



# ARM Group Inc.

Engineers and Scientists

August 8, 2019

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

Re: Characterization of Naphthalene and  
Benzo[a]pyrene Impacts  
Interim Submittal  
PORI Lagoon (B22-119-SB)  
Area B: Parcel B22  
Tradepoint Atlantic  
Sparrows Point, MD 21219

Dear Ms. Brown:

In June 2016, ARM Group Inc. (ARM) completed a Phase II Investigation of Parcel B22, which is located within Area B of the Tradepoint Atlantic property in Sparrows Point, Maryland. Following completion of the Phase II Investigation, ARM, on behalf of EnviroAnalytics Group (EAG), prepared a Phase II Investigation Preliminary Report (Revision 0) dated July 15, 2016 to describe the findings of the investigation and provide recommendations. The investigation identified elevated concentrations of naphthalene and benzo[a]pyrene in the subsurface soil samples collected from soil boring B22-119-SB, which was installed at a location adjacent to the Palm Oil Recovery, Inc. (PORI) Lagoon in the northern section of Parcel B22. The highest concentrations of these constituents were in samples collected in the interval from 9 to 10 feet below ground surface (bgs). At 10 feet bgs, naphthalene was detected at a concentration of 2,040 mg/kg and benzo[a]pyrene was detected at a concentration of 84.9 mg/kg. In the overlying sample collected at 9 feet bgs, the naphthalene and benzo[a]pyrene concentrations were significantly lower (with concentrations of 32.8 mg/kg and 0.26 mg/kg, respectively).

The PORI Lagoon was also targeted by soil borings B22-120-SB, B22-121-SB, and B22-174-SB, which are located to the southeast of soil boring B22-119-SB. None of these additional soil borings had elevated concentrations of naphthalene or benzo[a]pyrene. It was unclear from the Phase II Investigation results whether the naphthalene and benzo[a]pyrene impacts found in soil boring B22-119-SB were directly associated with the PORI Lagoon since the three other borings targeting the PORI Lagoon had only low detections of naphthalene and benzo[a]pyrene. In addition, it was unclear if the elevated concentrations of these two constituents were isolated to intervals below

approximately 8 feet bgs. After reviewing the data presented in the Phase II Investigation Preliminary Report, the agencies determined that additional characterization would be needed to ensure that these elevated detections of naphthalene and benzo[a]pyrene were isolated in nature and did not warrant additional evaluation or a remedial response action.

A Work Plan for the Characterization of Naphthalene and Benzo[a]pyrene Impacts at the PORI Lagoon was submitted to the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) on April 19, 2018. Following review of the Work Plan, the proposed sampling approach was approved by the agencies on April 30, 2018. Characterization activities were conducted in the vicinity of the PORI Lagoon from May 7 to 9, 2018 and included a total of 12 supplemental soil borings. During this timeframe, temporary groundwater sample collection points (piezometers) were also installed at four soil boring locations. To supplement the soil and groundwater investigation to the northwest, two test pits were completed inside of the PORI Lagoon on June 5, 2018.

Soil samples collected from the continuous core soil borings and test pits and groundwater samples collected from the piezometers were submitted to Pace Analytical Services, Inc. (PACE) and analyzed for polynuclear aromatic hydrocarbons (PAH) via USEPA Method 8270 SIM, volatile organic compounds (VOC) via USEPA Method 8260, total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Method 8015, and Oil & Grease (O&G) via USEPA Method 9071.

The agency-approved Work Plan established the following reporting requirements:

*The findings of this investigation will be provided to the agencies in an interim submittal, and the completion of any additional sampling activities would be coordinated with the agencies if necessary. If a recommendation for no further action is appropriate following agency review of the interim findings, a PORI Lagoon Characterization Report will be prepared to formally present a summary of the findings. In the event that a remedial response action is required, a Work Plan will be provided under separate cover for agency review and approval.*

At this time, this Interim Submittal is being provided to the MDE and USEPA to present the results of the completed characterization activities. Once the final development plan for the area is known, an evaluation of future response actions will be performed. If response actions are required, a Work Plan will be submitted for agency review and approval. However, if a recommendation for no further action is appropriate, a PORI Lagoon Characterization Report will be prepared to present a summary of the findings. The final submission will include a summary of the field methods used, soil boring observation logs, complete analytical laboratory report(s), and other pertinent information as appropriate.



Tables providing summaries of the detected analytical parameters (PAHs, VOCs, TPH-DRO, TPH-GRO, and O&G) for soil borings, test pits, and groundwater samples, including the original soil analytical results obtained during the Phase II Investigation, are included as **Table 1** (soil) and **Table 2** (groundwater). The locations of the soil borings, test pits, and temporary piezometers are indicated on **Figure 1** through **Figure 4**. These figures also display exceedances of the Project Action Limits (PALs) obtained for each site media, including any soil exceedances obtained at locations B22-119-SB, B22-120-SB, B22-121-SB, and B22-174-SB during the original Phase II Investigation.

**Table 1** shows that seven out of twelve soil borings (B22-119-SB, B22-119B-SB, B22-119E-SB, B22-119F-SB, B22-119G-SB, B22-119H-SB, B22-119I-SB) had concentrations of naphthalene and/or benzo[a]pyrene above their respective PALs. During the Phase II Investigation, there were elevated concentrations of naphthalene and benzo[a]pyrene in samples collected from B22-119-SB in the interval from 9 to 10 feet bgs; however, samples could not be collected from these depths during this supplemental investigation because of the presence of NAPL from 7 to 10 feet bgs. The soil borings with the highest naphthalene and benzo[a]pyrene concentrations identified during this supplemental investigation (B22-119E-SB and B22-119H-SB) were the two borings completed closest to the original soil boring B22-119-SB.

Two additional soil samples were collected from a depth of approximately 12 feet bgs from two test pit locations (IDs 1-12 and 2-12) as shown on **Figure 1** and **Figure 2**. These test pit samples had naphthalene detections of 0.31 mg/kg and 0.26 mg/kg and benzo[a]pyrene detections of 0.62 mg/kg and 0.71 mg/kg, respectively. These detections were below the PALs for naphthalene and benzo[a]pyrene; however, TPH-DRO and O&G were detected above the PAL of 6,200 mg/kg. A photograph log documenting the completed test pitting activities is provided in **Appendix A**. In addition, a length of sheet piling was observed at the northwestern edge of the PORI Lagoon. Its location was documented using a hand-held GPS and is shown on **Figure 1** through **Figure 4**.

Temporary groundwater sample collection points were installed at the locations indicated on **Figure 3** and **Figure 4**. The groundwater sample collected from B22-119-PZ, corresponding to the soil boring with the highest concentrations of naphthalene and benzo[a]pyrene during the Phase II Investigation, had the highest exceedances of DRO, GRO, naphthalene and benzo[a]pyrene (17,200 µg/L, 2,460 µg/L, 2,550 µg/L, and 57.3 µg/L, respectively). A piezometer was installed at soil boring location B22-119K-SB; however, a groundwater sample could not be collected from this location due to observations of NAPL within the piezometers.

In response to the NAPL detection in B22-119K-PZ, six additional NAPL delineation piezometers (B22-119L-PZ, B22-119M-PZ, B22-119N-PZ, B22-119O-PZ, B22-119P-PZ, and B22-119Q-PZ) were installed on October 12, 2018 at the locations shown on **Figure 5**. NAPL was not detected during the 0-hour, 48-hour, and 30-day gauging activities at any of the supplemental piezometers; therefore, the delineation has been deemed to be complete and the potentially mobile NAPL



appears to be confined to the immediate vicinity of B22-119K-PZ. **Table 3** shows the results from NAPL gauging activities for these six delineation piezometers, in addition to the temporary groundwater sample collection points (B22-119-PZ, B22-119I-PZ, B22-119J-PZ, and B22-119K-PZ) previously installed at four soil boring locations. The piezometer construction details (depths and screen intervals) are also provided in the table.

The soil boring, test pit, and groundwater results support the findings from the Phase II Investigation which suggested that the naphthalene and benzo[a]pyrene impacts are primarily limited to sample intervals below approximately 8 feet bgs. The highest concentrations of naphthalene and benzo[a]pyrene are primarily confined to the vicinity of soil boring B22-119-SB. In addition, the NAPL identified in B22-119K-PZ has been fully delineated and potentially mobile NAPL appears to be limited in extent. Any future response actions for this area will be coordinated with site development work and the approval of the MDE.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully submitted,  
ARM Group Inc.



