



2930 Westlake Ave N Suite 100
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Swinomish Tribe

Attn: Jon Boe

Swinomish Office of Planning & Community Development
11430 Moorage Way
La Conner, WA 98257

RE: Swinomish Brownfields
Fremont Project No: CHM101119-4

December 1st, 2010

Jon:

Enclosed are the analytical results for the **Swinomish Brownfields** soil samples delivered (by Fed Ex) to Fremont Analytical on November 19th, 2010.

Sample Receipt: The samples were received in good condition - in the proper containers (5 - 4oz soil jars) properly sealed, labeled and within holding times. The samples were received in a cooler with wet ice, with a cooler temperature of 2.4°C, which is within the recommended laboratory cooler temperature range (<4°C - 10°C). A temperature blank was received at the same temperature. The samples were stored in refrigeration units at the USEPA-recommended temperature of 4°C ± 2°C. There were no sample receipt issues to report.

Sample Analysis: Examination of these samples was conducted for the presence of the following:

- **Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)**
- **Total Metals (Cd, Pb) by EPA Method 6020**

These applications were performed under Washington State Department of Ecology accreditation parameters. All appropriate Quality Assurance / Quality Control method parameters have been applied.

Laboratory Notations (SW6020) – Matrix: The *relative percent difference between (RPD%)* between the sample (Sample ID: SPS-1) and the sample duplicate exceeded the laboratory recommended control limits for *Lead (Pb)* (34%, limit = 30%). The *RPD%* for the *Matrix Spike (MS)/MS Duplicate* was in range for the same sample.

Please contact the laboratory if you should have any questions about the results,

Thank you for using Fremont Analytical!

Sincerely,

Michael Dee
Sr. Chemist / Principal
mikedee@fremontanalytical.com

Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Swinomish Brownfields

Client: Swinomish Tribe

Client Project #: N/A

Lab Project #: CHM101119-4

EPA 8270C (SIM) (mg/kg)	MRL	Method Blank	LCS	Duplicate		
				SPS-1	SPS-1	SPS-2
Date Extracted		11/19/10	11/19/10	11/19/10	11/19/10	11/19/10
Date Analyzed		11/22/10	11/22/10	11/22/10	11/22/10	11/22/10
Matrix				Soil	Soil	Soil
	<i>Acenaphthene</i>		90%			
	<i>Pyrene</i>		110%			
Benzo(a)anthracene	0.05	nd		nd	nd	nd
Chrysene	0.05	nd		nd	nd	nd
Benzo(b)fluoranthene	0.05	nd		nd	nd	nd
Benzo(k)fluoranthene	0.05	nd		nd	nd	nd
Benzo(a)pyrene	0.05	nd		nd	nd	nd
Indeno(1,2,3-cd)pyrene	0.05	nd		nd	nd	nd
Dibenzo(a,h)anthracene	0.05	nd		nd	nd	nd
<i>Total PAH Carcinogens</i>				0.0	0.0	0.0

Total PAH Carcinogens Defined as:

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,
Benzo(k)fluoranthene, Benzo(a)pyrene,
Ideno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

Surrogate Recovery						
(Surr 1) 2-Fluorobiphenyl	79%	92%	84%	91%	89%	
(Surr 2) p-Terphenyl	94%	99%	95%	91%	99%	

"nd" Indicates not detected at listed reporting limits

"int" Indicates that interference prevents determination

"J" Indicates estimated value

"MRL" Indicates Method Reporting Limit

"LCS" Indicates Laboratory Control Sample

"MS" Indicates Matrix Spike

"MSD" Indicates Matrix Spike Duplicate

"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

Acceptable Recovery Limits:

Surrogates = 65% to 135%

LCS, LCSD, MS, MSD = 50% to 150%

Surrogate Concentration = 0.5 mg/kg

Spike Concentration = 1.0 mg/kg

Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Swinomish Brownfields

Client: Swinomish Tribe

Client Project #: N/A

Lab Project #: CHM101119-4

		MS			MSD		
EPA 8270C (SIM)	MRL	SPS-3	SPS-4	SPS-5	SPS-1	SPS-1	RPD
(mg/kg)							%
Date Extracted		11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	
Date Analyzed		11/22/10	11/22/10	11/22/10	11/22/10	11/22/10	
Matrix		Soil	Soil	Soil	Soil	Soil	
<hr/>							
<i>Acenaphthene</i>					86%	88%	2%
<i>Pyrene</i>					94%	101%	7%
Benzo(a)anthracene	0.05	nd	nd	nd			
Chrysene	0.05	nd	nd	nd			
Benzo(b)fluoranthene	0.05	nd	nd	nd			
Benzo(k)fluoranthene	0.05	nd	nd	nd			
Benzo(a)pyrene	0.05	nd	nd	nd			
Indeno(1,2,3-cd)pyrene	0.05	nd	nd	nd			
Dibenzo(a,h)anthracene	0.05	nd	nd	nd			
<i>Total PAH Carcinogens</i>		0.0	0.0	0.0			

