NORTECH

SUSTAINABLE ENVIRONMENT, ENERGY, HEALTH & SAFETY PROFESSIONAL SERVICES

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April 24, 2018

Sent via email to:
sally.schlichting@alaska.gov

State of Alaska
Department of Environmental Conservation
Unit Manager for Policy and Regulations
ADEC-SPAR Contaminated Sites Program
Juneau, Alaska 99801

RE: CSP2 Request for Sample comparison, Wrangell Junkyard Project

Sally,

NORTECH has reviewed the request from Kendra Zamzow, PhD; with CSP2 regarding comparison of the samples collected from the treated soil stockpile currently located at 4 mile Zimovia Highway in Wrangell, on the former Wrangell junkyard property. CSP2 has inquired if a comparison could be made between the soil samples collected in March 2018, and the samples collected during the Site remediation and soil stabilization work that occurred in 2016. Specifically, Ms. Zamzow inquired if the TCLP lead results could be compared between the two sampling events. Her request was if the locations were comparable, and also for a comparison of the average, median and maximum lead concentrations could be made.

As you are aware, the sampling that occurred in 2016 for TCLP analysis was to verify treatment effectiveness, prior to stockpiling the material. ***NORTECH*** collected samples from each 300 cubic yard batch that was stabilized with EcoBond®. Once the laboratory results were available the homogenized material was added to the treated soil stockpile located at the Site. The soil samples collected from the stockpile in March of 2018 were collected from ten locations from around the stockpile perimeter where equipment access would not impact the cover liner. Therefore, due to mixing of the material post-treatment and sampling, the 2018 sample locations are not comparable to the 2016 sample locations.

The other request CSP2 had was to compare the average, median, and maximum concentrations for the two sampling events. A total of 67 samples from 62 locations (including duplicates) had been collected from the treated material and analyzed for TCLP lead during the 2016 Site remediation work, and an additional 21 samples from 19 locations(including duplicates) were collected and analyzed in 2018. Those comparisons are shown in the table below.

Table 1 – Comparison of 2016 TCLP lead concentrations vs 2018 lead concentrations in treated stockpiled material, Wrangell Junkyard

	Average Pb, mg/L	Median Pb, mg/L	Maximum Pb, mg/L
2016 results	0.2426	0.0753	4.29
2018 results	0.1388	0.0823	0.783

Notes: for comparative purposes, all non-detect results have been factored into the above calculations using the detection limit (0.05 mg/L).

The data used for the above comparisons have been taken from the 2016 *Remedial Action Report, Wrangell Junkyard* prepared by NRC Alaska and ***NORTECH***, and the 2018 *Sampling and Analysis Report, Treated Stockpile and Monofill Sites, Wrangell, Alaska.*

None of the samples analyzed during either of these sampling events exceeded the RCRA regulatory limit of 5.0 mg/L for TCLP lead.

Please let us know if we can provide any further assistance.

Sincerely,
NORTECH

Jason Ginter, PMP
Principal

Attachments:

Table 3 – TCLP lead results from 2016 Remedial Action Report, Wrangell Junkyard

Table 1 – Laboratory Soil Analysis Results Summary from 2018 Sampling and Analysis Report

Table 1
Laboratory Soil Analysis Results Summary (Total Metals, TCLP Metals and POL)

