



*WOOD BUFFALO
ENVIRONMENTAL
ASSOCIATION*

ANNUAL 2013 REPORT



CONTINUOUS MONITORING
INTEGRATED MONITORING
February 18, 2014

Operations and Data Collection by:
Wood Buffalo Environmental Association
Fort McMurray, Alberta

QA/QC, Data Validation and Reporting by:
Aurora Atmospheric Inc
Calgary, Alberta

This page intentionally left blank

February 18, 2014

Director, Environmental Monitoring and Evaluation Branch
Alberta Environment
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, Alberta T5K 2J6

**RE: Monthly Ambient Air Quality Monitoring Report Annual 2013
Wood Buffalo Environmental Association**

Enclosed is the Annual 2013 ambient air quality monitoring report for the ambient air quality monitoring stations of the Wood Buffalo Environmental Association (WBEA) regional air quality monitoring network.

The continuous ambient air quality monitoring network stations are:

AMS 1 - Fort McKay – Bertha Ganter
AMS 2 - Mildred Lake
AMS 3 - Lower Camp B (meteorology)
AMS 4 - Buffalo Viewpoint
AMS 5 - Mannix
AMS 6 - Patricia McInnes
AMS 7 - Athabasca Valley
AMS 8 - Fort Chipewyan
AMS 9 - Barge Landing
AMS 11 - Lower Camp (air quality)
AMS 12 - Millennium Mine
AMS 13 - Syncrude UE 1
AMS 14 - Anzac
AMS 15 - CNRL Horizon
AMS 16 - Albian Muskeg River
AMS 17 - Wapasu
AMS 101 - Portable
AMS 102 - Portable

This report is submitted by WBEA on behalf its members and for some members to satisfy the requirements contained in their EPEA Approvals:

Company	EPEA Approval No.
Athabasca Oil Corporation	289664-00-00
Brion Energy	254465-00-00
Canadian Natural Resources Limited	149968-00-01
Cenovus Energy	48522-01-00
Connacher Oil	240008-00-03
ConocoPhillips Canada Resources Corp	48263-00-00

Company	EPEA Approval No.
Devon Canada Corp	224816-00-03
Finning	Not Applicable
Hammerstone Corporation	189942-00-02
Husky Energy	206355-00-00
Imperial Oil	00046586-00-00
MEG Energy	00216466-00-04
Nexen Inc.	137467-00-00
Shell Canada Limited	20809-01-00
Statoil Canada Ltd.	0024859-00-00
Suncor Energy Inc.	094-02-00
Sunshine Oilsands Ltd.	305529-00-00
Syncrude Canada Limited	026-02-00
Teck Resources Ltd.	Not Applicable
Total Canada	228044-00-00
Williams Energy	73203-01-00

Abroginal Communities

Chipewyan Prairie Dene First Nation
Christina River Dene Nation Council
Fort McKay First Nation
Fort McKay Metis Local 63
Fort McMurray First Nation 468
Fort McMurray Métis Local 1935

Government and Non-Industrial Organizations

Alberta Energy Regulator
Alberta Environment & Sustainable Resource Development
Alberta Health Services
Alberta Health & Wellness
Environment Canada
Fort McMurray Environmental Association
Health Canada
Parks Canada
Pembina Institute for Appropriate Development
Regional Municipality of Wood Buffalo
Saskatchewan Environment

The air monitoring stations and passive towers in the WBEA network are presented Figures 1 and 2.

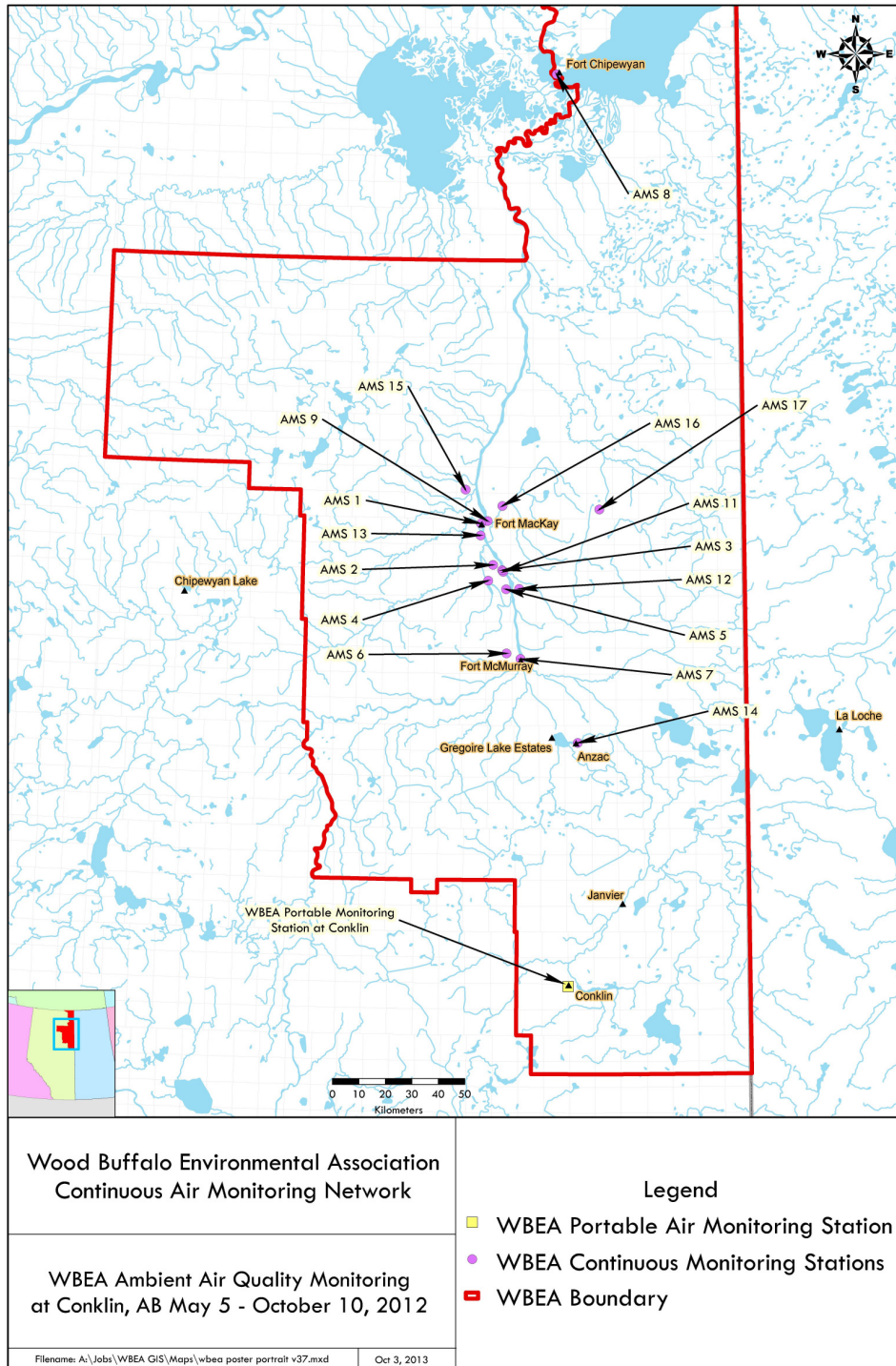


Figure 1 Map of WBEA Continuous Air Monitoring Stations.

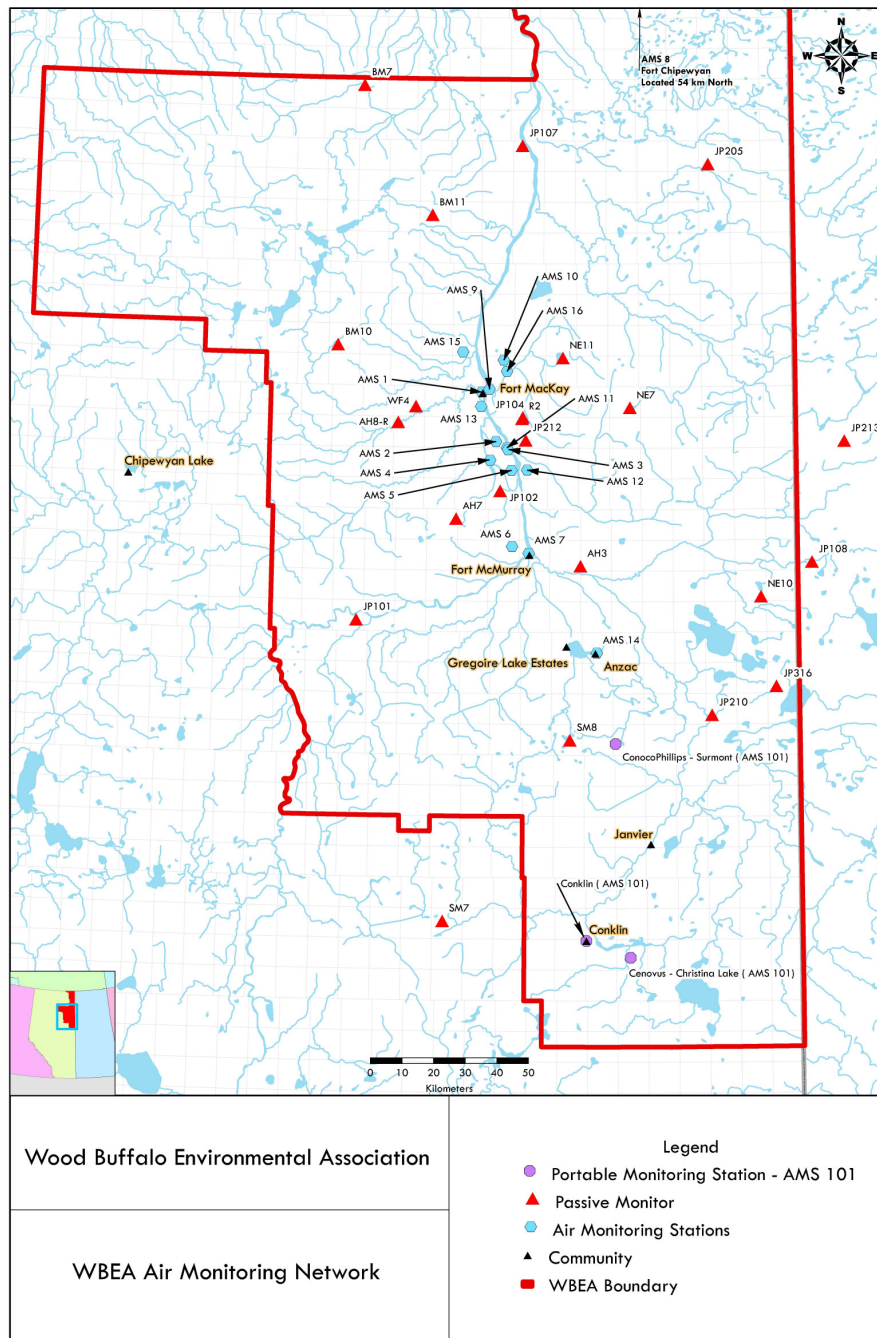


Figure 2 Map of WBEA Forest Health Monitoring Network.

The following operational modifications are provided as per the Air Monitoring Directive requirements.

In early July, WBEA deployed a second portable air monitoring station in its ambient air monitoring network. The station is equipped with ambient air quality analyzers for SO₂, H₂S, THC, NO, NO₂, NO_x and meteorological sensors for ambient temperature, relative humidity, and wind speed and direction. The purpose of this station is to meet specific EPEA Approval requirement's and background and community ambient air monitoring studies.

In late November, WBEA commissioned continuous air monitoring station 17, Wapasu, in its ambient monitoring network. The inaugural month of operation commenced on December 1, 2013 at the Husky Sunrise facility. The station was deployed to fulfill the Alberta Environment's Environmental Protection and Enhancement Act approval number 206355-00-00. The station is equipped with ambient air quality analyzers for SO₂, H₂S, THC, O₃, NO, NO₂, NO_x, PM_{2.5} and meteorological sensors for ambient temperature, relative humidity, and wind speed and direction.

Station	Parameter	Effective Date	Comment
AMS 1	NH3	15Jan13:16:50	Operating range changed from 0 - 5000 ppb to 0 -2500 ppb.
AMS1	NO2_2, NO_2, NOX_2	15Jan13:12:00	Operating range changed from 0 - 500 ppb to 0 -1000 ppb.
AMS 6	NO2, NO, NOX	06Feb13:11:45	Operating range changed from 0 - 500 ppb to 0 -1000 ppb
AMS 6	NH3	21Feb13:17:15	Operating range changed from 0 - 5000 ppb to 0 -2500 ppb.
AMS12	PM2.5	18Jul13:09:52	Analyzer polled digitally, operational range 0 - 1000 ug/m3
AMS13	NO2, NO, NOX	16Jan13:13:35	Operating range changed from 0 - 500 ppb to 0 -1000 ppb
AMS14	NO2, NO, NOX	16Jan13:09:35	Operating range changed from 0 - 500 ppb to 0 -1000 ppb
AMS15	NO2, NO, NOX	26Mar13:08:50	Operating range changed from 0 - 500 ppb to 0 -1000 ppb
AMS16	NO2, NO, NOX	10Jan13:10:35	Operating range changed from 0 - 500 ppb to 0 -1000 ppb
AMS 17	SO2	01Dec13:00:05	New station
AMS 17	H2S	01Dec13:00:05	New station
AMS 17	NO2,NO,NOX	01Dec13:00:05	New station
AMS 17	THC	01Dec13:00:05	New station
AMS 17	PM2.5	01Dec13:00:05	New station
AMS 17	O3	10Dec13:09:30	New station
AMS 17	Wind Speed and Direction	01Dec13:00:05	New station
AMS 17	Temperature	01Dec13:00:05	New station
AMS 17	Relative Humidity	01Dec13:00:05	New station
AMS102	SO2	04Jul13:08:00	New station
AMS102	H2S	03Jul13:12:00	New station
AMS102	NO2,NO,NOX	04Jul13:10:00	New station
AMS102	THC	11Jul13:09:35	New station
AMS102	Wind Speed and Direction	03Jul13:16:00	New station
AMS102	Temperature	03Jul13:16:40	New station
AMS102	Relative Humidity	03Jul13:16:40	New station

This report contains a summary of operational times for the year, the monthly averages, number of readings in excess of the Alberta Ambient Air Quality Objectives and frequency distributions of 1-hour data. The results of passive and integrated monitoring of VOC, PM_{2.5}, PM₁₀, PAH and precipitation are also included in this report. The integrated results for daily and annual averages are provided for all species analyzed, as well as the monthly averages for passive monitoring.

If additional information is required, please call either Sanjay Prasad at (403) 703 8931 or the Wood Buffalo Environmental Association at (780) 799 4420.

Yours sincerely,

Aurora Atmospheric Inc.

Sanjay Prasad
Air Quality Scientist



Table of Contents:

	Page
Annual Continuous Monitoring Network Summary	1
<i>Continuous Air Quality Parameter Summaries</i>	
<i>Sulphur Dioxide (SO₂)</i>	5
<i>Total Reduced Sulphur (TRS)</i>	23
<i>Hydrogen Sulphide (H₂S)</i>	31
<i>Total Hydrocarbon (THC)</i>	39
<i>Methane (CH₄)</i>	57
<i>Non-Methane Hydrocarbon (NMHC)</i>	61
<i>Ozone (O₃)</i>	65
<i>Nitrogen Dioxide (NO₂)</i>	73
<i>Oxides of Nitrogen (NO_x)</i>	87
<i>Nitrogen Oxide (NO)</i>	101
<i>Carbon Oxide (CO)</i>	115
<i>Ammonia (NH₃)</i>	117
<i>Particulate Matter <2.5µm (PM_{2.5})</i>	119
<i>Continuous Meteorological Parameter Summaries</i>	
<i>Ambient Temperature</i>	131
<i>Relative Humidity</i>	159
<i>Barometric Pressure</i>	179
<i>Global Radiation</i>	181
<i>Precipitation</i>	185
<i>Surface Wetness</i>	189
<i>Dew Point</i>	193
<i>Wind Speed and Direction</i>	195
<i>Wind roses</i>	221
<i>Integrated Monitoring Summaries</i>	
Passive Samples	249
Passive Sample Co-location Monthly Results	251
Passive Sample Yearly Co-location Annual Averages	261
Passive Sample Forest Health Sites Monthly Results	263
Passive Sample Forest Health Sites Annual Averages	273
Polycyclic Aromatic Hydrocarbons (PAH) Sample Results	281
Polycyclic Aromatic Hydrocarbons Annual Averages	346
Volatile Organic Compounds (VOC) Sample Results	371
Volatile Organic Compounds Annual Averages	503
Reduced Sulphur Compounds Sample Results	517
Reduced Sulphur Compounds Annual Averages	649
Particulate Matter – Metals Sample Results	651
Particulate Matter – Metals Annual Averages	717



Integrated Monitoring Summaries (Continued)

	Page
Particulate Matter – Ions Sample Results	761
Particulate Matter – Ions Annual Averages	827
Precipitation Chemistry Sample Results	843

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
ANNUAL AIR MONITORING SUMMARY
for AMD SECTION III.B.1(c)

ANNUAL 2013

page 1 of 2

prepared 14Feb14:16:01

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	1 - 12	2013	CONTINUOUS AMBIENT MONITORING				
254465-00-00							
149968-00-01							
48522-01-00							
240008-00-03	CONTINUOUS AMBIENT MONITORING						
48263-00-00	CONTINUOUS AMBIENT MONITORING						
224816-00-03				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
189942-00-02	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
206355-00-00							
46586-00-00							
216466-00-04	SO2 (ppm)	1	99.53	0.135	0	0.023	0
137467-00-00	SO2 (ppm)	2	99.54	0.110	0	0.021	0
20809-01-00	SO2 (ppm)	4	99.05	0.139	0	0.020	0
24859-00-00	SO2 (ppm)	5	99.01	0.226	1	0.025	0
094-02-00	SO2 (ppm)	6	99.87	0.048	0	0.010	0
305529-00-00	SO2 (ppm)	7	99.29	0.038	0	0.009	0
026-02-00	SO2 (ppm)	8	97.63	0.019	0	0.004	0
228044-00-00	SO2 (ppm)	11	99.81	0.134	0	0.014	0
73203-01-00	SO2 (ppm)	12	99.85	0.121	0	0.025	0
	SO2 (ppm)	13	98.50	0.109	0	0.016	0
	SO2 (ppm)	14	98.94	0.078	0	0.006	0
	SO2 (ppm)	15	96.72	0.050	0	0.017	0
	SO2 (ppm)	16	98.31	0.094	0	0.015	0
	SO2 (ppm)	17	100.00	0.082	0	0.010	0
	SO2 (ppm)	101	99.89	0.007	0	0.002	0
	SO2 (ppm)	102	98.28	0.027	0	0.009	0
	H2S (ppm)	2	99.54	0.013	4	0.003	0
	H2S (ppm)	4	99.10	0.006	0	0.002	0
	H2S (ppm)	5	99.53	0.031	8	0.006	2
	H2S (ppm)	11	99.04	0.008	0	0.003	0
	H2S (ppm)	17	96.91	0.002	0	0.001	0
	H2S (ppm)	101	99.89	0.002	0	0.001	0
	H2S (ppm)	102	98.01	0.006	0	0.001	0
	TRS (ppm)	1	99.42	0.005	0	0.001	0
	TRS (ppm)	6	99.89	0.003	0	0.001	0
	TRS (ppm)	7	99.48	0.004	0	0.002	0
	TRS (ppm)	9	99.62	0.006	0	0.001	0
	TRS (ppm)	12	99.86	0.004	0	0.001	0
	TRS (ppm)	13	99.45	0.006	0	0.001	0
	TRS (ppm)	14	98.58	0.012	1	0.001	0
	TRS (ppm)	15	99.80	0.004	0	0.001	0
	THC (ppm)	1	98.64	3.7	-	2.9	-
	THC (ppm)	2	99.25	12.3	-	3.6	-
	THC (ppm)	4	99.00	7.2	-	3.2	-
	THC (ppm)	5	99.29	9.0	-	3.5	-
	THC (ppm)	6	99.02	3.3	-	2.5	-
	THC (ppm)	7	99.04	3.2	-	2.5	-
	THC (ppm)	9	97.95	6.1	-	3.5	-
	THC (ppm)	11	99.43	8.1	-	3.4	-
	THC (ppm)	12	99.49	6.4	-	4.0	-
	THC (ppm)	13	98.15	4.9	-	3.3	-
	THC (ppm)	14	98.04	3.3	-	2.4	-
	THC (ppm)	15	99.19	10.8	-	3.4	-
	THC (ppm)	16	97.94	5.9	-	4.1	-
	THC (ppm)	17	99.87	2.5	-	2.3	-
	THC (ppm)	101	99.58	3.2	-	2.4	-
	THC (ppm)	102	98.51	4.4	-	2.4	-
	O3 (ppm)	1	99.62	0.065	0	0.052	-
	O3 (ppm)	6	99.89	0.067	0	0.053	-
	O3 (ppm)	7	99.48	0.067	0	0.045	-
	O3 (ppm)	8	96.91	0.065	0	0.047	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
ANNUAL AIR MONITORING SUMMARY
for AMD SECTION III.B.1(c)

ANNUAL 2013
page 2 of 2
prepared 14Feb14:16:01

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	1 - 12	2013	CONTINUOUS AMBIENT MONITORING				
254465-00-00							
149968-00-01							
48522-01-00							
240008-00-03							
48263-00-00							
224816-00-03				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
189942-00-02	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
206355-00-00							
46586-00-00							
216466-00-04	O3 (ppm)	13	99.22	0.062	0	0.044	-
137467-00-00	O3 (ppm)	14	99.08	0.065	0	0.053	-
20809-01-00	O3 (ppm)	17	100.00	0.035	0	0.033	-
24859-00-00	O3 (ppm)	101	100.00	0.043	0	0.037	-
094-02-00	NO2 (ppm)	1	99.60	0.047	0	0.034	-
305529-00-00	NO2 (ppm)	6	99.85	0.053	0	0.025	-
026-02-00	NO2 (ppm)	7	99.51	0.166	1	0.036	-
228044-00-00	NO2 (ppm)	8	97.48	0.028	0	0.014	-
73203-01-00	NO2 (ppm)	12	99.76	0.057	0	0.036	-
	NO2 (ppm)	13	99.34	0.048	0	0.024	-
	NO2 (ppm)	14	98.98	0.050	0	0.017	-
	NO2 (ppm)	15	99.57	0.063	0	0.029	-
	NO2 (ppm)	16	98.14	0.069	0	0.035	-
	NO2 (ppm)	17	98.79	0.031	0	0.014	-
	NO2 (ppm)	101	99.89	0.076	-	0.022	-
	NO2 (ppm)	102	97.60	0.038	-	0.012	-
	CO (ppm)	7	99.52	1.2	-	0.5	-
	NH3 (ppm)	1	94.13	23	-	2	-
	NH3 (ppm)	6	96.16	0	-	0	-
	PM2.5 (ug/m3)	1	98.96	193.7	-	62.1	2
	PM2.5 (ug/m3)	6	98.33	139.5	-	62.4	2
	PM2.5 (ug/m3)	7	96.95	239.9	-	68.8	2
	PM2.5 (ug/m3)	8	97.33	133.2	-	56.3	2
	PM2.5 (ug/m3)	12	99.34	174.6	-	65.9	3
	PM2.5 (ug/m3)	13	98.46	164.6	-	59.3	2
	PM2.5 (ug/m3)	14	96.15	173.3	-	51.0	2
	PM2.5 (ug/m3)	15	99.24	340.4	-	115.0	2
	PM2.5 (ug/m3)	16	97.81	321.2	-	74.9	3
	PM2.5 (ug/m3)	17	99.46	19.0	-	6.3	0
	PM2.5 (ug/m3)	101	99.82	20.3	-	8.3	0
	WIND	1	99.44	-	-	-	-
	WIND	2	98.94	-	-	-	-
	WIND	4	99.01	-	-	-	-
	WIND	5	97.70	-	-	-	-
	WIND	6	99.42	-	-	-	-
	WIND	7	99.26	-	-	-	-
	WIND	8	97.70	-	-	-	-
	WIND	9	99.35	-	-	-	-
	WIND	11	99.40	-	-	-	-
	WIND	12	98.88	-	-	-	-
	WIND	13	96.89	-	-	-	-
	WIND	14	97.47	-	-	-	-
	WIND	15	99.98	-	-	-	-
	WIND	16	98.01	-	-	-	-
	WIND	17	87.63	-	-	-	-
	WIND	101	99.91	-	-	-	-
	WIND	102	98.95	-	-	-	-
SIGNATURE OF ASSOCIATION REPRESENTATIVE					FOR ALBERTA ENVIRONMENT USE ONLY		

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM ANNUAL REPORT

ANNUAL 2013

Operations and Data Collection by:
Wood Buffalo Environmental Association
Fort McMurray, Alberta

QA/QC, Data Validation and Reporting by:
Aurora Atmospherics Inc.
Calgary, Alberta

February 18, 2014

This page intentionally left blank



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
SO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	99.33	695	1.2	19	0	3	0	100	0	0	0	0	0
Feb	99.85	636	2.4	93	0	11	0	98.74	1.1	0.16	0	0	0
Mar	98.66	700	3.1	135	0	23	0	97.86	1.43	0.29	0.43	0	0
Apr	99.44	682	0.6	22	0	4	0	99.85	0.15	0	0	0	0
May	97.98	695	0.9	49	0	6	0	99.57	0.43	0	0	0	0
Jun	99.58	681	1.2	48	0	7	0	99.41	0.59	0	0	0	0
Jul	99.73	707	1.1	17	0	4	0	100	0	0	0	0	0
Aug	100	709	1.2	43	0	7	0	98.73	1.27	0	0	0	0
Sep	100	683	1.5	40	0	11	0	98.1	1.9	0	0	0	0
Oct	99.87	708	0.9	18	0	3	0	100	0	0	0	0	0
Nov	99.86	686	1.1	47	0	7	0	99.56	0.44	0	0	0	0
Dec	100	710	0.9	13	0	3	0	100	0	0	0	0	0
Annual	99.52	8292	1.3	135	0	23	0	99.32	0.61	0.04	0.04	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Mildred Lake (AMS 2)
Annual Summary for the Year 2013
SO₂ (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	710	1.3	41	0	10	0	99.3	0.7	0	0	0	0
Feb	100	640	2.3	48	0	15	0	98.28	1.72	0	0	0	0
Mar	99.19	704	3.0	47	0	21	0	97.59	2.41	0	0	0	0
Apr	100	687	1.1	96	0	14	0	98.84	0.87	0.29	0	0	0
May	100	710	1.4	41	0	4	0	99.44	0.56	0	0	0	0
Jun	99.86	686	1.1	32	0	8	0	99.71	0.29	0	0	0	0
Jul	99.33	705	1.5	22	0	3	0	99.86	0.14	0	0	0	0
Aug	99.73	707	2.7	110	0	12	0	98.3	1.56	0.14	0	0	0
Sep	96.53	658	2.0	46	0	11	0	97.57	2.43	0	0	0	0
Oct	99.87	708	1.3	102	0	8	0	99.01	0.85	0.14	0	0	0
Nov	100	686	1.6	71	0	11	0	98.1	1.75	0.15	0	0	0
Dec	100	703	1.0	33	0	7	0	99.43	0.57	0	0	0	0
Annual	99.54	8304	1.7	110	0	21	0	98.79	1.15	0.06	0	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Buffalo Viewpoint (AMS 4)
Annual Summary for the Year 2013
SO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	99.87	708	0.5	7	0	2	0	100	0	0	0	0	0
Feb	100	640	0.8	65	0	7	0	99.38	0.47	0.16	0	0	0
Mar	100	710	1.5	56	0	7	0	99.15	0.85	0	0	0	0
Apr	100	687	1.5	139	0	20	0	98.98	0.44	0.29	0.29	0	0
May	99.87	708	1.6	90	0	10	0	97.74	2.12	0.14	0	0	0
Jun	99.58	683	0.9	31	0	8	0	99.71	0.29	0	0	0	0
Jul	97.85	691	0.5	22	0	4	0	99.86	0.14	0	0	0	0
Aug	92.34	653	0.5	23	0	3	0	99.85	0.15	0	0	0	0
Sep	100	679	0.4	30	0	5	0	99.85	0.15	0	0	0	0
Oct	99.73	707	0.7	36	0	6	0	99.58	0.42	0	0	0	0
Nov	99.31	682	1.1	124	0	14	0	98.83	1.03	0	0.15	0	0
Dec	100	710	0.4	5	0	2	0	100	0	0	0	0	0
Annual	99.03	8258	0.9	139	0	20	0	99.4	0.51	0.05	0.04	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
SO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	709	2.2	34	0	8	0	99.15	0.85	0	0	0	0
Feb	100	640	2.8	107	0	19	0	97.81	1.56	0.63	0	0	0
Mar	100	708	4.0	226	1	15	0	96.61	2.97	0.28	0	0.14	0
Apr	99.72	683	3.0	98	0	16	0	97.36	2.34	0.29	0	0	0
May	100	709	1.7	89	0	7	0	99.01	0.85	0.14	0	0	0
Jun	100	687	2.4	125	0	18	0	97.53	2.18	0.15	0.15	0	0
Jul	98.79	700	1.3	27	0	4	0	99.86	0.14	0	0	0	0
Aug	96.37	681	2.8	70	0	17	0	96.18	3.67	0.15	0	0	0
Sep	97.22	660	1.5	51	0	8	0	99.24	0.76	0	0	0	0
Oct	99.87	707	1.1	24	0	9	0	99.72	0.28	0	0	0	0
Nov	96.67	663	1.6	47	0	7	0	98.94	1.06	0	0	0	0
Dec	99.46	705	3.3	113	0	25	0	95.6	3.97	0.28	0.14	0	0
Annual	99.01	8252	2.3	226	1	25	0	98.24	1.57	0.15	0.02	0.01	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
SO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	99.6	707	1.3	14	0	4	0	100	0	0	0	0	0
Feb	100	635	1.6	37	0	10	0	98.74	1.26	0	0	0	0
Mar	99.87	706	1.8	48	0	6	0	99.15	0.85	0	0	0	0
Apr	100	687	1.2	35	0	9	0	99.27	0.73	0	0	0	0
May	99.87	708	0.8	17	0	4	0	100	0	0	0	0	0
Jun	100	685	0.6	22	0	6	0	99.85	0.15	0	0	0	0
Jul	99.6	705	0.6	34	0	5	0	99.86	0.14	0	0	0	0
Aug	100	707	0.8	35	0	9	0	98.73	1.27	0	0	0	0
Sep	100	682	0.6	14	0	4	0	100	0	0	0	0	0
Oct	99.73	706	0.9	40	0	7	0	99.43	0.57	0	0	0	0
Nov	99.72	685	0.8	20	0	4	0	100	0	0	0	0	0
Dec	100	708	1.0	20	0	5	0	100	0	0	0	0	0
Annual	99.86	8321	1.0	48	0	10	0	99.59	0.41	0	0	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
SO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	710	0.8	23	0	5	0	99.72	0.28	0	0	0	0
Feb	100	639	0.7	14	0	2	0	100	0	0	0	0	0
Mar	100	707	1.5	38	0	5	0	99.58	0.42	0	0	0	0
Apr	99.72	682	0.9	36	0	9	0	99.56	0.44	0	0	0	0
May	95.03	671	0.7	36	0	4	0	99.85	0.15	0	0	0	0
Jun	97.78	670	0.3	13	0	3	0	100	0	0	0	0	0
Jul	99.73	705	0.5	27	0	3	0	99.86	0.14	0	0	0	0
Aug	99.87	709	0.9	38	0	9	0	98.59	1.41	0	0	0	0
Sep	100	681	0.5	23	0	3	0	99.71	0.29	0	0	0	0
Oct	99.6	705	0.6	14	0	3	0	100	0	0	0	0	0
Nov	100	686	0.5	20	0	4	0	100	0	0	0	0	0
Dec	99.73	705	0.5	7	0	2	0	100	0	0	0	0	0
Annual	99.28	8270	0.7	38	0	9	0	99.73	0.27	0	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipeywan (AMS 8)
Annual Summary for the Year 2013
SO₂ (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	99.73	706	0.4	5	0	3	0	100	0	0	0	0	0
Feb	99.7	636	0.6	19	0	4	0	100	0	0	0	0	0
Mar	100	709	0.3	5	0	2	0	100	0	0	0	0	0
Apr	98.75	677	0.2	5	0	2	0	100	0	0	0	0	0
May	100	707	0.2	5	0	2	0	100	0	0	0	0	0
Jun	100	685	0.1	5	0	1	0	100	0	0	0	0	0
Jul	100	708	0.2	12	0	2	0	100	0	0	0	0	0
Aug	99.87	706	0.2	5	0	1	0	100	0	0	0	0	0
Sep	100	685	0.3	6	0	1	0	100	0	0	0	0	0
Oct	75.54	532	0.2	9	0	2	0	100	0	0	0	0	0
Nov	98.19	674	0.4	14	0	3	0	100	0	0	0	0	0
Dec	99.73	707	0.3	8	0	4	0	100	0	0	0	0	0
Annual	97.59	8132	0.3	19	0	4	0	100	0	0	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp (AMS 11)
Annual Summary for the Year 2013
SO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	709	1.9	47	0	10	0	99.01	0.99	0	0	0	0
Feb	99.55	639	1.8	45	0	7	0	98.9	1.1	0	0	0	0
Mar	99.6	708	2.3	62	0	10	0	98.59	1.27	0.14	0	0	0
Apr	100	685	1.2	81	0	14	0	98.83	1.02	0.15	0	0	0
May	100	707	1.3	45	0	6	0	98.87	1.13	0	0	0	0
Jun	100	687	0.9	28	0	4	0	99.85	0.15	0	0	0	0
Jul	100	709	0.9	38	0	4	0	99.86	0.14	0	0	0	0
Aug	99.87	709	0.3	2	0	1	0	100	0	0	0	0	0
Sep	100	681	0.5	12	0	2	0	100	0	0	0	0	0
Oct	99.6	705	0.7	33	0	5	0	99.72	0.28	0	0	0	0
Nov	99.17	679	1.4	134	0	14	0	98.97	0.74	0.15	0.15	0	0
Dec	99.87	708	2.0	50	0	9	0	98.73	1.27	0	0	0	0
Annual	99.81	8326	1.3	134	0	14	0	99.3	0.65	0.04	0.01	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
SO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	708	0.6	8	0	3	0	100	0	0	0	0	0
Feb	100	640	0.7	18	0	3	0	100	0	0	0	0	0
Mar	100	709	1.4	53	0	8	0	98.87	1.13	0	0	0	0
Apr	100	687	1.6	121	0	25	0	98.69	0.73	0.44	0.15	0	0
May	100	708	1.0	38	0	7	0	99.01	0.99	0	0	0	0
Jun	99.44	680	0.3	9	0	1	0	100	0	0	0	0	0
Jul	99.87	708	1.2	30	0	6	0	99.29	0.71	0	0	0	0
Aug	99.87	707	1.0	78	0	9	0	98.44	1.41	0.14	0	0	0
Sep	99.72	681	0.7	29	0	4	0	99.71	0.29	0	0	0	0
Oct	99.73	705	0.9	38	0	4	0	99.57	0.43	0	0	0	0
Nov	99.72	683	0.8	38	0	6	0	99.41	0.59	0	0	0	0
Dec	99.87	707	0.6	5	0	1	0	100	0	0	0	0	0
Annual	99.85	8323	0.9	121	0	25	0	99.4	0.53	0.05	0.01	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
SO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	98.52	696	0.9	7	0	2	0	100	0	0	0	0	0
Feb	100	639	2.3	66	0	16	0	98.44	1.25	0.31	0	0	0
Mar	99.33	703	2.3	109	0	12	0	98.44	1.28	0.28	0	0	0
Apr	100	685	1.1	16	0	5	0	100	0	0	0	0	0
May	90.19	639	1.4	37	0	6	0	99.06	0.94	0	0	0	0
Jun	99.31	679	1.4	37	0	6	0	99.12	0.88	0	0	0	0
Jul	99.46	703	1.3	24	0	6	0	99.86	0.14	0	0	0	0
Aug	99.6	702	1.5	58	0	8	0	99.29	0.71	0	0	0	0
Sep	99.72	677	1.6	44	0	9	0	98.38	1.62	0	0	0	0
Oct	99.46	703	0.7	18	0	3	0	100	0	0	0	0	0
Nov	96.39	661	1.0	43	0	6	0	99.55	0.45	0	0	0	0
Dec	100	707	0.8	13	0	3	0	100	0	0	0	0	0
Annual	98.48	8194	1.3	109	0	16	0	99.34	0.61	0.05	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
SO₂ (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	99.73	707	1.1	15	0	3	0	100	0	0	0	0	0
Feb	99.26	637	1.3	26	0	4	0	99.84	0.16	0	0	0	0
Mar	99.87	709	1.7	35	0	6	0	99.58	0.42	0	0	0	0
Apr	99.58	682	0.6	9	0	3	0	100	0	0	0	0	0
May	96.51	683	0.9	78	0	6	0	99.41	0.44	0.15	0	0	0
Jun	97.78	669	0.4	5	0	1	0	100	0	0	0	0	0
Jul	95.97	679	0.7	17	0	3	0	100	0	0	0	0	0
Aug	99.87	707	0.5	16	0	2	0	100	0	0	0	0	0
Sep	100	679	0.3	10	0	2	0	100	0	0	0	0	0
Oct	98.79	699	0.4	16	0	2	0	100	0	0	0	0	0
Nov	100	684	0.3	11	0	2	0	100	0	0	0	0	0
Dec	99.87	705	0.6	14	0	2	0	100	0	0	0	0	0
Annual	98.93	8240	0.7	78	0	6	0	99.9	0.09	0.01	0	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
SO₂ (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	710	0.7	10	0	3	0	100	0	0	0	0	0
Feb	100	641	1.9	50	0	17	0	97.82	2.18	0	0	0	0
Mar	100	707	1.7	46	0	7	0	98.3	1.7	0	0	0	0
Apr	100	684	0.6	20	0	3	0	100	0	0	0	0	0
May	61.16	433	0.7	33	0	5	0	99.31	0.69	0	0	0	0
Jun	100	684	1.1	34	0	4	0	99.42	0.58	0	0	0	0
Jul	99.6	706	0.8	23	0	3	0	99.86	0.14	0	0	0	0
Aug	99.87	709	1.0	36	0	4	0	99.58	0.42	0	0	0	0
Sep	100	682	1.2	33	0	7	0	99.41	0.59	0	0	0	0
Oct	100	709	0.6	15	0	3	0	100	0	0	0	0	0
Nov	100	684	1.0	23	0	5	0	99.85	0.15	0	0	0	0
Dec	100	708	0.8	12	0	3	0	100	0	0	0	0	0
Annual	96.66	8057	1.0	50	0	17	0	99.48	0.52	0	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
SO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	707	1.5	33	0	9	0	99.43	0.57	0	0	0	0
Feb	100	638	1.4	22	0	6	0	99.69	0.31	0	0	0	0
Mar	100	709	2.5	94	0	15	0	97.18	2.68	0.14	0	0	0
Apr	80.69	552	0.5	24	0	4	0	99.82	0.18	0	0	0	0
May	99.6	705	0.8	41	0	6	0	99.29	0.71	0	0	0	0
Jun	99.86	685	1.0	43	0	4	0	99.85	0.15	0	0	0	0
Jul	100	703	0.6	36	0	3	0	99.72	0.28	0	0	0	0
Aug	100	706	1.0	42	0	6	0	99.29	0.71	0	0	0	0
Sep	100	680	2.0	47	0	9	0	96.91	3.09	0	0	0	0
Oct	99.87	705	0.9	29	0	6	0	99.57	0.43	0	0	0	0
Nov	99.72	682	1.5	52	0	8	0	98.24	1.76	0	0	0	0
Dec	100	708	1.0	32	0	7	0	99.58	0.42	0	0	0	0
Annual	98.33	8180	1.2	94	0	15	0	99.03	0.96	0.01	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
SO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Dec	100	706	1.9	82	0	10	0	99.01	0.71	0.28	0	0	0
Annual	100	706	1.9	82	0	10	0	99.01	0.71	0.28	0	0	0

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
SO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jan	100	514	0.3	4	0	1	0	100	0	0	0	0	0
Annual	100	514	0.3	4	0	1	0	100	0	0	0	0	0

Length of monthly periods with data collections: 552 Hours



**WB EA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
SO₂ (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
May	100	709	0.4	5	0	1	0	100	0	0	0	0	0
Jun	99.44	680	0.3	5	0	2	0	100	0	0	0	0	0
Jul	100	707	0.4	7	0	1	0	100	0	0	0	0	0
Aug	100	283	0.3	3	0	1	0	100	0	0	0	0	0
Annual	99.86	2379	0.4	7	0	2	0	100	0	0	0	0	0

Length of monthly periods with data collections: 2544 Hours



**WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
SO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range					
								0 - 20	21 - 60	61 - 110	111 - 170	171 - 340	>340
Jul	96.68	608	1.8	16	0	9	0	100	0	0	0	0	0
Aug	99.73	705	0.4	17	0	2	0	100	0	0	0	0	0
Sep	99.31	676	0.7	15	0	3	0	100	0	0	0	0	0
Oct	95.7	675	1.7	27	0	7	0	99.26	0.74	0	0	0	0
Annual	97.86	2664	1.1	27	0	9	0	99.82	0.19	0	0	0	0

Length of monthly periods with data collections: 2904 Hours

This page intentionally left blank



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	97.98	694	0.7	3	0	1	0	100	0	0	0
Feb	99.55	638	0.7	4	0	1	0	99.69	0.31	0	0
Mar	98.25	693	0.3	2	0	1	0	100	0	0	0
Apr	99.86	683	0.2	1	0	0	0	100	0	0	0
May	98.25	698	0.2	3	0	1	0	100	0	0	0
Jun	99.58	674	0.2	1	0	0	0	100	0	0	0
Jul	99.73	704	0.3	2	0	1	0	100	0	0	0
Aug	100	709	0.3	3	0	1	0	100	0	0	0
Sep	100	685	0.4	5	0	1	0	99.71	0.29	0	0
Oct	100	710	0.3	2	0	1	0	100	0	0	0
Nov	99.86	686	0.3	2	0	1	0	100	0	0	0
Dec	100	710	0.4	2	0	1	0	100	0	0	0
Annual	99.42	8284	0.4	5	0	1	0	99.95	0.05	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	99.33	701	0.3	2	0	1	0	100	0	0	0
Feb	100	640	0.2	1	0	0	0	100	0	0	0
Mar	100	709	0.2	2	0	0	0	100	0	0	0
Apr	100	687	0.1	1	0	0	0	100	0	0	0
May	99.87	707	0.2	1	0	0	0	100	0	0	0
Jun	100	684	0.3	2	0	0	0	100	0	0	0
Jul	99.87	708	0.2	1	0	0	0	100	0	0	0
Aug	100	706	0.3	3	0	1	0	100	0	0	0
Sep	100	683	0.2	1	0	1	0	100	0	0	0
Oct	99.73	698	0.2	1	0	0	0	100	0	0	0
Nov	99.86	682	0.2	1	0	0	0	100	0	0	0
Dec	100	706	0.3	1	0	1	0	100	0	0	0
Annual	99.89	8311	0.2	3	0	1	0	100	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	710	0.7	4	0	2	0	99.86	0.14	0	0
Feb	100	641	0.5	2	0	1	0	100	0	0	0
Mar	100	707	0.4	3	0	1	0	100	0	0	0
Apr	99.72	684	0.4	1	0	1	0	100	0	0	0
May	97.85	693	0.4	3	0	1	0	100	0	0	0
Jun	97.78	670	0.3	2	0	1	0	100	0	0	0
Jul	99.73	706	0.3	1	0	1	0	100	0	0	0
Aug	99.87	701	0.4	3	0	1	0	100	0	0	0
Sep	99.44	667	0.3	2	0	1	0	100	0	0	0
Oct	99.6	706	0.2	2	0	0	0	100	0	0	0
Nov	100	687	0.3	2	0	1	0	100	0	0	0
Dec	99.73	708	0.4	1	0	1	0	100	0	0	0
Annual	99.47	8280	0.4	4	0	2	0	99.99	0.01	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Barge Landing (AMS 9)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	710	0.5	3	0	1	0	100	0	0	0
Feb	98.21	629	0.4	2	0	1	0	100	0	0	0
Mar	99.46	705	0.3	2	0	1	0	100	0	0	0
Apr	100	687	0.2	1	0	0	0	100	0	0	0
May	98.12	693	0.3	2	0	0	0	100	0	0	0
Jun	100	686	0.2	1	0	1	0	100	0	0	0
Jul	99.87	707	0.2	1	0	0	0	100	0	0	0
Aug	99.87	707	0.3	6	0	1	0	99.86	0.14	0	0
Sep	100	683	0.3	4	0	1	0	99.85	0.15	0	0
Oct	99.87	709	0.2	2	0	0	0	100	0	0	0
Nov	100	684	0.3	3	0	1	0	100	0	0	0
Dec	100	709	0.5	2	0	1	0	100	0	0	0
Annual	99.62	8309	0.3	6	0	1	0	99.98	0.02	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	99.73	708	0.4	3	0	1	0	100	0	0	0
Feb	99.85	640	0.2	1	0	1	0	100	0	0	0
Mar	100	709	0.3	3	0	1	0	100	0	0	0
Apr	100	686	0.2	3	0	1	0	100	0	0	0
May	99.73	706	0.2	2	0	0	0	100	0	0	0
Jun	99.44	682	0.1	1	0	0	0	100	0	0	0
Jul	99.87	707	0.1	2	0	0	0	100	0	0	0
Aug	99.87	708	0.2	4	0	0	0	99.86	0.14	0	0
Sep	99.86	685	0.2	4	0	1	0	99.85	0.15	0	0
Oct	100	707	0.1	2	0	1	0	100	0	0	0
Nov	100	685	0.2	1	0	0	0	100	0	0	0
Dec	100	710	0.4	2	0	1	0	100	0	0	0
Annual	99.86	8333	0.2	4	0	1	0	99.98	0.02	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	99.46	705	0.3	2	0	1	0	100	0	0	0
Feb	100	640	0.3	2	0	1	0	100	0	0	0
Mar	99.33	705	0.2	2	0	1	0	100	0	0	0
Apr	100	688	0.2	2	0	0	0	100	0	0	0
May	95.56	678	0.2	2	0	0	0	100	0	0	0
Jun	99.86	685	0.2	1	0	0	0	100	0	0	0
Jul	99.46	705	0.2	2	0	1	0	100	0	0	0
Aug	99.87	704	0.3	6	0	1	0	99.72	0.28	0	0
Sep	100	681	0.3	4	0	1	0	99.71	0.29	0	0
Oct	99.87	708	0.2	1	0	0	0	100	0	0	0
Nov	100	685	0.2	2	0	1	0	100	0	0	0
Dec	100	710	0.3	1	0	1	0	100	0	0	0
Annual	99.44	8294	0.2	6	0	1	0	99.95	0.05	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
TRS (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	99.73	708	0.6	5	0	1	0	99.15	0.85	0	0
Feb	99.11	635	0.4	2	0	1	0	100	0	0	0
Mar	98.92	696	0.4	2	0	1	0	100	0	0	0
Apr	100	687	0.3	1	0	1	0	100	0	0	0
May	96.77	685	0.5	7	0	1	0	99.71	0.29	0	0
Jun	98.61	676	0.4	3	0	1	0	100	0	0	0
Jul	92.61	658	0.3	4	0	1	0	99.85	0.15	0	0
Aug	100	708	0.3	2	0	0	0	100	0	0	0
Sep	99.44	676	0.3	2	0	1	0	100	0	0	0
Oct	97.72	690	0.3	6	0	1	0	99.71	0.29	0	0
Nov	100	688	0.3	2	0	0	0	100	0	0	0
Dec	100	703	0.4	12	1	1	0	99.15	0.71	0.14	0
Annual	98.56	8210	0.4	12	1	1	0	99.81	0.17	0.01	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
TRS (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	708	0.6	2	0	1	0	100	0	0	0
Feb	100	640	0.5	2	0	1	0	100	0	0	0
Mar	99.87	709	0.6	4	0	1	0	99.58	0.42	0	0
Apr	100	686	0.5	2	0	1	0	100	0	0	0
May	98.12	695	0.4	2	0	1	0	100	0	0	0
Jun	100	686	0.4	2	0	1	0	100	0	0	0
Jul	99.87	707	0.4	3	0	1	0	100	0	0	0
Aug	99.87	709	0.4	2	0	1	0	100	0	0	0
Sep	99.86	683	0.3	2	0	1	0	100	0	0	0
Oct	100	710	0.2	1	0	0	0	100	0	0	0
Nov	100	686	0.2	1	0	0	0	100	0	0	0
Dec	100	709	0.3	4	0	1	0	99.72	0.28	0	0
Annual	99.79	8328	0.4	4	0	1	0	99.94	0.06	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Mildred Lake (AMS 2)
Annual Summary for the Year 2013
H2S (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	710	0.5	3	0	1	0	100	0	0	0
Feb	100	641	0.5	3	0	1	0	100	0	0	0
Mar	99.06	703	0.3	2	0	1	0	100	0	0	0
Apr	100	686	0.3	12	1	2	0	99.27	0.58	0.15	0
May	99.87	708	0.5	11	2	2	0	98.87	0.85	0.28	0
Jun	100	687	0.5	3	0	1	0	100	0	0	0
Jul	99.33	705	0.5	4	0	1	0	99.72	0.28	0	0
Aug	99.73	708	0.7	13	1	2	0	98.02	1.84	0.14	0
Sep	96.53	657	0.9	9	0	3	0	94.22	5.78	0	0
Oct	100	708	0.4	4	0	1	0	99.86	0.14	0	0
Nov	100	686	0.5	3	0	1	0	100	0	0	0
Dec	100	709	0.6	3	0	2	0	100	0	0	0
Annual	99.54	8308	0.5	13	4	3	0	99.17	0.78	0.05	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Buffalo Viewpoint (AMS 4)
Annual Summary for the Year 2013
H2S (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	710	0.3	2	0	1	0	100	0	0	0
Feb	100	641	0.3	6	0	2	0	99.22	0.78	0	0
Mar	99.73	703	0.3	3	0	1	0	100	0	0	0
Apr	100	685	0.4	5	0	1	0	98.69	1.31	0	0
May	99.73	704	0.3	3	0	1	0	100	0	0	0
Jun	99.58	684	0.3	3	0	1	0	100	0	0	0
Jul	97.85	693	0.3	3	0	1	0	100	0	0	0
Aug	93.01	660	0.4	5	0	1	0	99.55	0.45	0	0
Sep	100	684	0.3	3	0	1	0	100	0	0	0
Oct	100	709	0.3	3	0	1	0	100	0	0	0
Nov	99.31	680	0.3	1	0	1	0	100	0	0	0
Dec	100	708	0.4	4	0	1	0	99.86	0.14	0	0
Annual	99.09	8261	0.3	6	0	2	0	99.78	0.22	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
H2S (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	709	0.6	8	0	1	0	99.44	0.56	0	0
Feb	100	638	0.5	4	0	1	0	99.69	0.31	0	0
Mar	100	708	0.5	4	0	1	0	99.72	0.28	0	0
Apr	99.72	683	0.4	4	0	1	0	99.71	0.29	0	0
May	100	709	0.4	11	1	1	0	99.15	0.71	0.14	0
Jun	100	685	0.3	3	0	1	0	100	0	0	0
Jul	98.92	698	0.6	7	0	3	0	99	1	0	0
Aug	99.06	702	1.1	31	6	6	2	91.31	7.83	0.85	0
Sep	97.5	665	0.9	12	1	3	0	95.19	4.66	0.15	0
Oct	99.46	705	0.4	4	0	2	0	99.72	0.28	0	0
Nov	100	686	0.3	3	0	1	0	100	0	0	0
Dec	99.73	701	0.5	5	0	2	0	99	1	0	0
Annual	99.53	8289	0.5	31	8	6	2	98.5	1.4	0.1	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp (AMS 11)
Annual Summary for the Year 2013
H2S (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	710	0.6	6	0	1	0	99.44	0.56	0	0
Feb	100	642	0.5	4	0	2	0	99.84	0.16	0	0
Mar	99.87	708	0.4	3	0	1	0	100	0	0	0
Apr	99.86	685	0.2	3	0	1	0	100	0	0	0
May	99.87	709	0.4	6	0	1	0	99.15	0.85	0	0
Jun	100	684	0.4	4	0	1	0	99.85	0.15	0	0
Jul	98.92	700	0.5	5	0	1	0	99.71	0.29	0	0
Aug	96.24	684	0.6	2	0	2	0	100	0	0	0
Sep	94.72	645	0.8	8	0	3	0	97.52	2.48	0	0
Oct	100	708	0.4	3	0	1	0	100	0	0	0
Nov	99.17	679	0.4	4	0	1	0	99.85	0.15	0	0
Dec	99.87	708	0.8	8	0	3	0	98.02	1.98	0	0
Annual	99.04	8262	0.5	8	0	3	0	99.48	0.52	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
H2S (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Dec	96.91	688	0.2	2	0	1	0	100	0	0	0
Annual	96.91	688	0.2	2	0	1	0	100	0	0	0

Length of monthly periods with data collections: 744 Hours



**WBEA - AMS 101 Portable (AMS 101) Christina lake
 Summary Jan 1 - Jan 23, 2013
 H2S (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jan	100	514	0.2	2	0	0	0	100	0	0	0
Annual	100	514	0.2	2	0	1	0	100	0	0	0

Length of monthly periods with data collections: 552 Hours



WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
H2S (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
May	100	710	0.1	1	0	0	0	100	0	0	0
Jun	99.44	683	0.2	2	0	1	0	100	0	0	0
Jul	100	708	0.2	1	0	0	0	100	0	0	0
Aug	100	287	0.1	1	0	0	0	100	0	0	0
Annual	99.86	2388	0.2	2	0	1	0	100	0	0	0

Length of monthly periods with data collections: 2544 Hours



**WBEA - AMS 102 Portable (AMS102) Surmont
 Summary Jul 3 - Oct 31, 2013
 H2S (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 3	4 - 10	11 - 50	> 50
Jul	96.19	628	0.6	5	0	1	0	98.89	1.11	0	0
Aug	99.6	707	0.3	3	0	1	0	100	0	0	0
Sep	99.72	682	0.3	2	0	1	0	100	0	0	0
Oct	95.43	674	0.3	6	0	1	0	99.7	0.3	0	0
Annual	97.74	2691	0.4	6	0	1	0	99.65	0.35	0	0

Length of monthly periods with data collections: 2904 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	93.41	657	2.1	3.2	-	2.4	-
Feb	99.55	634	2.1	3.2	-	2.5	-
Mar	95.43	677	2.0	2.9	-	2.2	-
Apr	99.31	681	1.9	3.2	-	2.0	-
May	97.58	692	1.9	3.3	-	2.1	-
Jun	99.44	679	1.9	2.9	-	2.1	-
Jul	99.73	707	1.9	3.0	-	2.2	-
Aug	100	709	2.0	3.1	-	2.3	-
Sep	99.72	681	2.0	3.4	-	2.3	-
Oct	99.87	708	2.0	3.6	-	2.4	-
Nov	99.72	685	2.0	3.7	-	2.8	-
Dec	99.87	709	2.1	3.5	-	2.9	-
Annual	98.62	8219	2.0	3.7	-	2.9	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Mildred Lake (AMS 2)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values
					Exceeding 1-Hour Guideline	Exceeding 24-Hour Guidance	
Jan	100	710	2.5	9.3	-	3.6	-
Feb	100	640	2.4	4.6	-	3.3	-
Mar	99.87	701	2.3	4.5	-	2.8	-
Apr	100	687	2.2	4.2	-	2.5	-
May	99.73	708	2.3	12.3	-	3.2	-
Jun	100	687	2.2	5.7	-	2.7	-
Jul	99.19	704	2.2	5.2	-	2.6	-
Aug	99.73	707	2.3	6.1	-	2.7	-
Sep	95.83	653	2.3	4.8	-	2.7	-
Oct	99.87	708	2.3	5.0	-	2.9	-
Nov	97.08	666	2.3	6.4	-	3.0	-
Dec	99.73	701	2.4	4.1	-	3.3	-
Annual	99.26	8272	2.3	12.3	-	3.6	-

Length of monthly periods with data collections: 8760 Hours



**WBEA - Buffalo Viewpoint (AMS 4)
Annual Summary for the Year 2013
THC (ppm) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	100	709	2.3	7.2	-	3.2	-
Feb	100	641	2.3	5.8	-	3.1	-
Mar	99.87	708	2.2	4.0	-	2.7	-
Apr	98.75	678	2.0	3.5	-	2.2	-
May	99.73	707	2.2	4.1	-	2.6	-
Jun	99.58	684	2.2	3.9	-	2.5	-
Jul	97.85	692	2.2	4.3	-	2.5	-
Aug	93.01	659	2.2	4.0	-	2.6	-
Sep	100	684	2.2	3.7	-	2.5	-
Oct	100	703	2.2	4.2	-	2.6	-
Nov	99.17	681	2.3	3.8	-	2.5	-
Dec	100	710	2.4	4.5	-	3.1	-
Annual	98.98	8256	2.2	7.2	-	3.2	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	100	709	2.4	5.3	-	3.0	-
Feb	99.7	638	2.4	4.9	-	2.8	-
Mar	100	708	2.2	4.4	-	2.6	-
Apr	96.25	648	2.2	4.5	-	2.5	-
May	100	709	2.3	4.9	-	2.7	-
Jun	100	687	2.2	3.5	-	2.4	-
Jul	99.33	704	2.3	3.9	-	2.6	-
Aug	99.6	706	2.3	4.4	-	2.8	-
Sep	97.64	659	2.3	9.0	-	3.3	-
Oct	99.46	704	2.3	4.6	-	2.7	-
Nov	100	683	2.3	3.5	-	2.6	-
Dec	99.46	705	2.4	6.6	-	3.5	-
Annual	99.29	8260	2.3	9.0	-	3.5	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	94.76	672	2.0	3.3	-	2.5	-
Feb	99.4	632	2.0	2.8	-	2.3	-
Mar	99.73	705	1.9	2.6	-	2.1	-
Apr	100	687	1.9	2.4	-	2.0	-
May	99.19	704	1.9	2.5	-	2.0	-
Jun	99.58	683	1.9	2.6	-	2.1	-
Jul	99.6	705	1.9	2.7	-	2.0	-
Aug	99.87	706	2.0	2.8	-	2.3	-
Sep	97.5	665	1.9	2.8	-	2.1	-
Oct	99.46	704	1.9	2.9	-	2.1	-
Nov	99.17	681	1.9	2.5	-	2.2	-
Dec	100	708	2.0	3.0	-	2.3	-
Annual	99.02	8252	2.0	3.3	-	2.5	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.73	708	2.0	3.2	-	2.5	-
Feb	99.85	638	2.0	2.6	-	2.2	-
Mar	99.73	706	1.9	2.4	-	2.1	-
Apr	99.44	680	1.9	2.3	-	2.0	-
May	95.56	675	1.9	2.8	-	2.0	-
Jun	99.17	679	1.9	2.4	-	2.0	-
Jul	99.73	705	1.9	2.6	-	2.0	-
Aug	96.24	680	2.0	2.6	-	2.1	-
Sep	99.86	680	2.0	2.8	-	2.2	-
Oct	99.6	705	2.0	2.7	-	2.2	-
Nov	100	687	2.0	2.7	-	2.4	-
Dec	99.6	705	2.0	2.9	-	2.2	-
Annual	99.03	8248	2.0	3.2	-	2.5	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Barge Landing (AMS 9)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values
					Exceeding 1-Hour Guideline		Exceeding 24-Hour Guidance
Jan	99.73	708	2.6	6.1	-	3.1	-
Feb	95.98	615	2.5	4.3	-	3.0	-
Mar	96.77	687	2.5	4.4	-	2.9	-
Apr	100	687	2.3	3.6	-	2.5	-
May	96.91	685	2.2	4.0	-	2.5	-
Jun	100	686	2.2	4.1	-	2.4	-
Jul	99.87	705	2.2	3.2	-	2.5	-
Aug	99.33	703	2.3	3.4	-	2.7	-
Sep	100	683	2.4	3.4	-	2.7	-
Oct	90.19	639	2.4	4.5	-	2.8	-
Nov	96.67	661	2.4	3.4	-	2.9	-
Dec	100	709	2.6	4.6	-	3.5	-
Annual	97.96	8168	2.4	6.1	-	3.5	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp (AMS 11)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.87	709	2.4	5.5	-	3.1	-
Feb	99.55	639	2.4	8.1	-	2.9	-
Mar	99.6	709	2.3	3.2	-	2.6	-
Apr	100	684	2.2	3.2	-	2.5	-
May	100	703	2.2	6.6	-	2.6	-
Jun	100	686	2.2	3.8	-	2.6	-
Jul	99.73	702	2.4	3.6	-	2.7	-
Aug	96.1	683	2.4	3.6	-	2.8	-
Sep	100	680	2.4	4.1	-	2.6	-
Oct	99.6	705	2.3	3.7	-	2.6	-
Nov	98.75	677	2.3	4.4	-	2.8	-
Dec	100	707	2.6	5.0	-	3.4	-
Annual	99.43	8284	2.3	8.1	-	3.4	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	100	708	2.8	6.4	-	3.9	-
Feb	98.51	631	2.5	5.0	-	3.3	-
Mar	100	709	2.4	4.4	-	2.8	-
Apr	99.86	684	2.2	3.9	-	2.5	-
May	96.91	685	2.2	5.3	-	2.7	-
Jun	99.72	682	2.3	4.6	-	2.7	-
Jul	99.87	709	2.3	4.3	-	2.7	-
Aug	99.87	707	2.5	5.4	-	2.9	-
Sep	99.86	681	2.4	5.2	-	2.8	-
Oct	99.73	705	2.4	4.5	-	3.0	-
Nov	100	687	2.5	5.2	-	3.2	-
Dec	99.6	705	2.7	5.1	-	4.0	-
Annual	99.5	8293	2.4	6.4	-	4.0	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	90.99	635	2.3	3.7	-	2.6	-
Feb	99.85	638	2.2	3.5	-	2.5	-
Mar	98.39	696	2.2	3.9	-	2.7	-
Apr	99.86	685	2.3	3.4	-	2.4	-
May	95.56	678	2.3	3.5	-	2.5	-
Jun	100	686	2.3	4.6	-	2.5	-
Jul	96.24	680	2.3	3.2	-	2.6	-
Aug	99.73	706	2.4	3.6	-	2.7	-
Sep	99.86	679	2.3	3.6	-	2.8	-
Oct	97.45	688	2.3	4.8	-	2.7	-
Nov	100	682	2.3	4.2	-	3.2	-
Dec	99.87	706	2.3	4.9	-	3.3	-
Annual	98.12	8159	2.3	4.9	-	3.3	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	98.66	699	2.0	2.6	-	2.4	-
Feb	98.96	635	1.9	2.3	-	2.1	-
Mar	95.7	679	1.9	2.2	-	2.1	-
Apr	99.72	683	1.9	2.1	-	2.0	-
May	96.77	686	1.9	2.3	-	2.0	-
Jun	95.14	649	2.0	2.5	-	2.1	-
Jul	95.97	679	2.1	2.9	-	2.2	-
Aug	99.73	704	2.1	2.7	-	2.3	-
Sep	100	678	2.1	3.3	-	2.3	-
Oct	98.39	696	1.9	2.8	-	2.0	-
Nov	100	685	1.9	2.4	-	2.1	-
Dec	97.45	682	1.9	2.4	-	2.1	-
Annual	98.03	8155	2.0	3.3	-	2.4	-

Length of monthly periods with data collections: 8760 Hours



WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	95.97	678	2.4	6.0	-	2.9	-
Feb	100	641	2.4	6.3	-	3.1	-
Mar	100	707	2.3	10.8	-	3.4	-
Apr	100	684	2.2	5.0	-	2.5	-
May	95.83	673	2.1	3.2	-	2.3	-
Jun	100	684	2.1	3.6	-	2.3	-
Jul	98.66	699	2.2	5.2	-	2.5	-
Aug	99.87	707	2.3	3.6	-	2.6	-
Sep	100	682	2.3	5.9	-	2.8	-
Oct	100	709	2.3	5.9	-	2.7	-
Nov	100	684	2.4	4.9	-	2.9	-
Dec	100	708	2.5	6.1	-	3.2	-
Annual	99.18	8256	2.3	10.8	-	3.4	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values
					Exceeding 1-Hour Guideline		Exceeding 24-Hour Guidance
Jan	100	707	2.6	5.2	-	3.3	-
Feb	100	638	2.6	5.8	-	4.1	-
Mar	100	709	2.5	5.5	-	3.1	-
Apr	80.83	551	2.4	3.9	-	2.7	-
May	99.33	697	2.5	5.7	-	3.0	-
Jun	95.42	652	2.4	4.5	-	2.8	-
Jul	100	706	2.5	4.3	-	2.9	-
Aug	100	706	2.6	5.9	-	2.9	-
Sep	100	678	2.5	4.8	-	3.4	-
Oct	100	708	2.4	4.1	-	2.8	-
Nov	99.72	683	2.4	5.4	-	3.1	-
Dec	100	708	2.6	5.1	-	3.2	-
Annual	97.97	8143	2.5	5.9	-	4.1	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Dec	99.87	705	2.2	2.5	-	2.3	-
Annual	99.87	705	2.2	2.5	-	2.3	-

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	98.71	509	2.2	3.0	-	2.4	-
Annual	98.71	509	2.2	3.2	-	2.4	-

Length of monthly periods with data collections: 552 Hours



WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
THC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
May	100.00	709	2.1	3.2	-	2.2	-
Jun	99.17	678	2.1	3.0	-	2.2	-
Jul	100.00	705	2.1	2.6	-	2.3	-
Aug	100.00	283	2.2	2.8	-	2.3	-
Annual	99.79	2375	2.1	3.2	-	2.4	-

Length of monthly periods with data collections: 2544 Hours



**WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
THC (ppm) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jul	99.80	467	2.2	4.4	-	2.4	-
Aug	96.91	676	2.2	3.0	-	2.4	-
Sep	99.86	681	2.1	3.3	-	2.3	-
Oct	95.97	675	2.0	2.5	-	2.2	-
Annual	98.14	2499	2.1	4.4	-	2.4	-

Length of monthly periods with data collections: 2904 Hours

This page intentionally left blank



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
CH4 (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values
					Exceeding 1-Hour Guideline	Exceeding 24-Hour Guidance	
Jan	93.41	657	2.1	2.8	-	2.3	-
Feb	99.55	634	2.1	2.8	-	2.3	-
Mar	95.43	677	2.0	2.6	-	2.1	-
Apr	99.31	681	1.9	2.4	-	2.0	-
May	97.58	692	1.9	2.4	-	1.9	-
Jun	99.44	679	1.9	2.5	-	2.0	-
Jul	99.73	707	1.9	2.4	-	2.1	-
Aug	100	709	2.0	2.6	-	2.1	-
Sep	99.72	681	2.0	2.8	-	2.2	-
Oct	99.87	708	1.9	3.2	-	2.2	-
Nov	99.86	686	2.0	2.8	-	2.5	-
Dec	99.87	709	2.1	3.2	-	2.6	-
Annual	98.63	8220	2.0	3.2	-	2.6	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
CH4 (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	94.76	672	2.0	2.9	-	2.3	-
Feb	99.4	632	2.0	2.5	-	2.2	-
Mar	99.73	705	1.9	2.3	-	2.1	-
Apr	100	687	1.9	2.1	-	2.0	-
May	99.19	704	1.9	2.2	-	2.0	-
Jun	99.58	683	1.9	2.4	-	2.0	-
Jul	99.6	705	1.9	2.6	-	2.0	-
Aug	99.87	706	2.0	2.6	-	2.1	-
Sep	97.5	665	1.9	2.4	-	2.0	-
Oct	99.46	704	1.9	2.4	-	2.0	-
Nov	99.17	681	1.9	2.5	-	2.2	-
Dec	100	708	2.0	2.5	-	2.2	-
Annual	99.02	8252	1.9	2.9	-	2.3	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
CH4 (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.73	708	2.0	3.2	-	2.5	-
Feb	99.85	638	2.0	2.4	-	2.1	-
Mar	99.73	706	1.9	2.3	-	2.1	-
Apr	99.44	680	1.9	2.3	-	2.0	-
May	95.56	675	1.9	2.2	-	1.9	-
Jun	99.31	680	1.9	2.3	-	2.0	-
Jul	99.73	705	1.9	2.2	-	2.0	-
Aug	96.1	680	2.0	2.4	-	2.1	-
Sep	99.86	680	2.0	2.5	-	2.1	-
Oct	99.6	705	2.0	2.5	-	2.2	-
Nov	100	687	2.0	2.6	-	2.4	-
Dec	99.6	705	2.0	2.6	-	2.1	-
Annual	99.03	8249	2.0	3.2	-	2.5	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
CH4 (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	98.66	699	2.0	2.5	-	2.3	-
Feb	98.96	635	1.9	2.2	-	2.1	-
Mar	95.7	679	1.9	2.2	-	2.1	-
Apr	99.72	683	1.9	2.1	-	2.0	-
May	96.77	686	1.9	2.2	-	2.0	-
Jun	95.14	649	2.0	2.4	-	2.1	-
Jul	95.97	679	2.1	2.8	-	2.2	-
Aug	99.73	704	2.1	2.6	-	2.2	-
Sep	100	678	2.0	3.2	-	2.2	-
Oct	98.39	696	1.9	2.8	-	2.0	-
Nov	100	685	1.9	2.4	-	2.1	-
Dec	97.45	682	1.9	2.4	-	2.1	-
Annual	98.03	8155	2.0	3.2	-	2.3	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
NMHC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Number of Values		Maximum 24-Hour Value	Exceeding 24-Hour Guidance
				Maximum 1-Hour Value	Exceeding 1-Hour Guideline		
Jan	93.41	657	0.0523	0.9525	-	0.1699	-
Feb	99.55	634	0.0500	0.7251	-	0.2000	-
Mar	95.43	677	0.0188	0.6185	-	0.1091	-
Apr	99.31	681	0.0129	0.8674	-	0.0781	-
May	97.58	692	0.0336	0.9591	-	0.1386	-
Jun	99.44	679	0.0465	0.6603	-	0.1864	-
Jul	99.73	707	0.0398	0.6075	-	0.2351	-
Aug	100	709	0.0693	0.7867	-	0.2364	-
Sep	99.72	681	0.0404	0.6208	-	0.2022	-
Oct	99.87	708	0.0255	1.2688	-	0.2136	-
Nov	99.86	686	0.0379	1.5302	-	0.2641	-
Dec	99.87	709	0.0399	0.4211	-	0.2406	-
Annual	98.63	8220	0.0389	1.5302	-	0.2641	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
NMHC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	94.76	672	0.0326	0.7246	-	0.2185	-
Feb	99.4	632	0.0133	0.3563	-	0.0944	-
Mar	99.73	705	0.0102	0.2993	-	0.0587	-
Apr	100	687	0.0095	0.4508	-	0.0733	-
May	99.19	704	0.0125	0.3347	-	0.0837	-
Jun	99.58	683	0.0134	0.4725	-	0.0998	-
Jul	99.6	705	0.0080	0.2691	-	0.0459	-
Aug	99.87	706	0.0386	0.5233	-	0.1547	-
Sep	97.5	665	0.0122	0.4518	-	0.0756	-
Oct	99.46	704	0.0094	0.5024	-	0.1130	-
Nov	99.17	681	0.0023	0.1838	-	0.0363	-
Dec	100	708	0.0279	0.6755	-	0.1215	-
Annual	99.02	8252	0.0159	0.7246	-	0.2185	-

Length of monthly periods with data collections: 8760 Hours



**WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
NMHC (ppm) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Number of Values		Maximum 24-Hour Value	Exceeding 24-Hour Guidance
				Maximum 1-Hour Value	Exceeding 1-Hour Guideline		
Jan	99.73	708	0.0110	0.5575	-	0.0654	-
Feb	99.85	638	0.0158	0.3772	-	0.0569	-
Mar	99.73	706	0.0021	0.0993	-	0.0177	-
Apr	99.44	680	0.0011	0.1715	-	0.0149	-
May	95.56	675	0.0121	0.9473	-	0.0619	-
Jun	99.31	680	0.0027	0.1599	-	0.0239	-
Jul	99.73	705	0.0085	0.5290	-	0.0705	-
Aug	96.1	680	0.0300	0.5108	-	0.0593	-
Sep	99.86	680	0.0182	0.2928	-	0.0515	-
Oct	99.6	705	0.0098	0.5858	-	0.0474	-
Nov	100	687	0.0114	0.4107	-	0.0688	-
Dec	99.6	705	0.0128	0.4079	-	0.0790	-
Annual	99.03	8249	0.0112	0.9473	-	0.0790	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
NMHC (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	98.66	699	0.0175	0.4108	-	0.1180	-
Feb	98.96	635	0.0059	0.1137	-	0.0574	-
Mar	95.7	679	0.0007	0.0902	-	0.0056	-
Apr	99.72	683	0.0001	0.0196	-	0.0010	-
May	96.77	686	0.0075	0.0909	-	0.0446	-
Jun	95.14	649	0.0365	0.1256	-	0.0700	-
Jul	95.97	679	0.0340	0.2460	-	0.0991	-
Aug	99.73	704	0.0419	0.3330	-	0.0878	-
Sep	100	678	0.0171	0.1095	-	0.0570	-
Oct	98.39	696	0.0023	0.1211	-	0.0196	-
Nov	100	685	0.0023	0.1928	-	0.0331	-
Dec	97.45	682	0.0028	0.1310	-	0.0179	-
Annual	98.03	8155	0.0141	0.4108	-	0.1180	-

Length of monthly periods with data collections: 8760 Hours



WB EA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
O3 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guideline
Jan	99.33	706	11.74	32.9	0	28.5	-
Feb	99.85	638	16.17	35.8	0	28.1	-
Mar	99.06	697	28.37	64.8	0	45.5	-
Apr	99.86	685	35.54	62.6	0	52.0	-
May	98.25	698	31.13	57.7	0	39.7	-
Jun	99.58	683	20.86	61.3	0	41.6	-
Jul	99.73	707	19.67	45.7	0	30.0	-
Aug	100	707	17.82	50.3	0	28.3	-
Sep	100	685	16.26	51.0	0	28.4	-
Oct	99.87	709	12.92	37.7	0	24.0	-
Nov	99.86	685	15.16	37.0	0	28.9	-
Dec	100	710	11.90	33.1	0	24.8	-
Annual	99.61	8310	19.78	64.8	0	52.0	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
O3 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.6	702	17.08	39.6	0	34.9	-
Feb	100	636	22.85	40.7	0	34.7	-
Mar	100	706	28.25	45.7	0	39.6	-
Apr	100	683	28.93	44.8	0	38.2	-
May	99.87	708	34.70	58.5	0	42.0	-
Jun	100	687	25.33	67.2	0	52.8	-
Jul	99.87	709	22.90	51.8	0	33.1	-
Aug	100	708	20.41	51.6	0	31.9	-
Sep	100	684	20.31	53.3	0	32.1	-
Oct	99.73	708	17.45	39.1	0	29.9	-
Nov	99.58	684	16.82	36.7	0	29.3	-
Dec	100	709	14.59	35.9	0	26.1	-
Annual	99.89	8324	22.46	67.2	0	52.8	-

Length of monthly periods with data collections: 8760 Hours



**WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
O3 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	100	710	12.92	36.2	0	25.7	-
Feb	100	641	17.58	38.8	0	29.2	-
Mar	100	709	27.64	53.0	0	41.9	-
Apr	99.72	684	32.54	52.0	0	43.9	-
May	98.39	698	32.37	56.7	0	42.1	-
Jun	97.64	671	22.04	67.2	0	45.4	-
Jul	99.73	708	19.95	50.0	0	27.6	-
Aug	99.46	705	15.65	46.7	0	26.6	-
Sep	100	681	15.83	47.1	0	22.9	-
Oct	99.87	699	12.25	40.2	0	26.3	-
Nov	99.03	677	14.70	38.5	0	26.8	-
Dec	99.87	703	12.52	36.1	0	25.1	-
Annual	99.47	8286	19.66	67.2	0	45.4	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipeywan (AMS 8)
Annual Summary for the Year 2013
O3 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.73	706	28.27	38.1	0	35.0	-
Feb	99.7	639	31.26	41.4	0	38.8	-
Mar	100	708	35.56	48.9	0	46.2	-
Apr	98.75	678	36.03	51.9	0	47.0	-
May	93.68	659	34.12	50.3	0	42.1	-
Jun	100	686	28.37	65.2	0	45.2	-
Jul	100	710	24.68	45.9	0	37.0	-
Aug	100	710	22.94	50.5	0	35.2	-
Sep	99.86	684	19.10	44.4	0	26.8	-
Oct	73.25	519	18.46	30.2	0	25.7	-
Nov	97.92	664	23.08	33.4	0	29.9	-
Dec	100	710	26.96	37.5	0	33.6	-
Annual	96.86	8073	27.55	65.2	0	47.0	-

Length of monthly periods with data collections: 8760 Hours



**WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
O3 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.6	707	11.20	37.9	0	32.4	-
Feb	100	640	15.85	39.2	0	31.6	-
Mar	99.33	704	25.87	55.1	0	40.7	-
Apr	100	686	32.80	55.5	0	43.5	-
May	95.7	679	28.43	58.6	0	37.9	-
Jun	99.86	686	18.64	62.2	0	40.6	-
Jul	99.46	705	17.71	47.8	0	27.2	-
Aug	99.73	707	14.42	49.2	0	26.1	-
Sep	99.86	682	13.22	47.1	0	27.1	-
Oct	99.73	702	11.16	35.3	0	22.7	-
Nov	100	685	14.62	39.1	0	28.2	-
Dec	97.31	691	11.60	34.4	0	24.6	-
Annual	99.2	8274	17.94	62.2	0	43.5	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
O3 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	99.87	708	21.40	43.2	0	38.6	-
Feb	99.26	637	29.41	45.3	0	39.0	-
Mar	100	710	38.08	64.7	0	51.5	-
Apr	99.86	686	42.43	59.6	0	53.0	-
May	97.04	689	37.58	61.9	0	48.1	-
Jun	98.61	678	23.91	63.4	0	49.0	-
Jul	95.97	681	24.72	52.2	0	36.7	-
Aug	100	710	22.96	54.7	0	31.9	-
Sep	100	681	23.92	63.2	0	40.5	-
Oct	98.39	698	19.11	37.5	0	30.3	-
Nov	100	687	22.39	38.3	0	32.0	-
Dec	100	710	21.26	37.5	0	29.6	-
Annual	99.08	8275	27.23	64.7	0	53.0	-

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
O3 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Dec	100	491	21.73	35.5	0	33.4	-
Annual	100	491	21.73	35.5	0	33.4	-

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
O3 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance
Jan	100	514	25.85	43.3	0	36.9	-
Annual	100	514	25.85	43.3	0	36.9	-

Length of monthly periods with data collections: 552 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.87	699	16.7	41	0	34	-	99.71	0.29	0	0
Feb	99.85	636	15.1	47	0	25	-	97.48	2.52	0	0
Mar	98.92	699	11.0	47	0	25	-	99.43	0.57	0	0
Apr	99.86	683	4.4	36	0	10	-	100	0	0	0
May	98.25	696	4.2	37	0	9	-	100	0	0	0
Jun	99.17	678	3.1	24	0	6	-	100	0	0	0
Jul	99.73	704	2.7	18	0	7	-	100	0	0	0
Aug	100	707	3.5	17	0	8	-	100	0	0	0
Sep	100	678	3.7	25	0	9	-	100	0	0	0
Oct	99.87	707	5.3	35	0	15	-	100	0	0	0
Nov	99.86	683	9.0	29	0	18	-	100	0	0	0
Dec	99.87	707	13.8	37	0	28	-	100	0	0	0
Annual	99.60	8277	7.7	47	0	34	-	99.73	0.27	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values		% of Data in Each Concentration Range				
					Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Exceeding 24-Hour Guidance	0 - 40	41 - 80	81 - 159	>159
Jan	99.6	701	13.5	38	0	25	-	100	0	0	0
Feb	100	629	10.9	46	0	24	-	99.52	0.48	0	0
Mar	100	701	9.3	53	0	16	-	99.43	0.57	0	0
Apr	100	686	5.3	36	0	10	-	100	0	0	0
May	100	705	3.6	20	0	7	-	100	0	0	0
Jun	99.44	682	2.9	13	0	7	-	100	0	0	0
Jul	100	703	2.1	10	0	5	-	100	0	0	0
Aug	100	701	3.3	25	0	8	-	100	0	0	0
Sep	100	672	3.1	20	0	8	-	100	0	0	0
Oct	99.46	702	4.1	29	0	8	-	100	0	0	0
Nov	99.72	681	7.6	31	0	17	-	100	0	0	0
Dec	100	706	10.5	34	0	20	-	100	0	0	0
Annual	99.85	8269	6.3	53	0	25	-	99.91	0.09	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
NO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	708	16.1	51	0	29	-	99.44	0.56	0	0
Feb	100	639	16.8	56	0	26	-	98.28	1.72	0	0
Mar	100	708	13.4	59	0	23	-	97.46	2.54	0	0
Apr	99.72	682	6.8	34	0	12	-	100	0	0	0
May	98.52	696	5.4	25	0	8	-	100	0	0	0
Jun	97.78	670	4.5	19	0	7	-	100	0	0	0
Jul	99.73	705	3.7	20	0	7	-	100	0	0	0
Aug	99.73	705	5.3	25	0	11	-	100	0	0	0
Sep	100	680	6.6	40	0	12	-	100	0	0	0
Oct	99.46	704	8.4	34	0	16	-	100	0	0	0
Nov	99.44	681	13.1	166	1	23	-	99.56	0.29	0	0.15
Dec	99.73	706	19.2	64	0	36	-	96.03	3.97	0	0
Annual	99.51	8284	9.9	166	1	36	-	99.22	0.76	0	0.01

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipewyan (AMS 8)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.73	706	1.2	17	0	6	-	100	0	0	0
Feb	99.7	637	1.2	12	0	3	-	100	0	0	0
Mar	100	709	0.5	5	0	2	-	100	0	0	0
Apr	98.75	676	0.3	5	0	1	-	100	0	0	0
May	100	708	0.2	4	0	1	-	100	0	0	0
Jun	100	685	0.1	3	0	0	-	100	0	0	0
Jul	100	708	0.1	2	0	0	-	100	0	0	0
Aug	98.39	693	0.5	7	0	1	-	100	0	0	0
Sep	100	685	0.9	11	0	4	-	100	0	0	0
Oct	75.4	530	0.7	7	0	3	-	100	0	0	0
Nov	98.06	657	1.6	15	0	7	-	100	0	0	0
Dec	99.73	707	1.9	28	0	14	-	100	0	0	0
Annual	97.44	8101	0.8	28	0	14	-	100	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	707	21.1	57	0	35	-	95.76	4.24	0	0
Feb	100	638	20.1	51	0	34	-	98.28	1.72	0	0
Mar	98.52	697	16.8	50	0	30	-	93.83	6.17	0	0
Apr	100	685	10.4	44	0	24	-	99.27	0.73	0	0
May	100	708	9.8	47	0	17	-	99.58	0.42	0	0
Jun	99.58	681	6.9	31	0	12	-	100	0	0	0
Jul	99.87	706	6.8	28	0	13	-	100	0	0	0
Aug	99.87	706	8.7	36	0	14	-	100	0	0	0
Sep	99.86	680	9.3	35	0	17	-	100	0	0	0
Oct	99.73	706	10.9	53	0	21	-	99.72	0.28	0	0
Nov	99.72	683	14.1	42	0	26	-	99.71	0.29	0	0
Dec	100	708	20.7	55	0	36	-	97.03	2.97	0	0
Annual	99.76	8305	13.0	57	0	36	-	98.58	1.42	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	98.52	696	15.4	42	0	29	-	99.43	0.57	0	0
Feb	100	639	14.6	42	0	22	-	99.69	0.31	0	0
Mar	99.33	703	10.4	43	0	23	-	99.57	0.43	0	0
Apr	100	685	4.2	26	0	9	-	100	0	0	0
May	95.56	678	3.5	35	0	7	-	100	0	0	0
Jun	100	684	2.9	24	0	6	-	100	0	0	0
Jul	99.46	703	2.8	19	0	6	-	100	0	0	0
Aug	99.73	706	3.4	18	0	8	-	100	0	0	0
Sep	99.86	678	2.8	21	0	7	-	100	0	0	0
Oct	99.6	704	4.1	26	0	14	-	100	0	0	0
Nov	100	682	8.3	37	0	18	-	100	0	0	0
Dec	100	707	12.5	48	0	24	-	99.29	0.71	0	0
Annual	99.33	8265	7.0	48	0	29	-	99.86	0.14	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.73	705	6.5	31	0	17	-	100	0	0	0
Feb	99.11	634	4.9	50	0	13	-	99.84	0.16	0	0
Mar	99.87	707	4.5	40	0	8	-	100	0	0	0
Apr	99.86	684	1.9	27	0	6	-	100	0	0	0
May	96.64	685	1.4	19	0	3	-	100	0	0	0
Jun	98.19	672	1.0	16	0	3	-	100	0	0	0
Jul	95.97	679	1.1	14	0	3	-	100	0	0	0
Aug	99.87	707	1.9	41	0	5	-	99.86	0.14	0	0
Sep	100	680	1.6	12	0	3	-	100	0	0	0
Oct	98.66	698	1.9	14	0	4	-	100	0	0	0
Nov	100	685	3.4	19	0	12	-	100	0	0	0
Dec	99.87	705	5.2	27	0	11	-	100	0	0	0
Annual	98.97	8241	2.9	50	0	17	-	99.98	0.02	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
NO2 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values	% of Data in Each Concentration Range			
					Exceeding 1-Hour Guideline		Exceeding 24-Hour Guidance	0 - 40	41 - 80	81 - 159	>159
Jan	100	708	15.7	44	0	29	-	99.01	0.99	0	0
Feb	100	640	13.3	57	0	28	-	96.88	3.13	0	0
Mar	100	707	10.4	63	0	29	-	97.17	2.83	0	0
Apr	100	684	4.4	48	0	17	-	98.98	1.02	0	0
May	98.25	691	4.7	37	0	10	-	100	0	0	0
Jun	100	684	3.3	28	0	8	-	100	0	0	0
Jul	99.87	704	2.9	27	0	8	-	100	0	0	0
Aug	96.77	686	3.8	35	0	9	-	100	0	0	0
Sep	100	681	3.6	26	0	7	-	100	0	0	0
Oct	100	706	4.5	35	0	13	-	100	0	0	0
Nov	100	684	8.0	37	0	18	-	100	0	0	0
Dec	100	708	11.9	46	0	23	-	99.29	0.71	0	0
Annual	99.57	8283	7.2	63	0	29	-	99.29	0.71	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values	% of Data in Each Concentration Range			
					Exceeding 1-Hour Guideline		Exceeding 24-Hour Guidance	0 - 40	41 - 80	81 - 159	>159
Jan	99.46	690	18.7	59	0	32	-	99.13	0.87	0	0
Feb	100	638	14.5	61	0	35	-	98.12	1.88	0	0
Mar	100	709	16.2	69	0	32	-	95.49	4.51	0	0
Apr	80.97	554	12.1	51	0	19	-	99.1	0.9	0	0
May	99.6	705	8.5	48	0	17	-	99.43	0.57	0	0
Jun	99.86	683	7.8	37	0	19	-	100	0	0	0
Jul	100	706	6.5	34	0	14	-	100	0	0	0
Aug	100	706	6.3	30	0	11	-	100	0	0	0
Sep	98.06	665	7.2	31	0	18	-	100	0	0	0
Oct	100	708	8.6	30	0	19	-	100	0	0	0
Nov	99.72	683	14.3	48	0	26	-	99.85	0.15	0	0
Dec	100	706	19.2	55	0	29	-	97.31	2.69	0	0
Annual	98.16	8153	11.6	69	0	35	-	99.03	0.97	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Dec	98.79	698	5.9	31	0	14	-	100	0	0	0
Annual	98.79	698	5.9	31	0	14	-	100	0	0	0

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	514	4.6	21	0	11	-	100	0	0	0
Annual	100	514	4.6	21	0	11	-	100	0	0	0

Length of monthly periods with data collections: 552 Hours



WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values	% of Data in Each Concentration Range			
					Exceeding 1-Hour Guideline		Exceeding 24-Hour Guidance	0 - 40	41 - 80	81 - 159	>159
May	100	709	4.9	69	0	19	-	99.15	0.85	0	0
Jun	99.44	680	5.1	76	0	17	-	98.82	1.18	0	0
Jul	100	708	5.3	57	0	22	-	98.73	1.27	0	0
Aug	100	283	5.5	50	0	13	-	98.59	1.41	0	0
Annual	99.86	2380	5.2	76	0	22	-	98.82	1.18	0	0

Length of monthly periods with data collections: 2544 Hours



WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
NO2 (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jul	96.53	599	5.6	36	0	10	-	100	0	0	0
Aug	99.46	702	4.9	38	0	12	-	100	0	0	0
Sep	97.78	656	3.9	28	0	11	-	100	0	0	0
Oct	94.22	664	4.2	25	0	9	-	100	0	0	0
Annual	97.00	2621	4.7	38	0	12	-	100	0	0	0

Length of monthly periods with data collections: 2904 Hours

This page intentionally left blank



WB EA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.87	699	25.9	108	-	64	-	77.83	19.31	2.86	0
Feb	99.85	636	22.2	131	-	55	-	84.75	12.42	2.83	0
Mar	98.92	699	14.4	100	-	38	-	93.42	5.58	1	0
Apr	99.86	683	5.3	67	-	12	-	99.71	0.29	0	0
May	98.25	696	5.1	75	-	12	-	99.57	0.43	0	0
Jun	99.17	678	4.0	55	-	10	-	99.71	0.29	0	0
Jul	99.73	704	3.5	48	-	10	-	99.86	0.14	0	0
Aug	100	707	5.1	41	-	15	-	99.86	0.14	0	0
Sep	100	678	5.4	45	-	14	-	99.71	0.29	0	0
Oct	99.87	707	8.5	166	-	26	-	97.31	2.55	0	0.14
Nov	99.86	683	14.1	74	-	41	-	93.27	6.73	0	0
Dec	99.87	707	24.8	136	-	78	-	78.64	16.27	5.09	0
Annual	99.6	8277	11.5	166	-	78	-	93.8	5.21	0.97	0.01

