



December 8, 2023

To: Benjamin McPherson (NYSDEC), Angela Martin (NYSDOH)
From: Roxanne Birx
CC: John Yensan, Dan Flanigan, John Black, James Edwards, Peter Zaffram, Corey Bryerton
RE: Source Area Solidification
Interim Remedial Measure Work Plan
Portland Cement Addendum
Riverview Innovation & Technology Campus
Brownfield Cleanup Program Site No. C915353
3875 River Road
Town of Tonawanda, New York 14150

Introduction

On behalf of Riverview Innovation & Technology Campus, Inc (RITC), Inventum Engineering, P.C. (Inventum) prepared a Source Area Solidification Interim Remedial Measures (Solidification IRM) Work Plan for the RITC Brownfield Cleanup Program Site (BCP Site) located at 3875 River Road in the Town of Tonawanda, Erie County, New York. Solidification work in the Pump House Area began in late October 2023. As work has progressed, it has become evident that a second materials vendor may be required to ensure sufficient supply of solidification reagents is available.

In the event that the lime kiln dust (LKD) delivery is delayed or cancelled due to weather or unforeseen events, RITC is proposing that Portland cement be used for solidification as a demonstrated substitute for LKD. The selected standby vendor for Portland cement is very close, LaFarge at 4100 River Road, Tonawanda so no additional greenhouse gases (GHGs) will be required for transportation of the alternative material.

A summary of the areas applicable to the standby addendum scope is provided below:

- Production Area
 - Soil/fill below the Weak Ammonia Liquor Secondary Containment.
 - Soil/fill below the Light Oil Area Secondary Containment.
 - Soils/fill below the Process Equipment Area (MW-BCP-05A and MW-BCP-10A Area)
 - Soils/fill below the Exhauster Building
 - Soils/fill below the Pump House
 - Viscous Tar in the TP-BCP-25 Area

*441C Carlisle Drive
Herndon, Virginia 20170*

Solidification

The mixtures of Portland cement with breeze effectively eliminated the characteristic of toxicity from the mobile tar samples from the target production areas and Tar Seep No. 2 (Table 1). As the bench-scale test samples were selected from the materials presenting the highest visually and olfactory evidence of contamination, the lowest addition rates that produce samples that did not contain the characteristics of hazardous waste are recommended for the standby mixture at full scale solidification.

Solidification Area	Portland	Breeze
Tar Seep No. 2	10%	10%
Light Oil Area	10%	10%
Weak Ammonia Liquor Area	10%	10%
Exhauster Building Area	10%	10%
Pump House Area	15%	10%

Note that the Tar Management Area solidification is managed under the Tar Management Addendum, November 13, 2023, and is pending NYSDEC/NYSDOH review.

All material blending of Portland cement and breeze will be performed in accordance with the approved Stabilization Interim Remedial Measures Workplan, October 5, 2023.

Sampling

If the standby mix of Portland Cement and breeze is used for solidification of a given number of cells in an area, a discrete verification sample will be collected from the first cell solidified with Portland. In accordance with the approved Stabilization IRM Workplan, verification samples will continue to be collected for each 500-tons (~each 280 cubic yards [cy]) of stabilized material.

Table



Table 1-1
Bench Scale Testing - Tar Seep 2
Riverview Innovation Technology Campus, Inc.
Tonawanda, New York