Taylor R. Smith, P.E.  
Project Engineer



Eric S. Magdar, P.G.  
Vice President



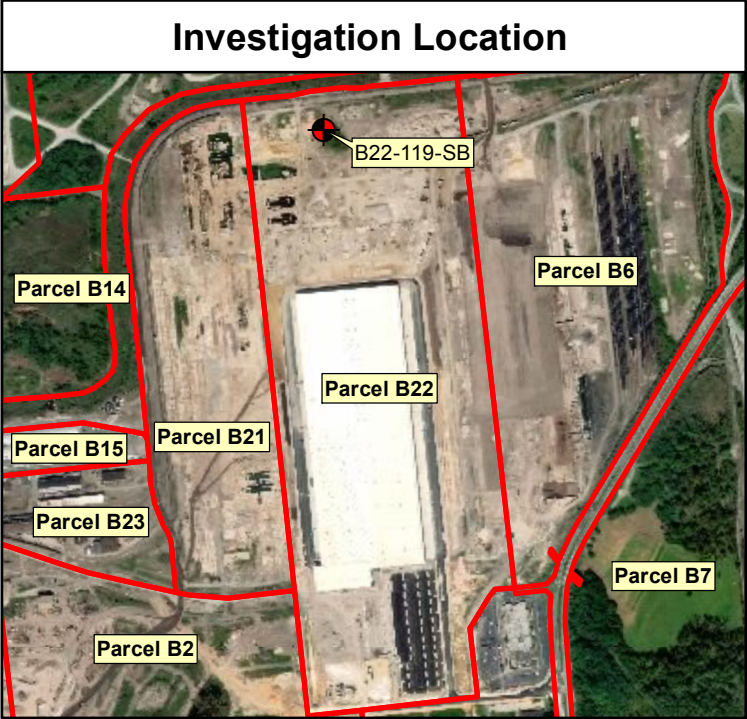
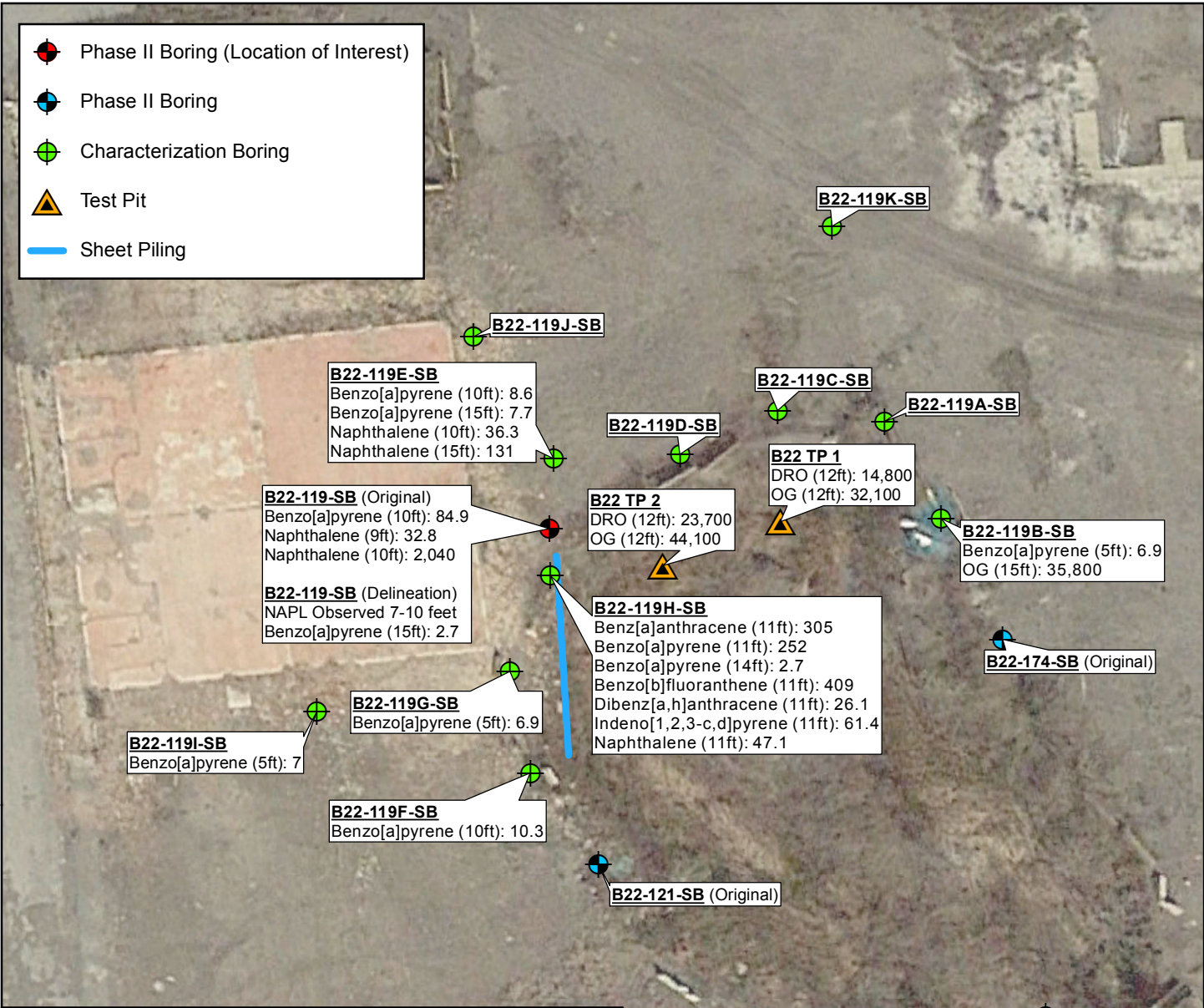
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## **FIGURES**

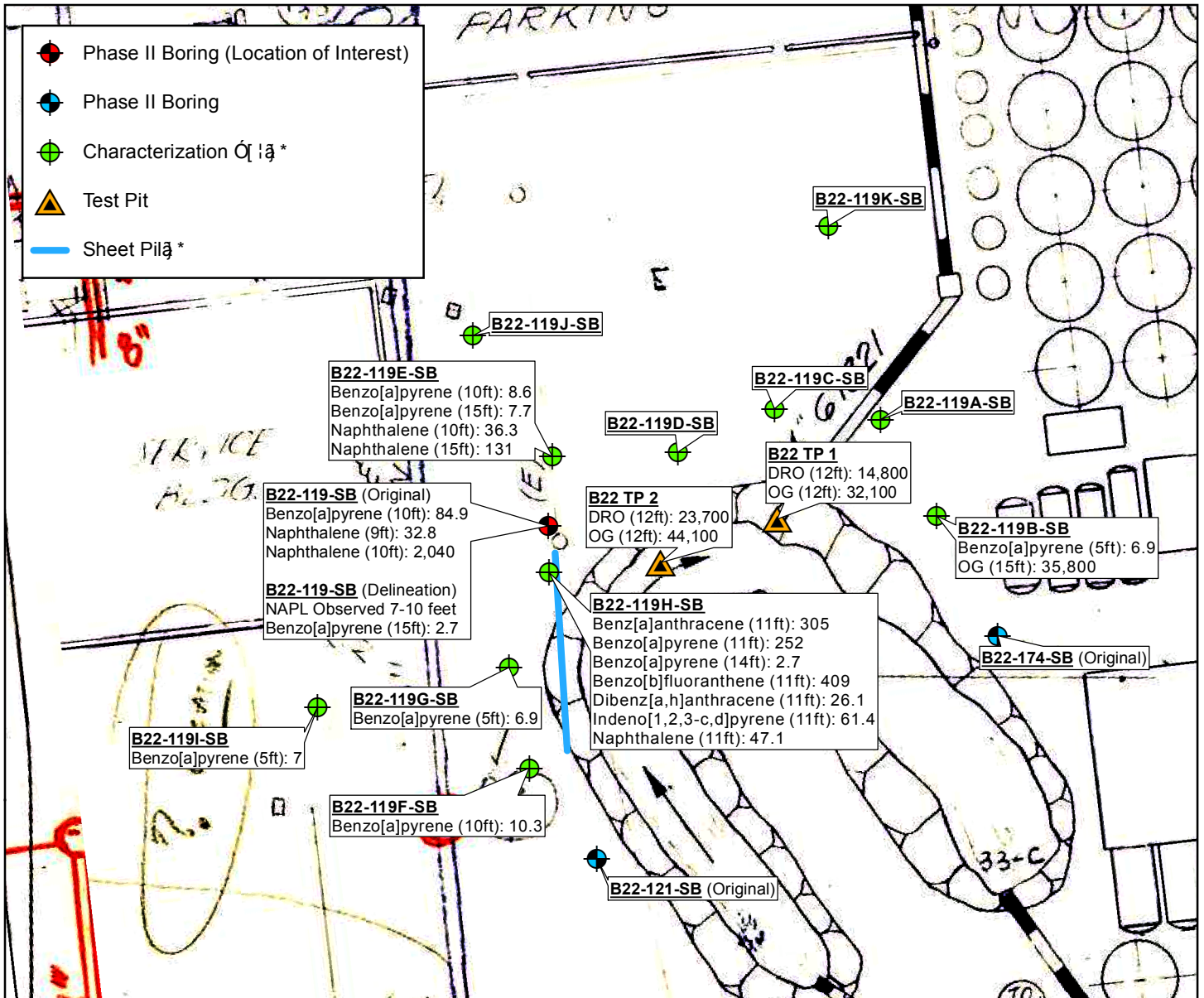
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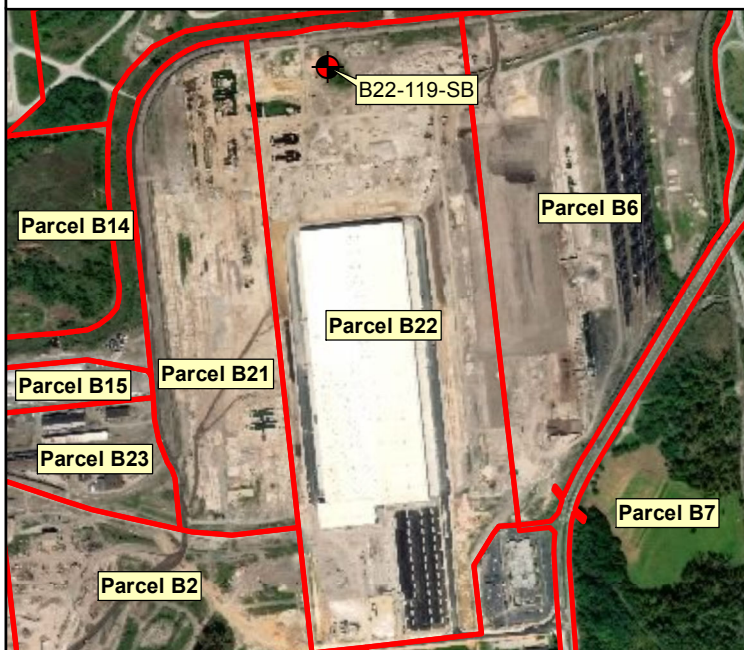


<b>Parcels B22 - PORI Lagoon Aerial Soil PAL Exceedances (mg/kg)</b> August 8, 2019		<b>Figure 1</b>
 <b>ARM Group Inc.</b> Engineers and Scientists	Tradepoint Atlantic	
	Baltimore County, MD	
	EnviroAnalytics Group	
	ARM Project 150300M-20	

0 12.5 25 50 Feet



### Investigation Location



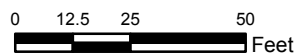
Parcels B22 - PORI Lagoon 5500 Set  
Soil PAL Exceedances (mg/kg)