Sample ID	ADEC Cleanup Level	TSP1-2	TSP1-4	TSP2-2	TSP2-4	TSP3-2 (DUP1)	TSP20-2 (DUP1)	TSP3-6	TSP4-2	TSP4-6	TSP5-2	TSP5-6	Trip Blank
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Total Metals (RCRA 8, Thallium and Zinc)													
Arsenic	0.2	**6.6**	**3.36**	**10.9**	**3.58**	**6.67**	**9.94**	**3.93**	**3.93**	**3.57**	**4.39**	**2.9**	NA
Barium	2100	79.1	98.2	97.1	84.5	104	144	83	102	87.7	96.2	93.1	NA
Cadmium	9.1	6.46	6.13	6.08	4.6	4.87	6.52	**9.22**	4.32	6.45	4.99	4.66	NA
Chromium	10000	110	128	147	105	96.9	123	191	94.5	112	117	105	NA
Lead	400	**497**	**564**	**1470**	**610**	**2980**	**6250**	**1140**	**720**	**698**	**518**	**406**	NA
Mercury	0.36	0.0681	0.0778	0.0747	0.0872	0.144	0.147	0.0527	0.12	0.0945	0.0882	0.0871	NA
Selenium	6.9	1.31U	1.40U	1.43U	1.33U	1.22U	1.32U	1.30U	1.26U	1.32U	1.30U	1.22U	NA
Silver	11	0.261U	0.280U	0.287U	0.267U	0.246	0.263U	0.260U	0.252U	0.264U	0.260U	0.245U	NA
Thallium	0.19	0.261U	0.280U	0.287U	0.267U	0.244U	0.263U	0.260U	0.252U	0.264U	0.260U	0.245U	NA
Zinc	4900	325	353	385	328	386	445	356	464	436	282	274	NA
Detected TCLP Metals (RCRA 8)													
Chromium	5.0[Note1]	0.200U	NA	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U	NA
Lead	5.0[Note1]	0.341	NA	0.0823	0.0782	0.085	0.0815	0.0505	0.0874	0.0758	0.0500U	0.0500U	NA
Petroleum Fuels, Gasoline, Diesel and Residual Range (Oils and Lubricants)													
GRO	260	4.04U	4.59U	4.75U	5.06U	4.06U	4.33U	4.73U	4.07U	3.68U	4.08U	3.73U	2.52U
DRO	230	113	209	77.5	155	169	**284**	141U	**232**	213	**278**	212	NA
DRO[2-Pre]	230	211	**238**	106	188	**244**	**339**	199	**496**	204	181	**375**	NA
DRO[2-Post]	230	127	149	58.3	111	149	**238**	116	**260**	124	120	**313**	NA
RRO	8300	379	765	329	505	695	1200	342	1040	871	819	419	NA
Percent Solid and Moisture (by weight)													
% Solid	NE	71.8	67.8	68.9	69.8	77.4	74.1	70	75.7	75.6	74.6	76.1	NA
% Moisture	NE	28.2	32.2	31.1	30.2	22.6	25.9	30	24.3	24.4	25.4	23.9	NA

Notes:

#/SHADE	Analyte detected above the limits of quantification but below the cleanup limits
#/BOLD	Analyte detected above the limits of quantification and above the cleanup limits
#/U	Analyte was not detected at the listed limits of quantification
ID (Dup#)	Denotes duplicate sample pairings
NA	Sample was not analyzed for this analyte
ND	Analyte was not detected at the laboratory limits of quantification
NE	Cleanup Limit for analyte has not been established
Note 1	TCLP results are compared to the U.S. EPA RCRA Waste Regulations Criteria.
2-Pre	Second DRO analysis before silica gel cleanup
2-Post	Results after silica gel cleanup

Table 1 Continued
Laboratory Soil Analysis Results Summary (Total Metals, TCLP Metals and POL)

Sample ID	ADEC Cleanup Level	TSP6-2	TSP6-6 (Dup2)	TSP22-6 (Dup2)	TSP7-2	TSP7-6	TSP8-2	TSP8-6	TSP9-2	TSP9-6	TSP10-2	TSP10-6	Trip Blank
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Total Metals (RCRA 8, Thallium and Zinc)													
Arsenic	0.2	**3.11**	**3.85**	**2.84**	**2.72**	**2.77**	**2.73**	**2.97**	**17.4**	**3.7**	**3.3**	**3.39**	NA
Barium	2100	96.2	86.3	92.5	116	106	108	85.4	82.5	81	91.8	97.3	NA
Cadmium	9.1	4.16	2.65	3.61	4.5	5.55	3.92	3.78	7.46	7.47	4.79	6.66	NA
Chromium	10000	117	84.1	117	122	92.1	111	106	150	141	116	152	NA
Lead	400	**1320**	**1430**	**1140**	**954**	**765**	**810**	**1460**	**914**	**946**	**791**	**502**	NA
Mercury	0.36	0.0569	0.0548U	0.0532	0.0511	0.0527U	0.0507	0.0601	0.0708	0.0598	0.0598	0.101	NA
Selenium	6.9	1.53	1.37U	1.33	1.35	1.32U	1.24U	1.45	1.33U	1.74	1.42	1.49	NA
Silver	11	0.268U	0.274U	0.245U	0.252U	0.263U	0.247U	0.260U	0.267U	0.267U	0.267U	0.257U	NA
Thallium	0.19	0.268U	0.274U	0.245U	0.252U	0.263U	0.247U	0.260U	0.267U	0.267U	0.267U	0.257U	NA
Zinc	4900	239	212	225	230	208	228	199	292	253	343	345	NA
Detected TCLP Metals (RCRA 8)													
Chromium	5.0[Note1]	0.200U	0.235	0.200U	0.205	0.28	0.223	0.213	0.208	0.200U	0.200U	0.200U	NA
Lead	5.0[Note1]	0.783	0.151	0.336	0.141	0.0911	0.114	0.0500U	0.0500U	0.0609	0.106	0.0500U	NA
Petroleum Fuels, Gasoline, Diesel and Residual Range (Oils and Lubricants)													
GRO	260	3.66U	4.07U	3.12U	3.11U	3.44U	3.68U	3.91U	4.07U	3.99U	4.18U	4.07U	2.50U
DRO	230	**272**	**267**	157	154	133U	**238**	201	173	**240**	108	103	NA
DRO[2-Pre]	230	139	85.9	114	85.1	79.8	191	**272**	129	129	92.9	**236**	NA
DRO[2-Post]	230	92.7	54.4U	67.2	54.1	55.6	123	211	80.8	79.2	56.1U	185	NA
RRO	8300	772	749	449	614	437	778	531	520	602	556	331	NA
Percent Solid and Moisture (by weight)													
% Solid	NE	73.9	72.7	74.6	78.5	75.4	77.2	74.6	73.6	72.8	70.3	71.5	NA
% Moisture	NE	26.1	27.3	25.4	21.5	24.6	22.8	25.4	26.4	27.2	29.7	28.5	NA