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ANALYTE	SAMPLE ID:		SS-BCP-27	SS-BCP-27-02-06012023	SS-BCP-27-03-06012023	SS-BCP-27-05-06012023	SS-BCP-27-06-06012023			
	LAB REPORT:		L2324292, L2332797	L2330702, 232727	L2330702, 232727	L2330702, 232727	L2330702, 232727			
	COLLECTION DATE:		5/2/2023	6/1/2023	6/1/2023	6/1/2023	6/1/2023			
	DESCRIPTION:		Tar Seep 2 Baseline (No Stabilization Reagent Added)	Tar Seep 2 10% Portland, 10% Breeze	Tar Seep 2, 15% Portland, 10% Breeze	Tar Seep 2 10% LKD, 10% Breeze	Tar Seep 2 15% LKD, 10% Breeze			
EPA-TCLP (mg/l)		NY Part 375 Class GA Standards (mg/L)	TAR SEEP 2 (DID NOT SEND 5% - 5% MIXTURES)							
VOLATILE ORGANICS 8260D										
Benzene (mg/kg)	-		13	NS	NS	NS	NS			
TCLP VOLATILES BY EPA 1311										
1,1-Dichloroethene	0.7	0.005	<0.0017	U	<0.020	U	<0.020	U	<0.020	U
1,2-Dichloroethane	0.5	0.005	<0.0013	U	<0.020	U	<0.020	U	<0.020	U
1,4-Dichlorobenzene	7.5	0.003	<0.0019	U	NS	NS	NS	NS	NS	NS
2-Butanone	200	0.05	<0.019	U	<0.1	U	<0.1	U	<0.1	U
Benzene	0.5	0.001	0.061	J	0.0254	J	0.0475	J	0.0686	J
Carbon tetrachloride	0.5	0.005	<0.0013	U	<0.020	U	<0.020	U	<0.020	U
Chlorobenzene	100	0.005	<0.0018	U	<0.020	U	<0.020	U	<0.020	U
Chloroform	6	0.007	<0.0022	U	<0.020	U	<0.020	U	<0.020	U
Tetrachloroethene	0.7	0.005	<0.0018	U	<0.020	U	<0.020	U	<0.020	U
Trichloroethene	0.5	0.005	<0.0018	U	<0.020	U	<0.020	U	<0.020	U
Vinyl chloride	0.2	0.002	<0.00071	U	<0.020	U	<0.020	U	<0.020	U
TCLP SEMIVOLATILES BY EPA 1311										
2,4,5-Trichlorophenol	400	-	<0.0019	U	<0.0019	U	<0.0019	U	<0.0019	U
2,4,6-Trichlorophenol	2	-	<0.0025	U	<0.0025	U	<0.0025	U	<0.0025	U
2,4-Dinitrotoluene	0.13	0.005	<0.0019	U	<0.0019	U	<0.0019	U	<0.0019	U
2-Methylphenol	200	-	0.330	J	0.31	J	0.33	J	0.39	J
3-Methylphenol/4-Methylphenol	200	-	0.890	J	0.89	J	0.95	J	1.2	J
Hexachlorobenzene	0.13	0.00004	<0.0034	U	<0.0034	U	<0.0034	U	<0.0034	U
Hexachlorobutadiene	0.5	0.0005	<0.0030	U	<0.003	U	<0.003	U	<0.003	U
Hexachloroethane	3	0.005	<0.0022	U	<0.0022	U	<0.0022	U	<0.0022	U
Nitrobenzene	2	0.0004	<0.0033	U	<0.0033	U	<0.0033	U	<0.0033	U
Pentachlorophenol	100	0.001	<0.0098	U	<0.0098	U	<0.0098	U	<0.0098	U
Pyridine	5	0.05	<0.0045	U	<0.0045	U	<0.0045	U	<0.0045	U
TCLP HERBICIDES BY EPA 1311										
2,4,5-TP (Silvex)	1	0.00026	NS	<0.001	U	<0.001	U	<0.001	U	<0.001
2,4-D	10	0.050	NS	<0.001	U	<0.001	U	<0.001	U	<0.001
TCLP PESTICIDES BY EPA 1311										
Chlordane	0.03	0.00005	NS	<0.000232	U	<0.000232	U	<0.000232	U	<0.000232
Endrin	0.02	ND	NS	<0.000021	U	<0.000021	U	<0.000021	U	<0.000021
Heptachlor	0.008	0.00004	NS	<0.000016	U	<0.000016	U	<0.000016	U	<0.000016
Heptachlor epoxide	0.008	0.00003	NS	<0.000021	U	<0.000021	U	<0.000021	U	<0.000021
Lindane	0.4	0.00005	NS	<0.000022	U	<0.000022	U	<0.000022	U	<0.000022
Methoxychlor	10	0.035	NS	<0.000034	U	<0.000034	U	<0.000034	U	<0.000034
Toxaphene	0.5	0.00006	NS	<0.000314	U	<0.000314	U	<0.000314	U	<0.000314
TCLP METALS BY EPA 1311										
Arsenic	5	0.025	NS	0.0636	J	0.0475	J	0.0449	J	0.056
Barium	100	1	NS	0.234	J	0.204	J	0.0868	J	0.089
Cadmium	1	0.005	NS	<0.01	U	<0.01	U	<0.01	U	<0.01
Chromium	5	0.050	NS	<0.021	U	0.0268	J	<0.021	U	<0.021
Lead	5	0.025	NS	<0.027	U	<0.027	U	0.041	J	<0.027
Mercury	0.2	0.0007	NS	<0.0005	U	<0.0005	U	<0.0005	U	<0.0005
Selenium	1	0.010	NS	<0.035	U	<0.035	U	<0.035	U	<0.035
Silver	5	0.05	NS	<0.028	U	<0.028	U	<0.028	U	<0.028
GENERAL CHEMISTRY										
Cyanide, Reactive (mg/kg)	-	-	NS	<10	U	<10	U	<10	U	<10
pH (H) (S.U)	-	-	NS	11.1		11.2		11.2		11.7
Sulfide, Reactive (mg/kg)	-	-	NS	<10	U	<10	U	<10	U	<10
Cyanide, Total (mg/kg)	-	-	1.7	NS	NS	NS	NS	NS	NS	NS
Ammonia, as Nitrogen (mg/kg)	-	-	15	NS	NS	NS	NS	NS	NS	NS
IGNITABILITY OF SOLIDS										
Ignitability (mm/sec)			NS	NI	NI	NI	NI	NI	NI	NI



