1900722 - R8 SDMS

Ackerman, Joyce

From: Jackie Rowley <JRowley@Geosyntec.com>
Sent: Wednesday, March 21, 2018 11:25 PM
To: Ackerman, Joyce
Cc: Sandusky, Eric
Subject: Rough draft of roll-off bin data
Attachments: Roll off Bin Samples_03162018_DRAFT.xlsx

Hey Joyce,

Please see the attached spreadsheet we have created for roll-off bin data. This may aid you in comparing and analyzing the data and making a decision on the roll-off bin's fate. Please excuse any mistakes you might find as this is a rough draft, but I figure it might help you guys get a start.

Just a reminder we are sampling the frac tank starting at 8:30am tomorrow.

I will follow up with you tomorrow afternoon and see if you have any questions or needs.

Cheers,

Jackie Rowley
Geologist

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Table X - Roll Off Bin Detected Soil Results
Stratus Redtail Site, Erie, Colorado

Compounds	EPA Residential Soil Screening Levels (mg/kg)	CDPHE Groundwater Protection Levels (mg/kg)	Land Disposal Restrictions (mg/kg or mg/L)	EPA Soil Saturation Limit Values (C_{sat}) (for Selected Compounds) (mg/kg)	RCRA TCLP Maximum Concentration (mg/L)	Sample ID	NLF-SS-PHASE2B-CHRT27116-020518	NLF-SS-PHASE2B-PT5631-020518	NLF-SS-PHASE2B-PT2489-020518	NLF-SS-PHASE2B-CHRT25758-020518	NLF-SS-PHASE2B-CHRT25758-020518-DUP	NLF-SS-PHASE2B-CHRT26830-020518	NLF-SS-PHASE2B-CHRT25696-020518	NLF-SS-PHASE2B-CHRT24497-020518	NLF-SS-PHASE2B-DRT4699-020518	NLF-SS-PHASE2B-HT3702-020518	NLF-SS-PHASE2B-274734-020818	NLF-SS-PHASE2B-279853-020818	NLF-SS-PHASE2B-279944-020818	NLF-SS-PHASE2B-279684-020818	NLF-SS-PHASE2B-279945-020818	NLF-SS-PHASE2B-279947-020818	NLF-SS-PHASE2B-279962-020818	NLF-SS-PHASE2B-279964-020818	NLF-SS-PHASE2B-DRT4719-020818	NLF-SS-PHASE2B-9943-021318	NLF-SS-PHASE2B-PT5628-021418	NLF-SS-PHASE2B-279964-030118	NLF-SS-PHASE2B-CHRT25418-030118	NLF-SS-PHASE2B-CHRT25461-030118	NLF-SS-PHASE2B-CHRT25541-030118	NLF-SS-PHASE2B-CHRT255520-030118	NLF-SS-PHASE2B-CHRT25556-030118	NLF-SS-PHASE2B-CHRT26964-030118	NLF-SS-PHASE2B-CHRT26993-030118	NLF-SS-PHASE2B-CHRT27391-030118	NLF-SS-PHASE2B-CHRT27407-030118	NLF-SS-PHASE2B-CHRT27438-030118	NLF-SS-PHASE2B-DRT4719-030118	NLF-SS-PHASE2B-DRT4900-030118	NLF-SS-PHASE2B-HT2586-030118	NLF-SS-PHASE2B-HT3701-030118	NLF-SS-PHASE2B-PT1096-030118	NLF-SS-PHASE2B-PT2452-030118	NLF-SS-PHASE2B-PT3652-030118	NLF-SS-PHASE2B-PT5627-030118	NLF-SS-PHASE2B-RT4543-030118
						Sample Location Description	From Roll-off bin CHRT27116	From Roll-off bin PT5631	From Roll-off bin PT2489	From Roll-off bin CHRT25758	From Roll-off bin CHRT25758	From Roll-off bin CHRT26830	From Roll-off bin CHRT25696	From Roll-off bin CHRT24497	From Roll-off bin DRT4699	From Roll-off bin HT3702	From Roll-off bin 274734	From Roll-off bin 279853	From Roll-off bin 279944	From Roll-off bin 279684	From Roll-off bin 279945	From Roll-off bin 279947	From Roll-off bin 279962	Soil Sample from roll-off bin	Soil Sample from roll-off bin	From Roll-off bin 9943	From Roll-off bin PT5628	From Roll-off bin 279964	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin. Includes MS/MSD	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin
						Lab Identifier	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74716-1	180-74855-1	180-74855-1	180-74855-1	180-74855-1	180-74874-1	180-74855-1	180-74874-1	180-74855-1	180-74855-1	180-74978-1	180-74978-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1	180-75481-1
						Date Collected	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/8/2018	2/8/2018	2/8/2018	2/8/2018	2/8/2018	2/8/2018	2/8/2018	2/8/2018	2/8/2018	2/13/2018	2/14/2018	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18
Total Metals (mg/kg)																																														
Aluminum	77,000	NA	---	---	---	mg/kg	7400	9000	8900	7000	7400	7200	9600	9500	8100	8800	7300	8900	8800	9600		8300		7200	7400	8600	7500																				
Antimony	31	NA	---	---	---	mg/kg	0.53 J F1	1.6	0.93 J	0.53 J	0.54 J	0.83 J	0.97 J	0.72 J	1.2 J	0.82																															
Arsenic[1]	0.68	NA	---	---	---	mg/kg	7.3	6.1	9.4	4.4	6.1	16	7.4	6.7	9.9	6.1	17	8.6	14	7.6		6.7		11	45	10	33	7.8	9.4	5.1	4.2	21	11	15	17	36	9.8	6.4	8.5	6.4	8	7.8	5.6	5.1	5.8	5.1	13
Barium	15,000	NA	---	---	---	mg/kg	130	160	200	130	110	140	140	170	270	120	390 F1	120	100	160		140		97	90	140	100	130	150	160	64	76	130	69	140	79	130	140	170	140	110	110	110	77	120	120	100
Beryllium	160	NA	---	---	---	mg/kg	0.7	0.75	0.75	0.64	0.71	0.81	0.77	0.73	0.91	0.81	0.78	0.73	0.74	0.72		0.66		0.57	0.77	0.73	0.73																				
Cadmium	71	NA	---	---	---	mg/kg	0.25 J	0.38 J	0.47 J	0.27 J	0.32 J	0.33 J	0.29 J	0.29 J	0.53 J	0.26	0.35 J	0.36 J	0.36	0.35		0.32 J		0.26 J	0.3 J	0.6 J	0.3 J	0.38 J	0.32 J	0.32 J	0.93	0.2 J	0.36 J	0.7	0.25 J	0.29 J	0.29 J	0.43 J	0.32 J	0.36 J	0.33 J	0.32 J	0.57 J	0.25 J	0.29 J	0.29 J	0.45 J
Calcium	---	NA	---	---	---	mg/kg	7100 F1 F2	14000	17000	12000	8900	6500	15000	13000	16000	13000	15000 F1	16000	16000	19000		12000		11000	8400	10000	11000																				
Chromium	120,000	NA	---	---	---	mg/kg	110	200	43	32	58	43	39	160	20	51	47 F2	43	29	45		34		110	28	44	19	32	48	33	9.9	22	40	61 F1	55	42	44	64	69	22 F1	41	34	29	57	32	16	31
Cobalt	23	NA	---	---	---	mg/kg	8.3	9.2	7.5	6.8	5.9 J	5.4 J	7.8	6.4	8.7	6	7.4	12	6.5	9.4		7.3		5.8 J	5.3 J	7	6.6																				
Copper	3,100	NA	---	---	---	mg/kg	32 F1	50	31	18	21	22	23	35	21	48	25 F1 F2	38	27	34		24		24	20	36	20																				
Iron	55,000	NA	---	---	---	mg/kg	8900 F2	12000	12000	11000	11000	8100	12000	12000	51000	11000	11000 B	13000 B	22000	12000		14000 B		11000 B	4400 B	12000	10000																				
Lead	400	NA	---	---	---	mg/kg	20	21	20	34	19	20	21	18	16	17	19	20	22	21		19		16	18	32	19	18	19	18	17	22	19	20	20	23	23	31	19	21	18	20	19	21	19	23	21
Magnesium	---	NA	---	---	---	mg/kg	2800	3600	3400	3000	3200	2800	3900	3700	4100	3900	3200	3500	3800	3800		3800		3000	2700	3500	3200																				
Manganese	1,800	NA	---	---	---	mg/kg	46 F1	99	110	97	78	62	120	100	680	88	130 F1	110	77	120		100		81	110	90	97																				