August 8, 2019

Figure  
**2**



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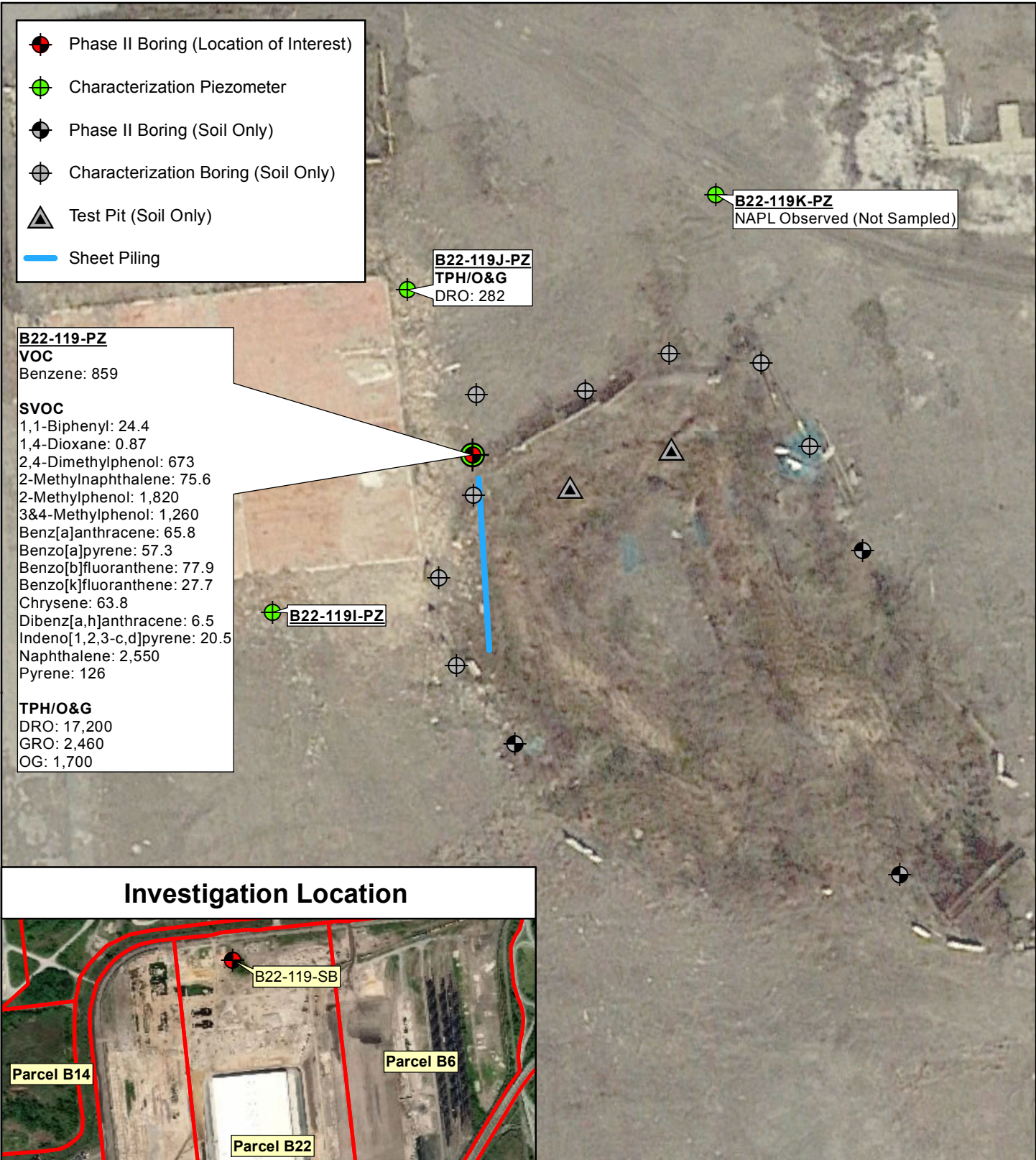


Tradepoint Atlantic

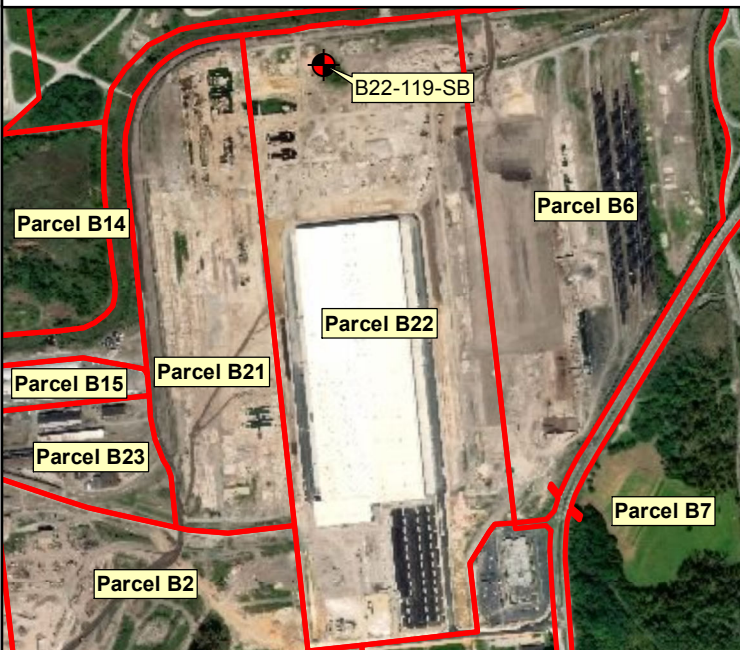
Baltimore County, MD

EnviroAnalytics Group

ARM Project 150300M-20



**Investigation Location**



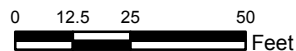
Parcels B22 - PORI Lagoon Aerial Groundwater PAL Exceedances (ug/L)

August 8, 2019

**Figure 3**



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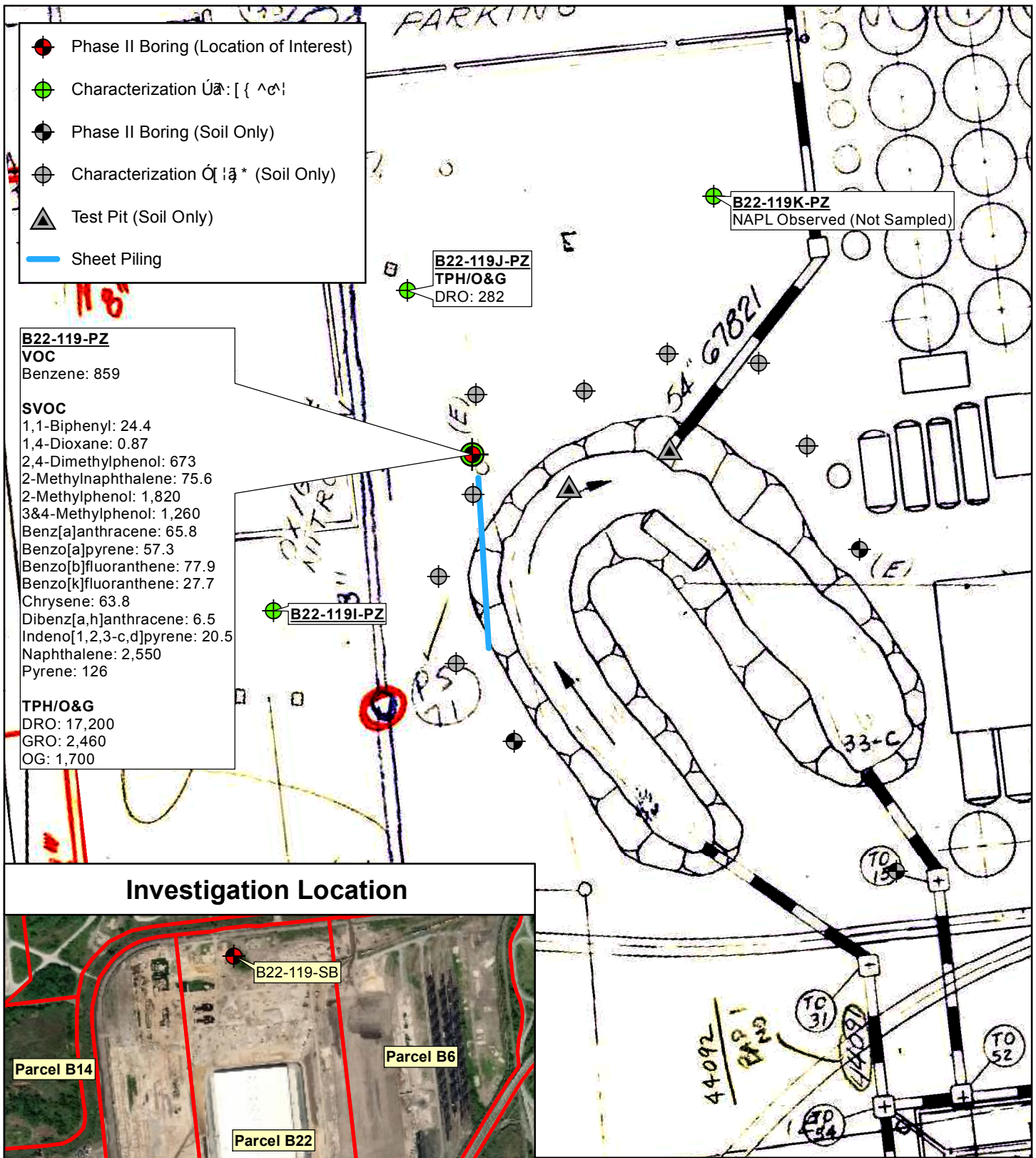
Tradepoint Atlantic

Baltimore County, MD

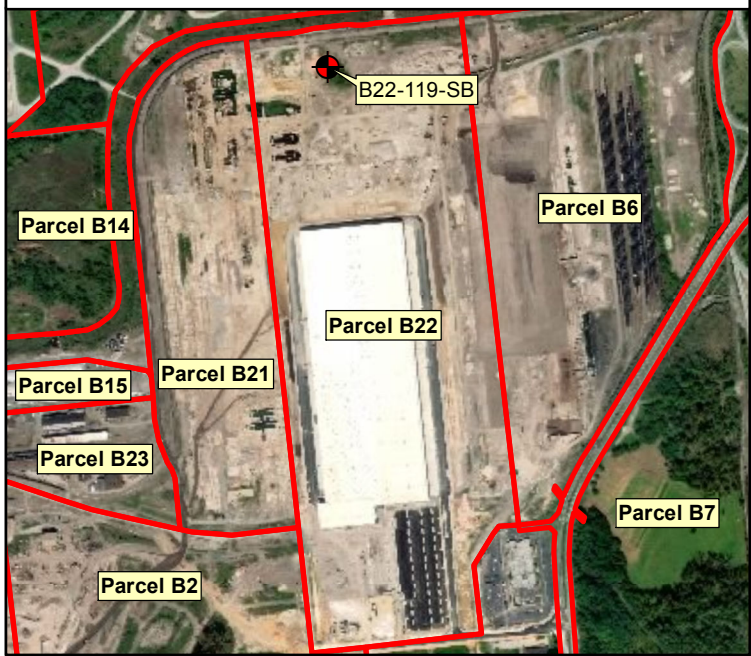
EnviroAnalytics Group

ARM Project 150300M-20





**Investigation Location**



Parcels B22 - PORI Lagoon 5500 Set  
Groundwater PAL Exceedances (ug/L)  
August 8, 2019