Table 1-1
Bench Scale Testing - Tar Seep 2
Riverview Innovation Technology Campus, Inc.
Tonawanda, New York

Qualifiers:																	
I - The lower value for the two columns has been reported due to obvious interference.																	
P - The RPD between the results for the two columns exceeds the method-specified criteria.																	
U - Not detected at the reported detection limit for the sample.																	
NJ - Presumptive evidence of compound.																	
NI - Not Ignitable																	
Bold - Compound is detected																	
Red Highlight - Exceeds EPA TCLP Standards																	
Yellow Highlight - Exceeds Class GA Groundwater Standards																	
* Comparison is not performed on parameters with non-numeric criteria.																	
EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.																	



Table 1-2
 Bench Scale Testing - Light Oil Area
 Riverview Innovation Technology Campus, Inc.
 Tonawanda, New York

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ANALYTE	SAMPLE ID:		SS-BCP-21-07182023	SS-BCP-21-02-07182023	SS-BCP-21-04-07182023	SS-BCP-21-06-07182023
	LAB REPORT:		L2341132	L2341132	L2341132	L2341132
	COLLECTION DATE:		7/18/2023	7/18/2023	7/18/2023	7/18/2023
	DESCRIPTION:		Light Oil Area Baseline	LOA 10% Portland, 10% Breeze	LOA 5% LKD, 5% Breeze	LOA 15% LKD, 10% Breeze
	EPA-TCLP (mg/L)	NY Part 375 Class GA Standards (mg/L)	LIGHT OIL AREA - BELOW LOA SECONDARY CONTAINMENT			
VOLATILE ORGANICS 8260D						
Benzene (mg/kg)	-		71	NS	NS	NS
TCLP VOLATILES BY EPA 1311						
1,1-Dichloroethene	0.7	0.005	<0.0017 U	<0.0017 U	<0.0017 U	<0.0017 U
1,2-Dichloroethane	0.5	0.005	<0.0013 U	<0.0013 U	<0.0013 U	<0.0013 U
1,4-Dichlorobenzene	7.5	0.003	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2-Butanone	200	0.05	<0.019 U	<0.019 U	<0.019 U	<0.019 U
Benzene	0.5	0.001	1.6	0.077	0.098	0.050
Carbon tetrachloride	0.5	0.005	<0.0013 U	<0.0013 U	<0.0013 U	<0.0013 U
Chlorobenzene	100	0.005	<0.0018 U	<0.0018 U	<0.0018 U	<0.0018 U
Chloroform	6	0.007	<0.0022 U	<0.0022 U	<0.0022 U	<0.0022 U
Tetrachloroethene	0.7	0.005	<0.0018 U	<0.0018 U	<0.0018 U	<0.0018 U
Trichloroethene	0.5	0.005	0.0022 J	<0.0018 U	<0.0018 U	<0.0018 U
Vinyl chloride	0.2	0.002	<0.00071 U	<0.00071 U	<0.00071 U	<0.00071 U
TCLP SEMIVOLATILES BY EPA 1311						
2,4,5-Trichlorophenol	400	-	<0.0019 U	<0.019 U	<0.0019 U	<0.0019 U
2,4,6-Trichlorophenol	2	-	<0.0025 U	<0.0025 U	<0.0025 U	<0.0025 U
2,4-Dinitrotoluene	0.13	0.005	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2-Methylphenol	200	-	0.0070 J	<0.0055 U	<0.0055 U	<0.0055 U
3-Methylphenol/4-Methylphenol	200	-	0.011 J	0.0087 J	0.011 J	0.011 J
Hexachlorobenzene	0.13	0.00004	<0.0034 U	<0.0034 U	<0.0034 U	<0.0034 U
Hexachlorobutadiene	0.5	0.0005	<0.0030 U	<0.0030 U	<0.0030 U	<0.0030 U
Hexachloroethane	3	0.005	<0.0022 U	<0.0022 U	<0.0022 U	<0.0022 U
Nitrobenzene	2	0.0004	<0.0033 U	<0.0033 U	<0.0033 U	<0.0033 U
Pentachlorophenol	100	0.001	<0.0098 U	<0.0098 U	<0.0098 U	<0.0098 U
Pyridine	5	0.05	<0.0045 U	<0.0045 U	<0.0045 U	<0.0045 U
TCLP HERBICIDES BY EPA 1311						
2,4,5-TP (Silvex)	1	0.00026	<0.001 U	<0.001 U	<0.001 U	<0.001 U
2,4-D	10	0.050	<0.001 U	<0.001 U	<0.001 U	<0.001 U
TCLP PESTICIDES BY EPA 1311						
Chlordane	0.03	0.00005	<0.000232 U	<0.000232 U	<0.000232 U	<0.000232 U
Endrin	0.02	ND	<0.000021 U	<0.000021 U	<0.000021 U	<0.000021 U
Heptachlor	0.008	0.00004	<0.000016 U	<0.000016 U	<0.000016 U	<0.000016 U
Heptachlor epoxide	0.008	0.00003	<0.000021 U	<0.000021 U	<0.000021 U	<0.000021 U
Lindane	0.4	0.00005	<0.000022 U	<0.000022 U	<0.000022 U	<0.000022 U
Methoxychlor	10	0.035	<0.000034 U	<0.000034 U	<0.000034 U	<0.000034 U
Toxaphene	0.5	0.00006	<0.000314 U	<0.000314 U	<0.000314 U	<0.000314 U
TCLP METALS BY EPA 1311						
Arsenic	5	0.025	<0.0190 U	0.0294 J	<0.0190 U	0.0282 J
Barium	100	1	0.394 J	0.531	0.490 J	0.333 J
Cadmium	1	0.005	<0.0100 U	<0.0100 U	<0.0100 U	<0.0100 U
Chromium	5	0.050	<0.0210 U	<0.0210 U	<0.0210 U	<0.0210 U
Lead	5	0.025	<0.0270 U	<0.0270 U	0.0330 J	<0.0270 U
Mercury	0.2	0.0007	0.0005 J	0.0007 J	0.0009 J	<0.0005 U
Selenium	1	0.010	<0.500 U	<0.0350 U	<0.0350 U	<0.0350 U
Silver	5	0.05	<0.0280 U	<0.0280 U	<0.0280 U	<0.0280 U
GENERAL CHEMISTRY						
Cyanide, Reactive (mg/kg)	-	-	<10 U	<10 U	<10 U	<10 U
pH (H) (S.U)	-	-	8.06	11.3	11.7	12.0
Sulfide, Reactive (mg/kg)	-	-	340	<10 U	<10 U	<10 U
Cyanide, Total (mg/kg)	-	-	4.3	NS	NS	NS
Ammonia as Nitrogen (mg/kg)	-	-	250	NS	NS	NS
IGNITABILITY OF SOLIDS						
Ignitability (mm/sec)			NI	NI	NI	NI



