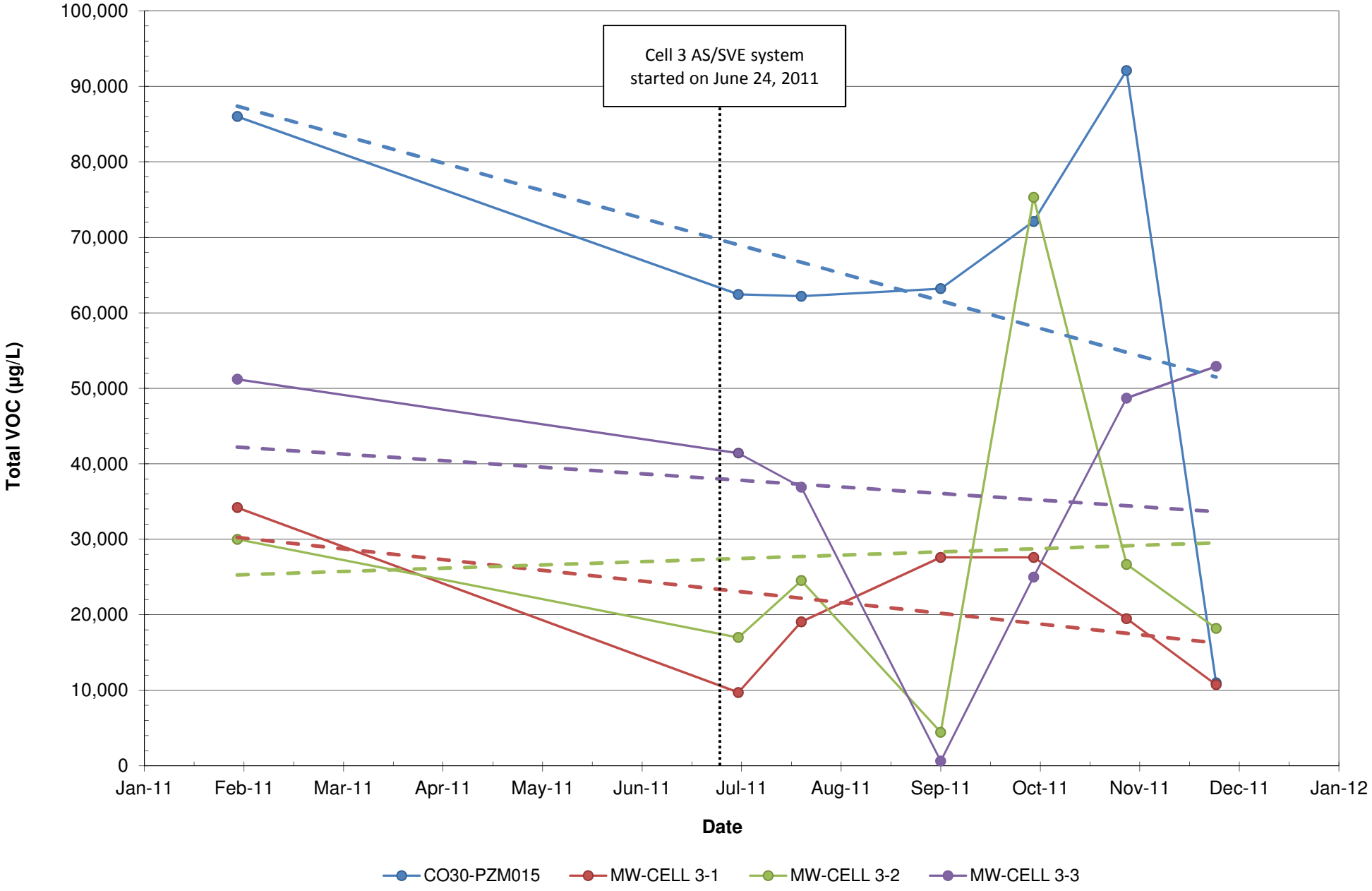