Figure  
**4**

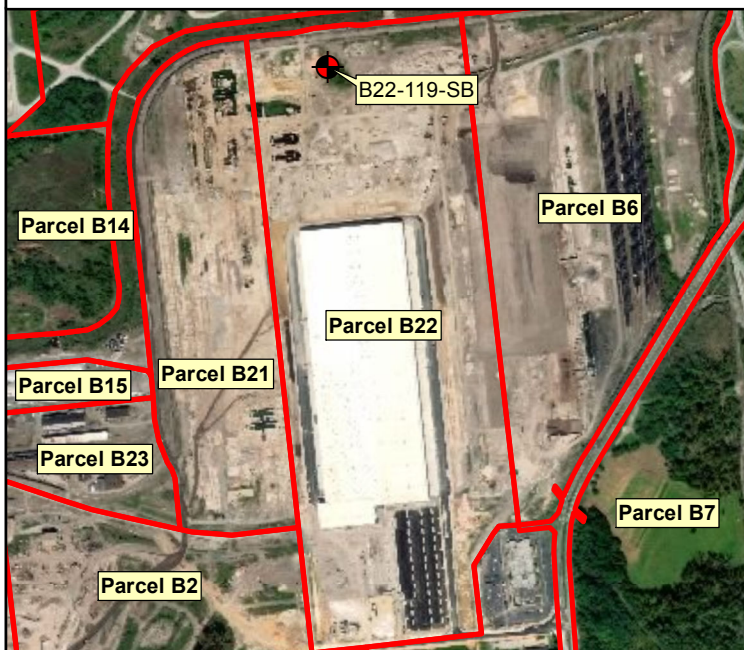
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0 12.5 25 50 Feet

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Baltimore County, MD
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**Investigation Location**



-  Delineation Piezometer - NAPL Detected
-  Delineation Piezometer - Clean 30 Day

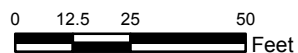
**Parcels B22 - PORI Lagoon Aerial  
NAPL Delineation Status**

August 8, 2019

**Figure  
5**



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## **TABLES**

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**Table 1 - Parcel B22 (PORI Lagoon)  
Summary of Organics Detected in Soil and Test Pits**

Parameter	Units	PAL	Original B22-119-SB-1	Original B22-119-SB-9	Original B22-119-SB-10	B22-119-SB-5	B22-119-SB-15	B22-119A-SB-5	B22-119A-SB-9	B22-119B-SB-5	B22-119B-SB-9.5	B22-119B-SB-15	B22-119C-SB-5
<b>Volatile Organic Compounds</b>													
1,4-Dichlorobenzene	mg/kg	11	0.0056 U	0.007 U	N/A	0.0049 U	0.0049 U	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
2-Butanone (MEK)	mg/kg	190,000	0.011 U	<b>0.0061 J</b>	N/A	0.0097 U	0.0098 U	<b>0.013</b>	0.0096 U	0.012 U	0.012 U	0.0098 U	0.011 U
Acetone	mg/kg	670,000	0.011 U	<b>0.023 J</b>	N/A	0.0097 U	<b>0.02</b>	<b>0.33</b>	<b>0.072</b>	<b>0.039</b>	<b>0.049</b>	<b>0.23</b>	<b>0.038</b>
Benzene	mg/kg	5.1	0.0056 U	<b>3.9 J</b>	N/A	0.0049 U	<b>0.14</b>	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
Carbon disulfide	mg/kg	3,500	0.0056 U	0.007 U	N/A	0.0049 U	<b>0.0053</b>	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
Ethylbenzene	mg/kg	25	0.0056 U	<b>0.096 J</b>	N/A	0.0049 U	0.0049 U	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
Isopropylbenzene	mg/kg	9,900	0.0056 U	<b>0.018</b>	N/A	0.0049 U	0.0049 U	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
Methyl Acetate	mg/kg	1,200,000	0.056 U	0.07 U	N/A	0.049 U	0.049 U	<b>0.073</b>	<b>0.023 J</b>	<b>0.0025 J</b>	<b>0.23</b>	<b>0.079</b>	<b>0.012 J</b>
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0056 U	0.007 U	N/A	0.0049 U	0.0049 U	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
Styrene	mg/kg	35,000	0.0056 U	<b>0.032 J</b>	N/A	0.0049 U	0.0049 U	0.0056 U	0.0048 U	0.0059 U	0.0062 U	0.0049 U	0.0056 U
Toluene	mg/kg	47,000	0.0056 U	<b>1.4 J</b>	N/A	0.0049 U	<b>0.0062</b>	0.0056 U	0.0048 U	0.0059 U	0.0062 U	<b>0.0016 J</b>	0.0056 U
Xylenes	mg/kg	2,800	0.017 U	<b>0.75 J</b>	N/A	0.015 U	<b>0.0078 J</b>	0.017 U	0.014 U	0.018 U	0.019 U	0.015 U	0.017 U
<b>Semi-Volatile Organic Compounds<sup>^</sup></b>													
2-Methylnaphthalene	mg/kg	3,000	0.072 U	<b>1.7</b>	N/A	<b>0.067</b>	<b>0.79</b>	<b>0.15</b>	<b>0.013</b>	<b>0.36</b>	<b>0.013</b>	<b>2.7</b>	<b>0.086</b>
Acenaphthene	mg/kg	45,000	0.072 U	<b>0.38 J</b>	N/A	<b>0.012</b>	<b>0.89</b>	<b>0.024</b>	<b>0.0031 J</b>	<b>0.053</b>	<b>0.00095 J</b>	<b>2.1</b>	<b>0.018</b>
Acenaphthylene	mg/kg	45,000	<b>0.011 J</b>	<b>0.72 J</b>	N/A	<b>0.019</b>	<b>0.14</b>	<b>0.035</b>	<b>0.035</b>	<b>0.092</b>	<b>0.0039 J</b>	<b>0.31</b>	<b>0.054</b>
Anthracene	mg/kg	230,000	<b>0.025 J</b>	<b>0.42 J</b>	N/A	<b>0.07</b>	<b>1.3</b>	<b>0.2</b>	<b>0.034</b>	<b>0.78</b>	<b>0.011</b>	<b>3.1</b>	<b>0.13</b>
Benz[a]anthracene	mg/kg	21	<b>0.2</b>	<b>0.35 J</b>	N/A	<b>0.28</b>	<b>2.9</b>	<b>0.86</b>	<b>0.28</b>	<b>8.2</b>	<b>0.14</b>	<b>3.2</b>	<b>0.84</b>
Benzo[a]pyrene	mg/kg	2.1	<b>0.16</b>	<b>0.26 J</b>	<b>84.9</b>	<b>0.26</b>	<b>2.7</b>	<b>0.84</b>	<b>0.28</b>	<b>6.9</b>	<b>0.17</b>	<b>1.7</b>	<b>0.8</b>
Benzo[b]fluoranthene	mg/kg	21	<b>0.4</b>	<b>0.57</b>	N/A	<b>0.55</b>	<b>4.3</b>	<b>1.1</b>	<b>0.43</b>	<b>12.8</b>	<b>0.28</b>	<b>2.6</b>	<b>1.3</b>
Benzo[g,h,i]perylene	mg/kg		<b>0.058 J</b>	<b>0.082 J</b>	N/A	<b>0.087</b>	<b>0.54</b>	<b>0.43</b>	<b>0.14</b>	<b>1.2</b>	<b>0.098</b>	<b>0.63</b>	<b>0.28</b>
Benzo[k]fluoranthene	mg/kg	210	<b>0.33</b>	<b>0.47 J</b>	N/A	<b>0.43</b>	<b>3.3</b>	<b>0.41</b>	<b>0.12</b>	<b>3.1</b>	<b>0.095</b>	<b>2.1</b>	<b>0.34</b>
Chrysene	mg/kg	2,100	<b>0.21</b>	<b>0.27 J</b>	N/A	<b>0.26</b>	<b>2.2</b>	<b>0.66</b>	<b>0.21</b>	<b>6.4</b>	<b>0.12</b>	<b>2.7</b>	<b>0.64</b>
Dibenz[a,h]anthracene	mg/kg	2.1	<b>0.018 J</b>	<b>0.03 J</b>	N/A	<b>0.039</b>	<b>0.24</b>	<b>0.2</b>	<b>0.06</b>	<b>0.94</b>	<b>0.04</b>	<b>0.21</b>	<b>0.15</b>
Fluoranthene	mg/kg	30,000	<b>0.27</b>	<b>1.5 J</b>	N/A	<b>0.45</b>	<b>5.9</b>	<b>1.1</b>	<b>0.33</b>	<b>9.2</b>	<b>0.097</b>	<b>9.5</b>	<b>1.1</b>
Fluorene	mg/kg	30,000	0.072 U	<b>1.2</b>	N/A	<b>0.0091</b>	<b>1.3</b>	<b>0.031</b>	<b>0.0051 J</b>	<b>0.078</b>	<b>0.0017 J</b>	<b>4.2</b>	<b>0.017</b>
Indeno[1,2,3-c,d]pyrene	mg/kg	21	<b>0.049 J</b>	<b>0.086 J</b>	N/A	<b>0.091</b>	<b>0.59</b>	<b>0.46</b>	<b>0.15</b>	<b>3.2</b>	<b>0.1</b>	<b>0.68</b>	<b>0.34</b>
Naphthalene	mg/kg	17	0.072 U	<b>32.8</b>	<b>2,040</b>	<b>0.064</b>	<b>2.8</b>	<b>0.084</b>	<b>0.018</b>	<b>0.23</b>	<b>0.026</b>	<b>0.48</b>	<b>0.082</b>
Phenanthrene	mg/kg		<b>0.046 J</b>	<b>2.5</b>	N/A	<b>0.31</b>	<b>6.5</b>	<b>0.93</b>	<b>0.12</b>	<b>4.9</b>	<b>0.081</b>	<b>13.8</b>	<b>0.45</b>
Pyrene	mg/kg	23,000	<b>0.25</b>	<b>1 J</b>	N/A	<b>0.45</b>	<b>4.7</b>	<b>0.93</b>	<b>0.29</b>	<b>7.7</b>	<b>0.091</b>	<b>7.3</b>	<b>0.96</b>
<b>PCBs</b>													
Aroclor 1242	mg/kg	0.97	0.0556 U	N/A	N/A	0.018 U	0.021 U	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1254	mg/kg	0.97	0.0556 U	N/A	N/A	0.018 U	0.021 U	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1260	mg/kg	0.99	0.0556 U	N/A	N/A	0.018 U	0.021 U	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1262	mg/kg		0.0556 U	N/A	N/A	0.018 U	0.021 U	N/A	N/A	N/A	N/A	N/A	N/A
PCBs (total)	mg/kg	0.97	0.0556 U	N/A	N/A	0.16 U	0.19 U	N/A	N/A	N/A	N/A	N/A	N/A
<b>TPH/Oil and Grease</b>													
Diesel Range Organics	mg/kg	6,200	<b>20.5</b>	<b>124 J</b>	N/A	<b>71</b>	<b>287</b>	<b>46.9</b>	<b>32.1</b>	<b>498</b>	<b>22.2</b>	<b>4,090</b>	<b>75.5</b>
Gasoline Range Organics	mg/kg	6,200	13 U	<b>11.1 J</b>	N/A	10 U	11 U	10.6 U	10.2 U	18.3 U	9.8 U	10.8 U	12.2 U
Oil and Grease	mg/kg	6,200	N/A	N/A	N/A	<b>302</b>	<b>1,200</b>	<b>224</b>	<b>186</b>	<b>644</b>	<b>218</b>	<b>35,800</b>	<b>242</b>