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.6	701	20.6	103	-	53	-	86.31	11.98	1.71	0
Feb	100	629	15.5	101	-	49	-	92.69	6.52	0.79	0
Mar	100	701	12.6	87	-	23	-	96.72	3.14	0.14	0
Apr	100	686	6.9	77	-	16	-	98.69	1.31	0	0
May	100	705	4.5	40	-	10	-	100	0	0	0
Jun	99.44	682	4.1	22	-	10	-	100	0	0	0
Jul	100	703	2.8	27	-	6	-	100	0	0	0
Aug	100	701	5.6	79	-	20	-	98.86	1.14	0	0
Sep	100	672	4.4	36	-	12	-	100	0	0	0
Oct	99.46	702	6.4	81	-	20	-	98.01	1.85	0.14	0
Nov	99.72	681	11.7	78	-	40	-	95.89	4.11	0	0
Dec	100	706	16.7	117	-	47	-	90.51	8.07	1.42	0
Annual	99.85	8269	9.3	117	-	53	-	96.49	3.16	0.35	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
NOX (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	708	26.7	169	-	67	-	83.19	13.7	2.82	0.28
Feb	100	639	26.0	167	-	48	-	81.85	14.55	3.44	0.16
Mar	100	708	17.7	93	-	33	-	92.37	7.49	0.14	0
Apr	99.72	682	8.3	51	-	16	-	99.85	0.15	0	0
May	98.52	696	7.4	38	-	12	-	100	0	0	0
Jun	97.78	670	5.6	26	-	10	-	100	0	0	0
Jul	99.73	705	5.1	109	-	10	-	99.72	0.14	0.14	0
Aug	99.73	705	8.1	55	-	18	-	99.43	0.57	0	0
Sep	100	680	10.0	60	-	17	-	98.24	1.76	0	0
Oct	99.46	704	13.7	97	-	33	-	94.89	4.97	0.14	0
Nov	99.44	681	22.9	442	-	50	-	84.88	13.07	1.91	0.15
Dec	99.73	706	38.6	225	-	87	-	64.87	24.93	9.63	0.57
Annual	99.51	8284	15.8	442	-	87	-	91.6	6.77	1.53	0.1

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipewyan (AMS 8)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.73	706	1.3	19	-	6	-	100	0	0	0
Feb	99.7	637	1.4	16	-	4	-	100	0	0	0
Mar	100	709	0.6	5	-	2	-	100	0	0	0
Apr	98.75	676	0.4	5	-	1	-	100	0	0	0
May	100	708	0.3	6	-	1	-	100	0	0	0
Jun	100	685	0.2	3	-	1	-	100	0	0	0
Jul	100	708	0.2	2	-	1	-	100	0	0	0
Aug	98.39	693	0.5	15	-	2	-	100	0	0	0
Sep	100	685	1.0	11	-	5	-	100	0	0	0
Oct	75.4	530	0.9	11	-	4	-	100	0	0	0
Nov	98.06	657	1.7	15	-	8	-	100	0	0	0
Dec	99.73	707	2.2	38	-	17	-	100	0	0	0
Annual	97.44	8101	0.9	38	-	17	-	100	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	707	49.8	365	-	145	-	49.65	31.82	15.7	2.83
Feb	100	638	37.7	282	-	111	-	66.93	22.41	9.09	1.57
Mar	98.52	697	28.3	263	-	67	-	78.62	13.63	7.32	0.43
Apr	100	685	14.9	164	-	56	-	91.39	7.3	1.17	0.15
May	100	708	16.5	261	-	52	-	89.83	7.34	2.26	0.56
Jun	99.58	681	11.8	130	-	32	-	93.83	4.99	1.17	0
Jul	99.87	706	11.3	96	-	22	-	96.03	3.68	0.28	0
Aug	99.87	706	18.1	94	-	29	-	86.4	13.17	0.42	0
Sep	99.86	680	19.1	183	-	39	-	86.76	10.29	2.65	0.29
Oct	99.73	706	26.1	379	-	89	-	80.88	14.02	3.97	1.13
Nov	99.72	683	28.3	209	-	79	-	74.52	17.72	6.88	0.88
Dec	100	708	48.3	289	-	124	-	58.19	18.93	18.93	3.95
Annual	99.76	8305	25.8	379	-	145	-	79.25	13.88	5.88	1

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	98.52	696	27.0	195	-	76	-	77.3	16.38	5.89	0.43
Feb	100	639	22.7	128	-	51	-	83.88	13.46	2.66	0
Mar	99.33	703	14.3	145	-	48	-	93.88	5.12	1	0
Apr	100	685	5.5	45	-	11	-	99.71	0.29	0	0
May	95.56	678	4.5	61	-	10	-	99.71	0.29	0	0
Jun	100	684	4.3	124	-	16	-	99.27	0.44	0.29	0
Jul	99.46	703	4.3	58	-	10	-	99.43	0.57	0	0
Aug	99.73	706	5.4	59	-	17	-	99.15	0.85	0	0
Sep	99.86	678	4.5	54	-	11	-	99.71	0.29	0	0
Oct	99.6	704	6.7	78	-	20	-	99.01	0.99	0	0
Nov	100	682	13.6	141	-	68	-	94.72	3.67	1.61	0
Dec	100	707	26.5	241	-	84	-	79.49	11.17	8.35	0.99
Annual	99.33	8265	11.6	241	-	84	-	94.12	4.29	1.52	0.07

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.73	705	8.4	74	-	28	-	98.16	1.84	0	0
Feb	99.11	634	6.4	104	-	21	-	99.21	0.47	0.32	0
Mar	99.87	707	5.7	128	-	13	-	99.01	0.85	0.14	0
Apr	99.86	684	2.6	41	-	7	-	99.85	0.15	0	0
May	96.64	685	2.0	63	-	6	-	99.85	0.15	0	0
Jun	98.19	672	1.6	77	-	6	-	99.85	0.15	0	0
Jul	95.97	679	1.7	39	-	7	-	100	0	0	0
Aug	99.87	707	3.3	94	-	12	-	99.29	0.57	0.14	0
Sep	100	680	2.0	25	-	4	-	100	0	0	0
Oct	98.66	698	2.3	30	-	6	-	100	0	0	0
Nov	100	685	4.0	27	-	14	-	100	0	0	0
Dec	99.87	705	5.9	43	-	14	-	99.72	0.28	0	0
Annual	98.97	8241	3.8	128	-	28	-	99.57	0.38	0.05	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
NOX (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	708	24.9	148	-	63	-	75.28	20.62	4.1	0
Feb	100	640	20.0	202	-	60	-	85.47	11.41	2.5	0.63
Mar	100	707	15.0	267	-	59	-	91.51	6.51	1.56	0.42
Apr	100	684	5.4	115	-	26	-	97.95	1.61	0.44	0
May	98.25	691	6.1	109	-	21	-	98.84	0.72	0.43	0
Jun	100	684	4.6	67	-	14	-	98.68	1.32	0	0
Jul	99.87	704	4.2	64	-	12	-	99.43	0.57	0	0
Aug	96.77	686	5.5	92	-	14	-	99.13	0.73	0.15	0
Sep	100	681	6.2	105	-	23	-	97.8	1.62	0.59	0
Oct	100	706	7.0	143	-	25	-	97.17	2.55	0.28	0
Nov	100	684	12.5	175	-	43	-	92.69	6.43	0.58	0.29
Dec	100	708	20.6	189	-	63	-	84.6	10.73	4.24	0.42
Annual	99.57	8283	11.0	267	-	63	-	93.21	5.41	1.24	0.13

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.46	690	39.8	330	-	112	-	64.2	22.75	12.03	1.01
Feb	100	638	27.4	282	-	142	-	83.39	9.87	4.7	2.04
Mar	100	709	25.7	218	-	56	-	82.51	13.4	3.53	0.56
Apr	80.97	554	19.2	123	-	38	-	90.97	8.3	0.72	0
May	99.6	705	12.8	214	-	34	-	93.62	5.53	0.71	0.14
Jun	99.86	683	13.3	182	-	43	-	96.93	2.64	0.29	0.15
Jul	100	706	10.7	101	-	23	-	96.03	3.26	0.71	0
Aug	100	706	11.1	78	-	32	-	96.46	3.54	0	0
Sep	98.06	665	12.8	129	-	52	-	94.59	4.36	1.05	0
Oct	100	708	14.4	122	-	49	-	94.21	5.08	0.71	0
Nov	99.72	683	26.3	281	-	91	-	83.02	12.45	4.1	0.44
Dec	100	706	37.1	231	-	89	-	68.7	20.11	10.34	0.85
Annual	98.16	8153	20.9	330	-	142	-	86.99	9.32	3.26	0.43

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Dec	98.79	698	7.6	49	-	17	-	99.71	0.29	0	0
Annual	98.79	698	7.6	49	-	17	-	99.71	0.29	0	0

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	514	8.0	135	-	29	-	96.69	2.92	0.39	0
Annual	100	514	8.0	135	-	29	-	96.69	2.92	0.39	0

Length of monthly periods with data collections: 552 Hours



WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
May	100	709	13.3	193	-	64	-	90.69	6.49	2.26	0.56
Jun	99.44	680	15.0	216	-	55	-	90.44	7.06	2.06	0.44
Jul	100	708	16.4	176	-	77	-	88.56	8.33	2.68	0.42
Aug	100	283	16.4	150	-	43	-	92.23	5.3	2.47	0
Annual	99.86	2380	15.3	216	-	77	-	90.48	6.80	2.37	0.36

Length of monthly periods with data collections: 2544 Hours



WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
NOX (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jul	96.53	599	8.4	51	-	18	-	99.83	0.17	0	0
Aug	99.46	702	7.6	90	-	20	-	98.72	1.14	0.14	0
Sep	97.78	656	6.6	40	-	16	-	100	0	0	0
Oct	94.22	664	7.6	43	-	17	-	99.7	0.3	0	0
Annual	97.00	2621	7.6	90	-	20	-	99.56	0.40	0.04	0

Length of monthly periods with data collections: 2904 Hours

This page intentionally left blank



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.87	699	9.2	70	-	35	-	92.99	7.01	0	0
Feb	99.85	636	7.1	88	-	30	-	96.07	3.77	0.16	0
Mar	98.92	699	3.5	67	-	17	-	99.14	0.86	0	0
Apr	99.86	683	0.9	31	-	4	-	100	0	0	0
May	98.25	696	0.9	37	-	4	-	100	0	0	0
Jun	99.17	678	0.9	39	-	4	-	100	0	0	0
Jul	99.73	704	0.8	38	-	3	-	100	0	0	0
Aug	100	707	1.6	28	-	7	-	100	0	0	0
Sep	100	678	1.8	32	-	4	-	100	0	0	0
Oct	99.87	707	3.3	130	-	16	-	99.29	0.57	0.14	0
Nov	99.86	683	5.1	49	-	26	-	98.54	1.46	0	0
Dec	99.87	707	11.1	101	-	52	-	89.25	9.9	0.85	0
Annual	99.6	8277	3.8	130	-	52	-	98.03	1.87	0.1	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.6	701	7.1	68	-	28	-	97.72	2.28	0	0
Feb	100	629	4.6	64	-	24	-	98.57	1.43	0	0
Mar	100	701	3.3	49	-	9	-	99.86	0.14	0	0
Apr	100	686	1.6	49	-	7	-	99.56	0.44	0	0
May	100	705	1.0	21	-	3	-	100	0	0	0
Jun	99.44	682	1.2	15	-	5	-	100	0	0	0
Jul	100	703	0.8	18	-	3	-	100	0	0	0
Aug	100	701	2.3	61	-	14	-	99.57	0.43	0	0
Sep	100	672	1.3	25	-	4	-	100	0	0	0
Oct	99.46	702	2.4	53	-	13	-	99.57	0.43	0	0
Nov	99.72	681	4.0	51	-	23	-	99.12	0.88	0	0
Dec	100	706	6.2	85	-	29	-	97.03	2.69	0.28	0
Annual	99.85	8269	3.0	85	-	29	-	99.25	0.73	0.02	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	708	10.6	118	-	42	-	94.21	4.8	0.99	0
Feb	100	639	9.2	121	-	26	-	95.93	3.44	0.63	0
Mar	100	708	4.3	50	-	12	-	99.72	0.28	0	0
Apr	99.72	682	1.5	19	-	4	-	100	0	0	0
May	98.52	696	2.0	19	-	4	-	100	0	0	0
Jun	97.78	670	1.1	17	-	4	-	100	0	0	0
Jul	99.73	705	1.4	89	-	6	-	99.86	0	0.14	0
Aug	99.73	705	2.9	37	-	7	-	100	0	0	0
Sep	100	680	3.4	44	-	8	-	99.71	0.29	0	0
Oct	99.46	704	5.3	70	-	18	-	99.01	0.99	0	0
Nov	99.44	681	9.8	277	-	28	-	95.01	4.41	0.44	0.15
Dec	99.73	706	19.4	161	-	51	-	86.12	10.91	2.83	0.14
Annual	99.51	8284	5.9	277	-	51	-	97.44	2.11	0.42	0.02

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipewyan (AMS 8)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values		% of Data in Each Concentration Range				
					Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Exceeding 24-Hour Guidance	0 - 40	41 - 80	81 - 159	>159
Jan	99.73	706	0.1	11	-	1	-	100	0	0	0
Feb	99.7	637	0.2	10	-	1	-	100	0	0	0
Mar	100	709	0.1	3	-	0	-	100	0	0	0
Apr	98.75	676	0.1	2	-	0	-	100	0	0	0
May	100	708	0.1	3	-	1	-	100	0	0	0
Jun	100	685	0.1	0	-	0	-	100	0	0	0
Jul	100	708	0.1	1	-	0	-	100	0	0	0
Aug	98.39	693	0.1	8	-	1	-	100	0	0	0
Sep	100	685	0.1	2	-	0	-	100	0	0	0
Oct	75.4	530	0.2	9	-	1	-	100	0	0	0
Nov	98.06	657	0.1	5	-	1	-	100	0	0	0
Dec	99.73	707	0.3	15	-	3	-	100	0	0	0
Annual	97.44	8101	0.1	15	-	3	-	100	0	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	707	28.7	309	-	111	-	74.4	16.97	7.07	1.56
Feb	100	638	17.6	231	-	77	-	86.52	8.62	4.39	0.47
Mar	98.52	697	11.5	213	-	43	-	91.25	6.31	2.3	0.14
Apr	100	685	4.5	121	-	32	-	98.54	0.88	0.58	0
May	100	708	6.7	214	-	35	-	96.61	2.12	0.85	0.42
Jun	99.58	681	4.9	113	-	19	-	97.8	1.76	0.44	0
Jul	99.87	706	4.5	80	-	13	-	98.58	1.42	0	0
Aug	99.87	706	9.4	84	-	20	-	94.48	5.38	0.14	0
Sep	99.86	680	9.8	158	-	28	-	93.53	5.15	1.32	0
Oct	99.73	706	15.2	332	-	70	-	89.66	6.94	2.69	0.71
Nov	99.72	683	14.2	169	-	55	-	87.7	10.1	1.9	0.29
Dec	100	708	27.6	234	-	88	-	72.88	17.94	7.63	1.55
Annual	99.76	8305	12.9	332	-	111	-	90.05	7.04	2.47	0.44

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	98.52	696	11.6	155	-	48	-	88.94	9.77	1.29	0
Feb	100	639	8.1	90	-	29	-	94.84	4.85	0.31	0
Mar	99.33	703	3.9	114	-	31	-	98.58	0.85	0.57	0
Apr	100	685	1.3	24	-	4	-	100	0	0	0
May	95.56	678	1.0	27	-	3	-	100	0	0	0
Jun	100	684	1.4	111	-	11	-	99.56	0.29	0.15	0
Jul	99.46	703	1.5	49	-	5	-	99.86	0.14	0	0
Aug	99.73	706	2.0	44	-	9	-	99.86	0.14	0	0
Sep	99.86	678	1.7	39	-	5	-	100	0	0	0
Oct	99.6	704	2.7	67	-	12	-	99.72	0.28	0	0
Nov	100	682	5.3	110	-	50	-	97.07	1.61	1.32	0
Dec	100	707	14.0	193	-	60	-	86.14	9.34	3.82	0.71
Annual	99.33	8265	4.5	193	-	60	-	97.38	2.03	0.57	0.02

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.73	705	1.9	43	-	12	-	99.86	0.14	0	0
Feb	99.11	634	1.5	54	-	8	-	99.68	0.32	0	0
Mar	99.87	707	1.2	88	-	6	-	99.86	0	0.14	0
Apr	99.86	684	0.7	27	-	3	-	100	0	0	0
May	96.64	685	0.6	44	-	3	-	99.85	0.15	0	0
Jun	98.19	672	0.5	62	-	5	-	99.85	0.15	0	0
Jul	95.97	679	0.6	29	-	4	-	100	0	0	0
Aug	99.87	707	1.4	54	-	7	-	99.72	0.28	0	0
Sep	100	680	0.4	20	-	2	-	100	0	0	0
Oct	98.66	698	0.4	21	-	2	-	100	0	0	0
Nov	100	685	0.6	15	-	4	-	100	0	0	0
Dec	99.87	705	0.7	22	-	3	-	100	0	0	0
Annual	98.97	8241	0.9	88	-	12	-	99.9	0.09	0.01	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
NO (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	708	9.2	105	-	35	-	95.2	4.1	0.71	0
Feb	100	640	6.8	145	-	34	-	96.56	2.19	1.25	0
Mar	100	707	4.6	207	-	30	-	97.6	1.27	0.85	0.28
Apr	100	684	1.1	72	-	8	-	99.56	0.44	0	0
May	98.25	691	1.4	90	-	13	-	99.57	0.14	0.29	0
Jun	100	684	1.3	55	-	8	-	99.42	0.58	0	0
Jul	99.87	704	1.2	43	-	6	-	99.86	0.14	0	0
Aug	96.77	686	1.7	57	-	6	-	99.71	0.29	0	0
Sep	100	681	2.6	96	-	17	-	99.27	0.44	0.29	0
Oct	100	706	2.5	108	-	15	-	99.43	0.42	0.14	0
Nov	100	684	4.5	139	-	26	-	98.1	1.46	0.44	0
Dec	100	708	8.7	142	-	41	-	93.08	5.08	1.84	0
Annual	99.57	8283	3.8	207	-	41	-	98.12	1.39	0.47	0.02

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	99.46	690	21.2	271	-	79	-	82.61	13.04	3.91	0.43
Feb	100	638	13.0	222	-	107	-	91.85	3.92	2.98	1.25
Mar	100	709	9.6	149	-	32	-	95.91	2.82	1.27	0
Apr	80.97	554	7.1	75	-	21	-	99.28	0.72	0	0
May	99.6	705	4.3	166	-	18	-	99.15	0.71	0	0.14
Jun	99.86	683	5.5	146	-	24	-	99.41	0.29	0.29	0
Jul	100	706	4.2	71	-	12	-	99.15	0.85	0	0
Aug	100	706	4.9	57	-	21	-	99.15	0.85	0	0
Sep	98.06	665	5.5	102	-	35	-	98.05	1.65	0.3	0
Oct	100	708	5.8	92	-	30	-	98.73	0.99	0.28	0
Nov	99.72	683	12.0	233	-	66	-	92.83	5.27	1.61	0.29
Dec	100	706	17.9	177	-	60	-	84.99	12.32	2.55	0.14
Annual	98.16	8153	9.2	271	-	107	-	95.05	3.66	1.11	0.18

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Dec	98.79	698	1.7	23	-	4	-	100	0	0	0
Annual	98.79	698	1.7	23	-	4	-	100	0	0	0

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jan	100	514	3.4	122	-	19	-	97.86	1.75	0.39	0
Annual	100	514	3.4	122	-	19	-	97.86	1.75	0.39	0

Length of monthly periods with data collections: 552 Hours



**WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
NO (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
May	100	709	8.4	123	-	45	-	95.49	3.39	1.13	0
Jun	99.44	680	9.9	157	-	37	-	95.29	3.53	1.18	0
Jul	100	708	11.0	133	-	54	-	92.94	5.23	1.84	0
Aug	100	283	10.9	107	-	30	-	95.05	4.24	0.71	0
Annual	99.86	2380	10.1	157	-	54	-	94.69	4.10	1.22	0

Length of monthly periods with data collections: 2544 Hours



WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
NO (ppb) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range			
								0 - 40	41 - 80	81 - 159	>159
Jul	96.53	599	2.8	19	-	10	-	100	0	0	0
Aug	99.46	702	2.7	53	-	9	-	99.43	0.57	0	0
Sep	97.78	656	2.7	24	-	6	-	100	0	0	0
Oct	94.22	664	3.5	24	-	9	-	100	0	0	0
Annual	97.00	2621	2.9	53	-	10	-	99.86	0.14	0	0

Length of monthly periods with data collections: 2904 Hours

This page intentionally left blank



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
CO (ppm) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values	Maximum 24-Hour Value	Number of Values
					Exceeding 1-Hour Guideline		Exceeding 24-Hour Guidance
Jan	100	709	0.2	0.6	-	0.3	-
Feb	99.7	637	0.2	0.8	-	0.3	-
Mar	100	710	0.2	0.6	-	0.3	-
Apr	99.72	685	0.2	0.3	-	0.2	-
May	98.39	698	0.1	0.3	-	0.2	-
Jun	97.78	673	0.2	0.6	-	0.3	-
Jul	100	708	0.2	1.2	-	0.5	-
Aug	99.73	708	0.2	1.2	-	0.4	-
Sep	100	680	0.2	0.6	-	0.3	-
Oct	99.6	706	0.1	0.4	-	0.2	-
Nov	100	687	0.1	1.1	-	0.2	-
Dec	99.33	701	0.1	0.7	-	0.3	-
Annual	99.52	8302	0.2	1.2	-	0.5	-

Length of monthly periods with data collections: 8760 Hours

This page intentionally left blank



**WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
NH3 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Number of Values		Number of Values		% of Data in Each Concentration Range		
				Maximum 1-Hour Value	Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Exceeding 24-Hour Guidance	0 - 1000	1001 - 2000	> 2000
Jan	92.88	645	0.1	15	0	2	-	100	0	0
Feb	93.01	560	0.0	0	0	0	-	100	0	0
Mar	94.35	655	0.0	0	0	0	-	100	0	0
Apr	95	649	0.0	0	0	0	-	100	0	0
May	93.28	652	0.0	0	0	0	-	100	0	0
Jun	86.67	591	0.0	0	0	0	-	100	0	0
Jul	93.15	649	0.0	0	0	0	-	100	0	0
Aug	95.97	671	0.0	0	0	0	-	100	0	0
Sep	95.83	637	0.0	0	0	0	-	100	0	0
Oct	95.7	672	0.1	23	0	1	-	100	0	0
Nov	95.69	645	0.0	0	0	0	-	100	0	0
Dec	95.83	674	0.0	0	0	0	-	100	0	0
Annual	93.96	7700	0.0	23	0	2	0	100	0	0

Length of monthly periods with data collections: 8760 Hours



**WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
NH3 (ppb) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Number of Values		Number of Values		% of Data in Each Concentration Range		
				Maximum 1-Hour Value	Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Exceeding 24-Hour Guidance	0 - 1000	1001 - 2000	> 2000
Jan	95.56	668	0.0	0	0	0	-	100	0	0
Feb	95.83	598	0.0	0	0	0	-	100	0	0
Mar	95.83	661	0.0	0	0	0	-	100	0	0
Apr	96.53	650	0.0	0	0	0	-	100	0	0
May	100	670	0.0	0	0	0	-	100	0	0
Jun	95.97	647	0.0	0	0	0	-	100	0	0
Jul	95.83	665	0.0	0	0	0	-	100	0	0
Aug	95.83	668	0.0	0	0	0	-	100	0	0
Sep	95.83	636	0.0	0	0	0	-	100	0	0
Oct	95.3	669	0.0	0	0	0	-	100	0	0
Nov	95.56	648	0.0	0	0	0	-	100	0	0
Dec	95.83	672	0.0	0	0	0	-	100	0	0
Annual	96.16	7852	0.0	0	0	0	0	100	0	0

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.73	742	8.2	53.3	-	21.4	0	31.27	48.38	17.65	1.48	1.21
Feb	99.85	671	7.6	51.3	-	16.6	0	39.49	43.82	12.97	3.28	0.45
Mar	98.92	736	7.1	41.7	-	12.3	0	47.83	31.11	20.38	0.41	0.27
Apr	99.58	717	5.6	23.0	-	11.0	0	59.83	35.01	4.74	0.42	0
May	94.76	705	7.6	80.9	-	25.3	0	42.41	38.01	16.88	1.28	1.42
Jun	98.19	707	7.9	38.0	-	15.1	0	38.47	35.08	23.34	2.83	0.28
Jul	99.06	737	10.8	193.7	-	62.1	2	41.66	32.02	18.05	3.26	5.02
Aug	99.87	743	7.8	139.8	-	21.7	0	49.53	26.51	19.78	3.23	0.94
Sep	100	720	6.6	21.0	-	10.2	0	44.58	40.83	14.31	0.28	0
Oct	99.87	743	5.1	79.3	-	11.2	0	65.95	26.78	6.73	0.27	0.27
Nov	98.19	707	7.3	60.2	-	24.8	0	55.3	26.45	12.16	4.67	1.41
Dec	99.46	740	7.7	70.0	-	18.5	0	44.73	41.08	9.86	1.49	2.84
Annual	98.95	8668	7.4	193.7	-	62.1	2	46.77	35.4	14.77	1.88	1.18

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.33	739	6.18	48.4	-	22.6	0	58.73	29.63	8.39	2.57	0.68
Feb	99.7	670	4.93	29.7	-	10.6	0	68.81	22.69	8.06	0.45	0
Mar	99.87	743	5.38	37.2	-	10.6	0	67.03	23.96	8.21	0.54	0.27
Apr	100	720	4.90	18.6	-	10.1	0	69.58	27.36	3.06	0	0
May	99.73	742	6.35	24.8	-	12.5	0	49.73	36.39	13.48	0.4	0
Jun	90.56	636	6.64	52.2	-	14.1	0	49.21	35.69	13.36	1.57	0.16
Jul	96.37	717	9.68	139.5	-	62.4	2	51.46	25.94	14.78	2.37	5.44
Aug	97.72	727	6.98	113.9	-	28.9	0	54.61	30.81	11	2.06	1.51
Sep	97.64	703	4.21	20.1	-	6.8	0	75.25	21.05	3.7	0	0
Oct	99.87	743	3.47	18.8	-	6.4	0	85.33	13.59	1.08	0	0
Nov	99.44	716	4.76	44.6	-	14.4	0	73.04	20.11	6.28	0.28	0.28
Dec	99.73	742	4.76	52.1	-	10.2	0	71.02	23.45	5.12	0.27	0.13
Annual	98.33	8598	5.68	139.5	-	62.4	2	64.46	25.92	8.03	0.87	0.71

Length of monthly periods with data collections: 8760 Hours



**WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding	Maximum 24-Hour Value	Number of Values Exceeding	% of Data in Each Concentration Range				
					1-Hour Guideline	24-Hour Value	24-Hour Guidance	0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.87	743	7.3	47.3	0	27.8	0	55.32	27.32	12.38	2.69	2.29
Feb	99.7	670	5.9	31.3	0	12.1	0	59.85	27.61	11.79	0.6	0.15
Mar	99.33	739	5.9	33.9	0	11.1	0	62.52	21.79	13.8	1.49	0.41
Apr	99.58	717	6.0	23.7	0	9.7	0	53.28	37.24	9.21	0.28	0
May	79.3	590	4.6	20.6	0	11.4	0	83.39	9.66	6.78	0.17	0
Jun	90	646	8.4	36.9	0	16.4	0	31.89	41.64	24.3	1.86	0.31
Jul	99.6	741	10.9	113.3	0	68.8	2	36.17	29.28	27.67	2.83	4.05
Aug	96.64	719	9.2	72.8	0	28.0	0	32.41	39.64	21.84	3.76	2.36
Sep	99.72	718	7.0	37.7	0	12.1	0	48.61	27.44	22.84	0.84	0.28
Oct	99.87	743	5.8	32.3	0	13.0	0	55.99	32.44	10.09	1.35	0.13
Nov	99.86	719	6.3	239.9	0	20.8	0	58.41	29.07	11.96	0.42	0.14
Dec	99.87	743	7.9	39.4	0	13.4	0	34.32	46.03	17.63	1.88	0.13
Annual	96.92	8488	7.1	239.9	0	68.8	2	50.38	31.14	16.04	1.55	0.89

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipeywan (AMS 8)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.6	741	3.3	20.0	0	8.2	0	89.07	8.91	2.02	0	0
Feb	99.4	668	3.1	16.3	0	6.9	0	94.46	4.19	1.35	0	0
Mar	100	744	2.9	8.4	0	5.3	0	95.43	4.57	0	0	0
Apr	98.47	709	2.9	15.5	0	5.3	0	94.78	4.8	0.42	0	0
May	99.73	742	2.7	9.6	0	5.9	0	95.96	4.04	0	0	0
Jun	99.44	716	5.8	45.3	0	20.4	0	62.71	26.54	9.08	0.56	1.12
Jul	99.6	741	6.2	72.7	0	28.6	0	68.29	17.41	7.15	4.18	2.97
Aug	98.52	733	7.4	133.2	0	56.3	2	75.17	12.28	3.96	1.91	6.68
Sep	99.86	719	2.5	9.3	0	5.6	0	94.3	5.7	0	0	0
Oct	75.54	562	2.2	12.2	0	4.5	0	96.09	3.56	0.36	0	0
Nov	97.92	705	3.0	37.6	0	8.0	0	86.38	12.2	1.13	0.14	0.14
Dec	99.87	743	3.0	85.6	0	16.6	0	89.77	7.81	0.94	0.81	0.67
Annual	97.29	8523	3.8	133.2	0	56.3	2	86.79	9.35	2.2	0.66	1

Length of monthly periods with data collections: 8760 Hours



**WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.6	741	8.8	38.9	0	19.5	0	24.7	49.39	22	3.64	0.27
Feb	99.7	670	7.6	33.8	0	15.6	0	31.34	51.04	17.01	0.45	0.15
Mar	99.46	740	8.9	32.9	0	16.0	0	21.76	51.08	23.65	3.24	0.27
Apr	99.86	719	9.1	58.9	0	27.4	0	21.14	56.88	16.97	3.2	1.81
May	99.06	737	12.0	95.9	0	24.4	0	13.7	44.5	31.34	5.56	4.88
Jun	98.61	710	10.1	49.2	0	16.6	0	20.56	42.39	31.27	4.51	1.27
Jul	97.04	718	12.9	174.6	0	65.9	2	33.98	27.16	26.74	4.87	7.24
Aug	99.73	742	9.0	147.6	0	36.8	1	42.05	31.67	19.81	4.31	2.16
Sep	99.58	717	6.1	41.5	0	10.4	0	51.88	35.7	11.3	0.98	0.14
Oct	99.87	743	4.5	35.1	0	13.0	0	72.54	21.4	5.52	0.4	0.13
Nov	99.72	718	6.3	83.9	0	16.1	0	54.74	27.58	16.71	0.84	0.14
Dec	99.87	743	7.6	67.7	0	21.9	0	43.88	36.61	16.02	2.56	0.94
Annual	99.34	8698	8.6	174.6	0	65.9	3	35.65	39.77	20.01	2.93	1.64

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	98.79	735	5.5	52.6	0	21.1	0	65.44	25.03	7.62	0.68	1.22
Feb	100	672	5.7	27.5	0	12.9	0	58.93	30.8	8.63	1.64	0
Mar	99.19	738	5.3	34.4	0	11.5	0	64.5	27.1	7.72	0.54	0.14
Apr	99.86	719	4.3	17.6	0	6.4	0	80.39	17.66	1.95	0	0
May	95.7	712	5.2	25.7	0	11.9	0	66.71	23.31	9.27	0.7	0
Jun	100	720	6.4	23.1	0	12.6	0	46.81	39.17	13.33	0.69	0
Jul	97.58	726	9.1	164.6	0	59.3	2	58.26	21.35	13.91	1.52	4.96
Aug	97.18	723	6.9	65.4	0	16.8	0	51.45	30.01	15.35	2.21	0.97
Sep	97.92	705	4.7	24.4	0	12.2	0	69.5	23.12	6.81	0.57	0
Oct	95.7	712	3.4	14.3	0	7.8	0	82.16	15.17	2.67	0	0
Nov	99.72	718	4.7	34.0	0	12.9	0	71.03	18.94	9.05	0.84	0.14
Dec	99.87	743	3.9	20.5	0	7.7	0	78.87	17.9	3.23	0	0
Annual	98.44	8623	5.4	164.6	0	59.3	2	65.99	24.17	8.43	0.8	0.62

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	97.58	726	4.1	173.3	0	15.3	0	79.75	16.39	3.03	0.55	0.28
Feb	98.96	665	3.3	12.5	0	6.6	0	84.51	13.98	1.5	0	0
Mar	97.98	729	3.9	35.8	0	7.4	0	79.7	16.32	3.7	0.14	0.14
Apr	99.72	718	2.9	35.1	0	5.5	0	91.78	7.66	0.42	0	0.14
May	96.51	718	4.1	17.5	0	7.8	0	77.99	19.08	2.92	0	0
Jun	98.19	707	4.7	25.2	0	14.7	0	69.45	25.46	4.67	0.42	0
Jul	95.03	707	7.3	149.7	0	51.0	1	64.92	20.65	9.05	1.13	4.24
Aug	99.46	740	5.7	91.3	0	32.6	1	69.19	22.97	5.27	0.41	2.16
Sep	99.17	714	3.5	12.5	0	5.9	0	85.15	14.43	0.42	0	0
Oct	98.39	732	3.2	64.6	0	7.9	0	88.66	10.11	1.09	0	0.14
Nov	72.92	525	3.7	15.0	0	8.4	0	81.52	15.24	3.24	0	0
Dec	99.87	743	4.6	24.8	0	8.3	0	72.68	23.82	3.36	0.13	0
Annual	96.16	8424	4.3	173.3	0	51.0	2	78.83	17.13	3.19	0.24	0.6

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.73	742	10.9	189.9	0	26.8	0	40.43	30.73	19.54	4.45	4.85
Feb	99.85	671	7.6	53.5	0	17.9	0	48.14	31.59	16.99	1.34	1.94
Mar	99.87	743	6.7	53.5	0	16.4	0	55.85	27.99	13.06	2.02	1.08
Apr	100	720	4.1	21.5	0	8.7	0	79.31	16.94	3.61	0.14	0
May	95.83	713	2.9	12.2	0	7.9	0	88.64	10.52	0.84	0	0
Jun	96.67	693	8.5	58.8	0	21.8	0	46.46	25.4	22.08	4.76	1.3
Jul	99.73	742	15.6	340.4	0	115.0	2	34.5	24.12	28.17	6.74	6.47
Aug	99.87	743	10.6	61.3	0	25.5	0	34.86	23.42	31.09	7.81	2.83
Sep	99.86	719	7.8	43.2	0	18.4	0	48.12	28.79	19.61	2.92	0.56
Oct	99.73	742	5.7	23.5	0	11.3	0	65.36	25.34	9.03	0.27	0
Nov	99.72	718	10.0	110.4	0	21.4	0	33.57	37.33	21.59	4.87	2.65
Dec	100	742	9.1	54.0	0	20.0	0	26.82	47.98	20.89	2.29	2.02
Annual	99.24	8688	8.3	340.4	0	115.0	2	50.07	27.54	17.26	3.15	1.98

Length of monthly periods with data collections: 8760 Hours



**WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.87	743	8.1	85.0	0	25.7	0	45.22	31.9	16.82	4.17	1.88
Feb	99.7	670	6.3	52.6	0	26.2	0	60.9	24.18	10.6	2.84	1.49
Mar	99.87	743	9.2	50.8	0	19.2	0	32.84	40.38	19.38	4.17	3.23
Apr	80.56	580	5.6	44.2	0	9.5	0	60.17	32.07	6.55	0.86	0.34
May	99.6	741	6.8	63.7	0	11.6	0	47.1	36.3	14.98	0.94	0.67
Jun	100	719	6.9	28.7	0	14.2	0	45.9	36.02	16.27	1.81	0
Jul	99.73	742	11.1	209.5	0	74.9	2	41.91	36.93	14.15	2.43	4.58
Aug	99.87	743	8.3	46.0	0	17.7	0	38.36	36.88	20.46	3.23	1.08
Sep	95.28	686	6.6	29.4	0	15.2	0	50.44	32.07	15.45	2.04	0
Oct	99.87	743	3.5	31.7	0	10.6	0	83.58	11.71	3.77	0.81	0.13
Nov	99.44	716	6.1	38.1	0	15.2	0	60.75	21.79	14.53	2.23	0.7
Dec	99.87	743	8.9	321.2	0	31.0	1	49.26	32.44	12.52	2.69	3.1
Annual	97.83	8569	7.3	321.2	0	74.9	3	51.14	31.1	13.91	2.38	1.48

Length of monthly periods with data collections: 8760 Hours



**WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
PM2.5 (ug/m3) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Dec	99.46	740	4.1	19.0	0	6.3	0	76.22	21.08	2.7	0	0
Annual	99.46	740	4.4	19.0	0	6.3	0	76.73	20.59	2.69	0	0

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
PM2.5 (ug/m3) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Number of Values Exceeding 1-Hour Guideline	Maximum 24-Hour Value	Number of Values Exceeding 24-Hour Guidance	% of Data in Each Concentration Range				
								0 - 5	6 - 10	11 - 20	21 - 30	>30
Jan	99.82	538	4.1	20.3	0	8.3	0	80.11	16.17	3.72	0	0
Annual	99.82	538	4.1	20.3	0	8.3	0	80.11	16.17	3.72	0	0

Length of monthly periods with data collections: 552 Hours

This page intentionally left blank



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	-17.0	3.6	-0.4
Feb	100	672	-8.0	8.9	3.3
Mar	100	744	-8.2	10.0	2.5
Apr	100	720	0.6	16.1	8.9
May	100	744	15.3	30.3	22.1
Jun	100	720	19.1	32.1	23.9
Jul	100	744	18.7	37.0	27.0
Aug	100	744	19.1	32.8	22.5
Sep	100	720	15.4	33.6	23.1
Oct	100	744	7.4	19.2	13.0
Nov	99.86	719	-6.5	14.2	7.6
Dec	100	744	-20.9	4.7	-3.1
Annual	99.98	8758	3.0	37.0	27.0

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
Ambient Temperature 10m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	-16.5	3.8	0.6
Feb	100	672	-7.7	7.5	3.3
Mar	100	744	-7.7	9.2	3.0
Apr	100	720	0.7	15.1	9.0
May	100	744	15.6	28.8	22.0
Jun	100	720	19.0	30.3	24.1
Jul	100	744	18.7	34.3	27.3
Aug	100	744	19.2	30.6	22.5
Sep	100	720	16.0	32.2	23.4
Oct	100	744	7.7	18.7	13.3
Nov	99.86	719	-6.1	14.2	8.4
Dec	100	744	-20.2	4.8	-3.1
Annual	99.98	8758	3.3	34.3	27.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Mildred Lake (AMS 2)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-13.7	3.5	1.0
Feb	100	672	-7.4	7.0	3.4
Mar	100	744	-8.7	8.9	1.9
Apr	100	720	-0.6	14.6	7.4
May	100	744	14.3	26.8	20.1
Jun	100	720	17.4	30.9	24.1
Jul	100	744	18.0	34.3	26.8
Aug	99.73	742	18.2	30.3	22.1
Sep	97.08	699	14.4	31.0	22.2
Oct	100	744	4.4	15.0	10.3
Nov	100	720	-8.8	10.4	4.8
Dec	96.64	719	-22.1	2.2	-6.5
Annual	99.45	8712	2.2	34.3	26.8

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Ambient Temperature 20m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-17.7	1.9	-1.2
Feb	100	672	-8.9	6.4	1.6
Mar	100	744	-8.7	9.1	2.0
Apr	95	684	-0.4	13.7	7.7
May	100	744	14.3	26.9	20.0
Jun	99.17	714	17.2	28.5	23.2
Jul	100	744	17.9	33.4	26.5
Aug	100	744	18.3	28.8	22.1
Sep	100	720	14.4	30.5	22.0
Oct	100	744	4.6	14.7	10.5
Nov	100	720	-8.8	9.8	4.6
Dec	100	744	-23.3	2.8	-6.5
Annual	99.52	8718	1.6	33.4	26.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Ambient Temperature 45m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-17.6	1.8	-1.0
Feb	100	672	-8.8	6.0	1.7
Mar	100	744	-8.7	9.1	2.1
Apr	92.64	667	-0.5	13.5	7.6
May	100	744	14.2	26.4	19.8
Jun	99.17	714	17.2	28.3	23.2
Jul	100	744	17.8	33.0	26.5
Aug	100	744	18.2	28.7	22.1
Sep	100	720	14.4	30.4	22.0
Oct	100	744	4.6	14.4	10.4
Nov	100	720	-8.8	9.7	4.6
Dec	100	744	-23.0	2.8	-6.5
Annual	99.33	8701	1.6	33.0	26.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Ambient Temperature 100m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-17.0	2.2	-0.7
Feb	100	672	-8.6	5.6	1.9
Mar	100	744	-8.6	8.5	2.0
Apr	94.31	679	-0.8	12.8	7.3
May	100	744	14.0	25.9	19.5
Jun	99.17	714	17.0	27.8	23.2
Jul	100	744	17.6	32.3	26.7
Aug	100	744	18.1	28.1	21.8
Sep	100	720	14.4	29.8	22.3
Oct	100	744	4.5	14.1	10.1
Nov	100	720	-8.7	9.6	4.6
Dec	100	744	-22.0	2.4	-6.5
Annual	99.46	8713	1.7	32.3	26.7

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Ambient Temperature 167m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	89.92	669	-16.9	2.2	-0.6
Feb	100	672	-8.7	5.2	1.9
Mar	100	744	-8.7	8.7	1.8
Apr	93.47	673	-1.1	12.4	6.8
May	100	744	13.9	25.2	19.3
Jun	99.17	714	16.8	27.6	23.0
Jul	100	744	17.3	31.6	26.5
Aug	100	744	18.0	27.5	21.6
Sep	100	720	14.3	29.2	22.4
Oct	100	744	4.2	13.8	9.7
Nov	100	720	-8.7	9.2	4.6
Dec	93.95	699	-22.2	1.9	-6.6
Annual	98.03	8587	1.9	31.6	26.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Buffalo Viewpoint (AMS 4)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-17.6	2.0	-1.3
Feb	100	672	-9.0	6.0	2.0
Mar	100	744	-9.1	8.7	1.2
Apr	100	720	-0.8	13.8	7.1
May	100	744	13.8	27.3	19.5
Jun	100	720	16.8	28.7	22.7
Jul	97.85	728	17.2	33.2	25.6
Aug	94.09	700	17.8	28.2	21.2
Sep	100	720	13.8	29.9	21.6
Oct	100	744	4.1	14.3	9.9
Nov	100	720	-9.1	10.1	4.1
Dec	100	744	-22.8	2.0	-6.8
Annual	99.32	8700	1.2	33.2	25.6

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	98.12	730	-16.8	6.7	4.3
Feb	98.81	664	-9.0	4.7	1.3
Mar	100	744	-8.7	7.8	1.6
Apr	93.19	671	-0.5	14.6	7.8
May	100	744	14.1	27.2	19.7
Jun	100	720	17.0	27.9	22.8
Jul	94.09	700	17.3	32.5	25.7
Aug	100	744	17.8	29.5	21.6
Sep	100	720	13.8	30.0	21.1
Oct	100	744	4.0	14.2	9.4
Nov	99.03	713	-9.2	9.5	3.9
Dec	97.31	724	-23.1	2.1	-6.9
Annual	98.38	8618	1.5	32.5	25.7

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Ambient Temperature 20m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	92.74	690	-17.3	1.5	-0.7
Feb	98.81	664	-8.8	5.5	1.6
Mar	100	744	-8.6	8.1	1.7
Apr	92.92	669	-0.7	13.6	7.5
May	100	744	14.0	26.3	19.5
Jun	100	720	17.0	27.5	22.9
Jul	94.09	700	17.3	32.4	26.1
Aug	100	744	18.0	28.5	21.7
Sep	98.19	707	14.3	30.0	21.7
Oct	100	744	4.1	14.1	9.7
Nov	99.03	713	-9.0	9.6	4.2
Dec	97.58	726	-22.6	2.3	-6.9
Annual	97.77	8565	1.6	32.4	26.1

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Ambient Temperature 45m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	90.99	677	-17.3	1.7	-0.5
Feb	98.21	660	-8.8	5.2	1.8
Mar	100	744	-8.7	8.2	1.6
Apr	92.22	664	-0.9	13.3	7.3
May	100	744	13.9	25.9	19.2
Jun	100	720	16.9	27.2	22.8
Jul	94.09	700	17.2	32.0	26.2
Aug	100	744	18.0	27.9	21.5
Sep	98.19	707	14.2	29.6	21.7
Oct	100	744	4.1	13.9	9.6
Nov	99.03	713	-9.0	9.4	4.3
Dec	95.56	711	-22.5	2.1	-6.9
Annual	97.35	8528	1.6	32.0	26.2

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Ambient Temperature 75m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	77.55	577	-16.9	1.8	-0.5
Feb	98.21	660	-8.8	5.1	1.8
Mar	100	744	-8.7	8.2	1.5
Apr	92.92	669	-1.1	12.9	7.1
May	100	744	13.8	25.6	19.2
Jun	100	720	16.8	26.9	22.8
Jul	94.09	700	17.0	31.6	26.4
Aug	100	744	17.9	27.6	21.4
Sep	98.19	707	14.3	29.2	21.8
Oct	100	744	4.0	13.7	9.5
Nov	99.03	713	-9.0	9.1	4.3
Dec	95.16	708	-22.2	1.9	-6.8
Annual	96.23	8430	1.9	31.6	26.4

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Ambient Temperature 90m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	77.55	577	-16.8	1.8	-0.6
Feb	98.81	664	-8.8	5.0	1.8
Mar	100	744	-8.7	8.2	1.5
Apr	93.06	670	-1.2	12.8	7.0
May	100	744	13.8	25.4	19.1
Jun	100	720	16.7	26.8	22.8
Jul	25.13	187	19.9	31.5	26.4
Aug	31.72	236	16.7	25.6	18.8
Sep	66.39	478	12.6	28.6	20.2
Oct	100	744	4.0	13.6	9.4
Nov	99.03	713	-8.9	9.0	4.3
Dec	94.09	700	-22.2	1.8	-6.8
Annual	81.93	7177	-0.8	31.5	26.4

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.6	741	-17.9	1.1	-1.8
Feb	100	672	-8.9	5.4	1.6
Mar	97.45	725	-8.8	10.9	2.2
Apr	95.97	691	-0.4	14.1	7.3
May	100	744	13.7	27.2	19.1
Jun	87.08	627	16.0	28.2	22.0
Jul	100	744	17.1	32.3	25.9
Aug	100	744	17.5	28.4	21.8
Sep	100	720	13.6	29.8	21.1
Oct	100	744	3.7	14.7	9.4
Nov	99.72	718	-9.4	9.3	3.5
Dec	100	744	-22.6	3.4	-6.5
Annual	98.33	8614	1.0	32.3	25.9

Length of monthly periods with data collections: 8760 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-18.1	2.1	-2.6
Feb	100	672	-8.8	6.3	0.7
Mar	100	744	-8.5	11.7	2.7
Apr	100	720	0.0	14.7	7.9
May	98.52	733	14.2	27.8	19.5
Jun	97.92	705	17.4	28.8	22.9
Jul	99.87	743	18.1	33.6	26.3
Aug	100	744	18.5	29.3	22.4
Sep	100	720	14.3	30.9	21.4
Oct	100	744	4.5	15.5	10.0
Nov	100	720	-8.9	9.8	4.2
Dec	100	744	-23.7	3.6	-6.1
Annual	99.69	8733	1.6	33.6	26.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipewyan (AMS 8)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-21.1	-0.5	-4.9
Feb	100	672	-14.0	2.3	-1.3
Mar	100	744	-13.6	-0.6	-3.6
Apr	100	720	-4.6	8.6	3.6
May	100	744	10.8	24.2	18.3
Jun	100	720	17.5	27.5	23.6
Jul	100	744	17.6	31.1	25.8
Aug	100	744	17.7	26.8	21.6
Sep	100	720	13.2	29.4	21.1
Oct	76.34	568	3.1	12.0	7.9
Nov	100	720	-10.9	0.9	-0.7
Dec	100	744	-25.1	-4.9	-7.0
Annual	97.99	8584	-0.8	31.1	25.8

Length of monthly periods with data collections: 8760 Hours



WBEA - Barge Landing (AMS 9)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-16.7	3.4	-0.7
Feb	99.55	669	-8.0	7.9	3.0
Mar	99.73	742	-7.8	8.9	2.9
Apr	100	720	0.6	15.5	8.8
May	99.87	743	15.5	28.9	22.1
Jun	100	720	18.8	31.5	24.8
Jul	99.87	743	19.4	36.1	28.2
Aug	99.6	741	19.5	31.4	22.9
Sep	100	720	15.1	33.1	23.6
Oct	100	744	5.4	17.5	11.0
Nov	100	720	-8.1	12.2	5.7
Dec	100	744	-22.3	2.2	-5.7
Annual	99.89	8750	2.6	36.1	28.2

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp (AMS 11)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-18.1	2.0	-2.5
Feb	100	672	-9.0	6.7	1.7
Mar	100	744	-8.8	9.5	2.2
Apr	100	720	-0.3	15.4	7.2
May	99.87	743	14.2	27.7	20.1
Jun	100	720	17.6	30.6	23.2
Jul	100	744	18.2	33.4	26.7
Aug	100	744	18.4	29.8	22.4
Sep	100	720	14.5	31.4	22.3
Oct	100	744	4.9	15.5	10.7
Nov	99.17	714	-8.6	10.6	4.7
Dec	100	744	-23.6	3.0	-6.1
Annual	99.92	8753	1.7	33.4	26.7

Length of monthly periods with data collections: 8760 Hours



WBEA - Millennium (AMS 12)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-17.9	0.7	-2.4
Feb	100	672	-9.0	5.4	1.1
Mar	100	744	-8.8	7.9	1.8
Apr	100	720	-0.7	14.9	6.5
May	100	744	14.1	28.1	19.9
Jun	95.42	687	17.1	29.1	22.8
Jul	99.87	743	17.4	33.1	26.3
Aug	100	744	17.9	28.9	22.1
Sep	100	720	14.1	30.4	22.2
Oct	100	744	4.1	14.3	9.4
Nov	100	720	-8.9	9.9	4.1
Dec	100	744	-22.8	1.9	-6.8
Annual	99.61	8726	1.4	33.1	26.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-19.2	1.0	-2.6
Feb	100	672	-10.0	6.4	1.5
Mar	100	744	-9.9	8.8	1.2
Apr	100	720	-1.0	14.3	7.5
May	98.92	736	12.8	27.8	19.5
Jun	100	720	16.5	29.9	22.2
Jul	100	744	17.1	35.1	25.6
Aug	100	744	17.0	29.9	20.7
Sep	100	720	12.3	31.7	21.1
Oct	98.92	736	3.2	15.5	9.4
Nov	100	720	-10.4	10.5	3.3
Dec	100	744	-24.8	1.0	-6.9
Annual	99.82	8744	0.3	35.1	25.6

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	-15.5	4.8	-0.2
Feb	99.4	668	-7.4	6.9	2.9
Mar	100	744	-7.6	14.3	3.6
Apr	99.58	717	0.7	16.6	9.7
May	97.04	722	14.7	28.7	19.5
Jun	99.86	719	17.3	29.5	22.7
Jul	95.3	709	18.4	34.5	27.8
Aug	98.12	730	17.3	27.5	21.3
Sep	100	720	13.4	29.3	22.8
Oct	100	744	3.6	14.0	9.7
Nov	100	720	-9.1	8.2	3.8
Dec	100	744	-21.6	2.7	-5.1
Annual	99.09	8680	1.9	34.5	27.8

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
Ambient Temperature 10m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	-15.9	5.2	-0.3
Feb	99.4	668	-8.0	5.2	2.6
Mar	100	744	-8.1	10.9	2.8
Apr	99.58	717	-0.7	13.6	7.7
May	97.04	722	13.2	26.1	18.2
Jun	99.72	718	15.9	27.3	21.0
Annual	99.27	4312	-0.6	27.3	21.0

Length of monthly periods with data collections: 8760 Hours



WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-18.4	2.6	-1.3
Feb	100	672	-9.8	5.9	1.5
Mar	99.87	743	-9.7	7.2	1.2
Apr	100	720	-1.1	14.6	7.0
May	100	744	13.6	27.2	20.3
Jun	100	720	17.0	29.0	22.6
Jul	99.87	743	17.4	34.1	25.9
Aug	100	744	17.5	30.0	21.1
Sep	100	720	13.0	31.1	20.9
Oct	100	744	3.8	16.0	9.7
Nov	100	720	-9.8	10.7	4.4
Dec	100	744	-23.9	1.2	-7.1
Annual	99.98	8758	0.8	34.1	25.9

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	-15.9	3.6	0.1
Feb	100	672	-7.4	8.2	3.4
Mar	100	744	-7.2	8.6	3.4
Apr	80.69	581	1.0	15.9	9.1
May	100	744	16.2	29.3	22.6
Jun	100	720	19.6	31.5	25.2
Jul	100	744	20.0	36.4	28.3
Aug	100	744	20.2	31.4	23.5
Sep	99.17	714	14.4	32.9	23.3
Oct	100	744	3.7	15.3	9.3
Nov	99.72	718	-9.7	10.0	3.7
Dec	100	744	-23.7	0.2	-7.0
Annual	98.32	8613	2.7	36.4	28.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Dec	100	744	-23.7	-1.7	-8.6
Annual	100	744	-20.9	-1.7	-8.6

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
Ambient Temperature 2m (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	542	-13.4	4.0	0.1
Annual	100	542	-13.4	4.0	0.1

Length of monthly periods with data collections: 552 Hours



**WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
Ambient Temperature (C) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
May	99.73	742	12.6	27.1	17.6
Jun	99.58	717	14.8	25.6	21.0
Jul	96.91	721	15.2	30.4	23.9
Aug	100	308	16.3	25.0	19.7
Annual	99.06	2488	14.7	30.4	23.9

Length of monthly periods with data collections: 2544 Hours



WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
Ambient Temperature (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jul	99.85	678	15.2	26.8	20.5
Aug	100	744	17.4	27.0	21.0
Sep	100	720	13.5	27.7	21.5
Oct	99.06	737	3.5	13.5	8.6
Annual	99.73	2879	12.4	27.7	21.5

Length of monthly periods with data collections: 2904 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	81.0	94.3	91.3
Feb	100	672	79.0	98.7	86.5
Mar	100	744	66.3	94.8	86.5
Apr	100	720	60.0	99.8	95.7
May	100	744	51.2	97.2	75.3
Jun	100	720	72.1	100.0	96.9
Jul	100	744	65.1	99.0	95.4
Aug	100	744	71.2	100.0	97.7
Sep	100	720	71.1	100.0	97.5
Oct	100	744	79.5	100.0	99.2
Nov	99.86	719	80.1	98.2	94.2
Dec	100	744	78.9	97.6	92.8
Annual	99.98	8758	71.2	100.0	99.2

Length of monthly periods with data collections: 8760 Hours



WB EA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Relative Humidity 45m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	75.9	89.7	87.1
Feb	100	672	74.2	92.7	82.6
Mar	100	744	62.9	89.2	81.8
Apr	92.64	667	55.9	93.1	77.9
May	100	744	49.0	96.9	71.4
Jun	99.17	714	69.6	98.3	93.7
Jul	100	744	63.9	98.8	94.5
Aug	100	744	68.7	98.9	91.6
Sep	100	720	67.3	97.8	92.8
Oct	100	744	73.3	97.7	94.3
Nov	100	720	74.4	92.9	88.1
Dec	100	744	73.1	92.8	86.0
Annual	99.33	8701	67.4	98.9	94.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Relative Humidity 20m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	75.8	89.4	86.5
Feb	100	672	74.2	92.5	82.7
Mar	100	744	63.1	88.9	80.8
Apr	95	684	57.2	96.8	78.9
May	100	744	49.4	96.9	72.5
Jun	99.17	714	70.4	98.1	94.9
Jul	100	744	64.8	98.7	95.8
Aug	100	744	69.6	98.6	92.4
Sep	100	720	68.0	97.3	94.1
Oct	100	744	73.6	97.4	94.6
Nov	100	720	74.3	92.0	87.2
Dec	100	744	73.1	91.8	85.3
Annual	99.52	8718	67.8	98.7	95.8

Length of monthly periods with data collections: 8760 Hours



WB EA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Relative Humidity 100m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	100	744	75.9	89.3	87.9
Feb	100	672	73.7	94.1	83.0
Mar	100	744	62.2	90.8	83.2
Apr	94.44	680	55.2	96.7	78.0
May	100	744	47.0	91.3	67.9
Jun	99.17	714	67.1	98.1	93.2
Jul	100	744	61.2	98.6	92.6
Aug	100	744	65.8	98.8	90.1
Sep	100	720	63.9	97.7	92.4
Oct	100	744	71.8	97.8	93.9
Nov	100	720	74.0	93.8	87.6
Dec	100	744	73.0	93.0	88.2
Annual	99.47	8714	65.9	98.8	93.9

Length of monthly periods with data collections: 8760 Hours



WBEA - Lower Camp Met Tower (AMS 3)
Annual Summary for the Year 2013
Relative Humidity 167m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	89.92	669	75.6	89.6	88.0
Feb	100	672	73.4	95.1	84.5
Mar	100	744	61.7	92.4	83.5
Apr	93.47	673	54.1	94.7	78.5
May	100	744	45.4	90.0	65.1
Jun	99.17	714	65.6	97.3	95.7
Jul	100	744	59.3	96.6	91.0
Aug	100	744	63.4	97.1	87.4
Sep	100	720	61.7	96.3	92.3
Oct	100	744	70.9	96.3	93.7
Nov	100	720	73.4	93.3	85.4
Dec	93.95	699	72.3	86.6	80.7
Annual	98.03	8587	64.6	97.3	95.7

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Relative Humidity 2m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	98.12	730	79.1	92.7	90.2
Feb	98.81	664	77.0	95.3	86.1
Mar	100	744	65.0	92.4	83.8
Apr	94.58	681	58.8	98.0	78.4
May	100	744	48.3	96.0	73.2
Jun	100	720	70.2	97.7	95.3
Jul	94.09	700	65.2	97.2	93.4
Aug	100	744	69.9	98.6	92.0
Sep	100	720	68.2	98.2	94.2
Oct	100	744	76.3	98.6	96.0
Nov	99.03	713	77.6	96.1	90.7
Dec	97.58	726	76.4	95.7	84.7
Annual	98.52	8630	69.3	98.6	96.0

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Relative Humidity 20m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	92.74	690	79.3	95.5	91.1
Feb	98.81	664	76.7	96.0	87.3
Mar	100	744	64.5	94.6	86.0
Apr	92.92	669	57.1	98.6	78.5
May	100	744	46.7	93.1	70.6
Jun	100	720	67.6	98.8	94.1
Jul	94.09	700	62.1	97.0	91.7
Aug	100	744	66.1	99.1	89.3
Sep	98.19	707	64.6	99.0	92.0
Oct	100	744	74.1	99.2	95.5
Nov	99.03	713	76.7	96.0	91.1
Dec	97.58	726	76.3	95.6	84.7
Annual	97.77	8565	67.6	99.2	95.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Relative Humidity 45m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	90.99	677	78.9	94.0	91.2
Feb	98.81	664	76.3	96.3	87.8
Mar	100	744	63.9	94.2	86.5
Apr	92.22	664	55.8	97.1	78.6
May	100	744	45.9	91.4	67.8
Jun	100	720	66.6	98.8	94.5
Jul	94.09	700	60.8	96.4	91.1
Aug	100	744	64.8	98.7	88.7
Sep	98.19	707	63.4	98.7	91.4
Oct	100	744	73.2	98.9	95.5
Nov	99.03	713	76.4	95.7	90.5
Dec	95.56	711	75.9	89.8	84.6
Annual	97.4	8532	66.7	98.9	95.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Relative Humidity 75m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	77.69	578	78.5	93.6	91.1
Feb	98.21	660	76.2	97.4	88.4
Mar	100	744	63.5	94.9	87.1
Apr	92.92	669	55.8	97.6	79.3
May	100	744	45.5	89.2	66.2
Jun	100	720	66.1	98.9	95.7
Jul	94.09	700	60.3	97.0	91.5
Aug	100	744	64.2	98.6	88.5
Sep	98.19	707	62.6	98.7	91.4
Oct	100	744	73.0	98.9	96.3
Nov	99.03	713	76.3	96.6	88.5
Dec	95.56	711	76.1	89.4	84.7
Annual	96.28	8434	66.2	98.9	96.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Mannix (AMS 5)
Annual Summary for the Year 2013
Relative Humidity 90m (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	77.55	577	79.1	94.2	91.5
Feb	98.81	664	76.8	98.3	89.0
Mar	100	744	63.8	96.0	87.9
Apr	93.06	670	56.3	98.5	80.2
May	100	744	45.5	90.0	66.1
Jun	100	720	66.2	99.4	96.6
Jul	25.13	187	61.1	94.2	83.7
Aug	31.72	236	66.2	99.0	89.0
Sep	66.39	478	65.3	99.1	91.7
Oct	100	744	73.3	99.4	97.1
Nov	99.03	713	76.7	97.4	88.2
Dec	94.09	700	76.6	90.6	84.9
Annual	81.93	7177	67.5	99.4	97.1

Length of monthly periods with data collections: 8760 Hours



WBEA - Patricia McInnes (AMS 6)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	99.6	741	78.9	93.5	89.5
Feb	100	672	76.8	96.2	87.0
Mar	97.45	725	64.3	92.4	84.0
Apr	95.97	691	60.9	99.1	94.1
May	100	744	48.5	97.3	65.1
Jun	99.72	718	70.0	98.6	95.1
Jul	100	744	65.2	96.7	93.3
Aug	100	744	68.2	98.5	88.3
Sep	100	720	67.1	98.8	93.9
Oct	100	744	75.3	98.7	95.8
Nov	99.72	718	76.9	96.1	89.9
Dec	100	744	75.8	96.6	90.5
Annual	99.37	8705	69.0	99.1	95.8

Length of monthly periods with data collections: 8760 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	77.7	92.5	88.9
Feb	100	672	75.7	95.1	85.0
Mar	100	744	64.3	91.6	84.7
Apr	100	720	61.1	99.4	94.2
May	98.52	733	50.1	92.9	67.2
Jun	97.92	705	71.4	99.3	93.6
Jul	100	744	65.8	96.2	92.1
Aug	100	744	69.8	99.4	88.1
Sep	100	720	69.0	98.3	94.2
Oct	100	744	74.9	99.6	95.5
Nov	100	720	76.4	96.4	88.9
Dec	100	744	75.4	96.1	87.9
Annual	99.7	8734	69.3	99.6	95.5

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipeywan (AMS 8)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	77.4	91.4	89.6
Feb	100	672	78.1	92.8	89.7
Mar	100	744	72.8	95.0	89.2
Apr	100	720	65.8	97.4	86.0
May	100	744	57.6	95.4	85.8
Jun	100	720	71.4	98.7	95.3
Jul	100	744	65.1	99.2	93.6
Aug	100	744	72.1	99.9	92.8
Sep	100	720	75.1	99.3	96.8
Oct	76.34	568	82.3	98.6	94.1
Nov	100	720	81.5	97.2	94.4
Dec	100	744	74.7	93.8	89.5
Annual	97.99	8584	72.6	99.9	96.8

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay South (AMS 13)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	81.0	96.5	90.7
Feb	100	672	80.3	97.9	88.6
Mar	100	744	68.6	94.6	87.3
Apr	100	720	63.0	99.9	95.8
May	98.92	736	56.0	100.0	79.2
Jun	100	720	76.4	100.0	99.3
Jul	100	744	69.0	100.0	97.5
Aug	100	744	75.1	100.0	98.5
Sep	100	720	75.3	100.0	97.4
Oct	98.92	736	81.6	100.0	98.8
Nov	100	720	79.2	99.2	89.5
Dec	100	744	76.4	95.4	90.7
Annual	99.81	8743	73.5	100.0	99.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	83.8	98.6	94.2
Feb	99.4	668	79.6	99.1	92.7
Mar	100	744	67.4	97.3	91.7
Apr	99.58	717	63.2	100.0	96.7
May	97.04	722	53.2	97.9	72.5
Jun	99.86	719	76.4	100.0	99.7
Jul	93.01	692	70.9	99.8	93.8
Aug	98.12	730	67.7	98.4	87.5
Sep	100	720	67.3	98.5	97.7
Oct	100	744	76.3	99.5	99.3
Nov	100	720	78.2	97.2	89.0
Dec	100	744	78.2	98.4	94.4
Annual	98.89	8663	71.8	100.0	99.7

Length of monthly periods with data collections: 8760 Hours



**WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
Relative Humidity (%) Average**

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	79.4	93.3	89.3
Feb	100	672	79.0	98.0	86.1
Mar	99.87	743	66.8	94.1	85.2
Apr	100	720	59.6	99.5	90.5
May	100	744	50.8	98.6	75.0
Jun	100	720	71.1	99.9	93.3
Jul	100	744	64.7	99.2	90.2
Aug	100	744	71.0	99.9	95.4
Sep	100	720	71.2	99.8	94.5
Oct	100	744	78.5	100.0	97.9
Nov	100	720	77.8	96.9	90.0
Dec	100	744	75.8	95.9	91.6
Annual	99.99	8759	70.4	100.0	97.9

Length of monthly periods with data collections: 8760 Hours



WBEA - Wapasu (AMS 17)
Annual Summary for the Year 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Dec	100	744	78.4	95.7	92.4
Annual	100	744	78.4	95.7	92.4

Length of monthly periods with data collections: 744 Hours



WBEA - AMS 101 Portable (AMS 101) Christina lake
Summary Jan 1 - Jan 23, 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	542	80.6	94.2	89.8
Annual	100	542	80.6	94.2	89.8

Length of monthly periods with data collections: 552 Hours



WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
Summary May 1 - Aug 14, 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
May	99.73	742	49.2	95.5	74.9
Jun	99.58	717	72.1	99.8	96.6
Jul	96.91	721	71.3	99.6	94.9
Aug	100	308	67.1	98.7	76.2
Annual	99.06	2488	64.9	99.8	96.6

Length of monthly periods with data collections: 2544 Hours



WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Oct 31, 2013
Relative Humidity (%) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jul	100	153	72.3	98.6	93.7
Aug	100	744	63.6	98.7	90.9
Sep	100	720	64.2	99.0	97.4
Oct	99.06	737	74.0	99.2	97.1
Annual	99.77	2354	68.5	99.2	97.4

Length of monthly periods with data collections: 2904 Hours



WBEA - Athabasca Valley (AMS 7)
Annual Summary for the Year 2013
Barometric Pressure (inHg) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	29.1	29.8	29.7
Feb	100	672	29.0	29.4	29.3
Mar	100	744	29.2	29.7	29.6
Apr	100	720	29.1	29.6	29.5
May	98.52	733	29.0	29.6	29.5
Jun	99.31	715	29.0	29.2	29.1
Jul	100	744	29.0	29.3	29.3
Aug	97.85	728	29.0	29.3	29.3
Sep	100	720	28.8	29.3	29.2
Oct	100	744	29.0	29.7	29.6
Nov	100	720	29.1	29.9	29.8
Dec	100	744	29.2	29.8	29.7
Annual	99.63	8728	29.0	29.9	29.8

Length of monthly periods with data collections: 8760 Hours



WBEA - Shell Muskeg River (AMS 16)
Annual Summary for the Year 2013
Barometric Pressure (inHg) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	29.0	29.7	29.6
Feb	100	672	28.9	29.3	29.2
Mar	100	744	29.1	29.6	29.5
Apr	80.69	581	29.0	29.5	29.5
May	100	744	29.0	29.5	29.4
Jun	100	720	28.9	29.1	29.1
Jul	100	744	28.9	29.3	29.2
Aug	100	744	28.9	29.2	29.2
Sep	96.53	695	28.8	29.3	29.2
Oct	100	744	28.9	29.6	29.5
Nov	99.72	718	29.0	29.7	29.6
Dec	100	744	29.1	29.7	29.6
Annual	98.11	8594	29.0	29.7	29.6

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
Global Radiation (W/m2) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	99.87	743	9.8	148.2	19.2
Feb	100	672	29.9	268.2	59.5
Mar	100	744	71.7	407.3	112.4
Apr	100	720	114.1	498.2	177.9
May	100	744	161.9	541.4	214.4
Jun	100	720	139.5	555.6	224.0
Jul	100	744	141.4	543.8	201.2
Aug	100	744	124.5	506.8	195.0
Sep	100	720	88.2	393.1	129.5
Oct	100	744	36.1	262.5	65.6
Nov	99.86	719	15.3	188.5	38.3
Dec	100	744	3.9	58.7	10.1
Annual	99.98	8758	78.3	555.6	224.0

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipewyan (AMS 8)
Annual Summary for the Year 2013
Global Radiation (W/m2) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	100	744	18.2	206.7	41.4
Feb	100	672	44.9	327.4	78.8
Mar	100	744	103.9	502.7	152.3
Apr	100	720	169.9	611.4	215.4
May	100	744	225.5	663.3	278.1
Jun	100	720	195.8	684.9	285.1
Jul	100	744	194.7	699.1	266.5
Aug	100	744	170.7	620.2	240.4
Sep	100	720	102.4	501.2	167.0
Oct	76.34	568	45.7	344.3	81.4
Nov	100	720	22.0	206.6	46.6
Dec	100	744	12.3	122.3	20.6
Annual	97.99	8584	110.5	699.1	285.1

Length of monthly periods with data collections: 8760 Hours



WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
Global Radiation (W/m2) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum	Maximum
				1-Hour Value	24-Hour Value
Jan	100	744	11.9	205.5	38.5
Feb	100	672	37.4	339.5	81.0
Mar	100	744	90.7	575.4	146.6
Apr	100	720	145.7	606.9	214.4
May	100	744	197.3	733.8	252.9
Jun	100	720	166.0	697.9	273.6
Jul	100	744	169.4	670.8	256.2
Aug	100	744	157.6	620.8	236.6
Sep	100	720	111.9	500.5	168.1
Oct	100	744	48.5	346.4	96.5
Nov	100	720	23.5	235.3	56.3
Dec	100	744	8.0	134.1	22.5
Annual	100	8760	97.6	733.8	273.6

Length of monthly periods with data collections: 8760 Hours

This page intentionally left blank



WB EA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
Precipitation (mm) Average

Month	Operational Time (%)	Number of Data	Total Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	0.0	0.0	0.0
Feb	100	672	0.0	0.0	0.0
Mar	99.73	742	1.8	0.2	0.5
Apr	100	720	8.4	2.3	3.3
May	100	744	17.8	5.6	6.6
Jun	100	720	154.7	8.1	44.2
Jul	100	744	59.7	5.8	17.3
Aug	100	744	43.4	5.8	11.7
Sep	100	720	66.3	8.6	36.8
Oct	99.73	742	26.4	2.3	6.4
Nov	99.86	719	2.0	0.5	1.0
Dec	100	744	11.7	1.0	2.8
Annual	99.93	8754	392.2	8.6	44.2

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipewyan (AMS 8)
Annual Summary for the Year 2013
Precipitation (mm) Average

Month	Operational Time (%)	Number of Data	Total Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	0.1	0.1	0.1
Feb	100	672	0.2	0.1	0.1
Mar	100	744	0.4	0.1	0.2
Apr	100	720	0.5	0.1	0.2
May	100	744	10.1	7.9	9.5
Jun	100	720	43.3	3.4	19.3
Jul	99.87	743	74.8	9.1	38.4
Aug	100	744	27.8	6.3	7.9
Sep	100	720	59.5	7.9	31.0
Oct	76.08	566	40.1	2.1	13.2
Nov	99.86	719	0.7	0.2	0.2
Dec	100	744	0.4	0.2	0.4
Annual	97.95	8580	257.9	9.1	38.4

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
Precipitation (mm) Average

Month	Operational Time (%)	Number of Data	Total Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	1.2	0.4	1.0
Feb	99.4	668	0.4	0.1	0.1
Mar	100	744	0.5	0.1	0.2
Apr	100	720	0.8	0.2	0.3
May	97.18	723	0.5	0.3	0.3
Jun	99.72	718	85.1	10.9	12.4
Jul	95.97	714	71.6	11.7	26.7
Aug	100	744	6.6	4.3	4.3
Sep	100	720	44.7	6.6	29.5
Oct	100	744	21.3	1.8	11.4
Nov	100	720	8.6	1.3	3.3
Dec	100	744	5.6	2.3	3.8
Annual	99.35	8703	247.0	11.7	29.5

Length of monthly periods with data collections: 8760 Hours



WBEA - CNRL Horizon (AMS 15)
Annual Summary for the Year 2013
Precipitation (mm) Average

Month	Operational Time (%)	Number of Data	Total Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	0.0	0.0	0.0
Feb	100	672	0.9	0.4	0.7
Mar	100	744	3.7	0.6	2.4
Apr	100	720	16.7	2.8	7.7
May	100	744	23.7	5.1	7.5
Jun	100	720	104.7	6.6	24.2
Sep	35	252	48.2	8.3	31.9
Oct	100	744	20.6	1.6	4.4
Nov	100	720	4.0	0.5	1.3
Dec	100	744	0.9	0.3	0.5
Annual	77.67	6804	223.4	8.3	31.9

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort McKay - Bertha Ganter (AMS 1)
Annual Summary for the Year 2013
Surface Wetness (% of range) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	99.87	743	0.1	49.0	3.4
Feb	99.4	668	0.1	24.0	3.0
Mar	97.45	725	0.0	15.4	1.2
Apr	100	720	2.7	107.0	23.6
May	100	744	1.1	51.5	10.7
Jun	100	720	6.9	68.4	32.7
Jul	100	744	4.3	56.3	19.6
Aug	100	744	4.9	68.3	27.3
Sep	100	720	5.8	51.2	30.9
Oct	100	744	4.9	42.6	21.4
Nov	99.86	719	0.3	13.1	3.0
Dec	100	744	0.1	25.6	2.1
Annual	99.71	8735	2.6	107.0	32.7

Length of monthly periods with data collections: 8760 Hours



WBEA - Fort Chipeywan (AMS 8)
Annual Summary for the Year 2013
Surface Wetness (% of range) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	0.0	3.2	0.9
Feb	100	672	0.0	0.0	0.0
Mar	100	744	0.5	48.2	8.5
Apr	100	720	1.1	66.2	12.9
May	100	744	1.2	45.3	12.6
Jun	100	720	5.8	57.9	44.5
Jul	100	744	3.6	52.3	28.4
Aug	100	744	3.9	55.2	24.0
Sep	100	720	7.2	60.0	45.3
Oct	76.08	566	11.8	71.1	37.3
Nov	100	720	1.4	69.1	15.8
Annual	97.83	7838	3.3	71.1	45.3

Length of monthly periods with data collections: 8760 Hours



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
Surface Wetness (% of range) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	100	744	0.0	3.9	0.2
Feb	99.4	668	0.2	35.9	6.5
Mar	100	744	0.0	0.0	0.0
Apr	99.86	719	0.9	39.4	7.2
May	97.04	722	0.4	24.1	3.9
Jun	99.58	717	11.7	64.7	44.0
Jul	95.97	714	3.9	50.3	24.4
Aug	99.87	743	1.9	46.9	14.2
Sep	100	720	1.7	37.0	17.5
Oct	99.73	742	5.0	45.6	28.7
Nov	69.86	503	0.3	30.4	3.3
Dec	100	744	0.5	22.8	3.8
Annual	96.8	8480	2.3	64.7	44.0

Length of monthly periods with data collections: 8760 Hours

This page intentionally left blank



WBEA - Anzac (AMS 14)
Annual Summary for the Year 2013
Dew Point (C) Average

Month	Operational Time (%)	Number of Data	Mean Value	Maximum 1-Hour Value	Maximum 24-Hour Value
Jan	59.01	439	-14.6	-1.5	-5.5
Feb	73.51	494	-10.1	-0.4	-2.3
Mar	82.53	614	-12.6	-2.7	-6.9
Apr	99.86	719	-8.1	3.8	-0.4
May	97.04	722	1.5	12.5	9.6
Jun	98.61	710	9.6	18.6	15.6
Annual	85.09	3877	-5.7	18.6	15.6

Length of monthly periods with data collections: 8760 Hours

This page intentionally left blank



WBEA - Fort McKay (AMS 1)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	5.41	2.18	1.37	1.35	1.3	1.01	1.95	3.01	5.52	4.42	3.34	2.87	3.56	3.39	3.47	4.16	48.3
6 -11	8.71	3.36	1.09	1.6	0.76	0.39	1.25	5.1	6.61	2.01	1.29	1.19	1.6	2.38	1.57	2.2	41.11
12- 19	2.39	0.26		0.01	0.07	0.17	0.3	1.77	1.91	0.46	0.21	0.15	0.17	0.59	0.96	0.59	10
20 - 28	0.1					0.02	0.11	0.02	0.13					0.1	0.07	0.03	0.6
29 - 38																	
> 38																	
Totals	16.61	5.81	2.46	2.96	2.12	1.6	3.62	9.9	14.17	6.89	4.83	4.21	5.33	6.45	6.07	6.98	100

Total Number of Vaild Hours 8711
 Total Number of Hours 8760



WBEA - Mildred Lake (AMS 2)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2.26	1.82	1.28	1.35	1.11	1.73	1.7	2.2	2.88	2.94	1.43	1.08	0.9	0.68	0.88	1.48	25.73
6 -11	7.82	4.31	1.15	0.73	0.95	1.62	3.88	5.58	5.46	3.16	2.17	1.53	1.2	2.07	1.56	3.15	46.33
12- 19	5.13	3.11	0.15	0.07	0.17	0.6	1.67	3.69	1.5	0.53	0.65	1.17	1.29	1.29	1.3	1.43	23.77
20 - 28	1.14	0.08			0.08	0.25	0.31	0.46	0.22	0.01	0	0.05	0.18	0.38	0.48	0.28	3.93
29 - 38	0.12					0.02	0.01							0.01	0.05	0.03	0.24
> 38																	
Totals	16.47	9.33	2.58	2.15	2.31	4.22	7.57	11.94	10.06	6.65	4.25	3.83	3.58	4.43	4.27	6.37	100

Total Number of Vaild Hours 8668

Total Number of Hours 8760



WBEA - Lower Camp Met Tower (AMS 3)
Annual summary for the year 2013
Wind Direction 20 m and Wind Speed 20 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	4.08	1.67	1.07	1.12	1.31	2.37	3.92	2.75	1.51	1.38	1.16	1.33	1.26	1.87	4.94	9.11	40.87
6 -11	6.1	1.3	0.37	0.18	0.33	0.81	9.41	4.32	0.87	0.78	1.11	2.01	1.36	0.73	2.01	5.28	36.98
12- 19	3.25	0.09	0.01	0.02	0.01	0.18	4.67	3.34	0.62	0.23	0.52	1.58	1.8	0.72	0.7	0.97	18.72
20 - 28	0.15				0.01		1.03	0.64	0.19	0.05	0.13	0.22	0.25	0.34	0.25	0.1	3.37
29 - 38							0.03	0.01						0.01			0.06
> 38																	
Totals	13.58	3.06	1.45	1.33	1.66	3.37	19.06	11.07	3.2	2.43	2.91	5.14	4.68	3.68	7.9	15.46	100

Total Number of Vaild Hours 8718

Total Number of Hours 8760



WBEA - Lower Camp Met Tower (AMS 3)
Annual summary for the year 2013
Wind Direction 45 m and Wind Speed 45 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2.6	1.21	0.76	0.97	1	1.59	2.26	1.79	1.3	1.16	0.95	1.02	0.95	1.49	3.9	5.6	28.56
6 -11	3.97	1.07	0.54	0.24	0.6	1.36	7.9	4.09	0.84	0.85	0.78	1.36	0.99	0.82	2.29	6.91	34.59
12- 19	5.4	0.76	0.15	0.11	0.06	0.34	6.56	3.97	0.78	0.33	0.93	1.74	1.32	0.67	1.23	2.41	26.77
20 - 28	1.51	0.03			0.01	0.09	1.83	1.14	0.29	0.09	0.2	0.86	1.31	0.52	0.39	0.37	8.63
29 - 38	0.11						0.52	0.1			0.05	0.17	0.11	0.2	0.09	0.07	1.43
> 38							0.02										0.02
Totals	13.59	3.07	1.45	1.32	1.67	3.38	19.09	11.09	3.21	2.44	2.91	5.15	4.69	3.69	7.9	15.36	100

Total Number of Vaild Hours 8699
 Total Number of Hours 8760



WBEA - Lower Camp Met Tower (AMS 3)
Annual summary for the year 2013
Wind Direction 100 m and Wind Speed 100 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1.03	1.04	0.64	0.57	0.72	0.7	1.33	1.6	1.44	0.95	0.69	0.85	0.64	0.7	0.98	1.04	14.94
6 -11	4.21	1.8	0.94	0.47	0.53	0.88	3.11	4.57	2.45	1.19	1.24	1.4	1.25	0.91	1.14	2.92	29.01
12- 19	6.1	2.48	0.62	0.29	0.28	0.52	3.04	6.54	2.03	0.54	0.91	1.78	1.22	0.63	0.98	2.43	30.38
20 - 28	3.51	1.68	0.11	0.08	0.05	0.17	2.1	3.21	0.84	0.23	0.54	1.75	1.31	0.6	1.01	0.79	17.98
29 - 38	0.91	0.17		0.01	0.03	0.09	1.03	0.86	0.13		0.1	0.45	1.14	0.48	0.37	0.21	5.98
> 38	0.24						0.47	0.29			0.03	0.08	0.25	0.21	0.14		1.71
Totals	16	7.18	2.32	1.42	1.61	2.37	11.09	17.07	6.88	2.92	3.51	6.3	5.81	3.52	4.6	7.39	100

Total Number of Vaild Hours 8710

Total Number of Hours 8760



WBEA - Lower Camp Met Tower (AMS 3)
Annual summary for the year 2013
Wind Direction 167 m and Wind Speed 167 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0.55	0.69	0.44	0.44	0.54	0.61	0.66	0.85	0.93	0.78	0.61	0.59	0.51	0.47	0.71	0.65	10.04
6 -11	2.21	1.97	1.03	0.69	0.73	0.62	1.78	2.27	2.19	2.01	1.48	1.11	1.07	0.84	1	1.53	22.53
12- 19	4.35	4.19	1.27	0.44	0.56	0.86	2.47	4.44	3.47	1.68	1.48	1.85	1.27	1.06	0.91	2.04	32.35
20 - 28	3.44	2.91	0.42	0.19	0.12	0.33	2.27	3.07	1.46	0.66	0.68	2.01	1.17	0.83	1.03	1	21.57
29 - 38	1.25	0.47	0.05	0.06	0.03	0.19	1.27	0.9	0.78	0.26	0.33	1.21	1.2	0.84	0.68	0.41	9.91
> 38	0.4			0.02	0.03	0.01	0.78	0.33	0.03	0.01	0.06	0.35	0.85	0.4	0.27	0.06	3.6
Totals	12.19	10.22	3.21	1.84	2.02	2.61	9.24	11.86	8.87	5.4	4.63	7.12	6.07	4.43	4.59	5.69	100

Total Number of Vaild Hours 8578
 Total Number of Hours 8760



WBEA - Buffalo Viewpoint (AMS 4)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1.37	1.01	0.82	0.54	0.54	1.06	1.91	2.05	1.41	1.04	0.86	0.73	0.84	0.84	0.95	0.95	16.93
6 -11	4.89	2.49	0.99	0.42	0.96	3.42	10.4	8.11	1.65	1.37	1.5	1.64	1.79	1.66	1.58	1.83	44.7
12- 19	7.18	1.65	0.17	0.14	0.27	1.07	3.36	3.00	0.44	0.47	0.95	2.05	1.8	1.19	1.49	1.08	26.3
20 - 28	4.7	0.28			0.03	0.22	0.44	0.27		0.08	0.09	0.95	0.74	0.6	0.81	0.39	9.59
29 - 38	1.34	0.01				0.07						0.02	0.02	0.21	0.33	0.08	2.09
> 38	0.31													0.02	0.01	0.05	0.39
Totals	19.8	5.44	1.98	1.1	1.8	5.85	16.11	13.42	3.49	2.96	3.4	5.39	5.19	4.52	5.17	4.38	100

Total Number of Vaild Hours 8672

Total Number of Hours 8760



WBEA - Mannix (AMS 5)
Annual summary for the year 2013
Wind Direction 20 m and Wind Speed 20 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
0 - 5	0.89	0.97	0.81	0.68	0.92	1.43	2.21	2.62	2.09	1.4	1.15	1.2	1.58	1.16	0.89	1.09	21.07	
6 -11	3.65	3.18	1.19	0.6	0.98	2.19	6.59	9.7	2.71	1.61	1.72	2.3	2.07	1.78	1.75	2.83	44.84	
12- 19	3.89	3.18	0.36	0.15	0.32	0.6	3.01	4.55	0.65	0.42	0.76	1.73	2.33	1.36	1.09	1.95	26.34	
20 - 28	1.51	0.65	0.01		0.07	0.04	0.7	0.34	0.11	0.07	0.13	0.67	1.23	0.58	0.22	0.43	6.75	
29 - 38	0.09							0.01		0.01			0.04	0.32	0.29	0.06	0.12	0.93
> 38													0.05	0.02			0.07	
Totals	10.03	7.98	2.37	1.43	2.29	4.24	12.53	17.2	5.57	3.51	3.75	5.94	7.56	5.19	4.01	6.42	100	

Total Number of Vaild Hours 8558

Total Number of Hours 8760



WBEA - Mannix (AMS 5)
Annual summary for the year 2013
Wind Direction 45 m and Wind Speed 45 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0.57	0.62	0.54	0.63	0.61	0.88	1.28	0.88	0.73	0.64	0.56	0.62	0.74	0.67	0.6	0.73	11.3
6 -11	2.39	1.89	1.11	0.73	0.83	1.96	3.7	3.92	1.97	1.3	1.25	1.07	1.42	1.37	1.49	2.13	28.53
12- 19	3.38	3.48	0.79	0.34	0.49	1.39	5.4	7.98	2.37	1.13	1.27	1.97	2.67	1.39	1.42	2.12	37.59
20 - 28	2.82	2.17	0.09	0.04	0.05	0.26	1.85	2.74	1.07	0.36	0.67	1.21	1.64	1.07	0.62	1.2	17.85
29 - 38	1.16	0.29			0.04	0.01	0.25	0.21	0.19	0.13	0.08	0.35	0.61	0.36	0.19	0.23	4.1
> 38	0.16						0.01		0.01				0.14	0.22	0.04	0.04	0.62
Totals	10.49	8.45	2.53	1.73	2.02	4.5	12.5	15.73	6.33	3.56	3.83	5.22	7.22	5.09	4.35	6.45	100

Total Number of Vaild Hours 8531
 Total Number of Hours 8760



WBEA - Mannix (AMS 5)
Annual summary for the year 2013
Wind Direction 75 m and Wind Speed 75 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0.61	0.5	0.46	0.55	0.58	1.26	1.07	0.72	0.59	0.56	0.5	0.45	0.65	0.5	0.58	0.63	10.21
6 -11	1.99	1.73	1.02	0.85	0.81	2.11	4	2.37	1.59	0.94	0.97	0.94	0.99	0.94	1.39	1.77	24.42
12- 19	2.61	3.16	1.16	0.46	0.52	0.65	4.83	4.64	2.46	1.28	1.47	1.4	2.15	1.42	1.26	2.02	31.51
20 - 28	2.64	3.46	0.24	0.09	0.06	0.07	2.52	4.14	2.14	0.7	1.03	1.6	2.1	1.39	0.81	1.26	24.25
29 - 38	1.6	1.2	0.01		0.04		0.51	1.1	0.46	0.23	0.21	0.72	1.01	0.51	0.27	0.38	8.26
> 38	0.4	0.02					0.04	0.06	0.04	0.01	0.01	0.07	0.19	0.3	0.13	0.07	1.34
Totals	9.86	10.07	2.9	1.96	2.01	4.1	12.97	13.05	7.28	3.72	4.2	5.19	7.09	5.06	4.44	6.13	100

Total Number of Vaild Hours 8422
Total Number of Hours 8760



WBEA - Mannix (AMS 5)
Annual summary for the year 2013
Wind Direction 90 m and Wind Speed 90 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0.61	0.55	0.39	0.46	0.52	0.8	0.64	0.71	0.56	0.61	0.4	0.53	0.4	0.58	0.53	0.62	8.92
6 -11	2.05	1.56	0.84	0.72	0.91	1.74	2.27	1.69	1.16	0.68	1	0.9	1.08	0.82	1.32	1.45	20.19
12- 19	2.89	2.67	0.97	0.46	0.65	2.85	4.84	3.11	1.97	1.29	1.33	1.59	2.11	1.42	1.27	1.84	31.26
20 - 28	3.9	2.81	0.3	0.12	0.26	1.01	3.6	3.43	2.23	0.62	0.82	1.59	2.17	1.24	0.62	1.4	26.13
29 - 38	3.07	0.58		0.01	0.07	0.25	1.45	1.84	0.72	0.23	0.22	0.69	0.98	0.62	0.22	0.56	11.51
> 38	0.67					0.01	0.2	0.13	0.07	0.04	0.01	0.04	0.2	0.33	0.14	0.13	2
Totals	13.19	8.17	2.5	1.78	2.41	6.65	13	10.9	6.71	3.47	3.79	5.35	6.95	5.02	4.11	6	100

Total Number of Vaild Hours 6916
Total Number of Hours 8760



WBEA - Patricia McInnes (AMS 6)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1.06	0.83	0.78	0.86	1.19	1.65	1.95	2.23	2.45	2.35	2.12	1.7	1.33	1.52	1.4	1.09	24.51
6 -11	2.85	1.63	1	1.33	1.76	3.85	4.73	2.87	2.71	3.3	3.36	1.77	1.55	2.01	2.51	4.35	41.58
12- 19	4.57	0.7	0.2	0.38	0.83	2.88	0.87	0.85	0.92	1.39	2.57	2.18	1.56	1.37	1.14	4.55	26.95
20 - 28	1.3	0.01		0.01	0.11	0.3		0.07	0.2	0.21	0.46	0.73	0.67	0.61	0.29	1.3	6.26
29 - 38	0.1				0.01	0.07					0.02	0.01	0.09	0.18	0.01	0.2	0.7
> 38																	
Totals	9.87	3.17	1.97	2.58	3.9	8.75	7.56	6.02	6.27	7.25	8.54	6.4	5.2	5.68	5.35	11.48	100

Total Number of Vaild Hours 8709
Total Number of Hours 8760



WBEA - Athabasca Valley (AMS 7)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2.25	1.26	1.18	1.93	3.25	3.86	5.51	3.5	2.3	2.54	3.39	2.46	1.92	1.56	2.16	2.82	41.92
6 -11	3.31	0.64	0.15	0.37	1.1	1.58	11.71	2.6	0.57	0.99	2.82	1.38	0.72	0.34	1.15	6.52	35.96
12- 19	1.14	0.02	0.08	0.13	0.32	0.49	3.4	0.54	0.17	0.18	1.44	1.33	0.92	0.55	0.97	5.72	17.41
20 - 28	0.17				0.06	0.08	0.11	0.01			0.13	0.3	0.51	0.6	0.51	1.51	3.98
29 - 38													0.18	0.25	0.14	0.14	0.71
> 38															0.01	0.01	0.02
Totals	6.88	1.93	1.41	2.43	4.74	6.01	20.73	6.65	3.05	3.71	7.77	5.47	4.25	3.31	4.93	16.71	100

