

6107-09-0004

August 19, 2009

Mr. William Sigmund
Environmental Analyst
Bureau of Materials Management and Compliance Assurance
Waste Engineering and Enforcement Division State of Connecticut Department of Environmental
Protection
79 Elm Street
Hartford, CT 06106-5127

**Re: Evaluation of Fill TCLP Lead Data for Blocks N, R, and S
Non-Public Properties, Newhall Street Neighborhood
Hamden, Connecticut**

Dear Mr. Sigmund:

This letter presents the fill TCLP data for samples collected in Blocks N, R, and S, and evaluates the acceptability for disposal of fill material excavated from these areas at the Tire Pond Landfill in Hamden Connecticut. MACTEC is submitting this letter on Olin's behalf. The Connecticut Department of Environmental Protection (CTDEP) Material Acceptability Protocol for determining acceptability of soils and sediments for use in closing the Tire Pond (and Q Park) Landfill (dated March 14, 2007) details the specifications and criteria for acceptance of fill. The MACTEC February 14, 2009 letter "Evaluation of Fill for Placement at the Tire Pond Landfill" sent to CTDEP presented the chemical criteria for the Material Acceptability Protocol and compared the NPP fill data from 0-4 feet below ground surface (bgs) against these numeric criteria. CTDEP submitted a letter to Olin dated June 19, 2008 which indicated the Department approved of the conclusion of the letter report, namely that when the isolated areas of fill identified in Block F are removed from the 0-4 feet bgs fill data set, the 90% UCLs for analytes/parameters presented in the Material Acceptability Protocol meet the Tire Pond Chemical Criteria for mass analysis.

This letter presents the fill TCLP lead data for Blocks N, R, and S and evaluates acceptability of fill disposal from these blocks at the Tire Pond by comparing the TCLP data to the Material Acceptability Protocol numeric criteria for leaching of compounds.

The following table was presented in the MACTEC February 14, 2008 letter "Evaluation of Fill for Placement at the Tire Pond Landfill", which compared mass analysis concentrations to Material Acceptability Protocol criteria:

Site-Wide Fill 0-4 feet, bgs, Recognizing Block F Outlier Areas

Parameter	Frequency of Detection	Range of Detected Concentrations	90% UCL v4	Tire Pond Chemical Criteria		90% UCL Comparison	
				Acceptability Criteria- Mass Analysis	TCLP Trigger	90% UCL Exceeds Acceptability Criteria	90% UCL Exceeds TCLP Trigger
Total VOCs (mg/Kg)	40 / 100	0.001 - 24.29	2.189 NP [a]	4		N	
Total SVOCs (mg/Kg)	291 / 307	0.00069 - 582.1	32 NP [a]	100		N	
Total PCBs (mg/Kg)	36 / 121	0.0047 - 89	3.037 NP [a]	10		N	
Inorganics (mg/Kg)							
Arsenic	427 / 435	0.88 - 347	12.19 NP [b]	40	100	N	N
Chromium	277 / 277	3.02 - 214	21.21 NP [b]	51000	100	N	N
Lead	441 / 442	0.14 - 12000	886.6 NP [a]	1000	250	N	Y
Mercury	255 / 269	0.01 - 73	2.61 NP [a]	610	4	N	N
TPH (mg/Kg)	188 / 209	10 - 12000	842.4 NP [a]	2500		N	

ProUCL Version 4

NP - Nonparametric distribution

[a] 90% Kaplan-Meier (Chebyshev) UCL

[b] 90% Kaplan-Meier (BCA) UCL

Prepared by : Date: KJC 01/24/08

Checked by / Date: DRP 01/24/08

On a site-wide basis, excluding the Block F outlier areas, the 0-4 feet bgs fill lead 90% UCL of 886.6 milligrams per kilogram (mg/kg) exceeds the TCLP Trigger of 250 mg/kg, which prompted analysis of fill materials for TCLP lead in May 2009. In accordance with the Material Acceptability Protocol, TCLP lead data must be compared to the Toxicity Characteristic (TC) Table (40 CFR 261.24) concentration of 5.0 milligrams per liter (mg/L), and the fill material is deemed acceptable for disposal at the Tire Pond if it contains leachable concentrations of contaminants below the concentrations listed in the TC table. The following table presents the fill TCLP lead data from Blocks N, R, and S:

Block	Boring ID	Sample Interval (ft bgs)	TCLP Lead (mg/L)
N	N1018	0.5-1	2.8
R	R1031	0.5-2	0.099
S	S1039	0.5-1	0.062
S	S1044	1-2	0.06
S	S1056	1-4	0.1

As indicated in the table above, TCLP lead concentrations from fill samples in Blocks N, R, and S are all less than the TC of 5.0 mg/L. The boring locations are presented in Figure 1.

In addition, the Material Acceptability Protocol requires that the sampling frequency must be no less than one sample per 1,000 cubic yards of material. The following table presents the estimated fill volume to be excavated for Blocks N, R, and S, the number of TCLP lead samples collected, and the required number of TCLP lead samples by block:

Block	Estimated Fill Volume to be Excavated (cu yds)	# TCLP Lead Samples	Required # TCLP Samples
N	254	1	1
R	460	1	1
S	2,147	3	3

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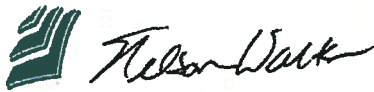
CONCLUSIONS AND RECOMMENDATIONS

The data demonstrate that the TCLP lead concentrations in fill samples from Blocks N, R, and S meet the TC of 5.0 mg/L, and the requirement of 1 sample per 1,000 cubic yards has been met. Therefore, Olin and MACTEC recommend CTDEP approve disposal of all fill material in Blocks N, R, and S from 0-4 feet bgs in the Tire Pond Landfill.

Please do not hesitate to contact me at (207) 651-0315 should you have any questions regarding this letter.

Sincerely,

MACTEC Engineering and Consulting, Inc.



MACTEC Electronic Signature

Nelson Walter, P.E.
Project Manager



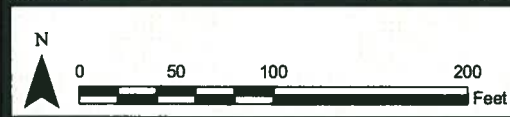
MACTEC Electronic Signature

Rod Pendleton, P.G.
Principal Scientist

Enclosures

cc: David Share (Olin)
C. Hunt (Olin)
J. Gear (Olin)
Ray Frigon (CTDEP)
Meg Harvey (CT DPH)
Alan Elia (Sevenson)
Lucas Hellerich (AECOM Environment)
Jill Barrett (Fitzgerald & Halliday, Inc.)
Honorable Craig Henrici (Mayor of Hamden)
Chris Harriman (Haley & Aldrich, Inc.)
Larry Bingaman (Regional Water Authority)
Michael Manolakas (Leggette, Brashears & Graham, Inc)
File

FIGURES



Olin Corporation
Newhall Street Neighborhood
Hamden, Connecticut



Project 6107-09-0004

TCLP Sampling Locations
May 2009
Figure 1