Notes:

#/SHADE	Analyte detected above the limits of quantification but below the cleanup limits
#/BOLD	Analyte detected above the limits of quantification and above the cleanup limits
#/U	Analyte was not detected at the listed limits of quantification
ID (Dup#)	Denotes duplicate sample pairings
NA	Sample was not analyzed for this analyte
NE	Cleanup Limit for analyte has not been established
Note 1	TCLP results are compared to the U.S. EPA RCRA Waste Regulations Criteria.
2-Pre	Second DRO analysis before silica gel cleanup

Table 3
Soil Laboratory Results Summary: Treated Stockpile TCLP/SPLP Lead
Wrangell Junk Yard

Sample ID	Date Collected	TCLP Lead (mg/kg)	TCLP Lab Report	SPLP Lead (mg/Kg)	SPLP Lab Report
TSP-001A	5/4/2016	0.073	1162232	0.0550 U	1162670
TSP-002A	5/4/2016	0.0886	1162232	0.0550 U	1162670
TSP-2-001A	5/6/2016	0.0500 U	1162245	0.0550 U	1162670
TSP-3-01	5/10/2016	0.0814	1162296	0.107	1162670
TSP-04-01	5/11/2016	0.0500 U	1162337	0.0550 U	1162670
TSP-5-01	5/14/2016	0.0500 U	1162413	0.0550 U	1162670
TSP-6-01	5/16/2016	0.0953	1162406	0.0550 U	1162670
TSP-7-01	5/17/2016	0.0500 U	1162462	0.0550 U	1162670
TSP-8A-01	5/19/2016	0.0500 U	1162559	0.0550 U	1162670
TSP-8B-01	5/19/2016	0.0500 U	1162559	0.0550 U	1162670
TSP-8C-01	5/19/2016	0.0500 U	1162559	0.0550 U	1162670
TSP-8D-01	5/20/2016	0.0500 U	1162559	0.0550 U	1162670
TSP-9-01	5/21/2016	0.0500 U	1162559	0.0550 U	1162670
TSP-10-01	5/21/2016	0.0500 U	1162559	0.0550 U	1162670
TSP-11-01[1]	5/22/2016	0.0500 U	1162667	0.0550 U	1162670
TSP-D1[1]	5/22/2016	NA	NA	0.0550 U	1162670
TSP-12-01	5/22/2016	0.0539	1162667	0.0612	1162670
TSP-13-01	5/25/2016	0.0500 U	1162790	0.0550 U	1162790
TSP-14-01	5/25/2016	0.0500 U	1162790	0.0550 U	1162790
TSP-15-01	5/26/2016	0.175	1162790	0.0550 U	1162790
TSP-16-01	5/26/2016	0.331	1162790	0.0550 U	1162790
TSP-17-01	5/28/2016	0.0500 U	1162790	0.0550 U	1162790
TSP-18-01	5/28/2016	0.126	1162790	0.103	1162790
T PAD-01	5/30/2016	4.29	1162790	0.209	1162790
TSP-19-01	6/1/2016	0.0619	1162926	0.0550 U	1162923
TSP-20-01	6/1/2016	0.136	1162926	0.0550 U	1162923
TSP-21-01	6/1/2016	0.0747	1162926	0.0550 U	1162923
TSP-22-01	6/1/2016	2.44	1162926	1.03	1162923
TSP-23-01	6/14/2016	0.0545	1163236	0.0550 U	1163236
TSP-24-01	6/15/2016	0.0500 U	1163236	0.0550 U	1163236
TSP-25-01	6/15/2016	0.0539	1163236	0.0898	1163236
TSP-26-01	6/17/2016	0.0736	1163236	0.0552	1163236
TSP-27-01	6/17/2016	0.0848	1163236	1.42	1163236
TSP-28-01	6/17/2016	0.0828	1163236	0.0636	1163236
TSP-29-01	6/17/2016	0.0511	1163236	0.0550 U	1163236
TSP-30-01	6/18/2016	0.0933	1163236	0.0935	1163236