Mercury	11	NA	---	---	---	mg/kg	0.11	0.14	0.072	0.062	0.091	0.19	0.07	0.094	0.045	0.049	0.12	0.14	0.15	0.064		0.069		0.06	0.078	0.34	0.087	0.048	0.09	0.074	0.12	0.064	0.071	0.18	0.13	0.21	0.09	0.13	0.07	0.083	0.071	0.059	0.074	0.072	0.08	0.045	0.083
Nickel	1,500	NA	---	---	---	mg/kg	20	20	29	14	15	13	27	19	19	18	18	25	18	22		19		16	13	18	15																				
Potassium	---	NA	---	---	---	mg/kg	1000	1200	1200	990	1200	1100	1300	1300	1100	1300	1100	1300		1500		1300		1100	1100	1400	1000																				
Selenium	390	NA	---	---	---	mg/kg		1 J	0.8 J	0.64 J				0.8 J					1300	0.31									0.67 J		0.71 J		1.1 J						0.86 J	0.72 J		0.64 J		0.69 J	0.64 J		
Silver	390	NA	---	---	---	mg/kg																			0.19 J																					
Sodium	---	NA	---	---	---	mg/kg	1800	1600	1800	2500	2900	1800	2100	1900	1800	2000	1900	1100	1900	1300		1200		1800	1900	1500	2200																				
Vanadium	390	NA	---	---	---	mg/kg	31 F1	35	32	27	29	30	34	33	30	33	37	31	33	34		26		24	31	33	28																				
Zinc	23,000	NA	---	---	---	mg/kg	68	68	53	62	58	56	68	59	64	59	78 F1	66	69	70		73		70	49	100	57																				
Volatile Organic Compounds (VOCs)																																														
1,1,1-Trichloroethane	8,100	62	---	---	---	mg/kg		490 J												39																											
1,1,2-Trichloro-1,2,2-trifluoroethane	6,700	---	---	---	---	mg/kg															29 J		4.4 J		5.3																							
2-Butanone (MEK)	27,000	18	36	28,000	---	mg/kg		1300	290		51		420	400	430	250	34 *	170 *	63 *	920 *		180 *		49 *	25 *	45	92	26	260	320	80	79	69	220	260	110	220	75	590	610	7.8	61	290	77	500	360 J	780
4-Methyl-2-pentanone (MIBK)	33,000	3.3	---	3,400	---	mg/kg	0.21 J	380	34 J	130 J	89		41 J	35	35	35	3.2 *	16 *	6.6 *	180 *		32 *		6.7 *	1.8 *	6.8 J	16 J	2.2 J			6.7 J	6.9 J		16 J	23 J	8.3 J		6 J	39 J						43 J		
cis-1,2-Dichloroethene	160	0.261	---	---	---	mg/kg																2.7 J																									
Cyclohexanone	28,000	200	---	---	---	mg/kg																				270 J	660	76	1100 J	1100 J	270 J	280 J	270 J	720	1000 J	330	890 J	260 J	1700	2800 J	26 J	270	1100 J	440 J	1400 J	1100 J	33 J
Methylene Chloride	57	0.06	---	---	---	mg/kg														21 J		7.4																									
Tetrahydrofuran	18,000	---	---	---	---	mg/kg																																										
Tetrachloroethene	24	1.9	---	170	---	mg/kg					33			20 J								10		48																							
Toluene	4,900	50	10	820	---	mg/kg		5500	290	380	120	290		200	170	21 J	9.2	16	4	870		150		100	2.1	22		1.3 J								5.6 J				220 F1		2.8 J			31 J		
Trichloroethene	0.94	0.68	---	690	---	mg/kg		1200				54 J		30 J						190		38																									
Semi-volatile Organic Compounds (SVOCs)																																														
1,1'-Biphenyl	47	---	---	---	---	mg/kg																				0.058 J																					
1,2,4,5-Tetrachlorobenzene	23	---	14	---	---	mg/kg																																										
1,4-Dioxane	5.3	0.0016	---	120,000	---	mg/kg		0.32 J	0.36 J	0.59 J		0.51 J		0.96 J		0.89 J	1.3 J	0.71 J	0.7 J	1.9 J		1 J		0.69 J	2.3	3.2	29	0.41 J			7.9 J			1.4 J						0.83 J		0.56 J				3 J	