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

<sup>^</sup>PAH compounds were analyzed vis SIM

N/A indicates that the parameter was not analyzed for this sample

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

J: The positive result reported for this analyte is a quantitative estimate.

**Table 1 - Parcel B22 (PORI Lagoon)  
Summary of Organics Detected in Soil and Test Pits**

Parameter	Units	PAL	B22-119C-SB-9.5	B22-119D-SB-5	B22-119D-SB-9	B22-119E-SB-5	B22-119E-SB-10	B22-119E-SB-15	B22-119F-SB-5	B22-119F-SB-10	B22-119F-SB-15	B22-119G-SB-5	B22-119G-SB-10
<b>Volatile Organic Compounds</b>													
1,4-Dichlorobenzene	mg/kg	11	0.0052 U	0.006 U	0.0044 U	0.0053 U	0.0047 U	0.0045 U	0.0054 U	0.0046 U	0.0046 U	0.0043 U	0.0049 U
2-Butanone (MEK)	mg/kg	190,000	0.01 U	0.012 U	0.0088 U	0.011 U	0.0094 U	0.0091 U	0.011 U	0.0092 U	0.0093 U	0.0086 U	0.0097 U
Acetone	mg/kg	670,000	<b>0.06</b>	<b>0.15</b>	<b>0.067</b>	<b>0.11</b>	<b>0.051</b>	<b>0.051</b>	<b>0.059</b>	0.0092 U	<b>0.012</b>	<b>0.056</b>	<b>0.19</b>
Benzene	mg/kg	5.1	0.0052 U	0.006 U	0.0044 U	0.0053 U	<b>0.14</b>	<b>0.43</b>	0.0054 U	0.0046 U	0.0046 U	0.0043 U	0.0049 U
Carbon disulfide	mg/kg	3,500	0.0052 U	0.006 U	0.0044 U	0.0053 U	<b>0.0063</b>	<b>0.0022 J</b>	0.0054 U	0.0046 U	0.0046 U	0.0043 U	<b>0.0044 J</b>
Ethylbenzene	mg/kg	25	0.0052 U	0.006 U	0.0044 U	0.0053 U	<b>0.007</b>	<b>0.014</b>	0.0054 U	0.0046 U	0.0046 U	0.0043 U	0.0049 U
Isopropylbenzene	mg/kg	9,900	0.0052 U	0.006 U	0.0044 U	0.0053 U	<b>0.0019 J</b>	<b>0.002 J</b>	0.0054 U	0.0046 U	0.0046 U	0.0043 U	0.0049 U
Methyl Acetate	mg/kg	1,200,000	<b>0.12</b>	<b>0.019 J</b>	<b>0.038 J</b>	0.053 U	<b>0.021 J</b>	<b>0.21</b>	<b>0.0084 J</b>	0.046 U	0.046 U	<b>0.013 J</b>	0.049 U
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0052 U	0.006 U	0.0044 U	0.0053 U	0.0047 U	0.0045 U	0.0054 U	0.0046 U	0.0046 U	0.0043 U	<b>0.0013 J</b>
Styrene	mg/kg	35,000	0.0052 U	0.006 U	0.0044 U	0.0053 U	<b>0.0013 J</b>	<b>0.002 J</b>	0.0054 U	0.0046 U	0.0046 U	0.0043 U	0.0049 U
Toluene	mg/kg	47,000	0.0052 U	<b>0.002 J</b>	0.0044 U	0.0053 U	<b>0.041</b>	<b>0.13</b>	0.0054 U	0.0046 U	0.0046 U	0.0043 U	0.0049 U
Xylenes	mg/kg	2,800	0.016 U	0.018 U	0.013 U	0.016 U	<b>0.067</b>	<b>0.12</b>	0.016 U	0.014 U	0.014 U	0.013 U	0.015 U
<b>Semi-Volatile Organic Compounds<sup>^</sup></b>													
2-Methylnaphthalene	mg/kg	3,000	<b>0.036</b>	<b>0.028</b>	<b>0.031</b>	<b>0.034</b>	<b>5.3</b>	<b>13.7</b>	<b>0.066</b>	<b>0.8</b>	<b>0.0035 J</b>	<b>0.028</b>	<b>0.12</b>
Acenaphthene	mg/kg	45,000	<b>0.019</b>	<b>0.003 J</b>	<b>0.022</b>	<b>0.013</b>	<b>1.1</b>	<b>3.4</b>	<b>0.073</b>	<b>3.7</b>	<b>0.0014 J</b>	<b>0.31</b>	<b>0.25</b>
Acenaphthylene	mg/kg	45,000	<b>0.013</b>	<b>0.0082</b>	<b>0.022</b>	<b>0.053</b>	<b>2.6</b>	<b>5.7</b>	<b>0.054</b>	<b>0.55</b>	0.0086 U	<b>0.092</b>	<b>0.027</b>
Anthracene	mg/kg	230,000	<b>0.067</b>	<b>0.024</b>	<b>0.11</b>	<b>0.13</b>	<b>6.4</b>	<b>7.6</b>	<b>0.4</b>	<b>9.9</b>	<b>0.001 J</b>	<b>1.5</b>	<b>0.21</b>
Benz[a]anthracene	mg/kg	21	<b>0.2</b>	<b>0.091</b>	<b>0.41</b>	<b>0.45</b>	<b>9.7</b>	<b>8.7</b>	<b>1.3</b>	<b>13.4</b>	<b>0.0027 J</b>	<b>10.3</b>	<b>0.48</b>
Benzo[a]pyrene	mg/kg	2.1	<b>0.17</b>	<b>0.079</b>	<b>0.34</b>	<b>0.36</b>	<b>8.6</b>	<b>7.7</b>	<b>1.3</b>	<b>10.3</b>	<b>0.0011 J</b>	<b>6.9</b>	<b>0.48</b>
Benzo[b]fluoranthene	mg/kg	21	<b>0.35</b>	<b>0.19</b>	<b>0.68</b>	<b>0.85</b>	<b>11.5</b>	<b>10.7</b>	<b>2.3</b>	<b>18.3</b>	<b>0.0014 J</b>	<b>10</b>	<b>0.83</b>
Benzo[g,h,i]perylene	mg/kg		<b>0.056</b>	<b>0.034</b>	<b>0.11</b>	<b>0.097</b>	<b>1.6</b>	<b>1.2</b>	<b>0.48</b>	<b>2</b>	0.0086 U	<b>2.8</b>	<b>0.15</b>
Benzo[k]fluoranthene	mg/kg	210	<b>0.25</b>	<b>0.14</b>	<b>0.5</b>	<b>0.63</b>	<b>3.5</b>	<b>3.4</b>	<b>1.8</b>	<b>16</b>	0.0086 U	<b>4.2</b>	<b>0.65</b>
Chrysene	mg/kg	2,100	<b>0.16</b>	<b>0.09</b>	<b>0.3</b>	<b>0.35</b>	<b>6.2</b>	<b>5.2</b>	<b>0.99</b>	<b>7.9</b>	<b>0.0012 J</b>	<b>7.6</b>	<b>0.45</b>
Dibenz[a,h]anthracene	mg/kg	2.1	<b>0.028</b>	<b>0.015</b>	<b>0.054</b>	<b>0.057</b>	<b>1.1</b>	<b>0.69</b>	<b>0.2</b>	<b>0.89</b>	0.0086 U	<b>1.4</b>	<b>0.065</b>
Fluoranthene	mg/kg	30,000	<b>0.35</b>	<b>0.18</b>	<b>0.67</b>	<b>0.74</b>	<b>24.9</b>	<b>25.7</b>	<b>3</b>	<b>23.4</b>	<b>0.0047 J</b>	<b>17</b>	<b>0.78</b>
Fluorene	mg/kg	30,000	<b>0.026</b>	<b>0.0032 J</b>	<b>0.028</b>	<b>0.021</b>	<b>8.5</b>	<b>15.5</b>	<b>0.064</b>	<b>5.3</b>	<b>0.0017 J</b>	<b>0.1</b>	<b>0.24</b>
Indeno[1,2,3-c,d]pyrene	mg/kg	21	<b>0.064</b>	<b>0.036</b>	<b>0.13</b>	<b>0.13</b>	<b>2.5</b>	<b>1.6</b>	<b>0.53</b>	<b>2.2</b>	0.0086 U	<b>3.4</b>	<b>0.16</b>
Naphthalene	mg/kg	17	<b>0.055</b>	<b>0.043</b>	<b>0.039</b>	<b>0.047</b>	<b>36.3</b>	<b>131</b>	<b>0.15</b>	<b>1.3</b>	<b>0.013</b>	<b>0.025</b>	<b>0.43</b>
Phenanthrene	mg/kg		<b>0.32</b>	<b>0.1</b>	<b>0.44</b>	<b>0.47</b>	<b>33.1</b>	<b>42.9</b>	<b>1.4</b>	<b>29.6</b>	<b>0.0052 J</b>	<b>8.9</b>	<b>1.2</b>
Pyrene	mg/kg	23,000	<b>0.27</b>	<b>0.16</b>	<b>0.53</b>	<b>0.69</b>	<b>14</b>	<b>14.8</b>	<b>2.5</b>	<b>17.8</b>	<b>0.0036 J</b>	<b>12.9</b>	<b>0.72</b>
<b>PCBs</b>													
Aroclor 1242	mg/kg	0.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1254	mg/kg	0.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1260	mg/kg	0.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1262	mg/kg		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs (total)	mg/kg	0.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>TPH/Oil and Grease</b>													
Diesel Range Organics	mg/kg	6,200	<b>49.3</b>	<b>59.2</b>	<b>37.6</b>	<b>229</b>	<b>395</b>	<b>246</b>	<b>177</b>	<b>370</b>	<b>8.7</b>	<b>38.4</b>	<b>275</b>
Gasoline Range Organics	mg/kg	6,200	14.2 U	9.9 U	15.7 U	11.5 U	11.5 U	12 U	22.9 U	10.8 U	10.3 U	14 U	11.4 U
Oil and Grease	mg/kg	6,200	<b>253</b>	<b>130</b>	<b>230 J</b>	<b>847</b>	<b>1,790</b>	<b>1,710</b>	<b>1,150</b>	<b>2,840</b>	<b>207 J</b>	<b>316</b>	<b>2,540</b>

**Detections in bold**

**Values in red indicate an exceedance of the Project Action Limit (PAL)**

<sup>^</sup>PAH compounds were analyzed vis SIM

N/A indicates that the parameter was not analyzed for this sample

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

J: The positive result reported for this analyte is a quantitative estimate.