Notes:

# U	Number not detected above the lab limit of quantitation (LOQ)
# J	Detected above detection limit and below LOQ-this number is an estimation
#[#]	Denotes duplicate pair
NA	Test not run on this sample
Shade	Detected above the lab LOQ
Bold	Detected above 5 mg/kg RCRA waste limit

Table 3
Soil Laboratory Results Summary: Treated Stockpile TCLP/SPLP Lead
Wrangell Junk Yard

Sample ID	Date Collected	TCLP Lead (mg/kg)	TCLP Lab Report	SPLP Lead (mg/Kg)	SPLP Lab Report
TSP-31-01	6/20/2016	0.131	1163477	NA	NA
TSP-32-01	6/21/2016	0.23	1163477	NA	NA
TSP-33-01	6/22/2016	0.0896	1163477	NA	NA
TSP-34-01	6/22/2016	0.393	1163477	NA	NA
TSP-35-01	6/22/2016	0.0587	1163477	NA	NA
TSP-36-01	6/23/2016	0.167	1163477	NA	NA
TSP-37-01	6/23/2016	0.162	1163477	NA	NA
TSP-38-01	6/23/2016	1.83	1163477	NA	NA
TSP-39-01	6/23/2016	0.123	1163477	NA	NA
TSP-40-01	6/24/2016	0.231	1163477	NA	NA
TSP-41-01	6/29/2016	0.252	1163849	NA	NA
TSP-42-01	6/29/2016	0.0500 U	1163849	NA	NA
TSP-43-01	6/30/2016	0.0796	1163849	NA	NA
TSP-44-01	6/30/2016	0.358	1163849	NA	NA
TSP-45-01	6/30/2016	0.102	1163849	NA	NA
TSP-46-01	7/1/2016	0.484	1163849	NA	NA
TSP-47-01	7/1/2016	0.156	1163849	NA	NA
TSP-48-01	7/1/2016	0.152	1163849	NA	NA
TSP-49-01	7/6/2016	0.0500 U	1163849	NA	NA
TSP-50-01	7/6/2016	0.235	1163849	NA	NA
TSP-51-01	7/7/2016	0.116	1163849	NA	NA
TSP-52-01	7/7/2016	0.0753	1163849	NA	NA
TSP-53-01	7/17/2016	0.0738	1664166	NA	NA
TSP-54-01	7/17/2016	0.0500 U	1664166	NA	NA
TSP-55-01	7/17/2016	0.0589	1664166	NA	NA
TSP-56-01	7/18/2016	0.0851	1664166	NA	NA
TSP-57-01	7/18/2016	0.0615	1664166	NA	NA
TSP-58-01	7/18/2016	0.567	1664166	NA	NA
TSP-59-01	7/19/2016	0.352	1664166	NA	NA
TSP-60-01	7/19/2016	0.0695	1664166	NA	NA
TSP-61-01	7/20/2016	0.0867	1664166	NA	NA
TSP-62-01	7/23/2016	0.054	1664166	NA	NA

Notes:

	NA
# U	Number not detected above the lab limit of quantitation (LOQ)
# J	Detected above detection limit and below LOQ-this number is an estimation
# [#]	Denotes duplicate pair
	Test not run on this sample
Shade	Detected above the lab LOQ
Bold	Detected above 5 mg/kg RCRA waste limit