

# **LeachX Metals Stabilization**

## **Case Study:**

### **On-site Treatment of Lead-Contaminated Soil and Debris Former Battery Pile Area, Henrico County, Virginia**

#### **4.4.1 Introduction**

In April of 2001, a Remedial Work Plan was completed for the On-site Treatment of Lead Contaminated Soil and Debris at a former Battery Cracking Area resulting in a large mound of cracked battery casings and lead plates located in Henrico County, Virginia. The remedial work plan suggested the in-situ mixing of a patented heavy metal precipitating agent with the lead-contaminated soil and debris to render it RCRA non-hazardous according to 40 CFR. The plan proposed post-treatment confirmation sampling and analysis to verify the non-hazardous condition of the soil, and subsequent transport of the non-hazardous soil and debris to a lined, Subtitle D landfill.

#### **4.4.2 Treatment**

In May and June of 2001, an environmental contractor, utilized the Leach X process for the on-site treatment of the total volume of lead-contaminated soil and debris at the former Battery Casing Area.

Contractors staged an excavator on top of the contaminated pile. Each bucket of contaminated soil excavated from the pile was placed on the ground inside the original footprint of the pile. The contaminated material was sprayed with water and the Leach X product. Minor mixing of the soil was achieved with the excavator and the treated soil was staged on plastic on-site within the original footprint area of the mound for confirmation sampling.

#### **4.4.3 Confirmation Sampling**

Confirmation samples were collected to insure that the treated soil was rendered non-hazardous based on TCLP analysis. The confirmation samples were collected utilizing a flow based compositing procedure, where each confirmation sample represented approximately 67.6 tons of treated soil. A total of 23 confirmation samples, representing 1,555.56 tons of treated material, were collected from the site. Only one (1) sample exceeded the target of 5.0 ppm lead TCLP. The portion of the pile represented by that sample was retreated and resampled to insure that all of the material was rendered non-hazardous. The table presented on the following page presents site lead concentrations prior to and after Leach X process implementation by the Environmental Contractor.

After successful treatment, the total of 1,555.56 tons of treated material were loaded, transported and disposed of at a lined, Subtitle D landfill.

**Table 3: Site Lead Concentrations Prior to Treatment**

Sample I.D.	Date Sample Collected	TCLP Lead Concentrations (mg/L)
1811018	11/28/00	242
1811019	11/28/00	2.5
1811020	11/28/00	32.8
1811021	11/28/00	0.88
1811022	11/28/00	1.06
1811023	11/28/00	0.9
1811024	11/28/00	4.36
1811025	11/28/00	8.04
1811026	11/28/00	29.2
1811027	11/28/00	5.88
1811028	11/28/00	6.32
1811029	11/28/00	262
1811030	11/28/00	250
1811031	11/28/00	276
1811032	11/28/00	222
1811033	11/28/00	3.54
1811034	11/28/00	32.4
1811035	11/28/00	78.2

**Site Lead Concentrations After Treatment**

Sample I.D.	Date Sample Collected	TCLP Lead Concentrations (mg/L)
1	5/21/01	0.771
2	5/22/01	0.692
3	5/22/01	5.74
3R*	5/22/01	<0.1
4	5/22/01	1.86
5	5/22/01	1.6
6	5/22/01	1.5
7	5/22/01	2.76
8	5/22/01	1.72
9	5/22/01	2.1
10	5/22/01	0.42
11	5/22/01	0.131
12	5/22/01	<0.1
13	5/22/01	<0.1
14	5/22/01	<0.1
15	5/22/01	0.216
16	5/22/01	0.204
17	5/22/01	<0.1
18	5/22/01	<0.1
19	5/22/01	<0.1
20	5/22/01	<0.1
21	5/30/01	0.618

22	6/1/01	0.052
23	6/19/01	2.8
* Sample of the retreated soil represented by sample 3		