Table 1-2
 Bench Scale Testing - Light Oil Area
 Riverview Innovation Technology Campus, Inc.
 Tonawanda, New York

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* Comparison is not performed on parameters with non-numeric criteria.									
EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.									
Qualifiers:									
I - The lower value for the two columns has been reported due to obvious interference.									
P - The RPD between the results for the two columns exceeds the method-specified criteria.									
U - Not detected at the reported detection limit for the sample.									
NJ - Presumptive evidence of compound.									
NI - Not Ignitable									
Bold - Compound is detected									
Red Highlight - Exceeds EPA TCLP Standards									
Yellow Highlight - Exceeds Class GA Groundwater Standards									



Table 1-3
 Bench Scale Testing - Weak Ammonia Liquor Area
 Riverview Innovation Technology Campus, Inc.
 Tonawanda, New York

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ANALYTE	SAMPLE ID:		SS-BCP-22-07182023	SS-BCP-22-02-07182023	SS-BCP-22-04-07182023	SS-BCP-22-06-07182023
	LAB REPORT:		L2341132	L2341132	L2341132, 233456	L2341132, 233456
	COLLECTION DATE:		7/18/2023	7/18/2023	7/18/2023	7/18/2023
	DESCRIPTION:		Weak Ammonia Liquor Baseline	LOA 10% Portland, 10% Breeze	LOA 5% LKD, 5% Breeze	LOA 15% LKD, 10% Breeze
	EPA-TCLP (mg/l)	NY Part 375 Class GA Standards (mg/L)	WEAK AMMONIA LIQUOR AREA			
VOLATILE ORGANICS 8260D						
Benzene (mg/kg)	-		17	NS	NS	NS
TCLP VOLATILES BY EPA 1311						
1,1-Dichloroethene	0.7	0.005	<0.0017 U	<0.0017 U	<0.0200 U	<0.0200 U
1,2-Dichloroethane	0.5	0.005	<0.0013 U	<0.0013 U	<0.0200 U	<0.0200 U
1,4-Dichlorobenzene	7.5	0.003	<0.0019 U	<0.0019 U	NS	NS
2-Butanone	200	0.05	<0.019 U	<0.019 U	<0.100 U	<0.100 U
Benzene	0.5	0.001	0.200	0.130	0.138	0.0757
Carbon tetrachloride	0.5	0.005	<0.0013 U	<0.0013 U	<0.0200 U	<0.0200 U
Chlorobenzene	100	0.005	<0.0018 U	<0.0018 U	<0.0200 U	<0.0200 U
Chloroform	6	0.007	<0.0022 U	<0.0022 U	<0.0200 U	<0.0200 U
Tetrachloroethene	0.7	0.005	<0.0018 U	<0.0018 U	<0.0200 U	<0.0200 U
Trichloroethene	0.5	0.005	<0.0018 U	<0.0018 U	<0.0200 U	<0.0200 U
Vinyl chloride	0.2	0.002	<0.00071 U	<0.00071 U	<0.0200 U	<0.0200 U
TCLP SEMIVOLATILES BY EPA 1311						