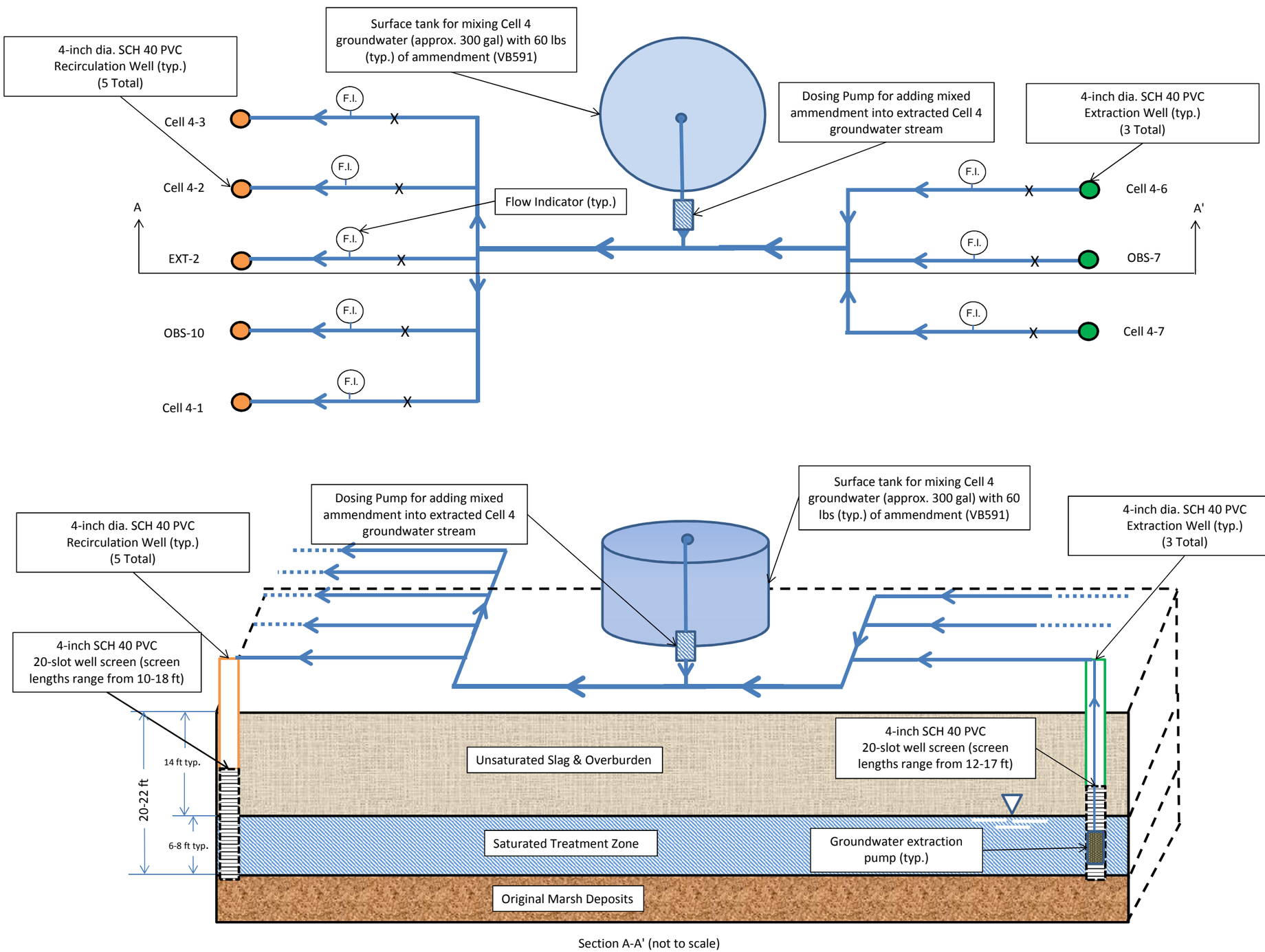