Total Number of Valid Hours 8696

Total Number of Hours 8760



WBEA - Fort Chipewyan (AMS 8)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1.43	1.12	0.69	0.56	1.4	1.45	0.78	0.64	0.5	0.58	0.69	0.84	0.78	1.04	1.38	1.55	15.45
6 -11	3.53	1.39	0.78	1.27	2.45	4.23	1.33	1.1	0.89	0.86	1.18	1.65	2.26	3.96	3.28	3.68	33.86
12- 19	1.81	0.97	0.63	1.55	4.59	6.42	1.1	0.88	1.29	1.1	0.96	1.08	2.43	2.64	2.4	2.47	32.31
20 - 28	0.16	0.07	0.11	2.48	4.37	2.44	0.6	0.44	0.88	0.67	0.19	0.19	0.69	0.58	0.35	0.67	14.88
29 - 38			0.01	0.61	0.63	0.48	0.11	0.05	0.34	0.27		0.01	0.06	0.14		0.02	2.72
> 38				0.21	0.05	0.28	0.02	0	0.05	0.11				0.06			0.77
Totals	6.93	3.55	2.22	6.69	13.5	15.3	3.94	3.11	3.94	3.59	3.02	3.76	6.22	8.43	7.41	8.39	100

Total Number of Vaild Hours 8555
Total Number of Hours 8760



WBEA - Barge Landing (AMS 9)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3.98	2.44	2.16	2.31	2.07	2.46	3.27	4.56	5	4	3.32	3.18	2.19	2.03	2.96	6.53	52.46
6 -11	5.19	5.82	2.09	1.1	0.22	0.62	1.87	4.56	6.18	2.59	2.49	1.93	0.77	0.7	1.13	2.7	39.97
12- 19	1.33	0.71	0.03	0.02	0.06	0.13	0.34	0.76	0.9	0.2	0.6	0.95	0.39	0.48	0.44	0.22	7.56
20 - 28												0.01					0.01
29 - 38																	
> 38																	
Totals	10.5	8.97	4.29	3.44	2.34	3.21	5.49	9.88	12.07	6.78	6.41	6.08	3.35	3.22	4.53	9.44	100

Total Number of Vaild Hours 8704

Total Number of Hours 8760



WBEA - Lower Camp - Air Quality- (AMS 11)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2.54	2.03	1.55	1.3	1.87	2.64	3.55	1.39	0.68	0.55	0.51	0.8	1.21	3.59	5.62	4.62	34.44
6 -11	3.97	1.14	0.64	0.28	0.65	2.07	10.97	2.55	0.67	0.53	0.86	1.39	1.46	1.47	2.96	4.82	36.43
12- 19	5.12	1.06	0.21	0.1	0.13	1.64	6.09	1.23	0.21	0.14	0.31	1.58	1.98	0.71	1.1	1.22	22.82
20 - 28	0.98	0.13			0.02	0.47	1.34	0.01			0.08	0.37	0.91	0.56	0.32	0.16	5.35
29 - 38	0.05					0.08	0.44						0.02	0.15	0.14		0.87
> 38						0.03	0.05										0.08
Totals	12.66	4.35	2.4	1.68	2.68	6.94	22.43	5.18	1.55	1.22	1.76	4.15	5.57	6.49	10.14	10.82	100

Total Number of Vaild Hours 8707

Total Number of Hours 8760



WBEA - Millenium Mine (AMS 12)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2.31	1.79	1.17	1.07	1.03	1.28	2.33	5.36	5.04	5	3.37	2	1.5	1.44	2.22	2.48	39.39
6 -11	4.72	4.39	1.54	0.54	0.35	1.19	4.71	6.7	4.28	3.28	2.09	1.44	1.8	1.77	1.77	1.99	42.54
12- 19	2.31	5.38	0.51	0.1		0.12	1.99	0.97	0.48	0.4	0.29	0.35	0.37	0.98	0.62	0.45	15.32
20 - 28	0.39	1.69					0.23	0.03						0.13	0.13		2.6
29 - 38	0.06	0.1															0.16
> 38																	
Totals	9.79	13.34	3.21	1.72	1.37	2.59	9.26	13.06	9.81	8.68	5.75	3.79	3.67	4.32	4.73	4.92	100

Total Number of Vaild Hours 8663

Total Number of Hours 8760



WBEA - Syncrude Upgrader Expansion (AMS 13)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	6.98	3.69	1.76	1.15	1.31	1.58	3.26	4.5	7.81	6.18	7.37	6.21	3.54	2.72	2.93	4.23	65.22
6 -11	9	3.31	0.49	0.13	0.19	0.68	1.32	2.88	2.62	1.54	1.85	3.01	1.61	1.05	0.8	1.3	31.79
12- 19	1.39	0.12				0.05	0.01	0.11	0.22	0.09	0.15	0.18	0.18	0.27	0.11	0.12	2.99
20 - 28																	
29 - 38																	
> 38																	
Totals	17.37	7.12	2.25	1.28	1.5	2.31	4.6	7.48	10.65	7.81	9.37	9.39	5.33	4.04	3.84	5.65	100

Total Number of Vaild Hours 8485

Total Number of Hours 8760



WBEA - Anzac (AMS 14)
Annual summary for the year 2013
Wind Direction 20 m and Wind Speed 20 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1.6	1.66	1.85	2.01	2.05	1.52	2	2.37	3.09	2.7	1.84	1.35	1.67	2.17	2.56	2.06	32.51
6 -11	3.9	3.79	3.17	1.59	1.25	1.72	3.3	3.82	4.59	2.74	4.04	2.1	2.45	5.64	4.24	3.48	51.82
12- 19	0.64	0.88	1.28	0.52	0.26	0.67	0.78	1.36	1.3	0.67	1.58	0.82	1.19	1.39	0.74	0.74	14.81
20 - 28	0.04	0.16	0.01	0.01	0.01	0.08	0.01	0.06	0.05	0.02	0.02	0.06	0.08	0.09	0.08	0.04	0.83
29 - 38		0.01													0.01		0.02
> 38																	
Totals	6.18	6.51	6.31	4.13	3.57	3.99	6.1	7.6	9.03	6.14	7.48	4.32	5.4	9.3	7.63	6.31	100

Total Number of Vaild Hours 8541
 Total Number of Hours 8760



WBEA - CNRL Horizon (AMS 15)
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2.97	2.16	1.21	1.18	0.69	1.2	1.34	2.79	3	3.98	2.41	1.64	1.16	1.26	1.55	2.36	30.9
6 -11	5.97	6.28	2.06	0.97	0.53	0.74	1.32	3.7	8.54	6.25	3.91	2.04	1.3	1.27	1.28	1.22	47.37
12- 19	3.54	4.16	0.33	0.14	0.15	0.19	0.14	1.26	2.14	1.3	1.76	0.56	0.66	0.72	1.11	0.82	18.97
20 - 28	0.87	0.3		0.05	0	0.05	0	0.06	0.19	0.02	0.05	0.01	0.23	0.37	0.23	0.14	2.55
29 - 38	0.18													0.01	0.02		0.22
> 38																	
Totals	13.53	12.89	3.6	2.33	1.36	2.18	2.8	7.8	13.87	11.56	8.12	4.26	3.36	3.62	4.19	4.54	100

Total Number of Vaild Hours 8758

Total Number of Hours 8760



WBEA - Albian Muskeg River (AMS 16)
Annual summary for the year 2013
Wind Direction 20 m and Wind Speed 20 m (km/hr)

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0.28	0.14	0.42	0.33	0.64	0.87	1.2	2.57	9.27	8.01	2.46	0.97	0.47	0.36	0.26	0.22	28.46
6 -11	0.95	0.8	1.15	2.11	1.54	0.83	0.87	2.24	9.18	10.48	3.41	1.98	1.26	0.85	1.21	1.39	40.24
12- 19	2.38	3.7	4.69	2.45	0.31	0.14	0.16	0.72	2.79	1.61	0.82	1.63	0.83	0.62	0.85	0.8	24.5
20 - 28	0.48	2.21	2	0.08	0.06	0.01	0.09	0.01	0.15	0.09	0.05	0.15	0.33	0.44	0.21	0.08	6.45
29 - 38	0.07	0.06	0.01										0.02	0.15	0.03		0.35
> 38																	
Totals	4.16	6.92	8.28	4.96	2.55	1.85	2.33	5.54	21.39	20.19	6.73	4.73	2.9	2.42	2.56	2.49	100

Total Number of Vaild Hours 8588

Total Number of Hours 8760



**WBEA -
Annual summary for the year 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)**

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3.57	3.7	1.02	0.89	2.04	3.83	7.78	7.02	3.7	1.66	2.17	0.89	1.15	1.66	2.81	2.42	46.3
6 -11	7.4	6.89	0.26	0.38		0.38	4.34	4.72	3.19	2.81	2.17	1.02	1.02	0.38	1.28	6.38	42.6
12- 19						0.13	3.44	1.91	1.4			0.13			0.13	0.77	7.91
20 - 28							1.53	1.53	0.13								3.19
29 - 38																	
> 38																	
Totals	10.97	10.59	1.28	1.28	2.04	4.34	17.09	15.18	8.42	4.46	4.34	2.04	2.17	2.04	4.21	9.57	100

Total Number of Vaild Hours 784
Total Number of Hours 8760



**WBEA - Portable (AMS 101) Christina Lake
Summary Jan 1 - Jan 23, 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)**

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3.41	3.03	5.11	2.08	1.52	0.76	0.19	1.52	0.57	1.7	1.7	1.7	0.95	0.57	3.79	3.41	32.01
6 -11	0.19	0.57	4.92	5.87	8.14	3.22	5.11	4.73	1.14	2.84	3.79	0.76	0.19	0.19	3.41	1.14	46.21
12- 19			0.19	0.19	3.79	0.76	4.55	2.65	2.65	0.76	1.52				0.38		17.42
20 - 28			0.19	1.14	0.76	0.19	1.52	0.57									4.36
29 - 38																	
> 38																	
Totals	3.6	3.6	10.42	9.28	14.2	4.92	11.36	9.47	4.36	5.3	7.01	2.46	1.14	0.76	7.58	4.55	100

Total Number of Valid Hours 528
Total Number of Hours 528



**WBEA - AMS 101 Portable (AMS 101) Statoil Leismer
 Summary Apr 23 - Aug 14, 2013
 Wind Direction 10 m and Wind Speed 10 m (km/hr)**

Percentage Frequency Distribution of Wind

Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1.45	1.45	1.71	1.49	2.23	2.9	1.67	1.79	2.01	1.6	1.04	1.41	1.79	1.19	0.74	1.38	25.86
6 -11	2.86	2.49	2.05	3.2	7.25	3.68	3.39	3.68	2.49	2.01	0.93	1.12	2.94	1.64	1.12	3.98	44.83
12- 19	0.3	0.11	0.22	0.56	2.34	1.45	0.86	1.82	1.26	1.15	0.3	0.33	2.9	1.64	2.42	3.61	21.28
20 - 28							0.15	0.04	0.19	0.04			1.34	1.19	1.86	1.97	6.77
29 - 38													0.15	0.37	0.52	0.15	1.19
> 38															0.04	0.04	0.07
Totals	4.61	4.06	3.98	5.25	11.83	8.18	5.95	7.48	5.8	4.76	2.27	2.86	9.11	6.03	6.7	11.12	100

Total Number of Vaild Hours 2688

Total Number of Hours 2712



**WBEA - AMS 102 Portable (AMS102) Surmont
Summary Jul 3 - Nov 4, 2013
Wind Direction 10 m and Wind Speed 10 m (km/hr)**

Percentage Frequency Distribution of Wind

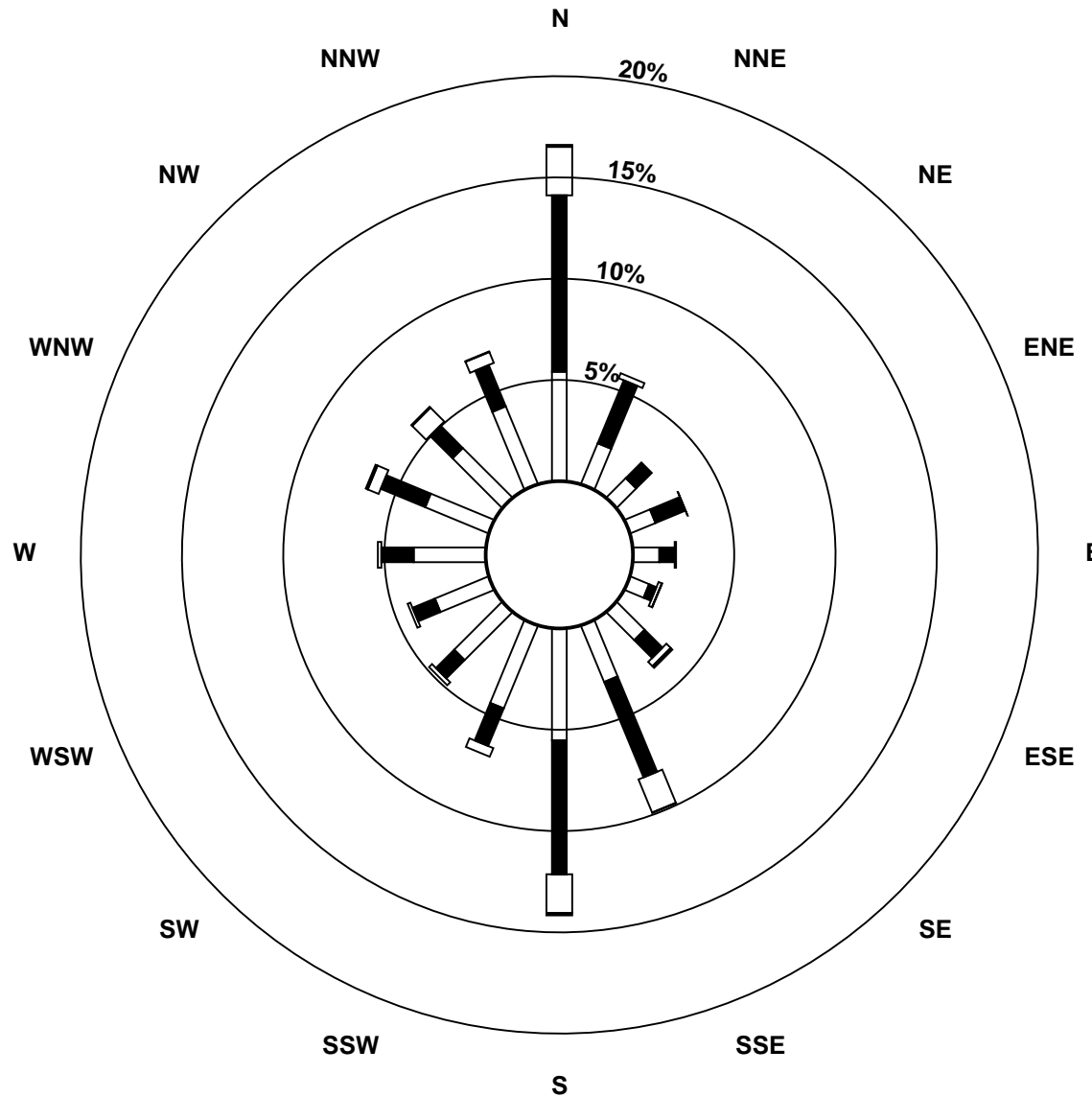
Speed	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0.34	0.51	0.58	0.48	0.21	0.51	0.62	0.34	0.58	0.41	0.27	0.58	0.55	0.62	0.31	0.24	7.16
6 -11	2.09	1.61	1.1	0.82	1.64	1.47	3.18	3.08	2.84	3.08	3.53	2.57	2.81	2.57	1.71	1.78	35.88
12- 19	3.7	0.96	0.41	0.03	0.1	0.48	0.75	2.98	2.57	2.05	2.88	7.36	5.68	7.12	2.98	3.53	43.58
20 - 28	0.14						0.03	0.27	0.24	0.14	0.31	2.26	3.9	2.64	1.03	0.79	11.74
29 - 38									0.03			0.14	0.72	0.62	0.1		1.61
> 38													0.03				0.03
Totals	6.26	3.08	2.09	1.34	1.95	2.46	4.59	6.68	6.26	5.68	6.98	12.91	13.69	13.56	6.13	6.33	100

Total Number of Vaild Hours 2921
Total Number of Hours 2976

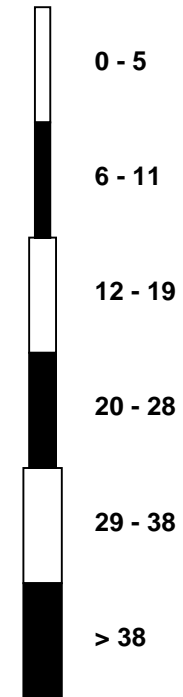
This page intentionally left blank

Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed (WS) - km/h
 Fort McKay - Bertha Ganter (AMS 1)



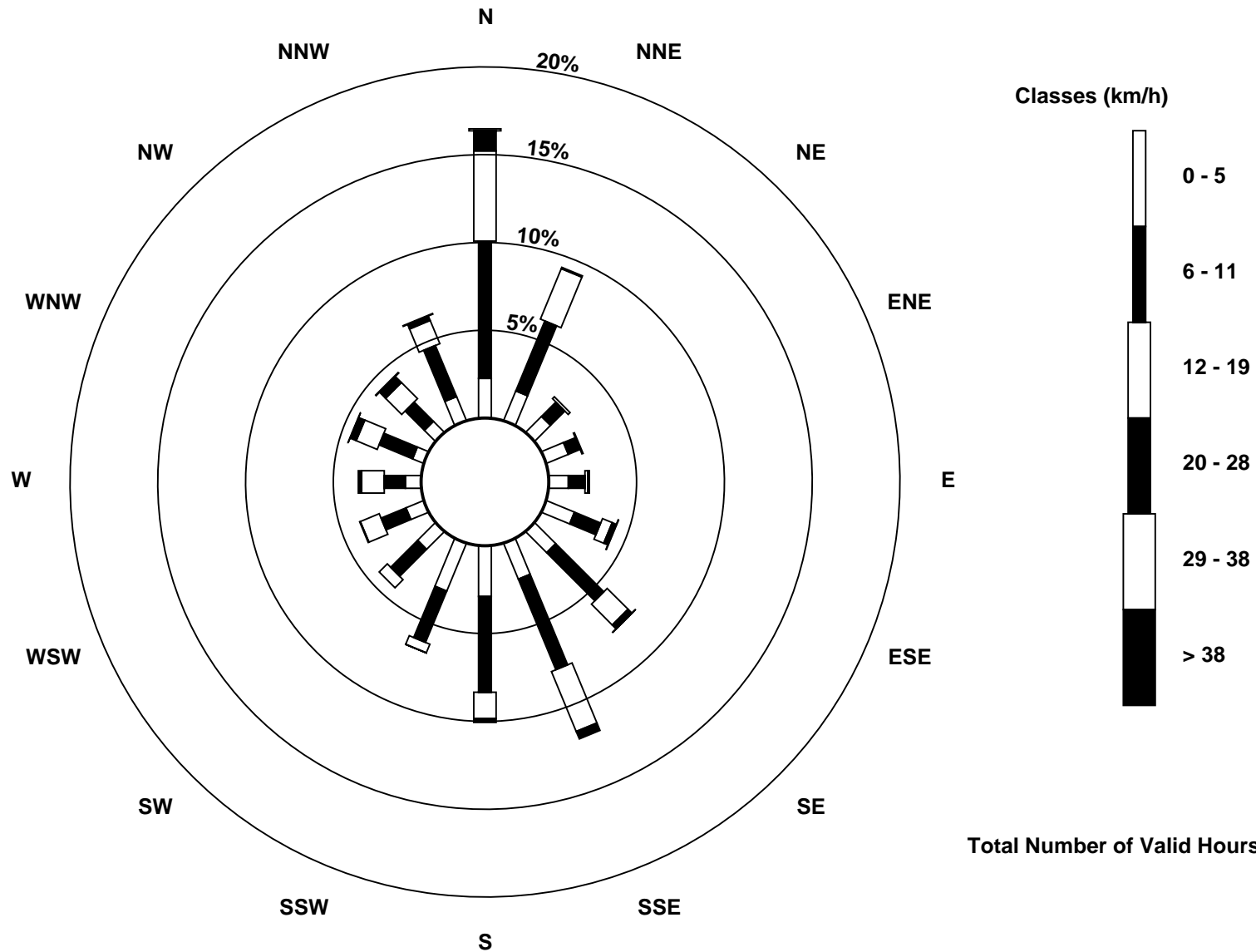
Classes (km/h)



Total Number of Valid Hours: 8711

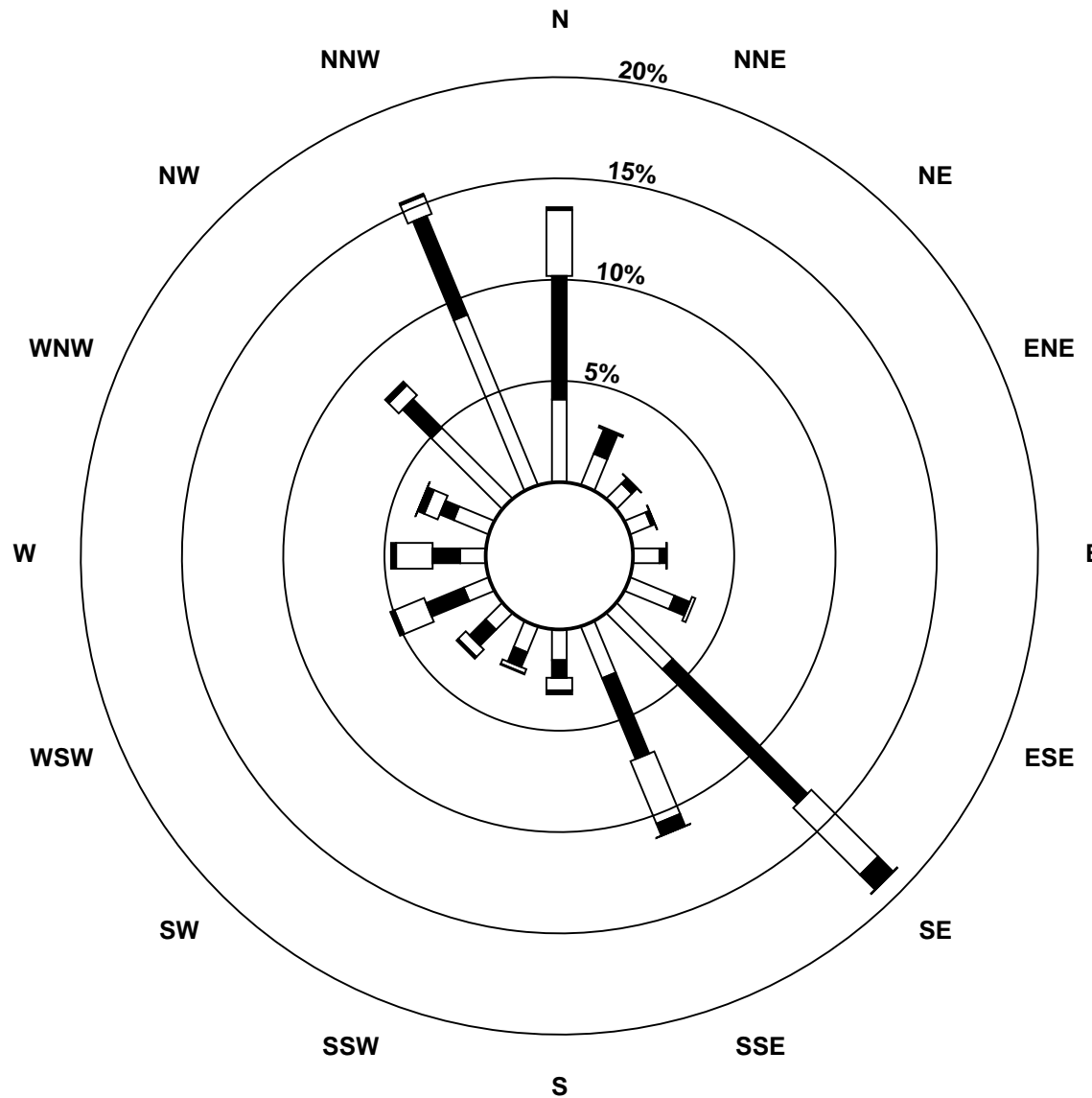
Wood Buffalo Environmental Association
Wind Rose 2013

Wind Speed (WS) - km/h
Mildred Lake (AMS 2)

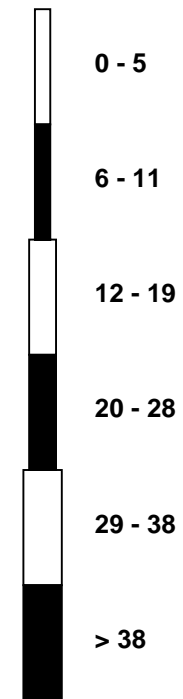


Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed 20 m (WS20m) - km/h
 Lower Camp Met Tower (AMS 3)



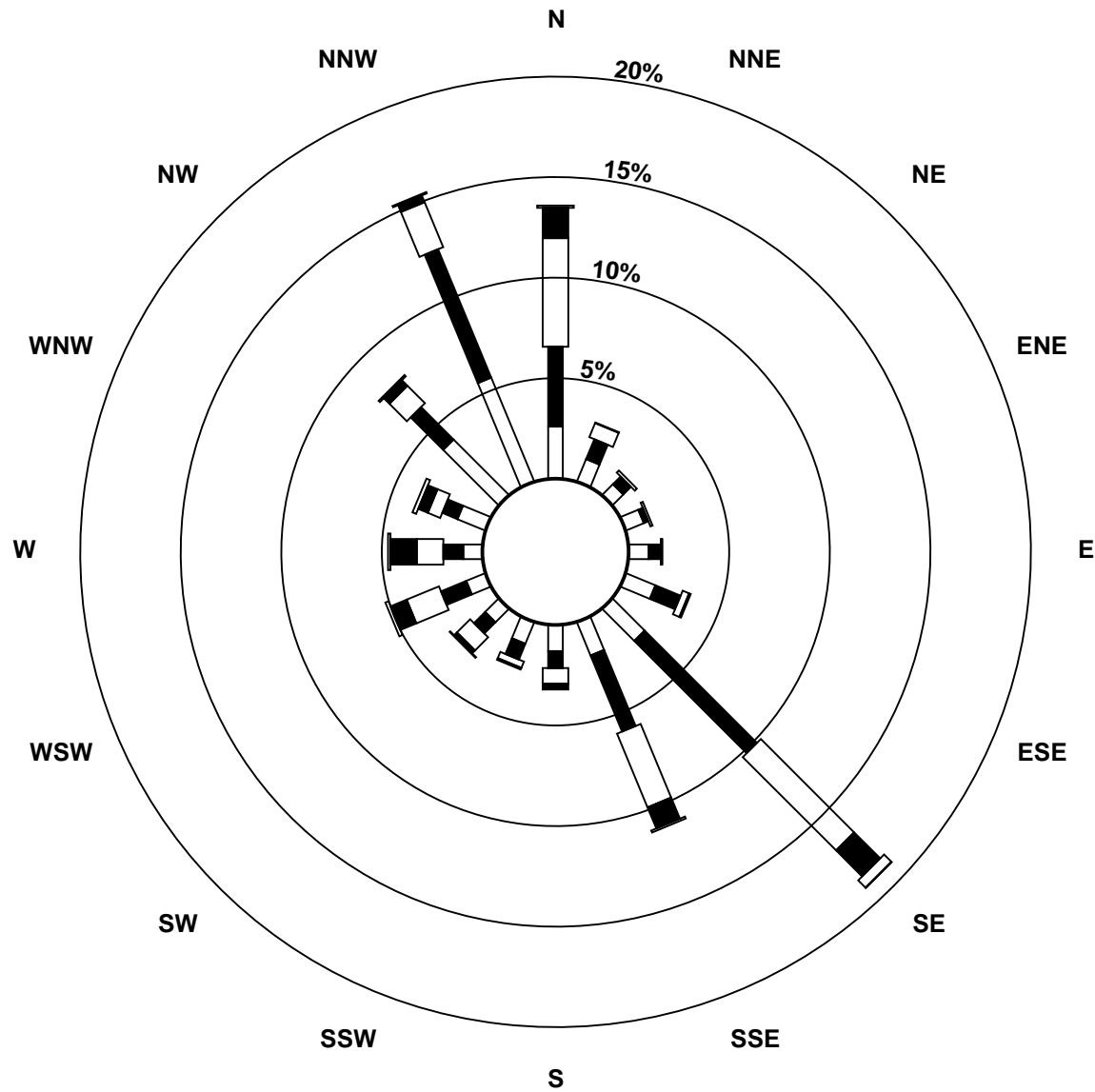
Classes (km/h)



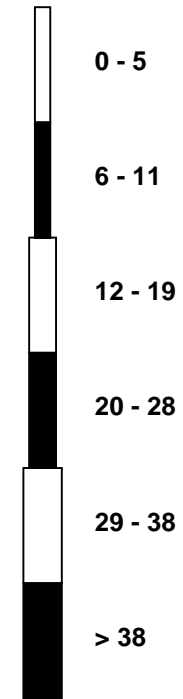
Total Number of Valid Hours: 8718

Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed 45 m (WS45m) - km/h
 Lower Camp Met Tower (AMS 3)



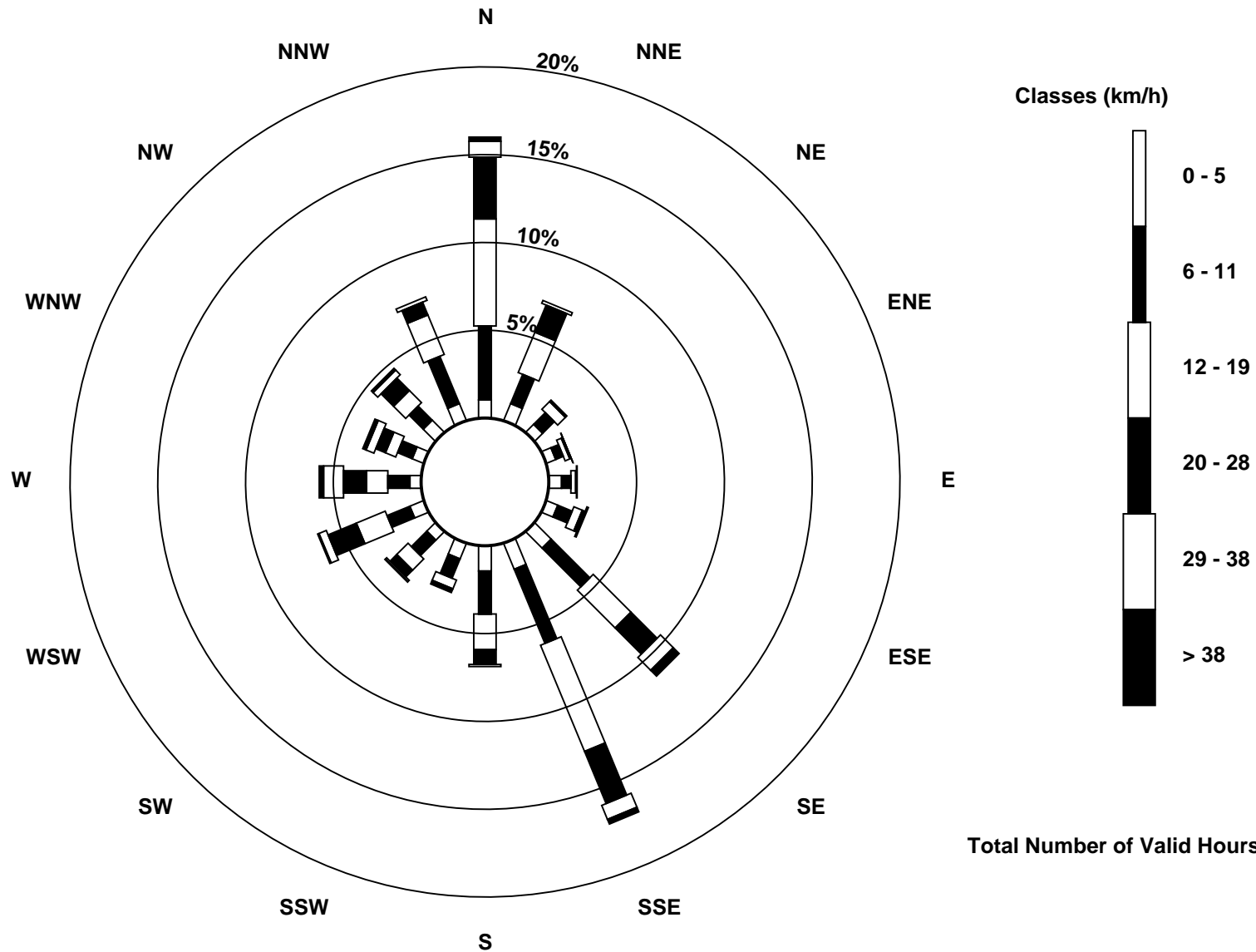
Classes (km/h)



Total Number of Valid Hours: 8699

Wood Buffalo Environmental Association
 Wind Rose 2013

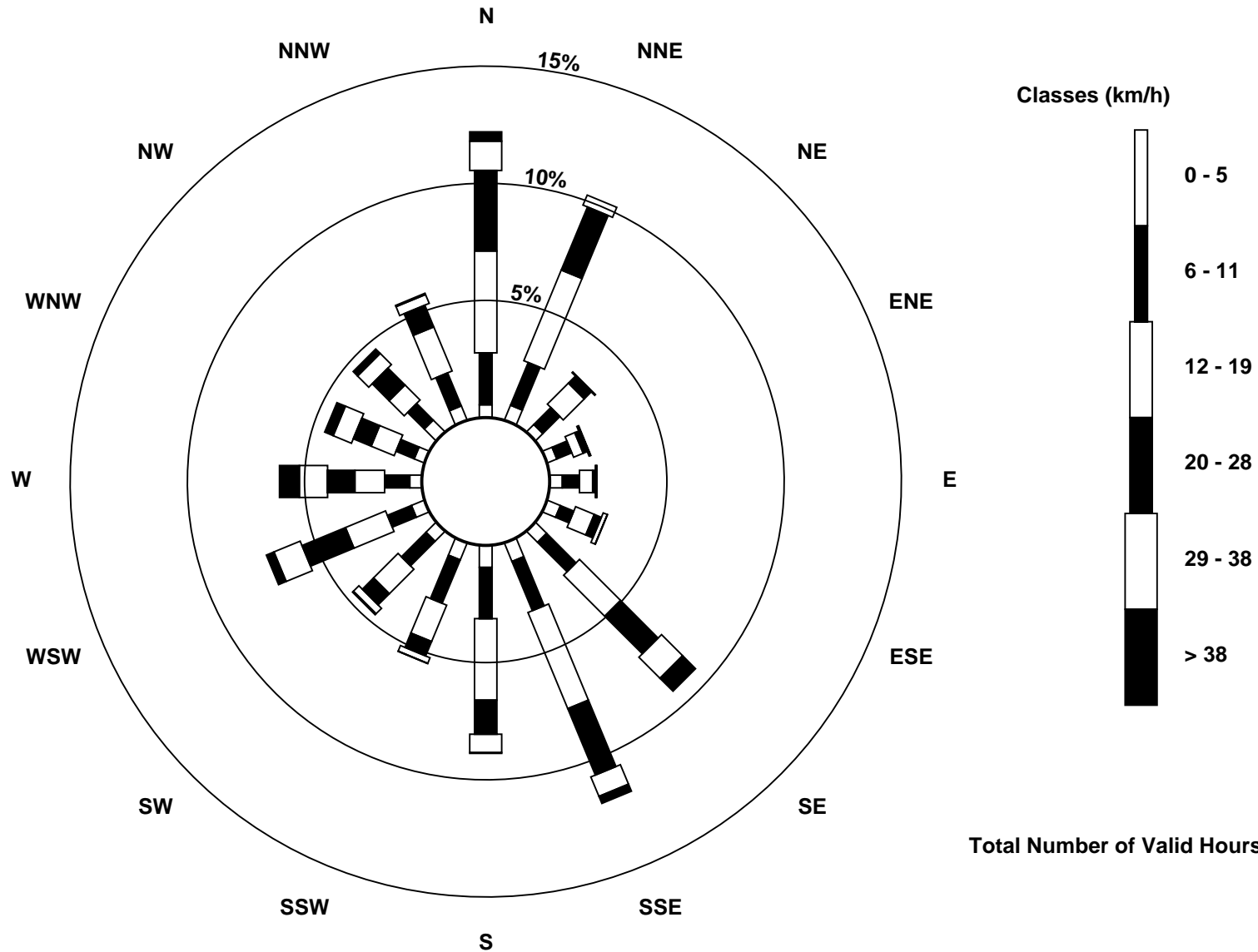
Wind Speed 100 m (WS100m) - km/h
 Lower Camp Met Tower (AMS 3)



Total Number of Valid Hours: 8710

Wood Buffalo Environmental Association
Wind Rose 2013

Wind Speed 167 m (WS167m) - km/h
Lower Camp Met Tower (AMS 3)



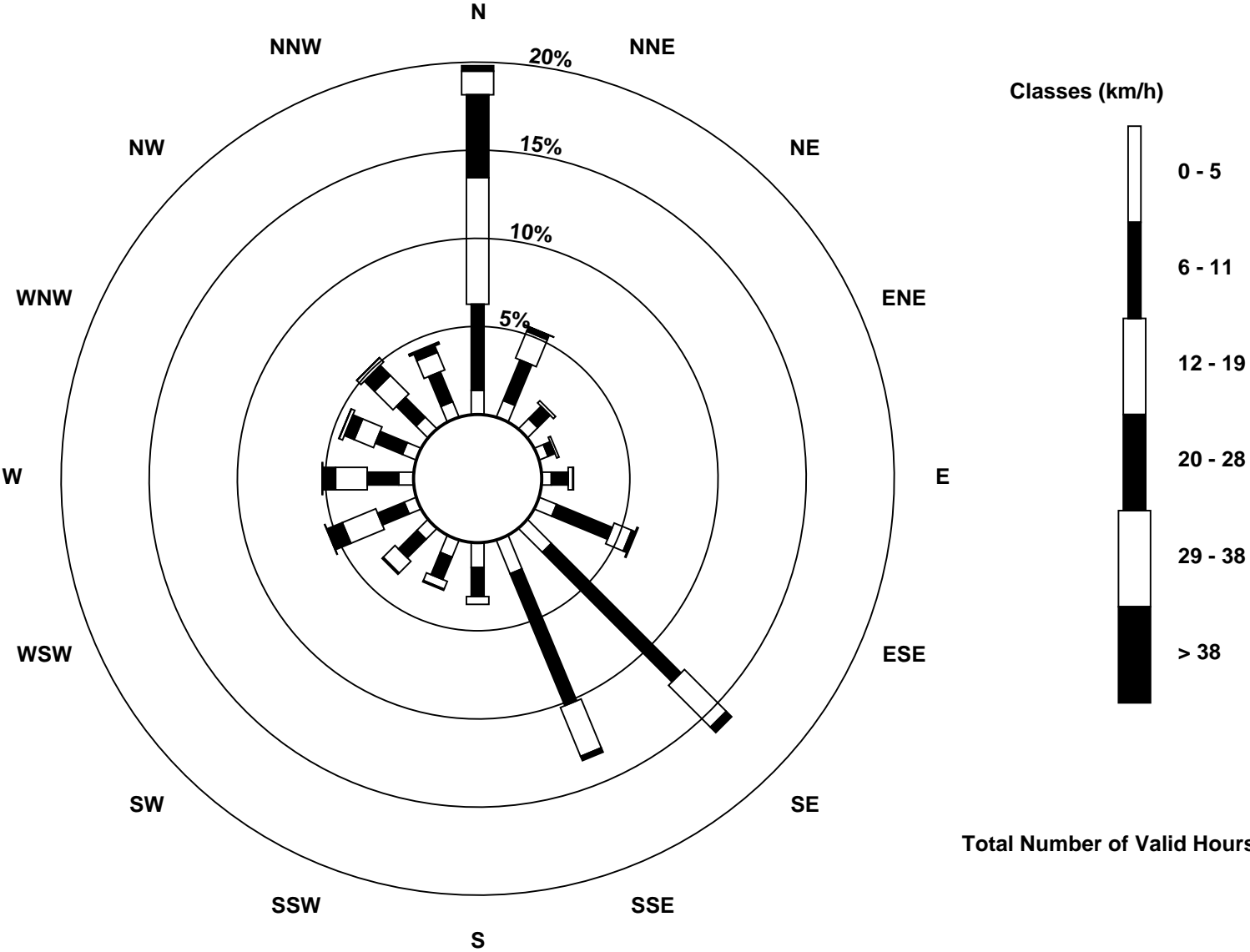
Total Number of Valid Hours: 8578

Wood Buffalo Environmental Association

Wind Rose 2013

Wind Speed (WS) - km/h

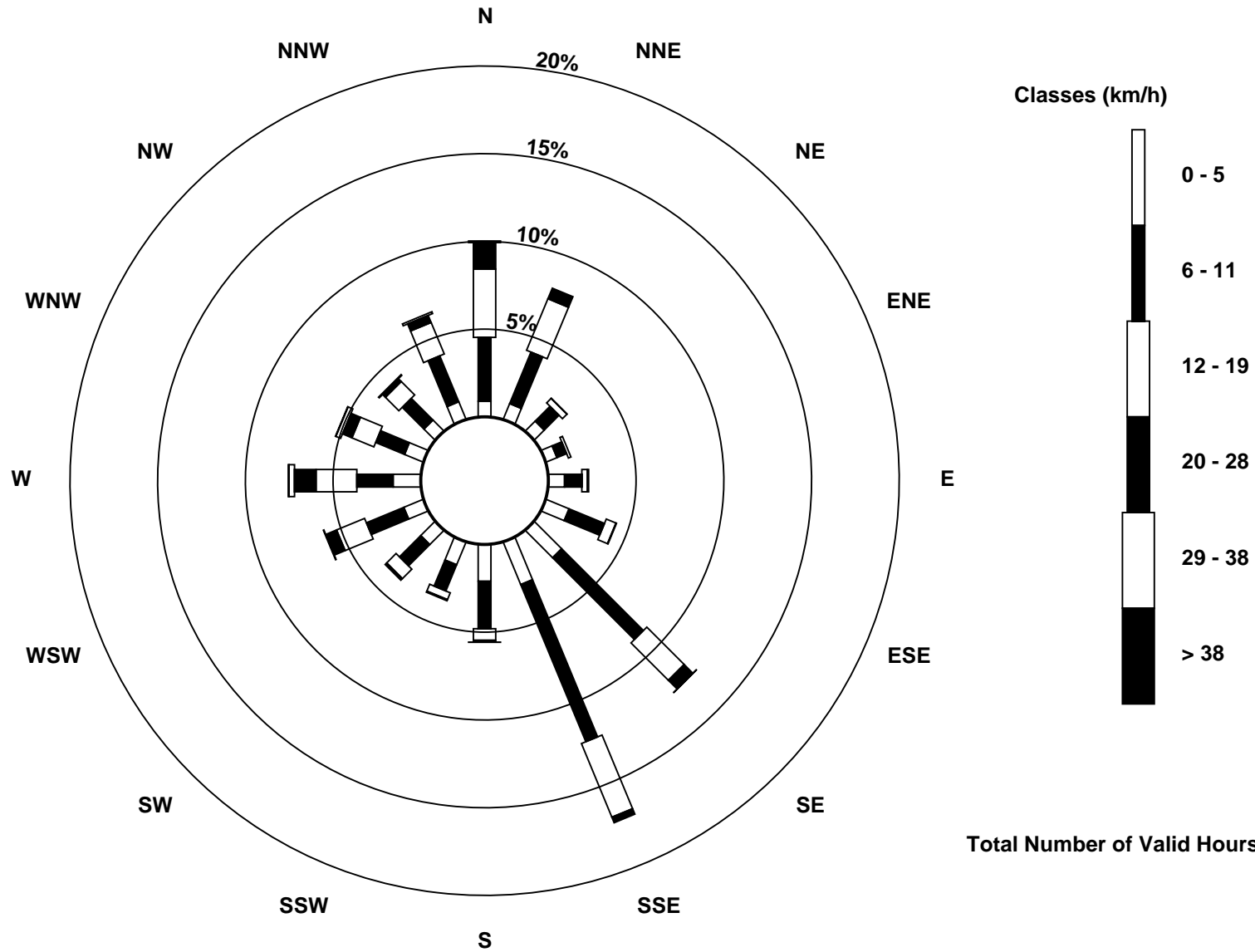
Buffalo Viewpoint (AMS 4)



Total Number of Valid Hours: 8672

Wood Buffalo Environmental Association
Wind Rose 2013

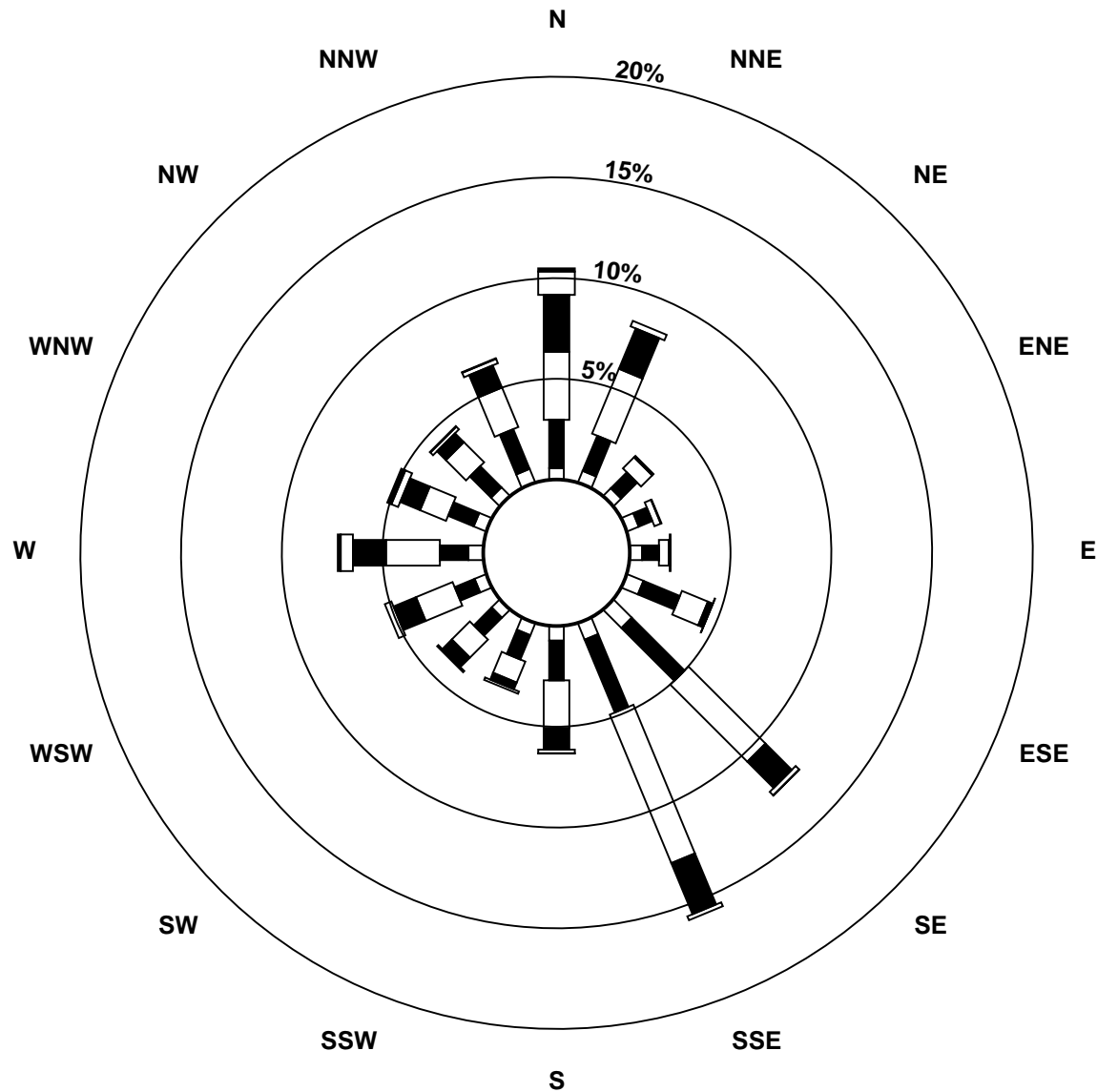
Wind Speed 20 m (WS20m) - km/h
Mannix (AMS 5)



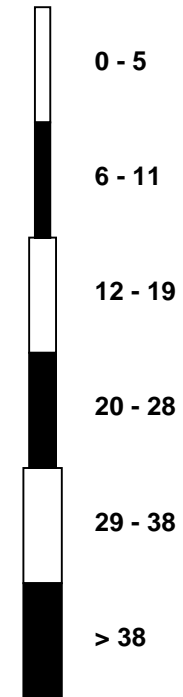
Total Number of Valid Hours: 8558

Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed 45 m (WS45m) - km/h
 Mannix (AMS 5)



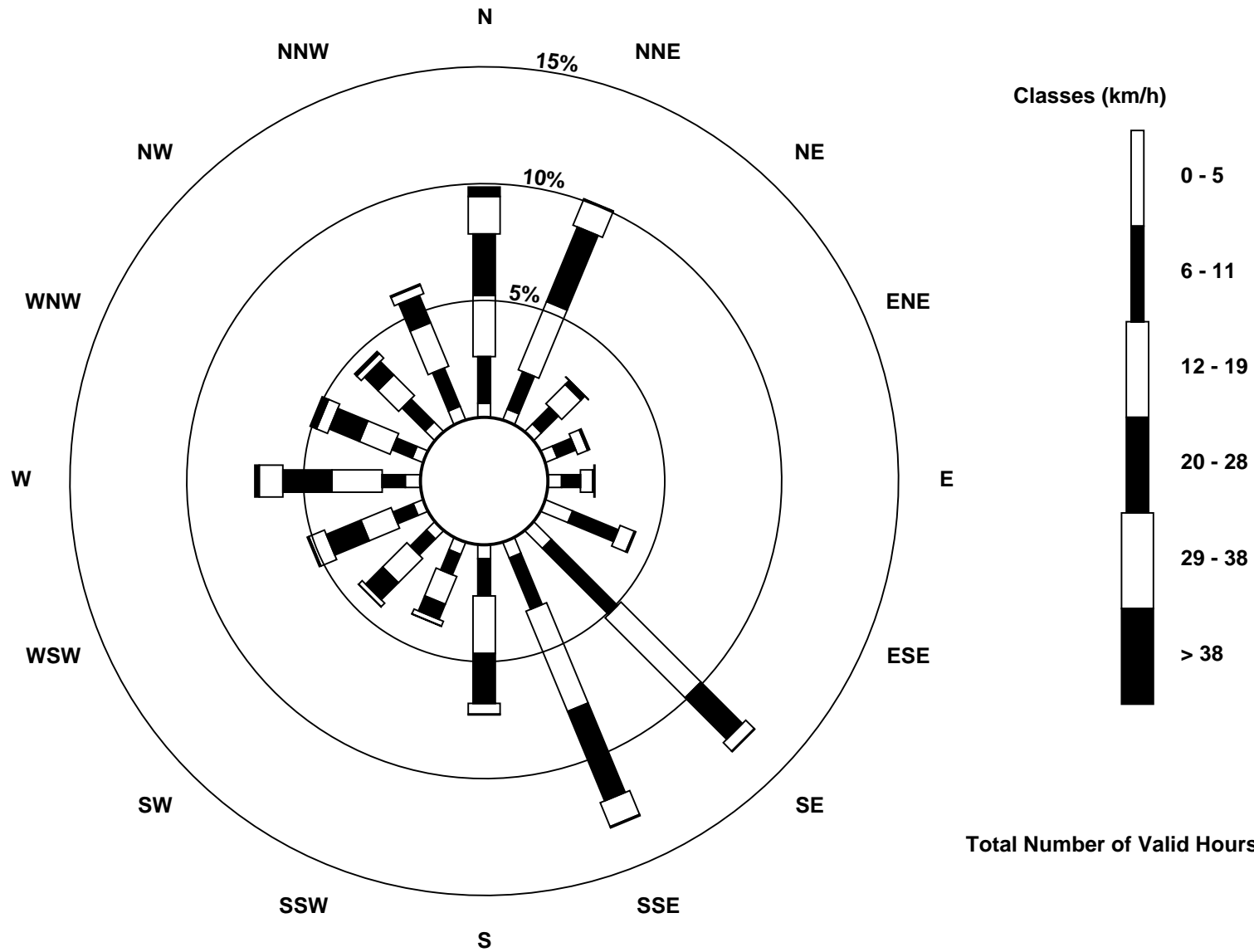
Classes (km/h)



Total Number of Valid Hours: 8531

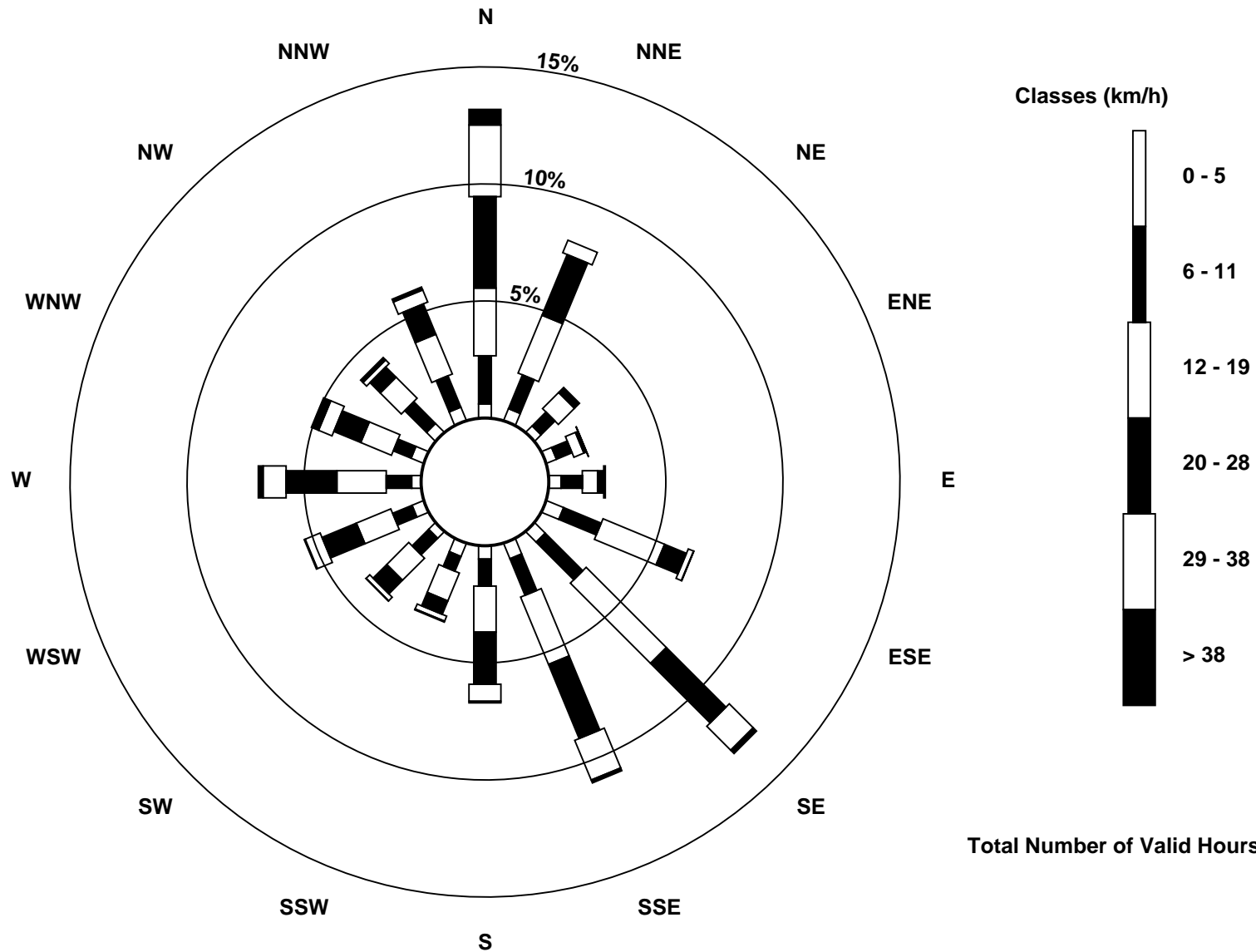
Wood Buffalo Environmental Association
Wind Rose 2013

Wind Speed 75 m (WS75m) - km/h
Mannix (AMS 5)



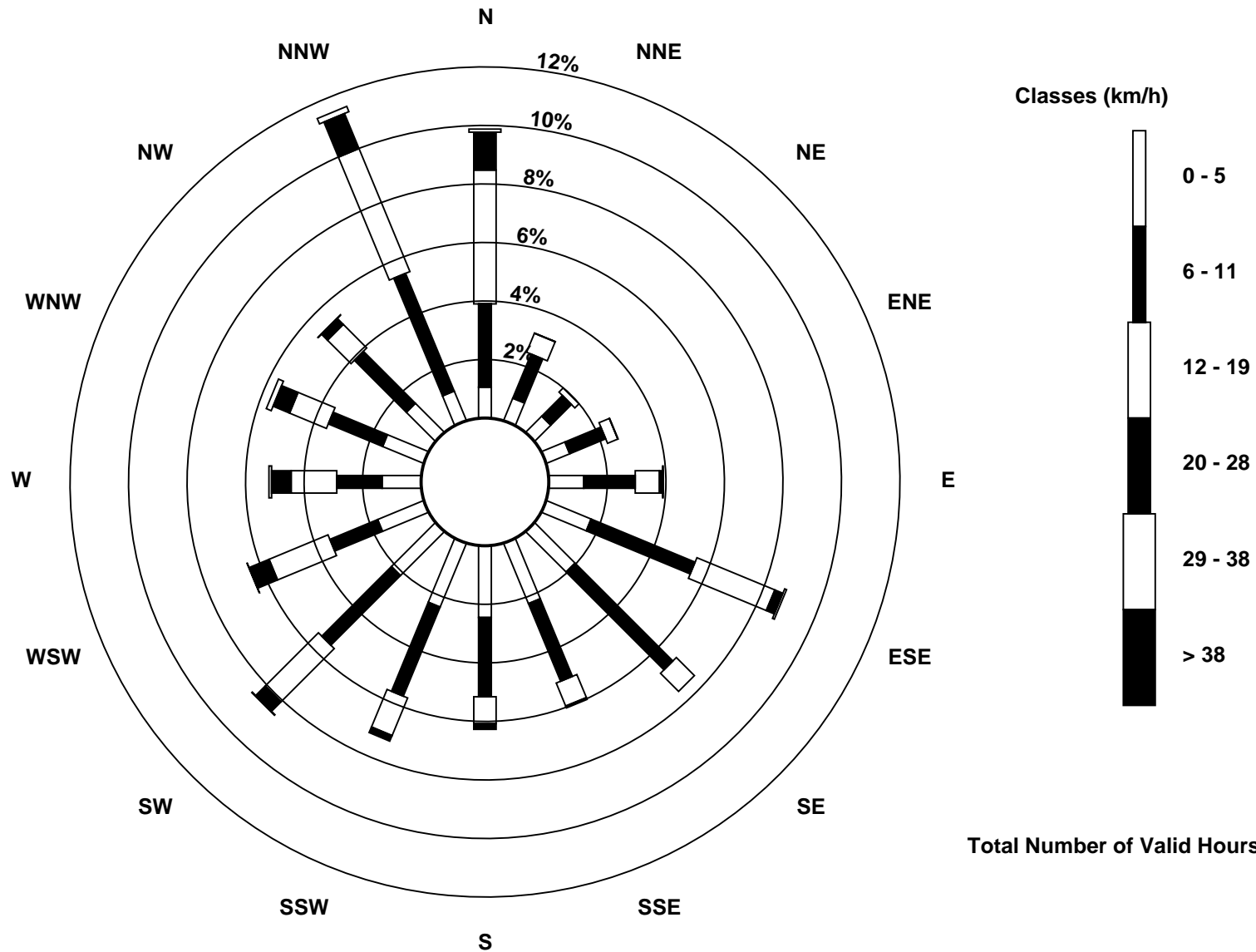
Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed 90 m (WS90m) - km/h
 Mannix (AMS 5)



Wood Buffalo Environmental Association
 Wind Rose 2013

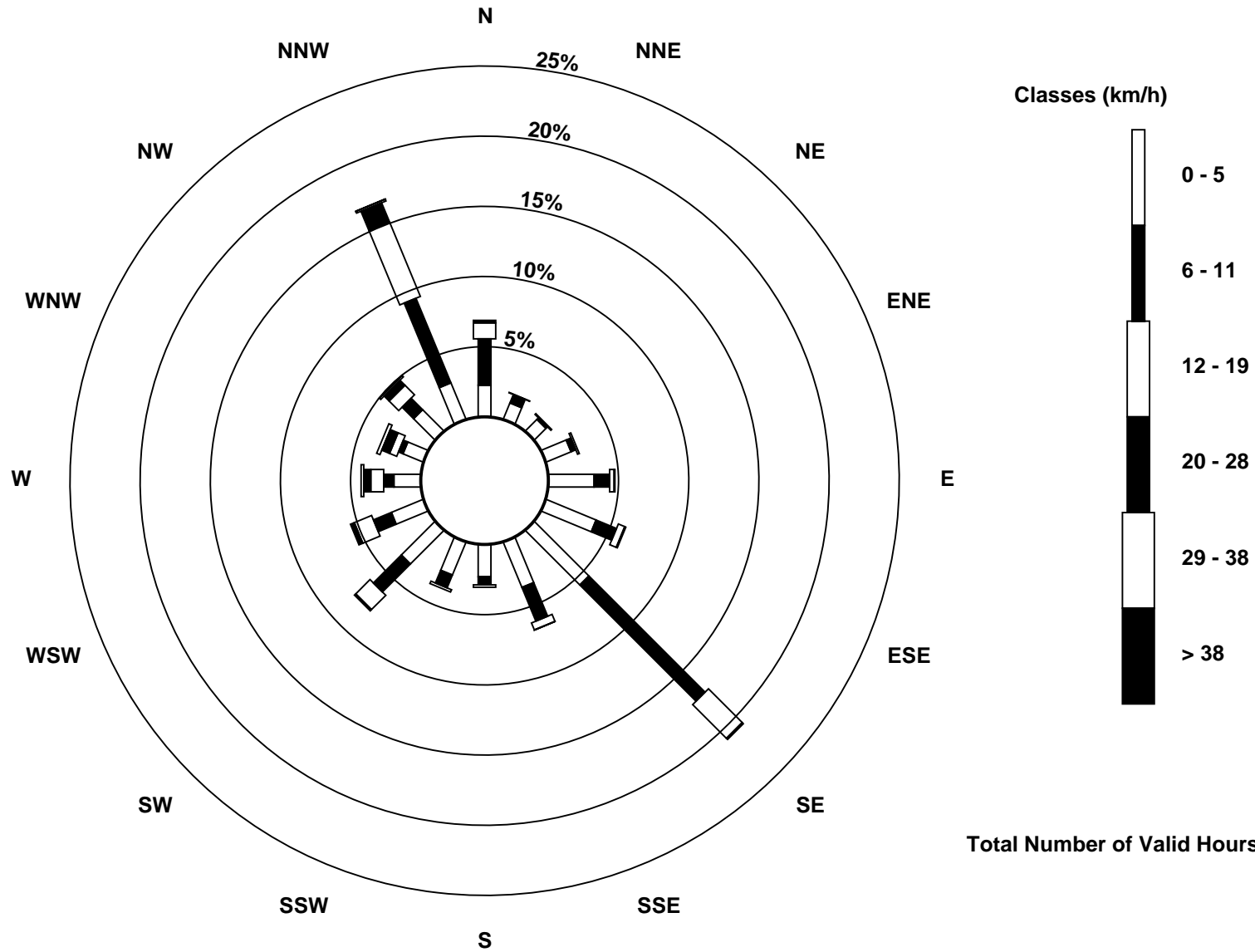
Wind Speed (WS) - km/h
 Patricia McInnes (AMS 6)



Total Number of Valid Hours: 8709

**Wood Buffalo Environmental Association
Wind Rose 2013**

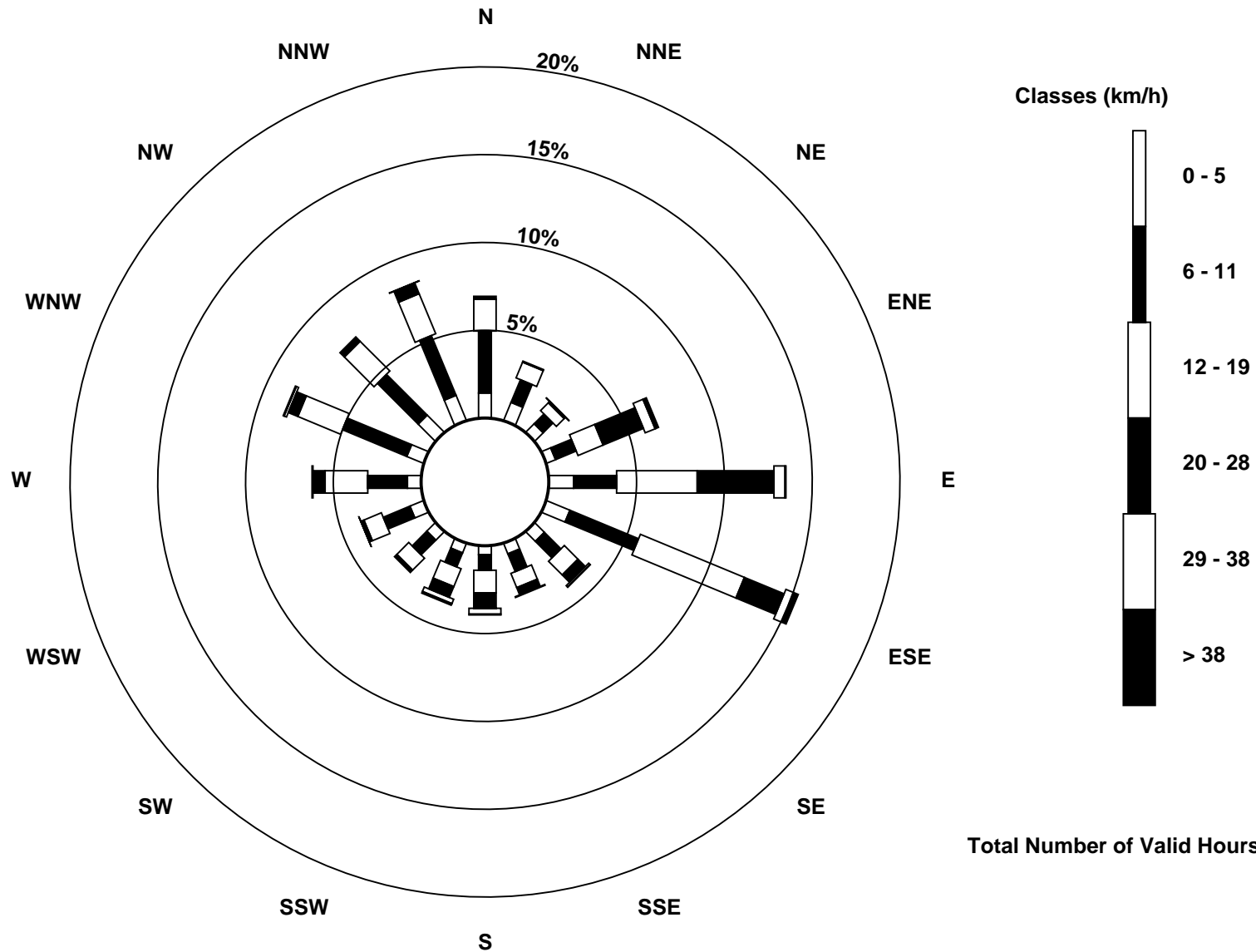
**Wind Speed (WS) - km/h
Athabasca Valley (AMS 7)**



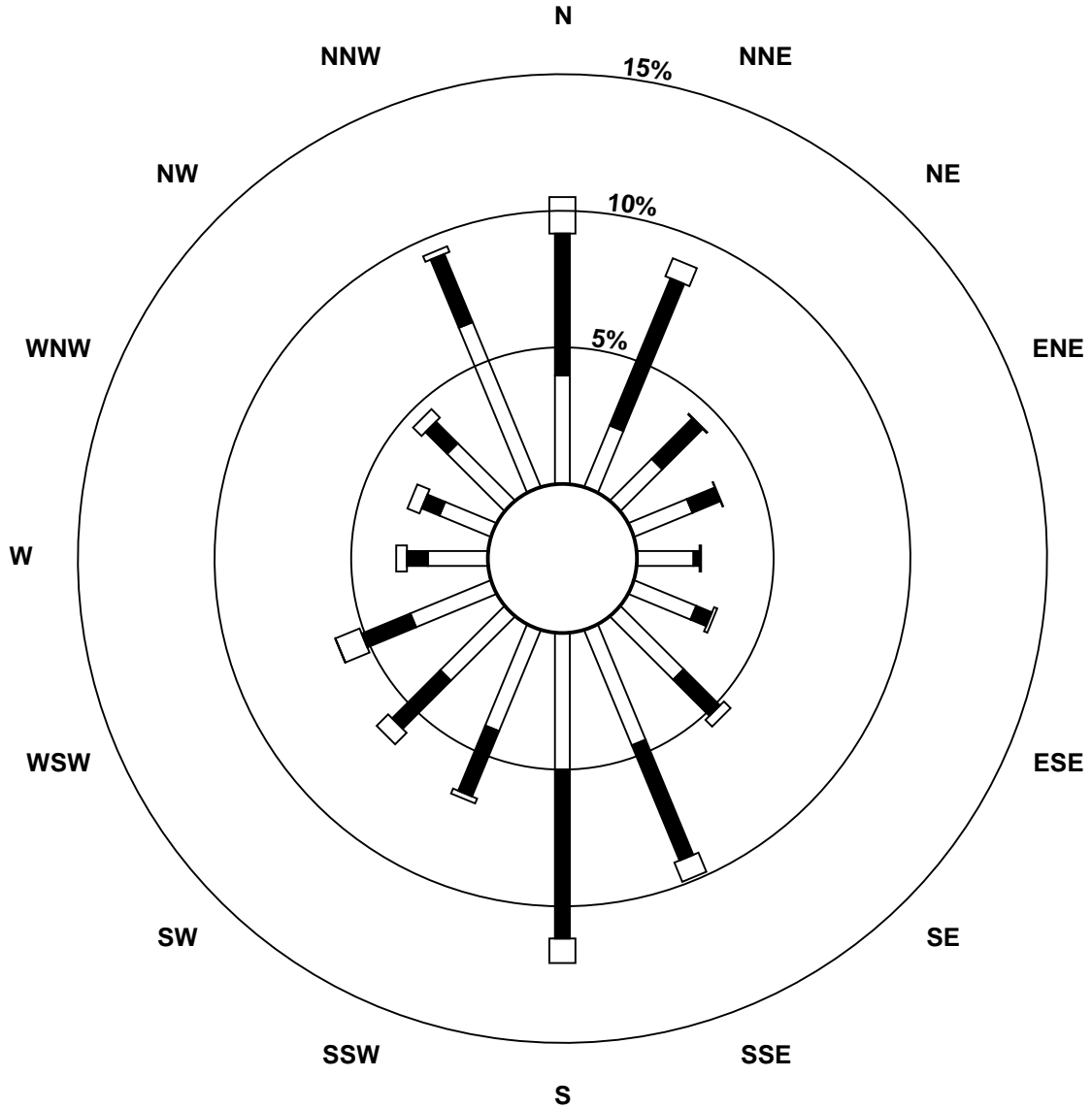
Total Number of Valid Hours: 8696

Wood Buffalo Environmental Association
 Wind Rose 2013

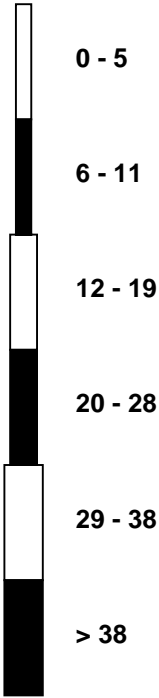
Wind Speed (WS) - km/h
 Fort Chipeywan (AMS 8)



Total Number of Valid Hours: 8555



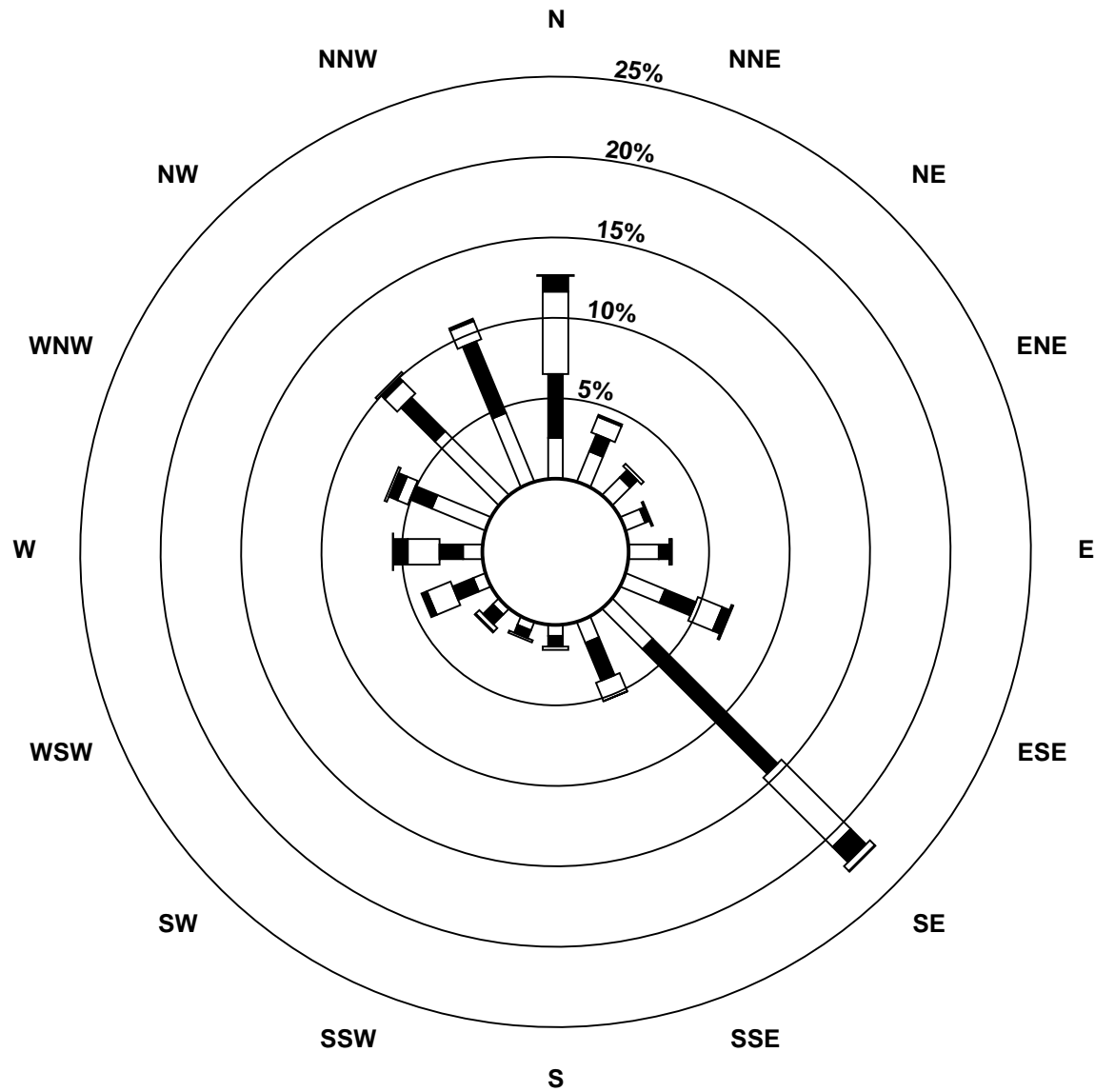
Classes (km/h)



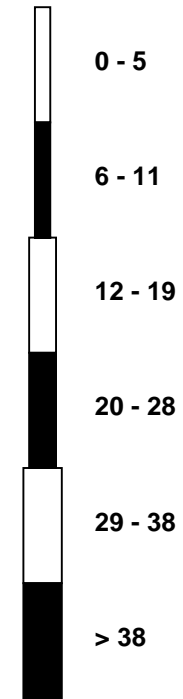
Total Number of Valid Hours: 8704

**Wood Buffalo Environmental Association
Wind Rose 2013**

**Wind Speed (WS) - km/h
Lower Camp (AMS 11)**



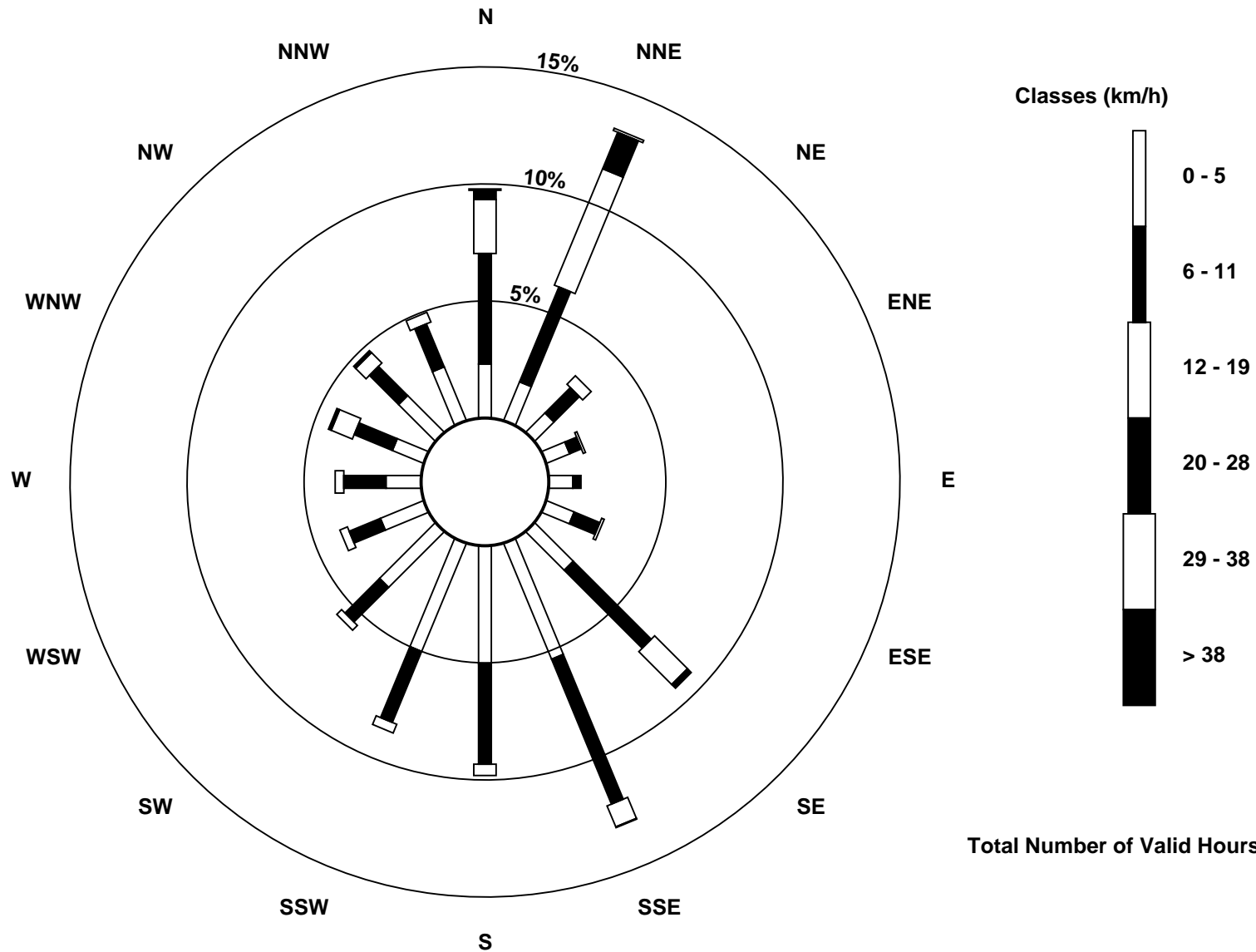
Classes (km/h)



Total Number of Valid Hours: 8707

Wood Buffalo Environmental Association
 Wind Rose 2013

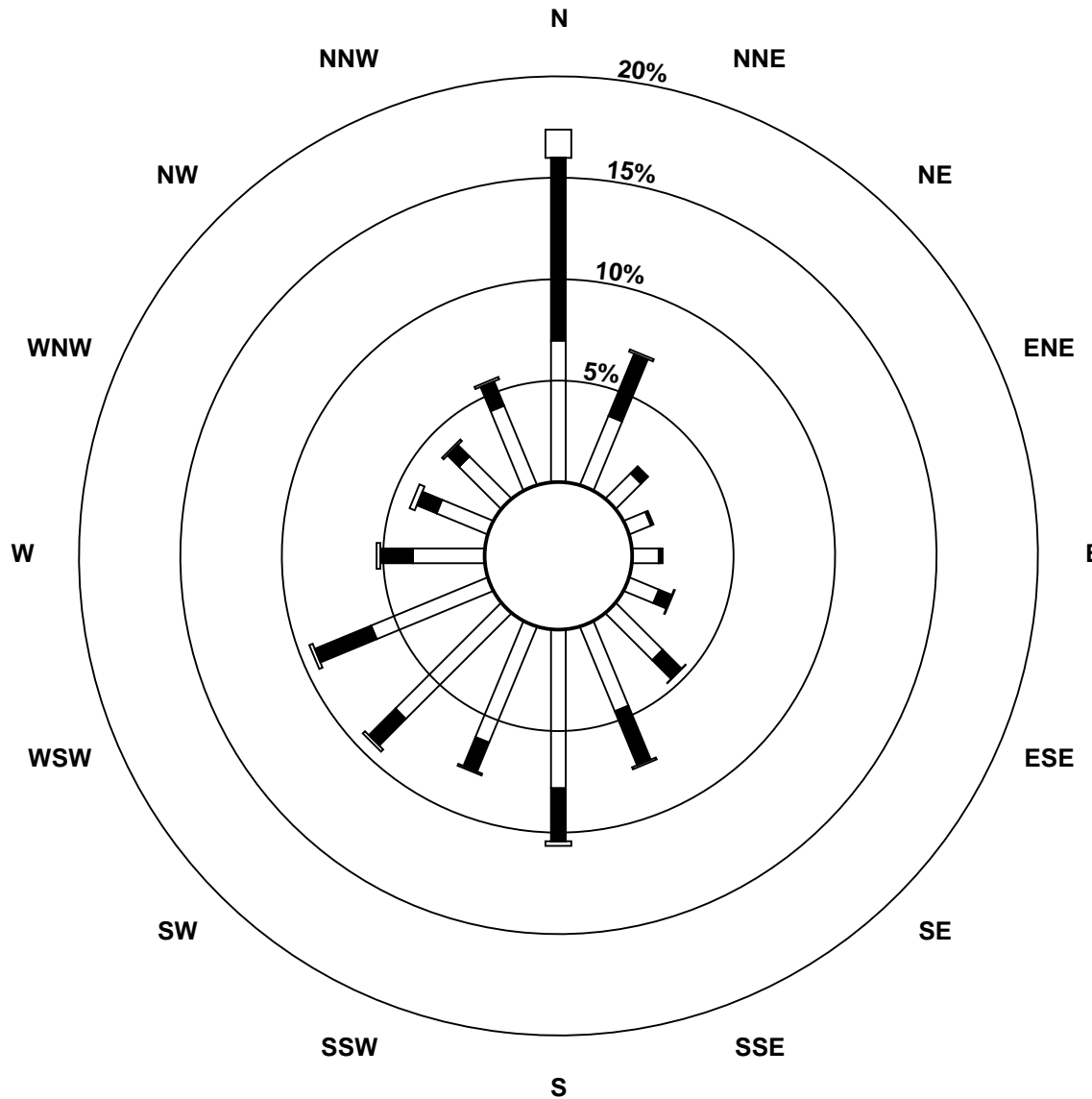
Wind Speed (WS) - km/h
 Millennium (AMS 12)



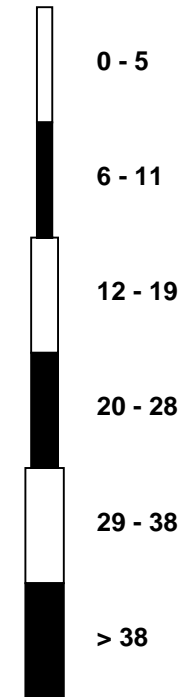
Total Number of Valid Hours: 8663

Wood Buffalo Environmental Association
Wind Rose 2013

Wind Speed (WS) - km/h
Fort McKay South (AMS 13)



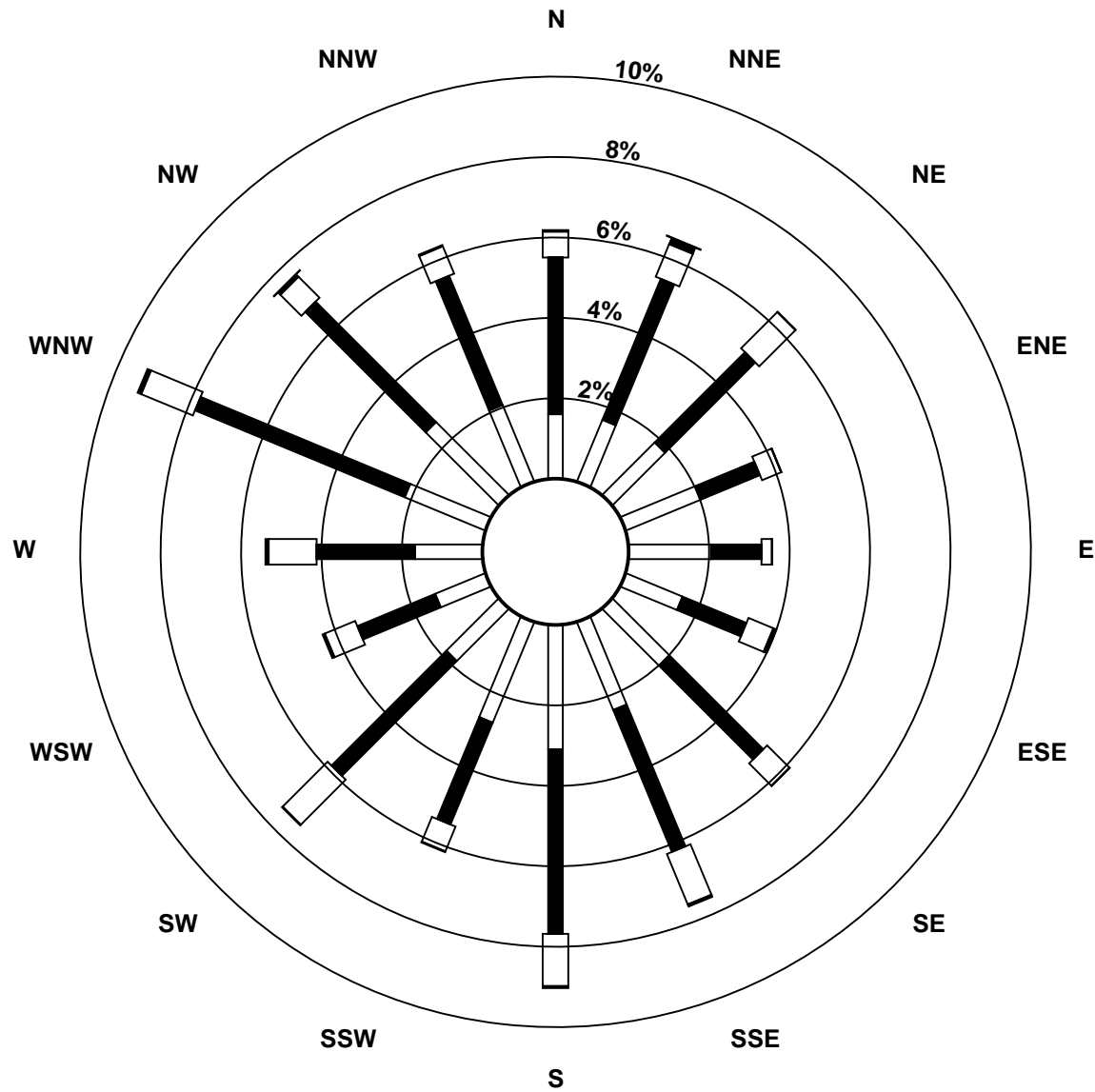
Classes (km/h)



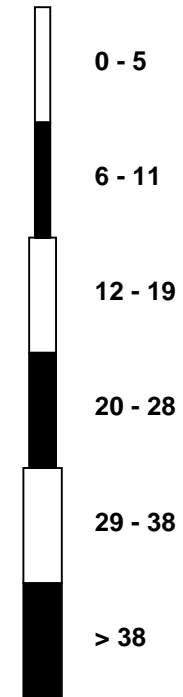
Total Number of Valid Hours: 8485

Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed (WS) - km/h
 Anzac (AMS 14)