2,4,5-Trichlorophenol	400	-	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2,4,6-Trichlorophenol	2	-	<0.0025 U	<0.0025 U	<0.0025 U	<0.0025 U
2,4-Dinitrotoluene	0.13	0.005	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2-Methylphenol	200	-	0.900	0.970	1.300	0.980
3-Methylphenol/4-Methylphenol	200	-	2.000	2.500	3.400	1.900
Hexachlorobenzene	0.13	0.00004	<0.0034 U	<0.0034 U	<0.0034 U	<0.0034 U
Hexachlorobutadiene	0.5	0.0005	<0.0030 U	<0.0030 U	<0.0030 U	<0.0030 U
Hexachloroethane	3	0.005	<0.0022 U	<0.0022 U	<0.0022 U	<0.0022 U
Nitrobenzene	2	0.0004	<0.0033 U	<0.0033 U	<0.0033 U	<0.0033 U
Pentachlorophenol	100	0.001	<0.0098 U	<0.0098 U	<0.0098 U	<0.0098 U
Pyridine	5	0.05	0.0072 J	<0.0045 U	<0.0045 U	<0.0045 U
TCLP HERBICIDES BY EPA 1311						
2,4,5-TP (Silvex)	1	0.00026	<0.001 U	<0.001 U	<0.001 U	<0.001 U
2,4-D	10	0.050	<0.001 U	<0.001 U	<0.001 U	<0.001 U
TCLP PESTICIDES BY EPA 1311						
Chlordane	0.03	0.00005	<0.000232 U	<0.000232 U	<0.000232 U	<0.000232 U
Endrin	0.02	ND	<0.000021 U	<0.000021 U	<0.000021 U	<0.000021 U
Heptachlor	0.008	0.00004	<0.000016 U	<0.000016 U	<0.000016 U	<0.000016 U
Heptachlor epoxide	0.008	0.00003	<0.000021 U	<0.000021 U	<0.000021 U	<0.000021 U
Lindane	0.4	0.00005	<0.000022 U	<0.000022 U	<0.000022 U	<0.000022 U
Methoxychlor	10	0.035	<0.000034 U	<0.000034 U	<0.000034 U	<0.000034 U
Toxaphene	0.5	0.00006	<0.000314 U	<0.000314 U	<0.000314 U	<0.000314 U
TCLP METALS BY EPA 1311						
Arsenic	5	0.025	<0.0190 U	<0.0190 U	<0.0190 U	<0.0190 U
Barium	100	1	0.365 J	0.308 J	0.300 J	0.178 J
Cadmium	1	0.005	<0.0100 U	<0.0100 U	<0.0100 U	<0.0100 U
Chromium	5	0.050	<0.0210 U	<0.0210 U	<0.0210 U	<0.0210 U
Lead	5	0.025	<0.0270 U	<0.0270 U	<0.0270 U	<0.0270 U
Mercury	0.2	0.0007	0.0008 J	<0.0005 U	<0.0005 U	<0.0005 U
Selenium	1	0.010	<0.0350 U	0.0368 J	<0.0350 U	<0.0350 U
Silver	5	0.05	<0.0280 U	<0.0280 U	<0.0280 U	<0.0280 U
GENERAL CHEMISTRY						
Cyanide, Reactive (mg/kg)	-	-	<10 U	<10 U	<10 U	<10 U
pH (H) (S.U)	-	-	8.39	11.6	11.8	12.0
Sulfide, Reactive (mg/kg)	-	-	<10 U	<10 U	<10 U	<10 U
Cyanide, Total (mg/kg)	-	-	1.4	NS	NS	NS
Ammonia as Nitrogen (mg/kg)	-	-	76	NS	NS	NS
IGNITABILITY OF SOLIDS						
Ignitability (mm/sec)			NI	NI	NI	NI



Table 1-3
Bench Scale Testing - Weak Ammonia Liquor Area
Riverview Innovation Technology Campus, Inc.
Tonawanda, New York

