



ENVIRONMENT, ENERGY, HEALTH & SAFETY CONSULTANTS

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August 6, 2013

City and Bureau of Juneau
Engineering Department
155 South Seward Street
Juneau, AK 99801

ATTN: Skye Stekoll

RE: Addendum to Site Assessment Report – Savikko Park

Dear Mr. Stekoll:

At the request of Alaska Department of Environmental Conservation (ADEC), **NORTECH** re-submitted the samples collected at Savikko Park for analysis by Friedman & Bruya, Inc. (F&B) located in Seattle, Washington. ADEC requested that the entire 30 gram sample allotment be analyzed to meet the requirements of the ADEC Draft Guidance on Multi Increment Soil Sampling (March 2009).

Laboratory results confirmed that concentrations of RCRA 8 Metals are below ADEC Method Two cleanup levels, with the exception of Arsenic. Arsenic was detected in samples at levels ranging between 3.59 and 6.79 mg/kg. As noted in the previously submitted Site Assessment Report (January 2013), the level of arsenic detected is within historical background levels for the Juneau area.

Results of both analytical methods are shown on the following page. The latest analytical report is attached to this letter.

Sincerely,
NORTECH

A handwritten signature in black ink, appearing to read "Jason Ginter".

Jason Ginter, CEA
Principal, Juneau Technical Manager



Table 1: Sample Results

SGS - Initial Results								
Sample ID	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Total Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Cleanup level	3.7	16,600	65	250	400	25	410	410
DU1	3.68	119	0.189 J	7.42	7.39	0.203	ND	ND
DU2	3.65	192	0.154 J	6.45	9.04	0.281	0.157 J	0.0408 J
DU4	4.05	91.2	0.107 J	4.93	6.8	0.314	ND	0.0507 J
DU4NG	4.7	154	0.142 J	6.4	8.93	0.29	0.171 J	0.0394 J
DU7	4.72	116	0.157 J	5.94	8.29	0.373	0.254 J	ND
Duplicate1	4.25	155	0.0592 J	7.65	7.91	0.268	0.298 J	ND
Duplicate2	4.16	256	0.0639 J	5.54	8.35	0.238	0.236 J	ND
DU8	4.04	164	0.115 J	7.71	7.54	0.3	0.151 J	0.0485 J
DU9	3.64	176	0.144 J	5.26	9.79	0.362	0.261 J	0.236 J
DU10	5.55	234	0.102 J	5.28	15.8	0.457	0.386 J	0.0364 J
DU11	5.81	249	0.0715 J	7.01	8.71	0.274	0.422 J	ND

Friedman & Bruya - 30g Results								
Sample ID	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Total Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Cleanup level	3.7	16,600	65	250	400	25	410	410
DU1	4.13	75.9	<1	6.45	8.11	0.27	<1	<1
DU2	3.59	61.1	<1	4.72	8.11	0.29	<1	<1
DU4	4.96	19.5	<1	4.73	11.1	0.24	<1	<1
DU4NG	--	--	--	--	--	--	--	--
DU7	6.02	26.4	<1	5.83	10.5	0.33	<1	<1
Duplicate1	6.04	26.7	<1	6.16	11.8	0.39	<1	<1
Duplicate2	5.46	25.2	<1	5.26	9.17	0.31	<1	<1
DU8	4.1	47	<1	5.85	9.01	0.39	<1	<1
DU9	3.71	44.4	<1	4.48	14.3	0.44	<1	<1
DU10	5.94	32.2	<1	4.53	16.6	0.47	<1	<1
DU11	6.79	26.6	<1	5.97	13.6	0.34	<1	<1

Table Notes: Sample results in **boldface** exceed ADEC cleanup levels for this project.

J – indicates the result is an estimation

ND – indicates that the analyte was not detected



August 6, 2013

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 3, 2013

Cameron Sell
Nortech
2400 College Rd
Fairbanks, AK 99709

Dear Mr. Sell:

Included are the results from the testing of material submitted on June 4, 2013 from the 12-2650, F&BI 306032 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

A handwritten signature in black ink, appearing to be 'Kurt Johnson', with a large, stylized flourish at the end.

Kurt Johnson
Chemist

Enclosures
c: csell@nortechengr.com
NAA0703R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 4, 2013 by Friedman & Bruya, Inc. from the Nortech 12-2650, F&BI 306032 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Nortech</u>
306032-01	DV-1
306032-02	DV-2
306032-03	DV-4
306032-04	DV-7 1
306032-05	DV-7 2
306032-06	DV-7 3
306032-07	DV-8
306032-08	DV-9
306032-09	DV-10
306032-10	DV-11

The samples were not corrected for moisture content.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-1	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-01
Date Analyzed:	06/28/13	Data File:	306032-01.025
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	109	60	125
Indium	97	60	125
Holmium	101	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	6.45
Arsenic	4.13
Selenium	<1
Silver	<1
Cadmium	<1
Barium	75.9
Lead	8.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-2	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-02
Date Analyzed:	06/28/13	Data File:	306032-02 rr.033
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	110	60	125
Indium	97	60	125
Holmium	101	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	4.72
Arsenic	3.59
Selenium	<1
Silver	<1
Cadmium	<1
Barium	61.1
Lead	8.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-4	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-03
Date Analyzed:	06/28/13	Data File:	306032-03 rr.034
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	86	60	125
Holmium	91	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	4.73
Arsenic	4.96
Selenium	<1
Silver	<1
Cadmium	<1
Barium	19.5
Lead	11.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-7 1	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-04
Date Analyzed:	06/28/13	Data File:	306032-04 rr.036
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	108	60	125
Indium	92	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	6.16
Arsenic	6.04
Selenium	<1
Silver	<1
Cadmium	<1
Barium	26.7
Lead	11.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-7 2	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-05
Date Analyzed:	06/28/13	Data File:	306032-05 rr.037
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	93	60	125
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	5.26
Arsenic	5.46
Selenium	<1
Silver	<1
Cadmium	<1
Barium	25.2
Lead	9.17