**Table 1 - Parcel B22 (PORI Lagoon)  
Summary of Organics Detected in Soil and Test Pits**

Parameter	Units	PAL	B22-119G-SB-15	B22-119H-SB-5	B22-119H-SB-11	B22-119H-SB-14	B22-119I-SB-5	B22-119I-SB-10	B22-119I-SB-15	B22-119J-SB-5	B22-119J-SB-10	B22-119K-SB-5	B22-119K-SB-9
<b>Volatile Organic Compounds</b>													
1,4-Dichlorobenzene	mg/kg	11	0.0045 U	0.0052 U	0.0065 U	0.0048 U	0.0047 U	0.0044 U	0.0053 U	0.0048 U	0.005 U	0.0057 U	0.0038 U
2-Butanone (MEK)	mg/kg	190,000	0.009 U	0.01 U	0.013 U	0.0095 U	0.0094 U	0.0089 U	0.011 U	0.0096 U	0.01 U	0.011 U	0.0076 U
Acetone	mg/kg	670,000	<b>0.031</b>	<b>0.018</b>	<b>0.047</b>	0.0095 U	<b>0.022</b>	<b>0.011</b>	<b>0.011</b>	<b>0.015</b>	<b>0.025</b>	<b>0.023</b>	0.0076 U
Benzene	mg/kg	5.1	0.0045 U	0.0052 U	<b>0.0063 J</b>	<b>0.004 J</b>	0.0047 U	0.0044 U	<b>0.0029 J</b>	0.0048 U	0.005 U	0.0057 U	0.0038 U
Carbon disulfide	mg/kg	3,500	<b>0.0053</b>	0.0052 U	<b>0.0065 J</b>	<b>0.0056</b>	<b>0.008</b>	<b>0.0027 J</b>	<b>0.013</b>	0.0048 U	0.005 U	0.0057 U	0.0038 U
Ethylbenzene	mg/kg	25	0.0045 U	0.0052 U	<b>0.0031 J</b>	0.0048 U	0.0047 U	0.0044 U	0.0053 U	0.0048 U	0.005 U	0.0057 U	0.0038 U
Isopropylbenzene	mg/kg	9,900	0.0045 U	0.0052 U	0.0065 U	0.0048 U	0.0047 U	0.0044 U	0.0053 U	0.0048 U	0.005 U	0.0057 U	0.0038 U
Methyl Acetate	mg/kg	1,200,000	<b>0.0014 J</b>	<b>0.0016 J</b>	<b>0.021 J</b>	0.048 U	<b>0.0034 J</b>	0.044 U	0.053 U	0.048 U	0.05 U	0.057 U	0.038 U
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0045 U	0.0052 U	0.0065 U	0.0048 U	0.0047 U	0.0044 U	0.0053 U	0.0048 U	0.005 U	0.0057 U	0.0038 U
Styrene	mg/kg	35,000	0.0045 U	0.0052 U	0.0065 U	0.0048 U	0.0047 U	0.0044 U	0.0053 U	0.0048 U	0.005 U	0.0057 U	0.0038 U
Toluene	mg/kg	47,000	0.0045 U	0.0052 U	0.0065 U	<b>0.0016 J</b>	<b>0.0015 J</b>	0.0044 U	<b>0.0023 J</b>	0.0048 U	0.005 U	0.0057 U	0.0038 U
Xylenes	mg/kg	2,800	0.014 U	0.016 U	0.019 U	<b>0.0067 J</b>	<b>0.0081 J</b>	0.013 U	<b>0.0086 J</b>	0.014 U	0.015 U	0.017 U	0.011 U
<b>Semi-Volatile Organic Compounds<sup>^</sup></b>													
2-Methylnaphthalene	mg/kg	3,000	<b>0.02</b>	<b>0.096</b>	<b>12.3</b>	<b>0.28</b>	<b>5.3</b>	<b>0.0084 J</b>	<b>0.16</b>	<b>0.026</b>	<b>0.023</b>	<b>0.022</b>	<b>0.044</b>
Acenaphthene	mg/kg	45,000	<b>0.035</b>	<b>0.0098</b>	<b>63.1</b>	<b>0.5</b>	<b>7.3</b>	<b>0.013</b>	<b>0.17</b>	<b>0.0031 J</b>	<b>0.0019 J</b>	<b>0.005 J</b>	<b>0.0065 J</b>
Acenaphthylene	mg/kg	45,000	<b>0.011</b>	<b>0.018</b>	<b>1.1 J</b>	<b>0.048 J</b>	<b>0.63</b>	<b>0.0017 J</b>	<b>0.031</b>	<b>0.0058 J</b>	<b>0.0047 J</b>	<b>0.017</b>	<b>0.019</b>
Anthracene	mg/kg	230,000	<b>0.048</b>	<b>0.087</b>	<b>232</b>	<b>1.5</b>	<b>6.7</b>	<b>0.016</b>	<b>0.3</b>	<b>0.023</b>	<b>0.019</b>	<b>0.058</b>	<b>0.049</b>
Benz[a]anthracene	mg/kg	21	<b>0.25</b>	<b>0.37</b>	<b>305</b>	<b>3.1</b>	<b>7.9</b>	<b>0.03</b>	<b>0.51</b>	<b>0.082</b>	<b>0.071</b>	<b>0.37</b>	<b>0.2</b>
Benzo[a]pyrene	mg/kg	2.1	<b>0.26</b>	<b>0.34</b>	<b>252</b>	<b>2.7</b>	<b>7</b>	<b>0.026</b>	<b>0.48</b>	<b>0.077</b>	<b>0.054</b>	<b>0.35</b>	<b>0.18</b>
Benzo[b]fluoranthene	mg/kg	21	<b>0.45</b>	<b>0.71</b>	<b>409</b>	<b>4.5</b>	<b>12.3</b>	<b>0.046</b>	<b>0.84</b>	<b>0.19</b>	<b>0.16</b>	<b>0.71</b>	<b>0.37</b>
Benzo[g,h,i]perylene	mg/kg		<b>0.083</b>	<b>0.081</b>	<b>54</b>	<b>0.74</b>	<b>1.6</b>	<b>0.0098</b>	<b>0.12</b>	<b>0.025</b>	<b>0.019</b>	<b>0.094</b>	<b>0.042</b>
Benzo[k]fluoranthene	mg/kg	210	<b>0.35</b>	<b>0.56</b>	<b>109</b>	<b>3.5</b>	<b>9.7</b>	<b>0.036</b>	<b>0.66</b>	<b>0.15</b>	<b>0.12</b>	<b>0.55</b>	<b>0.29</b>
Chrysene	mg/kg	2,100	<b>0.23</b>	<b>0.31</b>	<b>230</b>	<b>2.2</b>	<b>5.5</b>	<b>0.023</b>	<b>0.39</b>	<b>0.099</b>	<b>0.083</b>	<b>0.32</b>	<b>0.14</b>
Dibenz[a,h]anthracene	mg/kg	2.1	<b>0.033</b>	<b>0.043</b>	<b>26.1</b>	<b>0.3</b>	<b>0.63</b>	<b>0.0029 J</b>	<b>0.05</b>	<b>0.011</b>	<b>0.0076</b>	<b>0.043</b>	<b>0.019</b>
Fluoranthene	mg/kg	30,000	<b>0.56</b>	<b>0.49</b>	<b>1,490</b>	<b>5.1</b>	<b>20.6</b>	<b>0.059</b>	<b>0.96</b>	<b>0.15</b>	<b>0.14</b>	<b>0.57</b>	<b>0.25</b>
Fluorene	mg/kg	30,000	<b>0.032</b>	<b>0.0072</b>	<b>140</b>	<b>0.78</b>	<b>9.6</b>	<b>0.01</b>	<b>0.37</b>	<b>0.0035 J</b>	<b>0.0019 J</b>	<b>0.0036 J</b>	<b>0.0082</b>
Indeno[1,2,3-c,d]pyrene	mg/kg	21	<b>0.084</b>	<b>0.094</b>	<b>61.4</b>	<b>0.77</b>	<b>1.7</b>	<b>0.0091</b>	<b>0.13</b>	<b>0.026</b>	<b>0.02</b>	<b>0.11</b>	<b>0.046</b>
Naphthalene	mg/kg	17	<b>0.033</b>	<b>0.076</b>	<b>47.1</b>	<b>1.1</b>	<b>6.2</b>	<b>0.058</b>	<b>0.82</b>	<b>0.027</b>	<b>0.026</b>	<b>0.034</b>	<b>0.06</b>
Phenanthrene	mg/kg		<b>0.31</b>	<b>0.33</b>	<b>1,890</b>	<b>5</b>	<b>34.8</b>	<b>0.054</b>	<b>1.6</b>	<b>0.1</b>	<b>0.088</b>	<b>0.23</b>	<b>0.18</b>
Pyrene	mg/kg	23,000	<b>0.51</b>	<b>0.41</b>	<b>1,090</b>	<b>4</b>	<b>13.8</b>	<b>0.048</b>	<b>0.74</b>	<b>0.14</b>	<b>0.12</b>	<b>0.48</b>	<b>0.24</b>
<b>PCBs</b>													
Aroclor 1242	mg/kg	0.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1254	mg/kg	0.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1260	mg/kg	0.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1262	mg/kg		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs (total)	mg/kg	0.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>TPH/Oil and Grease</b>													
Diesel Range Organics	mg/kg	6,200	<b>5.3 J</b>	<b>64.5</b>	<b>3,120</b>	<b>276</b>	<b>247</b>	<b>25.2</b>	<b>95.7</b>	<b>44.1</b>	<b>120</b>	<b>78.6</b>	<b>60.4</b>
Gasoline Range Organics	mg/kg	6,200	9.2 U	12.7 U	14.4 U	11.4 U	10.8 U	9.9 U	11.8 U	10.5 U	12 U	11.6 U	10.1 U
Oil and Grease	mg/kg	6,200	<b>284</b>	<b>205</b>	<b>5,930</b>	<b>1,600</b>	<b>446</b>	<b>380</b>	<b>1,370</b>	<b>198</b>	<b>370</b>	<b>308</b>	<b>279</b>

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

<sup>^</sup>PAH compounds were analyzed vis SIM

N/A indicates that the parameter was not analyzed for this sample

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

J: The positive result reported for this analyte is a quantitative estimate.