**Figure 6**
**Schematic Layout and Sections**
**Cell 4 In-Situ Anaerobic Bio-Treatment System**
**Former Coke Oven Area Interim Remedial Measures**
**RG Steel Sparrows Point, LLC**




Section A-A' (not to scale)


| | | | |
|---|---|---|---|
| CLIENT | RG Steel Sparrows Point, LLC | | |
| LOCATION | Baltimore, MD | | |
| URS<br>12420 Milestone Center Drive<br>Germantown, MD 20876 | GIS BY | JK/aer | 11/18/2011 |
| | CHK BY | BE | 11/18/2011 |
| | PM | BE | 11/18/2011 |

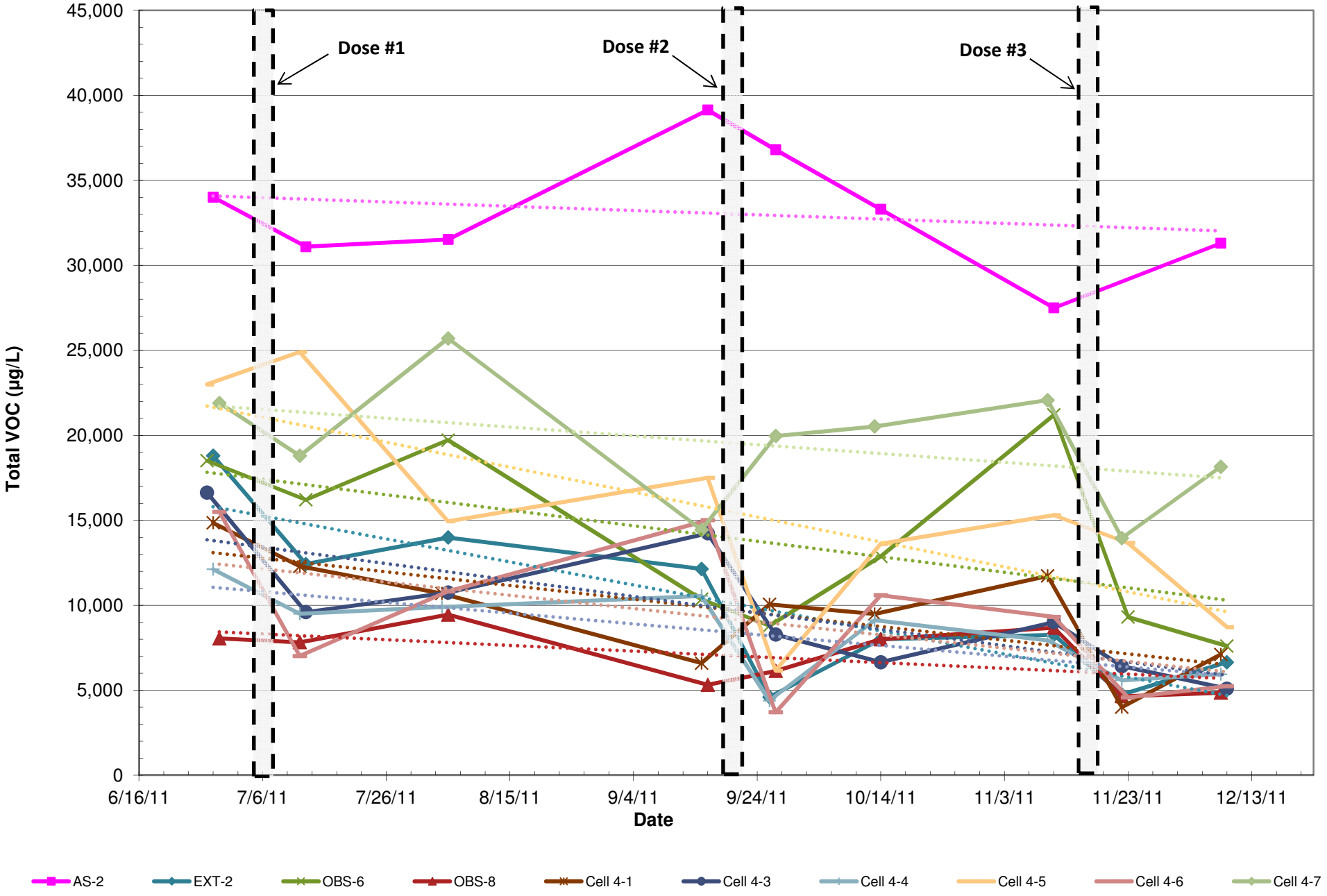
N

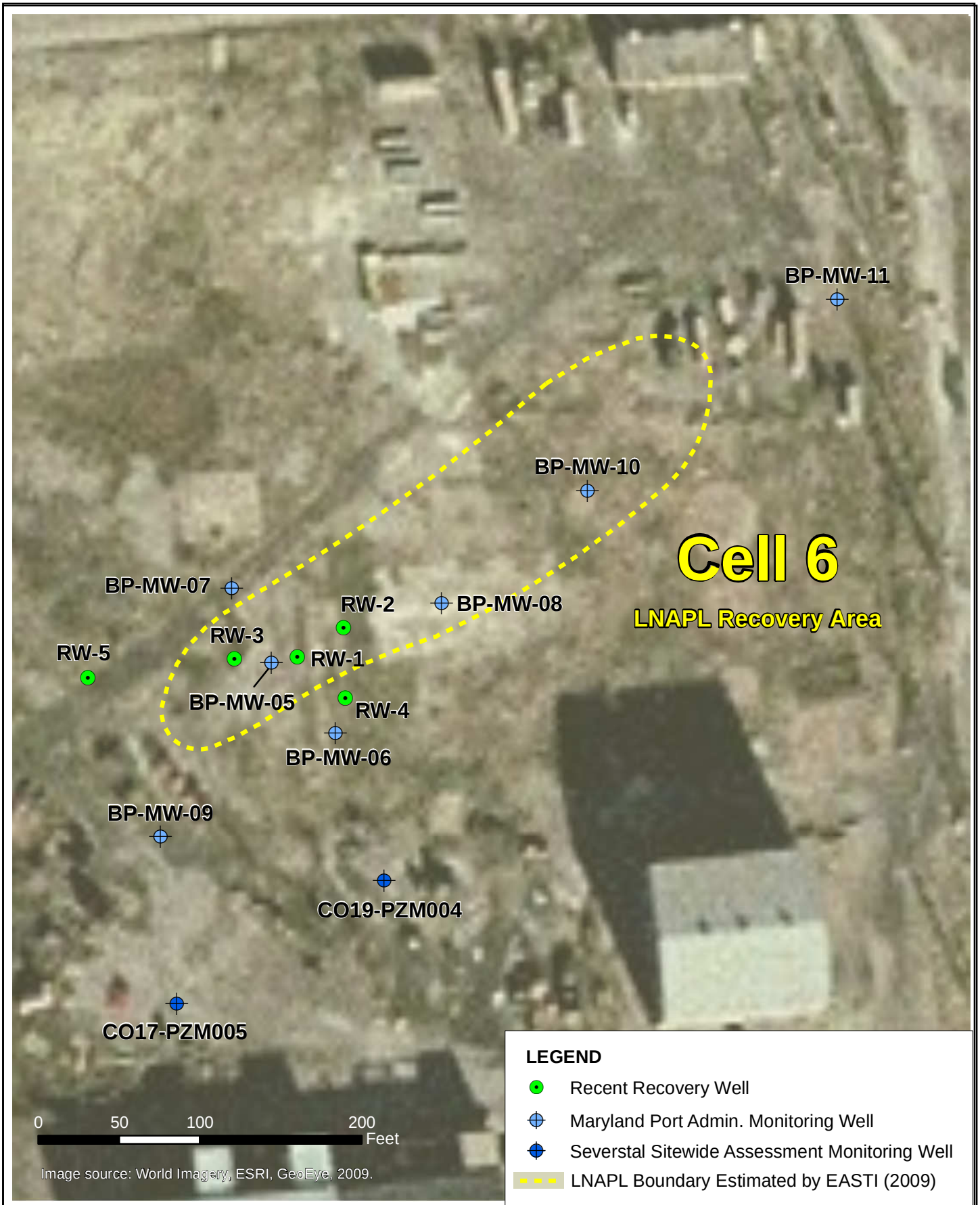
**Figure 7**

**Cell 4 Wells**

G:\Projects\SparrowsPoint\Projects\2011\CokeOven-and-CokePoint-Cell4closeup_Surveyed_Wells.mxd

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






| | | | |
|---|---|---|---|
| CLIENT | RG Steel Sparrows Point, LLC | | |
| LOCATION | Baltimore, MD | | |
| URS<br>200 Orchard Ridge Drive<br>Gaithersburg, MD 20878 | GIS BY | JK | 10/13/10 |
| | CHK BY | BE | 10/14/10 |
| | PM | BE | 10/14/10 |

N

**Figure 9**

**LNAPL Monitoring and Recovery Wells**

G:\Projects\SparrowsPoint\Projects\2010\CokeOven-and-CokePoint-Cell6closeup_rev.mxd