Total PAH Carcinogens Defined as:

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,
Benzo(k)fluoranthene, Benzo(a)pyrene,
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	81%	97%	85%	89%	88%
(Surr 2) p-Terphenyl	105%	115%	118%	85%	88%

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Acceptable Recovery Limits:

Surrogates = 65% to 135%

LCS, LCSD, MS, MSD = 50% to 150%

Surrogate Concentration = 0.5 mg/kg

Spike Concentration = 1.0 mg/kg

Analysis of Total Metals in Soil by EPA Method 6020

Project: Swinomish Brownfields
Client: Swinomish Tribe
Client Project #: N/A
Lab Project #: CHM101119-4

EPA 6020 (mg/kg)	MRL	Method Blank	LCS	SPS-1	Duplicate		SPS-2
					SPS-1	RPD %	
Date Extracted		11/19/10	11/19/10	11/19/10	11/19/10		11/19/10
Date Analyzed		11/19/10	11/19/10	11/19/10	11/19/10		11/19/10
Matrix				Soil	Soil		Soil
Cadmium (Cd)	0.20	nd	92.1%	0.609	0.493	21%	0.713
Lead (Pb)	0.20	nd	113%	44.5	31.5	34%	94.9

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 "LCS" Indicates Laboratory Control Sample
 "MS" Indicates Matrix Spike
 "MSD" Indicates Matrix Spike Duplicate
 "RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

Acceptable Recovery Limits:

LCS, LCSD, MS, MSD: 65% to 135%

Spike Concentration:

Pb = 25 mg/kg

Cd = 2.5 mg/kg

Analysis of Total Metals in Soil by EPA Method 6020

Project: Swinomish Brownfields
Client: Swinomish Tribe
Client Project #: N/A
Lab Project #: CHM101119-4

					MS	MSD	
EPA 6020	MRL	SPS-3	SPS-4	SPS-5	SPS-1	SPS-1	RPD
(mg/kg)							%
Date Extracted		11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	
Date Analyzed		11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	
Matrix		Soil	Soil	Soil	Soil	Soil	
Cadmium (Cd)	0.20	0.906	0.697	0.485	96.9%	97.3%	0.5%
Lead (Pb)	0.20	1020	54.4	55.8	95.8%	122%	24%

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 "MS" Indicates Matrix Spike
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LCS, LCSD, MS, MSD: 65% to 135%

Spike Concentration:

Pb = 25 mg/kg

Cd = 2.5 mg/kg



Fremont

Analytical

Chain of Custody Record

2930 Westlake Ave. N. Suite 100
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 18 Nov 2010

Laboratory Project No (Internal): CHM10119-4
Page: 1 of 1

Client:

Swinomish Tribe (Attn: J. Roe)

Project Name:

Swinomish Boardfields #

Address:

11430 Puget Ave

Location:

McLiam Causeway SE, Platteville, WI

City, State, Zip

La Crosse, WI 54601

Collected by:

Alan R. Boel

Reports To (PM):

Fax:

Email:

Project No:

Sample Name	Time	Sample Type (Matrix)	Container Type	Date of Collection	VOA 8260	VOA 8021B BTEX	NWTPH-Gx	NWTPH-HCID	NWTPH-Dx/Dx Ext.	SEMI VOL 8270C	PAH 8270	PCBs 8082	CI PESTICIDES 8081	CI HERBICIDES 8151A	Metals*	Total (T) Dissolved (D)	Anions (IC)**	Comments/Depth
SPS 1	0935	Soil	3/4 1055 402	18 Nov 2010							X				X			Cd, Pb, c, PAH
2 SPS 2	0942	Soil									X				X			
3 SPS 3	0950	Soil									X				X			
4 SPS 4	0958	Soil									X				X			
5 SPS 5	1005	Soil									X				X			
6 Temp Blank	1052	N/A																
7																		
8																		
9																		
10																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Ag Al As B Ba Be Ca (Cd) Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Relinquished	Received	Date/Time	Received	Date/Time
18 Nov 2010 1330	18 Nov 2010 1330	18 Nov 2010 1330	18 Nov 2010 1330	18 Nov 2010 1330

Relinquished: [Signature] Date/Time: 18 Nov 2010 1330 Received: [Signature] Date/Time: 18 Nov 2010 1330

Relinquished: [Signature] Date/Time: 18 Nov 2010 1330 Received: [Signature] Date/Time: 18 Nov 2010 1330

Special Remarks: * e PAH only

TAT --> 24HR 48HR Standard