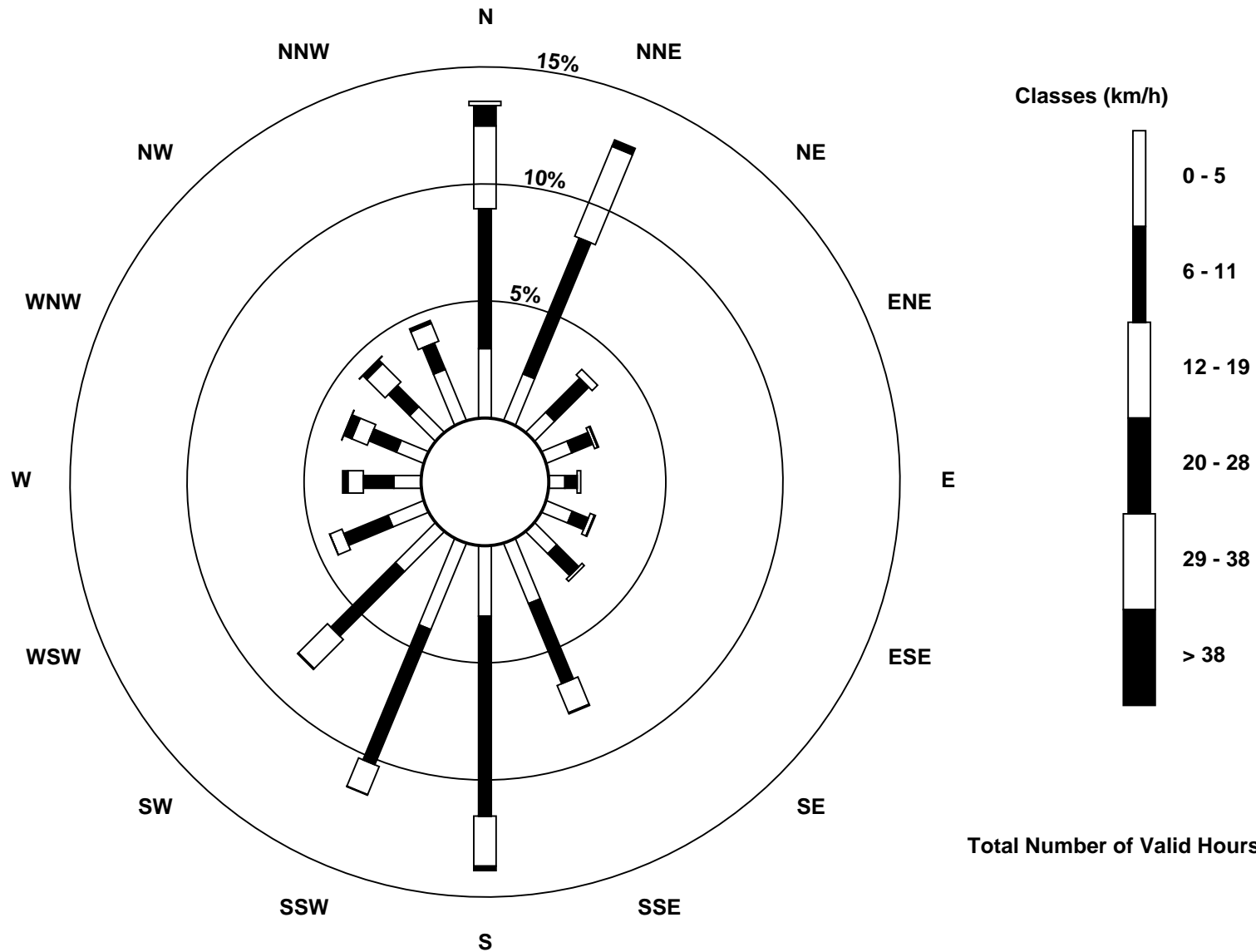
Classes (km/h)



Total Number of Valid Hours: 8541

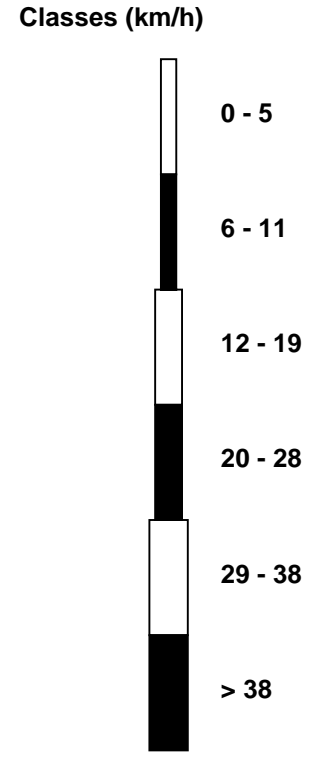
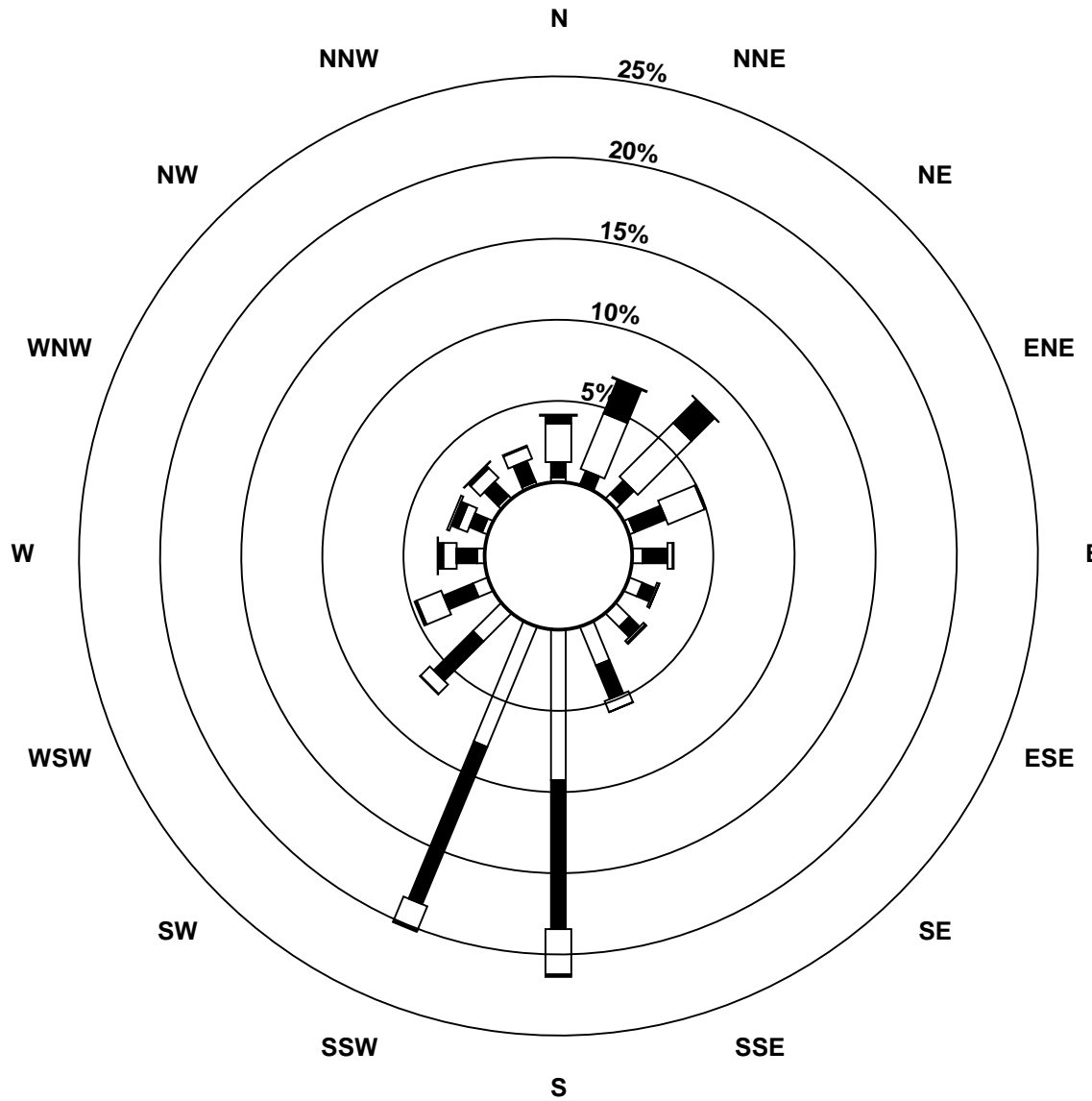
Wood Buffalo Environmental Association
Wind Rose 2013

Wind Speed (WS) - km/h
CNRL Horizon (AMS 15)



Wood Buffalo Environmental Association
 Wind Rose 2013

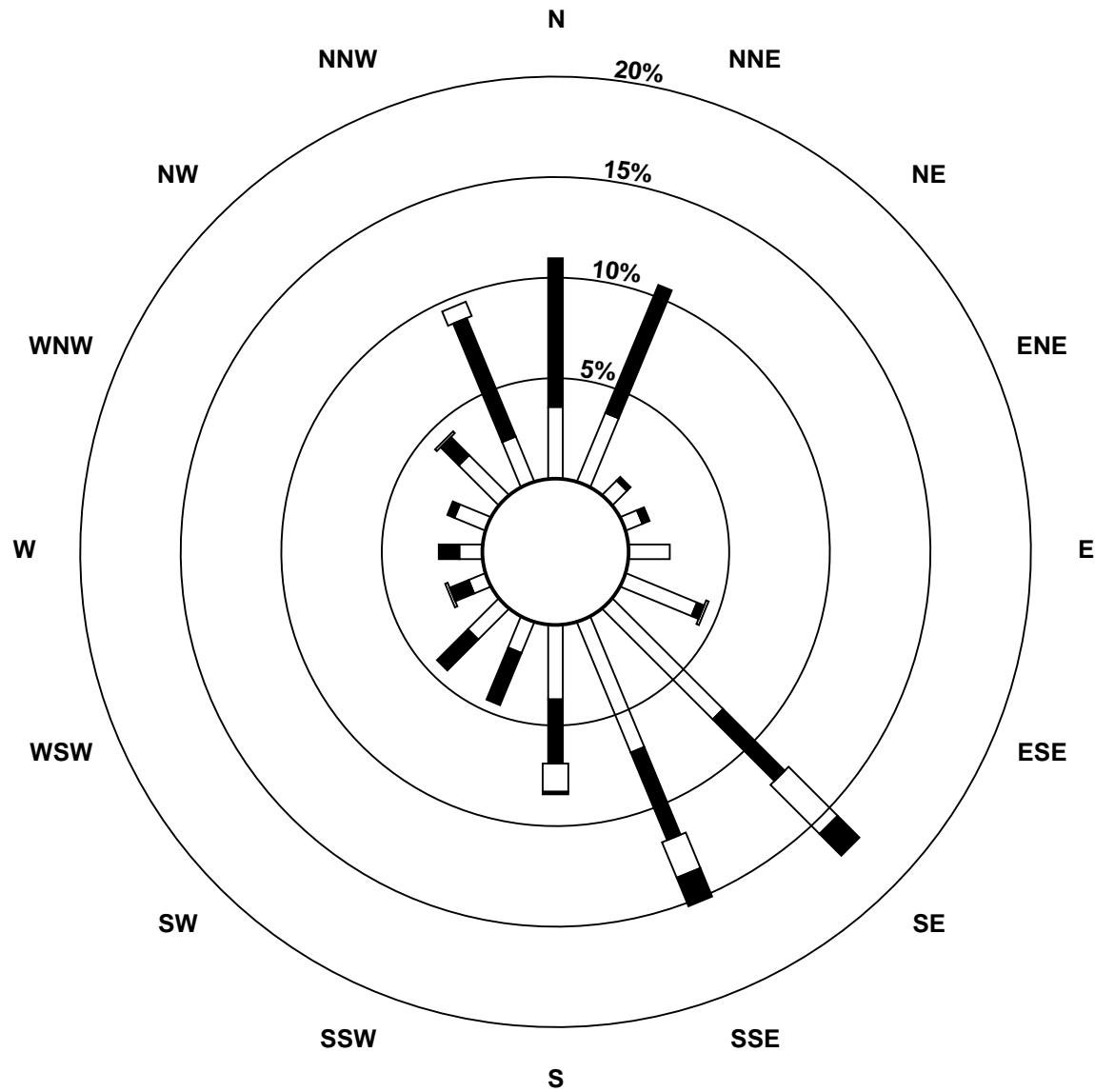
Wind Speed (WS) - km/h
 Shell Muskeg River (AMS 16)



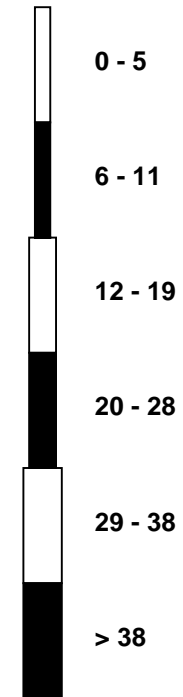
Total Number of Valid Hours: 8588

Wood Buffalo Environmental Association
 Wind Rose 2013

Wind Speed (WS) - km/h
 Wapasu (AMS 17)



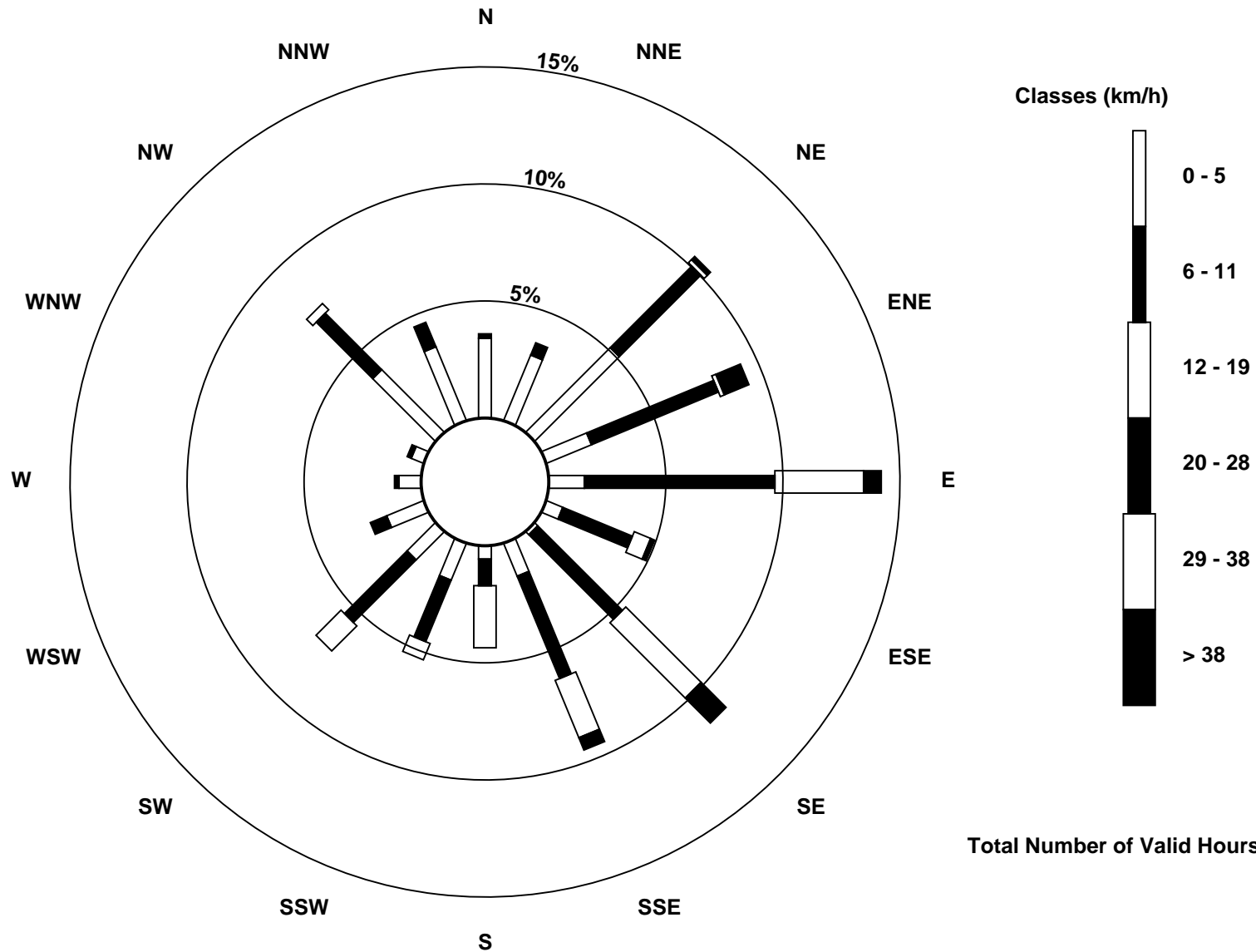
Classes (km/h)



Total Number of Valid Hours: 784

Wood Buffalo Environmental Association
 Wind Rose Jan 01 2013 - Jan 23 2013

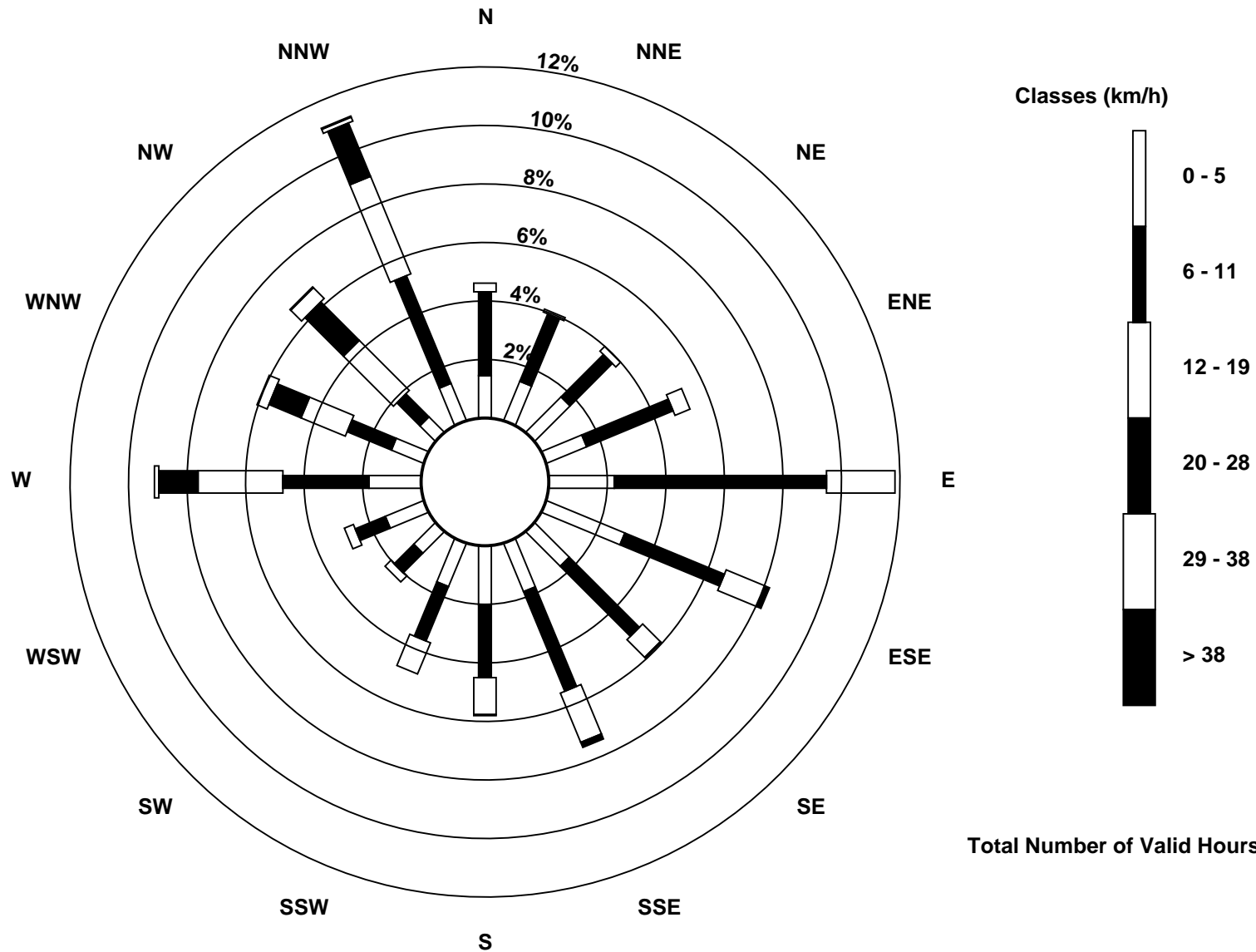
Wind Speed (WS) - km/h
 AMS 101 Portable (AMS 101) Christina Lake



Total Number of Valid Hours: 528

Wood Buffalo Environmental Association
 Wind Rose Apr 23 2013 - Aug 14 2013

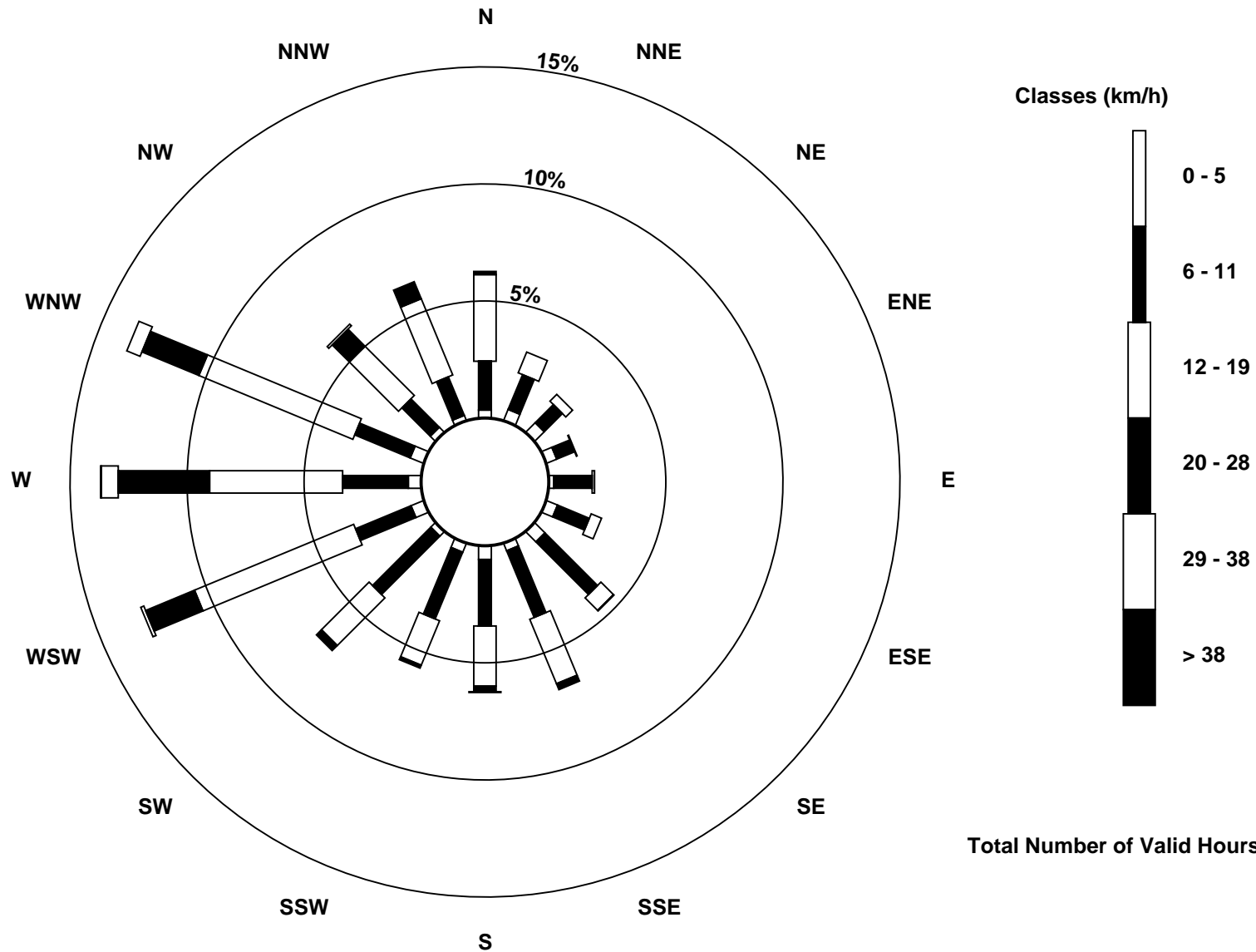
Wind Speed (WS) - km/h
 AMS 101 Portable (AMS 101) Statoil Leismer



Total Number of Valid Hours: 2688

Wood Buffalo Environmental Association
 Wind Rose Jul 03 2013 - Nov 04 2013

Wind Speed (WS) - km/h
 AMS 102 Portable (AMS102) Surmont



Total Number of Valid Hours: 2921

This page intentionally left blank

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Passive Samples: Maxxam Analytics Ltd
Edmonton, Alberta

Volatile Organic Compounds: Alberta Innovates - Technology Futures
Reduced Sulphur compounds: Vegreville, Alberta

Particulate Matter: ALS Canada Ltd
Burlington, Ontario

Poly Aromatic Hydrocarbons: Air Zone One Incorporated
Mississauga, Ontario

Precipitation: Alberta Innovates - Technology Futures
Vegreville, Alberta

DATA SUMMARY

Aurora Atmospherics Inc.
Calgary, Alberta

This page intentionally left blank

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Passive Samples: Maxxam Analytics Ltd
Edmonton, Alberta

DATA SUMMARY

Aurora Atmospherics Inc.
Calgary, Alberta

This page intentionally left blank



December 2012 - February 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Passive Monitoring Results
Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	8-Dec-12	2-Feb-13	Sample	10.5	11.0	1.2
			Sample	12.2	10.6	1.0
			Sample	10.5	12.7	1.0
			Average	11.1	11.4	1.1
AMS 2 - Mildred Lake	8-Dec-12	2-Feb-13	Sample	12.8	13.6	1.7
			Sample	13.6	13.0	1.6
			Sample	15.7	14.5	1.7
			Average	14.0	13.7	1.7
AMS 6 - Patricia McInnes	8-Dec-12	2-Feb-13	Sample	9.6	15.1	1.9
			Sample	8.9	16.2	2.2
			Sample	10.2	15.0	2.4
			Average	9.6	15.4	2.2
AMS 8 - Fort Chipewyan	8-Dec-12	2-Feb-13	Sample	0.7	28.8	1.2
			Sample	0.7	27.2	1.0
			Sample	0.8	27.4	1.1
			Average	0.7	27.8	1.1
AMS 14 - Anzac	7-Dec-12	2-Feb-13	Sample	4.0	16.3	1.6
			Sample	4.8	18.1	1.7
			Sample	5.4	18.7	1.8
			Average	4.7	17.7	1.7



February - April 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	2-Feb-13	4-Apr-13	Sample	3.5	24.1	3.0
			Sample	3.4	21.9	3.3
			Sample	2.1	26.5	3.4
			Average	3.0	24.2	3.2
AMS 2 - Mildred Lake	4-Feb-13	9-Apr-13	Sample	4.2	24.1	3.5
			Sample	5.0	22.1	3.5
			Sample	4.0	24.8	3.1
			Average	4.4	23.7	3.4
AMS 6 - Patricia McInnes	7-Feb-13	10-Apr-13	Sample	1.8	29.7	2.6
			Sample	2.5	26.7	2.4
			Sample	2.4	25.8	2.7
			Average	2.2	27.4	2.6
AMS 8 - Fort Chipewyan	13-Feb-13	10-Apr-13	Sample	0	34.9	0.5
			Sample	0	30	0.6
			Sample	0	33.2	0.6
			Average	0.0	32.7	0.6
AMS 14 - Anzac	4-Feb-13	5-Apr-13	Sample	0.5	32.0	1.4
			Sample	0.7	32.1	1.4
			Sample	0.4	32.9	1.6
			Average	0.5	32.3	1.5



April 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	4-Apr-13	1-May-13	Sample	1.5	31.1	0.6
			Sample	1.4	31.4	0.6
			Sample	1.5	30.2	0.6
			Average	1.5	30.9	0.6
AMS 2 - Mildred Lake	9-Apr-13	1-May-13	Sample	3.6	29.0	0.8
			Sample	3.0	29.9	0.8
			Sample	3.2	31.9	0.8
			Average	3.3	30.3	0.8
AMS 6 - Patricia McInnes	9-Apr-13	5-May-13	Sample	MISSING	29.0	0.9
			Sample	1.4	29.2	0.9
			Sample	1.5	29.7	0.8
			Average	1.5	29.3	0.9
AMS 8 - Fort Chipewyan	10-Apr-13	20-May-13	Sample	0.1	38.6	0.2
			Sample	0	35	0.2
			Sample	0.4	34.7	0.2
			Average	0.2	36.1	0.2
AMS 14 - Anzac	5-Apr-13	1-May-13	Sample	0.6	35.9	0.4
			Sample	0.9	34.1	0.4
			Sample	0.9	34.9	0.4
			Average	0.8	35.0	0.4



May 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	1-May-13	31-May-13	Sample	2.4	35.5	0.9
			Sample	1.5	34.1	0.9
			Sample	2.3	38.8	1.0
			Average	2.1	36.1	0.9
AMS 2 - Mildred Lake	1-May-13	31-May-13	Sample	2.9	29.7	1.4
			Sample	3.3	29.5	1.5
			Sample	3.1	29.1	1.3
			Average	3.1	29.4	1.4
AMS 6 - Patricia McInnes	5-May-13	1-Jun-13	Sample	1.7	36.3	0.7
			Sample	1.2	35.8	1.0
			Sample	1.3	35.9	0.9
			Average	1.4	36.0	0.9
AMS 8 - Fort Chipewyan	20-May-13	13-Jun-13	Sample	0	33.9	0
			Sample	0.1	38.9	0
			Sample	0.1	34.9	0
			Average	0.1	35.9	0.0
AMS 14 - Anzac	1-May-13	31-May-13	Sample	0.5	29.6	0.9
			Sample	0.5	32.2	0.8
			Sample	0.5	33.7	0.7
			Average	0.5	31.8	0.8



June 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	31-May-13	27-Jun-13	Sample	1.0	20.4	1.2
			Sample	1.2	22.4	1.1
			Sample	0.9	24.1	1.2
			Average	1.0	22.3	1.2
AMS 2 - Mildred Lake	31-May-13	27-Jun-13	Sample	2.2	24.9	0.9
			Sample	2.5	20.2	MISSING
			Sample	2.9	23.0	1.1
			Average	2.5	22.7	1.0
AMS 6 - Patricia McInnes	1-Jun-13	28-Jun-13	Sample	1.4	23.4	0.8
			Sample	1.0	27.8	1.1
			Sample	1.1	25.0	1.0
			Average	1.2	25.4	1.0
AMS 8 - Fort Chipewyan	13-Jun-13	17-Jul-13	Sample	0	29.9	0.3
			Sample	0	33.9	0.4
			Sample	0	29.1	0.4
			Average	0.0	31.0	0.4
AMS 14 - Anzac	31-May-13	28-Jun-13	Sample	0.3	19.9	0.3
			Sample	0.4	19.9	0.3
			Sample	0.5	17.7	0.5
			Average	0.4	19.2	0.4



July 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	27-Jun-13	31-Jul-13	Sample	1.1	18.0	1.1
			Sample	1.9	19.7	1.0
			Sample	1.2	18.7	1.1
			Average	1.4	18.8	1.1
AMS 2 - Mildred Lake	27-Jun-13	30-Jul-13	Sample	2.5	17.7	1.3
			Sample	2.5	18.4	1.4
			Sample	2.6	18.7	1.6
			Average	2.5	18.3	1.4
AMS 6 - Patricia McInnes	28-Jun-13	31-Jul-13	Sample	0.9	21.3	0.9
			Sample	1.4	22.0	0.6
			Sample	0.9	23.1	0.8
			Average	1.1	22.1	0.8
AMS 8 - Fort Chipewyan	17-Jul-13	6-Aug-13	Sample	0	27.2	0.3
			Sample	0.1	27.2	0.3
			Sample	0.9	23.6	0.2
			Average	0.3	26.0	0.3
AMS 14 - Anzac	28-Jun-13	30-Jul-13	Sample	0.3	20.0	0.3
			Sample	0.6	18.7	0.5
			Sample	0.4	19.6	0.3
			Average	0.4	19.4	0.4



August 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	31-Jul-13	29-Aug-13	Sample	2.6	14.9	1.7
			Sample	2.0	14.6	1.8
			Sample	1.7	17.2	1.8
			Average	2.1	15.6	1.8
AMS 2 - Mildred Lake	30-Jul-13	29-Aug-13	Sample	5.4	14.0	2.2
			Sample	3.9	15.8	2.1
			Sample	4.8	13.7	2.5
			Average	4.7	14.5	2.3
AMS 6 - Patricia McInnes	31-Jul-13	28-Aug-13	Sample	1.6	16.7	1.4
			Sample	1.8	19.3	1.1
			Sample	1.7	19.6	1.1
			Average	1.7	18.5	1.2
AMS 8 - Fort Chipewyan	6-Aug-13	4-Sep-13	Sample	0.7	25.8	0.5
			Sample	0.7	28.3	0.5
			Sample	0.5	25.3	0.5
			Average	0.6	26.5	0.5
AMS 14 - Anzac	30-Jul-13	29-Aug-13	Sample	1.8	16.1	0.6
			Sample	0.9	20.1	0.8
			Sample	0.7	17.3	0.4
			Average	1.1	17.8	0.6



September 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	29-Aug-13	27-Sep-13	Sample	1.6	12.4	1.6
			Sample	2.0	14.7	1.6
			Sample	2.5	12.8	1.5
			Average	2.0	13.3	1.6
AMS 2 - Mildred Lake	29-Aug-13	27-Sep-13	Sample	3.9	13.1	2.2
			Sample	3.7	14.9	0.3
			Sample	4.4	13.4	2.3
			Average	4.0	13.8	1.6
AMS 6 - Patricia McInnes	28-Aug-13	26-Sep-13	Sample	1.6	20.6	1.3
			Sample	1.3	18.3	1.0
			Sample	1.6	18.8	1.2
			Average	1.5	19.2	1.2
AMS 8 - Fort Chipewyan	4-Sep-13	2-Oct-13	Sample	0.4	22.7	2.3
			Sample	0.4	19	0.3
			Sample	0.7	22.5	0.4
			Average	0.5	21.4	1.0
AMS 14 - Anzac	28-Aug-13	26-Sep-13	Sample	0.5	17.2	0.3
			Sample	0.4	20.1	0.3
			Sample	0.6	19.1	0.4
			Average	0.5	18.8	0.3



October 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	29-Aug-13	30-Oct-13	Sample	4.9	10.0	0.7
			Sample	4.1	10.4	0.7
			Sample	2.8	10.4	0.8
			Average	3.9	10.3	0.7
AMS 2 - Mildred Lake	27-Sep-13	30-Oct-13	Sample	9.8	10.2	1.5
			Sample	5.0	10.0	1.5
			Sample	6.6	9.8	1.5
			Average	7.1	10.0	1.5
AMS 6 - Patricia McInnes	26-Sep-13	30-Oct-13	Sample	2.8	13.8	1.2
			Sample	4.0	12.9	1.0
			Sample	2.6	12.8	0.9
			Average	3.1	13.2	1.0
AMS 8 - Fort Chipewyan	2-Oct-13	5-Nov-13	Sample	0.3	22.1	0.6
			Sample	0.3	17.2	0.4
			Sample	0.4	19.1	0.5
			Average	0.3	19.5	0.5
AMS 14 - Anzac	26-Sep-13	30-Oct-13	Sample	1.1	13	0.5
			Sample	1	13	0.7
			Sample	1.1	13.5	0.7
			Average	1.1	13.2	0.6



November 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	30-Oct-13	26-Nov-13	Sample	9.0	14.0	1.0
			Sample	8.3	14.8	0.9
			Sample	9.9	14.3	1.0
			Average	9.1	14.4	1.0
AMS 2 - Mildred Lake	30-Oct-13	26-Nov-13	Sample	14.4	16.3	2.4
			Sample	9.9	14.5	2.2
			Sample	15.0	14.5	1.6
			Average	13.1	15.1	2.1
AMS 6 - Patricia McInnes	30-Oct-13	27-Nov-13	Sample	10.0	19.5	0.9
			Sample	5.6	17.8	0.8
			Sample	8.4	17.6	0.8
			Average	8.0	18.3	0.8
AMS 8 - Fort Chipewyan	5-Nov-13	3-Dec-13	Sample	1.3	23.5	0.5
			Sample	1.3	23.9	0.5
			Sample	1	25.8	0.6
			Average	1.2	24.4	0.5
AMS 14 - Anzac	30-Oct-13	27-Nov-13	Sample	2.2	21.9	0.5
			Sample	2.1	21.4	0.5
			Sample	3.6	20.5	0.5
			Average	2.6	21.3	0.5



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Passive Monitoring Results
Continuous Air Monitoring Stations

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AMS 1 - Fort McKay	8-Dec-12	26-Nov-13	Average	3.4	17.9	1.2
AMS 2 - Mildred Lake	8-Dec-12	26-Nov-13	Average	5.3	19.1	1.6
AMS 6 - Patricia McInnes	8-Dec-12	27-Nov-13	Average	3.1	22.5	1.2
AMS 8 - Fort Chipewyan	8-Dec-12	3-Dec-13	Average	0.4	28.1	0.5
AMS 14 - Anzac	7-Dec-12	27-Nov-13	Average	1.3	22.7	0.7

This page intentionally left blank



December 2012 - February 2013
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	7-Dec-12	6-Feb-13	Sample	3.5	19.7	1.4
			Sample	3.9	22.8	1.9
			Average	3.7	21.3	1.7
AH7	6-Dec-12	6-Feb-13	Sample	3.6	20.0	2.8
			Sample	3.9	22.9	3.1
			Average	3.8	21.5	3.0
AH8-R	7-Dec-12	6-Feb-13	Sample	2.3	16.6	1.4
			Sample	2.2	18.7	1.2
			Average	2.3	17.7	1.3
BM7	5-Dec-12	6-Feb-13	Sample	0.2	27.9	0.6
BM10	5-Dec-12	6-Feb-13	Sample	1.0	21.7	1.0
BM11	5-Dec-12	6-Feb-13	Sample	0.5	23.7	1.2
JP101 (JPL1)	6-Dec-12	6-Feb-13	Sample	2.0	MISSING	2.2
			Sample	3.0	20.9	2.6
			Average	2.5	20.9	2.4
JP102 (JPH2)	7-Dec-12	6-Feb-13	Sample	6.6	15.8	1.4
			Sample	6.4	14.8	1.3
			Average	6.5	15.3	1.4
JP104 (JPH4)	7-Dec-12	6-Feb-13	Sample	10.0	13.4	1.7
			Sample	10.0	13.3	1.8
			Average	10.0	13.4	1.8
JP107 (JPL7)	5-Dec-12	6-Feb-13	Sample	5.2	21.1	2.5
			Sample	4.1	19.0	2.1
			Average	4.7	20.1	2.3
JP108 (JPL8)	6-Dec-12	6-Feb-13	Sample	0.7	21.6	0.4
			Sample	0.7	19.6	0.4
			Average	0.7	20.6	0.4
JP205 (205)	5-Dec-12	6-Feb-13	Sample	0.9	25.2	1.7
			Sample	0.9	24.8	1.3
			Average	0.9	25.0	1.5
JP210 (210)	6-Dec-12	6-Feb-13	Sample	1.7	21.5	1.6
			Sample	1.7	21.8	1.7
			Average	1.7	21.7	1.7
JP212	7-Dec-12	6-Feb-13	Sample	8.4	14.5	1.0
JP213 (213)	5-Dec-12	6-Feb-13	Sample	0.8	26.3	1.1
			Sample	0.5	23.8	1.0
			Average	0.7	25.1	1.1
NE7	5-Dec-12	6-Feb-13	Sample	5.4	25.4	2.0
NE10	6-Dec-12	6-Feb-13	Sample	0.7	22.8	0.7
NE11	5-Dec-12	6-Feb-13	Sample	3.0	16.1	1.2
R2	7-Dec-12	6-Feb-13	Sample	11.7	13.5	1.5
SM7	6-Dec-12	6-Feb-13	Sample	1.1	25.8	1.2
SM8	6-Dec-12	6-Feb-13	Sample	1.1	24.8	1.9
WF4	7-Dec-12	6-Feb-13	Sample	2.7	15.5	1.4
JP316	6-Dec-12	6-Feb-13	Sample	1.2	24.9	1.3
			Sample	1.2	25.1	1.3
			Average	1.2	25.0	1.3



February 2013 - March 2013
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Passive Monitoring Results
Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	5-Feb-13	2-Apr-13	Sample	0.6	34.3	1.1
			Sample	0.4	34.5	1.3
			Average	0.5	34.4	1.2
AH7	6-Feb-13	8-Apr-13	Sample	1.1	34.6	3.2
			Sample	0.9	34.0	2.7
			Average	1.0	34.3	3.0
AH8-R	6-Feb-13	8-Apr-13	Sample	1.1	25.8	1.1
			Sample	0.9	25.3	1.0
			Average	1.0	25.6	1.1
BM7	5-Feb-13	2-Apr-13	Sample	0.0	39.4	0.7
BM10	5-Feb-13	2-Apr-13	Sample	0.0	27.6	1.1
BM11	5-Feb-13	2-Apr-13	Sample	0.0	34.0	1.2
JP101 (JPL1)	6-Feb-13	8-Apr-13	Sample	0.6	34.1	1.4
			Sample	MISSING	36.7	1.5
			Average	0.6	35.4	1.5
JP102 (JPH2)	6-Feb-13	8-Apr-13	Sample	2.0	32.4	1.8
			Sample	1.8	28.0	1.6
			Average	1.9	30.2	1.7
JP104 (JPH4)	1-Feb-13	3-Apr-13	Sample	5.4	27.5	2.2
			Sample	5.5	24.0	2.4
			Average	5.5	25.8	2.3
JP107 (JPL7)	5-Feb-13	2-Apr-13	Sample	0.6	30.0	1.5
			Sample	0.7	31.7	1.4
			Average	0.7	30.9	1.5
JP108 (JPL8)	1-Feb-13	8-Apr-13	Sample	0.0	27.1	0.4
			Sample	0.0	30.0	0.3
			Average	0.0	28.6	0.4
JP205 (205)	5-Feb-13	2-Apr-13	Sample	0.0	32.8	0.7
			Sample	0.0	DAMAGED	0.8
			Average	0.0	32.8	0.8
JP210 (210)	1-Feb-13	3-Apr-13	Sample	0.1	34.2	0.7
			Sample	0.3	32.5	0.8
			Average	0.2	33.4	0.8
JP212	6-Feb-13	2-Apr-13	Sample	1.6	23.6	2.0
JP213 (213)	1-Feb-13	8-Apr-13	Sample	0.0	33.1	0.5
			Sample	0.0	34.4	0.7
			Average	0.0	33.8	0.6
NE7	5-Feb-13	2-Apr-13	Sample	0.0	33.9	1.3
NE10	1-Feb-13	8-Apr-13	Sample	0.0	27.6	0.6
NE11	5-Feb-13	2-Apr-13	Sample	0.5	25.6	1.2
R2	1-Feb-13	3-Apr-13	Sample	2.2	21.5	1.8
SM7	6-Feb-13	3-Apr-13	Sample	0.0	32.7	0.8
SM8	6-Feb-13	3-Apr-13	Sample	0.0	32.6	0.9
WF4	5-Feb-13	8-Apr-13	Sample	0.0	26.9	1.6
JP316	1-Feb-13	3-Apr-13	Sample	0.1	34.4	0.9
			Sample	0.0	38.4	0.8
			Average	0.1	36.4	0.9



April 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	8-Apr-13	2-May-13	Sample	0.2	44.3	0.7
			Sample	0.3	41.8	0.6
			Average	0.3	43.1	0.7
AH7	8-Apr-13	3-May-13	Sample	0.9	38.2	2.1
			Sample	1.3	38.5	2.4
			Average	1.1	38.4	2.3
AH8-R	8-Apr-13	4-May-13	Sample	0.8	36.3	0.3
			Sample	0.3	36.0	0.3
			Average	0.6	36.2	0.3
BM7	2-Apr-13	4-May-13	Sample	0.0	44.3	0.1
BM10	2-Apr-13	4-May-13	Sample	0.0	31.7	0.1
BM11	2-Apr-13	4-May-13	Sample	0.0	30.4	0.2
JP101 (JPL1)	8-Apr-13	8-Apr-13	Sample	0.2	46.7	1.0
			Sample	0.7	MISSING	MISSING
			Average	0.5	46.7	1.0
JP102 (JPH2)	8-Apr-13	2-May-13	Sample	1.8	37.8	1.5
			Sample	2.1	34.3	MISSING
			Average	2.0	36.1	1.5
JP104 (JPH4)	3-Apr-13	4-May-13	Sample	3.1	34.3	0.3
			Sample	4.0	34.0	0.4
			Average	3.6	34.2	0.4
JP107 (JPL7)	2-Apr-13	4-May-13	Sample	0.0	35.9	0.5
			Sample	0.2	37.2	0.4
			Average	0.1	36.6	0.5
JP108 (JPL8)	8-Apr-13	3-May-13	Sample	0.0	33.9	0.0
			Sample	0.0	32.7	0.0
			Average	0.0	33.3	0.0
JP205 (205)	2-Apr-13	4-May-13	Sample	0.0	39.2	0.0
			Sample	0.0	41.3	0.1
			Average	0.0	40.3	0.1
JP210 (210)	3-Apr-13	2-May-13	Sample	0.0	38.9	0.2
			Sample	0.0	38.2	0.2
			Average	0.0	38.6	0.2
JP212	2-Apr-13	3-May-13	Sample	2.1	29.2	0.3
JP213 (213)	8-Apr-13	3-May-13	Sample	0.0	42.2	0.1
			Sample	0.0	45.0	0.0
			Average	0.0	43.6	0.1
NE7	2-Apr-13	3-May-13	Sample	0.2	35.8	0.3
NE10	8-Apr-13	3-May-13	Sample	0.0	36.5	0.0
NE11	2-Apr-13	3-May-13	Sample	0.5	30.9	0.2
R2	3-Apr-13	3-May-13	Sample	2.4	24.1	0.2
SM7	3-Apr-13	2-May-13	Sample	0.1	34.6	0.1
SM8	3-Apr-13	2-May-13	Sample	0.0	34.4	0.3
WF4	8-Apr-13	4-May-13	Sample	0.2	35.5	0.2
JP316	3-Apr-13	2-May-13	Sample	0.2	40.9	0.2
			Sample	0.0	40.5	0.1
			Average	0.1	40.7	0.2



May 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	2-May-13	5-Jun-13	Sample	0.4	35.3	0.5
			Sample	0.3	37.6	0.4
			Average	0.4	36.5	0.5
AH7	3-May-13	6-Jun-13	Sample	1.2	43.3	1.0
			Sample	0.8	38.7	0.8
			Average	1.0	41.0	0.9
AH8-R	4-May-13	7-Jun-13	Sample	0.6	31.5	0.9
			Sample	0.4	32.3	1.0
			Average	0.5	31.9	1.0
BM7	4-May-13	7-Jun-13	Sample	0.4	29.5	MISSING
BM10	4-May-13	7-Jun-13	Sample	0.3	26.2	0.8
BM11	4-May-13	7-Jun-13	Sample	0.5	26.8	0.3
JP101 (JPL1)	8-Apr-13	6-Jun-13	Sample	0.2	38.5	0.4
			Sample	MISSING	35.4	0.3
			Average	0.2	37.0	0.4
JP102 (JPH2)	2-May-13	6-Jun-13	Sample	1.0	33.9	1.2
			Sample	0.9	30.2	1.2
			Average	1.0	32.1	1.2
JP104 (JPH4)	4-May-13	6-Jun-13	Sample	1.7	30.6	1.0
			Sample	2.1	33.6	0.9
			Average	1.9	32.1	1.0
JP107 (JPL7)	4-May-13	7-Jun-13	Sample	0.2	33.3	0.4
			Sample	0.6	34.7	0.3
			Average	0.4	34.0	0.4
JP108 (JPL8)	3-May-13	5-Jun-13	Sample	0.2	28.9	0.2
			Sample	0.5	30.8	0.2
			Average	0.4	29.9	0.2
JP205 (205)	4-May-13	7-Jun-13	Sample	0.2	33.2	0.3
			Sample	MISSING	36.4	0.3
			Average	0.2	34.8	0.3
JP210 (210)	2-May-13	5-Jun-13	Sample	MISSING	31.2	0.2
			Sample	MISSING	29.4	0.2
			Average		30.3	0.2
JP212	3-May-13	6-Jun-13	Sample	1.9	25.5	0.7
JP213 (213)	3-May-13	5-Jun-13	Sample	0.2	37.2	0.2
			Sample	0.4	38.8	0.2
			Average	0.3	38.0	0.2
NE7	3-May-13	6-Jun-13	Sample	0.3	30.4	0.4
NE10	3-May-13	5-Jun-13	Sample	0.0	31.6	0.2
NE11	3-May-13	7-Jun-13	Sample	0.5	28.7	0.6
R2	3-May-13	6-Jun-13	Sample	1.5	25.5	0.8
SM7	2-May-13	5-Jun-13	Sample	0.8	31.2	0.2
SM8	2-May-13	5-Jun-13	Sample	0.3	29.2	0.4
WF4	4-May-13	7-Jun-13	Sample	0.5	23.0	2.5
JP316	2-May-13	5-Jun-13	Sample	0.0	36.4	0.2
			Sample	0.4	39.4	0.2
			Average	0.2	37.9	0.2



June 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	5-Jun-13	4-Jul-13	Sample	0.0	25.6	0.4
			Sample	0.2	22.8	0.3
			Average	0.1	24.2	0.4
AH7	6-Jun-13	4-Jul-13	Sample	0.5	28.7	1.0
			Sample	1.2	24.6	1.2
			Average	0.9	26.7	1.1
AH8-R	7-Jun-13	4-Jul-13	Sample	0.2	19.4	0.6
			Sample	0.2	22.6	0.3
			Average	0.2	21.0	0.5
BM7	7-Jun-13	3-Jul-13	Sample	0.0	23.4	0.3
BM10	7-Jun-13	4-Jul-13	Sample	0.1	18.5	0.4
BM11	7-Jun-13	3-Jul-13	Sample	0.0	20.2	0.4
JP101 (JPL1)	6-Jun-13	3-Jul-13	Sample	0.6	24.8	0.4
			Sample	0.2	25.0	0.8
			Average	0.4	24.9	0.6
JP102 (JPH2)	6-Jun-13	4-Jul-13	Sample	0.5	22.2	0.8
			Sample	MISSING	22.1	1.0
			Average	0.5	22.2	0.9
JP104 (JPH4)	6-Jun-13	5-Jul-13	Sample	2.6	21.1	1.5
			Sample	2.7	22.9	1.5
			Average	2.7	22.0	1.5
JP107 (JPL7)	7-Jun-13	3-Jul-13	Sample	0.5	25.2	0.6
			Sample	0.0	25.5	0.5
			Average	0.3	25.4	0.6
JP108 (JPL8)	5-Jun-13	3-Jul-13	Sample	0.6	19.3	0.2
			Sample	0.2	15.6	0.1
			Average	0.4	17.5	0.2
JP205 (205)	7-Jun-13	3-Jul-13	Sample	0.0	30.7	0.3
			Sample	MISSING	29.3	0.2
			Average	0.0	30.0	0.3
JP210 (210)	5-Jun-13	2-Jul-13	Sample	0.2	22.3	0.2
			Sample	0.0	21.6	0.2
			Average	0.1	22.0	0.2
JP212	6-Jun-13	4-Jul-13	Sample	2.4	16.3	1.4
JP213 (213)	5-Jun-13	3-Jul-13	Sample	0.5	29.1	0.2
			Sample	0.0	31.1	0.2
			Average	0.3	30.1	0.2
NE7	6-Jun-13	3-Jul-13	Sample	0.2	20.1	0.5
NE10	5-Jun-13	2-Jul-13	Sample	0.0	19.3	0.2
NE11	7-Jun-13	3-Jul-13	Sample	0.6	17.7	0.6
R2	6-Jun-13	5-Jul-13	Sample	2.1	15.0	1.4
SM7	5-Jun-13	2-Jul-13	Sample	0.2	24.2	0.3
SM8	5-Jun-13	2-Jul-13	Sample	0.0	21.7	0.3
WF4	7-Jun-13	4-Jul-13	Sample	0.4	13.5	4.6
JP316	5-Jun-13	2-Jul-13	Sample	0.3	26.5	0.3
			Sample	0.0	27.5	0.2
			Average	0.2	27.0	0.3



July 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	4-Jul-13	2-Aug-13	Sample	0.5	23.2	0.4
			Sample	0.5	21.7	0.5
			Average	0.5	22.5	0.5
AH7	4-Jul-13	7-Aug-13	Sample	1.2	22.6	1.0
			Sample	1.3	20.3	0.9
			Average	1.3	21.5	1.0
AH8-R	4-Jul-13	7-Aug-13	Sample	0.4	25.2	0.4
			Sample	0.7	20.9	0.4
			Average	0.6	23.1	0.4
BM7	3-Jul-13	2-Aug-13	Sample	0.2	19.8	0.2
BM10	4-Jul-13	7-Aug-13	Sample	0.1	15.5	0.2
BM11	3-Jul-13	2-Aug-13	Sample	0.6	16.8	0.4
JP101 (JPL1)	3-Jul-13	2-Aug-13	Sample	0.6	21.4	0.4
			Sample	0.8	22.0	0.3
			Average	0.7	21.7	0.4
JP102 (JPH2)	4-Jul-13	7-Aug-13	Sample	1.2	20.3	1.3
			Sample	1.6	18.9	1.4
			Average	1.4	19.6	1.4
JP104 (JPH4)	5-Jul-13	31-Jul-13	Sample	2.5	21.4	1.2
			Sample	2.0	20.7	1.2
			Average	2.3	21.1	1.2
JP107 (JPL7)	3-Jul-13	2-Aug-13	Sample	0.7	27.4	0.4
			Sample	0.3	21.2	0.3
			Average	0.5	24.3	0.4
JP108 (JPL8)	3-Jul-13	1-Aug-13	Sample	0.3	22.8	0.2
			Sample	0.1	22.0	0.1
			Average	0.2	22.4	0.2
JP205 (205)	3-Jul-13	2-Aug-13	Sample	0.2	23.8	0.2
			Sample	0.2	23.3	0.2
			Average	0.2	23.6	0.2
JP210 (210)	2-Jul-13	1-Aug-13	Sample	0.3	MISSING	0.3
			Sample	0.2	MISSING	0.4
			Average	0.3		0.4
JP212	4-Jul-13	7-Aug-13	Sample	1.7	14.1	1.0
JP213 (213)	3-Jul-13	1-Aug-13	Sample	0.6	25.6	0.3
			Sample	0.1	26.3	0.2
			Average	0.4	26.0	0.3
NE7	3-Jul-13	2-Aug-13	Sample	0.7	16.6	0.4
NE10	2-Jul-13	1-Aug-13	Sample	0.4	16.7	0.3
NE11	3-Jul-13	2-Aug-13	Sample	0.6	MISSING	0.6
R2	5-Jul-13	31-Jul-13	Sample	1.3	13.6	1.0
SM7	2-Jul-13	1-Aug-13	Sample	0.3	21.2	0.2
SM8	2-Jul-13	1-Aug-13	Sample	0.2	17.1	0.1
WF4	4-Jul-13	7-Aug-13	Sample	0.5	12.3	3.6
JP316	2-Jul-13	1-Aug-13	Sample	0.1	23.5	0.4
			Sample	1.1	27.1	0.3
			Average	0.6	25.3	0.4



August 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	2-Aug-13	6-Sep-13	Sample	0.5	21.7	0.4
			Sample	0.6	19.7	0.4
			Average	0.6	20.7	0.4
AH7	7-Aug-13	5-Sep-13	Sample	1.0	23.6	0.9
			Sample	0.9	21.1	1.1
			Average	1.0	22.4	1.0
AH8-R	7-Aug-13	6-Sep-13	Sample	0.3	20.1	0.4
			Sample	0.4	17.3	0.4
			Average	0.4	18.7	0.4
BM7	2-Aug-13	5-Sep-13	Sample	0.0	20.6	0.5
BM10	7-Aug-13	6-Sep-13	Sample	0.0	12.2	0.4
BM11	2-Aug-13	5-Sep-13	Sample	0.2	15.4	0.4
JP101 (JPL1)	2-Aug-13	5-Sep-13	Sample	0.1	21.2	0.9
			Sample	0.5	21.5	0.4
			Average	0.3	21.4	0.7
JP102 (JPH2)	7-Aug-13	5-Sep-13	Sample	0.7	18.7	1.2
			Sample	1.3	16.4	1.2
			Average	1.0	17.6	1.2
JP104 (JPH4)	31-Jul-13	29-Aug-13	Sample	2.1	20.3	0.0
			Sample	3.2	22.7	0.2
			Average	2.7	21.5	0.1
JP107 (JPL7)	2-Aug-13	5-Sep-13	Sample	0.7	21.6	0.5
			Sample	0.6	22.3	0.5
			Average	0.7	22.0	0.5
JP108 (JPL8)	1-Aug-13	4-Sep-13	Sample	0.6	13.2	0.1
			Sample	0.1	18.7	0.2
			Average	0.4	16.0	0.2
JP205 (205)	2-Aug-13	5-Sep-13	Sample	0.4	24.4	0.6
			Sample	0.6	25.5	0.5
			Average	0.5	25.0	0.6
JP210 (210)	1-Aug-13	4-Sep-13	Sample	0.1	21.5	0.2
			Sample	0.0	19.3	0.2
			Average	0.1	20.4	0.2
JP212	7-Aug-13	5-Sep-13	Sample	1.9	10.4	1.5
JP213 (213)	1-Aug-13	4-Sep-13	Sample	0	22.4	0.3
			Sample	0.4	23.5	0.2
			Average	0.2	23.0	0.3
NE7	2-Aug-13	4-Sep-13	Sample	0.4	16.5	0.9
NE10	1-Aug-13	4-Sep-13	Sample	0.2	14.5	0.3
NE11	2-Aug-13	4-Sep-13	Sample	0.8	12.1	1.0
R2	31-Jul-13	29-Aug-13	Sample	2.6	11.1	MISSING
SM7	1-Aug-13	3-Sep-13	Sample	MISSING	MISSING	MISSING
SM8	1-Aug-13	4-Sep-13	Sample	0.1	17.2	0.4
WF4	7-Aug-13	6-Sep-13	Sample	1.0	10.7	2.1
JP316	1-Aug-13	4-Sep-13	Sample	0.2	24.4	0.2
			Sample	0.0	21.4	0.2
			Average	0.1	22.9	0.2
JP201	1-Aug-13	6-Sep-13	Sample	0.2	22.3	0.3
			Sample	0.2	17.7	0.4
			Average	0.2	20.0	0.4
JP311	1-Aug-13	6-Sep-13	Sample	0.5	21.5	0.6
			Sample	0.3	24.0	1.6
			Average	0.4	22.8	1.1



September 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	6-Sep-13	1-Oct-13	Sample	0.4	18.2	0.5
			Sample	1.3	18.8	0.4
			Average	0.9	18.5	0.5
AH7	5-Sep-13	1-Oct-13	Sample	0.8	19.5	1.2
			Sample	1.0	18.6	1.1
			Average	0.9	19.1	1.2
AH8-R	6-Sep-13	3-Oct-13	Sample	1.1	17.7	0.4
			Sample	0.8	16.7	0.4
			Average	1.0	17.2	0.4
BM7	5-Sep-13	3-Oct-13	Sample	0.2	17.2	0.2
BM10	6-Sep-13	2-Oct-13	Sample	0.2	11.5	0.2
BM11	5-Sep-13	3-Oct-13	Sample	0.4	15.2	0.5
JP101 (JPL1)	5-Sep-13	1-Oct-13	Sample	0.5	23.2	0.7
			Sample	0.3	18.5	0.6
			Average	0.4	20.9	0.7
JP102 (JPH2)	5-Sep-13	1-Oct-13	Sample	1.7	16.6	1.0
			Sample	1.6	17.0	0.9
			Average	1.7	16.8	1.0
JP104 (JPH4)	29-Aug-13	30-Sep-13	Sample	3.4	15.1	2.7
			Sample	2.6	14.6	2.6
			Average	3.0	14.9	2.7
JP107 (JPL7)	5-Sep-13	3-Oct-13	Sample	0.9	20.0	0.8
			Sample	1.1	18.2	1.0
			Average	1.0	19.1	0.9
JP108 (JPL8)	4-Sep-13	2-Oct-13	Sample	0.3	15.2	0.4
			Sample	0.4	21.8	0.2
			Average	0.4	18.5	0.3
JP205 (205)	5-Sep-13	3-Oct-13	Sample	0.5	23.0	0.7
			Sample	0.5	20.1	0.7
			Average	0.5	21.6	0.7
JP210 (210)	4-Sep-13	2-Oct-13	Sample	0.2	18.6	0.3
			Sample	0.5	17.8	0.3
			Average	0.4	18.2	0.3
JP212	5-Sep-13	1-Oct-13	Sample	2.0	MISSING	0.8
JP213 (213)	4-Sep-13	2-Oct-13	Sample	0.3	26.7	0.4
			Sample	0.1	24.8	0.4
			Average	0.2	25.8	0.4
NE7	4-Sep-13	3-Oct-13	Sample	0.9	15.9	0.9
NE10	4-Sep-13	2-Oct-13	Sample	0.5	12.9	0.2
NE11	4-Sep-13	3-Oct-13	Sample	1.3	11.6	0.9
R2	29-Aug-13	30-Sep-13	Sample	2.4	10.9	2.2
SM7	3-Sep-13	2-Oct-13	Sample	MISSING	MISSING	MISSING
SM8	4-Sep-13	2-Oct-13	Sample	0.7	18.3	0.3
WF4	6-Sep-13	3-Oct-13	Sample	0.5	9.0	0.5
JP316	4-Sep-13	2-Oct-13	Sample	0.3	25.5	0.5
			Sample	0.3	23.4	0.4
			Average	0.3	24.5	0.5
JP201	6-Sep-13	2-Oct-13	Sample	0.3	21.6	0.2
			Sample	0.4	19.2	0.3
			Average	0.4	20.4	0.3
JP311	6-Sep-13	1-Oct-13	Sample	0.5	20.2	1.0
			Sample	0.8	22.5	1.0
			Average	0.7	21.4	1.0



October 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Passive Monitoring Results
 Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	1-Oct-13	25-Oct-13	Sample	0.8	16.1	1.1
			Sample	1.2	15.8	1.0
			Average	1.0	16.0	1.1
AH7	1-Oct-13	29-Oct-13	Sample	1.7	17.2	1.6
			Sample	1.7	16.4	1.3
			Average	1.7	16.8	1.5
AH8-R	3-Oct-13	29-Oct-13	Sample	1.1	14.2	0.5
			Sample	1.0	15.4	0.4
			Average	1.1	14.8	0.5
BM7	3-Oct-13	28-Oct-13	Sample	0.2	17.9	0.2
BM10	2-Oct-13	29-Oct-13	Sample	1.1	13.8	0.3
BM11	3-Oct-13	28-Oct-13	Sample	0.4	13.9	0.4
JP101 (JPL1)	1-Oct-13	29-Oct-13	Sample	0.7	18.6	0.8
			Sample	0.4	16.8	0.9
			Average	0.6	17.7	0.9
JP102 (JPH2)	1-Oct-13	29-Oct-13	Sample	1.8	14.3	1.3
			Sample	2.4	15.0	1.3
			Average	2.1	14.7	1.3
JP104 (JPH4)	30-Sep-13	30-Oct-13	Sample	4.4	13.3	2.1
			Sample	4.4	12.0	2.9
			Average	4.4	12.7	2.5
JP107 (JPL7)	3-Oct-13	28-Oct-13	Sample	1.4	16.0	0.6
			Sample	1.1	15.1	1.4
			Average	1.3	15.6	1.0
JP108 (JPL8)	2-Oct-13	25-Oct-13	Sample	0.2	13.7	0.7
			Sample	0.5	13.2	0.3
			Average	0.4	13.5	0.5
JP205 (205)	3-Oct-13	28-Oct-13	Sample	0.9	19.2	0.7
			Sample	0.5	17.6	0.6
			Average	0.7	18.4	0.7
JP210 (210)	2-Oct-13	25-Oct-13	Sample	0.8	15.8	0.9
			Sample	0.4	16.1	1.1
			Average	0.6	16.0	1.0
JP212	1-Oct-13	29-Oct-13	Sample	5.5	7.7	1.4
JP213 (213)	2-Oct-13	25-Oct-13	Sample	6.1	17.5	0.8
			Sample	0.2	18.3	0.7
			Average	3.2	17.9	0.8
NE7	3-Oct-13	28-Oct-13	Sample	0.5	13.5	1.3
NE10	2-Oct-13	28-Oct-13	Sample	1.2	19.1	0.4
NE11	3-Oct-13	28-Oct-13	Sample	1.1	8.7	1.0
R2	30-Sep-13	30-Oct-13	Sample	4.9	8.6	1.9
SM7	2-Oct-13	25-Oct-13	Sample	MISSING	MISSING	MISSING
SM8	2-Oct-13	25-Oct-13	Sample	0.6	14.8	0.7
WF4	3-Oct-13	29-Oct-13	Sample	0.7	9.7	0.6
JP316	2-Oct-13	25-Oct-13	Sample	0.7	17.6	0.5
			Sample	0.5	17.8	0.8
			Average	0.6	17.7	0.7
JP201	2-Oct-13	29-Oct-13	Sample	0.3	17.8	0.2
			Sample	0.3	19.7	MISSING
			Average	0.3	18.8	0.2
JP311	1-Oct-13	29-Oct-13	Sample	0.8	16.2	0.7
			Sample	0.8	17.5	0.7
			Average	0.8	16.9	0.7



November 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Passive Monitoring Results
Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	25-Oct-13	3-Dec-13	Sample	1.6	20.5	0.6
			Sample	1.8	21.1	0.5
			Average	1.7	20.8	0.6
AH7	29-Oct-13	10-Dec-13	Sample	2.1	22.3	1.9
			Sample	2.5	24.9	2.6
			Average	2.3	23.6	2.3
AH8-R	29-Oct-13	5-Dec-13	Sample	1.3	19.6	0.4
			Sample	1.2	22.6	0.3
			Average	1.3	21.1	0.4
BM7	28-Oct-13	4-Dec-13	Sample	0.2	23.6	0.2
BM10	29-Oct-13	5-Dec-13	Sample	0.5	19.0	0.3
BM11	28-Oct-13	11-Dec-13	Sample	0.5	21.9	0.6
JP101 (JPL1)	29-Oct-13	5-Dec-13	Sample	1.1	21.9	1.6
			Sample	1.2	20.2	2.1
			Average	1.2	21.1	1.9
JP102 (JPH2)	29-Oct-13	10-Dec-13	Sample	2.9	19.1	0.7
			Sample	3.3	20.3	0.8
			Average	3.1	19.7	0.8
JP104 (JPH4)	30-Oct-13	26-Nov-13	Sample	9.0	15.7	1.4
			Sample	10.5	17.0	1.6
			Average	9.8	16.4	1.5
JP107 (JPL7)	28-Oct-13	9-Dec-13	Sample	2.0	20.5	1.0
			Sample	2.9	19.3	1.1
			Average	2.5	19.9	1.1
JP108 (JPL8)	25-Oct-13	3-Dec-13	Sample	0.7	19.5	0.2
			Sample	0.8	18.4	0.3
			Average	0.8	19.0	0.3
JP205 (205)	28-Oct-13	4-Dec-13	Sample	0.8	24.7	1.4
			Sample	0.8	22.4	MISSING
			Average	0.8	23.6	1.4
JP210 (210)	25-Oct-13	3-Dec-13	Sample	1.1	20.9	0.5
			Sample	1.2	19.2	0.5
			Average	1.2	20.1	0.5
JP212	29-Oct-13	5-Dec-13	Sample	0.2	13.7	0.9
JP213 (213)	25-Oct-13	4-Dec-13	Sample	0.5	23	0.7
			Sample	0.5	25.6	0.7
			Average	0.5	24.3	0.7
NE7	28-Oct-13	9-Dec-13	Sample	1.2	20.1	1.1
NE10	28-Oct-13	3-Dec-13	Sample	1.0	18.4	0.5
NE11	28-Oct-13	9-Dec-13	Sample	2.3	14.8	1.0
R2	30-Oct-13	26-Nov-13	Sample	6.8	12.8	1.2
SM7	25-Oct-13	3-Dec-13	Sample	0.9	21.8	0.5
SM8	25-Oct-13	3-Dec-13	Sample	1.0	22.4	0.6
WF4	29-Oct-13	4-Dec-13	Sample	1.5	15.3	0.3
JP316	25-Oct-13	3-Dec-13	Sample	0.8	22.5	0.7
			Sample	1.2	22.4	0.7
			Average	1.0	22.5	0.7
JP201	29-Oct-13	5-Dec-13	Sample	0.4	22.4	0.3
			Sample	0.4	25.6	0.3
			Average	0.4	24.0	0.3
JP311	29-Oct-13	10-Dec-13	Sample	1.7	23.9	2.2
			Sample	1.4	20.9	2.3
			Average	1.6	22.4	2.3



Summary 2013

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

Passive Monitoring Results

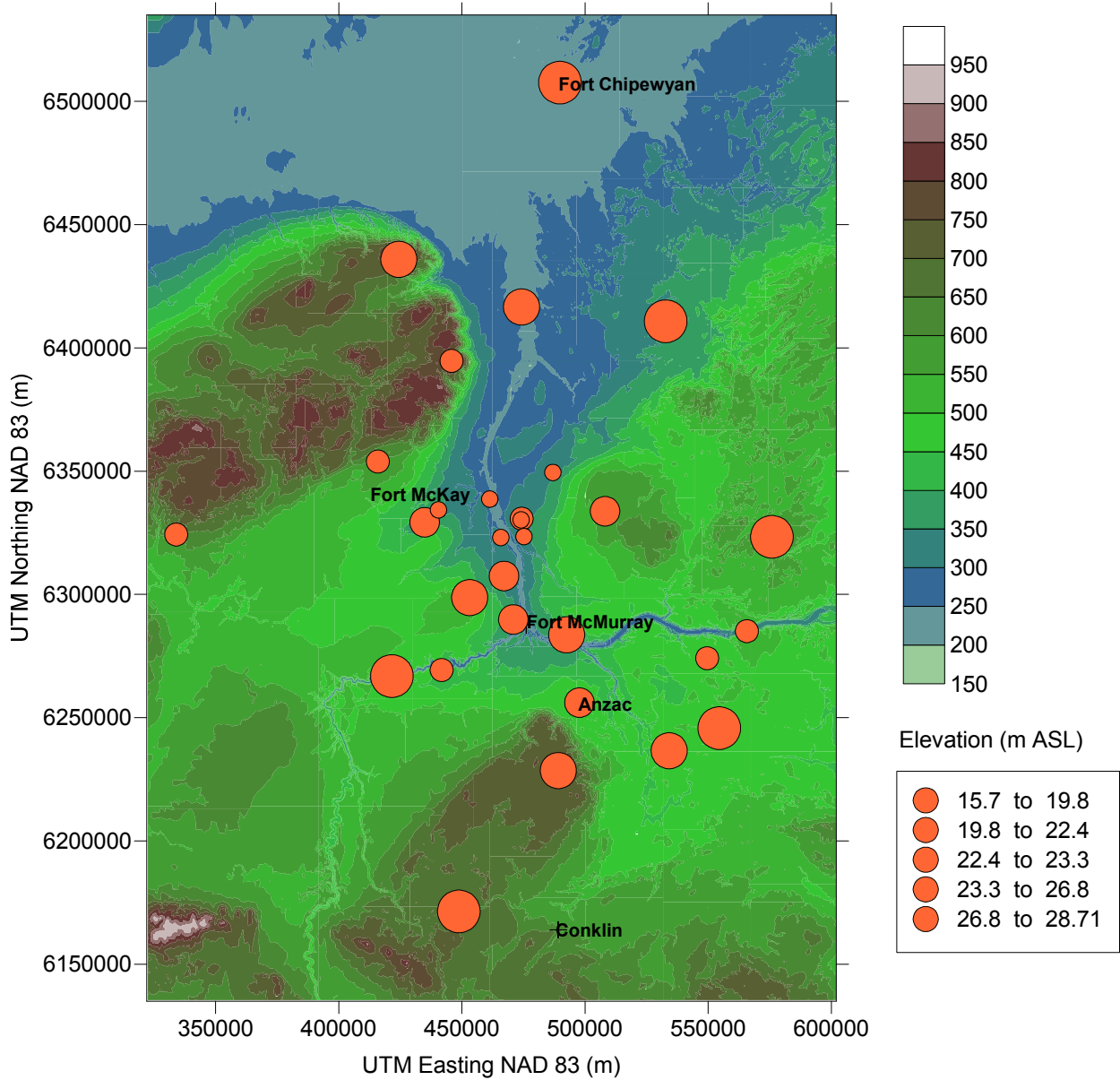
Remote Forestry and Lake Sites

Station	Start	End	Result Type	NO ₂ (ppb)	O ₃ (ppb)	SO ₂ (ppb)
AH3	7-Dec-12	3-Dec-13	Average	1.0	25.8	0.7
AH7	6-Dec-12	10-Dec-13	Average	1.5	26.5	1.7
AH8-R	7-Dec-12	5-Dec-13	Average	0.9	22.7	0.6
BM7	5-Dec-12	4-Dec-13	Average	0.1	26.4	0.3
BM10	5-Dec-12	5-Dec-13	Average	0.3	19.8	0.5
BM11	5-Dec-12	11-Dec-13	Average	0.3	21.8	0.6
JP101 (JPL1)	6-Dec-12	5-Dec-13	Average	0.7	26.8	1.0
JP102 (JPH2)	7-Dec-12	10-Dec-13	Average	2.1	22.4	1.2
JP104 (JPH4)	7-Dec-12	26-Nov-13	Average	4.6	21.4	1.5
JP107 (JPL7)	5-Dec-12	9-Dec-13	Average	1.2	24.8	0.9
JP108 (JPL8)	6-Dec-12	3-Dec-13	Average	0.3	21.9	0.2
JP205 (205)	5-Dec-12	4-Dec-13	Average	0.4	27.5	0.6
JP210 (210)	6-Dec-12	3-Dec-13	Average	0.5	24.5	0.5
JP212	7-Dec-12	5-Dec-13	Average	2.8	17.2	1.1
JP213 (213)	5-Dec-12	4-Dec-13	Average	0.6	28.7	0.4
NE7	5-Dec-12	9-Dec-13	Average	1.0	22.8	0.9
NE10	6-Dec-12	3-Dec-13	Average	0.4	21.9	0.3
NE11	5-Dec-12	9-Dec-13	Average	1.1	18.5	0.8
R2	7-Dec-12	26-Nov-13	Average	3.8	15.7	1.3
SM7	6-Dec-12	3-Dec-13	Average	0.5	27.4	0.5
SM8	6-Dec-12	3-Dec-13	Average	0.4	23.3	0.6
WF4	7-Dec-12	4-Dec-13	Average	0.8	17.1	1.7
JP316	1-Feb-13	3-Dec-13	Average	0.4	27.0	0.5
JP201	1-Aug-13	5-Dec-13	Average	0.3	20.8	0.3
JP311	1-Aug-13	10-Dec-13	Average	0.9	20.8	1.3

This page intentionally left blank



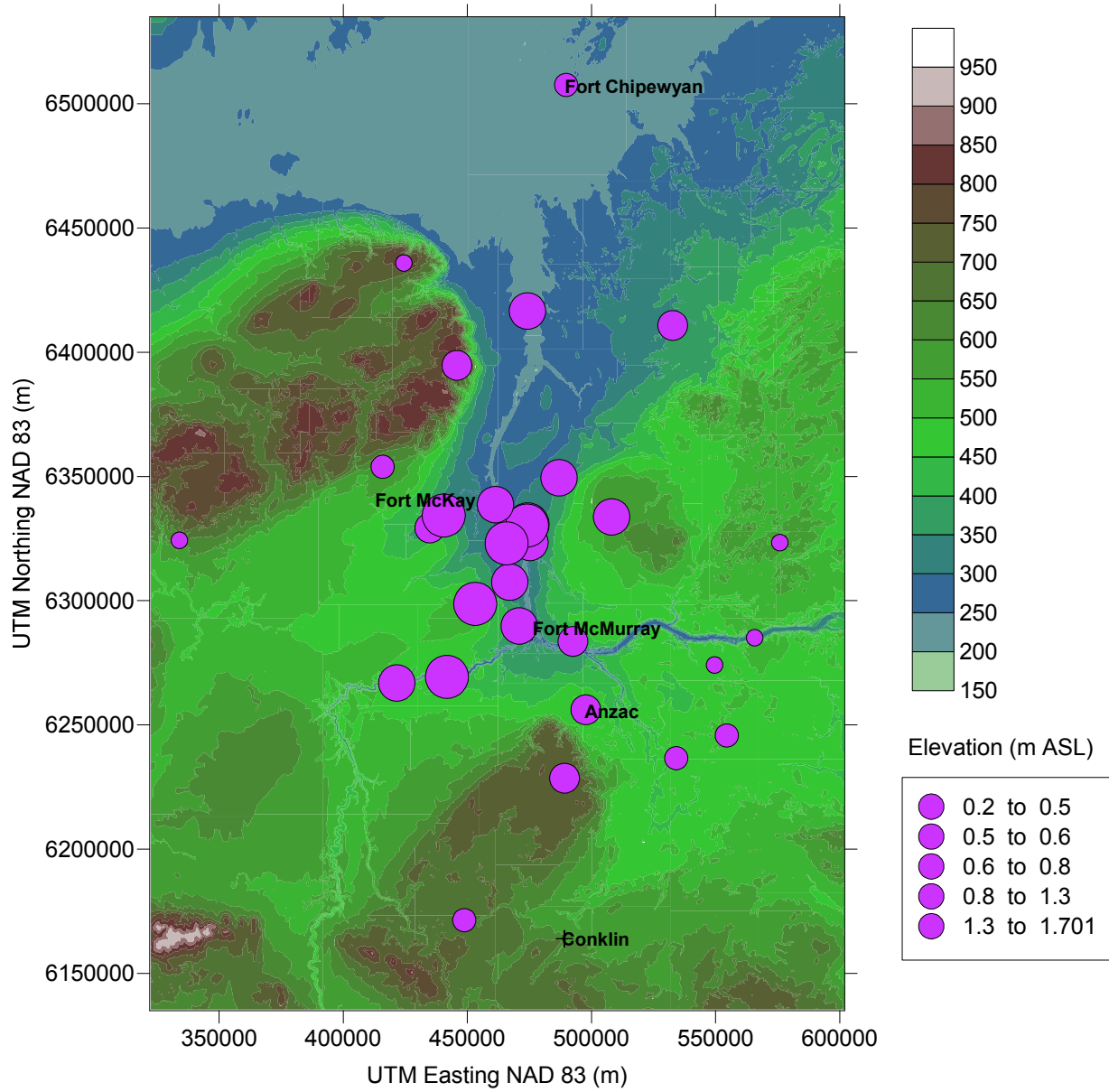
WBEA Passive Ozone Results for 2013 - Annual Average (ppb)



This page intentionally left blank



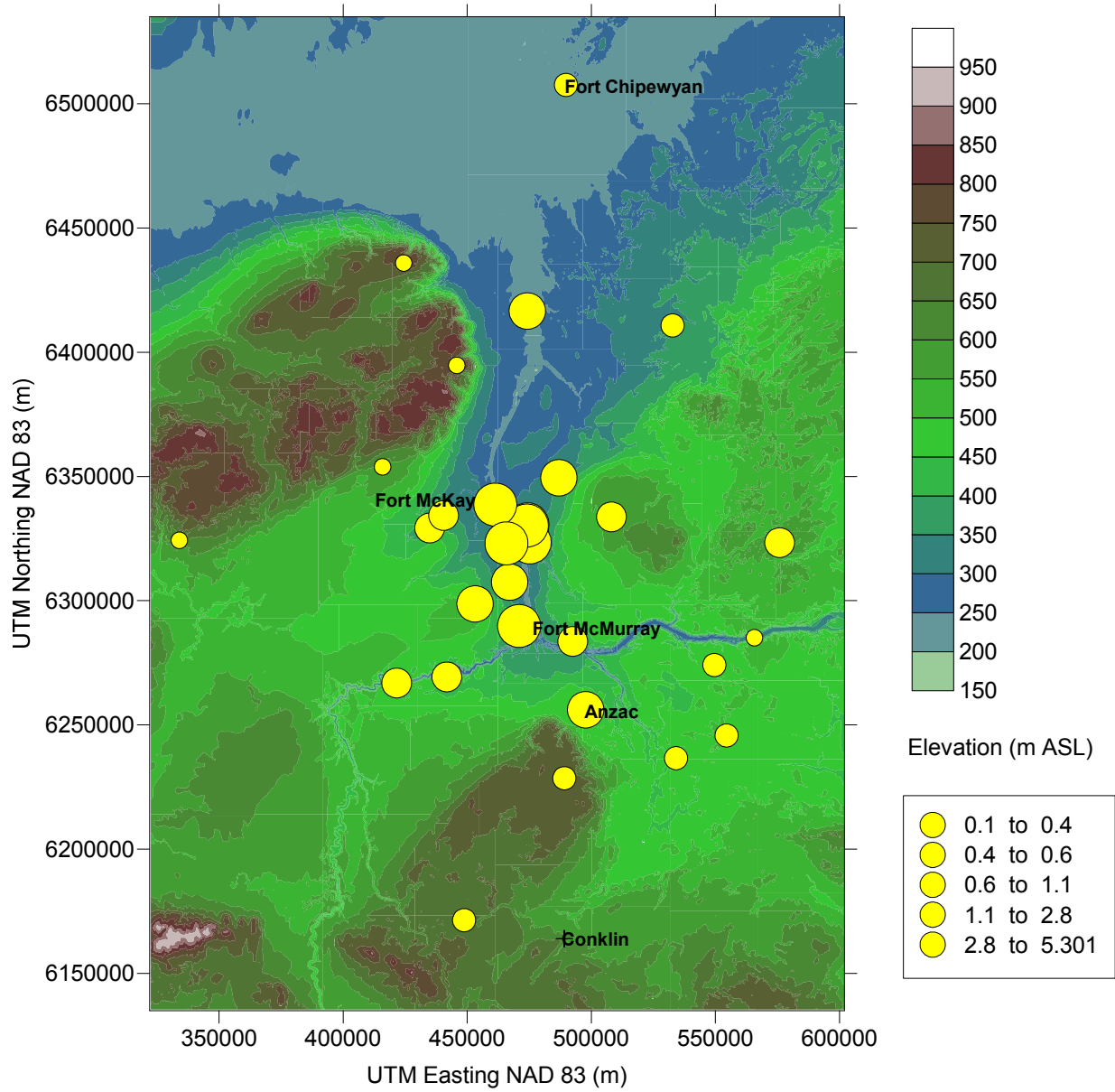
WBEA Passive Sulphur Dioxide Results for 2013 - Annual Average (ppb)



This page intentionally left blank



WBEA Passive Nitrogen Dioxide Results for 2013 - Annual Average (ppb)



This page intentionally left blank

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Polycyclic Aromatic Hydrocarbons: Air Zone One Incorporated
Mississauga, Ontario

DATA SUMMARY

Aurora Atmospherics Inc.
Calgary, Alberta

This page intentionally left blank



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	
	Fort McKay 04-Jan	Patricia McInnes 04-Jan	Athabasca Valley 04-Jan	Anzac 04-Jan	04-Jan	04-Jan	
Naphthalene	2.55	1.47	1.46	0.879	0.001	0.009	
Acenaphthylene	0.978	1.85	1.38	0.134	0.001	<0.001	
Acenaphthene	0.839	0.609	0.599	0.399	0.001	<0.001	
Fluorene	1.21	1.37	1.55	0.929	0.001	<0.001	
Phenanthrene	1.92	2.43	2.5	0.955	0.001	0.006	
Anthracene	0.363	0.412	0.406	0.132	0.001	<0.001	
Acridine	0.159	0.076	0.111	0.051	0.001	<0.001	
Fluoranthene	0.241	0.454	0.383	0.115	0.002	<0.001	
Pyrene	0.341	0.446	0.402	0.091	0.001	0.001	
Benzo(c)phenanthrene	0.031	0.026	0.025	0.009	0.002	<0.001	
Benzo(a)anthracene	0.339	0.125	0.117	0.03	0.001	0.004	
Chrysene	0.351	0.142	0.141	0.034	0.001	0.003	
7,12-Dimethylbenz(a)anthracene	0.076	0.08	0.115	0.078	0.002	<0.001	
Benzo(b)fluoranthene	0.105	0.096	0.089	0.02	0.001	0.002	
Benzo(k)fluoranthene	0.119	0.108	0.1	0.023	0.001	0.003	
Benzo(a)pyrene	0.047	0.033	0.032	0.026	0.001	<0.001	
3-Methylcholanthrene	0.007	0.004	0.002	0.002	0.001	0.001	
Indeno(123-cd)pyrene	0.104	0.186	0.109	0.119	0.001	0.008	
Dibenz(a,h)anthracene	0.024	0.033	0.022	0.025	0.002	0.001	
Benzo(ghi)perylene	0.046	0.028	0.022	0.019	0.001	<0.001	
Dibenzo(a,l)pyrene	0.024	0.014	0.015	0.011	0.001	0.003	
Dibenzo(a,i)pyrene	0.01	0.023	0.01	0.013	0.002	<0.001	
Dibenzo(a,h)pyrene	0.019	0.022	0.018	0.02	0.002	0.004	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 10-Jan	Patricia McInnes 10-Jan	Athabasca Valley 10-Jan	Anzac 10-Jan	10-Jan	10-Jan	Patricia McInnes 10-Jan
Naphthalene	2.44	5.2	7.64	3.03	0.001	0.01	5.6
Acenaphthylene	2.17	1.68	2.36	0.429	0.001	<0.001	1.65
Acenaphthene	0.634	0.812	1.14	0.369	0.001	<0.001	0.805
Fluorene	1.23	1.44	1.64	1.09	0.001	0.004	1.39
Phenanthrene	2.72	2.3	2.34	1.16	0.001	0.005	2.17
Anthracene	0.438	0.306	0.256	0.121	0.001	<0.001	0.242
Acridine	0.064	0.058	0.063	0.044	0.001	<0.001	0.052
Fluoranthene	0.806	0.329	0.401	0.185	0.002	<0.001	0.325
Pyrene	0.839	0.271	0.385	0.213	0.001	<0.001	0.278
Benzo(c)phenanthrene	0.116	0.022	0.036	0.021	0.002	<0.001	0.024
Benzo(a)anthracene	0.579	0.117	0.149	0.11	0.001	0.002	0.117
Chrysene	0.659	0.138	0.172	0.125	0.001	0.002	0.14
7,12-Dimethylbenz(a)anthracene	0.029	0.049	0.079	0.083	0.002	<0.001	0.048
Benzo(b)fluoranthene	0.104	0.049	0.057	0.03	0.001	<0.001	0.046
Benzo(k)fluoranthene	0.08	0.057	0.07	0.042	0.001	0.004	0.054
Benzo(a)pyrene	0.049	0.044	0.039	0.056	0.001	<0.001	0.043
3-Methylcholanthrene	0.004	0.003	0.004	0.008	0.001	<0.001	0.003
Indeno(123-cd)pyrene	0.06	0.186	0.152	0.19	0.001	0.031	0.181
Dibenz(a,h)anthracene	0.008	0.025	0.034	0.023	0.002	0.002	0.028
Benzo(ghi)perylene	0.005	0.02	0.019	0.024	0.001	0.002	0.022
Dibenzo(a,l)pyrene	0.004	0.008	0.003	0.006	0.001	0.001	0.007
Dibenzo(a,i)pyrene	0.032	0.039	0.021	0.018	0.002	<0.001	0.038
Dibenzo(a,h)pyrene	0.009	0.018	0.016	0.018	0.002	0.002	0.021



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat	
	Fort McKay 16-Jan	Patricia McInnes 16-Jan	Athabasca Valley 16-Jan	Anzac 16-Jan	16-Jan	16-Jan	Athabasca Valley 16-Jan	
Naphthalene	18.3	16.8	16.7	7.8	0.001	0.121	15.7	
Acenaphthylene	4.86	1.56	1.74	0.65	0.001	0.004	1.7	
Acenaphthene	0.991	0.705	0.643	0.64	0.001	0.027	0.613	
Fluorene	1.41	1.08	1.21	1.07	0.001	0.019	1.15	
Phenanthrene	2.52	1.2	1.12	1.45	0.001	0.013	1.07	
Anthracene	0.467	0.145	0.212	0.237	0.001	<0.001	0.191	
Acridine	0.079	0.064	0.088	0.051	0.001	<0.001	0.084	
Fluoranthene	1.05	0.169	0.172	0.292	0.002	<0.001	0.163	
Pyrene	1.16	0.157	0.215	0.279	0.001	0.002	0.206	
Benzo(c)phenanthrene	0.17	0.011	0.027	0.027	0.002	<0.001	0.024	
Benzo(a)anthracene	0.582	0.078	0.088	0.123	0.001	0.003	0.08	
Chrysene	0.662	0.095	0.102	0.14	0.001	0.003	0.096	
7,12-Dimethylbenz(a)anthracene	0.144	0.045	0.035	0.05	0.002	<0.001	0.03	
Benzo(b)fluoranthene	0.136	0.051	0.043	0.04	0.001	0.001	0.037	
Benzo(k)fluoranthene	0.169	0.042	0.048	0.048	0.001	0.002	0.04	
Benzo(a)pyrene	0.089	0.028	0.032	0.032	0.001	<0.001	0.027	
3-Methylcholanthrene	0.002	0.002	0.003	0.006	0.001	0.001	0.003	
Indeno(123-cd)pyrene	0.122	0.227	0.155	0.163	0.001	0.028	0.135	
Dibenz(a,h)anthracene	0.014	0.012	0.015	0.009	0.002	0.006	0.011	
Benzo(ghi)perylene	0.016	0.016	0.019	0.018	0.001	0.002	0.017	
Dibenzo(a,l)pyrene	0.007	0.007	0.011	0.012	0.001	0.002	0.011	
Dibenzo(a,i)pyrene	0.016	0.014	0.023	0.028	0.002	0.002	0.026	
Dibenzo(a,h)pyrene	0.014	0.011	0.014	0.016	0.002	0.003	0.013	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 22-Jan	Patricia McInnes 22-Jan	Athabasca Valley 22-Jan	Anzac 22-Jan	22-Jan	22-Jan	Athabasca Valley 22-Jan
Naphthalene	8.59	25.8	22.6	9.1	0.001	0.074	22.3
Acenaphthylene	2.03	3.51	2.45	0.323	0.001	<0.001	2.49
Acenaphthene	0.779	1	1.22	0.797	0.001	0.011	1.24
Fluorene	1.29	2.02	1.86	1.58	0.001	0.011	1.91
Phenanthrene	2.11	2.57	2.6	1.86	0.001	0.011	2.61
Anthracene	0.31	0.351	0.378	0.306	0.001	0.001	0.403
Acridine	0.109	0.111	0.064	0.045	0.001	<0.001	0.068
Fluoranthene	0.604	0.585	0.524	0.271	0.002	<0.001	0.539
Pyrene	0.579	0.743	0.528	0.236	0.001	<0.001	0.541
Benzo(c)phenanthrene	0.05	0.067	0.078	0.036	0.002	<0.001	0.072
Benzo(a)anthracene	0.361	0.236	0.32	0.133	0.001	<0.001	0.317
Chrysene	0.412	0.272	0.365	0.151	0.001	0.001	0.361
7,12-Dimethylbenz(a)anthracene	0.164	0.079	0.118	0.05	0.002	0.004	0.126
Benzo(b)fluoranthene	0.202	0.091	0.082	0.039	0.001	0.007	0.088
Benzo(k)fluoranthene	0.236	0.106	0.094	0.045	0.001	0.009	0.103
Benzo(a)pyrene	0.089	0.022	0.055	0.042	0.001	0.001	0.057
3-Methylcholanthrene	0.003	0.003	0.004	0.003	0.001	0.001	0.004
Indeno(123-cd)pyrene	0.179	0.106	0.167	0.18	0.001	0.017	0.182
Dibenz(a,h)anthracene	0.012	0.008	0.021	0.013	0.002	0.004	0.022
Benzo(ghi)perylene	0.022	0.024	0.024	0.017	0.001	0.001	0.025
Dibenzo(a,l)pyrene	0.009	0.007	0.008	0.009	0.001	0.003	0.009
Dibenzo(a,i)pyrene	0.049	0.053	0.056	0.036	0.002	0.001	0.059
Dibenzo(a,h)pyrene	0.016	0.015	0.016	0.016	0.002	0.003	0.018