2-Chlorophenol	390	1.2	5.7	---	---	mg/kg																																										
2,4,6-Trichlorophenol	49	0.28	7.4	---	---	mg/kg																																										
2,4-Dichlorophenol	190	0.4	14	---	---	mg/kg																																										
2-Methylnaphthalene	240	7.4	---	---	---	mg/kg							0.12 J					0.1 J	0.09 J	0.22		0.22			0.092 J	0.1		0.045 J																			
2-Methylphenol	---	1.2	---	---	---	mg/kg	0.29 J	0.14 J	1.1	1.8	0.37 J	0.75 J	0.96 J	0.71 J		0.47 J	0.18 J	0.38 J	0.36 J	0.6 J		0.48 J		0.42 J	0.55 J	0.68	0.074 J	0.16 J																			1.3 J
Acetone						mg/kg																																										
Acetophenone	7,800	5.2	9.7	2,500	---	mg/kg																																										
Benzaldehyde	170	---	---	---	---	mg/kg			0.22 J*	0.15 J*			0.22 J*														0.14 J																				3.2 J
Benzo[a]anthracene	1.1	1,000	3.4	---	---	mg/kg																																										
Benzo[b]fluoranthene	1.1	1,000	6.8	---	---	mg/kg																																										
Benzo[g,h,i]perylene	---	---	1.8	---	---	mg/kg																																										
Benzo[k]fluoranthene	11	1,000	6.8	---	---	mg/kg																																										
Bis(2-chloroethyl)ether	0.23	---	6	---	---	mg/kg																				0.12																					
Bis(2-ethylhexyl) phthalate	39	1,000	28	---	---	mg/kg		0.84 J				1.3 J	3.1	0.93 J	0.9 J	2.2		1.9 J	1.3 J	2.2		2.2			9.5	2.7		1.6											7.4 J								
Butyl benzyl phthalate	290	1,000	28	---	---	mg/kg																																										
Carbazole	---	---	---	---	---	mg/kg														0.093 J		0.085 J				0.055 J																					
Chlorobenzene	280	5	6	---	---	mg/kg																		1.9 J																							
Chrysene	110	1,000	3.4	---	---	mg/kg																				0.037 J																					
Dibenzofuran	73	4.1	---	---	---	mg/kg						0.16 J																																				
Diethyl phthalate	51,000	140	28	---	---	mg/kg	0.23 JB	0.1 JB	0.23 JB	0.19 JB	0.43 JB	0.12 JB	0.4 JB	0.11 JB	0.16 JB	0.3 JB	0.27 J	0.36 J	0.14 J	0.38 J		0.32 J		0.19 J	0.31 J	0.079 JB	0.1 JB				0.45 J	0.49 J		1.1 J		0.62 J				0.74 J		0.042 J		1.2 J		1 J	
Di-n-butyl phthalate	6,300	1,000	28	---	---	mg/kg							0.12 J		0.65 J				0.082 J	0.085 J		0.088 J		0.27 J		0.38 J																					
Ethylbenzene	6	100	10	---	---	mg/kg																		2.3 J																							
Fluoranthene	2,400	1,000	3.4	---	---	mg/kg																																										
Fluroene	2,400	1,000	8.2	---	---	mg/kg																																										
Hexachlorobenzene	0.21	0.009	10	---	---	mg/kg																																										
Indeno[1,2,3-cd]pyrene	1.1	1,000	3.4	---	---	mg/kg																																										
Isophorone	570	---	---	---	---	mg/kg			0.14 J			1.4	0.91 J	0.75 J																																	
m-Xylene & p-Xylene	550	75	30	---	---	mg/kg																		11																							
o-Xylene	650	75	30	---	---	mg/kg																		3.9																							