DRAFT

* Comparison is not performed on parameters with non-numeric criteria.									
EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.									
Qualifiers:									
I - The lower value for the two columns has been reported due to obvious interference.									
P - The RPD between the results for the two columns exceeds the method-specified criteria.									
U - Not detected at the reported detection limit for the sample.									
NJ - Presumptive evidence of compound.									
NI - Not Ignitable									
Bold - Compound is detected									
Red Highlight - Exceeds EPA TCLP Standards									
Yellow Highlight - Exceeds Class GA Groundwater Standards									



Table 1-4
 Bench Scale Testing - Exhauster Building Area
 Riverview Innovation Technology Campus, Inc.
 Tonawanda, New York

DRAFT

ANALYTE	SAMPLE ID:		SS-BCP-23-07182023	SS-BCP-23-02-07182023	SS-BCP-23-04-07182023	SS-BCP-23-06-07182023
	LAB REPORT:		L2341132	L2341132	L2341132	L2341132
	COLLECTION DATE:		7/18/2023	7/18/2023	7/18/2023	7/18/2023
	DESCRIPTION:		Exhauster Building Area Baseline	LOA 10% Portland, 10% Breeze	LOA 5% LKD, 5% Breeze	LOA 15% LKD, 10% Breeze
	EPA-TCLP (mg/l)	NY Part 375 Class GA Standards (mg/L)	EXHAUSTER BUILDING AREA			
VOLATILE ORGANICS 8260D						
Benzene (mg/kg)	-	16	NS	NS	NS	NS
TCLP VOLATILES BY EPA 1311						
1,1-Dichloroethene	0.7	0.005	<0.0017 U	<0.0017 U	<0.0017 U	<0.0017 U
1,2-Dichloroethane	0.5	0.005	<0.0013 U	<0.0013 U	<0.0013 U	<0.0013 U
1,4-Dichlorobenzene	7.5	0.003	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2-Butanone	200	0.05	<0.019 U	<0.019 U	<0.019 U	<0.019 U
Benzene	0.5	0.001	0.210	0.050	0.066	0.042
Carbon tetrachloride	0.5	0.005	<0.0013 U	<0.0013 U	<0.0013 U	<0.0013 U
Chlorobenzene	100	0.005	<0.0018 U	<0.0018 U	<0.0018 U	<0.0018 U
Chloroform	6	0.007	<0.0022 U	<0.0022 U	<0.0022 U	<0.0022 U
Tetrachloroethene	0.7	0.005	<0.0018 U	<0.0018 U	<0.0018 U	<0.0018 U
Trichloroethene	0.5	0.005	<0.0018 U	<0.0018 U	<0.0018 U	<0.0018 U
Vinyl chloride	0.2	0.002	<0.00071 U	<0.00071 U	<0.00071 U	<0.00071 U
TCLP SEMIVOLATILES BY EPA 1311						
2,4,5-Trichlorophenol	400	-	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2,4,6-Trichlorophenol	2	-	<0.0025 U	<0.0025 U	<0.0025 U	<0.0025 U
2,4-Dinitrotoluene	0.13	0.005	<0.0019 U	<0.0019 U	<0.0019 U	<0.0019 U
2-Methylphenol	200	-	1.0	1.0	1.3	1.4
3-Methylphenol/4-Methylphenol	200	-	1.5	2.7	2.1	3.0
Hexachlorobenzene	0.13	0.00004	<0.0034 U	<0.0034 U	<0.0034 U	<0.0034 U
Hexachlorobutadiene	0.5	0.0005	<0.0030 U	<0.0030 U	<0.0030 U	<0.0030 U
Hexachloroethane	3	0.005	<0.0022 U	<0.0022 U	<0.0022 U	<0.0022 U
Nitrobenzene	2	0.0004	<0.0033 U	<0.0033 U	<0.0033 U	<0.0033 U
Pentachlorophenol	100	0.001	<0.0098 U	<0.0098 U	<0.0098 U	<0.0098 U
Pyridine	5	0.05	0.011 J	0.0049 J	0.0058 J	0.0085 J
TCLP HERBICIDES BY EPA 1311						
2,4,5-TP (Silvex)	1	0.00026	<0.001 U	<0.001 U	<0.001 U	<0.001 U
2,4-D	10	0.050	<0.001 U	<0.001 U	<0.001 U	<0.001 U
TCLP PESTICIDES BY EPA 1311						
Chlordane	0.03	0.00005	<0.000232 U	<0.000232 U	<0.000232 U	<0.000232 U
Endrin	0.02	ND	<0.000021 U	<0.000021 U	<0.000021 U	<0.000021 U
Heptachlor	0.008	0.00004	<0.000016 U	<0.000016 U	<0.000016 U	<0.000016 U
Heptachlor epoxide	0.008	0.00003	<0.000021 U	<0.000021 U	<0.000021 U	<0.000021 U
Lindane	0.4	0.00005	<0.000022 U	<0.000022 U	<0.000022 U	<0.000022 U
Methoxychlor	10	0.035	<0.000034 U	<0.000034 U	<0.000034 U	<0.000034 U
Toxaphene	0.5	0.00006	<0.000314 U	<0.000314 U	<0.000314 U	<0.000314 U
TCLP METALS BY EPA 1311						
Arsenic	5	0.025	<0.0190 U	0.0279 J	0.0325 J	0.0352 J
Barium	100	1	0.566	0.444 J	0.354 J	0.261 J
Cadmium	1	0.005	<0.0100 U	<0.0100 U	<0.0100 U	<0.0100 U
Chromium	5	0.050	<0.0210 U	<0.0210 U	<0.0210 U	<0.0210 U
Lead	5	0.025	<0.0270 U	<0.0270 U	<0.0270 U	<0.0270 U
Mercury	0.2	0.0007	0.0007 J	<0.0005 U	<0.0005 U	<0.0005 U
Selenium	1	0.010	<0.0350 U	<0.0350 U	<0.0350 U	<0.0350 U
Silver	5	0.05	<0.0280 U	<0.0280 U	<0.0280 U	<0.0280 U
GENERAL CHEMISTRY						
Cyanide, Reactive (mg/kg)	-	-	<10 U	<10 U	<10 U	<10 U
pH (H) (S.U)	-	-	8.55	11.6	11.9	12.2
Sulfide, Reactive (mg/kg)	-	-	<10 U	<10 U	<10 U	<10 U
Cyanide, Total (mg/kg)	-	-	0.87 J	NS	NS	NS
Ammonia as Nitrogen (mg/kg)	-	-	440	NS	NS	NS
IGNITABILITY OF SOLIDS						
Ignitability (mm/sec)			NI	NI	NI	NI