**Table 1 - Parcel B22 (PORI Lagoon)  
Summary of Organics Detected in Soil and Test Pits**

Parameter	Units	PAL	B22-119K-SB-15	Original B22-120-SB-1	Original B22-120-SB-8	Original B22-121-SB-1	Original B22-121-SB-9	Original B22-121-SB-10	Original B22-174-SB-1	Original B22-174-SB-4	B22 Test Pit 1-12	B22 Test Pit 2-12
<b>Volatile Organic Compounds</b>												
1,4-Dichlorobenzene	mg/kg	11	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	<b>0.031</b>
2-Butanone (MEK)	mg/kg	190,000	0.009 U	0.011 U	0.011 U	0.0097 U	0.0056 J	N/A	0.013 U	0.011 U	0.015 U	<b>0.02</b>
Acetone	mg/kg	670,000	<b>0.016</b>	0.011 U	0.011 U	0.0097 U	<b>0.022</b>	N/A	<b>0.013 J</b>	<b>0.0063 J</b>	<b>0.06</b>	<b>0.08</b>
Benzene	mg/kg	5.1	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	0.0066 U
Carbon disulfide	mg/kg	3,500	<b>0.006</b>	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	<b>0.024</b>
Ethylbenzene	mg/kg	25	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	0.0066 U
Isopropylbenzene	mg/kg	9,900	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	0.0066 U
Methyl Acetate	mg/kg	1,200,000	0.045 U	0.053 U	0.056 U	0.049 U	0.061 U	N/A	0.065 U	0.053 U	0.077 U	0.066 U
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	0.0066 U
Styrene	mg/kg	35,000	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	0.0066 U
Toluene	mg/kg	47,000	0.0045 U	0.0053 U	0.0056 U	0.0049 U	0.0061 U	N/A	0.0065 U	0.0053 U	0.0077 U	0.0066 U
Xylenes	mg/kg	2,800	0.014 U	0.016 U	0.017 U	0.015 U	0.018 U	N/A	0.019 U	0.016 U	0.023 U	0.02 U
<b>Semi-Volatile Organic Compounds<sup>^</sup></b>												
2-Methylnaphthalene	mg/kg	3,000	<b>0.021</b>	<b>0.069 J</b>	0.081 U	<b>0.11</b>	<b>0.061 J</b>	N/A	<b>0.024 J</b>	0.081 U	<b>0.13 J</b>	<b>0.24 J</b>
Acenaphthene	mg/kg	45,000	<b>0.017</b>	<b>0.015 J</b>	<b>0.11</b>	<b>0.027</b>	<b>0.1</b>	N/A	0.077 U	<b>0.0082 J</b>	<b>0.068 J</b>	<b>0.82</b>
Acenaphthylene	mg/kg	45,000	<b>0.0049 J</b>	<b>0.58</b>	<b>0.026 J</b>	<b>0.052</b>	<b>0.054 J</b>	N/A	<b>0.02 J</b>	<b>0.031 J</b>	<b>0.13 J</b>	<b>0.25 J</b>
Anthracene	mg/kg	230,000	<b>0.031</b>	<b>0.21</b>	<b>0.68</b>	<b>0.13</b>	<b>0.21</b>	N/A	<b>0.051 J</b>	<b>0.058 J</b>	<b>0.15 J</b>	<b>0.48</b>
Benz[a]anthracene	mg/kg	21	<b>0.087</b>	<b>0.51</b>	<b>4</b>	<b>0.52</b>	<b>0.98</b>	N/A	<b>0.52</b>	<b>0.63</b>	<b>0.68</b>	<b>0.84</b>
Benzo[a]pyrene	mg/kg	2.1	<b>0.091</b>	<b>0.57</b>	<b>1.3</b>	<b>0.47</b>	<b>0.39</b>	0.9	<b>0.57</b>	<b>0.52</b>	<b>0.62</b>	<b>0.71</b>
Benzo[b]fluoranthene	mg/kg	21	<b>0.17</b>	<b>1.3</b>	<b>2.8</b>	<b>1.1</b>	<b>0.86</b>	N/A	<b>1.2</b>	<b>1.1</b>	<b>0.92</b>	<b>1.3</b>
Benzo[g,h,i]perylene	mg/kg		<b>0.021</b>	<b>0.36</b>	<b>0.42</b>	<b>0.16</b>	<b>0.15</b>	N/A	<b>0.38</b>	<b>0.27</b>	<b>0.32 J</b>	<b>0.5</b>
Benzo[k]fluoranthene	mg/kg	210	<b>0.13</b>	<b>1.1</b>	<b>2.3</b>	<b>0.92</b>	<b>0.71</b>	N/A	<b>0.93</b>	<b>0.96</b>	<b>0.35 J</b>	<b>1.2</b>
Chrysene	mg/kg	2,100	<b>0.097</b>	<b>0.47</b>	<b>1.2</b>	<b>0.48</b>	<b>0.38</b>	N/A	<b>0.44</b>	<b>0.44</b>	<b>0.88</b>	<b>1.2</b>
Dibenz[a,h]anthracene	mg/kg	2.1	<b>0.0069 J</b>	<b>0.091</b>	<b>0.16</b>	<b>0.073</b>	<b>0.048 J</b>	N/A	<b>0.12</b>	<b>0.089</b>	0.45 U	0.43 U
Fluoranthene	mg/kg	30,000	<b>0.18</b>	<b>0.8</b>	<b>3.2</b>	<b>1</b>	<b>1.3</b>	N/A	<b>0.52</b>	<b>0.38</b>	<b>1.4</b>	<b>3.6</b>
Fluorene	mg/kg	30,000	<b>0.025</b>	<b>0.038 J</b>	<b>0.15</b>	<b>0.036</b>	<b>0.12</b>	N/A	0.077 U	<b>0.01 J</b>	<b>0.14 J</b>	<b>0.35 J</b>
Indeno[1,2,3-c,d]pyrene	mg/kg	21	<b>0.019</b>	<b>0.28</b>	<b>0.42</b>	<b>0.17</b>	<b>0.14</b>	N/A	<b>0.33</b>	<b>0.25</b>	<b>0.27 J</b>	<b>0.28 J</b>
Naphthalene	mg/kg	17	<b>0.038</b>	<b>0.2</b>	<b>0.031 J</b>	<b>0.092</b>	<b>0.11</b>	N/A	<b>0.022 J</b>	<b>0.033 J</b>	<b>0.31 J</b>	<b>0.26 J</b>
Phenanthrene	mg/kg		<b>0.15</b>	<b>0.44</b>	<b>1.9</b>	<b>0.62</b>	<b>0.8</b>	N/A	<b>0.14</b>	<b>0.16</b>	<b>0.55</b>	<b>0.83</b>
Pyrene	mg/kg	23,000	<b>0.16</b>	<b>0.66</b>	<b>2.7</b>	<b>0.85</b>	<b>0.94</b>	N/A	<b>0.5</b>	<b>0.34</b>	<b>1.3</b>	<b>4.1</b>
<b>PCBs</b>												
Aroclor 1242	mg/kg	0.97	N/A	<b>0.269</b>	N/A	0.0549 U	N/A	N/A	0.231 U	N/A	0.23 U	0.22 U
Aroclor 1254	mg/kg	0.97	N/A	<b>0.206</b>	N/A	<b>0.0375 J</b>	N/A	N/A	<b>6.63</b>	N/A	0.23 U	0.22 U
Aroclor 1260	mg/kg	0.99	N/A	<b>0.378</b>	N/A	0.0549 U	N/A	N/A	<b>2.72</b>	N/A	0.23 U	0.22 U
Aroclor 1262	mg/kg		N/A	0.0548 U	N/A	<b>0.0482 J</b>	N/A	N/A	0.231 U	N/A	0.23 U	0.22 U
PCBs (total)	mg/kg	0.97	N/A	<b>0.853</b>	N/A	<b>0.0857</b>	N/A	N/A	<b>9.35</b>	N/A	2 U	1.9 U
<b>TPH/Oil and Grease</b>												
Diesel Range Organics	mg/kg	6,200	<b>113</b>	<b>151</b>	<b>124</b>	<b>105</b>	<b>557</b>	N/A	<b>149</b>	<b>257</b>	<b>14,800</b>	<b>23,700</b>
Gasoline Range Organics	mg/kg	6,200	9.4 U	10.8 U	11.1 U	10.7 U	<b>7.8 J</b>	N/A	11.2 U	11.2 U	<b>14,800</b>	<b>23,700</b>
Oil and Grease	mg/kg	6,200	<b>1,430</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>32,100</b>	<b>44,100</b>

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

<sup>^</sup>PAH compounds were analyzed vis SIM

N/A indicates that the parameter was not analyzed for this sample

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

J: The positive result reported for this analyte is a quantitative estimate.