Methylphenol, 3 & 4	3,200	0.27	---	---	---	mg/kg	0.25 J	0.12 J	0.94 J	1.6	0.31 J	0.53 J	0.62 J	0.51 J		0.5 J		0.13 J	0.21 J	0.21 J		0.17 J		0.18 J	0.33 J	0.24 J	0.057 J																				
Naphthalene	3.8	23	5.6	---	---	mg/kg		0.12 J				0.17 J	0.35	0.092 J				0.25	0.23	0.59		0.62		0.28	0.24	0.26		0.31																			
N-Nitrosodiphenylamine	110	0.67	---	---	---	mg/kg						0.21 J			0.21 J					0.41		0.91 J				0.14 J																					
Phenanthrene	---	---	5.6	---	---	mg/kg														0.11 J		0.12 J				0.058 J																					
Phenol	19,000	47	6.2	---	---	mg/kg														3.2		2.3				0.35 J																					
Pyrene	1,800	1,000	8.2	---	---	mg/kg																																										
General Chemistry																																														
Cyanide, Total	23	NA		---	---	mg/kg																																										
Sulfide	---	---		---	---	mg/kg																																										
Toxicity Characteristic Leaching Procedure (TCLP) Metals																																														
Aluminum	---	---	---	---	---	mg/L	0.52 J	0.8	0.9 J	0.72 J	0.51 J	0.64 J	0.59 J	1 J	0.5 J	1 J		0.36	0.63 J			0.46 J																									
Arsenic	---	---	5	---	5	mg/L					0.046 J														0.051 JB																						
Barium	---	---	21	---	100	mg/L	0.23 J	0.28	0.17 J	0.15 J	0.16 J	0.18 J	0.26 J	0.19 J	0.22 J	0.21 J	0.2 JB	0.26	0.17 JB	0.23 JB	0.17 J	0.22 JB	0.14 J	0.19 JB	0.16 J F2 F1 F	0.24 J	0.12 J																				
Cadmium	---	---	0.11	---	1.0	mg/L	0.0041 JB	0.0067 JB	0.0044 JB	0.005 JB	390	0.0032 JB	0.0026 JB	0.0046 JB	0.0023 JB	0.0067 JB	0.0027 J	0.0041	0.0066 J	0.003 J	0.0059 J	0.005 J	0.0038 J	0.003 J		0.0057 J	0.0019 J																				
Calcium	---	---	---	---	---	mg/L	450	620	420	520	0.0095 J	360	510	500	690	580	830 B	690	500 B	700 B	0.0098 J	730 B	0.026 J	640 B	380 B																						
Chromium	---	---	0.6	---	5.0	mg/L	0.019 J	0.01 J		0.014 J	0.074 J	0.022 J		0.0098 J	0.014 J	0.044 J		0.016	0.0081 J			0.0086 J		0.014 J		0.0094 J	0.012 J																				
Cobalt	---	---	---	---	---	mg/L	0.061 J	0.045 J	0.05 J	0.075 J		0.058 J	0.035	0.061 J	0.011 J	0.087 J	0.064 J	0.064	0.093 J	0.056 J		0.066 J		0.073 J	0.062 J																						
Iron	---	---	---	---	---	mg/L				14	31	1.8	8.1			1.7	0.51 J	0.35	1.8					1.5	6.9																						
Lead	---	---	0.75	---	5.0	mg/L																				0.62																					
Magnesium	---	---	---	---	---	mg/L	59	62	63	67	65	61	56	71	60	59	62	64	65	75		74		70	62																						
Manganese	---	---	---	---	---	mg/L	1.5	1.6	1.9	2.6	2.2	1.2	1.4	1.7	2	2.8	2.3	1.9	1.5	1.9		2.1		2.8	1.2																						
Nickel	---	---	11	---	---	mg/L	0.075 J	0.069 J	0.049 J	0.11 J	0.13 J	0.066 J	0.054 J	0.052 J		0.095 J	0.062 J	0.073	0.1 J	0.064 J		0.068 J		0.067 J	0.063 J																						
Potassium	---	---	---	---	---	mg/L	5.5 J	5.1 J	4.6 J		5 J	4 J	6.8 J				4.2 J	5.1		4.5 J		4.6 J																									
Selenium	---	---	5.7	---	1.0	mg/L												0.04		0.044 J																										
Zinc	---	---	4.3	---	---	mg/L	0.11 J	0.63	0.068 J	0.42	0.46	0.2	0.075 J	0.11 J		0.17 J	0.12 J	0.13	0.38	0.084 J		1.3		0.21	0.22																						