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat
	Fort McKay 28-Jan	Patricia McInnes 28-Jan	Athabasca Valley 28-Jan	Anzac 28-Jan	28-Jan	28-Jan	Fort McKay 28-Jan
Naphthalene	5.45	7.44	3.56	5.73	0.001	0.054	5.57
Acenaphthylene	0.674	0.499	0.102	0.278	0.001	<0.001	0.691
Acenaphthene	0.186	0.396	0.11	0.199	0.001	0.012	0.191
Fluorene	0.899	1.02	0.493	0.738	0.001	0.008	0.924
Phenanthrene	1.38	1.49	0.382	0.726	0.001	0.002	1.42
Anthracene	0.168	0.132	0.042	0.078	0.001	<0.001	0.163
Acridine	0.022	0.053	0.04	0.041	0.001	<0.001	0.019
Fluoranthene	0.414	0.23	0.13	0.165	0.002	<0.001	0.425
Pyrene	0.333	0.264	0.108	0.119	0.001	<0.001	0.346
Benzo(c)phenanthrene	0.029	0.012	0.009	0.007	0.002	<0.001	0.025
Benzo(a)anthracene	0.154	0.142	0.062	0.052	0.001	<0.001	0.159
Chrysene	0.175	0.163	0.07	0.059	0.001	<0.001	0.181
7,12-Dimethylbenz(a)anthracene	0.063	0.083	0.028	0.044	0.002	<0.001	0.062
Benzo(b)fluoranthene	0.018	0.007	0.064	0.072	0.001	<0.001	0.019
Benzo(k)fluoranthene	0.014	0.008	0.072	0.082	0.001	<0.001	0.014
Benzo(a)pyrene	0.02	0.017	0.013	0.011	0.001	<0.001	0.022
3-Methylcholanthrene	0.002	0.002	0.003	0.003	0.001	<0.001	0.002
Indeno(123-cd)pyrene	0.182	0.147	0.152	0.091	0.001	<0.001	0.178
Dibenz(a,h)anthracene	0.003	0.005	0.006	0.004	0.002	<0.001	0.004
Benzo(ghi)perylene	0.004	0.007	0.005	0.004	0.001	<0.001	0.005
Dibenzo(a,l)pyrene	0.006	0.006	0.007	0.006	0.001	0.001	0.005
Dibenzo(a,i)pyrene	0.016	0.028	0.024	0.04	0.002	<0.001	0.017
Dibenzo(a,h)pyrene	0.004	0.007	0.007	0.006	0.002	<0.001	0.005



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 03-Feb	Patricia McInnes 03-Feb	Athabasca Valley 03-Feb	Anzac 03-Feb	03-Feb	03-Feb
Naphthalene	5.84	3.16	3.42	1.62	0.001	0.032
Acenaphthylene	1.32	1.33	0.804	0.145	0.001	<0.001
Acenaphthene	0.876	0.63	0.586	0.173	0.001	<0.001
Fluorene	2.52	1.2	1.42	0.837	0.001	<0.001
Phenanthrene	3.73	1.95	1.96	0.863	0.001	0.006
Anthracene	0.229	0.134	0.143	0.101	0.001	<0.001
Acridine	0.138	0.066	0.135	0.056	0.001	<0.001
Fluoranthene	0.486	0.329	0.255	0.085	0.002	<0.001
Pyrene	0.462	0.307	0.25	0.089	0.001	<0.001
Benzo(c)phenanthrene	0.028	0.011	0.017	0.01	0.002	<0.001
Benzo(a)anthracene	0.141	0.059	0.066	0.024	0.001	0.001
Chrysene	0.161	0.067	0.075	0.028	0.001	0.002
7,12-Dimethylbenzo(a)anthracene	0.068	0.035	0.028	0.016	0.002	<0.001
Benzo(b)fluoranthene	0.007	0.007	0.056	0.025	0.001	<0.001
Benzo(k)fluoranthene	0.008	0.008	0.063	0.028	0.001	<0.001
Benzo(a)pyrene	0.014	0.011	0.01	0.012	0.001	<0.001
3-Methylcholanthrene	0.004	0.002	0.002	0.002	0.001	<0.001
Indeno(123-cd)pyrene	0.118	0.086	0.041	0.098	0.001	<0.001
Dibenzo(a,h)anthracene	0.006	0.006	0.006	0.005	0.002	<0.001
Benzo(ghi)perylene	0.005	0.004	0.005	0.004	0.001	<0.001
Dibenzo(a,l)pyrene	0.007	0.007	0.006	0.009	0.001	<0.001
Dibenzo(a,i)pyrene	0.038	0.018	0.013	0.035	0.002	0.036
Dibenzo(a,h)pyrene	0.007	0.005	0.008	0.008	0.002	<0.001



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat	
	Fort McKay 09-Feb	Patricia McInnes 09-Feb	Athabasca Valley 09-Feb	Anzac 09-Feb	09-Feb	09-Feb	Fort McKay 09-Feb	
Naphthalene	4.91	2.34	4.97	2.32	0.001	0.021	5.15	
Acenaphthylene	0.771	0.366	1.16	0.518	0.001	<0.001	0.751	
Acenaphthene	0.485	0.343	0.381	0.377	0.001	0.006	0.506	
Fluorene	1.85	1.42	1.12	1.68	0.002	0.003	1.86	
Phenanthrene	2.75	1.82	1.34	1.81	0.003	0.003	2.81	
Anthracene	0.258	0.261	0.158	0.162	0.001	<0.001	0.23	
Acridine	0.207	0.123	0.052	0.095	0.001	<0.001	0.205	
Fluoranthene	0.293	0.188	0.216	0.196	0.002	<0.001	0.296	
Pyrene	0.229	0.167	0.201	0.143	0.002	<0.001	0.228	
Benzo(c)phenanthrene	0.026	0.012	0.006	0.011	0.001	<0.001	0.026	
Benzo(a)anthracene	0.056	0.023	0.014	0.019	0.001	<0.001	0.053	
Chrysene	0.063	0.023	0.016	0.021	0.001	<0.001	0.06	
7,12-Dimethylbenz(a)anthracene	0.187	0.121	0.369	0.098	0.003	0.004	0.194	
Benzo(b)fluoranthene	0.101	0.037	0.033	0.028	0.001	<0.001	0.09	
Benzo(k)fluoranthene	0.109	0.042	0.038	0.032	0.001	<0.001	0.102	
Benzo(a)pyrene	0.075	0.027	0.018	0.013	0.002	<0.001	0.069	
3-Methylcholanthrene	0.004	0.002	0.003	0.003	0.003	<0.001	0.003	
Indeno(123-cd)pyrene	0.135	0.08	0.045	0.028	0.004	<0.001	0.106	
Dibenz(a,h)anthracene	0.017	0.045	0.012	0.01	0.005	0.002	0.022	
Benzo(ghi)perylene	0.018	0.011	0.005	0.008	0.002	<0.001	0.022	
Dibenzo(a,l)pyrene	0.01	0.016	0.014	0.003	0.003	0.002	0.013	
Dibenzo(a,i)pyrene	0.034	0.043	0.034	0.017	0.004	<0.001	0.037	
Dibenzo(a,h)pyrene	0.041	0.047	0.034	0.022	0.003	<0.001	0.039	



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 15-Feb	Patricia McInnes 15-Feb	Athabasca Valley 15-Feb	Anzac 15-Feb	15-Feb	15-Feb
Naphthalene	0.591	0.77	3.2	0.587	0.001	0.007
Acenaphthylene	0.787	0.158	6.8	0.12	0.001	<0.001
Acenaphthene	0.353	0.117	1.29	0.125	0.001	<0.001
Fluorene	4.51	1.15	4.11	1.19	0.002	<0.001
Phenanthrene	13.7	1.79	6.52	1.5	0.003	<0.001
Anthracene	1.47	0.221	0.56	0.22	0.001	<0.001
Acridine	0.325	0.08	0.174	0.083	0.001	<0.001
Fluoranthene	2.11	0.358	1.25	0.235	0.002	<0.001
Pyrene	2.02	0.357	1.26	0.177	0.002	0.001
Benzo(c)phenanthrene	0.173	0.014	0.08	0.007	0.001	<0.001
Benzo(a)anthracene	0.415	0.033	0.156	0.013	0.001	<0.001
Chrysene	0.474	0.037	0.178	0.014	0.001	<0.001
7,12-Dimethylbenz(a)anthracene	0.461	0.169	0.297	0.065	0.003	0.039
Benzo(b)fluoranthene	0.448	0.047	0.264	0.02	0.001	0.001
Benzo(k)fluoranthene	0.506	0.053	0.298	0.023	0.001	0.001
Benzo(a)pyrene	0.176	0.011	0.035	0.012	0.002	<0.001
3-Methylcholanthrene	0.003	0.002	0.003	0.003	0.003	<0.001
Indeno(123-cd)pyrene	0.061	0.032	0.052	0.027	0.004	<0.001
Dibenz(a,h)anthracene	0.035	0.019	0.014	0.02	0.005	<0.001
Benzo(ghi)perylene	0.029	0.008	0.01	0.016	0.002	<0.001
Dibenzo(a,l)pyrene	0.022	0.011	0.011	0.009	0.003	0.003
Dibenzo(a,i)pyrene	0.016	0.018	0.032	0.03	0.004	<0.001
Dibenzo(a,h)pyrene	0.01	0.024	0.037	0.019	0.003	<0.001



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 21-Feb	Patricia McInnes 21-Feb	Athabasca Valley 21-Feb	Anzac 21-Feb	21-Feb	21-Feb	Patricia McInnes 21-Feb
Naphthalene	1.32	2.27	2.07	0.724	0.001	0.007	2.33
Acenaphthylene	1.47	0.738	1.09	0.088	0.001	<0.001	0.735
Acenaphthene	0.587	0.461	0.498	0.169	0.001	<0.001	0.496
Fluorene	2	1.29	1.12	0.637	0.002	<0.001	1.34
Phenanthrene	4.78	1.98	2.15	0.894	0.003	<0.001	2.09
Anthracene	0.587	0.171	0.186	0.107	0.001	<0.001	0.172
Acridine	0.177	0.057	0.062	0.042	0.001	<0.001	0.058
Fluoranthene	0.696	0.4	0.415	0.082	0.002	<0.001	0.385
Pyrene	0.815	0.423	0.46	0.064	0.002	<0.001	0.438
Benzo(c)phenanthrene	0.065	0.024	0.017	0.003	0.001	<0.001	0.021
Benzo(a)anthracene	0.282	0.042	0.057	0.007	0.001	<0.001	0.043
Chrysene	0.322	0.048	0.064	0.008	0.001	<0.001	0.049
7,12-Dimethylbenz(a)anthracene	0.431	0.154	0.294	0.058	0.003	<0.001	0.161
Benzo(b)fluoranthene	0.18	0.044	0.119	0.014	0.001	<0.001	0.046
Benzo(k)fluoranthene	0.198	0.048	0.135	0.015	0.001	<0.001	0.05
Benzo(a)pyrene	0.184	0.019	0.039	0.011	0.002	<0.001	0.018
3-Methylcholanthrene	0.003	0.004	0.003	0.005	0.003	<0.001	0.004
Indeno(123-cd)pyrene	0.085	0.032	0.065	0.013	0.004	<0.001	0.03
Dibenz(a,h)anthracene	0.04	0.016	0.038	0.004	0.005	<0.001	0.017
Benzo(ghi)perylene	0.01	0.006	0.006	0.007	0.002	<0.001	0.006
Dibenzo(a,l)pyrene	0.013	0.01	0.017	0.023	0.003	<0.001	0.01
Dibenzo(a,i)pyrene	0.02	0.026	0.006	0.026	0.004	<0.001	0.027
Dibenzo(a,h)pyrene	0.017	0.018	0.006	0.023	0.003	<0.001	0.018



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 27-Feb	Patricia McInnes 27-Feb	Athabasca Valley 27-Feb	Anzac 27-Feb	27-Feb	27-Feb	Athabasca Valley 27-Feb
Naphthalene	1.05	0.872	1.7	0.398	0.001	0.004	1.64
Acenaphthylene	2.92	0.667	0.625	0.075	0.001	<0.001	0.577
Acenaphthene	0.794	0.324	0.395	0.141	0.001	<0.001	0.375
Fluorene	2.23	1.17	1.38	0.573	0.002	<0.001	1.34
Phenanthrene	4.66	1.84	1.98	0.652	0.003	0.005	1.86
Anthracene	0.58	0.186	0.224	0.093	0.001	<0.001	0.183
Acridine	0.146	0.071	0.077	0.024	0.001	<0.001	0.081
Fluoranthene	0.983	0.329	0.361	0.092	0.002	<0.001	0.343
Pyrene	0.948	0.292	0.382	0.072	0.002	0.003	0.354
Benzo(c)phenanthrene	0.102	0.02	0.023	0.017	0.001	<0.001	0.022
Benzo(a)anthracene	0.309	0.028	0.044	0.019	0.001	<0.001	0.041
Chrysene	0.352	0.032	0.055	0.022	0.001	<0.001	0.049
7,12-Dimethylbenz(a)anthracene	0.549	0.086	0.144	0.137	0.003	0.009	0.13
Benzo(b)fluoranthene	0.117	0.033	0.099	0.04	0.001	<0.001	0.091
Benzo(k)fluoranthene	0.423	0.037	0.112	0.044	0.001	<0.001	0.103
Benzo(a)pyrene	0.208	0.009	0.02	0.011	0.002	0.001	0.018
3-Methylcholanthrene	0.003	0.003	0.003	0.003	0.003	<0.001	0.003
Indeno(123-cd)pyrene	0.075	0.025	0.036	0.023	0.004	<0.001	0.034
Dibenz(a,h)anthracene	0.037	0.024	0.018	0.036	0.005	0.004	0.016
Benzo(ghi)perylene	0.052	0.003	0.002	0.001	0.002	<0.001	0.001
Dibenzo(a,l)pyrene	0.02	0.024	0.017	0.034	0.003	0.003	0.014
Dibenzo(a,i)pyrene	0.019	0.032	0.011	0.027	0.004	<0.001	0.009
Dibenzo(a,h)pyrene	0.018	0.033	0.009	0.02	0.003	<0.001	0.008



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat	
	Fort McKay 05-Mar	Patricia McInnes 05-Mar	Athabasca Valley 05-Mar	Anzac 05-Mar	05-Mar	05-Mar	Anzac 05-Mar	
Naphthalene	0.19	0.792	0.748	0.468	0.001	0.003	0.493	
Acenaphthylene	0.026	0.581	0.528	0.064	0.001	<0.001	0.063	
Acenaphthene	0.013	0.442	0.487	0.239	0.001	<0.001	0.257	
Fluorene	0.071	0.995	1.44	0.905	0.002	<0.001	0.952	
Phenanthrene	0.018	1.54	1.76	0.753	0.003	0.001	0.776	
Anthracene	0.004	0.198	0.189	0.113	0.001	<0.001	0.122	
Acridine	0.014	0.075	0.183	0.076	0.001	<0.001	0.086	
Fluoranthene	0.01	0.315	0.236	0.081	0.002	<0.001	0.078	
Pyrene	0.013	0.382	0.27	0.069	0.002	<0.001	0.069	
Benzo(c)phenanthrene	0.002	0.012	0.006	0.004	0.001	<0.001	0.003	
Benzo(a)anthracene	<0.001	0.05	0.013	0.006	0.001	<0.001	0.006	
Chrysene	<0.001	0.051	0.013	0.004	0.001	<0.001	0.004	
7,12-Dimethylbenz(a)anthracene	0.009	0.257	0.015	0.021	0.003	<0.001	0.018	
Benzo(b)fluoranthene	<0.001	0.079	0.013	0.007	0.001	<0.001	0.008	
Benzo(k)fluoranthene	<0.001	0.089	0.015	0.008	0.001	<0.001	0.009	
Benzo(a)pyrene	0.002	0.025	0.012	0.01	0.002	<0.001	0.012	
3-Methylcholanthrene	0.001	0.004	0.003	0.005	0.003	<0.001	0.006	
Indeno(123-cd)pyrene	0.004	0.034	0.013	0.008	0.004	<0.001	0.008	
Dibenz(a,h)anthracene	<0.001	0.023	0.008	0.012	0.005	<0.001	0.012	
Benzo(ghi)perylene	<0.001	0.031	0.003	0.003	0.002	<0.001	0.004	
Dibenzo(a,l)pyrene	0.001	0.02	0.014	0.028	0.003	<0.001	0.02	
Dibenzo(a,i)pyrene	0.002	0.022	0.024	0.028	0.004	<0.001	0.031	
Dibenzo(a,h)pyrene	<0.001	0.014	0.03	0.018	0.003	<0.001	0.02	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat
	Fort McKay 11-Mar	Patricia McInnes 11-Mar	Athabasca Valley 11-Mar	Anzac 11-Mar	11-Mar	11-Mar	Fort McKay 11-Mar
Naphthalene	0.597	1.59	1.44	0.766	0.001	0.009	0.624
Acenaphthylene	0.061	0.526	0.283	0.06	0.001	0.001	0.064
Acenaphthene	0.055	0.117	0.224	1.14	0.001	0.002	0.062
Fluorene	0.225	0.782	0.77	0.817	0.001	0.002	0.239
Phenanthrene	0.439	1.38	1.21	0.843	0.001	0.002	0.465
Anthracene	0.052	0.126	0.145	0.114	0.001	<0.001	0.053
Acridine	0.023	0.122	0.088	0.011	0.001	<0.001	0.023
Fluoranthene	0.062	0.211	0.142	0.072	0.001	<0.001	0.067
Pyrene	0.056	0.212	0.171	0.053	0.001	<0.001	0.061
Benzo(c)phenanthrene	0.009	0.007	0.007	0.006	0.001	<0.001	0.009
Benzo(a)anthracene	0.018	0.024	0.022	0.007	0.001	<0.001	0.017
Chrysene	0.021	0.028	0.025	0.009	0.001	<0.001	0.02
7,12-Dimethylbenz(a)anthracene	0.04	0.037	0.067	0.014	0.002	<0.001	0.047
Benzo(b)fluoranthene	0.027	0.023	0.025	0.016	0.001	<0.001	0.031
Benzo(k)fluoranthene	0.029	0.031	0.035	0.015	0	<0.001	0.033
Benzo(a)pyrene	0.009	0.011	0.013	0.013	0.001	<0.001	0.009
3-Methylcholanthrene	0.004	0.005	0.004	0.005	0.001	<0.001	0.005
Indeno(123-cd)pyrene	0.006	0.005	0.006	0.008	0.001	<0.001	0.007
Dibenz(a,h)anthracene	0.008	0.004	0.009	0.007	0.001	<0.001	0.01
Benzo(ghi)perylene	0.012	0.009	0.01	0.012	0.002	<0.001	0.012
Dibenzo(a,l)pyrene	0.013	0.009	0.01	0.011	0.002	<0.001	0.014
Dibenzo(a,i)pyrene	0.019	0.029	0.033	0.023	0.002	<0.001	0.021
Dibenzo(a,h)pyrene	0.017	0.023	0.02	0.017	0.003	<0.001	0.016



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 17-Mar	Patricia McInnes 17-Mar	Athabasca Valley 17-Mar	Anzac 17-Mar	17-Mar	17-Mar
Naphthalene	0.978	22.4	7.66	4.25	0.001	0.007
Acenaphthylene	0.32	1.47	1.9	0.28	0.001	0.001
Acenaphthene	0.13	0.912	0.217	1.38	0.001	0.003
Fluorene	0.573	1.31	1.37	0.926	0.001	0.004
Phenanthrene	1.24	2.47	2.38	1.04	0.001	0.001
Anthracene	0.115	0.3	0.323	0.116	0.001	<0.001
Acridine	0.06	0.112	0.075	0.049	0.001	<0.001
Fluoranthene	0.246	0.277	0.685	0.141	0.001	0.001
Pyrene	0.185	0.263	0.796	0.114	0.001	<0.001
Benzo(c)phenanthrene	0.02	0.028	0.022	0.007	0.001	<0.001
Benzo(a)anthracene	0.049	0.072	0.055	0.03	0.001	<0.001
Chrysene	0.057	0.083	0.062	0.035	0.001	<0.001
7,12-Dimethylbenzo(a)anthracene	0.058	0.186	0.058	0.27	0.002	0.004
Benzo(b)fluoranthene	0.029	0.11	0.043	0.02	0.001	<0.001
Benzo(k)fluoranthene	0.03	0.124	0.058	0.025	0	<0.001
Benzo(a)pyrene	0.015	0.036	0.028	0.015	0.001	<0.001
3-Methylcholanthrene	0.004	0.023	0.006	0.005	0.001	<0.001
Indeno(123-cd)pyrene	0.005	0.038	0.013	0.006	0.001	<0.001
Dibenz(a,h)anthracene	0.007	0.02	0.012	0.006	0.001	<0.001
Benzo(ghi)perylene	0.008	0.023	0.022	0.009	0.002	<0.001
Dibenzo(a,l)pyrene	0.009	0.029	0.024	0.013	0.002	<0.001
Dibenzo(a,i)pyrene	0.027	0.032	0.026	0.012	0.002	<0.001
Dibenzo(a,h)pyrene	0.03	0.021	0.02	0.01	0.003	<0.001



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 23-Mar	Patricia McInnes 23-Mar	Athabasca Valley 23-Mar	Anzac 23-Mar	23-Mar	23-Mar	Patricia McInnes 23-Mar
Naphthalene	1.99	5.7	7.74	3.3	0.001	0.006	5.23
Acenaphthylene	0.235	0.941	1.09	0.14	0.001	0.002	0.938
Acenaphthene	0.042	0.105	0.057	0.873	0.001	0.001	0.123
Fluorene	0.479	1.2	1.46	0.791	0.001	<0.001	1.07
Phenanthrene	0.736	2.15	2.34	1.1	0.001	0.003	2.17
Anthracene	0.104	0.169	0.244	0.16	0.001	<0.001	0.179
Acridine	0.056	0.079	0.111	0.017	0.001	<0.001	0.083
Fluoranthene	0.087	0.281	0.28	0.09	0.001	<0.001	0.277
Pyrene	0.076	0.275	0.281	0.071	0.001	0.002	0.274
Benzo(c)phenanthrene	0.006	0.016	0.018	0.009	0.001	<0.001	0.014
Benzo(a)anthracene	0.014	0.037	0.046	0.009	0.001	<0.001	0.034
Chrysene	0.016	0.042	0.053	0.011	0.001	<0.001	0.039
7,12-Dimethylbenz(a)anthracene	0.161	0.046	0.06	0.009	0.002	<0.001	0.044
Benzo(b)fluoranthene	0.017	0.027	0.031	0.014	0.001	<0.001	0.03
Benzo(k)fluoranthene	0.017	0.024	0.023	0.012	0	<0.001	0.024
Benzo(a)pyrene	0.013	0.014	0.013	0.013	0.001	<0.001	0.015
3-Methylcholanthrene	0.005	0.005	0.004	0.004	0.001	<0.001	0.006
Indeno(123-cd)pyrene	0.008	0.008	0.01	0.007	0.001	<0.001	0.008
Dibenz(a,h)anthracene	0.009	0.008	0.007	0.007	0.001	<0.001	0.008
Benzo(ghi)perylene	0.007	0.007	0.006	0.007	0.002	<0.001	0.007
Dibenzo(a,l)pyrene	0.008	0.005	0.005	0.007	0.002	<0.001	0.004
Dibenzo(a,i)pyrene	0.032	0.011	0.019	0.025	0.002	<0.001	0.009
Dibenzo(a,h)pyrene	0.028	0.016	0.015	0.024	0.003	<0.001	0.016



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 29-Mar	Patricia McInnes 29-Mar	Athabasca Valley 29-Mar	Anzac 29-Mar	29-Mar	29-Mar	Athabasca Valley 29-Mar
Naphthalene	0.269	0.671	0.826	1.95	0.001	0.004	0.883
Acenaphthylene	0.036	0.237	0.471	0.033	0.001	0.001	0.448
Acenaphthene	0.041	0.072	0.126	7.95	0.001	0.002	0.12
Fluorene	0.608	1.03	1.23	5.76	0.001	<0.001	1.42
Phenanthrene	1.04	1.92	1.79	4.11	0.001	0.003	1.91
Anthracene	0.091	0.207	0.284	0.47	0.001	<0.001	0.308
Acridine	0.017	0.108	0.041	0.058	0.001	<0.001	0.039
Fluoranthene	0.067	0.189	0.185	0.351	0.001	<0.001	0.202
Pyrene	0.067	0.208	0.187	0.19	0.001	0.002	0.196
Benzo(c)phenanthrene	0.005	0.008	0.006	0.009	0.001	<0.001	0.006
Benzo(a)anthracene	0.015	0.037	0.026	0.023	0.001	<0.001	0.031
Chrysene	0.017	0.042	0.03	0.026	0.001	<0.001	0.036
7,12-Dimethylbenz(a)anthracene	0.04	0.031	0.06	0.023	0.002	<0.001	0.065
Benzo(b)fluoranthene	0.009	0.014	0.019	0.011	0.001	<0.001	0.021
Benzo(k)fluoranthene	0.009	0.015	0.021	0.014	0	<0.001	0.026
Benzo(a)pyrene	0.012	0.014	0.018	0.012	0.001	<0.001	0.018
3-Methylcholanthrene	0.004	0.004	0.004	0.004	0.001	<0.001	0.004
Indeno(123-cd)pyrene	0.004	0.004	0.005	0.007	0.001	<0.001	0.005
Dibenz(a,h)anthracene	0.005	0.005	0.007	0.006	0.001	<0.001	0.007
Benzo(ghi)perylene	0.006	0.006	0.006	0.009	0.002	<0.001	0.006
Dibenzo(a,l)pyrene	0.005	0.008	0.009	0.011	0.002	<0.001	0.009
Dibenzo(a,i)pyrene	0.028	0.02	0.022	0.026	0.002	<0.001	0.023
Dibenzo(a,h)pyrene	0.018	0.019	0.022	0.019	0.003	<0.001	0.02



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat
	Fort McKay 04-Apr	Patricia McInnes 04-Apr	Athabasca Valley 04-Apr	Anzac 04-Apr	04-Apr	04-Apr	Anzac 04-Apr
Naphthalene	0.302	0.471	0.255	0.461	0.001	0.003	0.465
Acenaphthylene	0.034	0.276	0.061	0.109	0.001	0.004	0.122
Acenaphthene	0.081	0.124	0.092	0.925	0.001	0.002	0.964
Fluorene	0.397	0.306	0.514	1.45	0.001	<0.001	1.55
Phenanthrene	0.968	0.595	1.18	1.56	0.001	0.004	1.71
Anthracene	0.214	0.072	0.102	0.149	0.001	<0.001	0.192
Acridine	0.027	0.086	0.213	0.034	0.001	<0.001	0.036
Fluoranthene	0.073	0.081	0.098	0.095	0.001	<0.001	0.102
Pyrene	0.102	0.119	0.193	0.083	0.001	0.002	0.09
Benzo(c)phenanthrene	0.024	0.008	0.024	0.008	0.001	0.001	0.008
Benzo(a)anthracene	0.032	0.027	0.044	0.015	0.001	<0.001	0.016
Chrysene	0.036	0.031	0.05	0.017	0.001	<0.001	0.019
7,12-Dimethylbenz(a)anthracene	0.082	0.112	0.118	0.022	0.002	<0.001	0.024
Benzo(b)fluoranthene	0.032	0.028	0.038	0.008	0.001	<0.001	0.009
Benzo(k)fluoranthene	0.041	0.022	0.045	0.009	0	<0.001	0.01
Benzo(a)pyrene	0.019	0.016	0.014	0.014	0.001	0.001	0.016
3-Methylcholanthrene	0.012	0.009	0.01	0.005	0.001	<0.001	0.005
Indeno(123-cd)pyrene	0.006	0.006	0.007	0.006	0.001	<0.001	0.006
Dibenz(a,h)anthracene	0.01	0.007	0.006	0.007	0.001	<0.001	0.007
Benzo(ghi)perylene	0.015	0.01	0.008	0.008	0.002	<0.001	0.008
Dibenzo(a,l)pyrene	0.018	0.02	0.007	0.014	0.002	<0.001	0.013
Dibenzo(a,i)pyrene	0.025	0.024	0.02	0.019	0.002	<0.001	0.018
Dibenzo(a,h)pyrene	0.015	0.019	0.018	0.018	0.003	<0.001	0.02



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat	
	Fort McKay 10-Apr	Patricia McInnes 10-Apr	Athabasca Valley 10-Apr	Anzac 10-Apr	10-Apr	10-Apr	Fort McKay 10-Apr	
Naphthalene	0.292	0.061	0.583	0.072	0.005	0.013	0.303	
Acenaphthylene	0.065	0.251	0.448	0.016	0.001	<0.001	0.068	
Acenaphthene	0.348	0.158	0.323	1.05	0.001	0.002	0.34	
Fluorene	1.14	0.644	1.19	2.3	0.002	0.003	1.1	
Phenanthrene	1.92	1.35	1.73	2.87	0.003	0.007	1.96	
Anthracene	0.204	0.159	0.18	0.361	0.002	<0.001	0.197	
Acridine	0.219	0.059	0.096	0.037	0.001	<0.001	0.216	
Fluoranthene	0.174	0.279	0.244	0.199	0.002	<0.001	0.176	
Pyrene	0.193	0.246	0.275	0.095	0.002	<0.001	0.201	
Benzo(c)phenanthrene	0.017	0.035	0.016	0.014	0.001	<0.001	0.019	
Benzo(a)anthracene	0.094	0.024	0.031	0.009	0.001	0.002	0.098	
Chrysene	0.103	0.027	0.036	0.01	0.001	<0.001	0.112	
7,12-Dimethylbenz(a)anthracene	0.376	0.33	0.342	0.136	0.002	0.064	0.336	
Benzo(b)fluoranthene	0.038	0.037	0.024	0.014	0.001	<0.001	0.039	
Benzo(k)fluoranthene	0.042	0.042	0.027	0.016	0.001	<0.001	0.045	
Benzo(a)pyrene	0.043	0.017	0.013	0.008	0.001	<0.001	0.047	
3-Methylcholanthrene	0.042	0.021	0.003	0.018	0.001	<0.001	0.045	
Indeno(123-cd)pyrene	0.012	0.005	0.014	0.013	0.001	<0.001	0.014	
Dibenz(a,h)anthracene	0.154	0.01	0.024	0.097	0.001	<0.001	0.161	
Benzo(ghi)perylene	0.031	0.046	0.02	0.027	0.001	<0.001	0.029	
Dibenzo(a,l)pyrene	0.014	0.021	0.009	0.009	0.001	<0.001	0.015	
Dibenzo(a,i)pyrene	0.003	0.006	0.008	0.007	0.001	<0.001	0.003	
Dibenzo(a,h)pyrene	0.004	0.006	0.007	0.007	0.001	<0.001	0.004	



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 16-Apr	Patricia McInnes 16-Apr	Athabasca Valley 16-Apr	Anzac 16-Apr	16-Apr	16-Apr
Naphthalene	0.197	0.266	0.161	0.251	0.005	<0.001
Acenaphthylene	0.142	0.312	0.069	0.052	0.001	<0.001
Acenaphthene	0.664	0.308	0.236	7.65	0.001	<0.001
Fluorene	0.743	1	0.777	9.28	0.002	<0.001
Phenanthrene	1.93	1.87	1.59	7.63	0.003	<0.001
Anthracene	0.237	0.237	0.219	0.981	0.002	<0.001
Acridine	0.367	0.217	0.221	0.096	0.001	<0.001
Fluoranthene	0.098	0.249	0.155	0.397	0.002	<0.001
Pyrene	0.11	0.255	0.205	0.184	0.002	<0.001
Benzo(c)phenanthrene	0.017	0.029	0.026	0.025	0.001	<0.001
Benzo(a)anthracene	0.039	0.082	0.062	0.031	0.001	<0.001
Chrysene	0.044	0.093	0.071	0.036	0.001	<0.001
7,12-Dimethylbenz(a)anthracene	0.423	0.389	0.534	0.181	0.002	0.003
Benzo(b)fluoranthene	0.008	0.062	0.034	0.029	0.001	<0.001
Benzo(k)fluoranthene	0.01	0.07	0.039	0.033	0.001	<0.001
Benzo(a)pyrene	0.011	0.031	0.034	0.012	0.001	<0.001
3-Methylcholanthrene	0.019	0.017	0.031	0.007	0.001	<0.001
Indeno(123-cd)pyrene	0.018	0.006	0.009	0.003	0.001	<0.001
Dibenz(a,h)anthracene	0.023	0.02	0.032	0.011	0.001	<0.001
Benzo(ghi)perylene	0.012	0.055	0.02	0.006	0.001	<0.001
Dibenzo(a,l)pyrene	0.013	0.014	0.034	0.002	0.001	<0.001
Dibenzo(a,i)pyrene	0.007	0.006	0.005	0.006	0.001	<0.001
Dibenzo(a,h)pyrene	0.007	0.007	0.005	0.006	0.001	<0.001



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 22-Apr	Patricia McInnes 22-Apr	Athabasca Valley 22-Apr	Anzac 22-Apr	22-Apr	22-Apr	Patricia McInnes 22-Apr
Naphthalene	1.71	0.98	1.01	3.81	0.005	<0.001	1.04
Acenaphthylene	0.157	0.083	0.118	0.039	0.001	<0.001	0.087
Acenaphthene	0.2	0.187	0.168	7.49	0.001	<0.001	0.19
Fluorene	0.557	0.493	0.804	5.87	0.002	<0.001	0.534
Phenanthrene	0.954	0.913	1.3	4.71	0.003	0.002	0.966
Anthracene	0.12	0.119	0.179	0.389	0.002	<0.001	0.13
Acridine	0.114	0.086	0.135	0.086	0.001	<0.001	0.082
Fluoranthene	0.076	0.162	0.179	0.225	0.002	<0.001	0.171
Pyrene	0.076	0.174	0.226	0.128	0.002	<0.001	0.175
Benzo(c)phenanthrene	0.006	0.03	0.011	0.015	0.001	<0.001	0.029
Benzo(a)anthracene	0.032	0.04	0.043	0.031	0.001	<0.001	0.042
Chrysene	0.037	0.046	0.049	0.035	0.001	<0.001	0.047
7,12-Dimethylbenz(a)anthracene	0.418	0.366	0.145	0.254	0.002	<0.001	0.388
Benzo(b)fluoranthene	0.013	0.037	0.01	0.025	0.001	<0.001	0.043
Benzo(k)fluoranthene	0.015	0.042	0.011	0.028	0.001	<0.001	0.048
Benzo(a)pyrene	0.007	0.014	0.007	0.014	0.001	<0.001	0.015
3-Methylcholanthrene	0.005	0.023	0.003	0.005	0.001	<0.001	0.026
Indeno(123-cd)pyrene	0.003	0.011	0.009	0.021	0.001	<0.001	0.012
Dibenz(a,h)anthracene	0.008	0.019	0.008	0.029	0.001	<0.001	0.019
Benzo(ghi)perylene	0.01	0.026	0.011	0.024	0.001	<0.001	0.03
Dibenzo(a,l)pyrene	0.004	0.012	0.009	0.009	0.001	<0.001	0.012
Dibenzo(a,i)pyrene	<0.001	0.004	0.005	0.008	0.001	<0.001	0.004
Dibenzo(a,h)pyrene	<0.001	0.005	0.005	0.008	0.001	<0.001	0.004



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 28-Apr	Patricia McInnes 28-Apr	Athabasca Valley 28-Apr	Anzac 28-Apr	28-Apr	28-Apr	Athabasca Valley 28-Apr
Naphthalene	0.257	0.886	0.079	0.226	0.005	<0.001	0.078
Acenaphthylene	0.094	0.09	0.069	0.013	0.001	<0.001	0.069
Acenaphthene	0.218	0.095	0.054	0.943	0.001	<0.001	0.057
Fluorene	0.443	0.275	0.207	1.05	0.002	<0.001	0.208
Phenanthrene	0.729	0.447	0.387	1.22	0.003	<0.001	0.392
Anthracene	0.099	0.054	0.05	0.109	0.002	<0.001	0.045
Acridine	0.11	0.031	0.032	0.045	0.001	<0.001	0.03
Fluoranthene	0.042	0.076	0.082	0.075	0.002	<0.001	0.083
Pyrene	0.046	0.077	0.105	0.035	0.002	<0.001	0.104
Benzo(c)phenanthrene	0.002	0.003	0.008	0.004	0.001	<0.001	0.007
Benzo(a)anthracene	0.005	0.007	0.014	0.004	0.001	<0.001	0.013
Chrysene	0.005	0.008	0.016	0.005	0.001	<0.001	0.015
7,12-Dimethylbenz(a)anthracene	0.098	0.193	0.188	0.061	0.002	<0.001	0.197
Benzo(b)fluoranthene	0.004	0.01	0.011	0.007	0.001	<0.001	0.009
Benzo(k)fluoranthene	0.004	0.012	0.012	0.008	0.001	<0.001	0.01
Benzo(a)pyrene	0.004	0.006	0.007	0.005	0.001	<0.001	0.007
3-Methylcholanthrene	0.002	0.005	0.008	0.003	0.001	<0.001	0.009
Indeno(123-cd)pyrene	0.003	0.009	0.015	0.003	0.001	<0.001	0.014
Dibenz(a,h)anthracene	0.005	0.014	0.056	0.005	0.001	<0.001	0.054
Benzo(ghi)perylene	0.007	0.014	0.014	0.005	0.001	<0.001	0.016
Dibenzo(a,l)pyrene	0.007	0.019	0.006	0.008	0.001	<0.001	0.006
Dibenzo(a,i)pyrene	0.005	0.017	0.005	0.006	0.001	<0.001	0.005
Dibenzo(a,h)pyrene	0.004	0.016	0.005	0.005	0.001	<0.001	0.005



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat	
	Fort McKay 04-May	Patricia McInnes 04-May	Athabasca Valley 04-May	Anzac 04-May	04-May	04-May	Anzac 04-May	
Naphthalene	0.952	0.351	0.894	1.5	0.005	0.002	1.56	
Acenaphthylene	0.786	0.135	0.787	0.182	0.001	<0.001	0.186	
Acenaphthene	0.24	0.042	0.607	11.1	0.001	<0.001	10.9	
Fluorene	0.793	0.209	1.47	11	0.002	<0.001	10.7	
Phenanthrene	4.12	1.9	2.87	16.3	0.003	<0.001	15.8	
Anthracene	0.347	0.205	0.438	1.55	0.002	<0.001	1.37	
Acridine	0.167	0.043	0.151	0.13	0.001	<0.001	0.138	
Fluoranthene	0.288	0.408	0.016	0.647	0.002	<0.001	0.631	
Pyrene	0.411	0.428	0.42	0.273	0.002	<0.001	0.276	
Benzo(c)phenanthrene	0.03	0.019	0.04	0.017	0.001	<0.001	0.017	
Benzo(a)anthracene	0.125	0.055	0.069	0.02	0.001	<0.001	0.02	
Chrysene	0.143	0.062	0.079	0.022	0.001	<0.001	0.022	
7,12-Dimethylbenz(a)anthracene	0.358	0.215	0.51	0.254	0.002	<0.001	0.266	
Benzo(b)fluoranthene	0.041	0.023	0.061	0.009	0.001	<0.001	0.01	
Benzo(k)fluoranthene	0.046	0.027	0.069	0.01	0.001	<0.001	0.011	
Benzo(a)pyrene	0.016	0.011	0.033	0.005	0.001	<0.001	0.005	
3-Methylcholanthrene	0.008	0.003	0.004	0.004	0.001	0.001	0.004	
Indeno(123-cd)pyrene	0.004	0.004	0.046	0.005	0.001	<0.001	0.005	
Dibenz(a,h)anthracene	0.015	0.016	0.143	0.008	0.001	<0.001	0.009	
Benzo(ghi)perylene	0.008	0.008	0.039	0.01	0.001	<0.001	0.009	
Dibenzo(a,l)pyrene	0.008	0.011	0.01	0.009	0.001	<0.001	0.008	
Dibenzo(a,i)pyrene	0.005	0.005	0.006	0.006	0.001	<0.001	0.006	
Dibenzo(a,h)pyrene	0.006	0.005	0.006	0.006	0.001	<0.001	0.006	



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat	
	Fort McKay 10-May	Patricia McInnes 10-May	Athabasca Valley 10-May	Anzac 10-May	10-May	10-May	Fort McKay 10-May	
Naphthalene	2.13	2.83	1.44	1.19	0.005	0.002	1.96	
Acenaphthylene	1.22	7.65	0.613	0.044	0.001	0.003	1.18	
Acenaphthene	0.331	0.805	0.777	4	0.001	<0.001	0.305	
Fluorene	0.81	4.47	1.59	5.07	0.001	0.001	0.769	
Phenanthrene	2.01	11.5	2.04	5.84	0.002	0.006	1.86	
Anthracene	0.277	1.64	0.131	0.349	0.001	<0.001	0.261	
Acridine	0.146	0.208	0.14	0.1	0	<0.001	0.129	
Fluoranthene	0.254	2.88	0.275	0.47	0.001	0.002	0.263	
Pyrene	0.241	2.96	0.341	0.259	0.002	0.005	0.259	
Benzo(c)phenanthrene	0.096	0.678	0.23	0.114	0.002	<0.001	0.095	
Benzo(a)anthracene	0.308	1.89	0.244	0.107	0.002	<0.001	0.3	
Chrysene	0.352	2.16	0.277	0.122	0.001	0.002	0.342	
7,12-Dimethylbenz(a)anthracene	0.342	0.373	0.268	0.259	0.01	0.017	0.319	
Benzo(b)fluoranthene	0.401	1.61	0.225	0.08	0.002	0.003	0.37	
Benzo(k)fluoranthene	0.397	1.82	0.259	0.09	0.003	0.002	0.32	
Benzo(a)pyrene	0.076	0.289	0.101	0.037	0.004	<0.001	0.083	
3-Methylcholanthrene	0.019	0.002	0.026	0.009	0.001	0.007	0.018	
Indeno(123-cd)pyrene	0.059	0.144	0.076	0.01	0.004	<0.001	0.06	
Dibenz(a,h)anthracene	0.297	0.134	0.328	0.038	0.001	0.002	0.287	
Benzo(ghi)perylene	0.056	0.195	0.075	0.021	0.001	<0.001	0.054	
Dibenzo(a,l)pyrene	0.018	0.027	0.033	0.023	0.002	<0.001	0.015	
Dibenzo(a,i)pyrene	0.016	0.028	0.024	0.048	0.006	<0.001	0.017	
Dibenzo(a,h)pyrene	0.021	0.03	0.023	0.025	0.005	<0.001	0.021	



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 16-May	Patricia McInnes 16-May	Athabasca Valley 16-May	Anzac 16-May	16-May	16-May
Naphthalene	0.44	0.871	2.27	6.85	0.005	0.011
Acenaphthylene	0.274	1.38	0.925	0.376	0.001	0.001
Acenaphthene	0.31	0.408	2.65	21.8	0.001	0.008
Fluorene	0.942	1.62	5.37	20.9	0.001	0.005
Phenanthrene	2.69	4	7.06	29.6	0.002	0.007
Anthracene	0.223	0.267	0.658	1.75	0.001	0.003
Acridine	0.238	0.122	0.151	0.099	0	<0.001
Fluoranthene	0.278	0.66	0.581	1.53	0.001	0.003
Pyrene	0.302	0.615	0.763	0.644	0.002	0.005
Benzo(c)phenanthrene	0.077	0.081	0.184	0.051	0.002	0.002
Benzo(a)anthracene	0.191	0.116	0.299	0.067	0.002	<0.001
Chrysene	0.216	0.131	0.336	0.075	0.001	0.003
7,12-Dimethylbenz(a)anthracene	0.182	0.197	0.173	0.081	0.01	0.012
Benzo(b)fluoranthene	0.196	0.023	0.304	0.018	0.002	0.004
Benzo(k)fluoranthene	0.222	0.026	0.342	0.02	0.003	0.004
Benzo(a)pyrene	0.117	0.035	0.089	0.023	0.004	<0.001
3-Methylcholanthrene	0.009	0.008	0.011	0.006	0.001	0.002
Indeno(123-cd)pyrene	0.031	0.013	0.035	0.004	0.004	<0.001
Dibenz(a,h)anthracene	0.158	0.06	0.04	0.046	0.001	0.008
Benzo(ghi)perylene	0.017	0.042	0.06	0.002	0.001	<0.001
Dibenzo(a,l)pyrene	0.052	0.03	0.029	0.014	0.002	<0.001
Dibenzo(a,i)pyrene	0.022	0.043	0.016	0.011	0.006	<0.001
Dibenzo(a,h)pyrene	0.027	0.025	0.018	0.016	0.005	0.01



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 22-May	Patricia McInnes 22-May	Athabasca Valley 22-May	Anzac 22-May	22-May	22-May	Patricia McInnes 22-May
Naphthalene	1.51	0.472	1.4	0.746	0.005	0.002	0.486
Acenaphthylene	0.215	0.151	0.16	0.059	0.001	<0.001	0.155
Acenaphthene	0.357	0.244	1.35	2.82	0.001	0.004	0.255
Fluorene	0.777	0.645	2.49	7.82	0.001	0.002	0.631
Phenanthrene	4.04	7.17	3.66	35.3	0.002	0.004	6.96
Anthracene	0.405	0.518	0.308	1.88	0.001	<0.001	0.569
Acridine	0.366	0.044	0.042	0.156	0	<0.001	0.047
Fluoranthene	0.474	2.04	0.427	3.05	0.001	0.004	1.91
Pyrene	0.536	1.7	0.521	1.41	0.002	0.007	1.63
Benzo(c)phenanthrene	0.036	0.469	0.067	0.039	0.002	<0.001	0.445
Benzo(a)anthracene	0.225	0.597	0.153	0.032	0.002	<0.001	0.533
Chrysene	0.254	0.679	0.173	0.035	0.001	<0.001	0.606
7,12-Dimethylbenz(a)anthracene	0.174	0.21	0.291	0.306	0.01	0.013	0.213
Benzo(b)fluoranthene	0.068	0.68	0.236	0.026	0.002	0.002	0.688
Benzo(k)fluoranthene	0.084	0.792	0.268	0.029	0.003	<0.001	0.77
Benzo(a)pyrene	0.069	0.082	0.05	0.024	0.004	<0.001	0.074
3-Methylcholanthrene	0.014	0.052	0.028	0.078	0.001	<0.001	0.046
Indeno(123-cd)pyrene	0.001	0.119	0.027	0.007	0.004	<0.001	0.11
Dibenz(a,h)anthracene	0.026	0.071	0.05	0.016	0.001	0.002	0.063
Benzo(ghi)perylene	0.01	0.063	0.019	0.007	0.001	<0.001	0.056
Dibenzo(a,l)pyrene	0.023	0.053	0.03	0.029	0.002	<0.001	0.047
Dibenzo(a,i)pyrene	0.011	0.014	0.056	0.034	0.006	<0.001	0.014
Dibenzo(a,h)pyrene	0.017	0.025	0.08	0.039	0.005	<0.001	0.022



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat	
	Fort McKay 28-May	Patricia McInnes 28-May	Athabasca Valley 28-May	Anzac 28-May	28-May	28-May	Athabasca Valley 28-May	
Naphthalene	0.494	1.11	0.673	8.51	0.005	0.002	0.637	
Acenaphthylene	0.131	0.602	0.361	0.759	0.001	0.002	0.354	
Acenaphthene	0.243	0.489	0.178	33.5	0.001	0.001	0.175	
Fluorene	0.699	1.22	0.865	51	0.001	<0.001	0.834	
Phenanthrene	4.22	5.43	5.08		0.002	0.003	5.02	
Anthracene	0.371	0.807	0.68	4.42	0.001	0.002	0.67	
Acridine	0.418	0.335	0.305	0.246	0	<0.001	0.321	
Fluoranthene	0.373	0.658	0.776	6.84	0.001	0.004	0.727	
Pyrene	0.454	0.879	0.792	2.58	0.002	0.004	0.733	
Benzo(c)phenanthrene	0.248	0.199	0.131	0.177	0.002	<0.001	0.117	
Benzo(a)anthracene	0.286	0.395	0.301	0.577	0.002	0.002	0.293	
Chrysene	0.325	0.444	0.341	0.656	0.001	0.001	0.314	
7,12-Dimethylbenz(a)anthracene	0.189	0.166	0.239	0.316	0.01	0.015	0.313	
Benzo(b)fluoranthene	0.147	0.075	0.228	0.322	0.002	0.003	0.239	
Benzo(k)fluoranthene	0.169	0.085	0.259	0.364	0.003	0.003	0.271	
Benzo(a)pyrene	0.135	0.064	0.104	0.234	0.004	<0.001	0.113	
3-Methylcholanthrene	0.007	0.011	0.011	0.049	0.001	<0.001	0.01	
Indeno(123-cd)pyrene	0.035	0.039	0.035	0.042	0.004	<0.001	0.039	
Dibenz(a,h)anthracene	0.219	0.078	0.297	0.066	0.001	<0.001	0.238	
Benzo(ghi)perylene	0.06	0.052	0.065	0.082	0.001	0.002	0.058	
Dibenzo(a,l)pyrene	0.094	0.041	0.019	0.062	0.002	<0.001	0.02	
Dibenzo(a,i)pyrene	0.046	0.051	0.023	0.022	0.006	0.007	0.026	
Dibenzo(a,h)pyrene	0.07	0.026	0.041	0.031	0.005	<0.001	0.044	



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat	
	Fort McKay 03-Jun	Patricia McInnes 03-Jun	Athabasca Valley 03-Jun	Anzac 03-Jun	03-Jun	03-Jun	Anzac 03-Jun	
Naphthalene	1.34	0.551	1.47	11.5	0.005	0.002	12.6	
Acenaphthylene	0.446	0.045	1.02	0.971	0.001	0.003	0.995	
Acenaphthene	0.565	0.164	0.944	37.3	0.001	0.001	39.1	
Fluorene	1.47	0.92	2.24	50.3	0.001	<0.001	53.8	
Phenanthrene	4.79	5.69	4.79	94.6	0.002	0.006	99	
Anthracene	0.585	0.61	0.282	5.61	0.001	0.001	6.08	
Acridine	0.503	0.137	0.307	1.39	0	<0.001	1.36	
Fluoranthene	0.437	1.05	0.422	7.53	0.001	0.004	7.76	
Pyrene	0.59	0.806	0.433	3.23	0.002	0.003	3.22	
Benzo(c)phenanthrene	0.268	0.07	0.061	0.184	0.002	0.013	0.202	
Benzo(a)anthracene	0.446	0.147	0.066	0.141	0.002	0.003	0.137	
Chrysene	0.506	0.122	0.072	0.157	0.001	<0.001	0.158	
7,12-Dimethylbenz(a)anthracene	0.276	0.348	0.096	0.213	0.01	0.016	0.235	
Benzo(b)fluoranthene	0.381	0.142	0.067	0.269	0.002	0.001	0.284	
Benzo(k)fluoranthene	0.431	0.16	0.076	0.304	0.003	0.001	0.309	
Benzo(a)pyrene	0.186	0.103	0.071	0.136	0.004	<0.001	0.154	
3-Methylcholanthrene	0.042	0.042	0.01	0.013	0.001	<0.001	0.014	
Indeno(123-cd)pyrene	0.058	0.087	0.055	0.073	0.004	<0.001	0.072	
Dibenz(a,h)anthracene	0.401	0.079	0.13	0.104	0.001	<0.001	0.109	
Benzo(ghi)perylene	0.092	0.066	0.081	0.069	0.001	<0.001	0.073	
Dibenzo(a,l)pyrene	0.011	0.028	0.032	0.022	0.002	<0.001	0.023	
Dibenzo(a,i)pyrene	0.021	0.036	0.023	0.024	0.006	<0.001	0.028	
Dibenzo(a,h)pyrene	0.023	0.037	0.033	0.031	0.005	0.005	0.032	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat
	Fort McKay 09-Jun	Patricia McInnes 09-Jun	Athabasca Valley 09-Jun	Anzac 09-Jun	09-Jun	09-Jun	Fort McKay 09-Jun
Naphthalene	0.67	0.48	0.422	0.24	0.007	0.002	0.702
Acenaphthylene	0.489	0.061	0.239	0.034	0.001	0.001	0.505
Acenaphthene	0.021	0.155	0.236	0.352	0.001	<0.001	0.024
Fluorene	0.118	0.406	0.463	1.38	0.001	0.001	0.124
Phenanthrene	0.626	1.43	1.58	2.46	0.004	0.002	0.681
Anthracene	0.052	0.162	0.167	0.172	0.001	<0.001	0.055
Acridine	0.093	0.126	0.122	0.081	0.001	<0.001	0.092
Fluoranthene	0.052	0.131	0.12	0.245	0.002	0.001	0.055
Pyrene	0.049	0.124	0.127	0.135	0.001	<0.001	0.051
Benzo(c)phenanthrene	0.024	0.046	0.028	0.031	0.001	<0.001	0.027
Benzo(a)anthracene	0.011	0.013	0.031	0.01	0.001	<0.001	0.011
Chrysene	0.013	0.016	0.036	0.011	0.001	<0.001	0.013
7,12-Dimethylbenz(a)anthracene	0.488	0.658	0.427	0.495	0.008	0.011	0.426
Benzo(b)fluoranthene	0.347	0.597	0.556	0.681	0.002	0.004	0.369
Benzo(k)fluoranthene	0.492	0.673	0.627	0.767	0.002	0.005	0.416
Benzo(a)pyrene	0.021	0.007	0.02	0.009	0.002	<0.001	0.022
3-Methylcholanthrene	0.014	0.009	0.011	0.012	0.002	<0.001	0.016
Indeno(123-cd)pyrene	0.016	0.005	0.018	0.014	0.002	<0.001	0.015
Dibenz(a,h)anthracene	0.01	0.024	0.028	0.09	0.001	0.003	0.012
Benzo(ghi)perylene	0.021	0.03	0.047	0.049	0.001	<0.001	0.018
Dibenzo(a,l)pyrene	0.018	0.04	0.042	0.037	0.007	<0.001	0.052
Dibenzo(a,i)pyrene	0.009	0.011	0.012	0.019	0.001	<0.001	0.01
Dibenzo(a,h)pyrene	0.007	0.007	0.008	0.011	0.006	<0.001	0.012



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 15-Jun	Patricia McInnes 15-Jun	Athabasca Valley 15-Jun	Anzac 15-Jun	15-Jun	15-Jun
Naphthalene	0.76	0.559	0.61	1.12	0.007	0.002
Acenaphthylene	0.228	0.387	0.346	0.462	0.001	<0.001
Acenaphthene	0.058	0.25	0.362	2.13	0.001	0.001
Fluorene	0.35	0.636	0.738	5.09	0.001	<0.001
Phenanthrene	1.9	2.51	2.07	9.09	0.004	0.002
Anthracene	0.235	0.215	0.327	0.718	0.001	0.002
Acridine	0.138	0.236	0.373	0.11	0.001	<0.001
Fluoranthene	0.117	0.303	0.13	0.942	0.002	<0.001
Pyrene	0.109	0.25	0.172	0.442	0.001	<0.001
Benzo(c)phenanthrene	0.035	0.075	0.043	0.055	0.001	<0.001
Benzo(a)anthracene	0.013	0.044	0.026	0.014	0.001	<0.001
Chrysene	0.015	0.051	0.03	0.017	0.001	<0.001
7,12-Dimethylbenz(a)anthracene	0.393	0.775	0.602	0.739	0.008	0.01
Benzo(b)fluoranthene	0.658	0.569	0.321	0.959	0.002	0.004
Benzo(k)fluoranthene	0.742	0.642	0.362	1.08	0.002	0.004
Benzo(a)pyrene	0.018	0.025	0.024	0.01	0.002	<0.001
3-Methylcholanthrene	0.014	0.017	0.01	0.01	0.002	<0.001
Indeno(123-cd)pyrene	0.007	0.014	0.011	0.017	0.002	0.002
Dibenz(a,h)anthracene	0.07	0.127	0.02	0.013	0.001	0.003
Benzo(ghi)perylene	0.024	0.067	0.078	0.059	0.001	0.002
Dibenzo(a,l)pyrene	0.033	0.028	0.049	0.05	0.007	<0.001
Dibenzo(a,i)pyrene	0.021	0.013	0.014	0.017	0.001	<0.001
Dibenzo(a,h)pyrene	0.012	0.011	0.018	0.016	0.006	<0.001



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat	
	Fort McKay 21-Jun	Patricia McInnes 21-Jun	Athabasca Valley 21-Jun	Anzac 21-Jun	21-Jun	21-Jun	Patricia McInnes 21-Jun	
Naphthalene	0.676	1.29	0.735	1.2	0.007	0.005	1.23	
Acenaphthylene	0.038	1.12	1.72	0.23	0.001	0.001	1.13	
Acenaphthene	0.129	0.161	0.39	7.87	0.001	<0.001	0.153	
Fluorene	0.332	1.08	0.93	25.9	0.001	0.002	1.05	
Phenanthrene	2.31	3.85	3.61	59.5	0.004	0.001	3.7	
Anthracene	0.2	0.352	0.262	3.58	0.001	<0.001	0.368	
Acridine	0.157	0.042	0.192	0.307	0.001	<0.001	0.041	
Fluoranthene	0.249	0.828	0.81	3.84	0.002	<0.001	0.826	
Pyrene	0.281	0.82	1.05	1.58	0.001	<0.001	0.801	
Benzo(c)phenanthrene	0.041	0.104	0.077	0.024	0.001	<0.001	0.094	
Benzo(a)anthracene	0.055	0.142	0.131	0.016	0.001	<0.001	0.137	
Chrysene	0.062	0.162	0.15	0.018	0.001	<0.001	0.157	
7,12-Dimethylbenz(a)anthracene	0.43	0.588	0.481	0.152	0.008	0.013	0.586	
Benzo(b)fluoranthene	0.177	0.481	0.369	0.093	0.002	0.002	0.422	
Benzo(k)fluoranthene	0.194	0.499	0.416	0.105	0.002	0.002	0.464	
Benzo(a)pyrene	0.034	0.059	0.066	0.014	0.002	<0.001	0.051	
3-Methylcholanthrene	0.011	0.022	0.007	0.008	0.002	<0.001	0.025	
Indeno(123-cd)pyrene	0.035	0.07	0.046	0.014	0.002	0.002	0.065	
Dibenz(a,h)anthracene	0.184	0.328	0.437	0.018	0.001	0.002	0.343	
Benzo(ghi)perylene	0.08	0.074	0.056	0.036	0.001	<0.001	0.076	
Dibenzo(a,l)pyrene	0.026	0.064	0.022	0.028	0.007	<0.001	0.043	
Dibenzo(a,i)pyrene	0.014	0.022	0.012	0.017	0.001	<0.001	0.02	
Dibenzo(a,h)pyrene	0.008	0.017	0.006	0.012	0.006	<0.001	0.016	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 27-Jun	Patricia McInnes 27-Jun	Athabasca Valley 27-Jun	Anzac 27-Jun	27-Jun	27-Jun	Athabasca Valley 27-Jun
Naphthalene	0.352	0.767	0.484	1.42	0.007	0.002	0.466
Acenaphthylene	0.154	0.415	0.237	0.296	0.001	<0.001	0.247
Acenaphthene	0.051	0.146	0.137	2.2	0.001	<0.001	0.134
Fluorene	0.296	0.385	0.315	2.4	0.001	<0.001	0.318
Phenanthrene	2.37	2.14	1.41	11.8	0.004	0.002	1.49
Anthracene	0.158	0.163	0.133	0.747	0.001	<0.001	0.14
Acridine	0.178	0.017	0.099	0.096	0.001	<0.001	0.101
Fluoranthene	0.219	0.41	0.176	1.34	0.002	<0.001	0.182
Pyrene	0.241	0.36	0.227	0.645	0.001	<0.001	0.228
Benzo(c)phenanthrene	0.031	0.055	0.043	0.05	0.001	<0.001	0.039
Benzo(a)anthracene	0.041	0.056	0.02	0.024	0.001	<0.001	0.017
Chrysene	0.047	0.064	0.024	0.028	0.001	<0.001	0.02
7,12-Dimethylbenzo(a)anthracene	0.276	0.376	0.319	0.381	0.008	0.012	0.319
Benzo(b)fluoranthene	0.308	0.483	0.508	0.456	0.002	0.003	0.5
Benzo(k)fluoranthene	0.347	0.545	0.572	0.515	0.002	0.004	0.564
Benzo(a)pyrene	0.033	0.05	0.042	0.016	0.002	<0.001	0.041
3-Methylcholanthrene	0.01	0.008	0.006	0.013	0.002	<0.001	0.007
Indeno(123-cd)pyrene	0.014	0.048	0.012	0.016	0.002	0.002	0.011
Dibenzo(a,h)anthracene	0.043	0.011	0.028	0.07	0.001	0.001	0.02
Benzo(ghi)perylene	0.022	0.051	0.046	0.046	0.001	<0.001	0.045
Dibenzo(a,l)pyrene	0.027	0.044	0.02	0.041	0.007	<0.001	0.02
Dibenzo(a,i)pyrene	0.022	0.016	0.012	0.012	0.001	0.001	0.013
Dibenzo(a,h)pyrene	0.008	0.011	0.015	0.009	0.006	<0.001	0.018



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat	
	Fort McKay 03-Jul	Patricia McInnes 03-Jul	Athabasca Valley 03-Jul	Anzac 03-Jul	03-Jul	03-Jul	Anzac 03-Jul	
Naphthalene	0.311	1.26	0.694	3.85	0.007	0.002	4.06	
Acenaphthylene	0.036	0.251	0.836	0.292	0.001	<0.001	0.277	
Acenaphthene	0.033	0.103	0.429	10.7	0.001	0.001	10.3	
Fluorene	0.146	0.368	0.848	9.51	0.001	<0.001	9.27	
Phenanthrene	1.52	1.34	2.69	10.8	0.004	0.003	10.5	
Anthracene	0.14	0.144	0.299	0.869	0.001	<0.001	0.894	
Acridine	0.096	0.024	0.189	0.073	0.001	<0.001	0.076	
Fluoranthene	0.171	0.183	0.377	0.553	0.002	<0.001	0.584	
Pyrene	0.178	0.157	0.373	0.308	0.001	<0.001	0.299	
Benzo(c)phenanthrene	0.035	0.012	0.019	0.02	0.001	<0.001	0.018	
Benzo(a)anthracene	0.033	0.018	0.041	0.022	0.001	<0.001	0.02	
Chrysene	0.038	0.021	0.047	0.026	0.001	<0.001	0.023	
7,12-Dimethylbenz(a)anthracene	0.45	0.172	0.192	0.221	0.008	0.01	0.238	
Benzo(b)fluoranthene	0.015	0.063	0.082	0.22	0.002	0.003	0.198	
Benzo(k)fluoranthene	0.017	0.071	0.092	0.248	0.002	0.003	0.224	
Benzo(a)pyrene	0.046	0.019	0.021	0.022	0.002	<0.001	0.025	
3-Methylcholanthrene	0.008	0.018	0.008	0.006	0.002	<0.001	0.005	
Indeno(123-cd)pyrene	0.049	0.021	0.029	0.028	0.002	0.002	0.025	
Dibenz(a,h)anthracene	0.025	0.128	0.021	0.019	0.001	0.002	0.017	
Benzo(ghi)perylene	0.069	0.031	0.056	0.034	0.001	<0.001	0.033	
Dibenzo(a,l)pyrene	0.044	0.022	0.016	0.045	0.007	<0.001	0.041	
Dibenzo(a,i)pyrene	0.053	0.037	0.03	0.036	0.001	0.001	0.037	
Dibenzo(a,h)pyrene	0.049	0.035	0.04	0.033	0.006	<0.001	0.032	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 1 Repeat
	Fort McKay 09-Jul	Patricia McInnes 09-Jul	Athabasca Valley 09-Jul	Anzac 09-Jul	09-Jul	09-Jul	Fort McKay 09-Jul
Naphthalene	0.546	0.582	0.589	0.963	0.007	0.003	0.51
Acenaphthylene	0.389	0.173	0.25	0.102	0.001	<0.001	0.342
Acenaphthene	0.192	0.063	0.187	3.2	0.001	<0.001	0.181
Fluorene	0.471	0.526	0.515	5.8	0.001	<0.001	0.438
Phenanthrene	3.66	3.94	2.36	35.5	0.003	<0.001	3.51
Anthracene	0.368	0.327	0.231	2.71	0.001	<0.001	0.324
Acridine	0.377	0.038	0.093	9.28	0.001	<0.001	0.36
Fluoranthene	0.277	0.866	0.293	3.18	0.001	<0.001	0.261
Pyrene	0.326	0.743	0.346	1.46	0.001	<0.001	0.298
Benzo(c)phenanthrene	0.017	0.041	0.015	0.028	0	<0.001	0.014
Benzo(a)anthracene	0.032	0.066	0.021	0.019	0.001	0.001	0.033
Chrysene	0.037	0.066	0.028	0.022	0.001	<0.001	0.032
7,12-Dimethylbenz(a)anthracene	0.215	0.197	0.201	0.807	0.007	0.023	0.188
Benzo(b)fluoranthene	0.055	0.258	0.056	0.033	0.001	<0.001	0.044
Benzo(k)fluoranthene	0.054	0.292	0.064	0.037	0.001	<0.001	0.046
Benzo(a)pyrene	0.024	0.069	0.021	0.035	0.002	<0.001	0.02
3-Methylcholanthrene	0.014	0.153	0.034	0.062	0.004	<0.001	0.015
Indeno(123-cd)pyrene	0.03	0.101	0.047	0.009	0.005	<0.001	0.027
Dibenz(a,h)anthracene	0.019	0.128	0.018	0.021	0.002	<0.001	0.021
Benzo(ghi)perylene	0.018	0.032	0.032	0.037	0.006	<0.001	0.02
Dibenzo(a,l)pyrene	0.013	0.015	0.038	0.041	0.004	<0.001	0.012
Dibenzo(a,i)pyrene	0.027	0.038	0.039	0.057	0.005	<0.001	0.025
Dibenzo(a,h)pyrene	0.026	0.023	0.02	0.011	0.007	<0.001	0.025



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 15-Jul	Patricia McInnes 15-Jul	Athabasca Valley 15-Jul	Anzac 15-Jul	15-Jul	15-Jul
Naphthalene	0.704	0.454	0.469	2.04	0.007	0.028
Acenaphthylene	0.021	0.017	0.068	0.337	0.001	<0.001
Acenaphthene	0.063	0.17	0.132	5.82	0.001	0.002
Fluorene	0.199	0.282	0.246	7.22	0.001	<0.001
Phenanthrene	1.42	1.5	2.25	22.2	0.003	0.002
Anthracene	0.194	0.253	0.28	1.82	0.001	<0.001
Acridine	0.151	0.143	0.187	0.183	0.001	<0.001
Fluoranthene	0.114	0.185	0.265	1.24	0.001	<0.001
Pyrene	0.119	0.189	0.321	0.527	0.001	<0.001
Benzo(c)phenanthrene	0.005	0.01	0.01	0.009	0	<0.001
Benzo(a)anthracene	0.013	0.032	0.024	0.023	0.001	<0.001
Chrysene	0.015	0.035	0.023	0.026	0.001	<0.001
7,12-Dimethylbenz(a)anthracene	0.253	0.283	0.258	0.124	0.007	0.023
Benzo(b)fluoranthene	0.036	0.058	0.056	0.06	0.001	0.002
Benzo(k)fluoranthene	0.023	0.065	0.064	0.068	0.001	0.003
Benzo(a)pyrene	0.02	0.097	0.048	0.027	0.002	<0.001
3-Methylcholanthrene	0.011	0.01	0.033	0.024	0.004	<0.001
Indeno(123-cd)pyrene	0.008	0.007	0.023	0.04	0.005	<0.001
Dibenz(a,h)anthracene	0.018	0.019	0.011	0.018	0.002	<0.001
Benzo(ghi)perylene	0.027	0.026	0.031	0.042	0.006	<0.001
Dibenzo(a,l)pyrene	0.02	0.018	0.016	0.026	0.004	<0.001
Dibenzo(a,i)pyrene	0.019	0.029	0.034	0.027	0.005	<0.001
Dibenzo(a,h)pyrene	0.018	0.017	0.016	0.018	0.007	<0.001



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 21-Jul	Patricia McInnes 21-Jul	Athabasca Valley 21-Jul	Anzac 21-Jul	21-Jul	21-Jul	Patricia McInnes 21-Jul
Naphthalene	0.755	1.09	0.618	7.39	0.007	0.002	1.12
Acenaphthylene	0.748	0.467	0.863	0.517	0.001	<0.001	0.507
Acenaphthene	0.214	0.09	0.18	14.7	0.001	<0.001	0.084
Fluorene	0.385	0.548	0.52	17.2	0.001	<0.001	0.568
Phenanthrene	3.77	3.62	4.75	35.7	0.003	0.003	3.77
Anthracene	0.484	0.221	0.346	3.06	0.001	<0.001	0.213
Acridine	0.449	0.205	0.305	0.326	0.001	<0.001	0.182
Fluoranthene	0.262	0.53	0.678	1.96	0.001	<0.001	0.532
Pyrene	0.279	0.576	0.752	0.922	0.001	<0.001	0.583
Benzo(c)phenanthrene	0.004	0.034	0.037	0.024	0	<0.001	0.036
Benzo(a)anthracene	0.023	0.096	0.121	0.046	0.001	0.002	0.091
Chrysene	0.046	0.109	0.138	0.054	0.001	<0.001	0.104
7,12-Dimethylbenz(a)anthracene	0.488	0.421	0.235	0.371	0.007	0.024	0.432
Benzo(b)fluoranthene	0.018	0.158	0.232	0.074	0.001	<0.001	0.132
Benzo(k)fluoranthene	0.022	0.178	0.263	0.084	0.001	<0.001	0.154
Benzo(a)pyrene	0.026	0.045	0.062	0.032	0.002	<0.001	0.05
3-Methylcholanthrene	0.052	0.022	0.028	0.017	0.004	<0.001	0.02
Indeno(123-cd)pyrene	0.014	0.071	0.09	0.015	0.005	<0.001	0.079
Dibenz(a,h)anthracene	0.013	0.021	0.011	0.01	0.002	0.003	0.019
Benzo(ghi)perylene	0.062	0.067	0.071	0.029	0.006	<0.001	0.072
Dibenzo(a,l)pyrene	0.044	0.025	0.023	0.034	0.004	<0.001	0.024
Dibenzo(a,i)pyrene	0.074	0.049	0.098	0.062	0.005	<0.001	0.047
Dibenzo(a,h)pyrene	0.058	0.027	0.055	0.03	0.007	0.006	0.03



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 27-Jul	Patricia McInnes 27-Jul	Athabasca Valley 27-Jul	Anzac 27-Jul	27-Jul	27-Jul	Athabasca Valley 27-Jul
Naphthalene	0.751	0.369	0.405	0.22	0.007	0.005	0.445
Acenaphthylene	1.07	0.217	0.292	0.287	0.001	<0.001	0.285
Acenaphthene	0.338	0.056	0.266	1.07	0.001	<0.001	0.261
Fluorene	0.823	0.534	0.663	5.88	0.001	<0.001	0.634
Phenanthrene	4.21	3.63	1.73	19.1	0.003	<0.001	1.63
Anthracene	0.631	0.411	0.308	1.3	0.001	<0.001	0.295
Acridine	0.416	0.042	0.216	0.173	0.001	<0.001	0.225
Fluoranthene	0.274	0.622	0.136	1.67	0.001	<0.001	0.13
Pyrene	0.409	0.521	0.159	0.783	0.001	<0.001	0.156
Benzo(c)phenanthrene	0.021	0.027	0.01	0.018	0	<0.001	0.01
Benz(a)anthracene	0.085	0.053	0.018	0.037	0.001	<0.001	0.016
Chrysene	0.097	0.061	0.02	0.042	0.001	<0.001	0.018
7,12-Dimethylbenz(a)anthracene	0.31	0.281	0.299	1.35	0.007	0.01	0.279
Benzo(b)fluoranthene	0.098	0.07	0.11	0.05	0.001	<0.001	0.104
Benzo(k)fluoranthene	0.111	0.064	0.105	0.056	0.001	<0.001	0.101
Benzo(a)pyrene	0.078	0.05	0.024	0.065	0.002	<0.001	0.02
3-Methylcholanthrene	0.079	0.037	0.026	0.017	0.004	<0.001	0.028
Indeno(123-cd)pyrene	0.086	0.019	0.016	0.024	0.005	<0.001	0.019
Dibenz(a,h)anthracene	0.031	0.025	0.029	0.04	0.002	0.002	0.026
Benzo(ghi)perylene	0.059	0.04	0.037	0.098	0.006	<0.001	0.034
Dibenzo(a,l)pyrene	0.063	0.023	0.038	0.074	0.004	<0.001	0.04
Dibenzo(a,i)pyrene	0.023	0.051	0.079	0.051	0.005	<0.001	0.072
Dibenzo(a,h)pyrene	0.041	0.049	0.069	0.084	0.007	<0.001	0.063



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat	
	Fort McKay 02-Aug	Patricia McInnes 02-Aug	Athabasca Valley 02-Aug	Anzac 02-Aug	02-Aug	02-Aug	Anzac 02-Aug	
Naphthalene	0.034	0.35	0.348	0.379	0.007	0.006	0.315	
Acenaphthylene	0.032	0.921	0.186	0.061	0.001	<0.001	0.061	
Acenaphthene	0.049	0.265	0.044	1.32	0.001	<0.001	1.29	
Fluorene	0.1	0.79	0.183	3.52	0.001	<0.001	3.41	
Phenanthrene	1.52	3.66	3.25	21.2	0.003	0.002	20.3	
Anthracene	0.164	0.426	0.364	1.6	0.001	<0.001	1.67	
Acridine	0.134	0.055	0.09	0.069	0.001	<0.001	0.073	
Fluoranthene	0.354	0.701	0.491	2.05	0.001	<0.001	2.01	
Pyrene	0.426	0.672	0.508	0.941	0.001	0.002	0.938	
Benzo(c)phenanthrene	0.032	0.034	0.033	0.011	0	<0.001	0.011	
Benzo(a)anthracene	0.107	0.065	0.062	0.014	0.001	<0.001	0.013	
Chrysene	0.123	0.075	0.071	0.015	0.001	<0.001	0.014	
7,12-Dimethylbenz(a)anthracene	0.804	0.195	1.13	0.345	0.007	0.03	0.42	
Benzo(b)fluoranthene	0.14	0.091	0.136	0.444	0.001	<0.001	0.478	
Benzo(k)fluoranthene	0.158	0.101	0.154	0.449	0.001	<0.001	0.489	
Benzo(a)pyrene	0.073	0.036	0.034	0.031	0.002	<0.001	0.034	
3-Methylcholanthrene	0.168	0.017	0.02	0.023	0.004	<0.001	0.024	
Indeno(123-cd)pyrene	0.062	0.073	0.031	0.037	0.005	<0.001	0.033	
Dibenzo(a,h)anthracene	0.058	0.046	0.047	0.042	0.002	<0.001	0.042	
Benzo(ghi)perylene	0.057	0.094	0.068	0.034	0.006	<0.001	0.032	
Dibenzo(a,l)pyrene	0.033	0.062	0.077	0.024	0.004	<0.001	0.025	
Dibenzo(a,i)pyrene	0.012	0.068	0.06	0.043	0.005	<0.001	0.042	
Dibenzo(a,h)pyrene	0.011	0.056	0.05	0.046	0.007	<0.001	0.049	



Compound Name	Results (ng/m3)				
	AMS 6	AMS 7	AMS 14	Lab Blank	AMS 6 Repeat
	Patricia McInnes 08-Aug	Athabasca Valley 08-Aug	Anzac 08-Aug	08-Aug	Patricia McInnes 08-Aug
Naphthalene	0.525	0.491	7.3	0.004	0.582
Acenaphthylene	0.362	0.354	0.582	0.001	0.386
Acenaphthene	0.066	0.283	24.4	0.001	0.073
Fluorene	0.405	1.46	26	0.001	0.439
Phenanthrene	1.08	2.9	34.6	0.003	1.18
Anthracene	0.166	0.342	3.38	0.001	0.16
Acridine	0.051	0.151	0.055	0.001	0.06
Fluoranthene	0.149	0.419	2.65	0.002	0.186
Pyrene	0.141	0.485	1.14	0.002	0.181
Benzo(c)phenanthrene	0.004	0.028	0.008	0.001	0.005
Benzo(a)anthracene	0.01	0.009	0.002	0.001	0.013
Chrysene	0.014	0.011	0.004	0.001	0.016
7,12-Dimethylbenz(a)anthracene	0.303	0.996	0.468	0.002	0.362
Benzo(b)fluoranthene	0.021	0.053	0.02	0.001	0.025
Benzo(k)fluoranthene	0.022	0.058	0.042	0.001	0.024
Benzo(a)pyrene	0.004	0.01	0.003	0.001	0.003
3-Methylcholanthrene	0.004	0.011	0.006	0.003	0.003
Indeno(123-cd)pyrene	0.019	0.021	0.013	0.001	0.018
Dibenzo(a,h)anthracene	0.01	0.018	0.007	0.001	0.012
Benzo(ghi)perylene	0.043	0.059	0.035	0.001	0.049
Dibenzo(a,l)pyrene	0.028	0.03	0.024	0.003	0.031
Dibenzo(a,i)pyrene	0.037	0.01	0.005	0.005	0.038
Dibenzo(a,h)pyrene	0.037	0.017	0.01	0.006	0.037



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank
	Fort McKay 14-Aug	Patricia McInnes 14-Aug	Athabasca Valley 14-Aug	Anzac 14-Aug	14-Aug	14-Aug
Naphthalene	0.257	0.267	0.572	0.639	0.004	0.028
Acenaphthylene	0.028	0.098	0.115	0.206	0.001	<0.001
Acenaphthene	0.06	0.071	0.22	1.42	0.001	0.014
Fluorene	0.149	0.313	0.568	4.8	0.001	0.007
Phenanthrene	0.281	2.18	2.18	22.1	0.003	0.009
Anthracene	0.019	0.265	0.14	1.61	0.001	0.002
Acridine	0.034	0.044	0.085	0.05	0.001	0.001
Fluoranthene	0.02	0.505	0.33	2.49	0.002	<0.001
Pyrene	0.019	0.404	0.352	1.09	0.002	0.001
Benzo(c)phenanthrene	0.001	0.019	0.015	0.006	0.001	<0.001
Benzo(a)anthracene	0.003	0.026	0.015	0.014	0.001	<0.001
Chrysene	0.004	0.03	0.017	0.016	0.001	<0.001
7,12-Dimethylbenzo(a)anthracene	0.263	0.33	0.74	0.525	0.002	0.073
Benzo(b)fluoranthene	0.005	0.023	0.008	0.003	0.001	<0.001
Benzo(k)fluoranthene	0.006	0.024	0.009	0.004	0.001	<0.001
Benzo(a)pyrene	0.004	0.004	0.003	0.006	0.001	<0.001
3-Methylcholanthrene	0.005	0.004	0.006	0.005	0.003	<0.001
Indeno(123-cd)pyrene	0.01	0.011	0.006	0.01	0.001	<0.001
Dibenzo(a,h)anthracene	0.009	0.008	0.005	0.008	0.001	0.002
Benzo(ghi)perylene	0.015	0.057	0.023	0.01	0.001	<0.001
Dibenzo(a,l)pyrene	0.028	0.026	0.009	0.018	0.003	0.003
Dibenzo(a,i)pyrene	0.026	0.015	<0.001	0.015	0.005	<0.001
Dibenzo(a,h)pyrene	0.038	0.029	<0.001	0.012	0.006	<0.001



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 20-Aug	Patricia McInnes 20-Aug	Athabasca Valley 20-Aug	Lower Camp 20-Aug	Anzac 20-Aug	20-Aug	20-Aug	Athabasca Valley 20-Aug
Naphthalene	0.36	0.267	0.712	5.26	0.38	0.004	0.072	0.74
Acenaphthylene	0.279	0.054	0.139	0.712	0.008	0.001	0.001	0.145
Acenaphthene	0.055	0.02	0.032	2.66	0.049	0.001	0.004	0.031
Fluorene	0.293	0.092	0.198	10.7	0.211	0.001	0.009	0.188
Phenanthrene	1.34	0.472	0.683	27.3	1.25	0.003	0.019	0.668
Anthracene	0.131	0.074	0.108	2.8	0.121	0.001	0.003	0.087
Acridine	0.098	0.024	0.041	2.11	0.061	0.001	0.002	0.046
Fluoranthene	0.149	0.061	0.122	2.36	0.131	0.002	0.004	0.111
Pyrene	0.142	0.063	0.151	3.42	0.103	0.002	0.003	0.139
Benzo(c)phenanthrene	0.006	0.002	0.005	0.09	0.003	0.001	<0.001	0.003
Benzo(a)anthracene	0.009	0.003	0.011	1.16	0.006	0.001	<0.001	0.01
Chrysene	0.011	0.003	0.012	1.32	0.008	0.001	<0.001	0.012
7,12-Dimethylbenz(a)anthracene	0.507	0.293	0.527	2.06	0.644	0.002	0.065	0.486
Benzo(b)fluoranthene	0.007	0.006	0.021	0.335	0.012	0.001	<0.001	0.024
Benzo(k)fluoranthene	0.008	0.007	0.021	0.383	0.012	0.001	<0.001	0.024
Benzo(a)pyrene	0.01	0.01	0.014	0.17	0.018	0.001	<0.001	0.013
3-Methylcholanthrene	0.005	0.006	0.004	0.049	0.002	0.003	<0.001	0.004
Indeno(123-cd)pyrene	0.006	0.004	0.007	0.205	0.004	0.001	<0.001	0.005
Dibenz(a,h)anthracene	0.004	0.004	0.006	0.171	0.003	0.001	<0.001	0.006
Benzo(ghi)perylene	0.009	0.007	0.032	0.09	0.006	0.001	0.001	0.029
Dibenzo(a,l)pyrene	0.014	0.017	0.022	0.106	0.015	0.003	<0.001	0.021
Dibenzo(a,i)pyrene	0.022	0.015	0.023	0.101	0.014	0.005	<0.001	0.025
Dibenzo(a,h)pyrene	0.018	0.017	0.026	0.071	0.008	0.006	0.011	0.025



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 11 Repeat
	Fort McKay 26-Aug	Patricia McInnes 26-Aug	Athabasca Valley 26-Aug	Lower Camp 26-Aug	Anzac 26-Aug	26-Aug	26-Aug	Station11 26-Aug
Naphthalene	0.162	0.267	0.254	0.177	0.13	0.004	0.02	0.171
Acenaphthylene	0.579	0.026	0.156	0.376	0.023	0.001	<0.001	0.42
Acenaphthene	0.262	0.148	0.297	0.757	0.246	0.001	0.004	0.73
Fluorene	0.651	0.979	1.06	7.88	2.98	0.001	0.003	7.8
Phenanthrene	4.99	2.92	4.04	35.6	15.9	0.003	0.003	35.1
Anthracene	0.554	0.231	0.49	6.54	1.28	0.001	0.002	6.43
Acridine	0.18	0.2	0.373	0.207	0.046	0.001	<0.001	0.206
Fluoranthene	0.264	0.34	0.564	2.73	1.23	0.002	0.003	2.56
Pyrene	0.319	0.358	0.744	2.38	0.539	0.002	0.002	2.16
Benzo(c)phenanthrene	0.006	0.016	0.023	0.014	0.008	0.001	<0.001	0.05
Benzo(a)anthracene	0.019	0.031	0.061	0.05	0.01	0.001	<0.001	0.035
Chrysene	0.022	0.036	0.07	0.057	0.012	0.001	<0.001	0.04
7,12-Dimethylbenz(a)anthracene	0.524	0.897	0.628	0.445	0.687	0.002	0.046	0.429
Benzo(b)fluoranthene	0.059	0.035	0.062	0.064	0.024	0.001	<0.001	0.058
Benzo(k)fluoranthene	0.067	0.04	0.07	0.073	0.028	0.001	<0.001	0.066
Benzo(a)pyrene	0.008	0.018	0.016	0.008	0.004	0.001	<0.001	0.009
3-Methylcholanthrene	0.004	0.006	0.004	0.002	0.004	0.003	<0.001	0.002
Indeno(123-cd)pyrene	0.004	0.004	0.005	0.002	0.004	0.001	<0.001	0.002
Dibenz(a,h)anthracene	0.002	0.003	0.003	0.003	0.002	0.001	<0.001	0.004
Benzo(ghi)perylene	0.02	0.032	0.028	0.004	0.008	0.001	<0.001	0.004
Dibenzo(a,l)pyrene	0.016	0.024	0.018	0.004	0.016	0.003	0.002	0.006
Dibenzo(a,i)pyrene	0.016	0.021	0.022	0.017	0.025	0.005	<0.001	0.018
Dibenzo(a,h)pyrene	0.006	0.01	0.004	0.005	0.003	0.006	<0.001	0.006



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat	
	Fort McKay 01-Sep	Patricia McInnes 01-Sep	Athabasca Valley 01-Sep	Anzac 01-Sep	01-Sep	01-Sep	Anzac 01-Sep	
Naphthalene	0.181	0.246	0.432	6.01	0.004	0.007	5.74	
Acenaphthylene	0.103	0.444	1.25	0.284	0.001	<0.001	0.3	
Acenaphthene	0.07	0.076	0.319	13	0.001	0.005	13.3	
Fluorene	0.396	0.329	1.48	15.4	0.001	0.005	16	
Phenanthrene	2.69	1.34	3.32	17.4	0.003	0.005	18.4	
Anthracene	0.458	0.239	0.41	1.66	0.001	<0.001	1.69	
Acridine	0.171	0.056	0.177	0.115	0.001	<0.001	0.137	
Fluoranthene	0.306	0.229	0.625	1.01	0.002	<0.001	1.1	
Pyrene	0.331	0.224	0.669	0.419	0.002	<0.001	0.486	
Benzo(c)phenanthrene	0.017	0.009	0.034	0.002	0.001	<0.001	0.003	
Benzo(a)anthracene	0.017	0.015	0.051	0.01	0.001	<0.001	0.009	
Chrysene	0.019	0.017	0.058	0.011	0.001	<0.001	0.01	
7,12-Dimethylbenz(a)anthracene	1.01	0.14	0.389	0.25	0.002	0.043	0.272	
Benzo(b)fluoranthene	0.068	0.008	0.05	0.104	0.001	<0.001	0.115	
Benzo(k)fluoranthene	0.077	0.009	0.057	0.118	0.001	0.001	0.121	
Benzo(a)pyrene	0.005	0.005	0.008	0.013	0.001	<0.001	0.011	
3-Methylcholanthrene	<0.001	0.003	0.001	0.005	0.003	<0.001	0.005	
Indeno(123-cd)pyrene	0.003	0.004	0.005	0.005	0.001	<0.001	0.005	
Dibenz(a,h)anthracene	0.003	0.004	0.003	0.003	0.001	<0.001	0.004	
Benzo(ghi)perylene	0.005	0.005	0.016	0.004	0.001	<0.001	0.005	
Dibenzo(a,l)pyrene	0.009	0.014	0.009	0.021	0.003	<0.001	0.019	
Dibenzo(a,i)pyrene	<0.001	0.015	0.017	0.027	0.005	<0.001	0.024	
Dibenzo(a,h)pyrene	0.007	0.017	0.008	0.012	0.006	<0.001	0.01	



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	AMS 6 Repeat
	Fort McKay 07-Sep	Patricia McInnes 07-Sep	Athabasca Valley 07-Sep	Lower Camp 07-Sep	Anzac 07-Sep	07-Sep	Patricia McInnes 07-Sep
Naphthalene	1.09	0.631	1.65	0.669	0.558	0.007	0.679
Acenaphthylene	0.426	0.74	0.545	0.196	0.058	0.001	0.702
Acenaphthene	0.874	0.193	0.115	0.657	0.404	0.001	0.179
Fluorene	0.879	1.04	0.651	6.24	2	0.001	0.986
Phenanthrene	4.24	4.36	3.81	49.4	17.4	0.003	4.14
Anthracene	0.549	0.746	0.373	5.6	1.6	0.001	0.739
Acridine	0.666	0.047	0.157	2.31	0.14	0.001	0.046
Fluoranthene	0.434	1.03	0.719	3.65	1.47	0.002	0.987
Pyrene	0.457	0.896	0.754	2.72	0.555	0.002	0.879
Benzo(c)phenanthrene	0.01	0.066	0.042	0.062	0.006	0.001	0.059
Benzo(a)anthracene	0.084	0.126	0.083	0.316	0.012	0.001	0.121
Chrysene	0.084	0.148	0.097	0.371	0.015	0.001	0.142
7,12-Dimethylbenz(a)anthracene	0.137	0.052	0.027	0.479	0.012	0.007	0.055
Benzo(b)fluoranthene	0.012	0.041	0.04	0.1	0.007	0.001	0.038
Benzo(k)fluoranthene	0.014	0.042	0.043	0.106	0.007	0.001	0.038
Benzo(a)pyrene	0.021	0.057	0.037	0.223	0.008	0.003	0.055
3-Methylcholanthrene	0.005	0.004	0.004	0.007	0.004	0.002	0.004
Indeno(123-cd)pyrene	0.003	0.016	0.007	0.012	0.005	0.001	0.019
Dibenz(a,h)anthracene	0.002	0.006	0.005	0.015	0.008	0.001	0.006
Benzo(ghi)perylene	0.005	0.005	0.004	0.014	0.004	0.002	0.004
Dibenzo(a,l)pyrene	0.014	0.021	0.021	0.004	0.013	0.002	0.018
Dibenzo(a,i)pyrene	0.006	0.014	0.011	0.029	0.016	0.003	0.012
Dibenzo(a,h)pyrene	0.007	0.01	0.01	0.027	0.013	0.003	0.008



Compound Name	Results (ng/m3)					
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank
	Fort McKay 13-Sep	Patricia McInnes 13-Sep	Athabasca Valley 13-Sep	Lower Camp 13-Sep	Anzac 13-Sep	13-Sep
Naphthalene	0.953	1.15	0.735	0.758	11.6	0.007
Acenaphthylene	0.089	0.605	0.84	0.123	0.217	0.001
Acenaphthene	0.028	0.26	0.15	0.319	25.4	0.001
Fluorene	0.203	0.966	0.46	4.34	34.3	0.001
Phenanthrene	2.55	4.26	3.24	31.6	33.1	0.003
Anthracene	0.333	0.663	0.309	4.59	2.98	0.001
Acridine	0.151	0.337	0.152	0.658	0.272	0.001
Fluoranthene	0.253	0.579	0.523	4.36	3.17	0.002
Pyrene	0.245	0.53	0.585	2.79	1.21	0.002
Benzo(c)phenanthrene	0.008	0.027	0.037	0.09	0.015	0.001
Benz(a)anthracene	0.043	0.091	0.125	0.132	0.029	0.001
Chrysene	0.05	0.107	0.146	0.155	0.034	0.001
7,12-Dimethylbenz(a)anthracene	0.098	0.206	0.152	0.216	0.056	0.007
Benzo(b)fluoranthene	0.015	0.017	0.071	0.016	0.004	0.001
Benzo(k)fluoranthene	0.017	0.031	0.051	0.022	0.004	0.001
Benzo(a)pyrene	0.048	0.045	0.125	0.037	0.026	0.003
3-Methylcholanthrene	0.003	0.004	0.003	0.008	0.005	0.002
Indeno(123-cd)pyrene	0.014	0.005	0.035	0.018	0.005	0.001
Dibenz(a,h)anthracene	0.005	0.004	0.006	0.004	0.002	0.001
Benzo(ghi)perylene	0.002	0.002	0.006	0.002	0.002	0.002
Dibenzo(a,l)pyrene	0.012	0.006	0.033	0.016	0.009	0.002
Dibenzo(a,i)pyrene	0.007	0.015	0.006	0.009	0.016	0.003
Dibenzo(a,h)pyrene	0.004	0.005	0.005	0.01	0.008	0.003