Table 1-4
 Bench Scale Testing - Exhauster Building Area
 Riverview Innovation Technology Campus, Inc.
 Tonawanda, New York

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* Comparison is not performed on parameters with non-numeric criteria.									
EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.									
Qualifiers:									
I - The lower value for the two columns has been reported due to obvious interference.									
P - The RPD between the results for the two columns exceeds the method-specified criteria.									
U - Not detected at the reported detection limit for the sample.									
NJ - Presumptive evidence of compound.									
NI - Not Ignitable									
Bold - Compound is detected									
Red Highlight - Exceeds EPA TCLP Standards									
Yellow Highlight - Exceeds Class GA Groundwater Standards									



Table 1-6
Bench Scale Testing - Pump House
Riverview Innovation Technology Campus, Inc.
Tonawanda, New York

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ANALYTE	SAMPLE ID:		SS-BCP-25-07182023	SS-BCP-25-02-08172023	BCP-PH-03-07062023	SS-BCP-25-05-08172023	BCP-PH-06-07062023
	LAB REPORT:		L2341132, 233456	233748	L2338426, 232929	233748	L2338426, 232929
	COLLECTION DATE:		7/18/2023	8/17/2023	7/6/2023	8/17/2023	7/6/2023
	DESCRIPTION:		Pump House Baseline	Pump House 10% Portland, 10% Breeze	Pump House 15% Portland, 10% Breeze	Pump House 10% LKD, 10% Breeze	Pump House 15% LKD, 10% Breeze
	EPA-TCLP (mg/l)	NY Part 375 Class GA Standards (mg/L)	PUMP HOUSE - BELOW SLAB				
VOLATILE ORGANICS 8260D							
Benzene (mg/kg)	-	71	NS	NS	NS	NS	NS
TCLP VOLATILES BY EPA 1311							
1,1-Dichloroethene	0.7	0.005	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
1,2-Dichloroethane	0.5	0.005	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
1,4-Dichlorobenzene	7.5	0.003	NS	NS	NS	NS	NS
2-Butanone	200	0.05	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<1.000 U
Benzene	0.5	0.001	0.985	<0.020 U	0.183	<0.020 U	<0.200 U
Carbon tetrachloride	0.5	0.005	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
Chlorobenzene	100	0.005	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
Chloroform	6	0.007	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
Tetrachloroethene	0.7	0.005	<0.020 U	0.0334	<0.020 U	<0.020 U	<0.200 U
Trichloroethene	0.5	0.005	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
Vinyl chloride	0.2	0.002	<0.020 U	<0.020 U	<0.020 U	<0.020 U	<0.200 U
TCLP SEMIVOLATILES BY EPA 1311							
2,4,5-Trichlorophenol	400	-	<0.038 U	<0.500 U	<0.038 U	<1.000 U	<0.038 U
2,4,6-Trichlorophenol	2	-	<0.049 U	<0.500 U	<0.049 U	<1.000 U	<0.049 U
2,4-Dinitrotoluene	0.13	0.005	<0.038 U	<0.500 U	<0.038 U	<1.000 U	<0.038 U
2-Methylphenol	200	-	8	-	6	-	6
3-Methylphenol/4-Methylphenol	200	-	23	-	13	-	12
Total Cresols (2,3,4-Methylphenol)	200	-	NS	4	NS	8	NS