TCLP VOCs																																														
2-Butanone (MEK)	---	---	36	---	200	mg/L	1.3	11	6.7	2.1	1.4	4.8	12	39	6.3	2.8	1.1	5.2	3.1	31	0.91	11	2.3	1.3	23	1.3	1																				
4-Methyl-2-pentanone (MIBK)	---	---	---	---	---	mg/L	1	0.56 J	0.3	2	1.1	0.53	1.1		0.33	0.44	0.082 J	0.59	0.14 J	4.1		1.5 J		0.1 J	0.95 J																						
Methylene Chloride	---	---	30	---	---	mg/L										0.13 J		0.11 J							0.96 J																						
Tetrachloroethene	---	---	6	---	0.7	mg/L							0.28					0.089 J																												
Toluene	---	---	10	---	---	mg/L	0.14 J	1.1	0.4	1.1	0.3	1.9	3.9	5.5	0.61	0.33	0.22	4	0.47	15		4.7		1																							
Trichloroethene	---	---	6	---	0.5	mg/L						0.14 J	0.43					0.63		2.5 J						0.07 J																					
TCLP General Chemistry																																														
Cyanide, Total	---	---	590	---	---	mg/L																																										
Sulfide	---	---	---	---	---	mg/L																																										

Notes:
1) EPA Residential Soil Screening Levels - U.S. Environmental Protection Agency Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1), November 2017
2) CDPHE Groundwater Protection Levels (GPL) - Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (HMWMD), Groundwater Protection Values Soil Cleanup Table, March 2014
3) EPA Soil Saturation Limit Values - U.S. EPA RSL Residential Soil Table (TR=1E-06, HQ=1), November 2017
4) Resource Conservation and Recovery Act (RCRA) TCLP Maximum Concentration - Code of Federal Regulations (CFR) Title 40, Subpart C, 261.24 Toxicity Characteristic, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
5) mg/kg - Milligrams per kilogram
6) mg/L - Milligrams per liter
7) NA - Not applicable
8) [1] - Established background concentration for arsenic is 11 ppm
9) J - Laboratory Qualifier: Estimated concentration detected above the method detection limit (MDL) but below the reporting limit (RL)
10) B - Laboratory Qualifier: Compound detected in the laboratory method blank
11) F1 - Laboratory Qualifier: Matrix spike (MS) and/or matrix spike duplicate (MSD) recovery is outside acceptance limits
12) F2 - Laboratory Qualifier: MS/MSD Relative Percent Difference (RPD) exceeds control limits
13) * - Laboratory Qualifier: Laboratory Control Sample (LCS) or Lab Control Sample Duplicate (LCSD) is outside acceptance limits
14) Results exceeding EPA RSLs are shaded yellow
15) Results exceeding CDPHE GPVs are in **bold**
16) Results exceeding Soil Saturation Limit Values are in red
17) Results exceeding RCRA TCLP Maximum Concentration are shaded orange

Compounds	NLF SS-PHASE2B-CHRT24778-030118	NLF SS-PHASE2B-CHRT25554-030118	NLF SS-PHASE2B-CHRT25725-030118	NLF SS-PHASE2B-CHRT26004-030118	NLF SS-PHASE2B-CHRT26540-030118	NLF SS-PHASE2B-CHRT26766-030118	NLF SS-PHASE2B-CHRT27421-030118	NLF SS-PHASE2B-CHRT29472-030118	NLF SS-PHASE2B-DHT6413-030118	NLF SS-PHASE2B-HT3122-030118	NLF SS-PHASE2B-HT3703-030118	NLF SS-PHASE2B-HT3837-030118	NLF SS-PHASE2B-HT7383-030118	NLF SS-PHASE2B-PT2409-030118	NLF SS-PHASE2B-PT3017-030118	NLF SS-PHASE2B-PT3129-030118	NLF SS-PHASE2B-PT6636-030118	NLF SS-PHASE2B-PT7264-030118	NLF SS-PHASE2B-REQ274961-030118	NLF SS-PHASE2B-REQ280574-030118
