



EA Engineering, Science, and Technology, Inc.

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29 July 2009

Mr. Timothy Fleury
RI Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, RI 02908

RE: Supplemental Sampling and Analysis Plan
Lincoln Lace & Braid Sluiceway Investigation
Ponagansett Avenue
Providence, Rhode Island
EA Project No. 61891.05

Dear Mr. Fleury:

EA Engineering, Science, and Technology, Inc. (EA), on behalf of the City of Providence Parks Department, is pleased to submit this Sampling and Analysis Plan for supplemental sampling of sediments and surface water in the sluiceway at the above referenced site. Previous site investigation reports have indicated sediments within the sluiceway are not impacted by contaminants above the Rhode Island Department of Environmental Management (RIDEM) applicable standards. However, previously unknown investigation reports reviewed during a recent file review at RIDEM, conducted by EA on behalf of the City, document the collection and analysis of six sediment samples collected from within the sluiceway. During a meeting at RIDEM on 23 July 2009 between the City, EA, and RIDEM personnel, findings of the file review, potential remedial approaches, and further characterization were discussed.

Analytical results indicate the presence of lead, arsenic, and petroleum hydrocarbons above RIDEM Residential and/or Industrial/Commercial Direct Exposure Criteria within sediments sampled from the sluiceway. Please find a table of the analytical results presented below.



Table 1 - Sediment Sample Analytical Data - 26 May 1999**

Sample Designation	SS-44	SS-45	SS-46	SS-47	SS-48	SS-49	SS-50	RIDEM RDEC	RIDEM I/CDEC
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab	Composite		
TPH	661	625	1120	600	736	181	NA	500	2,500
Arsenic	21.2	10.9	10.5	7.46	24.6	11.1	NA	7.0	7.0
Lead	373	427	537	436	91.4	86.1	NA	150	500
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	0.00604	0.9	7.8
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	0.00571	0.4	0.8
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	0.00814	0.9	7.8
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	0.00235	0.8	10.000
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	0.00278	0.9	78
Chrysene	NA	NA	NA	NA	NA	NA	0.00609	0.4	780
Indeno(1,2,3-c,d)pyrene	NA	NA	NA	NA	NA	NA	0.00267	0.9	7.8
Pyrene	NA	NA	NA	NA	NA	NA	0.01360	13	10,000

* The sediment sampling results were compared to the RDEC and I/CDEC for comparison purposes only. No sediment criteria exists at this time.

**Data obtained from *Pre-Design Investigation Report, Former Lincoln Lace and Braid Company Site, Providence, RI, August 2000, RIDEM OWM*

Notes:

1. RDEC: Residential Direct Exposure Criteria
2. I/CDEC: Industrial/Commercial Direct Exposure Criteria
3. All concentrations presented in milligrams per kilogram (mg/kg, part per million)
4. NA: Not analyzed
5. **Bold:** Concentration exceeds RIDEM RDEC
6. **Shaded:** Concentration exceeds RIDEM I/CDEC

Proposed Surface Water Sampling

EA proposes to collect three grab surface water samples during a relatively low flow period, although the overall project schedule may impact the sampling schedule. EA proposes three distinct sampling locations, as depicted on the attached Figure:

- Collect two sample sets within the Woonasquatucket River 20 feet upstream from the sluiceway outlet for two consecutive days;
- Collect two sample sets within the Woonasquatucket river 20 feet downstream from the sluiceway outlet for two consecutive days;
- Collect two sample sets within the sluiceway, 20 feet upstream from the sluiceway outlet for two consecutive days.

The samples will be collected and placed in a cooler with ice and delivered to a Rhode Island Certified Laboratory per accepted industry standard chain-of-custody protocols for analysis of the following: pH, dissolved oxygen, specific conductance, arsenic (total and dissolved), lead (total and dissolved), and iron (total and dissolved).



Proposed Sediment Sampling

EA proposes to collect eight grab sediment samples during a relatively low flow period, although the overall project schedule may impact the sampling schedule. EA proposes to collect the samples on 20 foot intervals directly upstream of the riprap "dam." The samples will be collected using a hand auger in accessible areas. Iron floc will be removed from the sample prior to containerizing.

The samples will be collected and placed in a cooler with ice and delivered to a Rhode Island Certified Laboratory per accepted industry standard chain-of-custody protocols for analysis of the following: total arsenic, total lead, total iron, and total petroleum hydrocarbons (TPH).

We look forward to your comments regarding this sampling approach. Your timely review would be greatly appreciated, as our client is eager to remedy the site.

Please do not hesitate to contact me with any questions or concerns on this matter at (401) 736-3440, Ext. 202.

Sincerely,

EA ENGINEERING, SCIENCE,
AND TECHNOLOGY, INC.

A handwritten signature in blue ink that reads "Mark K. Speer". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Mark K. Speer, P.E.
Senior Engineer

MKS/rgm

cc: R. McMahon, Superintendent – Providence Parks Department