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 19-Sep	Patricia McInnes 19-Sep	Athabasca Valley 19-Sep	Lower Camp 19-Sep	Anzac 19-Sep	19-Sep	19-Sep	Patricia McInnes 19-Sep
Naphthalene	0.662	1.27	0.767	0.695	0.991	0.007	0.085	1.17
Acenaphthylene	0.369	1.15	0.898	0.064	0.142	0.001	0.007	1.09
Acenaphthene	0.254	0.265	0.208	0.609	4.71	0.001	0.01	0.253
Fluorene	0.721	1.15	0.951	5.08	5.04	0.001	0.011	1.09
Phenanthrene	1.75	2.59	2.41	14.3	5.63	0.003	0.016	2.42
Anthracene	0.298	0.499	0.371	2.55	0.479	0.001	0.001	0.412
Acridine	0.353	0.093	0.08	0.858	0.086	0.001	0.003	0.086
Fluoranthene	0.182	0.456	0.541	1.12	0.416	0.002	0.004	0.419
Pyrene	0.195	0.437	0.63	0.973	0.166	0.002	<0.001	0.402
Benzo(c)phenanthrene	0.008	0.023	0.029	0.035	0.005	0.001	<0.001	0.021
Benzo(a)anthracene	0.037	0.031	0.071	0.198	0.006	0.001	<0.001	0.032
Chrysene	0.04	0.037	0.083	0.231	0.008	0.001	<0.001	0.038
7,12-Dimethylbenz(a)anthracene	0.047	0.05	0.02	0.125	0.004	0.007	<0.001	0.043
Benzo(b)fluoranthene	0.025	0.017	0.046	0.043	0.006	0.001	0.002	0.019
Benzo(k)fluoranthene	0.028	0.018	0.052	0.048	0.006	0.001	<0.001	0.02
Benzo(a)pyrene	0.027	0.02	0.059	0.036	0.015	0.003	0.001	0.023
3-Methylcholanthrene	0.008	0.01	0.006	0.003	0.004	0.002	<0.001	0.007
Indeno(123-cd)pyrene	0.017	0.009	0.011	0.012	0.004	0.001	0.001	0.01
Dibenz(a,h)anthracene	0.006	0.005	0.003	0.006	0.002	0.001	<0.001	0.005
Benzo(ghi)perylene	0.003	0.007	0.005	0.005	0.002	0.002	<0.001	0.006
Dibenzo(a,l)pyrene	0.074	0.02	0.01	0.039	0.008	0.002	<0.001	0.019
Dibenzo(a,i)pyrene	0.024	0.026	0.015	0.014	0.013	0.003	<0.001	0.023
Dibenzo(a,h)pyrene	0.023	0.026	0.013	0.015	0.013	0.003	<0.001	0.022



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 11 Repeat
	Fort McKay 25-Sep	Patricia McInnes 25-Sep	Athabasca Valley 25-Sep	Lower Camp 25-Sep	Anzac 25-Sep	25-Sep	25-Sep	Station11 25-Sep
Naphthalene	0.335	0.553	0.554	0.377	0.562	0.007	0.018	0.359
Acenaphthylene	0.077	0.072	0.063	0.166	0.136	0.001	0.005	0.162
Acenaphthene	0.089	0.069	0.096	0.427	4.03	0.001	0.004	0.44
Fluorene	0.47	0.785	0.635	5.94	9.71	0.001	<0.001	6.15
Phenanthrene	1.97	1.85	3.17	23.1	11.6	0.003	0.014	23.9
Anthracene	0.308	0.342	0.364	4.03	1.15	0.001	<0.001	4.18
Acridine	0.162	0.259	0.21	0.744	0.066	0.001	0.013	0.708
Fluoranthene	0.243	0.259	0.61	2.14	0.767	0.002	<0.001	2.23
Pyrene	0.252	0.294	0.725	1.38	0.283	0.002	<0.001	1.41
Benzo(c)phenanthrene	0.01	0.004	0.012	0.016	0.006	0.001	<0.001	0.014
Benzo(a)anthracene	0.031	0.041	0.076	0.085	0.008	0.001	<0.001	0.082
Chrysene	0.037	0.048	0.089	0.1	0.01	0.001	<0.001	0.096
7,12-Dimethylbenz(a)anthracene	0.028	0.157	0.015	0.088	0.016	0.007	<0.001	0.111
Benzo(b)fluoranthene	0.014	0.016	0.026	0.013	0.008	0.001	<0.001	0.016
Benzo(k)fluoranthene	0.015	0.015	0.029	0.017	0.009	0.001	<0.001	0.021
Benzo(a)pyrene	0.027	0.028	0.029	0.02	0.02	0.003	<0.001	0.018
3-Methylcholanthrene	0.011	0.015	0.007	0.008	0.01	0.002	<0.001	0.008
Indeno(123-cd)pyrene	0.006	0.005	0.012	0.003	0.007	0.001	0.002	0.003
Dibenz(a,h)anthracene	0.002	0.002	0.005	0.002	0.004	0.001	<0.001	0.002
Benzo(ghi)perylene	0.004	0.003	0.006	0.002	0.004	0.002	<0.001	0.002
Dibenzo(a,l)pyrene	0.019	0.003	0.019	0.005	0.024	0.002	0.002	0.005
Dibenzo(a,i)pyrene	0.013	0.007	0.015	0.006	0.012	0.003	<0.001	0.007
Dibenzo(a,h)pyrene	0.013	0.004	0.016	0.004	0.012	0.003	<0.001	0.005



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 11 Repeat
	Fort McKay 01-Oct	Patricia McInnes 01-Oct	Athabasca Valley 01-Oct	Lower Camp 01-Oct	Anzac 01-Oct	01-Oct	01-Oct	Station11 01-Oct
Naphthalene	0.397	0.384	0.375	0.234	0.168	0.007	0.021	0.218
Acenaphthylene	0.364	0.162	0.12	0.228	0.336	0.001	0.004	0.199
Acenaphthene	0.141	0.13	0.159	0.18	1.43	0.001	0.004	0.166
Fluorene	0.313	0.38	0.481	0.835	3.93	0.001	0.003	0.818
Phenanthrene	0.787	1.43	1.08	1.94	7.12	0.003	0.014	1.93
Anthracene	0.08	0.199	0.166	0.296	0.818	0.001	0.002	0.27
Acridine	0.043	0.122	0.183	0.134	0.051	0.001	<0.001	0.137
Fluoranthene	0.071	0.193	0.094	0.143	0.569	0.002	0.004	0.155
Pyrene	0.062	0.165	0.101	0.123	0.236	0.002	<0.001	0.136
Benzo(c)phenanthrene	0.003	0.01	0.003	0.003	0.004	0.001	0.002	0.003
Benzo(a)anthracene	0.004	0.01	0.005	0.008	0.004	0.001	<0.001	0.008
Chrysene	0.006	0.013	0.006	0.011	0.006	0.001	<0.001	0.011
7,12-Dimethylbenz(a)anthracene	0.191	0.094	0.041	0.155	<0.001	0.007	<0.001	0.177
Benzo(b)fluoranthene	0.005	0.006	0.005	0.01	0.005	0.001	0.002	0.01
Benzo(k)fluoranthene	0.007	0.004	0.005	0.011	0.005	0.001	0.001	0.011
Benzo(a)pyrene	0.005	0.008	0.008	0.009	0.008	0.003	0.001	0.008
3-Methylcholanthrene	0.006	0.006	0.007	0.005	0.01	0.002	<0.001	0.006
Indeno(123-cd)pyrene	0.005	0.006	0.003	0.004	0.006	0.001	0.002	0.004
Dibenz(a,h)anthracene	0.003	0.004	0.003	0.003	0.004	0.001	<0.001	0.003
Benzo(ghi)perylene	0.004	0.005	0.004	0.004	0.007	0.002	<0.001	0.004
Dibenzo(a,l)pyrene	0.006	0.005	0.004	0.005	0.008	0.002	<0.001	0.005
Dibenzo(a,i)pyrene	0.016	0.016	0.012	0.013	0.017	0.003	0.002	0.011
Dibenzo(a,h)pyrene	0.015	0.014	0.012	0.01	0.017	0.003	<0.001	0.008



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 07-Oct	Patricia McInnes 07-Oct	Athabasca Valley 07-Oct	Lower Camp 07-Oct	Anzac 07-Oct	07-Oct	07-Oct	Patricia McInnes 07-Oct
Naphthalene	2.21	1.04	1.77	1.41	1.13	0.03	0.096	0.959
Acenaphthylene	1.88	0.405	0.716	0.404	0.423	0.002	0.004	0.399
Acenaphthene	0.499	0.083	0.189	0.502	2.13	0.001	0.023	0.079
Fluorene	2.01	1.12	1.11	1.83	4.76	0.002	0.005	1.01
Phenanthrene	4.04	3.07	2.17	3.57	6.89	0.001	0.003	2.87
Anthracene	0.672	0.415	0.336	0.737	1.09	0.002	0.002	0.429
Acridine	1	0.272	0.606	0.174	0.377	0.002	<0.001	0.281
Fluoranthene	0.362	0.588	0.22	0.268	0.686	0.001	<0.001	0.56
Pyrene	0.352	0.601	0.281	0.237	0.305	0.002	0.002	0.543
Benzo(c)phenanthrene	0.039	0.048	0.018	0.022	0.036	0.001	<0.001	0.05
Benzo(a)anthracene	0.146	0.14	0.046	0.054	0.028	0.002	0.001	0.13
Chrysene	0.163	0.121	0.053	0.062	0.02	0.001	<0.001	0.112
7,12-Dimethylbenz(a)anthracene	0.634	0.517	0.365	0.776	0.823	0.005	<0.001	0.487
Benzo(b)fluoranthene	0.561	0.899	0.709	1.03	1.05	0.001	0.006	0.864
Benzo(k)fluoranthene	0.875	0.998	0.879	1.16	1.24	0.005	0.006	0.944
Benzo(a)pyrene	0.064	0.079	0.057	0.058	0.087	0.004	<0.001	0.068
3-Methylcholanthrene	0.032	0.035	0.029	0.038	0.026	0.003	0.002	0.033
Indeno(123-cd)pyrene	0.066	0.064	0.068	0.06	0.068	0.004	<0.001	0.059
Dibenz(a,h)anthracene	0.042	0.037	0.059	0.052	0.05	0.004	<0.001	0.032
Benzo(ghi)perylene	0.043	0.031	0.033	0.014	0.01	0.005	<0.001	0.023
Dibenzo(a,l)pyrene	0.058	0.046	0.065	0.061	0.063	0.007	<0.001	0.056
Dibenzo(a,i)pyrene	0.007	0.02	0.025	0.031	0.02	0.006	<0.001	0.017
Dibenzo(a,h)pyrene	0.015	0.015	0.034	0.012	0.021	0.006	<0.001	0.01



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank
	Fort McKay 13-Oct	Patricia McInnes 13-Oct	Athabasca Valley 13-Oct	Lower Camp 13-Oct	Anzac 13-Oct	13-Oct	13-Oct
Naphthalene	5.36	4.91	7.04	1.52	5.24	0.03	0.037
Acenaphthylene	4.36	6.34	4.81	0.884	1.84	0.002	0.017
Acenaphthene	1.17	0.444	0.382	0.89	9.13	0.001	0.003
Fluorene	2.48	2.83	2.45	8.67	16.1	0.002	0.002
Phenanthrene	5.35	5	5.08	19.1	17.4	0.001	0.003
Anthracene	0.686	0.677	0.567	2.69	1.91	0.002	0.002
Acridine	1.39	0.546	0.544	2.66	0.665	0.002	<0.001
Fluoranthene	0.572	0.956	0.835	1.58	1.26	0.001	<0.001
Pyrene	0.575	0.956	0.868	1.43	0.709	0.002	<0.001
Benzo(c)phenanthrene	0.177	0.154	0.098	0.15	0.07	0.001	<0.001
Benzo(a)anthracene	0.315	0.401	0.38	0.921	0.302	0.002	0.001
Chrysene	0.349	0.443	0.419	1.02	0.334	0.001	<0.001
7,12-Dimethylbenzo(a)anthracene	3.36	1.75	2.24	3.99	1.97	0.005	<0.001
Benzo(b)fluoranthene	2.11	4.06	1.75	3.33	3.22	0.001	0.005
Benzo(k)fluoranthene	2.38	4.59	2.09	3.18	3.79	0.005	0.002
Benzo(a)pyrene	0.074	0.052	0.062	0.061	0.058	0.004	0.001
3-Methylcholanthrene	0.011	0.03	0.006	0.027	0.027	0.003	0.003
Indeno(123-cd)pyrene	0.055	0.044	0.051	0.06	0.073	0.004	<0.001
Dibenz(a,h)anthracene	0.041	0.037	0.033	0.029	0.038	0.004	<0.001
Benzo(ghi)perylene	0.042	0.047	0.053	0.042	0.05	0.005	<0.001
Dibenzo(a,l)pyrene	0.065	0.068	0.047	0.051	0.04	0.007	<0.001
Dibenzo(a,i)pyrene	0.062	0.05	0.043	0.044	0.057	0.006	<0.001
Dibenzo(a,h)pyrene	0.018	0.021	0.016	0.024	0.018	0.006	<0.001



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 19-Oct	Patricia McInnes 19-Oct	Athabasca Valley 19-Oct	Lower Camp 19-Oct	Anzac 19-Oct	19-Oct	19-Oct	Athabasca Valley 19-Oct
Naphthalene	2.31	4.66	2.97	0.526	1.32	0.03	0.028	3.02
Acenaphthylene	1.11	2.39	2.9	0.724	0.552	0.002	0.017	2.98
Acenaphthene	0.383	0.491	0.387	0.461	3.81	0.001	0.002	0.413
Fluorene	0.948	2.08	1.68	3.97	5.11	0.002	0.001	1.51
Phenanthrene	2.23	4.02	3.71	8.64	4.73	0.001	0.003	3.59
Anthracene	0.338	0.772	0.583	1.44	0.441	0.002	0.002	0.601
Acridine	0.709	0.904	0.609	1.43	0.548	0.002	<0.001	0.666
Fluoranthene	0.243	0.575	0.579	0.631	0.32	0.001	<0.001	0.591
Pyrene	0.238	0.636	0.604	0.56	0.194	0.002	0.003	0.612
Benzo(c)phenanthrene	0.016	0.025	0.038	0.042	0.04	0.001	<0.001	0.043
Benzo(a)anthracene	0.095	0.21	0.183	0.091	0.068	0.002	<0.001	0.171
Chrysene	0.109	0.241	0.203	0.102	0.077	0.001	<0.001	0.189
7,12-Dimethylbenz(a)anthracene	0.606	1.28	2.58	1.03	0.433	0.005	<0.001	2.59
Benzo(b)fluoranthene	1.01	2.42	1.9	0.803	1.13	0.001	0.004	1.95
Benzo(k)fluoranthene	1.16	2.96	2.35	0.821	1.26	0.005	0.002	2.1
Benzo(a)pyrene	0.07	0.072	0.051	0.05	0.052	0.004	0.003	0.049
3-Methylcholanthrene	0.016	0.022	0.033	0.033	0.039	0.003	0.001	0.038
Indeno(123-cd)pyrene	0.055	0.055	0.062	0.05	0.071	0.004	<0.001	0.062
Dibenz(a,h)anthracene	0.04	0.065	0.048	0.046	0.061	0.004	0.004	0.052
Benzo(ghi)perylene	0.031	0.043	0.045	0.053	0.062	0.005	<0.001	0.044
Dibenzo(a,l)pyrene	0.079	0.058	0.055	0.055	0.047	0.007	0.002	0.057
Dibenzo(a,i)pyrene	0.018	0.046	0.02	0.029	0.033	0.006	<0.001	0.018
Dibenzo(a,h)pyrene	0.024	0.04	0.016	0.022	0.027	0.006	<0.001	0.014



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat
	Fort McKay 25-Oct	Patricia McInnes 25-Oct	Athabasca Valley 25-Oct	Lower Camp 25-Oct	Anzac 25-Oct	25-Oct	25-Oct	Anzac 25-Oct
Naphthalene	1.12	1.08	1.66	0.985	0.831	0.03	0.033	0.797
Acenaphthylene	5.7	6.23	4.64	0.631	0.417	0.002	0.011	0.436
Acenaphthene	1.42	0.396	0.345	1.21	5.88	0.001	0.001	5.51
Fluorene	2.37	2.18	1.73	5.53	8.95	0.002	0.001	8.31
Phenanthrene	3.6	3.92	2.87	7.4	7.19	0.001	0.003	6.75
Anthracene	0.559	0.573	0.434	1.07	0.596	0.002	0.001	0.581
Acridine	1.13	0.182	0.289	1.44	0.172	0.002	<0.001	0.162
Fluoranthene	0.587	0.804	0.541	0.615	0.36	0.001	<0.001	0.354
Pyrene	0.782	0.757	0.579	1.13	0.142	0.002	<0.001	0.145
Benzo(c)phenanthrene	0.098	0.101	0.082	0.145	0.046	0.001	<0.001	0.04
Benzo(a)anthracene	0.234	0.195	0.177	1.35	0.04	0.002	<0.001	0.042
Chrysene	0.26	0.217	0.197	1.49	0.041	0.001	<0.001	0.048
7,12-Dimethylbenz(a)anthracene	1.95	0.916	1.54	1.6	0.539	0.005	<0.001	0.556
Benzo(b)fluoranthene	0.695	0.864	1.17	0.409	1.11	0.001	0.005	1.14
Benzo(k)fluoranthene	0.796	1.07	1.41	0.398	1.28	0.005	0.003	1.25
Benzo(a)pyrene	0.08	0.089	0.054	0.063	0.056	0.004	0.002	0.061
3-Methylcholanthrene	0.006	0.004	0.007	0.03	0.028	0.003	<0.001	0.027
Indeno(123-cd)pyrene	0.062	0.071	0.057	0.072	0.085	0.004	<0.001	0.089
Dibenz(a,h)anthracene	0.067	0.053	0.045	0.05	0.048	0.004	0.004	0.049
Benzo(ghi)perylene	0.068	0.057	0.057	0.064	0.058	0.005	<0.001	0.055
Dibenzo(a,l)pyrene	0.052	0.05	0.052	0.069	0.067	0.007	<0.001	0.063
Dibenzo(a,i)pyrene	0.02	0.033	0.012	0.026	0.037	0.006	<0.001	0.032
Dibenzo(a,h)pyrene	0.028	0.04	0.007	0.034	0.036	0.006	<0.001	0.033



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank
	Fort McKay 31-Oct	Patricia McInnes 31-Oct	Athabasca Valley 31-Oct	Lower Camp 31-Oct	Anzac 31-Oct	31-Oct	31-Oct
Naphthalene	1.35	0.347	0.437	0.288	0.466	0.03	0.042
Acenaphthylene	4.5	0.563	3.12	1.76	0.525	0.002	0.009
Acenaphthene	1.12	0.142	0.408	0.792	0.702	0.001	0.002
Fluorene	4.29	2.46	5.7	5.72	2.23	0.002	0.002
Phenanthrene	7.16	4.97	6.94	9.73	2.82	0.001	0.009
Anthracene	1.08	0.542	1.15	1.94	0.323	0.002	0.001
Acridine	2.1	0.444	1.05	1.83	0.535	0.002	<0.001
Fluoranthene	0.771	1.13	1.27	1.19	0.351	0.001	<0.001
Pyrene	0.784	1.33	1.45	1.49	0.233	0.002	<0.001
Benzo(c)phenanthrene	0.074	0.129	0.116	0.073	0.032	0.001	<0.001
Benzo(a)anthracene	0.375	0.321	0.333	0.66	0.122	0.002	<0.001
Chrysene	0.415	0.354	0.368	0.728	0.137	0.001	<0.001
7,12-Dimethylbenz(a)anthracene	1.49	0.688	1.78	1.46	1.43	0.005	<0.001
Benzo(b)fluoranthene	0.226	0.905	0.44	0.868	1.47	0.001	0.004
Benzo(k)fluoranthene	0.229	1.21	0.517	0.955	1.67	0.005	0.002
Benzo(a)pyrene	0.092	0.063	0.051	0.056	0.058	0.004	<0.001
3-Methylcholanthrene	0.064	0.037	0.066	0.046	0.013	0.003	<0.001
Indeno(123-cd)pyrene	0.096	0.067	0.09	0.084	0.072	0.004	0.002
Dibenz(a,h)anthracene	0.073	0.048	0.044	0.064	0.056	0.004	<0.001
Benzo(ghi)perylene	0.066	0.088	0.078	0.083	0.069	0.005	<0.001
Dibenzo(a,l)pyrene	0.071	0.065	0.055	0.06	0.057	0.007	0.004
Dibenzo(a,i)pyrene	0.032	0.034	0.035	0.031	0.037	0.006	0.013
Dibenzo(a,h)pyrene	0.05	0.031	0.033	0.031	0.03	0.006	<0.001



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 11 Repeat
	Fort McKay 06-Nov	Patricia McInnes 06-Nov	Athabasca Valley 06-Nov	Lower Camp 06-Nov	Anzac 06-Nov	06-Nov	06-Nov	Station11 06-Nov
Naphthalene	0.566	0.422	0.245	0.504	0.529	0.03	0.035	0.545
Acenaphthylene	1.59	0.59	3.01	0.458	0.342	0.002	0.007	0.485
Acenaphthene	1.53	0.314	0.524	1.46	0.272	0.001	0.002	1.64
Fluorene	4.04	2.91	3.38	3.53	2.33	0.002	0.002	3.45
Phenanthrene	7.61	4.44	4.85	5.92	2.12	0.001	0.005	5.65
Anthracene	1.29	0.524	0.443	1.01	0.229	0.002	0.002	1.08
Acridine	2.38	0.3	0.613	2.41	0.172	0.002	<0.001	2.45
Fluoranthene	1.14	0.84	1.07	0.584	0.272	0.001	0.001	0.541
Pyrene	1.55	0.721	1.17	1.53	0.167	0.002	0.001	1.38
Benzo(c)phenanthrene	0.137	0.105	0.102	0.179	0.032	0.001	<0.001	0.183
Benzo(a)anthracene	1.71	0.226	0.416	1.61	0.094	0.002	<0.001	1.56
Chrysene	1.88	0.251	0.459	1.77	0.105	0.001	<0.001	1.71
7,12-Dimethylbenzo(a)anthracene	3.17	1.21	2.17	2.6	0.859	0.005	0.001	2.83
Benzo(b)fluoranthene	2.2	0.939	0.811	0.81	0.782	0.001	0.006	0.781
Benzo(k)fluoranthene	2.48	1.04	0.92	0.854	0.943	0.005	0.004	0.831
Benzo(a)pyrene	0.07	0.066	0.041	0.057	0.065	0.004	<0.001	0.058
3-Methylcholanthrene	0.059	0.016	0.029	0.049	0.007	0.003	<0.001	0.046
Indeno(123-cd)pyrene	0.089	0.061	0.079	0.079	0.067	0.004	0.001	0.076
Dibenzo(a,h)anthracene	0.066	0.067	0.049	0.07	0.065	0.004	<0.001	0.065
Benzo(ghi)perylene	0.078	0.075	0.065	0.081	0.069	0.005	<0.001	0.078
Dibenzo(a,l)pyrene	0.067	0.049	0.057	0.068	0.074	0.007	0.002	0.067
Dibenzo(a,i)pyrene	0.044	0.041	0.029	0.033	0.038	0.006	<0.001	0.033
Dibenzo(a,h)pyrene	0.045	0.038	0.02	0.049	0.044	0.006	<0.001	0.048



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 6 Repeat
	Fort McKay 12-Nov	Patricia McInnes 12-Nov	Athabasca Valley 12-Nov	Lower Camp 12-Nov	Anzac 12-Nov	12-Nov	12-Nov	Patricia McInnes 12-Nov
Naphthalene	4.3	3.27	6.73	3.32	2.12	0.004	0.003	3.72
Acenaphthylene	15.6	7.82	9.28	1.25	1.57	0.001	0.001	7.3
Acenaphthene	4.52	1.24	1.51	1.48	0.343	0.001	0.002	1.17
Fluorene	7.78	3.25	4.66	2.49	1.78	0.001	<0.001	3.53
Phenanthrene	15.5	5.33	6.44	3.99	1.8	0.002	0.002	5.22
Anthracene	2.77	1.07	1.07	0.824	0.151	0.001	<0.001	1.05
Acridine	0.915	0.215	0.781	0.858	0.084	0.001	<0.001	0.197
Fluoranthene	2.73	1.17	1.25	0.539	0.221	0.001	<0.001	1.23
Pyrene	2.67	1.2	1.74	0.909	0.134	0.001	0.004	1.29
Benzo(c)phenanthrene	0.337	0.124	0.145	0.161	0.029	0.001	<0.001	0.117
Benzo(a)anthracene	0.83	0.33	0.237	1.11	0.067	0.001	<0.001	0.332
Chrysene	0.952	0.376	0.27	1.27	0.076	0.001	<0.001	0.379
7,12-Dimethylbenzo(a)anthracene	0.292	0.259	0.12	0.619	0.142	0.003	<0.001	0.292
Benzo(b)fluoranthene	0.302	0.302	0.272	0.457	0.091	0.001	<0.001	0.323
Benzo(k)fluoranthene	0.357	0.406	0.312	0.504	0.099	0.001	<0.001	0.427
Benzo(a)pyrene	0.202	0.242	0.169	0.495	0.045	0.001	0.002	0.253
3-Methylcholanthrene	0.035	0.004	0.011	0.105	0.006	0.001	<0.001	0.005
Indeno(123-cd)pyrene	0.036	0.082	0.028	0.1	0.015	0.002	<0.001	0.093
Dibenzo(a,h)anthracene	0.056	0.018	0.016	0.134	0.013	0.001	<0.001	0.018
Benzo(ghi)perylene	0.226	0.143	0.21	0.238	0.054	0.002	<0.001	0.146
Dibenzo(a,l)pyrene	0.066	0.063	0.058	0.084	0.043	0.004	<0.001	0.066
Dibenzo(a,i)pyrene	0.01	0.014	0.016	0.029	0.013	0.004	<0.001	0.018
Dibenzo(a,h)pyrene	0.006	0.004	0.014	0.03	0.015	0.004	<0.001	0.004



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank
	Fort McKay 18-Nov	Patricia McInnes 18-Nov	Athabasca Valley 18-Nov	Lower Camp 18-Nov	Anzac 18-Nov	18-Nov	18-Nov
Naphthalene	4.6	5.67	3.37	1.16	2.06	0.03	0.003
Acenaphthylene	0.989	1.07	1.22	0.12	0.51	0.002	0.002
Acenaphthene	0.335	0.731	0.664	0.143	1.07	0.001	0.002
Fluorene	0.837	1.21	0.874	0.279	0.578	0.002	<0.001
Phenanthrene	1.54	1.88	1.38	0.388	0.65	0.001	0.002
Anthracene	0.272	0.498	0.298	0.077	0.103	0.002	<0.001
Acridine	0.148	0.161	0.24	0.106	0.038	0.002	<0.001
Fluoranthene	0.331	0.306	0.21	0.055	0.11	0.001	<0.001
Pyrene	0.408	0.346	0.282	0.07	0.104	0.002	<0.001
Benzo(c)phenanthrene	0.055	0.033	0.023	0.005	0.015	0.001	<0.001
Benzo(a)anthracene	0.111	0.084	0.063	0.016	0.016	0.002	<0.001
Chrysene	0.127	0.096	0.072	0.018	0.019	0.001	<0.001
7,12-Dimethylbenz(a)anthracene	0.093	0.068	0.739	0.075	0.051	0.005	<0.001
Benzo(b)fluoranthene	0.115	0.082	0.069	0.01	0.012	0.001	<0.001
Benzo(k)fluoranthene	0.143	0.104	0.057	0.014	0.013	0.005	<0.001
Benzo(a)pyrene	0.127	0.061	0.03	0.007	0.01	0.004	0.001
3-Methylcholanthrene	0.014	0.009	0.006	0.007	0.007	0.003	<0.001
Indeno(123-cd)pyrene	0.01	0.023	0.015	0.003	0.005	0.004	<0.001
Dibenz(a,h)anthracene	0.015	0.013	0.01	0.007	0.009	0.004	<0.001
Benzo(ghi)perylene	0.082	0.06	0.039	0.012	0.012	0.005	<0.001
Dibenzo(a,l)pyrene	0.044	0.093	0.083	0.023	0.038	0.007	<0.001
Dibenzo(a,i)pyrene	0.037	0.019	0.014	0.017	0.025	0.006	0.003
Dibenzo(a,h)pyrene	0.039	0.019	0.012	0.023	0.025	0.006	<0.001



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat
	Fort McKay 24-Nov	Patricia McInnes 24-Nov	Athabasca Valley 24-Nov	Lower Camp 24-Nov	Anzac 24-Nov	24-Nov	24-Nov	Athabasca Valley 24-Nov
Naphthalene	1.83	2.34	1.48	1.21	1.72	0.03	0.003	1.51
Acenaphthylene	0.492	0.491	0.185	0.074	0.088	0.002	0.002	0.163
Acenaphthene	0.304	0.267	0.314	0.488	0.277	0.001	0.002	0.352
Fluorene	0.86	1.22	1.47	1.15	0.938	0.002	<0.001	1.45
Phenanthrene	1.56	1.99	2.54	2.05	1.25	0.001	0.002	2.47
Anthracene	0.275	0.314	0.479	0.434	0.103	0.002	<0.001	0.524
Acridine	0.146	0.147	0.243	0.362	0.081	0.002	<0.001	0.206
Fluoranthene	0.207	0.232	0.36	0.148	0.114	0.001	<0.001	0.328
Pyrene	0.205	0.212	0.351	0.188	0.081	0.002	0.004	0.307
Benzo(c)phenanthrene	0.019	0.013	0.021	0.014	0.007	0.001	<0.001	0.02
Benzo(a)anthracene	0.038	0.022	0.044	0.047	0.014	0.002	<0.001	0.041
Chrysene	0.043	0.024	0.051	0.053	0.016	0.001	<0.001	0.047
7,12-Dimethylbenz(a)anthracene	0.025	0.02	0.035	0.045	0.026	0.005	<0.001	0.039
Benzo(b)fluoranthene	0.035	0.014	0.025	0.018	0.013	0.001	<0.001	0.028
Benzo(k)fluoranthene	0.039	0.015	0.03	0.02	0.012	0.005	<0.001	0.026
Benzo(a)pyrene	0.023	0.012	0.02	0.033	0.014	0.004	0.002	0.02
3-Methylcholanthrene	0.008	0.007	0.008	0.006	0.006	0.003	0.006	0.007
Indeno(123-cd)pyrene	0.006	0.006	0.013	0.017	0.003	0.004	<0.001	0.013
Dibenz(a,h)anthracene	0.007	0.005	0.006	0.016	0.007	0.004	<0.001	0.007
Benzo(ghi)perylene	0.026	0.011	0.015	0.03	0.006	0.005	<0.001	0.013
Dibenzo(a,l)pyrene	0.035	0.027	0.027	0.021	0.027	0.007	<0.001	0.031
Dibenzo(a,i)pyrene	0.02	0.017	0.012	0.013	0.019	0.006	0.004	0.014
Dibenzo(a,h)pyrene	0.034	0.035	0.026	0.012	0.026	0.006	<0.001	0.03



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat
	Fort McKay 30-Nov	Patricia McInnes 30-Nov	Athabasca Valley 30-Nov	Lower Camp 30-Nov	Anzac 30-Nov	30-Nov	30-Nov	Anzac 30-Nov
Naphthalene	4.19	4.07	3.86	5.41	3.27	0.03	0.002	3.08
Acenaphthylene	5.63	2.17	2.59	1.89	0.133	0.002	0.001	0.143
Acenaphthene	1.6	0.591	0.749	1.74	0.839	0.001	0.002	0.823
Fluorene	2.63	2.2	2.27	2.5	1.78	0.002	<0.001	1.74
Phenanthrene	3.44	3.18	3.15	3.83	1.57	0.001	<0.001	1.55
Anthracene	0.536	0.385	0.544	0.697	0.136	0.002	<0.001	0.137
Acridine	0.45	0.124	0.167	0.966	0.089	0.002	<0.001	0.093
Fluoranthene	0.598	0.602	0.671	0.427	0.176	0.001	<0.001	0.166
Pyrene	0.664	0.544	0.749	0.564	0.11	0.002	0.002	0.102
Benzo(c)phenanthrene	0.055	0.067	0.071	0.069	0.016	0.001	<0.001	0.014
Benzo(a)anthracene	0.112	0.096	0.136	0.254	0.025	0.002	<0.001	0.029
Chrysene	0.127	0.109	0.155	0.29	0.029	0.001	<0.001	0.033
7,12-Dimethylbenz(a)anthracene	0.055	0.081	0.118	0.279	0.046	0.005	<0.001	0.047
Benzo(b)fluoranthene	0.056	0.068	0.146	0.091	0.034	0.001	<0.001	0.038
Benzo(k)fluoranthene	0.068	0.08	0.203	0.123	0.042	0.005	<0.001	0.043
Benzo(a)pyrene	0.079	0.039	0.077	0.152	0.027	0.004	0.002	0.024
3-Methylcholanthrene	0.007	0.005	0.011	0.028	0.016	0.003	0.004	0.018
Indeno(123-cd)pyrene	0.039	0.019	0.056	0.032	0.015	0.004	<0.001	0.015
Dibenz(a,h)anthracene	0.024	0.008	0.011	0.047	0.008	0.004	<0.001	0.008
Benzo(ghi)perylene	0.088	0.046	0.097	0.086	0.024	0.005	<0.001	0.021
Dibenzo(a,l)pyrene	0.035	0.047	0.045	0.066	0.035	0.007	<0.001	0.031
Dibenzo(a,i)pyrene	0.011	0.011	0.01	0.002	0.018	0.006	0.001	0.014
Dibenzo(a,h)pyrene	0.021	0.018	0.015	0.006	0.01	0.006	0.002	0.009



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	AMS 6 Repeat
	Fort McKay 06-Dec	Patricia McInnes 06-Dec	Athabasca Valley 06-Dec	Lower Camp 06-Dec	Anzac 06-Dec	06-Dec	Patricia McInnes 06-Dec
Naphthalene	13.5	42.8	87.3	26.8	9.33	0.004	45
Acenaphthylene	1.32	1.56	6.44	0.992	0.221	0.001	1.57
Acenaphthene	0.691	1.4	1.99	0.787	0.458	0.001	1.42
Fluorene	0.774	1.45	3.33	0.978	1.19	0.001	1.48
Phenanthrene	1.05	1.78	3.05	1.6	1.53	0.001	1.76
Anthracene	0.202	0.366	0.687	0.34	0.212	0.001	0.309
Acridine	0.085	0.055	0.324	0.128	0.034	0.001	0.061
Fluoranthene	0.282	0.331	1.08	0.399	0.176	0	0.344
Pyrene	0.39	0.272	1.11	0.783	0.11	0	0.27
Benzo(c)phenanthrene	0.037	0.049	0.104	0.063	0.017	0.001	0.05
Benzo(a)anthracene	0.09	0.102	0.123	0.285	0.024	0	0.095
Chrysene	0.08	0.091	0.147	0.325	0.027	0	0.099
7,12-Dimethylbenzo(a)anthracene	0.099	0.153	0.032	0.154	0.03	0.002	0.143
Benzo(b)fluoranthene	0.133	0.327	0.112	0.083	0.047	0	0.307
Benzo(k)fluoranthene	0.132	0.373	0.127	0.094	0.052	0.001	0.357
Benzo(a)pyrene	0.071	0.067	0.058	0.312	0.016	0.001	0.061
3-Methylcholanthrene	0.029	0.005	0.026	0.02	0.04	0	0.005
Indeno(123-cd)pyrene	0.023	0.021	0.033	0.024	0.01	0.002	0.02
Dibenzo(a,h)anthracene	0.014	0.01	0.014	0.031	0.003	0.001	0.009
Benzo(ghi)perylene	0.012	0.066	0.051	0.032	0.014	0.001	0.065
Dibenzo(a,l)pyrene	0.042	0.08	0.051	0.112	0.02	0.001	0.076
Dibenzo(a,i)pyrene	0.01	0.023	0.015	0.056	0.024	0.002	0.019
Dibenzo(a,h)pyrene	0.006	0.014	0.01	0.03	0.011	0.002	0.014



Compound Name	Results (ng/m3)			
	AMS 1	AMS 6	AMS 7	Lab Blank
	Fort McKay 12-Dec	Patricia McInnes 12-Dec	Athabasca Valley 12-Dec	12-Dec
Naphthalene	37.7	25.9	61.9	0.004
Acenaphthylene	4.21	1.74	6.69	0.001
Acenaphthene	1.15	1.25	1.93	0.001
Fluorene	2.18	1.66	5.87	0.001
Phenanthrene	3.26	2.55	6.93	0.001
Anthracene	0.482	0.438	1.2	0.001
Acridine	0.135	0.069	0.696	0.001
Fluoranthene	1.06	0.461	1.37	0
Pyrene	1.06	0.339	1.81	0
Benzo(c)phenanthrene	0.168	0.033	0.316	0.001
Benzo(a)anthracene	0.312	0.044	0.38	0
Chrysene	0.356	0.05	0.434	0
7,12-Dimethylbenzo(a)anthracene	0.263	0.03	0.118	0.002
Benzo(b)fluoranthene	0.295	0.055	0.403	0
Benzo(k)fluoranthene	0.336	0.063	0.455	0.001
Benzo(a)pyrene	0.183	0.045	0.138	0.001
3-Methylcholanthrene	0.117	0.004	0.04	0
Indeno(123-cd)pyrene	0.037	0.027	0.067	0.002
Dibenzo(a,h)anthracene	0.027	0.01	0.028	0.001
Benzo(ghi)perylene	0.057	0.034	0.109	0.001
Dibenzo(a,l)pyrene	0.107	0.093	0.122	0.001
Dibenzo(a,i)pyrene	0.044	0.014	0.018	0.002
Dibenzo(a,h)pyrene	0.046	0.018	0.032	0.002



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 14	Lab Blank	Field Blank	AMS 7 Repeat	
	Fort McKay 18-Dec	Patricia McInnes 18-Dec	Athabasca Valley 18-Dec	Anzac 18-Dec	18-Dec	18-Dec	Athabasca Valley 18-Dec	
Naphthalene	40.2	27.9	35.6	9.14	0.004	0.002	36.1	
Acenaphthylene	4.1	0.464	2.12	0.188	0.001	0.001	2.12	
Acenaphthene	0.906	0.526	0.729	0.185	0.001	<0.001	0.721	
Fluorene	3.31	0.693	1.96	0.622	0.001	<0.001	2	
Phenanthrene	5.4	0.969	1.47	0.628	0.001	<0.001	1.51	
Anthracene	1.05	0.174	0.365	0.097	0.001	<0.001	0.335	
Acridine	0.133	0.05	0.359	0.029	0.001	<0.001	0.38	
Fluoranthene	1.38	0.158	0.271	0.121	0	<0.001	0.272	
Pyrene	1.6	0.133	0.443	0.104	0	0.004	0.445	
Benzo(c)phenanthrene	0.253	0.025	0.077	0.021	0.001	<0.001	0.071	
Benzo(a)anthracene	0.195	0.044	0.087	0.035	0	<0.001	0.083	
Chrysene	0.25	0.05	0.099	0.04	0	<0.001	0.095	
7,12-Dimethylbenz(a)anthracene	0.421	0.436	0.4	0.104	0.002	<0.001	0.409	
Benzo(b)fluoranthene	0.199	0.208	0.259	0.219	0	<0.001	0.242	
Benzo(k)fluoranthene	0.225	0.253	0.271	0.25	0.001	<0.001	0.252	
Benzo(a)pyrene	0.23	0.03	0.059	0.022	0.001	<0.001	0.058	
3-Methylcholanthrene	0.01	0.026	0.044	0.003	0	0.004	0.042	
Indeno(123-cd)pyrene	0.04	0.03	0.036	0.012	0.002	<0.001	0.04	
Dibenz(a,h)anthracene	0.017	0.004	0.011	0.004	0.001	<0.001	0.011	
Benzo(ghi)perylene	0.088	0.047	0.083	0.014	0.001	<0.001	0.081	
Dibenzo(a,l)pyrene	0.134	0.154	0.085	0.065	0.001	<0.001	0.088	
Dibenzo(a,i)pyrene	0.038	0.028	0.016	0.013	0.002	<0.001	0.013	
Dibenzo(a,h)pyrene	0.042	0.028	0.016	0.01	0.002	<0.001	0.014	



Compound Name	Results (ng/m3)							
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank	AMS 14 Repeat
	Fort McKay 24-Dec	Patricia McInnes 24-Dec	Athabasca Valley 24-Dec	Lower Camp 24-Dec	Anzac 24-Dec	24-Dec	24-Dec	Anzac 24-Dec
Naphthalene	30.5		95.6	24.6	29.1	0.083	0.002	31.1
Acenaphthylene	0.317	2.61	2.53	0.3	0.302	0.004	0.001	0.321
Acenaphthene	0.426	0.877	0.757	0.592	0.277	0.002	<0.001	0.284
Fluorene	1.27	2.23	2.16	1.1	0.751	0.002	<0.001	0.778
Phenanthrene	1.99	3.51	3.4	1.7	0.846	0.003	<0.001	0.866
Anthracene	0.374	0.464	0.577	0.234	0.121	0.002	<0.001	0.128
Acridine	0.169	0.175	0.193	0.311	0.058	0.001	<0.001	0.056
Fluoranthene	0.21	0.69	0.604	0.128	0.099	0.002	<0.001	0.097
Pyrene	0.187	0.64	0.568	0.156	0.072	0.002	0.003	0.074
Benzo(c)phenanthrene	0.023	0.071	0.081	0.018	0.013	0.001	<0.001	0.012
Benzo(a)anthracene	0.05	0.106	0.128	0.096	0.019	0.001	<0.001	0.017
Chrysene	0.057	0.121	0.152	0.109	0.021	0.002	<0.001	0.02
7,12-Dimethylbenz(a)anthracene	0.156	0.073	0.092	0.076	0.037	0.004	<0.001	0.038
Benzo(b)fluoranthene	0.071	0.106	0.151	0.099	0.029	0.001	<0.001	0.028
Benzo(k)fluoranthene	0.084	0.12	0.168	0.113	0.032	0.001	<0.001	0.03
Benzo(a)pyrene	0.027	0.069	0.075	0.061	0.016	0.001	<0.001	0.017
3-Methylcholanthrene	0.095	0.009	0.011	0.042	0.013	0.002	<0.001	0.017
Indeno(123-cd)pyrene	0.013	0.031	0.022	0.016	0.016	0.003	<0.001	0.018
Dibenz(a,h)anthracene	0.007	0.012	0.022	0.02	0.003	0.002	0.002	0.004
Benzo(ghi)perylene	0.017	0.062	0.086	0.029	0.021	0.003	<0.001	0.02
Dibenzo(a,l)pyrene	0.057	0.04	0.044	0.043	0.047	0.002	<0.001	0.047
Dibenzo(a,i)pyrene	0.018	0.021	0.019	0.028	0.027	0.003	<0.001	0.026
Dibenzo(a,h)pyrene	0.018	0.019	0.018	0.019	0.023	0.003	<0.001	0.021



Compound Name	Results (ng/m3)						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	AMS 14 Repeat
	Fort McKay 30-Dec	Patricia McInnes 30-Dec	Athabasca Valley 30-Dec	Lower Camp 30-Dec	Anzac 30-Dec	30-Dec	Anzac 30-Dec
Naphthalene	85.8		38.7	50	31.9	0.004	33.1
Acenaphthylene	4.58	4.1	1.27	0.805	0.122	0.001	0.131
Acenaphthene	1.08	2.29	0.789	0.899	0.355	0.001	0.37
Fluorene	1.83	2.12	1.29	0.967	0.225	0.001	0.24
Phenanthrene	2.1	2.47	0.902	1.37	0.268	0.001	0.263
Anthracene	0.495	0.283	0.192	0.281	0.063	0.001	0.057
Acridine	0.168	0.113	0.069	0.222	0.009	0.001	0.009
Fluoranthene	1.6	1.03	0.234	0.375	0.112	0	0.117
Pyrene	1.98	1.21	0.275	0.763	0.129	0	0.127
Benzo(c)phenanthrene	0.279	0.177	0.025	0.086	0.023	0.001	0.022
Benzo(a)anthracene	0.353	0.254	0.031	0.527	0.028	0	0.022
Chrysene	0.4	0.289	0.036	0.602	0.031	0	0.028
7,12-Dimethylbenz(a)anthracene	0.096	0.096	0.052	0.396	0.376	0.002	0.339
Benzo(b)fluoranthene	0.373	0.269	0.037	0.233	0.099	0	0.095
Benzo(k)fluoranthene	0.421	0.304	0.039	0.264	0.114	0.001	0.104
Benzo(a)pyrene	0.344	0.221	0.026	0.616	0.021	0.001	0.021
3-Methylcholanthrene	0.018	<0.001	0.006	0.016	0.016	0	0.015
Indeno(123-cd)pyrene	0.012	0.021	0.004	0.051	0.015	0.002	0.017
Dibenz(a,h)anthracene	0.026	0.013	0.006	0.074	0.004	0.001	0.005
Benzo(ghi)perylene	0.215	0.189	0.043	0.162	0.025	0.001	0.022
Dibenzo(a,l)pyrene	0.086	0.129	0.072	0.126	0.074	0.001	0.07
Dibenzo(a,i)pyrene	0.024	0.021	0.017	0.03	0.015	0.002	0.018
Dibenzo(a,h)pyrene	0.012	0.017	0.013	0.025	0.015	0.002	0.019



Compound Name	Results - Percentage of Samples Detected > 0						Lab Blank	Field Blank
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14			
	Fort McKay	Patricia McInnes	Athabasca Valley	Lower Camp	Anzac			
Naphthalene	100	100	100	100	100	100	94.6	
Acenaphthylene	100	100	100	100	100	100	51.8	
Acenaphthene	100	100	100	100	100	100	62.5	
Fluorene	100	100	100	100	100	100	46.4	
Phenanthrene	100	100	100	100	100	100	82.1	
Anthracene	100	100	100	100	100	100	30.4	
Acridine	100	100	100	100	100	100	7.1	
Fluoranthene	100	100	100	100	100	100	21.4	
Pyrene	100	100	100	100	100	100	44.6	
Benzo(c)phenanthrene	100	100	100	100	100	100	8.9	
Benzo(a)anthracene	98.3	100	100	100	100	100	21.4	
Chrysene	98.3	100	100	100	100	100	14.3	
7,12-Dimethylbenz(a)anthracene	100	100	100	100	98.3	100	50	
Benzo(b)fluoranthene	98.3	100	100	100	100	100	42.9	
Benzo(k)fluoranthene	98.3	100	100	100	100	100	42.9	
Benzo(a)pyrene	100	100	100	100	100	100	21.4	
3-Methylcholanthrene	98.3	98.4	100	100	100	100	21.4	
Indeno(123-cd)pyrene	100	100	100	100	100	100	23.2	
Dibenz(a,h)anthracene	98.3	100	100	100	100	100	35.7	
Benzo(ghi)perylene	98.3	100	100	100	100	100	10.7	
Dibenzo(a,l)pyrene	100	100	100	100	100	100	26.8	
Dibenzo(a,i)pyrene	96.7	100	98.4	100	100	100	21.4	
Dibenzo(a,h)pyrene	96.7	100	98.4	100	100	100	17.9	



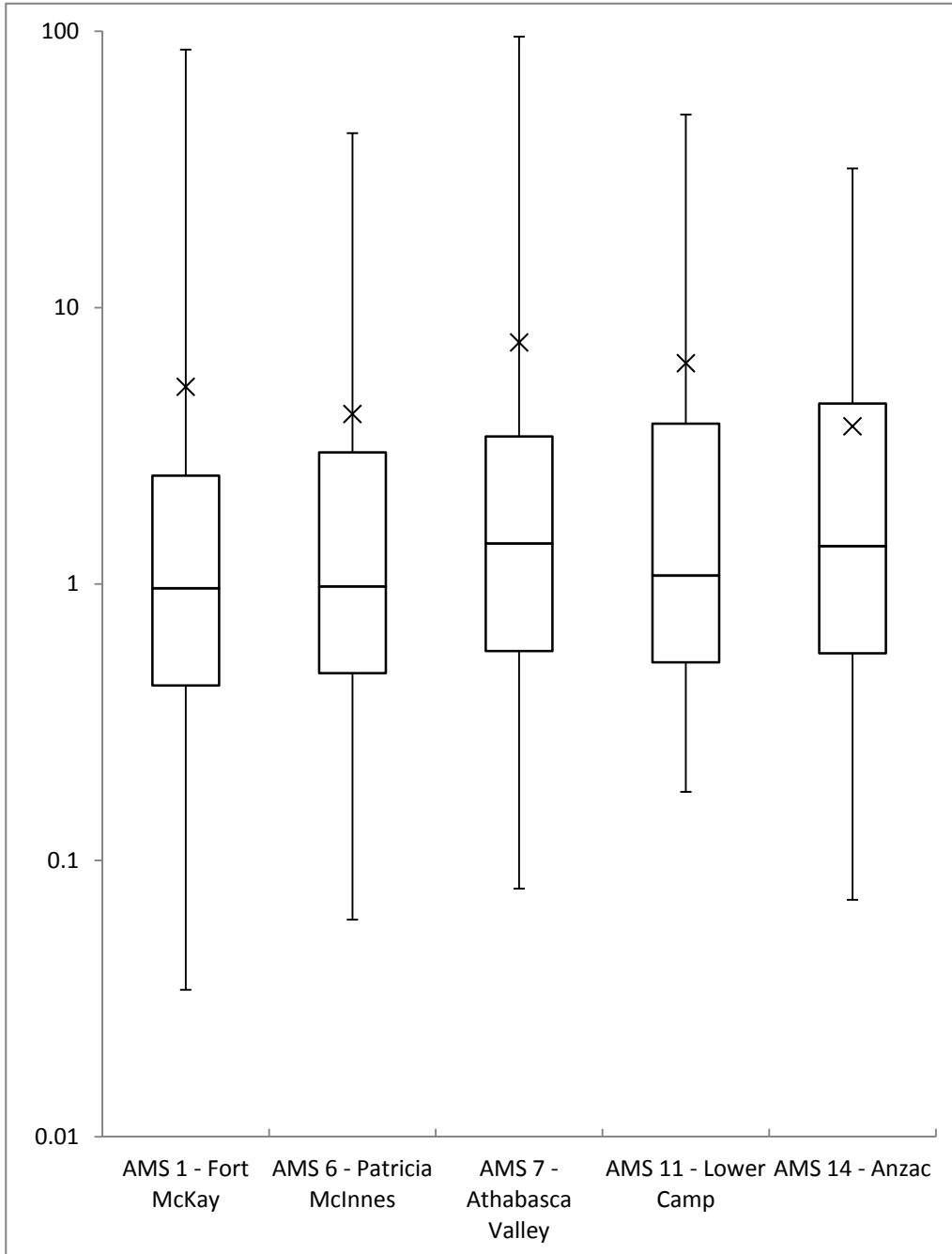
Compound Name	Results - Total Times Sampled						
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14	Lab Blank	Field Blank
	Fort McKay	Patricia McInnes	Athabasca Valley	Lower Camp	Anzac		
Naphthalene	60	61	61	20	60	61	56
Acenaphthylene	60	61	61	20	60	61	56
Acenaphthene	60	61	61	20	60	61	56
Fluorene	60	61	61	20	60	61	56
Phenanthrene	60	61	61	20	60	61	56
Anthracene	60	61	61	20	60	61	56
Acridine	60	61	61	20	60	61	56
Fluoranthene	60	61	61	20	60	61	56
Pyrene	60	61	61	20	60	61	56
Benzo(c)phenanthrene	60	61	61	20	60	61	56
Benzo(a)anthracene	60	61	61	20	60	61	56
Chrysene	60	61	61	20	60	61	56
7,12-Dimethylbenz(a)anthracene	60	61	61	20	60	61	56
Benzo(b)fluoranthene	60	61	61	20	60	61	56
Benzo(k)fluoranthene	60	61	61	20	60	61	56
Benzo(a)pyrene	60	61	61	20	60	61	56
3-Methylcholanthrene	60	61	61	20	60	61	56
Indeno(123-cd)pyrene	60	61	61	20	60	61	56
Dibenz(a,h)anthracene	60	61	61	20	60	61	56
Benzo(ghi)perylene	60	61	61	20	60	61	56
Dibenzo(a,l)pyrene	60	61	61	20	60	61	56
Dibenzo(a,i)pyrene	60	61	61	20	60	61	56
Dibenzo(a,h)pyrene	60	61	61	20	60	61	56



Compound Name	Results - Yearly Average (ng/m3)						Lab Blank	Field Blank
	AMS 1	AMS 6	AMS 7	AMS 11	AMS 14			
	Fort McKay	Patricia McInnes	Athabasca Valley	Lower Camp	Anzac			
Naphthalene	5.17	7.49	7.48	6.29	3.72	0.009	0.018	
Acenaphthylene	1.4	1.2	1.45	0.608	0.297	0.001	0.002	
Acenaphthene	0.508	0.391	0.513	0.852	4.89	0.001	0.003	
Fluorene	1.25	1.18	1.52	3.99	7.02	0.001	0.002	
Phenanthrene	3.03	2.77	2.81	12.6	12.9	0.002	0.004	
Anthracene	0.413	0.354	0.356	1.91	0.955	0.001	0.001	
Acridine	0.323	0.14	0.22	0.996	0.295	0.001	0	
Fluoranthene	0.447	0.518	0.451	1.17	0.98	0.001	0.001	
Pyrene	0.484	0.506	0.52	1.18	0.45	0.002	0.001	
Benzo(c)phenanthrene	0.062	0.06	0.05	0.067	0.026	0.001	0.001	
Benzo(a)anthracene	0.179	0.132	0.104	0.448	0.048	0.001	0	
Chrysene	0.202	0.148	0.118	0.504	0.054	0.001	0	
7,12-Dimethylbenz(a)anthracene	0.417	0.302	0.406	0.833	0.294	0.005	0.011	
Benzo(b)fluoranthene	0.221	0.295	0.219	0.441	0.23	0.001	0.002	
Benzo(k)fluoranthene	0.259	0.341	0.255	0.458	0.263	0.002	0.001	
Benzo(a)pyrene	0.066	0.047	0.042	0.126	0.029	0.002	0	
3-Methylcholanthrene	0.02	0.014	0.013	0.026	0.013	0.002	0.001	
Indeno(123-cd)pyrene	0.04	0.045	0.04	0.045	0.033	0.002	0.002	
Dibenz(a,h)anthracene	0.043	0.034	0.04	0.042	0.023	0.002	0.001	
Benzo(ghi)perylene	0.037	0.04	0.038	0.052	0.024	0.002	0	
Dibenzo(a,l)pyrene	0.032	0.033	0.03	0.051	0.027	0.003	0.001	
Dibenzo(a,i)pyrene	0.022	0.025	0.022	0.028	0.024	0.003	0.001	
Dibenzo(a,h)pyrene	0.02	0.021	0.02	0.023	0.019	0.004	0.001	

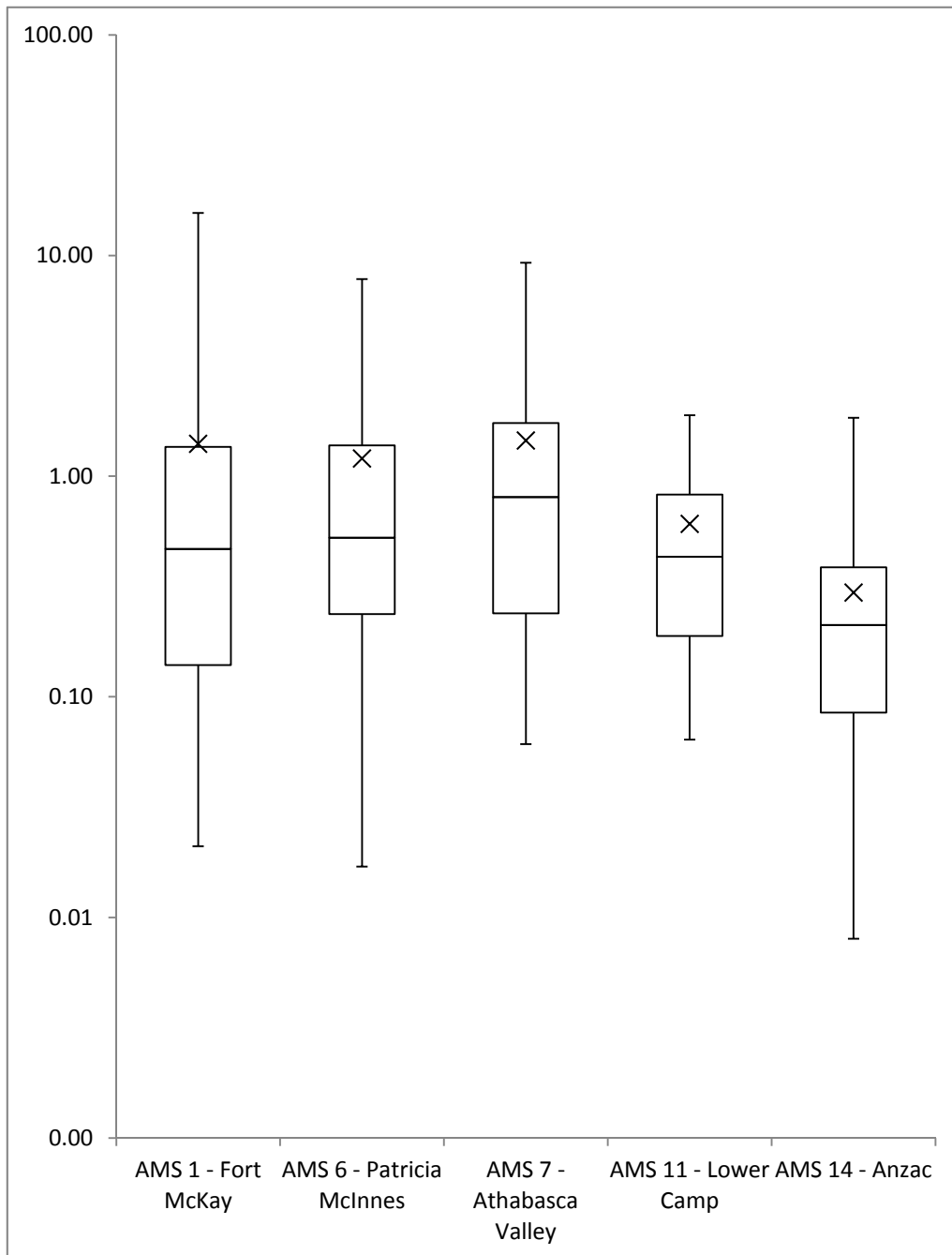


Naphthalene					Results (ng/m3)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.03	0.43	0.97	2.47	85.80	5.17
AMS 6 - Patricia McInnes	0.06	0.48	0.98	2.99	42.80	4.12
AMS 7 - Athabasca Valley	0.08	0.57	1.40	3.42	95.60	7.48
AMS 11 - Lower Camp	0.18	0.52	1.07	3.81	50.00	6.30
AMS 14 - Anzac	0.07	0.56	1.37	4.50	31.90	3.72



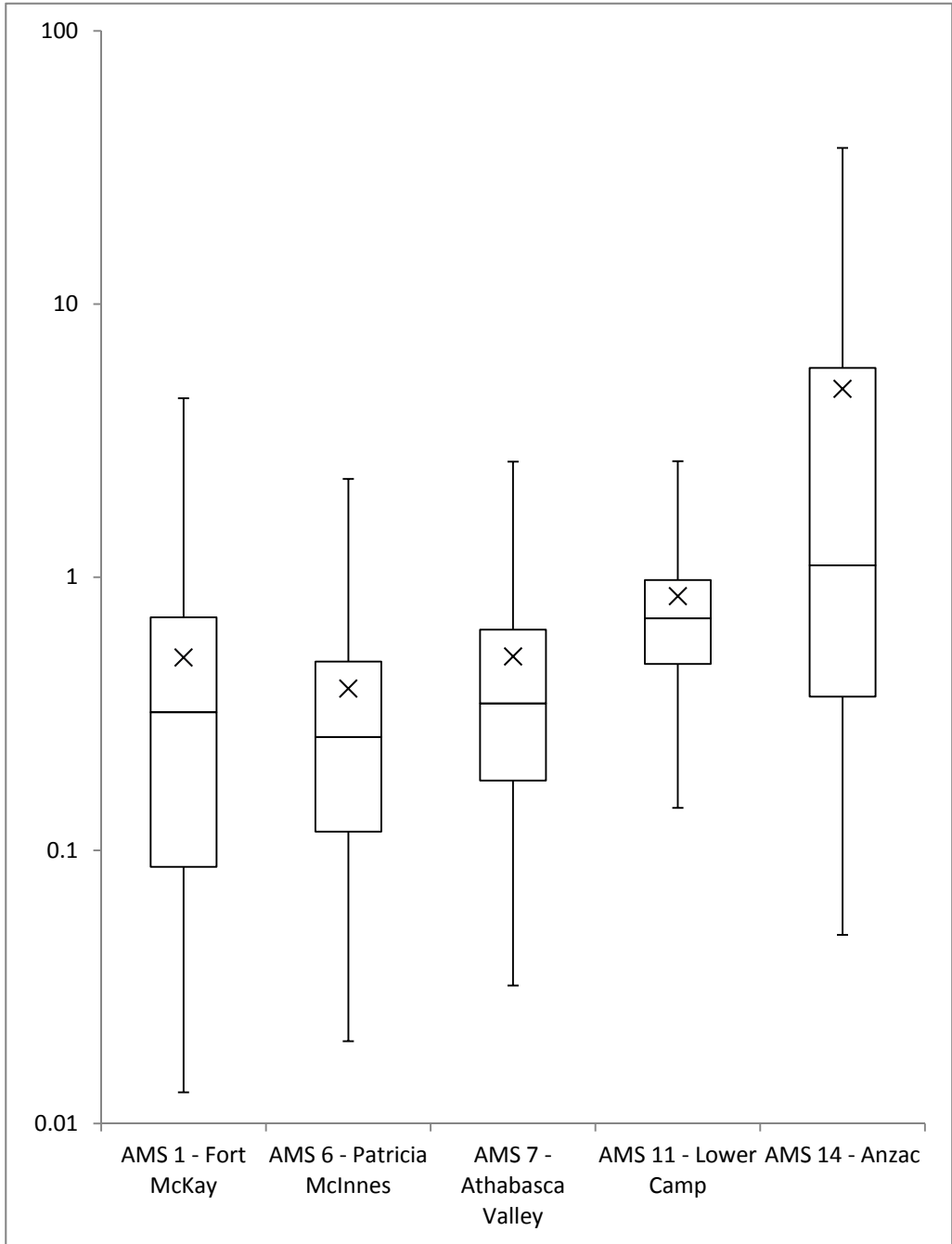


Station	Acenaphthylene Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.02	0.14	0.47	1.36	15.60	1.40
AMS 6 - Patricia McInnes	0.02	0.24	0.53	1.38	7.82	1.20
AMS 7 - Athabasca Valley	0.06	0.24	0.80	1.74	9.28	1.45
AMS 11 - Lower Camp	0.06	0.19	0.43	0.82	1.89	0.61
AMS 14 - Anzac	0.01	0.08	0.21	0.39	1.84	0.30



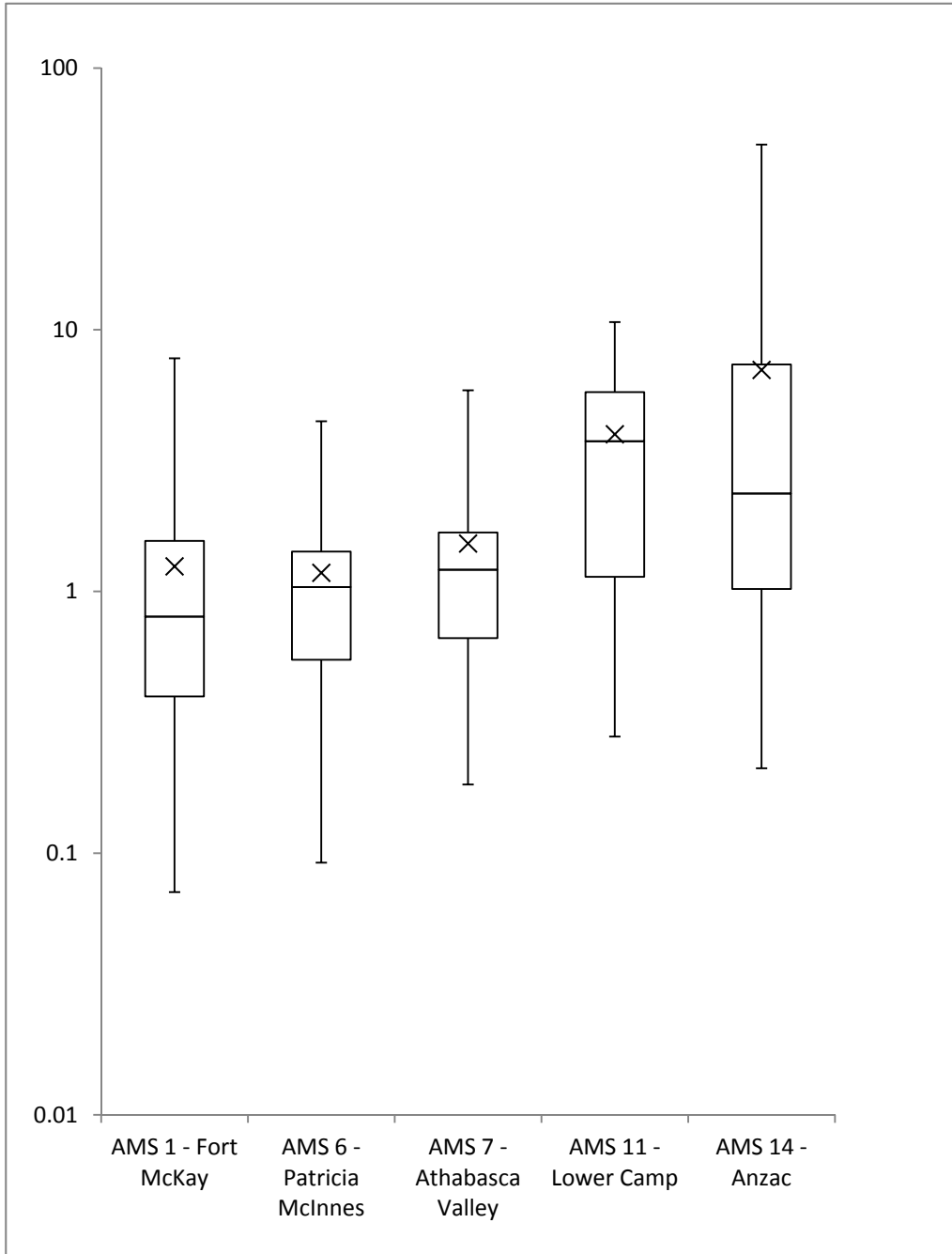


Station	Acenaphthene Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.01	0.09	0.32	0.71	4.52	0.51
AMS 6 - Patricia McInnes	0.02	0.12	0.26	0.49	2.29	0.39
AMS 7 - Athabasca Valley	0.03	0.18	0.34	0.64	2.65	0.51
AMS 11 - Lower Camp	0.14	0.48	0.71	0.98	2.66	0.85
AMS 14 - Anzac	0.05	0.37	1.11	5.84	37.30	4.90



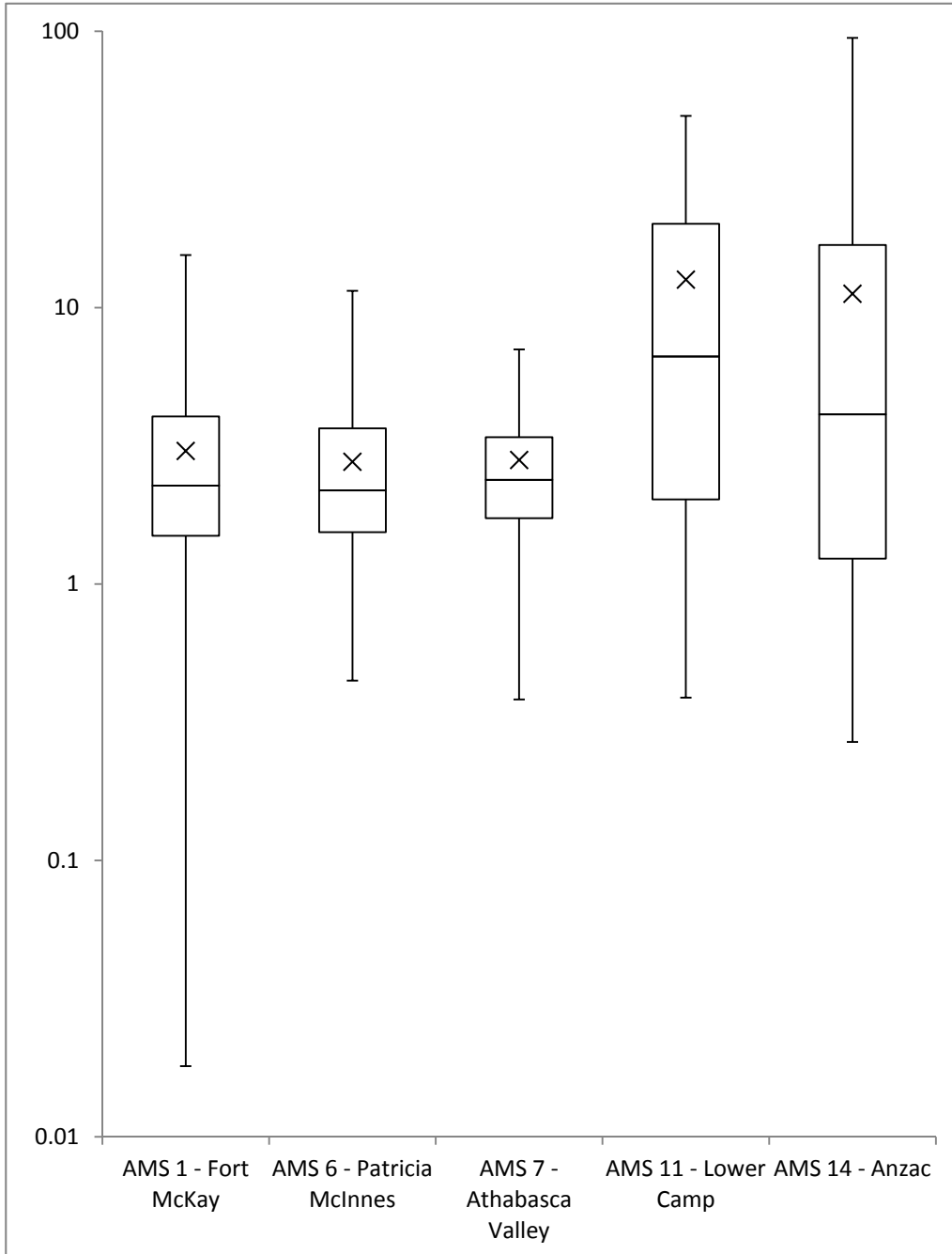


Station	Fluorene Results (ng/m ³)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.07	0.40	0.80	1.56	7.78	1.25
AMS 6 - Patricia McInnes	0.09	0.55	1.04	1.42	4.47	1.18
AMS 7 - Athabasca Valley	0.18	0.66	1.21	1.68	5.87	1.52
AMS 11 - Lower Camp	0.28	1.14	3.75	5.77	10.70	3.99
AMS 14 - Anzac	0.21	1.02	2.37	7.37	51.00	7.02



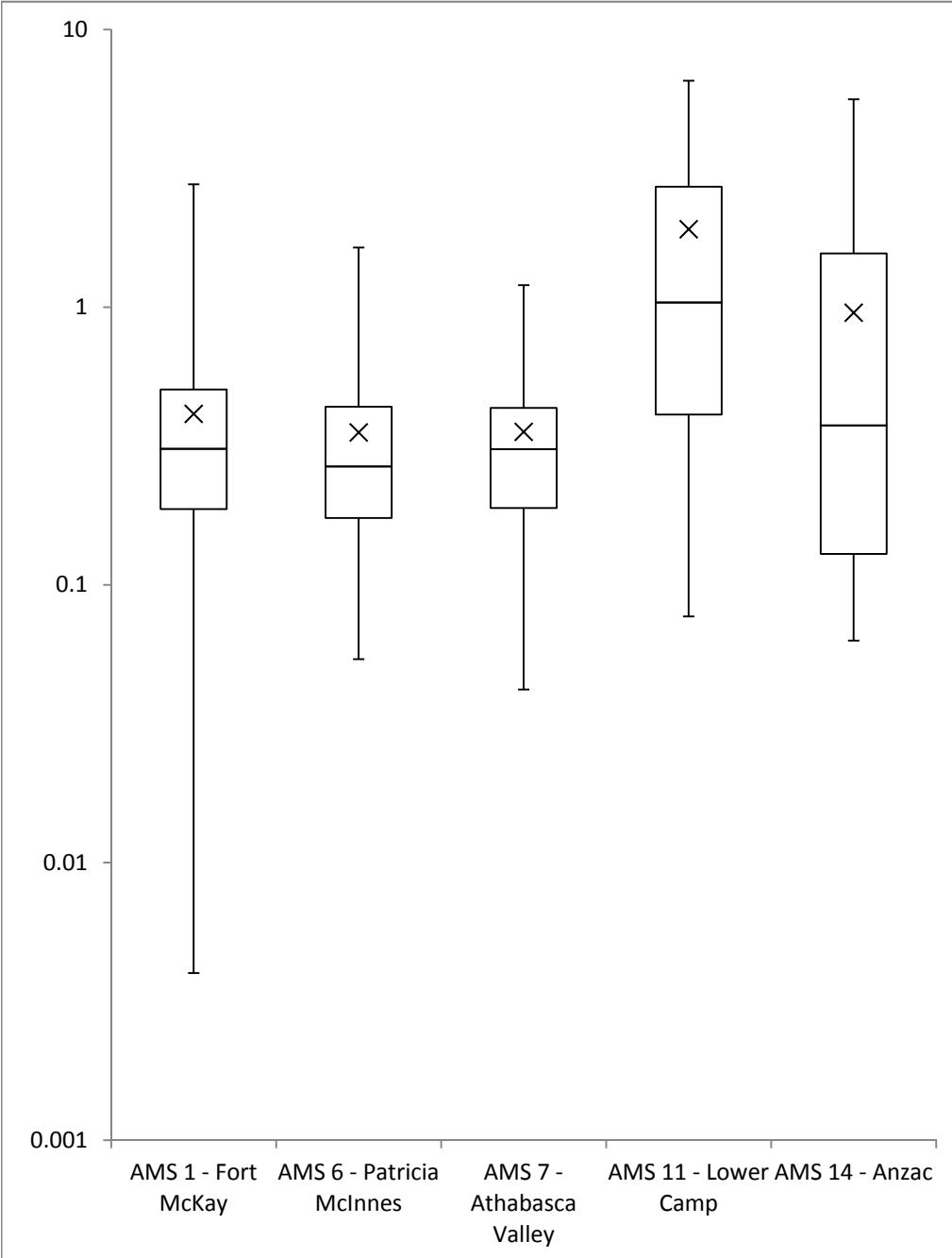


Station	Phenanthrene Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.02	1.50	2.27	4.04	15.50	3.03
AMS 6 - Patricia McInnes	0.45	1.54	2.18	3.66	11.50	2.77
AMS 7 - Athabasca Valley	0.38	1.73	2.38	3.40	7.06	2.81
AMS 11 - Lower Camp	0.39	2.02	6.66	20.10	49.40	12.63
AMS 14 - Anzac	0.27	1.24	4.11	16.85	94.60	11.23



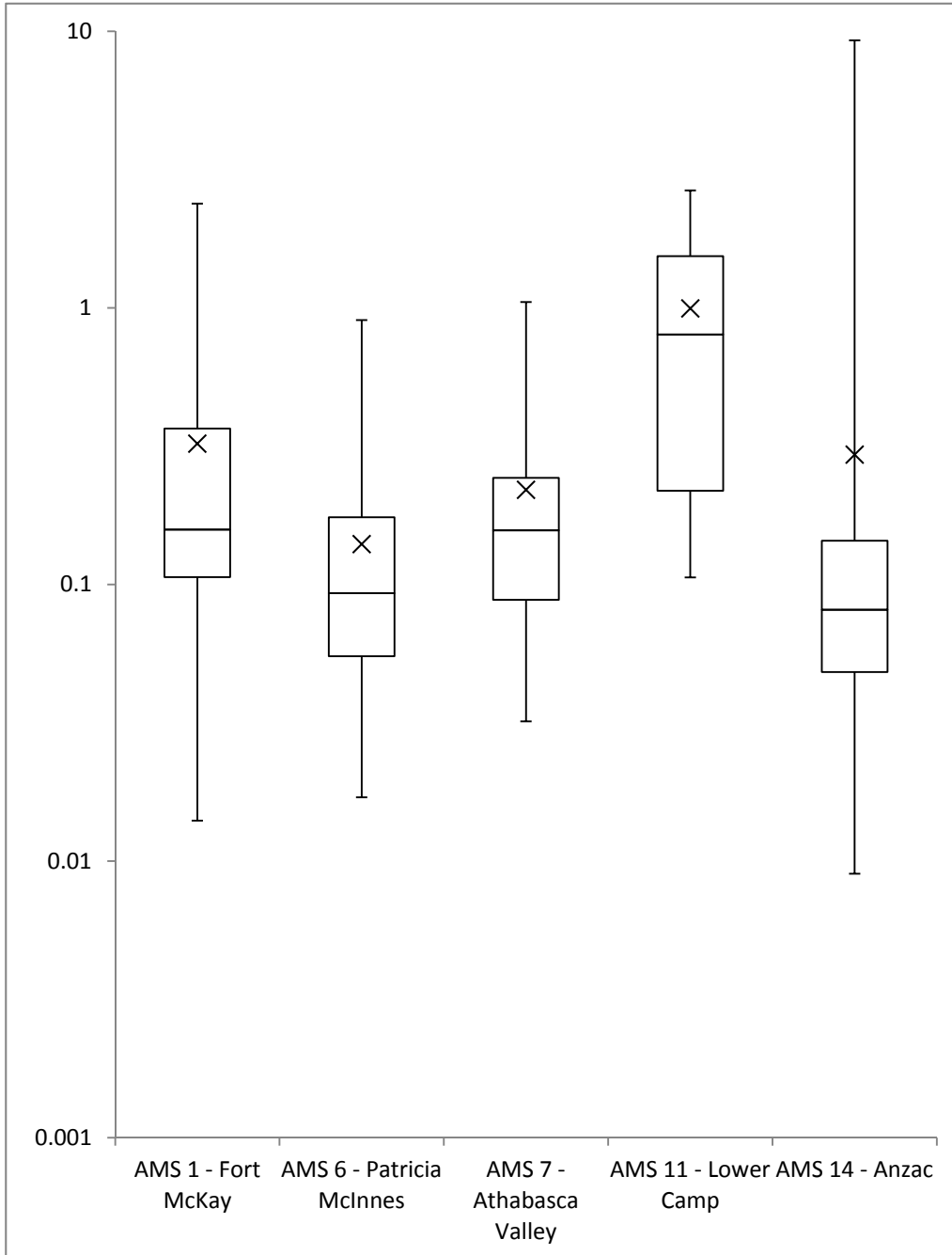


Anthracene					Results (ng/m3)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.19	0.31	0.51	2.77	0.41
AMS 6 - Patricia McInnes	0.05	0.17	0.27	0.44	1.64	0.35
AMS 7 - Athabasca Valley	0.04	0.19	0.31	0.43	1.20	0.36
AMS 11 - Lower Camp	0.08	0.41	1.04	2.72	6.54	1.91
AMS 14 - Anzac	0.06	0.13	0.38	1.56	5.61	0.96



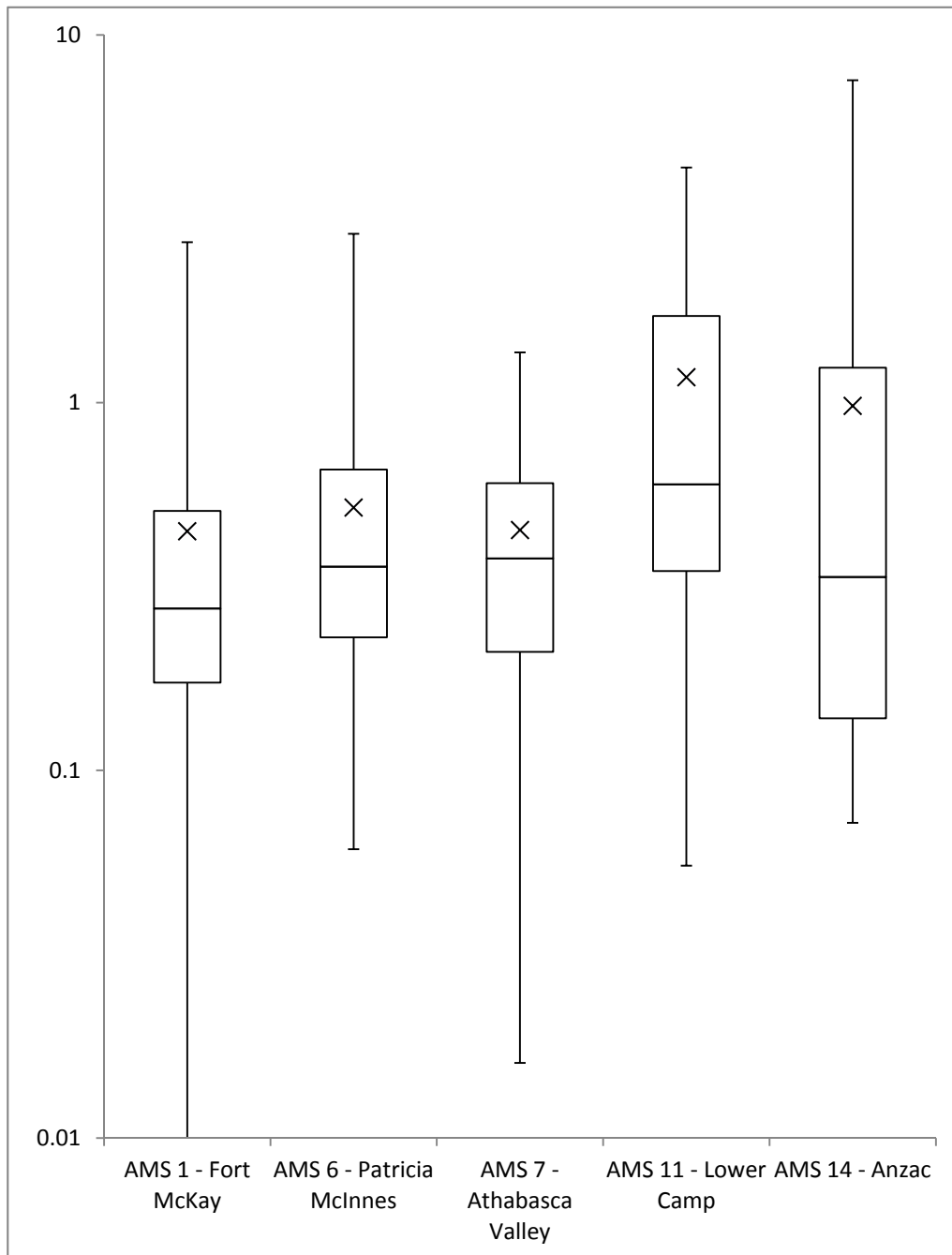


Station	Acridine Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.01	0.11	0.16	0.37	2.38	0.32
AMS 6 - Patricia McInnes	0.02	0.05	0.09	0.17	0.90	0.14
AMS 7 - Athabasca Valley	0.03	0.09	0.16	0.24	1.05	0.22
AMS 11 - Lower Camp	0.11	0.22	0.80	1.54	2.66	1.00
AMS 14 - Anzac	0.01	0.05	0.08	0.14	9.28	0.29



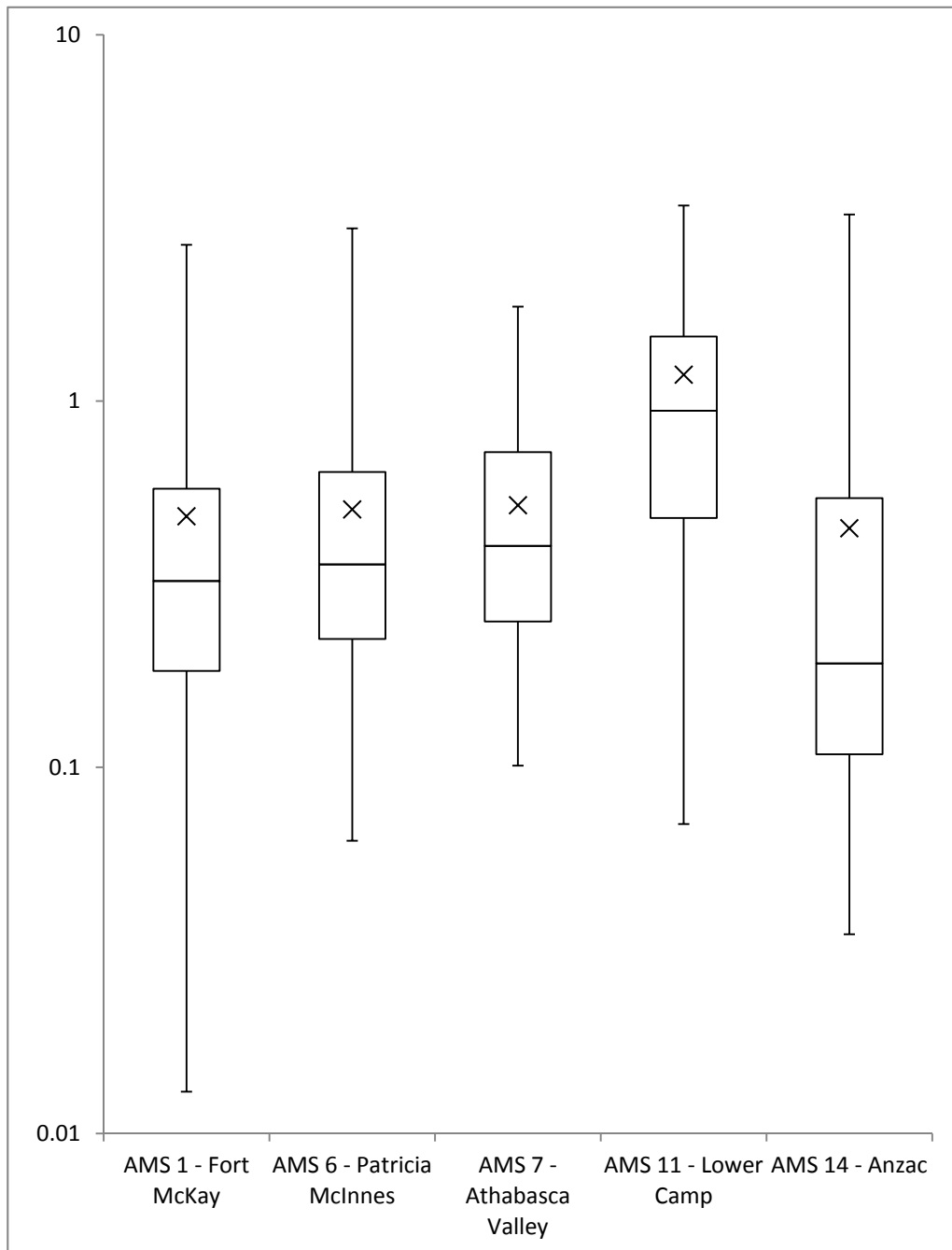


Fluoranthene					Results (ng/m3)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.01	0.17	0.28	0.51	2.73	0.45
AMS 6 - Patricia McInnes	0.06	0.23	0.36	0.66	2.88	0.52
AMS 7 - Athabasca Valley	0.02	0.21	0.38	0.60	1.37	0.45
AMS 11 - Lower Camp	0.05	0.35	0.60	1.72	4.36	1.17
AMS 14 - Anzac	0.07	0.14	0.34	1.25	7.53	0.98



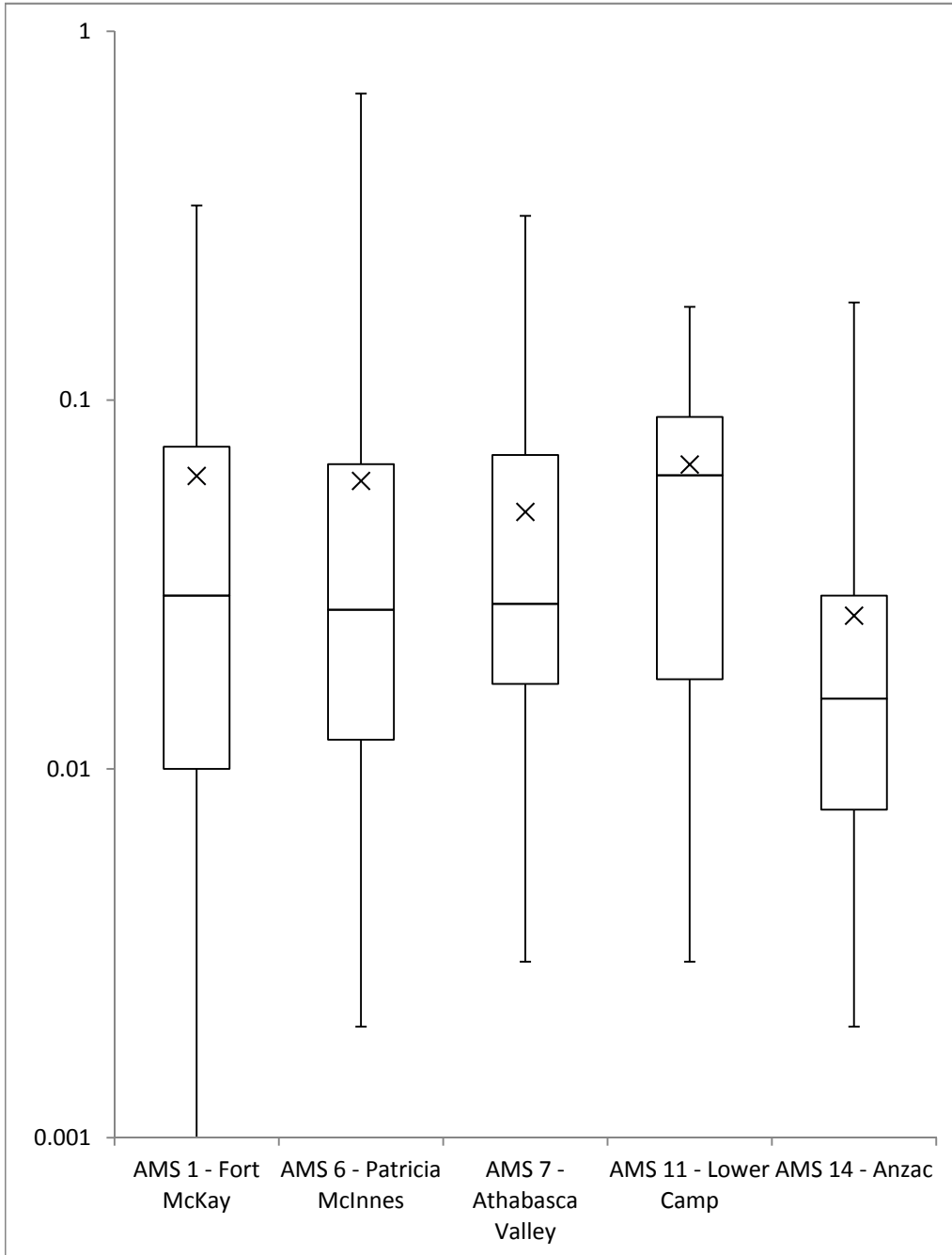


Station	Pyrene Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.01	0.18	0.32	0.58	2.67	0.48
AMS 6 - Patricia McInnes	0.06	0.22	0.36	0.64	2.96	0.51
AMS 7 - Athabasca Valley	0.10	0.25	0.40	0.73	1.81	0.52
AMS 11 - Lower Camp	0.07	0.48	0.94	1.50	3.42	1.18
AMS 14 - Anzac	0.04	0.11	0.19	0.54	3.23	0.45