	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin; Duplicate of NLF-SS-PHASE2B-CHRT27409-030118	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin	Soil Sample from roll-off bin; includes MS/MSD	Soil Sample from roll-off bin	Soil Sample from roll-off bin; Duplicate of NLF-SS-PHASE2B-HT6673	Soil Sample from roll-off bin	Soil Sample from roll-off bin
	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2	18b75481-2
	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/18	3/1/2018	3/1/2018	3/1/2018
Total Metals (mg/kg)																				
Aluminum																				
Antimony																				
Arsenic[1]	9.5	10	8.4	9.2	12	18	16	12	6.6	4.5	7.9	5.5	9.1	7.6	7	7.1	6.7	4.2	5.3	5
Barium	91	72	100	140	100	86	120	180	180	96	390	310	79	310	250	120	220	360	100	81
Beryllium																				
Cadmium	0.24 J	0.18 J	0.24 J	0.43 J	0.29 J	0.26 J	0.27 J	0.36 J	0.43 J	0.32 J	0.36 J	0.32 J	0.28 J	0.33 J	0.32 J	0.34	0.33 J	0.31	0.32 J	0.29 J
Calcium																				
Chromium	110	45	17 J	36	80	21	500	25	65	41	52	36	36	120	160	110	430	18	14	25
Cobalt																				
Copper																				
Iron																				
Lead	17	17	21	20	20	16	19	28	20	20	16	19	23	20	19	15	18	20	20	19
Magnesium																				
Manganese																				
Mercury	0.037	0.12	0.086	0.030	0.054	0.065	0.057	0.077	0.060	0.057	0.75	1.5	0.075	0.082	0.11	0.049 J3	0.064 J	0.78	0.063	0.067
Nickel																				
Potassium																				
Selenium	0.71 J				0.68 J		0.88 J		0.96 J		0.77 J		0.71 J		0.76 J	0.8	1.4	0.67 J	0.75 J	
Silver																				
Sodium																				
Vanadium																				
Zinc																				
Volatile Organic Compounds (VOCs)																				
1,1,1-Trichloroethane																				
1,1,2-Trichloro-1,2,2-trifluoroethane																				
2-Butanone (MEK)	**42**	**120**	**150**	**36**	0.41	30	**230**	**150**	**36**	**120**	**34**	**32**	**31**	**120**	**28**	**83** J1	**85**	32	**150**	**42**
4-Methyl-2-pentanone (MIBK)	**3** J	**6.5**	**28**	**3** J	1.3 J	**0.73**	**14**	**11**		**19**	1.9 J	1.6	1.3 J	**4.4**	0.74 J	**3.7**	**5.8**	**5.7**	**26**	**9.8**
cis-1,2-Dichloroethene																				
Cyclohexanone	140 J	92	93 J	140 J	7.3		**210**	120	140 J	89		34		130	28 J		46 J	21		
Methylene Chloride																				
Tetrahydrofuran																				
Tetrachloroethene																				
Toluene	2.6 J	2.4 J			0.1 J	0.72				3 J	5.2	7.8	0.59 J	2.1 J	0.54 J	2.8 J		0.16 J		
Trichloroethene						0.12 J	40													
Semi-volatile Organic Compounds (SVOCs)																				
1,1-Biphenyl																				
1,2,4,5-Tetrachlorobenzene																				
1,4-Dioxane	**1.2** J	**0.82** J	17															**0.64** J	**2** J	**3.2**
2-Chlorophenol																				
2,4,6-Trichlorophenol																				