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-7 3	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-06
Date Analyzed:	06/28/13	Data File:	306032-06 rr.038
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	85	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	5.83
Arsenic	6.02
Selenium	<1
Silver	<1
Cadmium	<1
Barium	26.4
Lead	10.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-8	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-07
Date Analyzed:	06/28/13	Data File:	306032-07.039
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	114	60	125
Indium	97	60	125
Holmium	103	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	5.85
Arsenic	4.10
Selenium	<1
Silver	<1
Cadmium	<1
Barium	47.0
Lead	9.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-9	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-08
Date Analyzed:	06/28/13	Data File:	306032-08.040
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	111	60	125
Indium	100	60	125
Holmium	104	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	4.48
Arsenic	3.71
Selenium	<1
Silver	<1
Cadmium	<1
Barium	44.4
Lead	14.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-10	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-09
Date Analyzed:	06/28/13	Data File:	306032-09.041
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	93	60	125
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	4.53
Arsenic	5.94
Selenium	<1
Silver	<1
Cadmium	<1
Barium	32.2
Lead	16.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DV-11	Client:	Nortech
Date Received:	06/04/13	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	306032-10
Date Analyzed:	06/28/13	Data File:	306032-10.042
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	85	60	125
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	5.97
Arsenic	6.79
Selenium	<1
Silver	<1
Cadmium	<1
Barium	26.6
Lead	13.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Nortech
Date Received:	Not Applicable	Project:	12-2650, F&BI 306032
Date Extracted:	06/20/13	Lab ID:	I3-359 mb
Date Analyzed:	06/28/13	Data File:	I3-359 mb.022
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	95	60	125
Holmium	99	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/03/13
Date Received: 06/04/13
Project: 12-2650, F&BI 306032
Date Extracted: 06/20/13
Date Analyzed: 06/26/13

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL MERCURY
USING EPA METHOD 1631E**

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Total Mercury</u>
DV-1 306032-01	0.27
DV-2 306032-02	0.29
DV-4 306032-03	0.24
DV-7 1 306032-04	0.39
DV-7 2 306032-05	0.31
DV-7 3 306032-06	0.33
DV-8 306032-07	0.39
DV-9 306032-08	0.44
DV-10 306032-09	0.47
DV-11 306032-10	0.34
Method Blank	<0.013

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/03/13

Date Received: 06/04/13

Project: 12-2650, F&BI 306032

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 306032-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	6.45	83	78	57-128	6
Arsenic	mg/kg (ppm)	10	4.13	82 b	76 b	70-118	8 b
Selenium	mg/kg (ppm)	5	<1	90	87	64-117	3
Silver	mg/kg (ppm)	10	<1	89	87	73-122	2
Cadmium	mg/kg (ppm)	10	<1	90	88	83-116	2
Barium	mg/kg (ppm)	50	75.9	74 b	59 b	60-141	23 b
Lead	mg/kg (ppm)	50	8.11	87	84	59-148	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	95	78-121
Arsenic	mg/kg (ppm)	10	96	83-113
Selenium	mg/kg (ppm)	5	101	84-115
Silver	mg/kg (ppm)	10	94	81-116
Cadmium	mg/kg (ppm)	10	95	54-114
Barium	mg/kg (ppm)	50	97	85-116
Lead	mg/kg (ppm)	50	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/03/13

Date Received: 06/04/13

Project: 12-2650, F&BI 306032

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES FOR
TOTAL MERCURY
USING EPA METHOD 1631E**

Laboratory Code: 306032-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	0.27	3 b	0 b	62-140	200 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	88	63-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

306032

SAMPLE CHAIN OF CUSTODY

ME 06-04-13

BT3

Send Report To Amerson Seel

Company Nortech

Address 2400 College Rd

City, State, ZIP Fairbanks, AK 99709

Phone # 586-6813 Fax # 586-6819

Email Address esell@nortechengr.com

SAMPLERS (Signature) [Signature]

PROJECT NAME/NO. 12-2650

PO #

PROJECT ADDRESS Juneau, AK

ELECTRONIC DATA REQUESTED Yes

Page # 1 of 1

TURNAROUND TIME

~~Standard Turnaround~~
RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

Dispose after 30 days

Return samples
Will call with instructions

Samples Received at _____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS		RCRA Metals	Mercury 1631E
bu-1	01A-B	12/17/12	11:30	S	2							✓	✓	LARGE VOL. EXTRACTION (30g)
bu-2	02-T	12/10/12	13:50											
bu-4	03	12/17/12	14:12											
bu-7 #1	04	12/17/12	14:24											
bu-7 #2	05	12/17/12	14:24											
bu-7 #3	06	12/17/12	14:24											
bu-8	07	12/10/12	13:17											
bu-9	08	12/10/12	14:20											
bu-10	09	12/17/12	14:39											
bu-11	10	12/17/12	12:52											

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

Ph. (206) 285-8382

Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE

Relinquished by: [Signature]

Received by: [Signature]

Received by:

PRINT NAME

Amerson Seel

BT

COMPANY

Nortech

FS&BI

DATE

6/3/13

6-4-13

TIME

12:15

15:15

Samples received at 10 °C