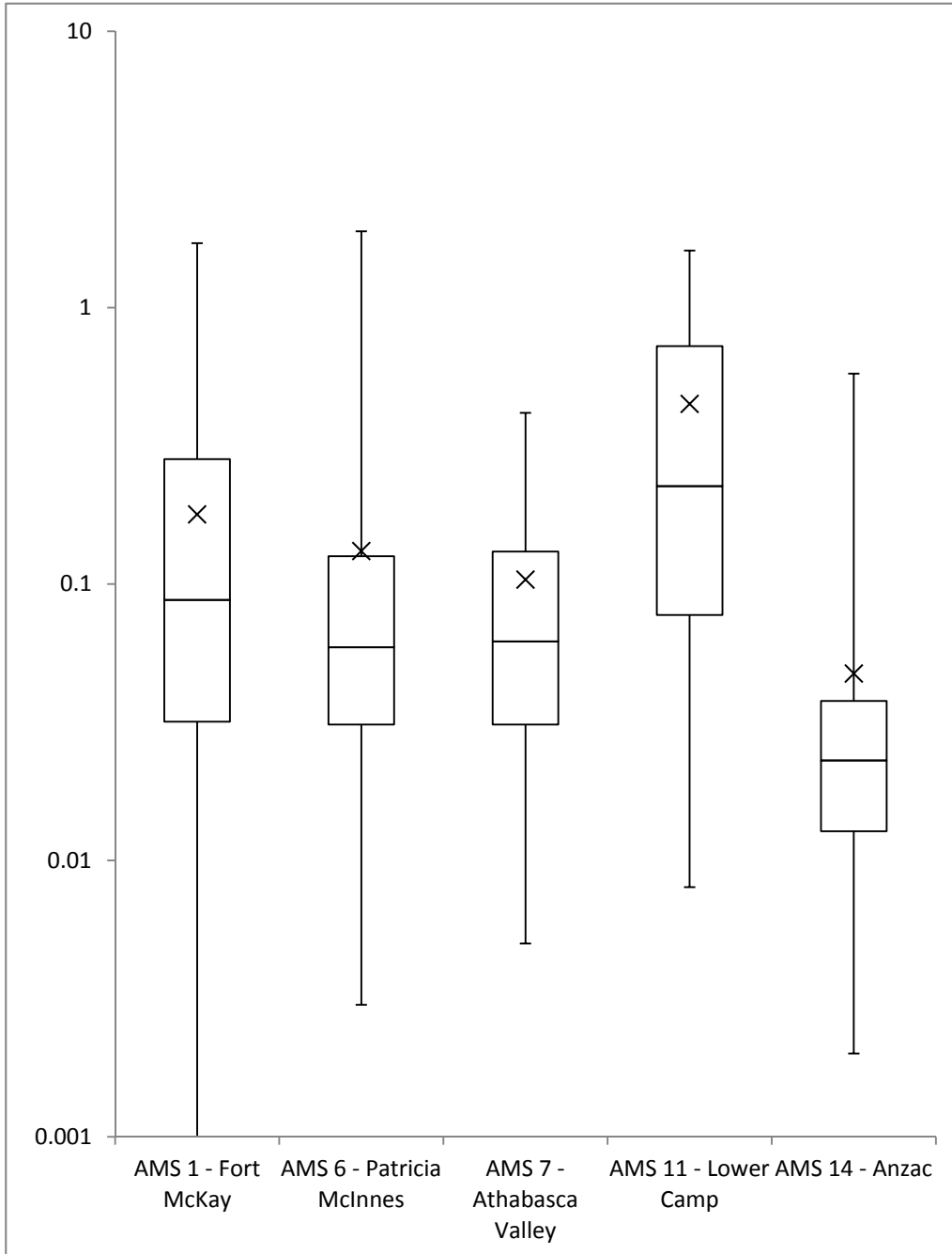


Benzo(c)phenanthrene					Results (ng/m ³)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.03	0.07	0.34	0.06
AMS 6 - Patricia McInnes	0.00	0.01	0.03	0.07	0.68	0.06
AMS 7 - Athabasca Valley	0.00	0.02	0.03	0.07	0.32	0.05
AMS 11 - Lower Camp	0.00	0.02	0.06	0.09	0.18	0.07
AMS 14 - Anzac	0.00	0.01	0.02	0.03	0.18	0.03



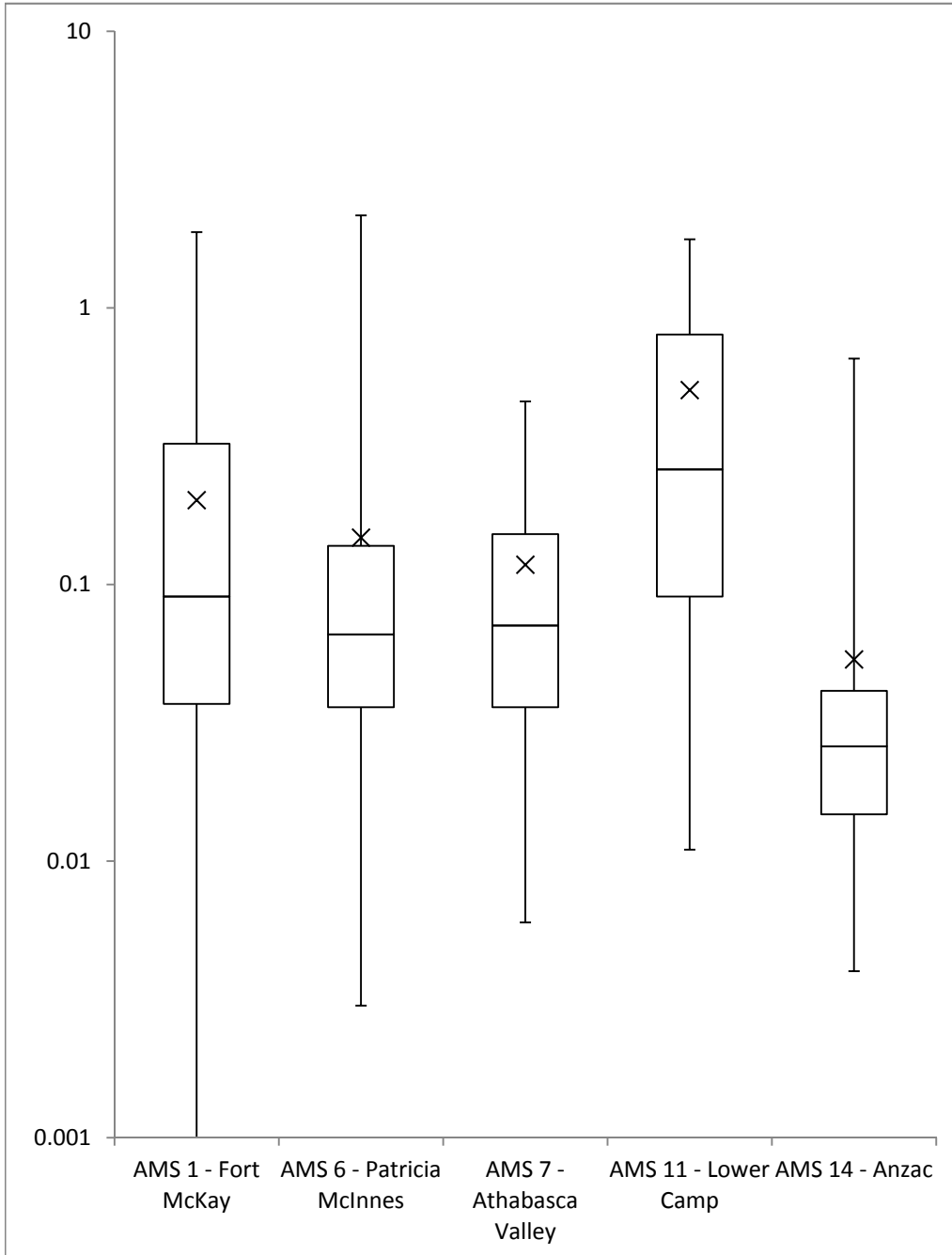


Station	Benz(a)anthracene Results (ng/m ³)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.03	0.09	0.28	1.71	0.18
AMS 6 - Patricia McInnes	0.00	0.03	0.06	0.13	1.89	0.13
AMS 7 - Athabasca Valley	0.00	0.03	0.06	0.13	0.42	0.10
AMS 11 - Lower Camp	0.01	0.08	0.23	0.73	1.61	0.45
AMS 14 - Anzac	0.00	0.01	0.02	0.04	0.58	0.05



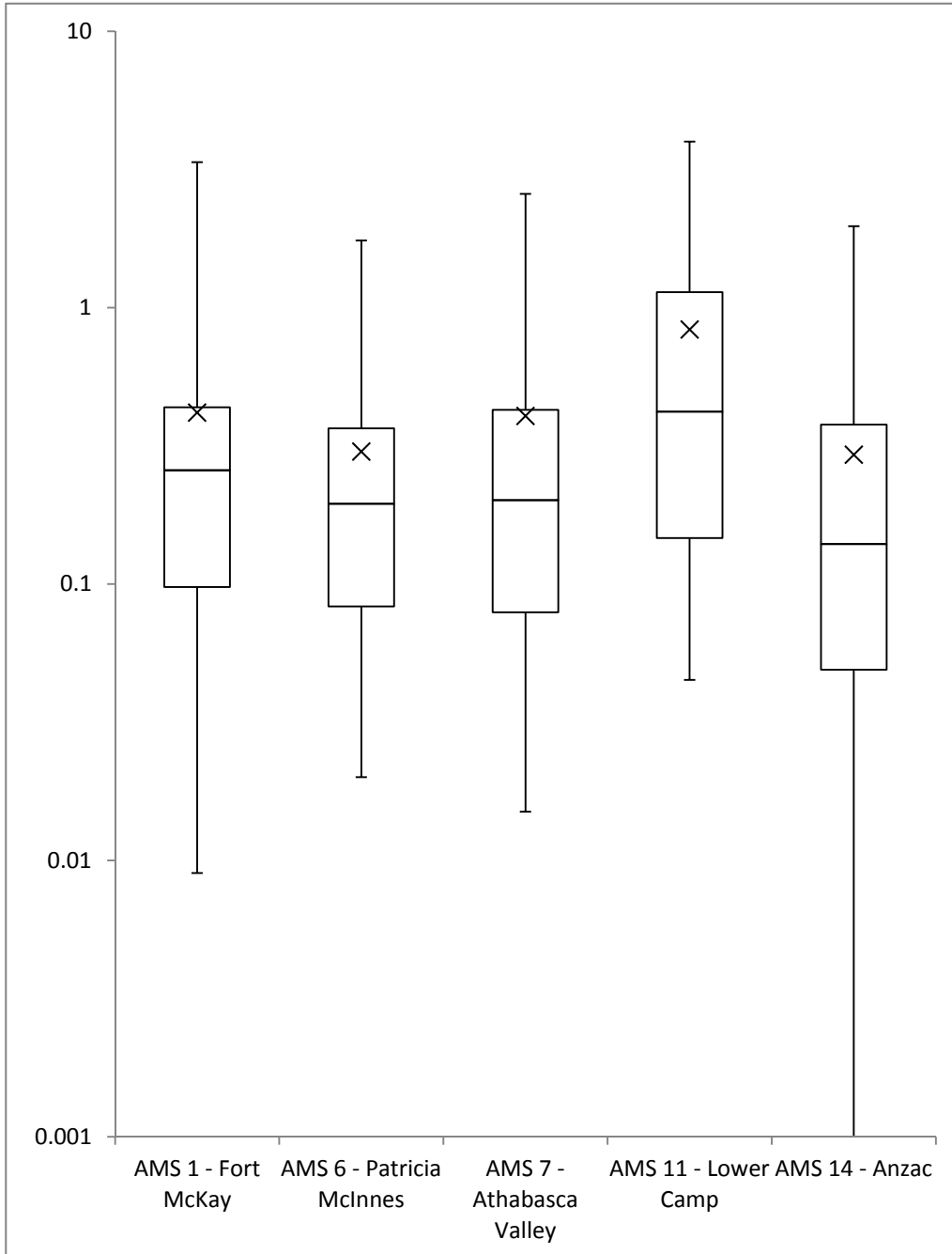


Station	Chrysene Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.04	0.09	0.32	1.88	0.20
AMS 6 - Patricia McInnes	0.00	0.04	0.07	0.14	2.16	0.15
AMS 7 - Athabasca Valley	0.01	0.04	0.07	0.15	0.46	0.12
AMS 11 - Lower Camp	0.01	0.09	0.26	0.80	1.77	0.50
AMS 14 - Anzac	0.00	0.01	0.03	0.04	0.66	0.05



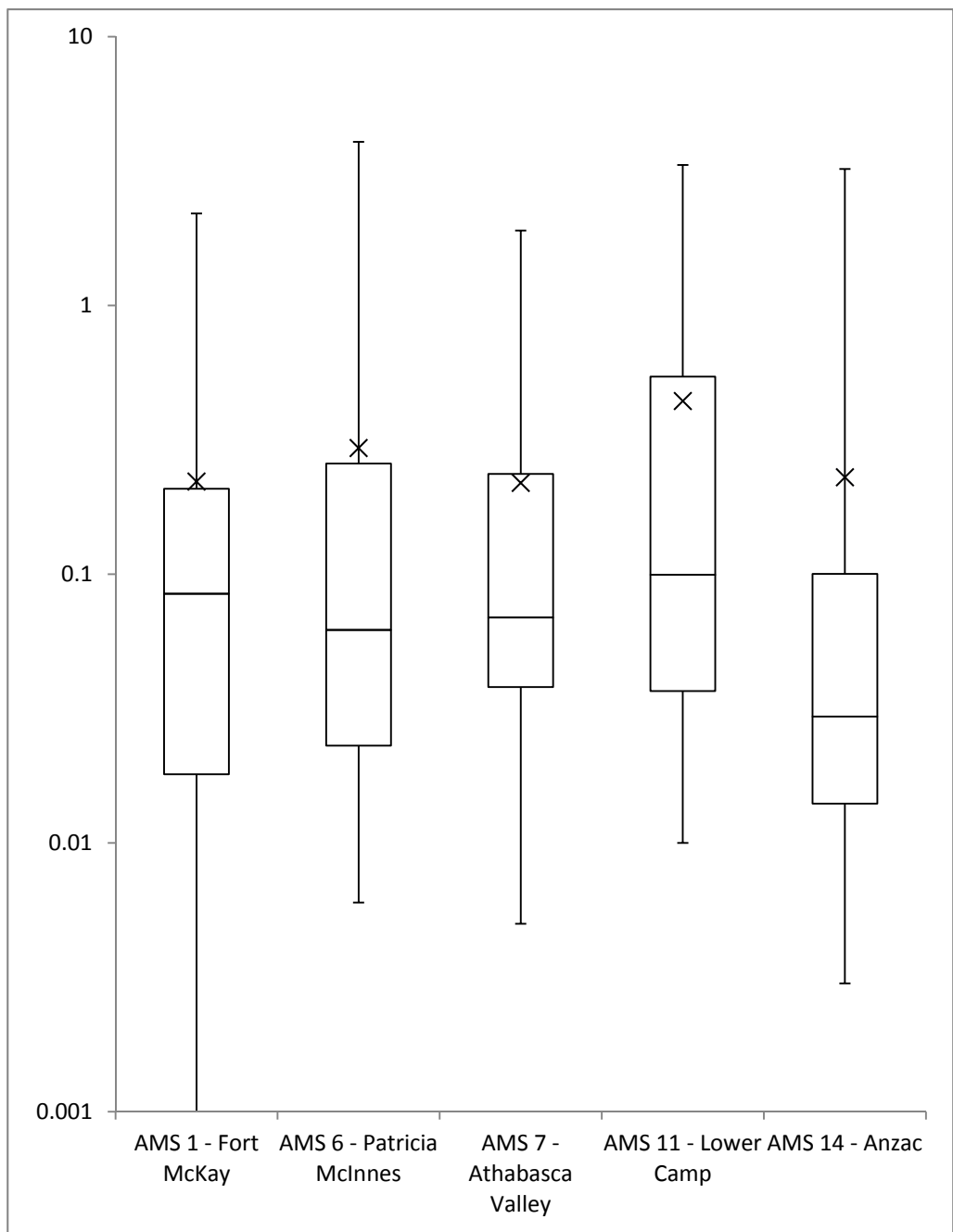


7,12-Dimethylbenz(a)anthracene					Results (ng/m3)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.01	0.10	0.26	0.44	3.36	0.42
AMS 6 - Patricia McInnes	0.02	0.08	0.19	0.37	1.75	0.30
AMS 7 - Athabasca Valley	0.01	0.08	0.20	0.43	2.58	0.41
AMS 11 - Lower Camp	0.05	0.15	0.42	1.14	3.99	0.83
AMS 14 - Anzac	0.00	0.05	0.14	0.38	1.97	0.29



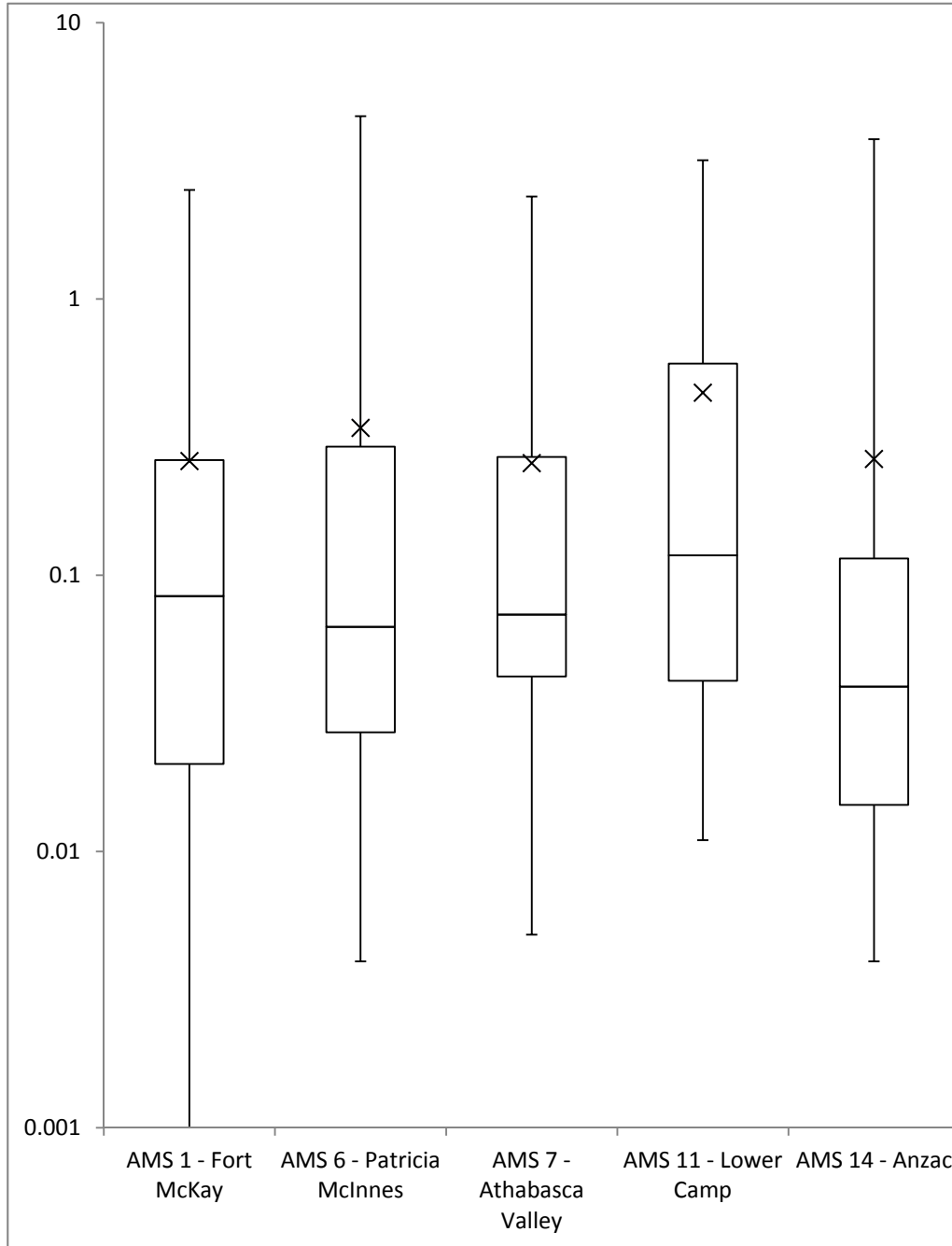


Benzo(b)fluoranthene					Results (ng/m3)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.02	0.08	0.21	2.20	0.22
AMS 6 - Patricia McInnes	0.01	0.02	0.06	0.26	4.06	0.29
AMS 7 - Athabasca Valley	0.00	0.04	0.07	0.24	1.90	0.22
AMS 11 - Lower Camp	0.01	0.04	0.10	0.54	3.33	0.44
AMS 14 - Anzac	0.00	0.01	0.03	0.10	3.22	0.23



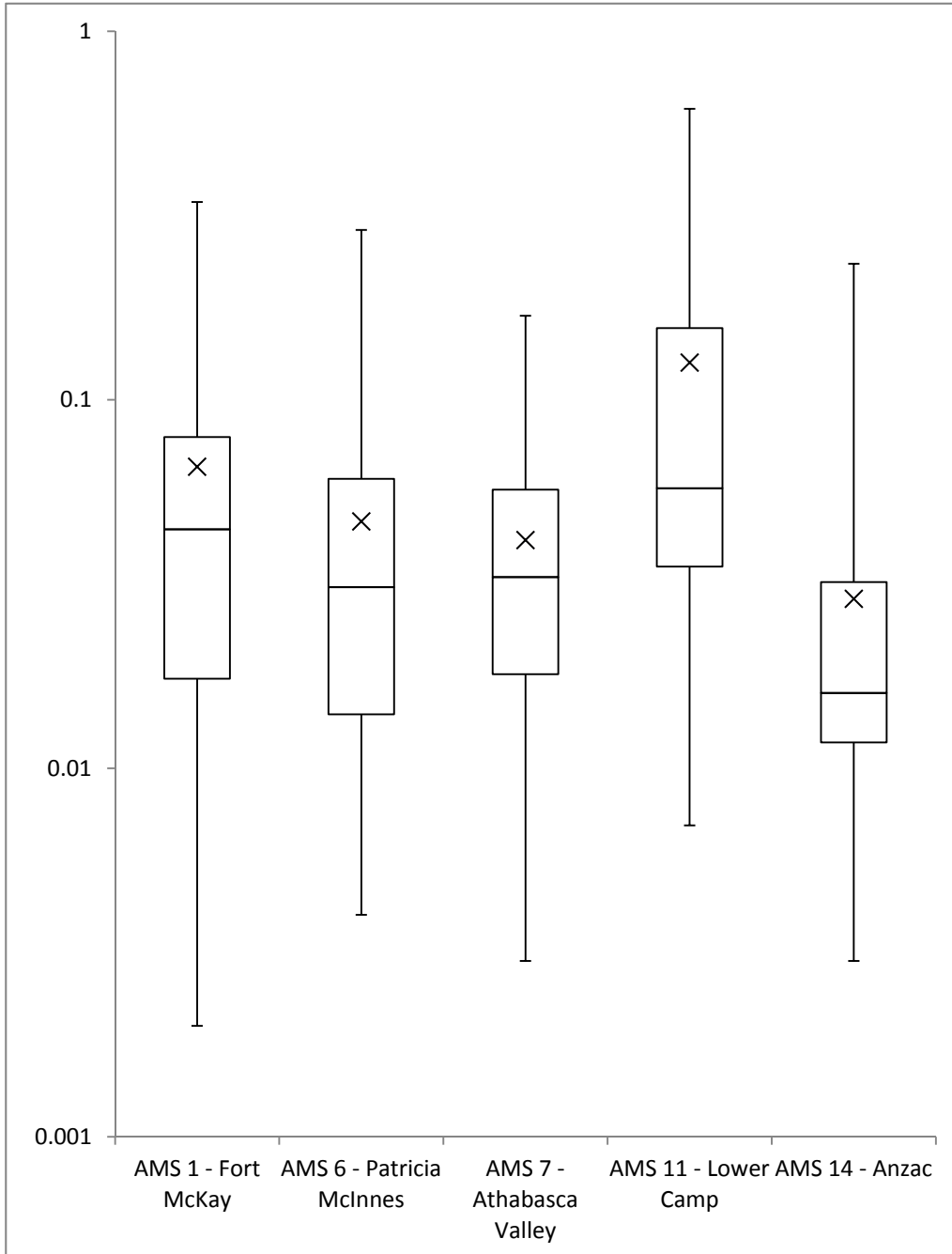


Benzo(k)fluoranthene					Results (ng/m ³)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.02	0.08	0.26	2.48	0.26
AMS 6 - Patricia McInnes	0.00	0.03	0.06	0.29	4.59	0.34
AMS 7 - Athabasca Valley	0.00	0.04	0.07	0.27	2.35	0.25
AMS 11 - Lower Camp	0.01	0.04	0.12	0.58	3.18	0.46
AMS 14 - Anzac	0.00	0.01	0.04	0.12	3.79	0.26



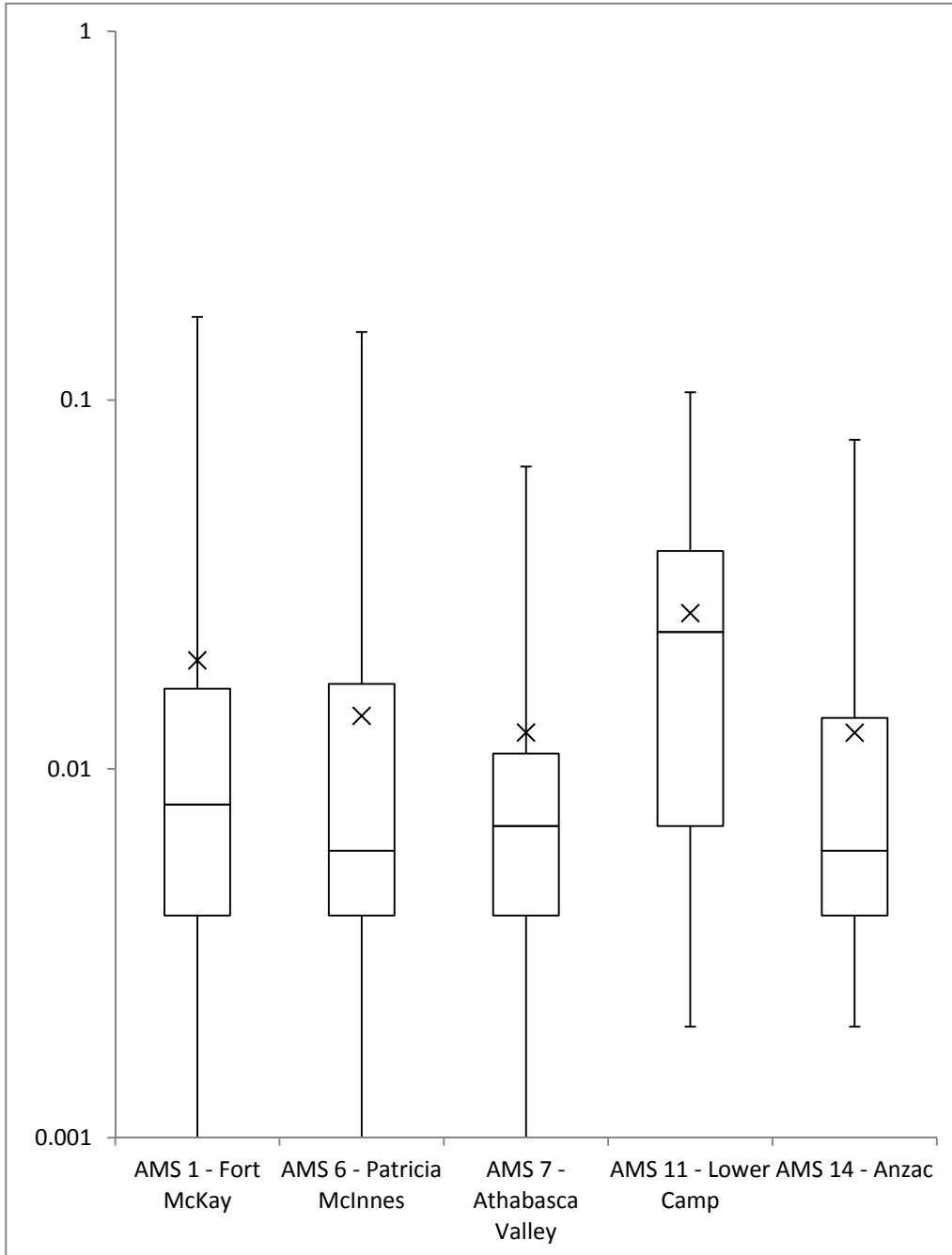


Station	Benzo(a)pyrene Results (ng/m3)					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.02	0.04	0.08	0.34	0.07
AMS 6 - Patricia McInnes	0.00	0.01	0.03	0.06	0.29	0.05
AMS 7 - Athabasca Valley	0.00	0.02	0.03	0.06	0.17	0.04
AMS 11 - Lower Camp	0.01	0.04	0.06	0.16	0.62	0.13
AMS 14 - Anzac	0.00	0.01	0.02	0.03	0.23	0.03



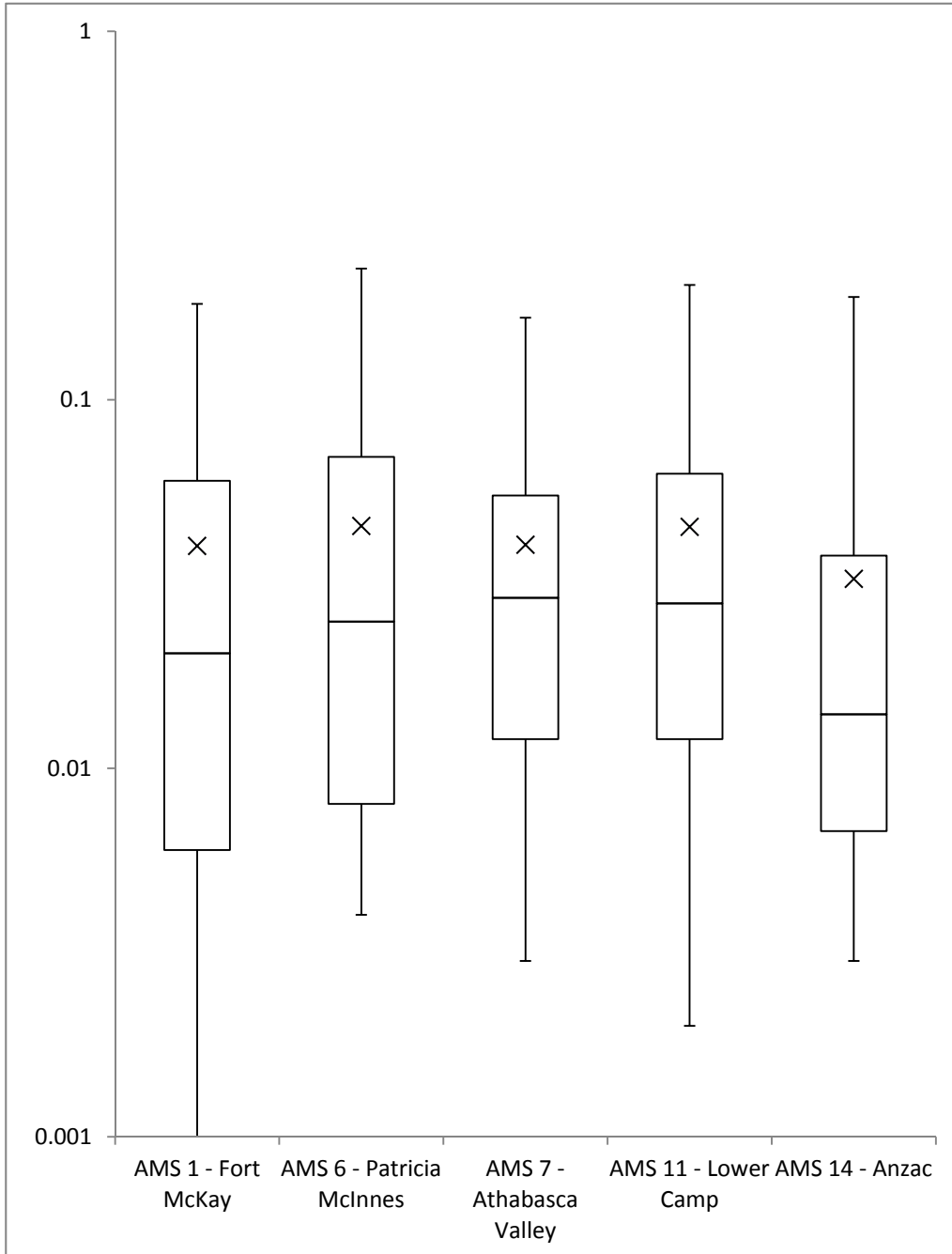


3-Methylcholanthrene					Results (ng/m ³)	
Station	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.00	0.01	0.02	0.17	0.02
AMS 6 - Patricia McInnes	0.00	0.00	0.01	0.02	0.15	0.01
AMS 7 - Athabasca Valley	0.00	0.00	0.01	0.01	0.07	0.01
AMS 11 - Lower Camp	0.00	0.01	0.02	0.04	0.10	0.03
AMS 14 - Anzac	0.00	0.00	0.01	0.01	0.08	0.01



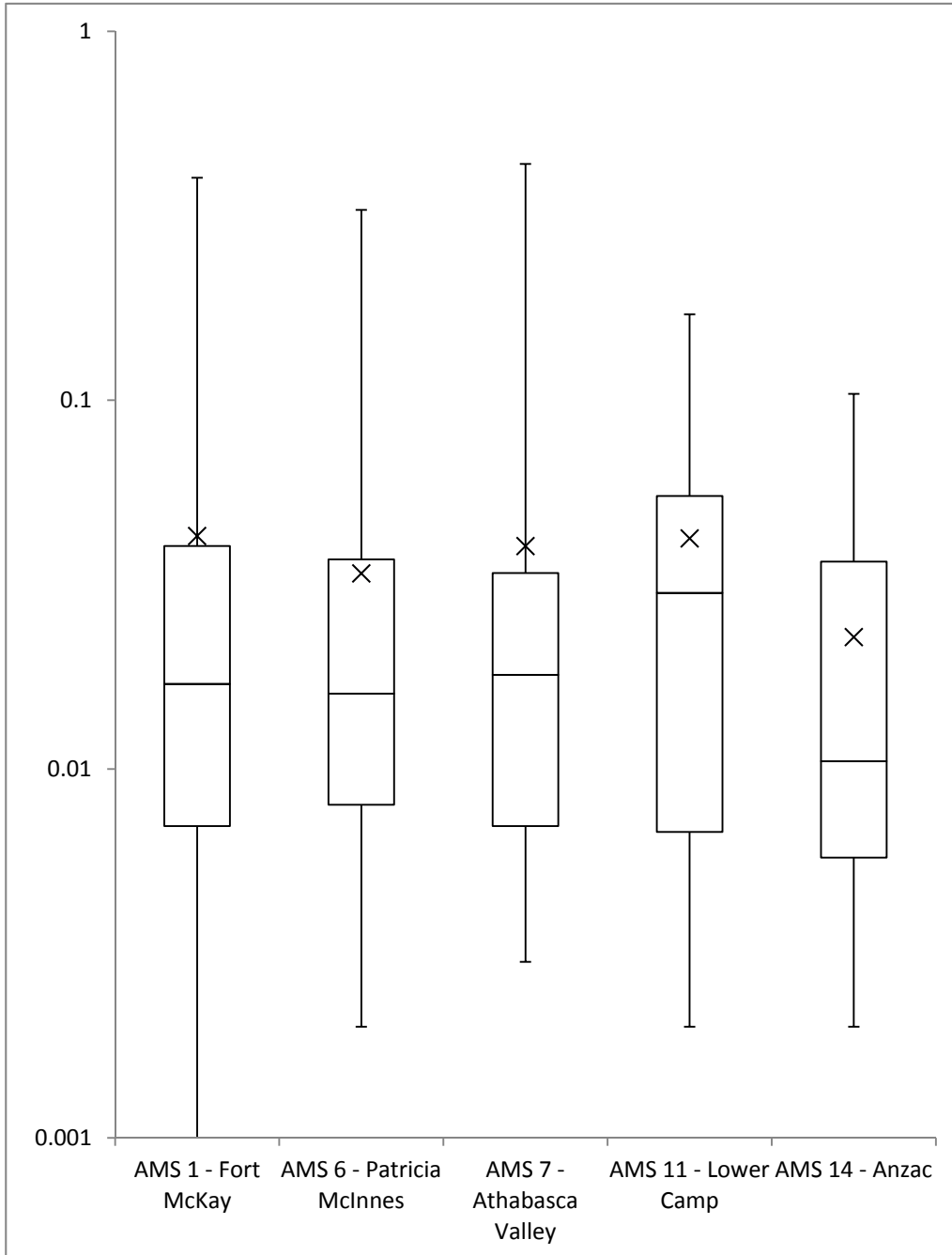


Station	Indeno(123-cd)pyrene					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.02	0.06	0.18	0.04
AMS 6 - Patricia McInnes	0.00	0.01	0.03	0.07	0.23	0.05
AMS 7 - Athabasca Valley	0.00	0.01	0.03	0.05	0.17	0.04
AMS 11 - Lower Camp	0.00	0.01	0.03	0.06	0.20	0.05
AMS 14 - Anzac	0.00	0.01	0.01	0.04	0.19	0.03



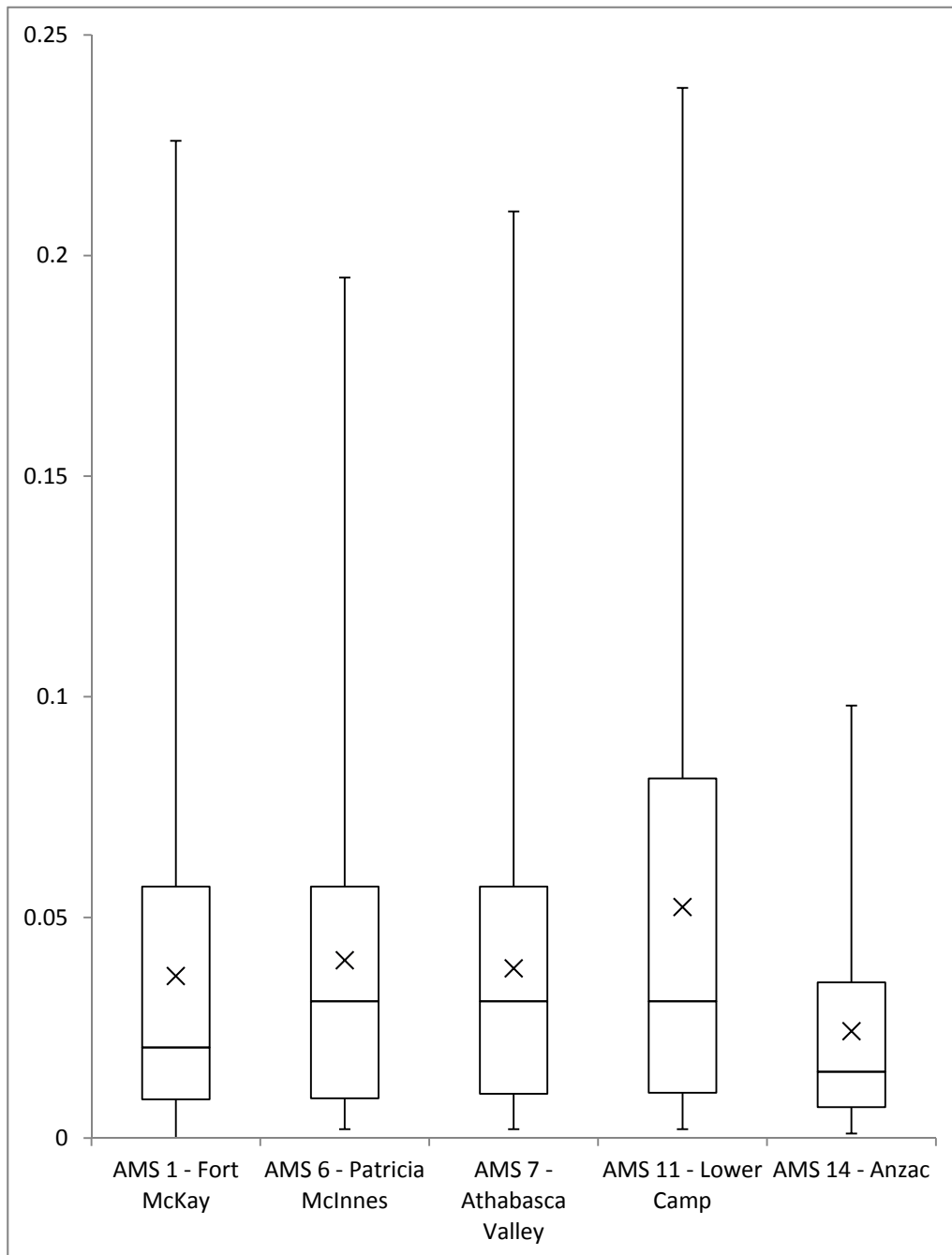


Station	Dibenz(a,h)anthracene					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.02	0.04	0.40	0.04
AMS 6 - Patricia McInnes	0.00	0.01	0.02	0.04	0.33	0.03
AMS 7 - Athabasca Valley	0.00	0.01	0.02	0.03	0.44	0.04
AMS 11 - Lower Camp	0.00	0.01	0.03	0.05	0.17	0.04
AMS 14 - Anzac	0.00	0.01	0.01	0.04	0.10	0.02



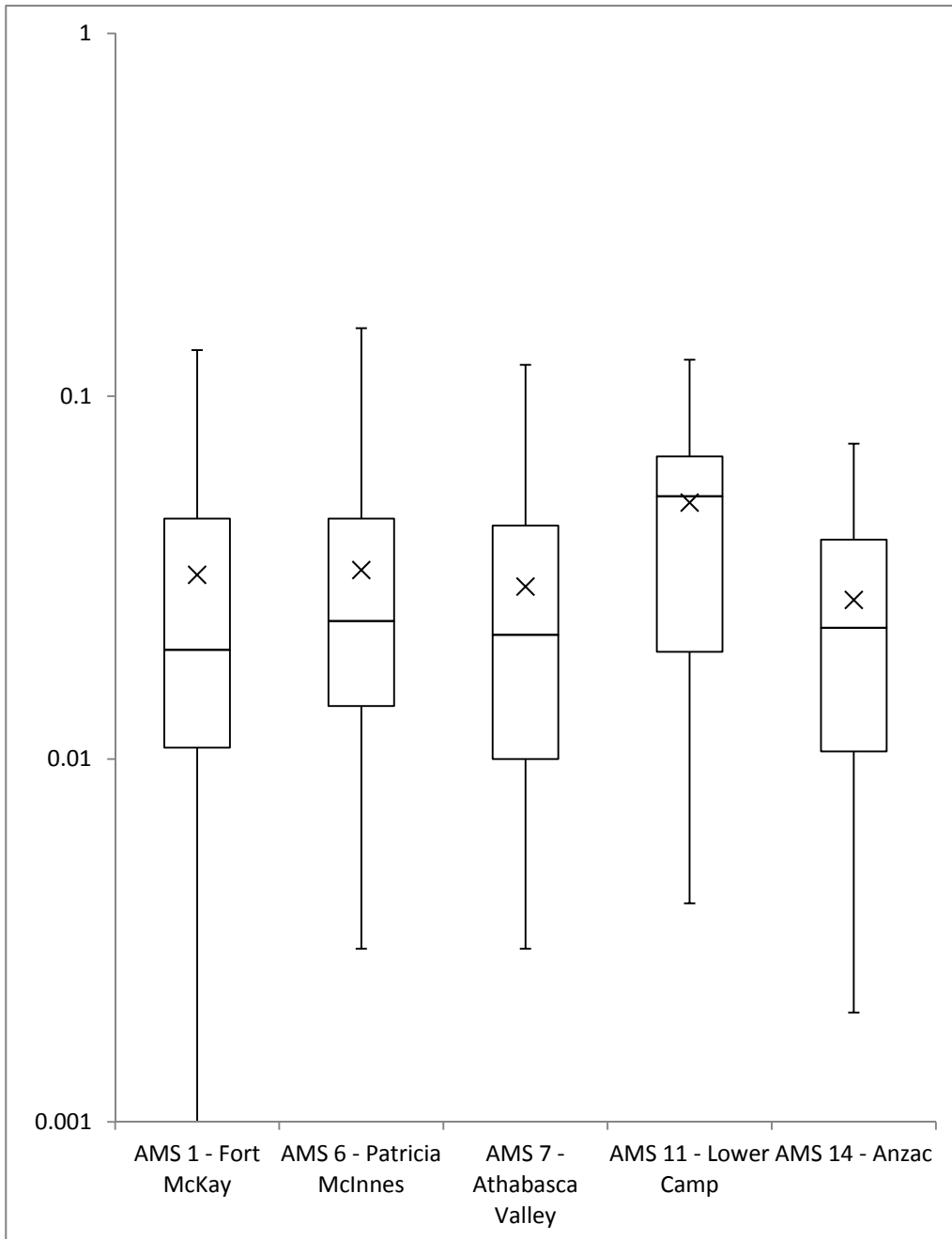


Station	Benzo(ghi)perylene					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.02	0.06	0.23	0.04
AMS 6 - Patricia McInnes	0.00	0.01	0.03	0.06	0.19	0.04
AMS 7 - Athabasca Valley	0.00	0.01	0.03	0.06	0.21	0.04
AMS 11 - Lower Camp	0.00	0.01	0.03	0.08	0.24	0.05
AMS 14 - Anzac	0.00	0.01	0.02	0.04	0.10	0.02



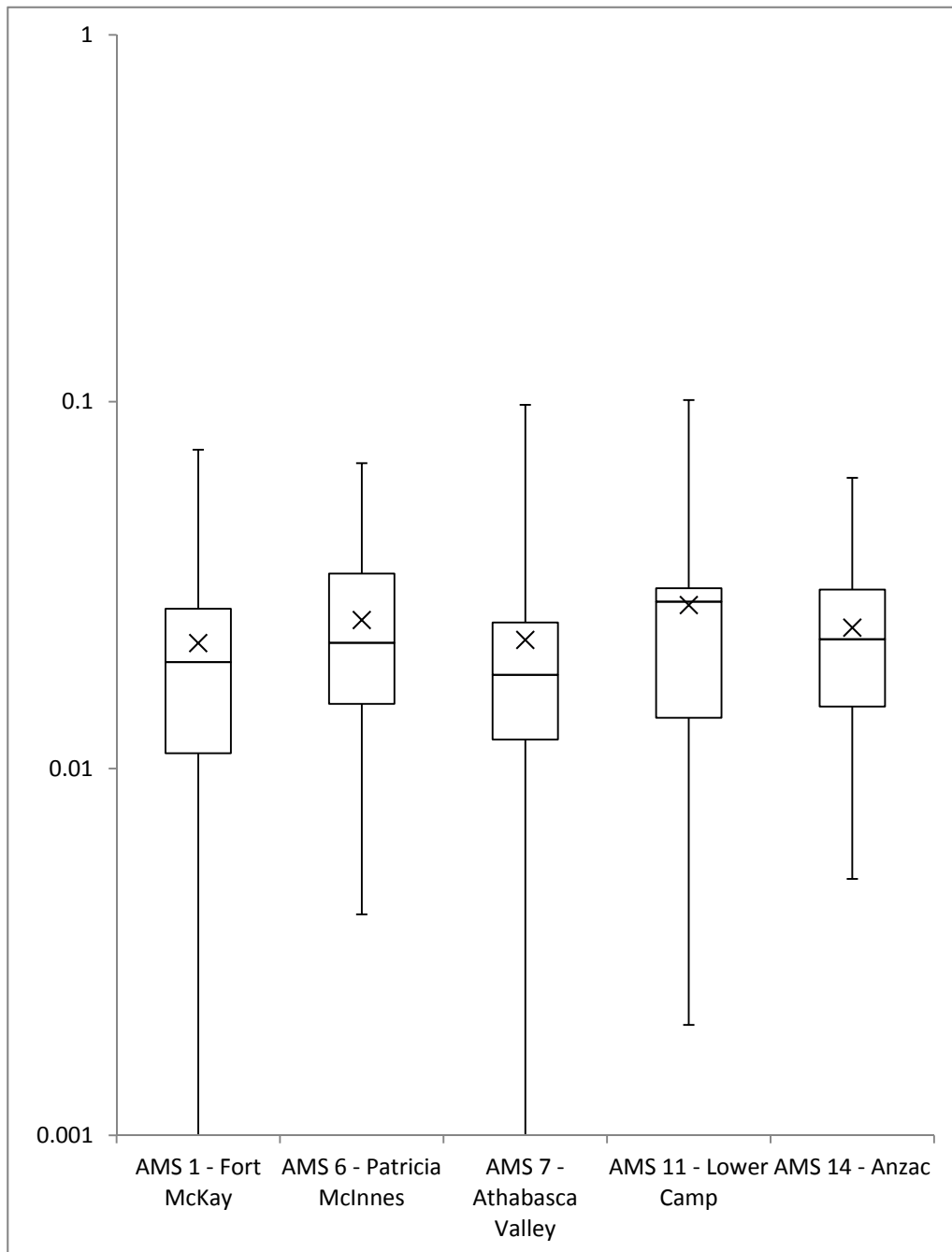


Station	Dibenzo(a,l)pyrene					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.02	0.05	0.13	0.03
AMS 6 - Patricia McInnes	0.00	0.01	0.02	0.05	0.15	0.03
AMS 7 - Athabasca Valley	0.00	0.01	0.02	0.04	0.12	0.03
AMS 11 - Lower Camp	0.00	0.02	0.05	0.07	0.13	0.05
AMS 14 - Anzac	0.00	0.01	0.02	0.04	0.07	0.03



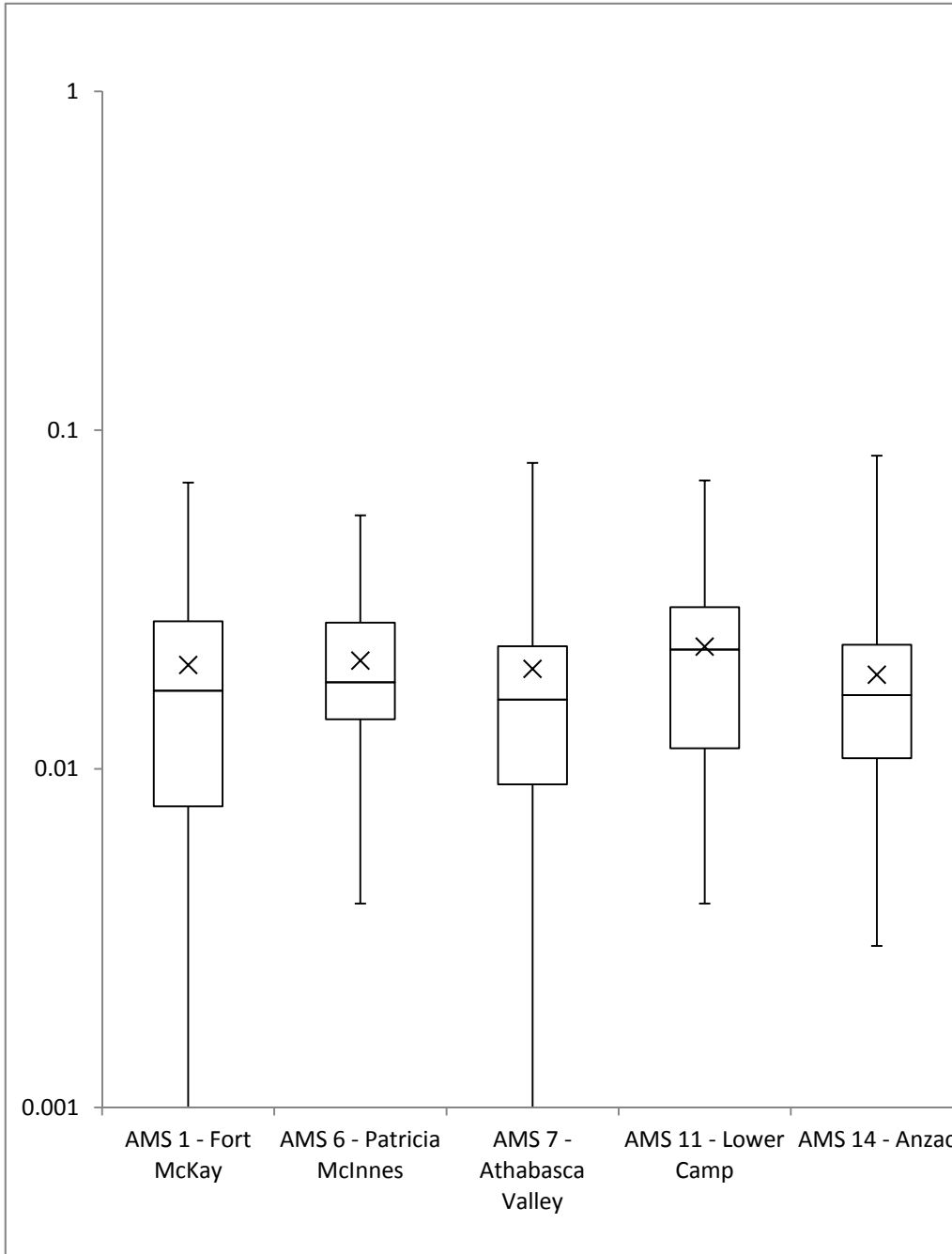


Station	Dibenzo(a,i)pyrene					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.02	0.03	0.07	0.02
AMS 6 - Patricia McInnes	0.00	0.01	0.02	0.03	0.07	0.03
AMS 7 - Athabasca Valley	0.00	0.01	0.02	0.03	0.10	0.02
AMS 11 - Lower Camp	0.00	0.01	0.03	0.03	0.10	0.03
AMS 14 - Anzac	0.00	0.01	0.02	0.03	0.06	0.02





Station	Dibenzo(a,h)pyrene					
	Minimum	Q1	Median	Q3	Max	Average
AMS 1 - Fort McKay	0.00	0.01	0.02	0.03	0.07	0.02
AMS 6 - Patricia McInnes	0.00	0.01	0.02	0.03	0.06	0.02
AMS 7 - Athabasca Valley	0.00	0.01	0.02	0.02	0.08	0.02
AMS 11 - Lower Camp	0.00	0.01	0.02	0.03	0.07	0.02
AMS 14 - Anzac	0.00	0.01	0.02	0.02	0.08	0.02



This page intentionally left blank

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Volatile Organic Compounds: Alberta Innovates - Technology Futures
Vegreville, Alberta

DATA SUMMARY

Aurora Atmospheric Inc.
Calgary, Alberta

This page intentionally left blank



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)		
#	Compound Name	MDL	AMS 9	AMS 13	AMS 15
			Barge Landing 04-Jan	Fort McKay South 04-Jan	CNRL Horizon 04-Jan
1	Formaldehyde	2			
2	Isobutane	0.03	0.42	0.45	0.44
3	1-Butene	0.03			
4	Acetaldehyde	0.2			
5	Butane	0.03	1.48	1.34	1.42
6	Methanol	2	13.5	6.01	6.96
7	trans-2-Butene	0.03			
8	cis-2-Butene	0.03			
9	3-Methyl-1-butene	0.03			
10	Isopentane	0.03	2.67	1.08	0.72
11	1-Pentene	0.03			
12	Acetone	0.2			
13	Pentane	0.03	3.03	1.1	0.9
14	Isoprene	0.03			
15	trans-2-Pentene	0.03			
16	cis-2-Pentene	0.03			
17	2-Methyl-2-butene	0.03			
18	2,2-Dimethylbutane	0.03	0.31	0.12	0.13
19	Cyclopentene	0.03			
20	4-Methyl-1-pentene	0.03			
21	2,3-Dimethylbutane	0.03	0.32	0.19	0.19
22	Cyclopentane	0.03	0.35	0.19	0.16
23	2-Methylpentane	0.03	1.49	0.64	0.6
24	3-Methylpentane	0.03	0.66	0.33	0.29
25	2-Methyl-1-pentene	0.03			
26	Hexane	0.03	0.42	0.44	0.34
27	Methyl ethyl ketone	0.2			0.35
28	cis-2-Hexene	0.03			
29	trans-2-Hexene	0.03			
30	2,4-Dimethylpentane	0.03			
31	Methylcyclopentane	0.03	0.08	0.16	0.14
32	Cyclohexane	0.03		0.09	0.11
33	Benzene	0.03			
34	2-Methylhexane	0.03		0.12	
35	2,3-Dimethylpentane	0.03		0.08	
36	3-Methylhexane	0.03	0.13	0.21	0.25
37	2,2,4-Trimethylpentane	0.03			
38	Heptane	0.03	0.1	0.31	0.3
39	Methylcyclohexane	0.03	0.07	0.15	0.16
40	Methyl isobutyl ketone	0.2			
41	2,3,4-Trimethylpentane	0.03			
42	2-Methylheptane	0.03		0.1	0.16
43	Toluene	0.03	0.14	0.2	0.31
44	3-Methylheptane	0.03		0.05	
45	Octane	0.03		0.13	0.26
46	Ethyl benzene	0.03		0.05	0.05
47	m,p-Xylene	0.03		0.17	0.12
48	Styrene	0.03			
49	Nonane	0.03		0.07	0.09
50	o-Xylene	0.03		0.06	0.04
51	Isopropylbenzene	0.03			
52	alpha Pinene	0.03		0.04	
53	n-Propylbenzene	0.03			
54	1,3,5-Trimethylbenzene	0.03			
55	beta Pinene	0.03			
56	Decane	0.03		0.05	0.04
57	1,2,4-Trimethylbenzene	0.03		0.04	
58	Undecane	0.03			
59	Dodecane	0.03			
60	Naphthalene	0.03			



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 04-Jan	AMS 6 Patricia McInnes 04-Jan	AMS 7 Athabasca Valley 04-Jan	AMS 14 Anzac 04-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.66	0.62	0.61	0.66
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.65	2.39	2.56	2.69
6	Methanol	2	6.05	14.6	17.3	6.66
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.77	0.78	0.8	1.09
11	1-Pentene	0.03				
12	Acetone	0.2				1.64
13	Pentane	0.03	1.76	0.38	0.37	0.85
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.23		0.04	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.33	0.07	0.07	
22	Cyclopentane	0.03	0.34			
23	2-Methylpentane	0.03	0.98	0.15	0.13	0.33
24	3-Methylpentane	0.03	0.51	0.08	0.08	0.14
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.47	0.13	0.07	0.23
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03		0.03		
31	Methylcyclopentane	0.03	0.13	0.07	0.07	0.12
32	Cyclohexane	0.03	0.08			0.09
33	Benzene	0.03				
34	2-Methylhexane	0.03	0.11	0.05	0.06	
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.19	0.1	0.12	0.12
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.22	0.08		0.06
39	Methylcyclohexane	0.03	0.1	0.05	0.03	0.05
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.04			
43	Toluene	0.03	0.42	0.47	0.21	0.12
44	3-Methylheptane	0.03				
45	Octane	0.03	0.08			
46	Ethyl benzene	0.03	0.05	0.04	0.03	
47	m,p-Xylene	0.03	0.14	0.13	0.09	
48	Styrene	0.03				
49	Nonane	0.03	0.04			
50	o-Xylene	0.03	0.04	0.05		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03	0.04			
57	1,2,4-Trimethylbenzene	0.03		0.04		
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 10-Jan	AMS 12 Millennium Mine 10-Jan	AMS 13 Fort McKay South 10-Jan	AMS 15 CNRL Horizon 10-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.53	0.4	0.46	0.67
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.01	0.97	1.04	1.14
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.48	0.18	0.2	
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.61	0.23	0.32	0.3
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.07	0.09	0.05	0.05
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.1	0.11	0.08	0.1
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.21	0.1	0.13	0.14
24	3-Methylpentane	0.03	0.1	0.05	0.06	0.08
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.13	0.05	0.09	0.11
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.06		0.04	0.06
32	Cyclohexane	0.03	0.03	0.04	0.04	0.06
33	Benzene	0.03	0.15	0.13	0.13	0.19
34	2-Methylhexane	0.03	0.05			0.05
35	2,3-Dimethylpentane	0.03	0.02			
36	3-Methylhexane	0.03	0.11		0.1	0.15
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.13	0.05	0.13	0.15
39	Methylcyclohexane	0.03	0.09	0.05	0.07	0.12
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.06		0.04	0.08
43	Toluene	0.03	0.16	0.08	0.13	0.15
44	3-Methylheptane	0.03				0.03
45	Octane	0.03	0.17	0.03	0.09	0.1
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.08		0.08	
48	Styrene	0.03				
49	Nonane	0.03			0.04	
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03			0.03	0.04
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 10-Jan	AMS 6 Patricia McInnes 10-Jan	AMS 7 Athabasca Valley 10-Jan	AMS 14 Anzac 10-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.78	0.36	0.62	0.32
3	1-Butene	0.03			0.69	
4	Acetaldehyde	0.2				
5	Butane	0.03	6.6	1.1	1.49	1.06
6	Methanol	2			62.8	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.48	0.27	0.39	0.17
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.07	0.29	0.31	0.23
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.05	0.04		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.09	0.04	0.05	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.19	0.11	0.14	0.09
24	3-Methylpentane	0.03	0.09	0.06	0.05	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.21	0.08	0.09	0.04
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03			0.03	
31	Methylcyclopentane	0.03	0.06	0.04	0.04	
32	Cyclohexane	0.03	0.04			
33	Benzene	0.03	0.26	0.14	0.14	0.11
34	2-Methylhexane	0.03	0.06	0.03		
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.12	0.08	0.08	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.19	0.09	0.08	
39	Methylcyclohexane	0.03	0.09	0.06		
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.06	0.05	0.03	
43	Toluene	0.03	0.31	0.29	0.13	0.06
44	3-Methylheptane	0.03				
45	Octane	0.03	0.17	0.08	0.08	
46	Ethyl benzene	0.03	0.04			
47	m,p-Xylene	0.03	0.09			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.03			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 16-Jan	AMS 12 Millennium Mine 16-Jan	AMS 13 Fort McKay South 16-Jan	AMS 15 CNRL Horizon 16-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.33	0.4	0.35	0.95
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.96	1.15	1.41	1.07
6	Methanol	2	70.4	23.9	38	8.97
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.57	0.18	0.44	0.69
11	1-Pentene	0.03				
12	Acetone	0.2		2.64		
13	Pentane	0.03	0.96	0.12	0.42	0.18
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.1	0.11		0.03
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.13	0.1		0.09
22	Cyclopentane	0.03	0.12			
23	2-Methylpentane	0.03	0.32	0.08	0.16	0.1
24	3-Methylpentane	0.03	0.15	0.06	0.1	0.1
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.1	0.07		0.05
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03			0.04	
31	Methylcyclopentane	0.03		0.04	0.06	0.06
32	Cyclohexane	0.03		0.05		0.1
33	Benzene	0.03	0.34	0.34	0.31	0.18
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03			0.07	0.04
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03			0.03	0.07
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.06	0.14	0.25	0.06
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.05	
47	m,p-Xylene	0.03			0.12	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.04	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				0.04
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 16-Jan	AMS 6 Patricia McInnes 16-Jan	AMS 7 Athabasca Valley 16-Jan	AMS 14 Anzac 16-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.54	0.45	3.38	0.31
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.6	1.12	7.31	1.42
6	Methanol	2			64.9	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.65	0.51	1.81	0.24
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.69	0.42	1.5	0.33
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.14		0.06	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.15	0.08	0.07	0.05
22	Cyclopentane	0.03	0.25		0.08	
23	2-Methylpentane	0.03	0.62	0.21	0.32	0.11
24	3-Methylpentane	0.03	0.29	0.13	0.15	0.06
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.17	0.18	0.28	0.08
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.05	0.08	0.1	0.04
32	Cyclohexane	0.03	0.41		0.07	
33	Benzene	0.03	0.29	0.24	0.25	0.19
34	2-Methylhexane	0.03	0.06	0.07	0.06	
35	2,3-Dimethylpentane	0.03		0.06		
36	3-Methylhexane	0.03	0.11	0.12	0.1	0.09
37	2,2,4-Trimethylpentane	0.03		0.07		
38	Heptane	0.03	0.1	0.18	0.08	0.09
39	Methylcyclohexane	0.03	0.03	0.13	0.1	0.05
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03		0.11		
43	Toluene	0.03	0.25	0.43	0.14	0.12
44	3-Methylheptane	0.03				
45	Octane	0.03		0.23		0.08
46	Ethyl benzene	0.03	0.08			
47	m,p-Xylene	0.03	0.21	0.12		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.06			
51	Isopropylbenzene	0.03	0.03			
52	alpha Pinene	0.03	0.03			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 22-Jan	AMS 12 Millennium Mine 22-Jan	AMS 13 Fort McKay South 22-Jan	AMS 15 CNRL Horizon 22-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	1.07	0.04	1.04	2.38
3	1-Butene	0.03				0.55
4	Acetaldehyde	0.2				
5	Butane	0.03	1.98	0.61	1.48	2.09
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.6	0.32	1.47	2.38
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.35	0.14	0.95	0.63
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.15	0.08	0.13	0.17
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.2	0.2	0.18	0.34
22	Cyclopentane	0.03	0.19		0.13	0.2
23	2-Methylpentane	0.03	0.48	0.28	0.43	0.29
24	3-Methylpentane	0.03	0.32	0.24	0.27	0.45
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.29	0.25	0.23	0.28
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.15		0.15	0.35
32	Cyclohexane	0.03	0.16	0.26	0.18	0.57
33	Benzene	0.03	0.3	0.11	0.29	0.4
34	2-Methylhexane	0.03	0.09	0.05	0.07	0.12
35	2,3-Dimethylpentane	0.03	0.09	0.78	0.08	0.19
36	3-Methylhexane	0.03	0.17	0.63	0.16	0.33
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.2	1.11	0.18	0.35
39	Methylcyclohexane	0.03	0.19	0.92	0.17	0.42
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.06	1.12	0.06	0.13
43	Toluene	0.03	0.28	1.22	0.21	0.3
44	3-Methylheptane	0.03		1.01		
45	Octane	0.03	0.15	1.65	0.17	0.34
46	Ethyl benzene	0.03		1.81		
47	m,p-Xylene	0.03	0.13	4.08	0.14	0.14
48	Styrene	0.03				
49	Nonane	0.03		1.03		0.07
50	o-Xylene	0.03		1.85		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11	0.13	0.09	0.12
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03	0.3		0.37	0.41
56	Decane	0.03		0.75		
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03		2.9		
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 22-Jan	AMS 6 Patricia McInnes 22-Jan	AMS 7 Athabasca Valley 22-Jan	AMS 14 Anzac 22-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	1.07	0.62	0.48	0.37
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.74	1.96	1.21	1.04
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.42	0.8	0.47	0.46
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.96	0.53	0.26	0.36
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.16			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.29	0.09		
22	Cyclopentane	0.03	0.24			
23	2-Methylpentane	0.03	0.54	0.19	0.11	0.1
24	3-Methylpentane	0.03	0.39	0.12		
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.34	0.17	0.08	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03		0.09		
31	Methylcyclopentane	0.03	0.2	0.11		
32	Cyclohexane	0.03	0.22			
33	Benzene	0.03	0.31	0.24	0.23	0.18
34	2-Methylhexane	0.03	0.13	0.07		
35	2,3-Dimethylpentane	0.03	0.13	0.18		
36	3-Methylhexane	0.03	0.2	0.14		0.07
37	2,2,4-Trimethylpentane	0.03		0.28		
38	Heptane	0.03	0.32	0.11		
39	Methylcyclohexane	0.03	0.23	0.07		
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.47	0.46	0.14	0.1
44	3-Methylheptane	0.03				
45	Octane	0.03	0.2			
46	Ethyl benzene	0.03	0.06			
47	m,p-Xylene	0.03	0.21	0.12		
48	Styrene	0.03				
49	Nonane	0.03	0.06			
50	o-Xylene	0.03	0.07			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.09	0.03		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 28-Jan	AMS 12 Millennium Mine 28-Jan	AMS 13 Fort McKay South 28-Jan	AMS 15 CNRL Horizon 28-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.32		0.05
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.25	0.63	0.35	0.44
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.15	0.22	0.17	
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.04	0.17		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03		0.03		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.08			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.18	0.05	0.16	0.13
24	3-Methylpentane	0.03	0.12		0.11	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.11	0.04	0.12	0.09
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.07	0.15	0.06	0.07
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03	0.56			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.58	0.06	0.57	0.55
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	1.22		1.23	
47	m,p-Xylene	0.03	2.73		2.74	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	1.24		1.25	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03			1.97	
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 28-Jan	AMS 6 Patricia McInnes 28-Jan	AMS 7 Athabasca Valley 28-Jan	AMS 14 Anzac 28-Jan
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.71		0.06
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.4	1.84	0.25	0.62
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.12	5.98	0.12	0.23
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03		0.88		0.05
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.13		0.08
22	Cyclopentane	0.03		0.74		
23	2-Methylpentane	0.03	0.15	0.31	0.14	0.17
24	3-Methylpentane	0.03	0.1	0.23	0.09	0.13
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.11	0.27	0.09	0.15
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03		0.48		
33	Benzene	0.03	0.08	0.11	0.05	0.07
34	2-Methylhexane	0.03		0.19		
35	2,3-Dimethylpentane	0.03		0.6		
36	3-Methylhexane	0.03		0.61	0.38	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.73	0.85	0.68	
39	Methylcyclohexane	0.03	0.55	0.79	0.55	0.56
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.65	1.12	0.59	0.59
44	3-Methylheptane	0.03				
45	Octane	0.03	1.11	1.15		1.12
46	Ethyl benzene	0.03	1.23	1.26	1.22	
47	m,p-Xylene	0.03	2.73	2.84	2.74	2.73
48	Styrene	0.03				
49	Nonane	0.03		0.69		
50	o-Xylene	0.03	1.24	1.27	1.24	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03		0.5		
57	1,2,4-Trimethylbenzene	0.03		1.99		
58	Undecane	0.03		2		
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 03-Feb	AMS 12 Millennium Mine 03-Feb	AMS 13 Fort McKay South 03-Feb	AMS 15 CNRL Horizon 03-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.36	0.27	0.3	2.23
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.76	0.72	1.14	0.82
6	Methanol	2			12.7	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.76	0.22	0.53	1.95
11	1-Pentene	0.03				
12	Acetone	0.2			2	
13	Pentane	0.03	1.23	0.16	0.59	0.24
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.18	0.03	0.07	0.12
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.18		0.11	0.17
22	Cyclopentane	0.03	0.14		0.1	0.13
23	2-Methylpentane	0.03	0.56	0.06	0.23	0.08
24	3-Methylpentane	0.03	0.29		0.12	0.28
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.17		0.12	0.07
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.03			0.17
32	Cyclohexane	0.03				0.34
33	Benzene	0.03	0.22	0.17	0.23	0.17
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				0.07
36	3-Methylhexane	0.03				0.09
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.05	0.07
39	Methylcyclohexane	0.03	0.04		0.03	0.19
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				0.05
43	Toluene	0.03	0.06	0.04	0.16	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				0.06
46	Ethyl benzene	0.03			0.05	
47	m,p-Xylene	0.03			0.1	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.04	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 03-Feb	AMS 6 Patricia McInnes 03-Feb	AMS 7 Athabasca Valley 03-Feb	AMS 14 Anzac 03-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.34	0.43	0.39	0.27
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.78	0.69	1.03	
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.49	0.35	0.33	0.24
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.58	0.22	0.17	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.1		0.03	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.14		0.05	
22	Cyclopentane	0.03	0.14			
23	2-Methylpentane	0.03	0.32	0.08	0.07	0.08
24	3-Methylpentane	0.03	0.17	0.04	0.04	0.04
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.13	0.09	0.04	0.07
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03		0.04		
31	Methylcyclopentane	0.03		0.03		0.04
32	Cyclohexane	0.03				0.03
33	Benzene	0.03	0.25	0.16	0.16	0.19
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.06			
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.1	0.04	0.04	
39	Methylcyclohexane	0.03				0.03
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.17	0.32	0.09	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.07		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 09-Feb	Millennium Mine 09-Feb	Fort McKay South 09-Feb	CNRL Horizon 09-Feb
1	Formaldehyde	2				
2	Isobutane	0.03	0.55	0.24	0.59	0.57
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.53	1.15	2.38	1.05
6	Methanol	2		18.5	28.2	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.94	0.15	0.76	0.44
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.1	0.16	0.85	0.35
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.17		0.12	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.23		0.2	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.64		0.39	0.07
24	3-Methylpentane	0.03	0.38		0.24	0.07
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.29	0.06	0.41	0.1
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.09		0.14	0.07
32	Cyclohexane	0.03	0.11			0.08
33	Benzene	0.03	0.47	0.34	0.35	0.41
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03			0.16	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.09		0.21	0.08
39	Methylcyclohexane	0.03	0.06		0.12	0.07
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03			0.09	
43	Toluene	0.03	0.09	0.07	0.29	0.05
44	3-Methylheptane	0.03				
45	Octane	0.03			0.18	
46	Ethyl benzene	0.03			0.08	
47	m,p-Xylene	0.03			0.19	
48	Styrene	0.03				
49	Nonane	0.03			0.08	
50	o-Xylene	0.03			0.08	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.03	0.03		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

#	Compound Name	MDL	Results (ppbv)			
			AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 09-Feb	Patricia McInnes 09-Feb	Athabasca Valley 09-Feb	Anzac 09-Feb
1	Formaldehyde	2				
2	Isobutane	0.03	0.54	0.41	0.77	0.63
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.38	1.13	1.85	1.66
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.39	0.29	0.52	0.36
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.38	0.27	0.37	0.26
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.04		0.04	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.09	0.03	0.04	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.18	0.09	0.1	
24	3-Methylpentane	0.03	0.07	0.04	0.05	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.12	0.07	0.07	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.05	0.03	0.04	
32	Cyclohexane	0.03	0.04		0.04	
33	Benzene	0.03	0.25	0.21	0.23	0.34
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.08	0.04		
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.12	0.06		
39	Methylcyclohexane	0.03	0.05	0.04	0.04	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.04			
43	Toluene	0.03	0.21	0.28	0.1	0.06
44	3-Methylheptane	0.03				
45	Octane	0.03	0.06			
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.07			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 15-Feb	AMS 12 Millennium Mine 15-Feb	AMS 13 Fort McKay South 15-Feb	AMS 15 CNRL Horizon 15-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.44	0.58	0.59	0.45
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.22	1.65	2.18	1.36
6	Methanol	2			3.16	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.33	0.49		0.35
11	1-Pentene	0.03				
12	Acetone	0.2			3.27	1.65
13	Pentane	0.03	0.32	0.35	0.56	0.32
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.07	0.26	0.06	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.08	0.24	0.11	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.11	0.09	0.14	0.1
24	3-Methylpentane	0.03	0.05	0.06	0.08	0.04
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.13	0.06	0.21	0.05
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03		0.03		
31	Methylcyclopentane	0.03	0.05	0.05	0.08	
32	Cyclohexane	0.03	0.05	0.13	0.07	
33	Benzene	0.03	0.18	0.16	0.19	0.17
34	2-Methylhexane	0.03	0.06		0.08	
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.11	0.04	0.2	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.17		0.26	0.04
39	Methylcyclohexane	0.03	0.12	0.06	0.18	0.04
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.08		0.11	
43	Toluene	0.03	0.19	0.08	0.3	0.07
44	3-Methylheptane	0.03	0.03		0.05	
45	Octane	0.03	0.1		0.18	0.04
46	Ethyl benzene	0.03	0.04		0.07	
47	m,p-Xylene	0.03	0.09		0.19	
48	Styrene	0.03				
49	Nonane	0.03	0.05		0.08	
50	o-Xylene	0.03	0.04		0.07	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03			0.05	
57	1,2,4-Trimethylbenzene	0.03			0.04	
58	Undecane	0.03			0.04	
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 15-Feb	Patricia McInnes 15-Feb	Athabasca Valley 15-Feb	Anzac 15-Feb
1	Formaldehyde	2				
2	Isobutane	0.03	0.58	0.5	1.52	0.37
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	2.11	1.58	4.31	1.31
6	Methanol	2			26.9	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.51	0.45	0.92	0.29
11	1-Pentene	0.03				
12	Acetone	0.2	2.27		1.23	
13	Pentane	0.03	0.59	0.31	0.44	0.24
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.1			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.11	0.03	0.06	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.14	0.11	0.17	0.05
24	3-Methylpentane	0.03	0.08	0.06	0.11	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.17	0.09	0.09	0.04
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.06	0.03	0.09	
32	Cyclohexane	0.03	0.05		0.03	
33	Benzene	0.03	0.3	0.19	0.29	0.14
34	2-Methylhexane	0.03	0.07	0.04	0.07	
35	2,3-Dimethylpentane	0.03	0.06			
36	3-Methylhexane	0.03	0.12	0.05	0.1	
37	2,2,4-Trimethylpentane	0.03			0.24	
38	Heptane	0.03	0.25	0.03	0.06	
39	Methylcyclohexane	0.03	0.1	0.03	0.04	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03			0.04	
42	2-Methylheptane	0.03	0.07			
43	Toluene	0.03	0.32	0.32	0.3	0.06
44	3-Methylheptane	0.03	0.03			
45	Octane	0.03	0.1			
46	Ethyl benzene	0.03	0.05		0.05	
47	m,p-Xylene	0.03	0.13	0.07	0.14	
48	Styrene	0.03				
49	Nonane	0.03	0.05			
50	o-Xylene	0.03	0.05		0.05	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.04			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03	0.05			
57	1,2,4-Trimethylbenzene	0.03	0.03		0.03	
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 21-Feb	AMS 12 Millennium Mine 21-Feb	AMS 13 Fort McKay South 21-Feb	AMS 15 CNRL Horizon 21-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	1.07	0.79	0.99	0.99
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	2.92	2.31	3.1	2.7
6	Methanol	2			3.46	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.67	0.58	0.64	0.64
11	1-Pentene	0.03				
12	Acetone	0.2			3.15	
13	Pentane	0.03	0.8	0.67	0.78	0.77
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.06	0.04		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.07	0.05	0.06	0.04
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.12	0.13	0.18	0.16
24	3-Methylpentane	0.03	0.07	0.06	0.1	0.06
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.14	0.09	0.23	0.17
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.06	0.04	0.09	0.07
32	Cyclohexane	0.03	0.06		0.07	0.06
33	Benzene	0.03	0.15	0.19	0.19	0.2
34	2-Methylhexane	0.03			0.08	0.06
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.07	0.04	0.2	0.12
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.05		0.31	0.2
39	Methylcyclohexane	0.03	0.06	0.05	0.14	0.13
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03			0.11	0.09
43	Toluene	0.03	0.06	0.04	0.22	0.15
44	3-Methylheptane	0.03			0.06	0.06
45	Octane	0.03			0.21	0.21
46	Ethyl benzene	0.03			0.05	
47	m,p-Xylene	0.03			0.11	0.07
48	Styrene	0.03				
49	Nonane	0.03			0.07	0.04
50	o-Xylene	0.03			0.05	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 21-Feb	AMS 6 Patricia McInnes 21-Feb	AMS 7 Athabasca Valley 21-Feb	AMS 14 Anzac 21-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	1.08	1.01	1.73	0.97
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	3.53	2.61	4.26	3
6	Methanol	2			16	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.74	0.75	1.07	0.57
11	1-Pentene	0.03				
12	Acetone	0.2	2.67			
13	Pentane	0.03	0.76	0.69	0.84	0.73
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.04			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.09		0.07	
22	Cyclopentane	0.03			0.08	
23	2-Methylpentane	0.03	0.17	0.14	0.2	0.12
24	3-Methylpentane	0.03	0.09	0.07	0.08	0.06
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.18	0.14	0.12	0.08
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.08	0.07	0.09	0.04
32	Cyclohexane	0.03	0.06	0.06	0.05	0.05
33	Benzene	0.03	0.18	0.23	0.25	0.13
34	2-Methylhexane	0.03	0.05			
35	2,3-Dimethylpentane	0.03			0.05	
36	3-Methylhexane	0.03	0.13	0.05	0.06	0.03
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.18	0.04	0.06	
39	Methylcyclohexane	0.03	0.1	0.07	0.11	0.06
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.05			
43	Toluene	0.03	0.25	0.22	0.11	
44	3-Methylheptane	0.03				
45	Octane	0.03	0.13			
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.08			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.03			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 27-Feb	AMS 6 Patricia McInnes 27-Feb	AMS 7 Athabasca Valley 27-Feb	AMS 14 Anzac 27-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.95	0.93	0.72	0.63
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.26	3.55	1.85	2.11
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.5	0.97	0.89	0.68
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.84	0.46	0.56	0.72
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.16			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.25	0.04	0.04	
22	Cyclopentane	0.03	0.17			
23	2-Methylpentane	0.03	0.38	0.1	0.14	0.12
24	3-Methylpentane	0.03	0.32	0.07	0.09	0.06
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.26	0.09	0.12	0.1
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.18	0.04	0.06	0.07
32	Cyclohexane	0.03	0.23			
33	Benzene	0.03	0.28	0.21	0.21	0.26
34	2-Methylhexane	0.03	0.11			
35	2,3-Dimethylpentane	0.03	0.12			
36	3-Methylhexane	0.03	0.21			0.05
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.4		0.04	
39	Methylcyclohexane	0.03	0.26	0.05	0.05	0.06
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03	0.03			
42	2-Methylheptane	0.03	0.11			
43	Toluene	0.03	0.33	0.1	0.27	0.06
44	3-Methylheptane	0.03	0.04			
45	Octane	0.03	0.16			
46	Ethyl benzene	0.03	0.06			
47	m,p-Xylene	0.03	0.14			
48	Styrene	0.03				
49	Nonane	0.03	0.09			
50	o-Xylene	0.03	0.06			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.09			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03	0.05			
57	1,2,4-Trimethylbenzene	0.03	0.04			
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	0.4			



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 27-Feb	AMS 12 Millennium Mine 27-Feb	AMS 13 Fort McKay South 27-Feb	AMS 15 CNRL Horizon 27-Feb
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	1	0.37	1.26	1.43
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	2.45	1.04	2.2	1.93
6	Methanol	2	13.3		10.6	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	2.74	0.47	2.02	1.39
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	2.92	0.34	1.8	0.76
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.29	0.1	0.17	0.14
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.37	0.1	0.26	0.17
22	Cyclopentane	0.03	0.36		0.2	
23	2-Methylpentane	0.03	1.01	0.06	0.57	0.21
24	3-Methylpentane	0.03	0.51	0.05	0.35	0.19
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.39	0.05	0.29	0.22
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				0.07
31	Methylcyclopentane	0.03	0.14		0.16	0.16
32	Cyclohexane	0.03	0.11	0.06	0.3	0.25
33	Benzene	0.03	0.4	0.16	0.3	0.31
34	2-Methylhexane	0.03	0.07		0.06	0.11
35	2,3-Dimethylpentane	0.03			0.08	0.08
36	3-Methylhexane	0.03	0.16		0.2	0.22
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.17		0.26	0.37
39	Methylcyclohexane	0.03	0.15	0.04	0.23	0.24
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03	0.03			
42	2-Methylheptane	0.03	0.09		0.13	0.16
43	Toluene	0.03	0.22	0.05	0.24	0.25
44	3-Methylheptane	0.03	0.08		0.06	0.09
45	Octane	0.03	0.33		0.34	0.43
46	Ethyl benzene	0.03	0.04		0.06	0.06
47	m,p-Xylene	0.03	0.12		0.18	0.13
48	Styrene	0.03				
49	Nonane	0.03	0.1		0.09	0.1
50	o-Xylene	0.03	0.05		0.07	0.05
51	Isopropylbenzene	0.03	0.04			
52	alpha Pinene	0.03	0.19			0.1
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03	0.04			
55	beta Pinene	0.03			0.33	
56	Decane	0.03	0.09		0.05	0.04
57	1,2,4-Trimethylbenzene	0.03	0.09		0.06	
58	Undecane	0.03	0.05			
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)		
			AMS 9 Barge Landing 05-Mar	AMS 12 Millennium Mine 05-Mar	AMS 13 Fort McKay South 05-Mar
#	Compound Name	MDL			
1	Formaldehyde	2			
2	Isobutane	0.03	0.5	0.35	0.63
3	1-Butene	0.03			
4	Acetaldehyde	0.2			
5	Butane	0.03	1.28	0.94	1.94
6	Methanol	2	5.12		8.61
7	trans-2-Butene	0.03			
8	cis-2-Butene	0.03			
9	3-Methyl-1-butene	0.03			
10	Isopentane	0.03	0.86	0.34	1.24
11	1-Pentene	0.03			
12	Acetone	0.2			
13	Pentane	0.03	0.8	0.26	1.15
14	Isoprene	0.03			
15	trans-2-Pentene	0.03			
16	cis-2-Pentene	0.03			
17	2-Methyl-2-butene	0.03			
18	2,2-Dimethylbutane	0.03	0.13	0.15	0.16
19	Cyclopentene	0.03			
20	4-Methyl-1-pentene	0.03			
21	2,3-Dimethylbutane	0.03	0.13	0.12	0.15
22	Cyclopentane	0.03	0.15		0.11
23	2-Methylpentane	0.03	0.3	0.09	0.48
24	3-Methylpentane	0.03	0.15	0.05	0.23
25	2-Methyl-1-pentene	0.03			
26	Hexane	0.03	0.15	0.05	0.27
27	Methyl ethyl ketone	0.2			
28	cis-2-Hexene	0.03			
29	trans-2-Hexene	0.03			
30	2,4-Dimethylpentane	0.03			0.05
31	Methylcyclopentane	0.03	0.06	0.03	0.08
32	Cyclohexane	0.03	0.06	0.06	0.05
33	Benzene	0.03	0.2	0.18	0.22
34	2-Methylhexane	0.03	0.05		0.05
35	2,3-Dimethylpentane	0.03			
36	3-Methylhexane	0.03	0.09		
37	2,2,4-Trimethylpentane	0.03			
38	Heptane	0.03	0.1		0.25
39	Methylcyclohexane	0.03	0.1	0.04	0.13
40	Methyl isobutyl ketone	0.2			
41	2,3,4-Trimethylpentane	0.03			
42	2-Methylheptane	0.03	0.06		0.11
43	Toluene	0.03	0.15	0.08	0.25
44	3-Methylheptane	0.03			
45	Octane	0.03	0.09		0.28
46	Ethyl benzene	0.03			0.07
47	m,p-Xylene	0.03	0.07		0.19
48	Styrene	0.03			
49	Nonane	0.03			0.08
50	o-Xylene	0.03			0.07
51	Isopropylbenzene	0.03			
52	alpha Pinene	0.03	0.04		
53	n-Propylbenzene	0.03			
54	1,3,5-Trimethylbenzene	0.03			
55	beta Pinene	0.03			
56	Decane	0.03			0.04
57	1,2,4-Trimethylbenzene	0.03			
58	Undecane	0.03			
59	Dodecane	0.03			
60	Naphthalene	0.03			