2,4-Dichlorophenol																				
2-Methylnaphthalene																				
2-Methylphenol		0.41 J																		
Acetone						0.57 J														
Acenaphthene														0.64						0.085 J
Benzaldehyde																				
Benzo[a]anthracene																				
Benzo[b]fluoranthene																				
Benzo[g,h,i]perylene																				
Benzo[k]fluoranthene																				
Bis(2-chloroethyl)ether																				
Bis(2-ethylhexyl) phthalate																		1.4		
Butyl benzyl phthalate																				
Carbazole																				
Chrysene						0.25 J														
Dibenzofuran																				
Diethyl phthalate	0.54 J	1.1 J	0.43 J		1.5	0.52 JB	1.4 J	0.47 J	1.1 J		0.38 J	0.55 JB	0.058 J	1.1 J		0.05	0.78 J		0.96 J	0.11 J
Di-n-butyl phthalate											0.43 J									
Ethylbenzene																				
Fluoranthene																				
Fluorene																				
Hexachlorobenzene																				
Indeno[1,2,3-cd]pyrene																				
Isophorone		0.51 J																		
m-Xylene & p-Xylene																				
o-Xylene																				
Methylphenol, Mg/L																				
Naphthalene																				
N-Nitrosodiphenylamine																				
Phenanthrene																				
Phenol																				
Pyrene																				
General Chemistry																				
Cyanide, Total																				
Sulfide																				
Toxicity Characteristic Leaching Procedure (TCLP) Metals																				
Aluminum																				
Arsenic																				
Barium																				
Cadmium																				
Calcium																				
Chromium																				
Cobalt																				
Iron																				
Lead																				
Magnesium																				
Manganese																				
Nickel																				
Potassium																				
Selenium																				
Zinc																				
TCLP VOCs																				
2-Butanone (MEK)																				
4-Methyl-2-pentanone (MIBK)																				
Methylene Chloride																				
Trichloroethene																				
Toluene																				
Trichloroethene																				
TCLP General Chemistry																				
Cyanide, Total																				
Sulfide																				

Notes:

1) EPA Residential Soil Screening Levels - U.S. Ev
2) CERCLE Groundwater Protection Levels (GPL) v
3) EPA Soil Saturation Limit Values - U.S. EPA R
4) Resource Conservation and Recovery Act (RCR
5) mg/kg - Milligrams per kilogram
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8) * - Established background concentration for arse
9) J - Laboratory Qualifier: Estimated concentration
10) B - Laboratory Qualifier: Compound detected in
11) J1 - Laboratory Qualifier: Matrix spike (MS) a
12) J2 - Laboratory Qualifier: MS/MSD Relative P
13) * - Laboratory Qualifier: Laboratory Control Sa
14) Results exceeding EPA RSLs are shaded yellow
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16) Results exceeding Soil Saturation Limit Values
17) Results exceeding RCRA TCLP Maximum Con