**Table 2 - Parcel B22 (PORI Lagoon)  
Summary of Organics Detected in Groundwater**

Parameter	Units	PAL	B22-119I-PZ	B22-119J-PZ	B22-119K-PZ*	B22-119-PZ
<b>Volatile Organic Compounds</b>						
Acetone	µg/L	14,000	<b>58.3</b>	<b>6.9 J</b>	N/A	<b>58.3</b>
Benzene	µg/L	5	1 U	1 U	N/A	<b>859</b>
Toluene	µg/L	1,000	<b>0.36 J</b>	1 U	N/A	<b>124</b>
Xylenes	µg/L	10,000	3 U	3 U	N/A	<b>49.3</b>
<b>Semi-Volatile Organic Compounds^</b>						
1,1-Biphenyl	µg/L	0.83	N/A	0.98 U	N/A	<b>24.4 J</b>
1,4-Dioxane	µg/L	0.46	N/A	0.098 U	N/A	<b>0.87</b>
2,4-Dimethylphenol	µg/L	360	N/A	0.98 U	N/A	<b>673</b>
2-Methylnaphthalene	µg/L	36	N/A	0.098 U	N/A	<b>75.6</b>
2-Methylphenol	µg/L	930	N/A	0.98 U	N/A	<b>1,820</b>
3&4-Methylphenol(m&p Cresol)	µg/L	930	N/A	2 U	N/A	<b>1,260</b>
Acenaphthene	µg/L	530	N/A	0.098 U	N/A	<b>29.7</b>
Acenaphthylene	µg/L	530	N/A	0.098 U	N/A	<b>38.4</b>
Anthracene	µg/L	1,800	N/A	<b>0.066 J</b>	N/A	<b>72.7</b>
Benz[a]anthracene	µg/L	0.03	N/A	0.098 U	N/A	<b>65.8</b>
Benzo[a]pyrene	µg/L	0.2	N/A	0.098 U	N/A	<b>57.3</b>
Benzo[b]fluoranthene	µg/L	0.25	N/A	0.098 U	N/A	<b>77.9</b>
Benzo[g,h,i]perylene	µg/L		N/A	0.098 U	N/A	<b>18.7</b>
Benzo[k]fluoranthene	µg/L	2.5	N/A	0.098 U	N/A	<b>27.7</b>
Carbazole	µg/L		N/A	0.98 U	N/A	<b>208</b>
Chrysene	µg/L	25	N/A	0.098 U	N/A	<b>63.8</b>
Dibenz[a,h]anthracene	µg/L	0.025	N/A	0.098 U	N/A	<b>6.5</b>
Fluoranthene	µg/L	800	N/A	0.098 U	N/A	<b>181</b>
Fluorene	µg/L	290	N/A	0.098 U	N/A	<b>96.6</b>
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	N/A	0.098 U	N/A	<b>20.5</b>
Naphthalene	µg/L	0.17	N/A	<b>0.041 J</b>	N/A	<b>2,550</b>
Phenanthrene	µg/L		N/A	0.098 U	N/A	<b>537</b>
Phenol	µg/L	5,800	N/A	0.98 U	N/A	<b>437</b>
Pyrene	µg/L	120	N/A	0.098 U	N/A	<b>126</b>
<b>TPH/Oil and Grease</b>						
Diesel Range Organics	µg/L	47	N/A	<b>282</b>	N/A	<b>17,200</b>
Gasoline Range Organics	µg/L	47	200 U	200 U	N/A	<b>2,460</b>
Oil and Grease	µg/L	47	N/A	4,770 U	N/A	<b>1,700 J</b>

**Detections in bold**

**Values in red indicate an exceedance of the Project Action Limit (PAL)**

^PAH compounds were analyzed via SIM

N/A indicates that the parameter was not analyzed for this sample

\*No sample collected due to detection of NAPL

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

J: The positive result reported for this analyte is a quantitative estimate.



**Table 3 - Parcel B22 (PORI Lagoon)  
NAPL Gauging Activities**

Sample ID	Installation Date	Well Total Depth (Feet bgs)	Screen Interval (Feet bgs)	Riser Stick-Up (Feet)	5/8/2018			5/9/2018		
					Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)	Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)
B22-119-PZ	5/8/2018	20	5-20	2.86	-	17.11	-	NM	NM	NM
B22-119I-PZ	5/8/2018	24	5-24	3.13	-	27.37	-	NM	NM	NM
B22-119J-PZ	5/9/2018	16	5-16	4.13	NA	NA	NA	-	14.13	-
B22-119K-PZ	5/9/2018	24.5	4.5-24.5	5.45	NA	NA	NA	-	26.95	-
B22-119L-PZ	10/12/2018	17	7-17	4.83	NA	NA	NA	NA	NA	NA
B22-119M-PZ	10/12/2018	18	8-18	5.05	NA	NA	NA	NA	NA	NA
B22-119N-PZ	10/12/2018	20	10-20	5.05	NA	NA	NA	NA	NA	NA
B22-119O-PZ	10/12/2018	20	10-20	2.69	NA	NA	NA	NA	NA	NA
B22-119P-PZ	10/12/2018	20	10-20	1.00	NA	NA	NA	NA	NA	NA
B22-119Q-PZ	10/12/2018	19	9-19	3.86	NA	NA	NA	NA	NA	NA

NA = Not Applicable

NM = Not Measured

**SHADED** = NAPL Detection

bgs = below ground surface

TOC = Top of Casing

**Table 3 - Parcel B22 (PORI Lagoon)  
NAPL Gauging Activities**

Sample ID	Installation Date	Well Total Depth (Feet bgs)	Screen Interval (Feet bgs)	Riser Stick-Up (Feet)	5/10/2018			5/11/2018		
					Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)	Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)
B22-119-PZ	5/8/2018	20	5-20	2.86	-	11.62	-	NM	NM	NM
B22-119I-PZ	5/8/2018	24	5-24	3.13	-	14.18	-	NM	NM	NM
B22-119J-PZ	5/9/2018	16	5-16	4.13	NM	NM	NM	-	14.16	-
B22-119K-PZ	5/9/2018	24.5	4.5-24.5	5.45	NM	NM	NM	<b>14.33</b>	<b>14.47</b>	<b>0.14</b>
B22-119L-PZ	10/12/2018	17	7-17	4.83	NA	NA	NA	NA	NA	NA
B22-119M-PZ	10/12/2018	18	8-18	5.05	NA	NA	NA	NA	NA	NA
B22-119N-PZ	10/12/2018	20	10-20	5.05	NA	NA	NA	NA	NA	NA
B22-119O-PZ	10/12/2018	20	10-20	2.69	NA	NA	NA	NA	NA	NA
B22-119P-PZ	10/12/2018	20	10-20	1.00	NA	NA	NA	NA	NA	NA
B22-119Q-PZ	10/12/2018	19	9-19	3.86	NA	NA	NA	NA	NA	NA

NA = Not Applicable

NM = Not Measured

**SHADED** = NAPL Detection

bgs = below ground surface

TOC = Top of Casing

**Table 3 - Parcel B22 (PORI Lagoon)  
NAPL Gauging Activities**

Sample ID	Installation Date	Well Total Depth (Feet bgs)	Screen Interval (Feet bgs)	Riser Stick-Up (Feet)	8/24/2018			10/12/2018		
					Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)	Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)
B22-119-PZ	5/8/2018	20	5-20	2.86	-	11.70	-	NM	NM	NM
B22-119I-PZ	5/8/2018	24	5-24	3.13	-	8.51	-	NM	NM	NM
B22-119J-PZ	5/9/2018	16	5-16	4.13	-	16.43	-	NM	NM	NM
B22-119K-PZ	5/9/2018	24.5	4.5-24.5	5.45	15.30	15.32	0.02	NM	NM	NM
B22-119L-PZ	10/12/2018	17	7-17	4.83	NA	NA	NA	-	15.76	-
B22-119M-PZ	10/12/2018	18	8-18	5.05	NA	NA	NA	-	14.91	-
B22-119N-PZ	10/12/2018	20	10-20	5.05	NA	NA	NA	-	15.64	-
B22-119O-PZ	10/12/2018	20	10-20	2.69	NA	NA	NA	-	15.84	-
B22-119P-PZ	10/12/2018	20	10-20	1.00	NA	NA	NA	-	15.79	-
B22-119Q-PZ	10/12/2018	19	9-19	3.86	NA	NA	NA	-	19.48	-

NA = Not Applicable

NM = Not Measured

**SHADED** = NAPL Detection

bgs = below ground surface

TOC = Top of Casing

**Table 3 - Parcel B22 (PORI Lagoon)  
NAPL Gauging Activities**

Sample ID	Installation Date	Well Total Depth (Feet bgs)	Screen Interval (Feet bgs)	Riser Stick-Up (Feet)	10/15/2018			11/14/2018		
					Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)	Depth to NAPL (Feet TOC)	Depth to Water (Feet TOC)	NAPL Thickness (Feet)
B22-119-PZ	5/8/2018	20	5-20	2.86	NM	NM	NM	NM	NM	NM
B22-119I-PZ	5/8/2018	24	5-24	3.13	NM	NM	NM	NM	NM	NM
B22-119J-PZ	5/9/2018	16	5-16	4.13	NM	NM	NM	NM	NM	NM
B22-119K-PZ	5/9/2018	24.5	4.5-24.5	5.45	NM	NM	NM	NM	NM	NM
B22-119L-PZ	10/12/2018	17	7-17	4.83	-	15.88	-	-	15.21	-
B22-119M-PZ	10/12/2018	18	8-18	5.05	-	15.03	-	-	14.55	-
B22-119N-PZ	10/12/2018	20	10-20	5.05	-	15.40	-	-	14.61	-
B22-119O-PZ	10/12/2018	20	10-20	2.69	-	15.73	-	-	14.83	-
B22-119P-PZ	10/12/2018	20	10-20	1.00	-	14.63	-	-	13.79	-
B22-119Q-PZ	10/12/2018	19	9-19	3.86	-	17.17	-	-	16.12	-

NA = Not Applicable

NM = Not Measured

**SHADED = NAPL Detection**

bgs = below ground surface

TOC = Top of Casing

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## APPENDIX A

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Test Pit Photograph Log  
Area B: Parcel B22 PORI Lagoon  
Sparrows Point, Maryland



Photo 1: View of the PORI Lagoon facing south.



Photo 2: View of the ground surface at the PORI Lagoon.

Test Pit Photograph Log  
Area B: Parcel B22 PORI Lagoon  
Sparrows Point, Maryland



Photo 3: View of the sheet piling at the northern end of the PORI Lagoon.



Photo 4: View of the sheet piling at the northern end of the PORI Lagoon.

Test Pit Photograph Log  
Area B: Parcel B22 PORI Lagoon  
Sparrows Point, Maryland



Photo 5: View of excavated material from test pitting activities at the PORI Lagoon.



Photo 6: View of excavated material from test pitting activities at the PORI Lagoon.