Hexachlorobenzene	0.13	0.00004	<0.069 U	<0.500 U	<0.069 U	<1.000 U	<0.069 U
Hexachlorobutadiene	0.5	0.0005	<0.060 U	<0.500 U	<0.060 U	<1.000 U	<0.060 U
Hexachloroethane	3	0.005	<0.044 U	<0.500 U	<0.044 U	<1.000 U	<0.044 U
Nitrobenzene	2	0.0004	<0.066 U	<0.500 U	<0.066 U	<1.000 U	<0.066 U
Pentachlorophenol	100	0.001	<0.200 U	<2.500 U	<0.200 U	<5.000 U	<0.200 U
Pyridine	5	0.05	<0.090 U	<1.000 U	0.130	<2.000 U	0.150
TCLP HERBICIDES BY EPA 1311							
2,4,5-TP (Silvex)	1	0.00026	<0.001 U	<0.10 U	<0.001 U	<0.050 U	<0.001 U
2,4-D	10	0.050	<0.001 U	<0.10 U	<0.001 U	<0.050 U	<0.001 U
TCLP PESTICIDES BY EPA 1311							
Chlordane	0.03	0.00005	<0.000232 U	<0.010 U	<0.000165 U	<0.010 U	<0.000165 U
Endrin	0.02	ND	<0.000021 U	<0.0020 U	<0.000015 U	<0.0020 U	<0.000015 U
Heptachlor	0.008	0.00004	<0.000016 U	<0.0020 U	<0.000011 U	<0.0020 U	<0.000011 U
Heptachlor epoxide	0.008	0.00003	<0.000021 U	<0.0020 U	<0.000015 U	<0.0020 U	<0.000015 U
Lindane	0.4	0.00005	<0.000022 U	<0.0020 U	<0.000016 U	<0.0020 U	<0.000016 U
Methoxychlor	10	0.035	<0.000034 U	<0.010 U	<0.000024 U	<0.010 U	<0.000024 U
Toxaphene	0.5	0.00006	<0.000314 U	<0.020 U	<0.000224 U	<0.020 U	<0.000224 U
TCLP METALS BY EPA 1311							
Arsenic	5	0.025	<0.0190	<0.500 U	<0.0190 U	<0.500 U	0.0355 J
Barium	100	1	0.627	<0.500 U	0.431	<0.500 U	0.216 J
Cadmium	1	0.005	<0.0100	<0.0250 U	<0.0100 U	<0.0250 U	<0.0100 U
Chromium	5	0.050	<0.0210	<0.500 U	<0.0210 U	<0.500 U	<0.0210 U
Lead	5	0.025	0.0291	<0.500 U	<0.0270 U	<0.500 U	<0.0270 U
Mercury	0.2	0.0007	0.0007	<0.00200 U	<0.0005 U	<0.00200 U	<0.0005 U
Selenium	1	0.010	<0.0350	<0.200 U	<0.0350 U	<0.200 U	<0.0350 U
Silver	5	0.05	<0.0280	<0.500 U	<0.0280 U	<0.500 U	<0.0280 U
GENERAL CHEMISTRY							
Cyanide, Reactive (mg/kg)	-	-	<10 U	<1.0 U	<10 U	<1.0 U	<10 U
pH (H) (S.U)	-	-	8.77	10.26	11.1	11.69	11.5
Sulfide, Reactive (mg/kg)	-	-	31	<10 U	<10 U	<10 U	<10 U
Cyanide, Total (mg/kg)	-	-	2.5	24.9	NS	10.7	NS
Ammonia as Nitrogen (mg/kg)	-	-	350	<10.0 U	NS	<10.0 U	NS
IGNITABILITY OF SOLIDS							
Ignitability (mm/sec)	-	-	NI	NI	NI	NI	NI



Table 1-6
Bench Scale Testing - Pump House
Riverview Innovation Technology Campus, Inc.
Tonawanda, New York

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Qualifiers:												
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.												
U - Not detected at the reported detection limit for the sample.												
NJ - Presumptive evidence of compound.												
NI - Not Ignitable												
Bold - Compound is detected												
Red Highlight - Exceeds EPA TCLP Standards												
Yellow Highlight - Exceeds Class GA Groundwater Standards												
* Comparison is not performed on parameters with non-numeric criteria.												
EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.												