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 05-Mar	AMS 6 Patricia McInnes 05-Mar	AMS 7 Athabasca Valley 05-Mar	AMS 14 Anzac 05-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.48		0.72	0.25
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.57		2.54	1.28
6	Methanol	2			10.4	9.07
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.23	0.6	0.83	0.28
11	1-Pentene	0.03				
12	Acetone	0.2			4.46	
13	Pentane	0.03	1.44	0.41	0.37	0.24
14	Isoprene	0.03			0.06	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03			0.16	
17	2-Methyl-2-butene	0.03			0.16	
18	2,2-Dimethylbutane	0.03	0.23		0.18	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.18		0.16	
22	Cyclopentane	0.03	0.2		0.13	
23	2-Methylpentane	0.03	0.68	0.09	0.21	0.06
24	3-Methylpentane	0.03	0.31	0.06	0.18	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.28	0.07	0.29	0.03
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.1		0.11	
32	Cyclohexane	0.03	0.08		0.15	
33	Benzene	0.03	0.22	0.18	0.45	0.11
34	2-Methylhexane	0.03	0.07		0.1	
35	2,3-Dimethylpentane	0.03			0.13	
36	3-Methylhexane	0.03	0.14		0.19	
37	2,2,4-Trimethylpentane	0.03			0.11	0.06
38	Heptane	0.03	0.28	0.03	0.18	
39	Methylcyclohexane	0.03	0.15		0.1	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03			0.09	
42	2-Methylheptane	0.03	0.08		0.07	
43	Toluene	0.03	0.31	0.19	0.28	0.1
44	3-Methylheptane	0.03	0.03		0.08	
45	Octane	0.03	0.16		0.12	
46	Ethyl benzene	0.03	0.04		0.12	
47	m,p-Xylene	0.03	0.13		0.2	
48	Styrene	0.03				
49	Nonane	0.03	0.07		0.06	
50	o-Xylene	0.03	0.05		0.1	
51	Isopropylbenzene	0.03			0.09	
52	alpha Pinene	0.03	0.04			
53	n-Propylbenzene	0.03			0.04	
54	1,3,5-Trimethylbenzene	0.03			0.08	
55	beta Pinene	0.03				
56	Decane	0.03	0.06		0.05	
57	1,2,4-Trimethylbenzene	0.03			0.07	
58	Undecane	0.03	0.04		0.04	
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 11-Mar	AMS 12 Millennium Mine 11-Mar	AMS 13 Fort McKay South 11-Mar	AMS 15 CNRL Horizon 11-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.16	0.12	0.12	0.19
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.82	0.78	0.8	0.64
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.74	0.25	0.34	0.14
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.05	0.19	0.58	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.08	0.06		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.14			
22	Cyclopentane	0.03	0.15			
23	2-Methylpentane	0.03	0.39	0.06	0.13	
24	3-Methylpentane	0.03	0.2		0.07	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.13			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.03		
32	Cyclohexane	0.03				
33	Benzene	0.03	0.22	0.14	0.15	0.13
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03		0.04		
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03		0.07		
39	Methylcyclohexane	0.03		0.04		
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.07	0.07	0.07	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 11-Mar	Patricia McInnes 11-Mar	Athabasca Valley 11-Mar	Anzac 11-Mar
1	Formaldehyde	2				
2	Isobutane	0.03	1.1	0.17	0.14	0.14
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.99	1.1	0.95	0.83
6	Methanol	2	15.7	7.72	9.39	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	5.97	0.34	0.25	0.18
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	3.09	0.27	0.2	0.23
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.15			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.15			
22	Cyclopentane	0.03	0.31			
23	2-Methylpentane	0.03	0.53			
24	3-Methylpentane	0.03	0.43			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.72			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.18			
32	Cyclohexane	0.03	3.43			
33	Benzene	0.03	0.29	0.14	0.13	0.12
34	2-Methylhexane	0.03	0.16			
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.29			
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.32			
39	Methylcyclohexane	0.03	0.22			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.05			
43	Toluene	0.03	53.9	0.18	0.04	0.09
44	3-Methylheptane	0.03	0.05			
45	Octane	0.03	0.1			
46	Ethyl benzene	0.03	0.05			0.04
47	m,p-Xylene	0.03	0.12			0.09
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.05			0.05
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.05			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				0.04
57	1,2,4-Trimethylbenzene	0.03				0.08
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	0.39			



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 17-Mar	AMS 12 Millennium Mine 17-Mar	AMS 13 Fort McKay South 17-Mar	AMS 15 CNRL Horizon 17-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.21	0.41	0.17	1.2
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.77	0.93	0.77	1.22
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.56	0.44	0.45	1.57
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.66	0.31	0.3	0.26
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.05	0.08		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.06	0.08		0.13
22	Cyclopentane	0.03				0.09
23	2-Methylpentane	0.03	0.19	0.11	0.07	0.09
24	3-Methylpentane	0.03	0.09	0.09	0.04	0.17
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.07	0.12	0.08	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				0.06
31	Methylcyclopentane	0.03		0.07		0.12
32	Cyclohexane	0.03		0.05		0.18
33	Benzene	0.03	0.14	0.13	0.14	0.15
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03		0.06		
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03		0.14	0.08	0.13
39	Methylcyclohexane	0.03	0.04	0.07	0.04	0.12
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.08	0.1	0.07	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03	0.09	0.09		0.1
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 17-Mar	AMS 6 Patricia McInnes 17-Mar	AMS 7 Athabasca Valley 17-Mar	AMS 14 Anzac 17-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.23			0.16
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.81	0.65	0.83	0.86
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.53	0.38	0.38	0.34
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	0.42	0.45	0.3	0.39
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.1	0.09	0.1	0.07
24	3-Methylpentane	0.03	0.07	0.05	0.04	0.03
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.05		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.04		
32	Cyclohexane	0.03				
33	Benzene	0.03	0.13	0.12	0.13	0.15
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.11	0.09		
39	Methylcyclohexane	0.03	0.05			0.03
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.29	0.17	0.08	0.09
44	3-Methylheptane	0.03				
45	Octane	0.03		0.06		
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03			0.04	
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 23-Mar	AMS 12 Millennium Mine 23-Mar	AMS 13 Fort McKay South 23-Mar	AMS 15 CNRL Horizon 23-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03			0.61	
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.09	0.63	0.42	2.14
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.04	0.58	0.38	0.23
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.08	0.09		0.09
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.1	0.09		0.17
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.31	0.17		0.07
24	3-Methylpentane	0.03	0.15	0.1		0.22
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.11	0.08	0.06	0.11
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.07	0.03	0.04	0.16
32	Cyclohexane	0.03				0.29
33	Benzene	0.03	0.13	0.1	0.11	0.13
34	2-Methylhexane	0.03				0.05
35	2,3-Dimethylpentane	0.03				0.11
36	3-Methylhexane	0.03				0.13
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.08	0.05	0.12	0.24
39	Methylcyclohexane	0.03	0.05	0.05		0.18
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				0.09
43	Toluene	0.03	0.04	0.06	0.09	0.09
44	3-Methylheptane	0.03				
45	Octane	0.03	0.08		0.11	0.11
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.06	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 23-Mar	AMS 6 Patricia McInnes 23-Mar	AMS 7 Athabasca Valley 23-Mar	AMS 14 Anzac 23-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.28			
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.57			
6	Methanol	2				7.52
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.65	0.46	0.52	0.23
11	1-Pentene	0.03				
12	Acetone	0.2				3.53
13	Pentane	0.03	0.35	0.4	0.36	0.18
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.04			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.04		
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.1	0.1	0.12	
24	3-Methylpentane	0.03	0.11	0.04	0.07	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.12		0.03	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.05			
32	Cyclohexane	0.03				
33	Benzene	0.03	0.11	0.12	0.12	0.12
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.07			
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.15	0.04		
39	Methylcyclohexane	0.03	0.08			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.18	0.13	0.08	0.05
44	3-Methylheptane	0.03				
45	Octane	0.03	0.08			
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 29-Mar	AMS 12 Millennium Mine 29-Mar	AMS 13 Fort McKay South 29-Mar	AMS 15 CNRL Horizon 29-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.84	0.2	0.56	0.82
11	1-Pentene	0.03				
12	Acetone	0.2			2.99	
13	Pentane	0.03	3.55	0.11	0.78	0.62
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.34	0.11	0.09	0.13
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.51	0.17	0.09	0.11
22	Cyclopentane	0.03	0.64		0.1	0.12
23	2-Methylpentane	0.03	2.17		0.18	0.22
24	3-Methylpentane	0.03	1.09		0.1	0.15
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.72	0.11		0.05
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.13			0.04
32	Cyclohexane	0.03				
33	Benzene	0.03	0.35	0.09	0.13	0.12
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.03	0.04	0.05	0.04
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.03	
47	m,p-Xylene	0.03			0.07	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.03	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				0.03
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 29-Mar	AMS 6 Patricia McInnes 29-Mar	AMS 7 Athabasca Valley 29-Mar	AMS 14 Anzac 29-Mar
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2		9.14	17.2	5.11
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.39	0.34	0.37	0.24
11	1-Pentene	0.03				
12	Acetone	0.2		2.51	1.81	3.4
13	Pentane	0.03	0.52	0.27	0.25	0.16
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.07		0.05	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.05		0.06	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.21	0.21	0.09	
24	3-Methylpentane	0.03	0.1	0.12	0.04	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.1	0.15		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.04		
32	Cyclohexane	0.03				
33	Benzene	0.03	0.09	0.15	0.15	0.1
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.04			
39	Methylcyclohexane	0.03			0.04	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.12	0.22	0.09	0.13
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03		0.24		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03		0.22		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 04-Apr	AMS 12 Millennium Mine 04-Apr	AMS 13 Fort McKay South 04-Apr	AMS 15 CNRL Horizon 04-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03			2.54	
6	Methanol	2			27.2	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.51	0.05	1.62	
11	1-Pentene	0.03				
12	Acetone	0.2		2.88	3.83	
13	Pentane	0.03	0.75		1.87	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.05		0.07	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.1		0.09	
22	Cyclopentane	0.03			0.46	
23	2-Methylpentane	0.03	0.29		0.35	
24	3-Methylpentane	0.03	0.18		0.19	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.08		0.29	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03			0.06	
32	Cyclohexane	0.03			0.69	
33	Benzene	0.03	0.13	0.11	0.28	0.07
34	2-Methylhexane	0.03			0.09	
35	2,3-Dimethylpentane	0.03			0.1	
36	3-Methylhexane	0.03			0.22	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.19	
39	Methylcyclohexane	0.03			0.05	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.03	73.7	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.11	
47	m,p-Xylene	0.03			0.34	
48	Styrene	0.03				
49	Nonane	0.03			0.04	
50	o-Xylene	0.03			0.14	
51	Isopropylbenzene	0.03			0.05	
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03			0.09	
57	1,2,4-Trimethylbenzene	0.03			0.06	
58	Undecane	0.03			0.07	
59	Dodecane	0.03				
60	Naphthalene	0.03			0.33	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 04-Apr	Patricia McInnes 04-Apr	Athabasca Valley 04-Apr	Anzac 04-Apr
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.03	0.19	0.1	0.12
11	1-Pentene	0.03				
12	Acetone	0.2		2.15		4.07
13	Pentane	0.03		0.24		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.07		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.11	0.13	0.11	0.11
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03		0.06		
39	Methylcyclohexane	0.03		0.04		
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.09	0.21	0.05	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.07			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03		0.03		
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 10-Apr	AMS 12 Millennium Mine 10-Apr	AMS 13 Fort McKay South 10-Apr	AMS 15 CNRL Horizon 10-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.19	2.57	0.5	0.31
11	1-Pentene	0.03				
12	Acetone	0.2			5.09	
13	Pentane	0.03	0.26	1.91		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.43		
22	Cyclopentane	0.03		0.51		
23	2-Methylpentane	0.03		0.63		
24	3-Methylpentane	0.03		0.14		
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.69	0.4	0.25
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.17	0.09	0.07
32	Cyclohexane	0.03		0.98		0.13
33	Benzene	0.03	0.04	0.17	0.19	0.2
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03		0.63	0.31	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03		0.55	0.17	0.15
39	Methylcyclohexane	0.03		0.17	0.12	0.17
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.05	113	0.31	0.06
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03		0.07	0.04	
47	m,p-Xylene	0.03		0.16	0.13	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.09	0.06	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03			0.06	
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03			0.08	
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 10-Apr	Patricia McInnes 10-Apr	Athabasca Valley 10-Apr	Anzac 10-Apr
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.62	0.55	0.28	0.23
11	1-Pentene	0.03				
12	Acetone	0.2		4.85		1.86
13	Pentane	0.03	1.73	0.37	0.26	0.24
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.19			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.17			
22	Cyclopentane	0.03	0.2			
23	2-Methylpentane	0.03	0.55			
24	3-Methylpentane	0.03	0.27			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.2			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.06	0.04		
32	Cyclohexane	0.03	0.09			
33	Benzene	0.03	0.09	0.15	0.07	0.07
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.12			
39	Methylcyclohexane	0.03	0.11			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.13	0.13	0.21	0.06
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 16-Apr	AMS 12 Millennium Mine 16-Apr	AMS 13 Fort McKay South 16-Apr	AMS 15 CNRL Horizon 16-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.57		0.53	0.07
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.38		0.99	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.18			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.11			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.33		0.28	
24	3-Methylpentane	0.03	0.2		0.15	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.15			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.11	0.1	0.17	0.09
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.13	0.16	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03		0.12		



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 16-Apr	AMS 6 Patricia McInnes 16-Apr	AMS 7 Athabasca Valley 16-Apr	AMS 14 Anzac 16-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.44	0.14	0.12	
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03	1.07	0.18		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03			0.07	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.21			
24	3-Methylpentane	0.03	0.12			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.07	0.09	0.11	0.09
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.06	0.15		0.07
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03		0.08		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 22-Apr	AMS 12 Millennium Mine 22-Apr	AMS 13 Fort McKay South 22-Apr	AMS 15 CNRL Horizon 22-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				0.39
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				0.51
6	Methanol	2			5.52	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.09	0.09		1.15
11	1-Pentene	0.03				
12	Acetone	0.2	2.11	3.08	5.08	2.8
13	Pentane	0.03		0.12		0.12
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				0.05
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				0.16
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				0.08
32	Cyclohexane	0.03				
33	Benzene	0.03	0.08	0.12	0.13	0.1
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				0.07
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.07	0.08	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.05	
47	m,p-Xylene	0.03			0.14	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.06	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				0.04
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 22-Apr	AMS 6 Patricia McInnes 22-Apr	AMS 7 Athabasca Valley 22-Apr	AMS 14 Anzac 22-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.23			
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.2			
6	Methanol	2	4.46			
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.04	0.13	0.12	0.1
11	1-Pentene	0.03				
12	Acetone	0.2	5.32	3.16	3.05	4.75
13	Pentane	0.03	0.68		0.19	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.14			
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.18			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.16	0.05	0.11	0.1
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.15			
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.13			
39	Methylcyclohexane	0.03	0.05			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	30.7	0.35	0.05	0.06
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.16			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.06			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.07	0.04		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03	0.04			
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	0.12			



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 28-Apr	AMS 12 Millennium Mine 28-Apr	AMS 13 Fort McKay South 28-Apr	AMS 15 CNRL Horizon 28-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2			2.61	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.27	0.11		0.68
11	1-Pentene	0.03				
12	Acetone	0.2	2.77	1.95	2.21	1.53
13	Pentane	0.03	0.14	0.05	0.21	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.12			
24	3-Methylpentane	0.03	0.18			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.17	0.04		0.05
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03		0.07		
39	Methylcyclohexane	0.03		0.09		0.05
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.49	0.05	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.07	0.07	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 28-Apr	AMS 6 Patricia McInnes 28-Apr	AMS 7 Athabasca Valley 28-Apr	AMS 14 Anzac 28-Apr
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.39	0.11		
11	1-Pentene	0.03				
12	Acetone	0.2	1.3	1.28	1.03	2.23
13	Pentane	0.03	0.33			
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.07			
24	3-Methylpentane	0.03	0.07			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.09	0.06	0.06	0.05
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.07			
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.22	0.17		0.03
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)	
			AMS 1	
			Fort McKay	
#	Compound Name	MDL	03-May	
1	Formaldehyde	2		
2	Isobutane	0.03		
3	1-Butene	0.03		
4	Acetaldehyde	0.2		
5	Butane	0.03		
6	Methanol	2		
7	trans-2-Butene	0.03		
8	cis-2-Butene	0.03		
9	3-Methyl-1-butene	0.03		
10	Isopentane	0.03	0.32	
11	1-Pentene	0.03		
12	Acetone	0.2	2.61	
13	Pentane	0.03	0.42	
14	Isoprene	0.03		
15	trans-2-Pentene	0.03		
16	cis-2-Pentene	0.03		
17	2-Methyl-2-butene	0.03		
18	2,2-Dimethylbutane	0.03	0.1	
19	Cyclopentene	0.03		
20	4-Methyl-1-pentene	0.03		
21	2,3-Dimethylbutane	0.03	0.12	
22	Cyclopentane	0.03		
23	2-Methylpentane	0.03	0.28	
24	3-Methylpentane	0.03	0.12	
25	2-Methyl-1-pentene	0.03		
26	Hexane	0.03	0.58	
27	Methyl ethyl ketone	0.2		
28	cis-2-Hexene	0.03		
29	trans-2-Hexene	0.03		
30	2,4-Dimethylpentane	0.03		
31	Methylcyclopentane	0.03	0.11	
32	Cyclohexane	0.03		
33	Benzene	0.03	0.08	
34	2-Methylhexane	0.03		
35	2,3-Dimethylpentane	0.03		
36	3-Methylhexane	0.03	0.32	
37	2,2,4-Trimethylpentane	0.03		
38	Heptane	0.03	0.77	
39	Methylcyclohexane	0.03	0.42	
40	Methyl isobutyl ketone	0.2		
41	2,3,4-Trimethylpentane	0.03		
42	2-Methylheptane	0.03	0.28	
43	Toluene	0.03	0.62	
44	3-Methylheptane	0.03	0.13	
45	Octane	0.03	0.72	
46	Ethyl benzene	0.03	0.15	
47	m,p-Xylene	0.03	0.44	
48	Styrene	0.03		
49	Nonane	0.03	0.33	
50	o-Xylene	0.03	0.17	
51	Isopropylbenzene	0.03		
52	alpha Pinene	0.03	0.05	
53	n-Propylbenzene	0.03		
54	1,3,5-Trimethylbenzene	0.03		
55	beta Pinene	0.03		
56	Decane	0.03	0.14	
57	1,2,4-Trimethylbenzene	0.03	0.11	
58	Undecane	0.03		
59	Dodecane	0.03		
60	Naphthalene	0.03		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 04-May	AMS 12 Millennium Mine 04-May	AMS 13 Fort McKay South 04-May	AMS 15 CNRL Horizon 04-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				0.86
3	1-Butene	0.03				
4	Acetaldehyde	0.2	5.12		3.19	
5	Butane	0.03				
6	Methanol	2	2.35	2.42	8.99	5.45
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.17	0.2		1.02
11	1-Pentene	0.03				
12	Acetone	0.2	1.87	1.58	2.54	3.1
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03		0.12		0.1
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.17		0.21
22	Cyclopentane	0.03				0.08
23	2-Methylpentane	0.03			0.16	
24	3-Methylpentane	0.03			0.11	0.31
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.24		0.35	
27	Methyl ethyl ketone	0.2			0.12	
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03			0.04	
31	Methylcyclopentane	0.03	0.07		0.11	0.24
32	Cyclohexane	0.03			0.08	0.44
33	Benzene	0.03	0.21	0.14	0.2	0.16
34	2-Methylhexane	0.03	0.07		0.14	
35	2,3-Dimethylpentane	0.03				0.19
36	3-Methylhexane	0.03	0.14		0.23	0.2
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.39		0.7	0.38
39	Methylcyclohexane	0.03	0.16	0.04	0.31	0.51
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.18		0.38	0.17
43	Toluene	0.03	0.3		0.44	0.14
44	3-Methylheptane	0.03			0.13	
45	Octane	0.03	0.38		0.64	0.34
46	Ethyl benzene	0.03	0.07		0.14	0.04
47	m,p-Xylene	0.03	0.19		0.41	0.07
48	Styrene	0.03				
49	Nonane	0.03	0.18		0.39	0.1
50	o-Xylene	0.03	0.07		0.22	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11		0.23	0.28
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03	0.09		0.16	
57	1,2,4-Trimethylbenzene	0.03	0.03		0.07	
58	Undecane	0.03			0.07	
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 04-May	AMS 6 Patricia McInnes 04-May	AMS 7 Athabasca Valley 04-May	AMS 14 Anzac 04-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2	2.55	4.77		3.96
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.31		0.35	
11	1-Pentene	0.03				
12	Acetone	0.2	2.1	1.83	1.22	2.53
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.06			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.2		0.06	
24	3-Methylpentane	0.03	0.12			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.39			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.17			
32	Cyclohexane	0.03	0.97			
33	Benzene	0.03	0.24	0.19	0.19	0.18
34	2-Methylhexane	0.03	0.16			
35	2,3-Dimethylpentane	0.03	0.11			
36	3-Methylhexane	0.03	0.26			
37	2,2,4-Trimethylpentane	0.03		0.03		
38	Heptane	0.03	0.67			
39	Methylcyclohexane	0.03	0.29			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.29			
43	Toluene	0.03	7.99	0.39	0.14	0.07
44	3-Methylheptane	0.03	0.1			
45	Octane	0.03	0.55			
46	Ethyl benzene	0.03	0.11			
47	m,p-Xylene	0.03	0.38	0.09	0.06	
48	Styrene	0.03				
49	Nonane	0.03	0.35			
50	o-Xylene	0.03	0.14	0.04		0.04
51	Isopropylbenzene	0.03	0.03			
52	alpha Pinene	0.03	0.23	0.12	0.07	
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03	0.14			
57	1,2,4-Trimethylbenzene	0.03	0.07	0.02		
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



#	Compound Name	MDL	Results (ppbv)			
			AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 10-May	Millennium Mine 10-May	Fort McKay South 10-May	CNRL Horizon 10-May
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2			6.49	1.48
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.47	0.23	0.29	0.6
11	1-Pentene	0.03				
12	Acetone	0.2		1.56	2.12	1.99
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				0.09
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.43	0.15		0.4
24	3-Methylpentane	0.03	0.22	0.13		0.33
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.2			0.22
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				0.06
32	Cyclohexane	0.03				
33	Benzene	0.03	0.13	0.15	0.16	0.14
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.15	
39	Methylcyclohexane	0.03			0.06	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.05	0.09	0.13	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.05	
47	m,p-Xylene	0.03			0.14	
48	Styrene	0.03				
49	Nonane	0.03		0.04		0.05
50	o-Xylene	0.03			0.1	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03			0.11	
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



#	Compound Name	MDL	Results (ppbv)			
			AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 10-May	Patricia McInnes 10-May	Athabasca Valley 10-May	Anzac 10-May
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2				2.63
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.39			
11	1-Pentene	0.03				
12	Acetone	0.2	0.87	1.88	0.76	2.72
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.24			
24	3-Methylpentane	0.03	0.07			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.12	0.22	0.14	0.13
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.1			
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.19	0.29	0.09	0.1
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.09		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.04		0.04
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 16-May	AMS 12 Millennium Mine 16-May	AMS 13 Fort McKay South 16-May	AMS 15 CNRL Horizon 16-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.15	0.15	0.14	0.54
3	1-Butene	0.03	1.1	1.2	0.93	0.72
4	Acetaldehyde	0.2	13.7	12.3	11.2	8.27
5	Butane	0.03				
6	Methanol	2	5.27	7	12.5	4.98
7	trans-2-Butene	0.03	0.22	0.41	0.16	0.1
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.3	0.14	0.35	0.6
11	1-Pentene	0.03	0.13	0.11	0.09	0.1
12	Acetone	0.2	1.29	0.86	2.28	
13	Pentane	0.03				
14	Isoprene	0.03			0.11	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03			0.05	
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.11	0.11		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.12	0.15	0.1	0.17
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.38		0.22	0.16
24	3-Methylpentane	0.03	0.18		0.14	0.22
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.13		0.24	0.13
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				0.12
32	Cyclohexane	0.03				0.16
33	Benzene	0.03	0.66	0.71	0.64	0.5
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.28	
39	Methylcyclohexane	0.03	0.06	0.06	0.11	0.14
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03			0.1	
43	Toluene	0.03			0.2	
44	3-Methylheptane	0.03			0.11	
45	Octane	0.03				
46	Ethyl benzene	0.03			0.13	
47	m,p-Xylene	0.03			0.46	
48	Styrene	0.03				
49	Nonane	0.03			0.24	
50	o-Xylene	0.03			0.24	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.09	0.08	0.32	0.23
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03			0.17	
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03			0.14	
59	Dodecane	0.03				
60	Naphthalene	0.03	0.39		0.61	



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 16-May	AMS 6 Patricia McInnes 16-May	AMS 7 Athabasca Valley 16-May	AMS 14 Anzac 16-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.15	0.21	0.23	0.12
3	1-Butene	0.03	1.22	1.08	1.05	0.93
4	Acetaldehyde	0.2	12.7	12.2	11.7	12.5
5	Butane	0.03				
6	Methanol	2	3.9	7.93	4.34	8.36
7	trans-2-Butene	0.03	0.22	0.15	0.16	
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.4		0.32	0.14
11	1-Pentene	0.03				0.11
12	Acetone	0.2	3.55	3.61	3.29	1.6
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03			0.11	
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.15			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.26	0.11	0.09	
24	3-Methylpentane	0.03	0.15			
25	2-Methyl-1-pentene	0.03			0.07	
26	Hexane	0.03	0.17	0.17	0.09	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.05		0.04	
32	Cyclohexane	0.03				
33	Benzene	0.03	0.61	0.64	0.6	0.54
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.27			
39	Methylcyclohexane	0.03	0.08			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.3	0.46		
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03		0.04		
47	m,p-Xylene	0.03	0.12	0.12	0.07	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.05			0.04
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.18	0.1		0.16
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	0.82	0.64		1.39



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 22-May	AMS 12 Millennium Mine 22-May	AMS 13 Fort McKay South 22-May	AMS 15 CNRL Horizon 22-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03			0.08	
3	1-Butene	0.03			0.55	0.88
4	Acetaldehyde	0.2	7.73	8.07	8.45	6.74
5	Butane	0.03	0.29	0.09	0.43	0.22
6	Methanol	2		7.27	14.3	7.43
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.23		0.15	
11	1-Pentene	0.03	0.09			
12	Acetone	0.2	3.07	3.13	4.47	3.59
13	Pentane	0.03				
14	Isoprene	0.03	0.27	0.33	0.5	0.21
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.05			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.21		0.14	
24	3-Methylpentane	0.03	0.11			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.1			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.18	0.06	0.34	0.26
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.04	0.07	0.16	0.13
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.11	
47	m,p-Xylene	0.03			0.43	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.28	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11	0.12	0.54	0.19
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 22-May	AMS 6 Patricia McInnes 22-May	AMS 7 Athabasca Valley 22-May	AMS 14 Anzac 22-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.11	0.18	0.23	
3	1-Butene	0.03	0.86		0.47	
4	Acetaldehyde	0.2	10.5	10.8	7.65	6.96
5	Butane	0.03	0.43	0.53	0.86	0.35
6	Methanol	2		12	3.28	6.83
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.6		0.26	
11	1-Pentene	0.03				
12	Acetone	0.2	3.5	4.15	2.84	3.65
13	Pentane	0.03				0.77
14	Isoprene	0.03	0.33	0.15	0.17	0.39
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.16			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.2			
22	Cyclopentane	0.03	0.27			
23	2-Methylpentane	0.03	0.82	0.1		
24	3-Methylpentane	0.03	0.36			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.36			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.34	0.28	0.26	0.03
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03		0.05		
38	Heptane	0.03	0.27			
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.27	0.34	0.1	0.13
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	0.03			
47	m,p-Xylene	0.03	0.1	0.08		
48	Styrene	0.03	0.03			
49	Nonane	0.03				
50	o-Xylene	0.03		0.04		0.04
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.17	0.06		0.12
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				5.08



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 28-May	AMS 12 Millennium Mine 28-May	AMS 13 Fort McKay South 28-May	AMS 15 CNRL Horizon 28-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.13		0.62	
3	1-Butene	0.03	0.46			
4	Acetaldehyde	0.2	6.89		12.5	
5	Butane	0.03	0.52		0.71	0.2
6	Methanol	2			7.26	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.86		0.58	
11	1-Pentene	0.03				
12	Acetone	0.2	3.04		3.57	
13	Pentane	0.03				
14	Isoprene	0.03	0.36		0.26	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.23		0.09	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.29		0.19	
22	Cyclopentane	0.03	0.25			
23	2-Methylpentane	0.03	1.49		0.16	
24	3-Methylpentane	0.03	0.66		0.19	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.47		0.11	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.07		0.11	
32	Cyclohexane	0.03			0.21	
33	Benzene	0.03	0.16		0.12	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03	0.03		0.12	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.06		0.12	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.14		0.36	
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03			2.27	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 28-May	AMS 6 Patricia McInnes 28-May	AMS 7 Athabasca Valley 28-May	AMS 14 Anzac 28-May
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.17		0.14	0.33
3	1-Butene	0.03		0.56		
4	Acetaldehyde	0.2	6.79	6.52	5.38	7.95
5	Butane	0.03	0.49	0.5	0.73	0.65
6	Methanol	2		5.47	5.69	10.8
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.09		0.31	0.71
11	1-Pentene	0.03				
12	Acetone	0.2	3.54	3.14	3.43	3.68
13	Pentane	0.03				1.91
14	Isoprene	0.03	0.51	0.29	0.39	0.27
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.21			0.49
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.31		0.12	0.55
22	Cyclopentane	0.03	0.19			0.17
23	2-Methylpentane	0.03	1.24		0.31	0.64
24	3-Methylpentane	0.03	0.59		0.12	0.4
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.49		0.22	0.35
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.08		0.09	0.15
32	Cyclohexane	0.03	0.07			0.14
33	Benzene	0.03	0.12	0.14	0.26	0.11
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03			0.1	
38	Heptane	0.03	0.23			0.2
39	Methylcyclohexane	0.03	0.1			0.2
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03			0.09	0.09
43	Toluene	0.03	0.83	0.14	0.22	0.19
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	0.04		0.04	0.03
47	m,p-Xylene	0.03	0.11		0.11	0.09
48	Styrene	0.03	0.04			
49	Nonane	0.03			0.05	0.11
50	o-Xylene	0.03	0.04	0.03	0.04	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.26	0.25	0.19	0.13
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03	0.03			
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03		3.98		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 03-Jun	AMS 12 Millennium Mine 03-Jun	AMS 13 Fort McKay South 03-Jun	AMS 15 CNRL Horizon 03-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	10.5	9.47	12.3	11.9
5	Butane	0.03				
6	Methanol	2	6.01	11	20.7	8.44
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				0.07
11	1-Pentene	0.03				
12	Acetone	0.2	3.37	4.72	4.6	3.72
13	Pentane	0.03				
14	Isoprene	0.03	0.42	0.59	0.38	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.21	0.17	0.18	0.15
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.08	0.06	0.16	0.12
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.33	
47	m,p-Xylene	0.03	0.35	0.35	0.51	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.34	0.34	0.44	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.32	0.25	0.57	0.35
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 03-Jun	AMS 6 Patricia McInnes 03-Jun	AMS 7 Athabasca Valley 03-Jun	AMS 14 Anzac 03-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	10.4	9.68	9.62	17.4
5	Butane	0.03		0.17		
6	Methanol	2	4.86	14.3	6.88	13.5
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	3.26	4.92	3.44	4.67
13	Pentane	0.03				
14	Isoprene	0.03		0.07	0.52	0.09
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.19	0.23	0.19	0.17
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.22	0.47	0.11	0.09
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	0.29			
47	m,p-Xylene	0.03	0.41	0.43	0.38	0.34
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.36	0.39	0.35	0.36
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.35	0.15	0.15	0.33
53	n-Propylbenzene	0.03	0.44			
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03	0.41	0.43	0.41	
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03			4.2	1.1



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 09-Jun	AMS 12 Millennium Mine 09-Jun	AMS 13 Fort McKay South 09-Jun	AMS 15 CNRL Horizon 09-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	10.9	11.1	11	10.4
5	Butane	0.03				
6	Methanol	2		9.84	21.9	4.3
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2		2.82	2.96	1.97
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.26		0.17	0.14
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03			0.06	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.27	
47	m,p-Xylene	0.03			0.36	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.35	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11	0.03	0.08	0.07
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 09-Jun	AMS 6 Patricia McInnes 09-Jun	AMS 7 Athabasca Valley 09-Jun	AMS 14 Anzac 09-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	12.5	10	8.36	10.2
5	Butane	0.03				
6	Methanol	2	5.19	12.7	3.6	8.22
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	2.23	3.01	1.62	2.41
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.2	0.17	0.2	0.17
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.1	0.18	0.05	0.04
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	0.27			
47	m,p-Xylene	0.03	0.36	0.36		0.33
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.35		0.35
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.08	0.06	0.11	0.09
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 15-Jun	AMS 12 Millennium Mine 15-Jun	AMS 13 Fort McKay South 15-Jun	AMS 15 CNRL Horizon 15-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03			0.28	10.2
3	1-Butene	0.03				
4	Acetaldehyde	0.2	9.89	13.5	12	13.3
5	Butane	0.03	0.18		0.18	22.2
6	Methanol	2	8.74	19.3	52.7	41.2
7	trans-2-Butene	0.03				0.75
8	cis-2-Butene	0.03				0.42
9	3-Methyl-1-butene	0.03				0.22
10	Isopentane	0.03		0.14	0.34	12.2
11	1-Pentene	0.03				0.38
12	Acetone	0.2	4.61	4.4	3.4	10.7
13	Pentane	0.03				21.9
14	Isoprene	0.03	0.11			0.3
15	trans-2-Pentene	0.03				0.99
16	cis-2-Pentene	0.03				0.5
17	2-Methyl-2-butene	0.03				0.94
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				0.19
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				1.48
23	2-Methylpentane	0.03				1.8
24	3-Methylpentane	0.03				1.31
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				1.45
27	Methyl ethyl ketone	0.2				1.89
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				0.26
31	Methylcyclopentane	0.03				0.62
32	Cyclohexane	0.03				7.68
33	Benzene	0.03	0.1	0.04	0.1	0.88
34	2-Methylhexane	0.03				0.36
35	2,3-Dimethylpentane	0.03				1.08
36	3-Methylhexane	0.03				0.94
37	2,2,4-Trimethylpentane	0.03				0.31
38	Heptane	0.03				0.82
39	Methylcyclohexane	0.03				0.32
40	Methyl isobutyl ketone	0.2				0.26
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.11	0.12	0.18	34.5
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				0.88
47	m,p-Xylene	0.03				1.84
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				0.4
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11	0.09	0.14	0.72
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 15-Jun	AMS 6 Patricia McInnes 15-Jun	AMS 7 Athabasca Valley 15-Jun	AMS 14 Anzac 15-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.17		0.07	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	12.6	15.7	10	13.9
5	Butane	0.03		0.34		
6	Methanol	2	7.39	64.4	6.45	20.1
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.29	0.2	0.15	
11	1-Pentene	0.03				
12	Acetone	0.2	5.58	5.2	4.65	8.09
13	Pentane	0.03				
14	Isoprene	0.03	0.28	0.15	0.13	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.07			
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.72	0.36	0.09	0.13
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	0.31			
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03	0.19			
52	alpha Pinene	0.03	0.17		0.08	0.14
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	5.14		1.33	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 21-Jun	Millennium Mine 21-Jun	Fort McKay South 21-Jun	CNRL Horizon 21-Jun
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	8.17		6.62	
5	Butane	0.03				0.78
6	Methanol	2	8.02	29.7	25.1	15.7
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				0.61
11	1-Pentene	0.03				
12	Acetone	0.2	5.59	5.18	6.18	7.16
13	Pentane	0.03				
14	Isoprene	0.03	1.16	0.82	0.65	0.17
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.1		0.27
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.67	1.27
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.39	0.57
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.56	0.21	0.53	0.46
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 21-Jun	AMS 6 Patricia McInnes 21-Jun	AMS 7 Athabasca Valley 21-Jun	AMS 14 Anzac 21-Jun
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.25			
3	1-Butene	0.03				
4	Acetaldehyde	0.2		9.08		8.03
5	Butane	0.03			0.53	
6	Methanol	2		18.1	13.5	12
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.53			
11	1-Pentene	0.03				
12	Acetone	0.2		7.01	6.75	6.03
13	Pentane	0.03				
14	Isoprene	0.03	2.68		0.76	0.54
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.21			
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.34		0.15	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.17	
47	m,p-Xylene	0.03	1.27	0.44	1.26	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.59	0.16	0.2	0.52
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 27-Jun	Millennium Mine 27-Jun	Fort McKay South 27-Jun	CNRL Horizon 27-Jun
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03				
6	Methanol	2	5.62	13.9	92.4	7.93
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	5.6	4.27	5.24	4.51
13	Pentane	0.03				
14	Isoprene	0.03		0.04	0.33	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.09		0.23	0.13
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.16	0.13	4.71	0.72
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 27-Jun	Patricia McInnes 27-Jun	Athabasca Valley 27-Jun	Anzac 27-Jun
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	15.4			
5	Butane	0.03				
6	Methanol	2	8.05	60.9	11.9	17.8
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	4.91	5.89	5.81	5.1
13	Pentane	0.03				
14	Isoprene	0.03	0.18		0.23	0.16
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.22	0.26	0.12	0.16
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.37		0.16	0.24
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 03-Jul	AMS 12 Millennium Mine 03-Jul	AMS 13 Fort McKay South 03-Jul	AMS 15 CNRL Horizon 03-Jul
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				0.32
3	1-Butene	0.03				
4	Acetaldehyde	0.2	7.56	7.91	7.54	86.6
5	Butane	0.03		0.51	0.28	
6	Methanol	2	8.74	29.9	164	94.5
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03		0.41		0.71
11	1-Pentene	0.03				
12	Acetone	0.2	3.97	4.3	6.35	18.1
13	Pentane	0.03				
14	Isoprene	0.03	0.74	1.16	3.05	0.88
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.19	0.19	0.28	12.3
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.36	0.45	0.64	2.54
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.62	
47	m,p-Xylene	0.03		1.92	1.96	1.94
48	Styrene	0.03				1.38
49	Nonane	0.03				
50	o-Xylene	0.03		0.87	0.92	0.87
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.07	0.08	0.71	0.17
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 03-Jul	AMS 6 Patricia McInnes 03-Jul	AMS 7 Athabasca Valley 03-Jul	AMS 14 Anzac 03-Jul
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03	1.53			
4	Acetaldehyde	0.2	6.39	8.38	9.56	8.44
5	Butane	0.03		0.61	0.44	
6	Methanol	2	25.1	33.1	9.11	37.2
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03		0.44	0.36	
11	1-Pentene	0.03				
12	Acetone	0.2	3.78	4.2	3.95	5.11
13	Pentane	0.03				
14	Isoprene	0.03	1.95	1.25	1.2	0.69
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.19	0.24	0.17	0.2
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.53	1.69	0.43	0.56
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	1.92	1.9	1.89	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.88			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.23	0.08	0.08	0.13
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

#	Compound Name	MDL	Results (ppbv)			
			AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 09-Jul	Millennium Mine 09-Jul	Fort McKay South 09-Jul	CNRL Horizon 09-Jul
1	Formaldehyde	2				
2	Isobutane	0.03				0.14
3	1-Butene	0.03				
4	Acetaldehyde	0.2	11.5	8.22	8.57	
5	Butane	0.03	0.55	0.54	0.4	0.41
6	Methanol	2	6.43	20.9	61.8	12
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.34		0.44	2.31
11	1-Pentene	0.03				
12	Acetone	0.2	5.71	4.72	4.82	3.85
13	Pentane	0.03				
14	Isoprene	0.03	0.45	1.29	0.4	1.02
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				1.39
24	3-Methylpentane	0.03				0.93
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				0.39
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				0.12
33	Benzene	0.03	0.35	0.23	0.23	0.25
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.84	0.37	0.55	0.73
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			1.94	1.91
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.88	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.14	0.15	0.17	0.41
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 09-Jul	AMS 6 Patricia McInnes 09-Jul	AMS 7 Athabasca Valley 09-Jul	AMS 14 Anzac 09-Jul
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.06		0.09	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	8.94	7.71	9.87	12.1
5	Butane	0.03	0.95	0.66	1.46	0.53
6	Methanol	2	8.97	31	8.16	27.9
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.5	0.46	0.72	
11	1-Pentene	0.03				
12	Acetone	0.2	4.93	6.73	4.79	6.48
13	Pentane	0.03				
14	Isoprene	0.03	1.36		0.99	1.26
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.4	0.21	0.2	0.25
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.58	0.58	0.42	0.54
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	1.95	1.94	1.9	1.91
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.89			0.88
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.26	0.05	0.1	0.2
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



#	Compound Name	MDL	Results (ppbv)			
			AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 15-Jul	Millennium Mine 15-Jul	Fort McKay South 15-Jul	CNRL Horizon 15-Jul
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	9.73	10.9	19.6	12.8
5	Butane	0.03				
6	Methanol	2		17.3	101	12.6
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				0.04
11	1-Pentene	0.03				
12	Acetone	0.2	2.14	2.44	6.11	3.52
13	Pentane	0.03				
14	Isoprene	0.03		0.19		
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.22	0.09	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.07	0.18	0.11	0.13
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 15-Jul	AMS 6 Patricia McInnes 15-Jul	AMS 7 Athabasca Valley 15-Jul	AMS 14 Anzac 15-Jul
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	11.7	11.7	15	12.5
5	Butane	0.03				
6	Methanol	2	4.88	12.2	8.85	15.9
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	2.14	3.07	3.31	3.21
13	Pentane	0.03				
14	Isoprene	0.03	0.47			
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.09	0.12	0.08	0.15
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.11	0.12	0.12	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.21	0.1	0.09	0.18
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 21-Jul	AMS 12 Millennium Mine 21-Jul	AMS 13 Fort McKay South 21-Jul	AMS 15 CNRL Horizon 21-Jul
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	11.9	9	10.3	9.5
5	Butane	0.03				
6	Methanol	2	7.73	9.7	13.1	5.99
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	3.05	1.59	2.03	1.5
13	Pentane	0.03				
14	Isoprene	0.03	0.21			
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.04	0.03	0.05
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.13	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.26	0.12	0.16	0.22
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 21-Jul	Patricia McInnes 21-Jul	Athabasca Valley 21-Jul	Anzac 21-Jul
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	10.2	10.6	10.3	8.72
5	Butane	0.03				
6	Methanol	2	5.24	8.7	4.58	5.15
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03			0.03	
11	1-Pentene	0.03				
12	Acetone	0.2	3.46	3.65	2.75	1.62
13	Pentane	0.03				
14	Isoprene	0.03	0.9		0.31	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.12	0.24	0.14	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.13		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.54	0.11	0.13	0.12
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 27-Jul	Millennium Mine 27-Jul	Fort McKay South 27-Jul	CNRL Horizon 27-Jul
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	7.79	5.75	8.5	6.01
5	Butane	0.03				0.28
6	Methanol	2		9.53	29.1	5.65
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	4.15	3.16	7.17	3.44
13	Pentane	0.03				
14	Isoprene	0.03	0.3	0.15		0.28
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				0.07
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.04		0.15	0.09
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 27-Jul	AMS 6 Patricia McInnes 27-Jul	AMS 7 Athabasca Valley 27-Jul	AMS 14 Anzac 27-Jul
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	6.26	5.22		7.92
5	Butane	0.03	0.4	0.2	0.26	0.45
6	Methanol	2	3.71	7.67	3.34	5.47
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.52	0.3		
11	1-Pentene	0.03				
12	Acetone	0.2	4.87	4.7	4.21	4.62
13	Pentane	0.03				
14	Isoprene	0.03	0.22			0.27
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03	0.16			
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	4.61			0.27
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.11			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.14	0.05	0.03	0.1
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				8.03



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 02-Aug	Millennium Mine 02-Aug	Fort McKay South 02-Aug	CNRL Horizon 02-Aug
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	7.65	9.62	10.4	9.09
5	Butane	0.03				
6	Methanol	2	8.04	18.5	16.8	13.5
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				0.32
11	1-Pentene	0.03				
12	Acetone	0.2	2.85	3.04	3.3	4.15
13	Pentane	0.03				
14	Isoprene	0.03	0.53	0.29	0.87	0.18
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03			0.15	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.27	
47	m,p-Xylene	0.03			0.67	0.77
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.56	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11		0.21	0.22
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 02-Aug	AMS 6 Patricia McInnes 02-Aug	AMS 7 Athabasca Valley 02-Aug	AMS 14 Anzac 02-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	6.76	8		6.7
5	Butane	0.03		0.4		
6	Methanol	2	6.72	10.5	9.47	14.8
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.06			
11	1-Pentene	0.03				
12	Acetone	0.2	3.02	4.58	3.39	3.8
13	Pentane	0.03				
14	Isoprene	0.03	0.82	0.11	0.71	0.21
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.14	0.85	0.03	0.07
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03	0.3			
47	m,p-Xylene	0.03	0.71	0.67		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.59	0.56		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.51	0.04	0.09	0.08
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 08-Aug	AMS 12 Millennium Mine 08-Aug	AMS 13 Fort McKay South 08-Aug	AMS 15 CNRL Horizon 08-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.85	5.07	4.36	3.86
5	Butane	0.03				
6	Methanol	2	13.9	16.6	13.7	10.1
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				1.26
11	1-Pentene	0.03				
12	Acetone	0.2	2	2.9	2.13	2.93
13	Pentane	0.03				
14	Isoprene	0.03	1.3	0.31	1.4	0.2
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				0.18
33	Benzene	0.03			0.04	0.05
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.16	0.11	0.19	0.11
39	Methylcyclohexane	0.03				0.12
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.11	0.12	0.14	0.22
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.25	0.1	0.27	0.19
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 08-Aug	AMS 6 Patricia McInnes 08-Aug	AMS 7 Athabasca Valley 08-Aug	AMS 14 Anzac 08-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	4.03	4.27	4.58	4.19
5	Butane	0.03			0.39	
6	Methanol	2	6.9	10.5	7.15	8.97
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03		0.09	0.22	
11	1-Pentene	0.03				
12	Acetone	0.2	2.08	2.78	2.32	2.87
13	Pentane	0.03				
14	Isoprene	0.03	0.85	0.6	0.56	0.19
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.04	0.07	0.05	0.04
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.17	0.08		
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.14	1.13	0.1	0.2
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.36	0.07	0.07	0.15
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 14-Aug	AMS 12 Millennium Mine 14-Aug	AMS 13 Fort McKay South 14-Aug	AMS 15 CNRL Horizon 14-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2		5.38		4.29
5	Butane	0.03		0.21	0.19	0.12
6	Methanol	2		14.8	39.2	13.7
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.12	0.06	0.12	1.38
11	1-Pentene	0.03				
12	Acetone	0.2		5.44	5.16	6.05
13	Pentane	0.03			6.13	
14	Isoprene	0.03			1.38	1.02
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				0.2
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.1	0.12	0.5	0.39
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters	#	Compound Name	MDL	Results (ppbv)			
				AMS 1 Fort McKay 14-Aug	AMS 6 Patricia McInnes 14-Aug	AMS 7 Athabasca Valley 14-Aug	AMS 14 Anzac 14-Aug
1	Formaldehyde	2					
2	Isobutane	0.03					
3	1-Butene	0.03					
4	Acetaldehyde	0.2					5.7
5	Butane	0.03		0.83	0.89		0.32
6	Methanol	2	10.7	36.2	11.9		16.2
7	trans-2-Butene	0.03					
8	cis-2-Butene	0.03					
9	3-Methyl-1-butene	0.03					
10	Isopentane	0.03	0.28	0.58	0.48		
11	1-Pentene	0.03					
12	Acetone	0.2	5.93	6.05	4.1		10.1
13	Pentane	0.03					
14	Isoprene	0.03		0.48	0.67		0.59
15	trans-2-Pentene	0.03					
16	cis-2-Pentene	0.03					
17	2-Methyl-2-butene	0.03					
18	2,2-Dimethylbutane	0.03					
19	Cyclopentene	0.03					
20	4-Methyl-1-pentene	0.03					
21	2,3-Dimethylbutane	0.03					
22	Cyclopentane	0.03					
23	2-Methylpentane	0.03					
24	3-Methylpentane	0.03					
25	2-Methyl-1-pentene	0.03					
26	Hexane	0.03					
27	Methyl ethyl ketone	0.2					
28	cis-2-Hexene	0.03					
29	trans-2-Hexene	0.03					
30	2,4-Dimethylpentane	0.03					
31	Methylcyclopentane	0.03					
32	Cyclohexane	0.03					
33	Benzene	0.03					
34	2-Methylhexane	0.03					
35	2,3-Dimethylpentane	0.03					
36	3-Methylhexane	0.03					
37	2,2,4-Trimethylpentane	0.03					
38	Heptane	0.03					
39	Methylcyclohexane	0.03					
40	Methyl isobutyl ketone	0.2					
41	2,3,4-Trimethylpentane	0.03					
42	2-Methylheptane	0.03					
43	Toluene	0.03					
44	3-Methylheptane	0.03					
45	Octane	0.03					
46	Ethyl benzene	0.03					
47	m,p-Xylene	0.03					
48	Styrene	0.03					
49	Nonane	0.03					
50	o-Xylene	0.03					
51	Isopropylbenzene	0.03					
52	alpha Pinene	0.03	0.33	0.11	0.08		0.2
53	n-Propylbenzene	0.03					
54	1,3,5-Trimethylbenzene	0.03					
55	beta Pinene	0.03					
56	Decane	0.03					
57	1,2,4-Trimethylbenzene	0.03					
58	Undecane	0.03					
59	Dodecane	0.03					
60	Naphthalene	0.03					



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 20-Aug	AMS 12 Millennium Mine 20-Aug	AMS 13 Fort McKay South 20-Aug	AMS 15 CNRL Horizon 20-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.84		
3	1-Butene	0.03				
4	Acetaldehyde	0.2	8.08	9.34	11.5	11.9
5	Butane	0.03		2.39		
6	Methanol	2	8.61	22.7	118	24.9
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03		1.87		
11	1-Pentene	0.03				
12	Acetone	0.2	1.62	4.6	3.59	3.05
13	Pentane	0.03				
14	Isoprene	0.03		0.2	0.28	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.14		
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03		0.46	0.09	0.12
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 20-Aug	AMS 6 Patricia McInnes 20-Aug	AMS 7 Athabasca Valley 20-Aug	AMS 14 Anzac 20-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	7.63	9.64	7.99	10.1
5	Butane	0.03				
6	Methanol	2	16.4	55.2	9.12	44.4
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	2.12	2.57	2.1	2.28
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.08			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 26-Aug	AMS 6 Patricia McInnes 26-Aug	AMS 7 Athabasca Valley 26-Aug	AMS 14 Anzac 26-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.53	0.43	0.45	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	5.37	3.37	5.22	9.63
5	Butane	0.03	0.66	0.93	1.07	0.42
6	Methanol	2	10.8	23.6	7.43	15.2
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.33	0.32	0.58	
11	1-Pentene	0.03				
12	Acetone	0.2	3.25	1.77	1.79	4.22
13	Pentane	0.03				
14	Isoprene	0.03	2.26	1.09	0.68	0.14
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.27	0.37	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03			0.49	
32	Cyclohexane	0.03				
33	Benzene	0.03	0.45	0.53	0.53	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.7	
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.74	0.74	0.78	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.59	0.61	0.63	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.28	0.29	0.3	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.23	0.07	0.07	0.35
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 26-Aug	AMS 12 Millennium Mine 26-Aug	AMS 13 Fort McKay South 26-Aug	AMS 15 CNRL Horizon 26-Aug
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03			0.48	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	7.73	7.84	5.64	9.69
5	Butane	0.03		0.23	0.71	0.34
6	Methanol	2	7.69	17	31.6	16.7
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.46		1.3	1.7
11	1-Pentene	0.03				
12	Acetone	0.2	1.96	2.6	2.26	2.3
13	Pentane	0.03				
14	Isoprene	0.03			1.51	
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03			0.48	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.2		0.75	
24	3-Methylpentane	0.03			0.48	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03			0.44	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03			0.52	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.61	
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.14	0.83	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.62	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03			0.32	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.22	0.64	0.19	0.29
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 01-Sep	AMS 12 Millennium Mine 01-Sep	AMS 13 Fort McKay South 01-Sep	AMS 15 CNRL Horizon 01-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	6.04	7.46	11.1	9.99
5	Butane	0.03	0.23	0.11	0.29	
6	Methanol	2	9.21	18.5	58.3	22.6
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.15	0.44	0.51	
11	1-Pentene	0.03				
12	Acetone	0.2	3.47	2.67	3.43	3.02
13	Pentane	0.03				
14	Isoprene	0.03			1.66	0.8
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.64		
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.24		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03		0.08	0.21	0.11
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 01-Sep	Patricia McInnes 01-Sep	Athabasca Valley 01-Sep	Anzac 01-Sep
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03		0.19	0.42	
4	Acetaldehyde	0.2	8.32	8.14	8.57	8.34
5	Butane	0.03	0.33	0.41	0.71	0.27
6	Methanol	2	16.7	35.2	11.9	20.4
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.24	0.14	0.37	
11	1-Pentene	0.03				
12	Acetone	0.2	3.41	3.12	3.91	4.07
13	Pentane	0.03				
14	Isoprene	0.03	1.2	0.71	0.61	0.2
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				0.05
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.25	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.07			0.19
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 07-Sep	AMS 12 Millennium Mine 07-Sep	AMS 13 Fort McKay South 07-Sep	AMS 15 CNRL Horizon 07-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03			1.39	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	2.2	4.36	5.23	1.59
5	Butane	0.03			4.53	
6	Methanol	2		12.8	35	6.66
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03			3.05	0.26
11	1-Pentene	0.03			0.2	
12	Acetone	0.2	1.65	2.89	7	2.92
13	Pentane	0.03				
14	Isoprene	0.03	0.06		0.29	0.51
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03			0.52	
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03			0.38	
24	3-Methylpentane	0.03			0.79	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.18		1.13	
27	Methyl ethyl ketone	0.2			0.58	
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03			0.13	
32	Cyclohexane	0.03	0.21		0.56	
33	Benzene	0.03	0.31	0.3	0.71	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03			0.8	
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.14		95.6	0.03
44	3-Methylheptane	0.03				
45	Octane	0.03	0.56		0.69	
46	Ethyl benzene	0.03			0.2	
47	m,p-Xylene	0.03			0.95	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.6	0.61	1	0.59
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03			0.07	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 07-Sep	Patricia McInnes 07-Sep	Athabasca Valley 07-Sep	Anzac 07-Sep
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	4.76	4.05	4.74	4.87
5	Butane	0.03			0.08	
6	Methanol	2	2.42	12.1	1.33	3.33
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	4.28	3.54	2.71	3.08
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.14			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.37	0.25	0.28	0.25
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				0.05
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.53	0.52	0.52	0.65
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)
	#	Compound Name	MDL
			AMS 1
			Fort McKay
			12-Sep
1	Formaldehyde	2	
2	Isobutane	0.03	0.47
3	1-Butene	0.03	
4	Acetaldehyde	0.2	3.73
5	Butane	0.03	2.64
6	Methanol	2	2.36
7	trans-2-Butene	0.03	
8	cis-2-Butene	0.03	
9	3-Methyl-1-butene	0.03	
10	Isopentane	0.03	
11	1-Pentene	0.03	
12	Acetone	0.2	2.79
13	Pentane	0.03	
14	Isoprene	0.03	
15	trans-2-Pentene	0.03	
16	cis-2-Pentene	0.03	
17	2-Methyl-2-butene	0.03	
18	2,2-Dimethylbutane	0.03	
19	Cyclopentene	0.03	
20	4-Methyl-1-pentene	0.03	
21	2,3-Dimethylbutane	0.03	
22	Cyclopentane	0.03	
23	2-Methylpentane	0.03	
24	3-Methylpentane	0.03	0.35
25	2-Methyl-1-pentene	0.03	
26	Hexane	0.03	0.5
27	Methyl ethyl ketone	0.2	
28	cis-2-Hexene	0.03	
29	trans-2-Hexene	0.03	
30	2,4-Dimethylpentane	0.03	
31	Methylcyclopentane	0.03	
32	Cyclohexane	0.03	0.44
33	Benzene	0.03	0.46
34	2-Methylhexane	0.03	
35	2,3-Dimethylpentane	0.03	
36	3-Methylhexane	0.03	0.19
37	2,2,4-Trimethylpentane	0.03	
38	Heptane	0.03	1.13
39	Methylcyclohexane	0.03	0.28
40	Methyl isobutyl ketone	0.2	
41	2,3,4-Trimethylpentane	0.03	
42	2-Methylheptane	0.03	0.2
43	Toluene	0.03	1.07
44	3-Methylheptane	0.03	
45	Octane	0.03	1.73
46	Ethyl benzene	0.03	0.13
47	m,p-Xylene	0.03	0.19
48	Styrene	0.03	
49	Nonane	0.03	
50	o-Xylene	0.03	
51	Isopropylbenzene	0.03	
52	alpha Pinene	0.03	0.54
53	n-Propylbenzene	0.03	
54	1,3,5-Trimethylbenzene	0.03	
55	beta Pinene	0.03	
56	Decane	0.03	
57	1,2,4-Trimethylbenzene	0.03	
58	Undecane	0.03	
59	Dodecane	0.03	
60	Naphthalene	0.03	



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 13-Sep	AMS 12 Millennium Mine 13-Sep	AMS 13 Fort McKay South 13-Sep	AMS 15 CNRL Horizon 13-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.22	0.18	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	5.74	5.04	6.95	2.65
5	Butane	0.03		0.22		0.35
6	Methanol	2		17.4	24.6	7.45
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03			0.13	0.24
11	1-Pentene	0.03				
12	Acetone	0.2	2.85	5.94	4.57	2.55
13	Pentane	0.03				
14	Isoprene	0.03	0.08	1.7	0.85	0.26
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03		0.09		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.13		
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03			0.04	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03			0.04	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	1.13	1.21	1.22	0.52
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 13-Sep	AMS 6 Patricia McInnes 13-Sep	AMS 7 Athabasca Valley 13-Sep	AMS 14 Anzac 13-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.18	0.19	0.04
3	1-Butene	0.03				
4	Acetaldehyde	0.2	4.33	2.65	4.7	3.41
5	Butane	0.03		0.09	0.15	0.27
6	Methanol	2		7.66		7.33
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03		0.26	0.09	0.1
11	1-Pentene	0.03				
12	Acetone	0.2	2.47	2.38	1.3	4.41
13	Pentane	0.03				
14	Isoprene	0.03	0.18	0.21		0.26
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	1.15	1.12		0.54
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 19-Sep	AMS 12 Millennium Mine 19-Sep	AMS 13 Fort McKay South 19-Sep	AMS 15 CNRL Horizon 19-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				0.28
4	Acetaldehyde	0.2		2.01	0.84	
5	Butane	0.03			0.24	0.52
6	Methanol	2				
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				0.14
11	1-Pentene	0.03				
12	Acetone	0.2			1.55	1.08
13	Pentane	0.03				
14	Isoprene	0.03			0.14	0.08
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.06	0.17	0.1	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03			0.09	
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.5	0.52	0.52	0.54
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 19-Sep	AMS 6 Patricia McInnes 19-Sep	AMS 7 Athabasca Valley 19-Sep	AMS 14 Anzac 19-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03			0.09	
3	1-Butene	0.03				
4	Acetaldehyde	0.2			2.73	1.33
5	Butane	0.03		0.31	0.52	
6	Methanol	2			4.61	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03			0.07	
11	1-Pentene	0.03				
12	Acetone	0.2	1.59	1.48	1.95	2.04
13	Pentane	0.03				
14	Isoprene	0.03	0.13			
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03		0.09		
47	m,p-Xylene	0.03		0.06		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.54			0.49
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 25-Sep	AMS 12 Millennium Mine 25-Sep	AMS 13 Fort McKay South 25-Sep	AMS 15 CNRL Horizon 25-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				2.31
3	1-Butene	0.03				
4	Acetaldehyde	0.2	5.18	3.25	5.52	4.7
5	Butane	0.03		0.33		0.06
6	Methanol	2	5.26	2.09	9.94	6.39
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	1.61	1.7	1.45	1.46
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				0.56
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				7.07
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				1.6
32	Cyclohexane	0.03				0.24
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.08	0.27	0.11	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				0.66
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.4		0.41	0.4
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 25-Sep	AMS 6 Patricia McInnes 25-Sep	AMS 7 Athabasca Valley 25-Sep	AMS 14 Anzac 25-Sep
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	4.1	4.34	4.52	5.35
5	Butane	0.03			0.71	
6	Methanol	2		3.75	5.06	5.65
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	2.35	1.7	1.61	1.88
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.1	0.12	0.13	0.09
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.7	0.69	0.69	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.31		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.39		0.39	0.4
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



#	Compound Name	MDL	Results (ppbv)			
			AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 01-Oct	Millennium Mine 01-Oct	Fort McKay South 01-Oct	CNRL Horizon 01-Oct
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03			0.07	
4	Acetaldehyde	0.2	4.61	5	7.19	4.39
5	Butane	0.03				
6	Methanol	2	5.98	5.61	43.7	5.9
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	1.33	5.16	1.27	1.21
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.13	0.11	0.12	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 01-Oct	AMS 6 Patricia McInnes 01-Oct	AMS 7 Athabasca Valley 01-Oct	AMS 14 Anzac 01-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	7.14	5.27	4.78	4.91
5	Butane	0.03				
6	Methanol	2	4.85	5.86	5.25	7.23
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03				
11	1-Pentene	0.03				
12	Acetone	0.2	1.38	1.69	1.25	1.42
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.09	0.1		0.11
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 07-Oct	AMS 12 Millennium Mine 07-Oct	AMS 13 Fort McKay South 07-Oct	AMS 15 CNRL Horizon 07-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.09		0.12	0.15
3	1-Butene	0.03			0.3	
4	Acetaldehyde	0.2	2.63	2.92	5.02	3.85
5	Butane	0.03	0.29		0.33	0.6
6	Methanol	2	3.8	4.05	11.6	4.38
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.95		0.76	0.37
11	1-Pentene	0.03				
12	Acetone	0.2	1.25	1.97	1.36	1.1
13	Pentane	0.03	5.6		2.44	0.88
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.2		0.07	
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.28			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	1.23		0.46	0.16
24	3-Methylpentane	0.03	0.63		0.26	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.42		0.19	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.12		0.08	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.12	0.09	0.11	0.08
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.09		0.11	0.09
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 07-Oct	AMS 6 Patricia McInnes 07-Oct	AMS 7 Athabasca Valley 07-Oct	AMS 14 Anzac 07-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.19	0.17	
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.11	4.04	2.75	3.28
5	Butane	0.03	0.37	0.79	0.75	0.39
6	Methanol	2	4.29	5.47	3.42	3.54
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.05	0.17	0.2	0.11
11	1-Pentene	0.03				
12	Acetone	0.2	1.2	1.68	1.09	1.64
13	Pentane	0.03	3.07			
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.1			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.18			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.62			
24	3-Methylpentane	0.03	0.38			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.26			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.07	0.05	0.05	0.07
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.1	0.13	0.11	0.12
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.11			0.1
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 13-Oct	Millennium Mine 13-Oct	Fort McKay South 13-Oct	CNRL Horizon 13-Oct
1	Formaldehyde	2				
2	Isobutane	0.03	0.29	0.12		0.72
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.26	2.71	3.09	2.48
5	Butane	0.03				1
6	Methanol	2	7.61	4.53	8.67	5.74
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.91	0.73		1.82
11	1-Pentene	0.03				
12	Acetone	0.2	1.83	1.14	1.44	1.24
13	Pentane	0.03	1.34			
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03		0.11		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.18		0.17
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				0.21
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				0.16
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				0.09
32	Cyclohexane	0.03				0.22
33	Benzene	0.03	0.2	0.13	0.09	0.16
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				0.13
39	Methylcyclohexane	0.03	0.13			0.26
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.19	0.08	0.06	0.12
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03	0.19			
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.09	0.09	0.09	0.1
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

#	Compound Name	MDL	Results (ppbv)		
			AMS 1	AMS 6	AMS 14
			Fort McKay 13-Oct	Patricia McInnes 13-Oct	Anzac 13-Oct
1	Formaldehyde	2			
2	Isobutane	0.03	0.36		
3	1-Butene	0.03	0.22		
4	Acetaldehyde	0.2	2.79	3.43	4.3
5	Butane	0.03	0.94	1.7	
6	Methanol	2	3.34	8.92	6.31
7	trans-2-Butene	0.03			
8	cis-2-Butene	0.03			
9	3-Methyl-1-butene	0.03			
10	Isopentane	0.03	1.32	0.81	0.14
11	1-Pentene	0.03			
12	Acetone	0.2	1	1.52	1.74
13	Pentane	0.03	1.54	1.6	
14	Isoprene	0.03			
15	trans-2-Pentene	0.03			
16	cis-2-Pentene	0.03			
17	2-Methyl-2-butene	0.03			
18	2,2-Dimethylbutane	0.03			
19	Cyclopentene	0.03			
20	4-Methyl-1-pentene	0.03			
21	2,3-Dimethylbutane	0.03			
22	Cyclopentane	0.03			
23	2-Methylpentane	0.03			
24	3-Methylpentane	0.03	0.09		
25	2-Methyl-1-pentene	0.03			
26	Hexane	0.03			
27	Methyl ethyl ketone	0.2			
28	cis-2-Hexene	0.03			
29	trans-2-Hexene	0.03			
30	2,4-Dimethylpentane	0.03			
31	Methylcyclopentane	0.03			
32	Cyclohexane	0.03	0.11		
33	Benzene	0.03	0.2	0.18	0.16
34	2-Methylhexane	0.03			
35	2,3-Dimethylpentane	0.03			
36	3-Methylhexane	0.03			
37	2,2,4-Trimethylpentane	0.03		0.07	
38	Heptane	0.03	0.17		
39	Methylcyclohexane	0.03	0.18		
40	Methyl isobutyl ketone	0.2			
41	2,3,4-Trimethylpentane	0.03			
42	2-Methylheptane	0.03			
43	Toluene	0.03	0.2	0.18	0.06
44	3-Methylheptane	0.03			
45	Octane	0.03			
46	Ethyl benzene	0.03			
47	m,p-Xylene	0.03	0.23	0.23	
48	Styrene	0.03			
49	Nonane	0.03			
50	o-Xylene	0.03	0.1		
51	Isopropylbenzene	0.03			
52	alpha Pinene	0.03	0.12		0.12
53	n-Propylbenzene	0.03			
54	1,3,5-Trimethylbenzene	0.03			
55	beta Pinene	0.03			
56	Decane	0.03			
57	1,2,4-Trimethylbenzene	0.03			
58	Undecane	0.03			
59	Dodecane	0.03			
60	Naphthalene	0.03			



VOC Canisters		Results (ppbv)	
#	Compound Name	MDL	AMS 7 Athabasca Valley 15-Oct
1	Formaldehyde	2	
2	Isobutane	0.03	
3	1-Butene	0.03	
4	Acetaldehyde	0.2	2.42
5	Butane	0.03	0.45
6	Methanol	2	2.63
7	trans-2-Butene	0.03	
8	cis-2-Butene	0.03	
9	3-Methyl-1-butene	0.03	
10	Isopentane	0.03	
11	1-Pentene	0.03	
12	Acetone	0.2	1.29
13	Pentane	0.03	
14	Isoprene	0.03	
15	trans-2-Pentene	0.03	
16	cis-2-Pentene	0.03	
17	2-Methyl-2-butene	0.03	
18	2,2-Dimethylbutane	0.03	
19	Cyclopentene	0.03	
20	4-Methyl-1-pentene	0.03	
21	2,3-Dimethylbutane	0.03	
22	Cyclopentane	0.03	
23	2-Methylpentane	0.03	
24	3-Methylpentane	0.03	
25	2-Methyl-1-pentene	0.03	
26	Hexane	0.03	
27	Methyl ethyl ketone	0.2	
28	cis-2-Hexene	0.03	
29	trans-2-Hexene	0.03	
30	2,4-Dimethylpentane	0.03	
31	Methylcyclopentane	0.03	
32	Cyclohexane	0.03	
33	Benzene	0.03	0.16
34	2-Methylhexane	0.03	
35	2,3-Dimethylpentane	0.03	
36	3-Methylhexane	0.03	
37	2,2,4-Trimethylpentane	0.03	
38	Heptane	0.03	
39	Methylcyclohexane	0.03	
40	Methyl isobutyl ketone	0.2	
41	2,3,4-Trimethylpentane	0.03	
42	2-Methylheptane	0.03	
43	Toluene	0.03	
44	3-Methylheptane	0.03	
45	Octane	0.03	
46	Ethyl benzene	0.03	
47	m,p-Xylene	0.03	
48	Styrene	0.03	
49	Nonane	0.03	
50	o-Xylene	0.03	
51	Isopropylbenzene	0.03	
52	alpha Pinene	0.03	
53	n-Propylbenzene	0.03	
54	1,3,5-Trimethylbenzene	0.03	
55	beta Pinene	0.03	
56	Decane	0.03	
57	1,2,4-Trimethylbenzene	0.03	
58	Undecane	0.03	
59	Dodecane	0.03	
60	Naphthalene	0.03	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 19-Oct	AMS 12 Millennium Mine 19-Oct	AMS 13 Fort McKay South 19-Oct	AMS 15 CNRL Horizon 19-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.06	0.04		
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.2	1.62	2.07	
5	Butane	0.03				
6	Methanol	2	6.27	1.34	5.71	3.83
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.34	0.76	0.29	0.91
11	1-Pentene	0.03				
12	Acetone	0.2	1.16	0.68	1.09	0.84
13	Pentane	0.03		1.55		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				0.16
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03			0.1	0.23
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				0.14
32	Cyclohexane	0.03				0.25
33	Benzene	0.03	0.14	0.12	0.14	0.13
34	2-Methylhexane	0.03				0.1
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				0.43
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.18	0.86
39	Methylcyclohexane	0.03			0.15	0.4
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.2	0.04	0.15	0.31
44	3-Methylheptane	0.03				
45	Octane	0.03				0.4
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.21	0.25
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				0.11
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.08		0.1	0.08
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 19-Oct	AMS 6 Patricia McInnes 19-Oct	AMS 7 Athabasca Valley 19-Oct	AMS 14 Anzac 19-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		1.04	0.2	0.11
3	1-Butene	0.03		0.2		
4	Acetaldehyde	0.2	2.46	3.65	3.6	2.72
5	Butane	0.03		1.83		0.63
6	Methanol	2	1.4	16.4	4.33	4.45
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.26	2.31	0.58	0.66
11	1-Pentene	0.03				
12	Acetone	0.2	0.77	1.63	1.03	1.33
13	Pentane	0.03		4.07		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03		0.39	0.12	
24	3-Methylpentane	0.03		0.18		
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.27		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.09		
32	Cyclohexane	0.03				
33	Benzene	0.03	0.09	0.21	0.16	0.13
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03		0.21		
37	2,2,4-Trimethylpentane	0.03		0.08		
38	Heptane	0.03	0.11	0.39		
39	Methylcyclohexane	0.03		0.19		
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.17	0.54	0.13	0.07
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03		0.16		
47	m,p-Xylene	0.03	0.2	0.35		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.14		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.09	0.11		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 25-Oct	Millennium Mine 25-Oct	Fort McKay South 25-Oct	CNRL Horizon 25-Oct
1	Formaldehyde	2				
2	Isobutane	0.03	0.36	0.16	0.05	0.44
3	1-Butene	0.03				
4	Acetaldehyde	0.2		1.56	2.63	1.62
5	Butane	0.03	0.92	0.42	0.14	0.1
6	Methanol	2	1.44	3.92	6.22	3.1
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.37	0.53	0.08	0.61
11	1-Pentene	0.03				
12	Acetone	0.2	0.62	1.18	1.58	0.96
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.56		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.09		
32	Cyclohexane	0.03				
33	Benzene	0.03				
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.13	0.06	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.1	0.06	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.04		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03			0.1	
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 25-Oct	AMS 6 Patricia McInnes 25-Oct	AMS 7 Athabasca Valley 25-Oct	AMS 14 Anzac 25-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.09			
3	1-Butene	0.03				
4	Acetaldehyde	0.2	1.66	1.91		2.92
5	Butane	0.03	0.2	0.25	0.38	0.12
6	Methanol	2	2.96	3.01	2.62	3.32
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.11			
11	1-Pentene	0.03				
12	Acetone	0.2	1.07	1.19	0.53	1.34
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.03		0.06	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 31-Oct	AMS 12 Millennium Mine 31-Oct	AMS 13 Fort McKay South 31-Oct	AMS 15 CNRL Horizon 31-Oct
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.29	0.46	0.33	2.43
3	1-Butene	0.03				
4	Acetaldehyde	0.2			4.28	
5	Butane	0.03	1.01	1.24		1.07
6	Methanol	2	2.64		3.95	2.07
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.64	1.02	0.44	3.81
11	1-Pentene	0.03				
12	Acetone	0.2	0.92	0.82	1.14	0.73
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				0.15
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				0.36
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.25	0.24		
24	3-Methylpentane	0.03	0.15	0.17		0.68
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.55		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		0.17		0.28
32	Cyclohexane	0.03				0.61
33	Benzene	0.03	0.08	0.11	0.06	0.07
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03		0.33		
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.21	0.82		
39	Methylcyclohexane	0.03		0.4		0.46
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.19	0.37	0.14	0.12
44	3-Methylheptane	0.03				
45	Octane	0.03		0.48		
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.31		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.07		0.08	0.06
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03		0.57		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 31-Oct	Patricia McInnes 31-Oct	Athabasca Valley 31-Oct	Anzac 31-Oct
1	Formaldehyde	2				
2	Isobutane	0.03	0.25	0.42	0.91	0.61
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.03		5.29	3.53
5	Butane	0.03	1.24	1.33	3.05	2.41
6	Methanol	2		4.71	4.52	17.7
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.53	0.51	1.44	2.4
11	1-Pentene	0.03				
12	Acetone	0.2	1.09	0.76	0.75	9.82
13	Pentane	0.03				3.89
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				0.26
22	Cyclopentane	0.03				0.2
23	2-Methylpentane	0.03				4.75
24	3-Methylpentane	0.03				12.6
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.29			66.1
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				14.3
32	Cyclohexane	0.03				1.77
33	Benzene	0.03	0.08	0.17	0.15	0.31
34	2-Methylhexane	0.03				0.26
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				0.36
37	2,2,4-Trimethylpentane	0.03				0.12
38	Heptane	0.03	0.4			0.6
39	Methylcyclohexane	0.03				0.74
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.31	0.2	0.42	4.7
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				0.47
47	m,p-Xylene	0.03	0.3		0.22	1.39
48	Styrene	0.03				
49	Nonane	0.03				1.2
50	o-Xylene	0.03				0.34
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.1			0.23
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				2.74
57	1,2,4-Trimethylbenzene	0.03				0.37
58	Undecane	0.03				1.48
59	Dodecane	0.03				0.45
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 06-Nov	AMS 12 Millennium Mine 06-Nov	AMS 13 Fort McKay South 06-Nov	AMS 15 CNRL Horizon 06-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.54	0.28	0.19	
3	1-Butene	0.03				
4	Acetaldehyde	0.2				1.86
5	Butane	0.03	3.23	1.19	1.19	0.6
6	Methanol	2	1.81	2.4	6.73	3.13
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	4.63	1.13	1.08	0.56
11	1-Pentene	0.03				
12	Acetone	0.2	1.22	0.86		
13	Pentane	0.03	5.34	0.36		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.11			
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.26		0.1	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.13		0.11	0.06
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.32		0.18	
39	Methylcyclohexane	0.03	0.17		0.13	0.08
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.1		0.07	
43	Toluene	0.03	0.1		0.09	
44	3-Methylheptane	0.03				
45	Octane	0.03	0.22			
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 06-Nov	AMS 6 Patricia McInnes 06-Nov	AMS 7 Athabasca Valley 06-Nov	AMS 14 Anzac 06-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.96		0.79	0.14
3	1-Butene	0.03				
4	Acetaldehyde	0.2				2.81
5	Butane	0.03	5.78	0.35	3.4	
6	Methanol	2	3.12	2.47	6.17	3.05
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	10	0.06	0.79	0.33
11	1-Pentene	0.03				
12	Acetone	0.2	1.66	0.53	0.87	1.3
13	Pentane	0.03	11.7			
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.37			
24	3-Methylpentane	0.03	0.1			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.51			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03	0.05			
33	Benzene	0.03	0.16	0.05	0.17	0.12
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.29			
39	Methylcyclohexane	0.03	0.16			
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.08			
43	Toluene	0.03	0.09			
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 12-Nov	AMS 12 Millennium Mine 12-Nov	AMS 13 Fort McKay South 12-Nov	AMS 15 CNRL Horizon 12-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.94	0.77	1.78
3	1-Butene	0.03				
4	Acetaldehyde	0.2			4.6	
5	Butane	0.03	0.49	2.93	3.23	2.35
6	Methanol	2		2.92	5.44	2.8
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.16	0.94	1.87	2.58
11	1-Pentene	0.03				
12	Acetone	0.2	0.31	0.66	0.5	0.83
13	Pentane	0.03			1.32	0.3
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				0.14
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03			0.22	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				0.21
33	Benzene	0.03		0.1	0.14	0.08
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03			0.35	0.08
39	Methylcyclohexane	0.03			0.24	0.19
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03			0.12	
43	Toluene	0.03			0.39	
44	3-Methylheptane	0.03				
45	Octane	0.03			0.66	
46	Ethyl benzene	0.03			0.03	
47	m,p-Xylene	0.03			0.04	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

#	Compound Name	MDL	Results (ppbv)		
			AMS 1	AMS 6	AMS 14
			Fort McKay 12-Nov	Patricia McInnes 12-Nov	Anzac 12-Nov
1	Formaldehyde	2			
2	Isobutane	0.03	1.04	1.47	0.85
3	1-Butene	0.03			
4	Acetaldehyde	0.2			
5	Butane	0.03	3.68	4.5	2.63
6	Methanol	2	2.17	31.7	3.76
7	trans-2-Butene	0.03			
8	cis-2-Butene	0.03			
9	3-Methyl-1-butene	0.03			
10	Isopentane	0.03	2.53	1.36	1.37
11	1-Pentene	0.03			
12	Acetone	0.2	1.15	1.85	1.42
13	Pentane	0.03	2.41	0.51	
14	Isoprene	0.03			
15	trans-2-Pentene	0.03			
16	cis-2-Pentene	0.03			
17	2-Methyl-2-butene	0.03			
18	2,2-Dimethylbutane	0.03			
19	Cyclopentene	0.03			
20	4-Methyl-1-pentene	0.03			
21	2,3-Dimethylbutane	0.03			
22	Cyclopentane	0.03			
23	2-Methylpentane	0.03	0.08		
24	3-Methylpentane	0.03	0.04		
25	2-Methyl-1-pentene	0.03			
26	Hexane	0.03	0.37		0.16
27	Methyl ethyl ketone	0.2			
28	cis-2-Hexene	0.03			
29	trans-2-Hexene	0.03			
30	2,4-Dimethylpentane	0.03			
31	Methylcyclopentane	0.03			
32	Cyclohexane	0.03			
33	Benzene	0.03	0.28	0.22	0.25
34	2-Methylhexane	0.03			
35	2,3-Dimethylpentane	0.03			
36	3-Methylhexane	0.03	0.13		
37	2,2,4-Trimethylpentane	0.03			
38	Heptane	0.03	0.67		
39	Methylcyclohexane	0.03	0.42		
40	Methyl isobutyl ketone	0.2			
41	2,3,4-Trimethylpentane	0.03			
42	2-Methylheptane	0.03	0.28		
43	Toluene	0.03	0.54	0.1	
44	3-Methylheptane	0.03			
45	Octane	0.03	0.82		
46	Ethyl benzene	0.03	0.06		
47	m,p-Xylene	0.03	0.17		
48	Styrene	0.03			
49	Nonane	0.03			
50	o-Xylene	0.03			
51	Isopropylbenzene	0.03			
52	alpha Pinene	0.03			
53	n-Propylbenzene	0.03			
54	1,3,5-Trimethylbenzene	0.03			
55	beta Pinene	0.03			
56	Decane	0.03			
57	1,2,4-Trimethylbenzene	0.03			
58	Undecane	0.03			
59	Dodecane	0.03			
60	Naphthalene	0.03			



VOC Canisters		Results (ppbv)	
#	Compound Name	MDL	AMS 7 Athabasca Valley 13-Nov
1	Formaldehyde	2	
2	Isobutane	0.03	
3	1-Butene	0.03	
4	Acetaldehyde	0.2	1.65
5	Butane	0.03	0.51
6	Methanol	2	6.99
7	trans-2-Butene	0.03	
8	cis-2-Butene	0.03	
9	3-Methyl-1-butene	0.03	
10	Isopentane	0.03	
11	1-Pentene	0.03	
12	Acetone	0.2	0.56
13	Pentane	0.03	
14	Isoprene	0.03	
15	trans-2-Pentene	0.03	
16	cis-2-Pentene	0.03	
17	2-Methyl-2-butene	0.03	
18	2,2-Dimethylbutane	0.03	
19	Cyclopentene	0.03	
20	4-Methyl-1-pentene	0.03	
21	2,3-Dimethylbutane	0.03	
22	Cyclopentane	0.03	
23	2-Methylpentane	0.03	
24	3-Methylpentane	0.03	
25	2-Methyl-1-pentene	0.03	
26	Hexane	0.03	
27	Methyl ethyl ketone	0.2	
28	cis-2-Hexene	0.03	
29	trans-2-Hexene	0.03	
30	2,4-Dimethylpentane	0.03	
31	Methylcyclopentane	0.03	
32	Cyclohexane	0.03	
33	Benzene	0.03	
34	2-Methylhexane	0.03	
35	2,3-Dimethylpentane	0.03	
36	3-Methylhexane	0.03	
37	2,2,4-Trimethylpentane	0.03	
38	Heptane	0.03	
39	Methylcyclohexane	0.03	
40	Methyl isobutyl ketone	0.2	
41	2,3,4-Trimethylpentane	0.03	
42	2-Methylheptane	0.03	
43	Toluene	0.03	
44	3-Methylheptane	0.03	
45	Octane	0.03	
46	Ethyl benzene	0.03	
47	m,p-Xylene	0.03	
48	Styrene	0.03	
49	Nonane	0.03	
50	o-Xylene	0.03	
51	Isopropylbenzene	0.03	
52	alpha Pinene	0.03	
53	n-Propylbenzene	0.03	
54	1,3,5-Trimethylbenzene	0.03	
55	beta Pinene	0.03	
56	Decane	0.03	
57	1,2,4-Trimethylbenzene	0.03	
58	Undecane	0.03	
59	Dodecane	0.03	
60	Naphthalene	0.03	



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 18-Nov	AMS 12 Millennium Mine 18-Nov	AMS 13 Fort McKay South 18-Nov	AMS 15 CNRL Horizon 18-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03				
3	1-Butene	0.03				
4	Acetaldehyde	0.2	1.94	2.15	2.13	
5	Butane	0.03				
6	Methanol	2	1.83		4.79	1.56
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.4	2.05	0.32	
11	1-Pentene	0.03				
12	Acetone	0.2	0.77	1.01	1.06	0.68
13	Pentane	0.03		6.03		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.13		0.08	
24	3-Methylpentane	0.03	0.05			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.09	0.03	0.09	0.06
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 18-Nov	AMS 6 Patricia McInnes 18-Nov	AMS 7 Athabasca Valley 18-Nov	AMS 14 Anzac 18-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03		0.05	0.3	0.17
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.04	1.95	3.33	
6	Methanol	2		2.28		3.57
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03		3.28	6.53	1.77
11	1-Pentene	0.03				
12	Acetone	0.2	0.56	0.59	0.5	1.08
13	Pentane	0.03		4.11	8.23	1.71
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03			0.05	
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03				0.1
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 24-Nov	AMS 12 Millennium Mine 24-Nov	AMS 13 Fort McKay South 24-Nov	AMS 15 CNRL Horizon 24-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.07		0.18	0.38
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.44	2.69	3.43	3.3
5	Butane	0.03				
6	Methanol	2	1.56		5.34	2.32
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.46	0.78		0.65
11	1-Pentene	0.03				
12	Acetone	0.2	1.92	1.15	1.22	0.84
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.19	0.11	0.18	0.08
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03				
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 24-Nov	AMS 6 Patricia McInnes 24-Nov	AMS 7 Athabasca Valley 24-Nov	AMS 14 Anzac 24-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.08	0.42	0.21	0.04
3	1-Butene	0.03		0.46		
4	Acetaldehyde	0.2	1.4	3.8	2.49	4.46
5	Butane	0.03		2.2		
6	Methanol	2	2.55	28.1	5.01	4.55
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.08	1.34		
11	1-Pentene	0.03				
12	Acetone	0.2	0.55	2.73	2.2	2.39
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		0.18		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03		0.98		
33	Benzene	0.03	0.1	0.28	0.11	
34	2-Methylhexane	0.03		0.43		
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03		0.85		
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03		0.47		
39	Methylcyclohexane	0.03		0.15		
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.91		
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03		0.09		
47	m,p-Xylene	0.03		0.18		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 30-Nov	AMS 12 Millennium Mine 30-Nov	AMS 13 Fort McKay South 30-Nov	AMS 15 CNRL Horizon 30-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.61	0.74	0.23	1.99
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.27			1.29
6	Methanol	2	2.81	4.13	3.92	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	2.25	0.97	0.82	3.49
11	1-Pentene	0.03				
12	Acetone	0.2				
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03		0.36		
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03		0.69		
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03		0.19		0.25
33	Benzene	0.03	0.37	0.87	0.14	0.12
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03		0.3		0.27
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.19	0.15		0.09
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 30-Nov	AMS 6 Patricia McInnes 30-Nov	AMS 7 Athabasca Valley 30-Nov	AMS 14 Anzac 30-Nov
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.65	0.47	1.1	0.46
3	1-Butene	0.03				
4	Acetaldehyde	0.2	4.44			
5	Butane	0.03		1.71		
6	Methanol	2	9.45	10.2	24.2	4.71
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.64	0.7	1.24	1.08
11	1-Pentene	0.03				
12	Acetone	0.2	0.57			0.7
13	Pentane	0.03	1.58			
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.09			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.39			
24	3-Methylpentane	0.03	0.34			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.57			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.23	0.2	0.21	0.23
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.2	0.06	0.06	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



#	Compound Name	MDL	Results (ppbv)		
			AMS 12	AMS 13	AMS 15
			Millennium Mine 06-Dec	Fort McKay South 06-Dec	CNRL Horizon 06-Dec
1	Formaldehyde	2			
2	Isobutane	0.03	0.36	0.2	0.32
3	1-Butene	0.03			
4	Acetaldehyde	0.2	1.46		
5	Butane	0.03	0.76	0.57	0.48
6	Methanol	2		2.23	
7	trans-2-Butene	0.03			
8	cis-2-Butene	0.03			
9	3-Methyl-1-butene	0.03			
10	Isopentane	0.03	0.72	0.21	0.51
11	1-Pentene	0.03			
12	Acetone	0.2			0.55
13	Pentane	0.03			
14	Isoprene	0.03			
15	trans-2-Pentene	0.03			
16	cis-2-Pentene	0.03			
17	2-Methyl-2-butene	0.03			
18	2,2-Dimethylbutane	0.03	0.19		
19	Cyclopentene	0.03			
20	4-Methyl-1-pentene	0.03			
21	2,3-Dimethylbutane	0.03	0.19		
22	Cyclopentane	0.03			
23	2-Methylpentane	0.03			
24	3-Methylpentane	0.03			
25	2-Methyl-1-pentene	0.03			
26	Hexane	0.03			
27	Methyl ethyl ketone	0.2			
28	cis-2-Hexene	0.03			
29	trans-2-Hexene	0.03			
30	2,4-Dimethylpentane	0.03			
31	Methylcyclopentane	0.03			
32	Cyclohexane	0.03			
33	Benzene	0.03			
34	2-Methylhexane	0.03			
35	2,3-Dimethylpentane	0.03			
36	3-Methylhexane	0.03			
37	2,2,4-Trimethylpentane	0.03			
38	Heptane	0.03			
39	Methylcyclohexane	0.03			
40	Methyl isobutyl ketone	0.2			
41	2,3,4-Trimethylpentane	0.03			
42	2-Methylheptane	0.03			
43	Toluene	0.03	0.07		
44	3-Methylheptane	0.03			
45	Octane	0.03			
46	Ethyl benzene	0.03			
47	m,p-Xylene	0.03			
48	Styrene	0.03			
49	Nonane	0.03			
50	o-Xylene	0.03			
51	Isopropylbenzene	0.03			
52	alpha Pinene	0.03			
53	n-Propylbenzene	0.03			
54	1,3,5-Trimethylbenzene	0.03			
55	beta Pinene	0.03			
56	Decane	0.03			
57	1,2,4-Trimethylbenzene	0.03			
58	Undecane	0.03			
59	Dodecane	0.03			
60	Naphthalene	0.03			



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)		
#	Compound Name	MDL	AMS 1	AMS 7	AMS 14
			Fort McKay 06-Dec	Athabasca Valley 06-Dec	Anzac 06-Dec
1	Formaldehyde	2			
2	Isobutane	0.03	0.32	0.34	
3	1-Butene	0.03			
4	Acetaldehyde	0.2			
5	Butane	0.03	1.01	1.02	0.33
6	Methanol	2		5.06	
7	trans-2-Butene	0.03			
8	cis-2-Butene	0.03			
9	3-Methyl-1-butene	0.03			
10	Isopentane	0.03	0.47	0.54	
11	1-Pentene	0.03			
12	Acetone	0.2		0.43	
13	Pentane	0.03			
14	Isoprene	0.03			
15	trans-2-Pentene	0.03			
16	cis-2-Pentene	0.03			
17	2-Methyl-2-butene	0.03			
18	2,2-Dimethylbutane	0.03			
19	Cyclopentene	0.03			
20	4-Methyl-1-pentene	0.03			
21	2,3-Dimethylbutane	0.03			
22	Cyclopentane	0.03			
23	2-Methylpentane	0.03			
24	3-Methylpentane	0.03			
25	2-Methyl-1-pentene	0.03			
26	Hexane	0.03			
27	Methyl ethyl ketone	0.2			
28	cis-2-Hexene	0.03			
29	trans-2-Hexene	0.03			
30	2,4-Dimethylpentane	0.03			
31	Methylcyclopentane	0.03			
32	Cyclohexane	0.03			
33	Benzene	0.03		0.04	
34	2-Methylhexane	0.03			
35	2,3-Dimethylpentane	0.03			
36	3-Methylhexane	0.03			
37	2,2,4-Trimethylpentane	0.03			
38	Heptane	0.03			
39	Methylcyclohexane	0.03			
40	Methyl isobutyl ketone	0.2			
41	2,3,4-Trimethylpentane	0.03			
42	2-Methylheptane	0.03			
43	Toluene	0.03	0.05	0.1	
44	3-Methylheptane	0.03			
45	Octane	0.03			
46	Ethyl benzene	0.03			
47	m,p-Xylene	0.03			
48	Styrene	0.03			
49	Nonane	0.03			
50	o-Xylene	0.03			
51	Isopropylbenzene	0.03			
52	alpha Pinene	0.03			
53	n-Propylbenzene	0.03			
54	1,3,5-Trimethylbenzene	0.03			
55	beta Pinene	0.03			
56	Decane	0.03			
57	1,2,4-Trimethylbenzene	0.03			
58	Undecane	0.03			
59	Dodecane	0.03			
60	Naphthalene	0.03			



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 12-Dec	AMS 12 Millennium Mine 12-Dec	AMS 13 Fort McKay South 12-Dec	AMS 15 CNRL Horizon 12-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.34		0.28	1.23
3	1-Butene	0.03				
4	Acetaldehyde	0.2	4.56			
5	Butane	0.03	1.13	0.41	0.88	0.88
6	Methanol	2	16.2			
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	2.2	2.2	2	3.17
11	1-Pentene	0.03				
12	Acetone	0.2	4.89			
13	Pentane	0.03		3.3	2.62	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.08			0.03
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03			0.21	
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	1.2		1.2	0.49
24	3-Methylpentane	0.03	0.64		0.58	0.53
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.39		0.32	0.2
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				0.26
33	Benzene	0.03	0.16		0.05	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				0.18
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.22		0.04	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 12-Dec	AMS 6 Patricia McInnes 12-Dec	AMS 7 Athabasca Valley 12-Dec	AMS 14 Anzac 12-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.26	0.12	0.26	
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.74	0.46	0.98	0.43
6	Methanol	2	3.32	2.22	3.88	1.17
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.61	0.58	1.31	
11	1-Pentene	0.03				
12	Acetone	0.2	0.57			
13	Pentane	0.03	1.42			
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.08			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.19			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.67			
24	3-Methylpentane	0.03	0.28			
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.18			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.07		0.03	
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.06		0.1	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03			0.14	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 18-Dec	AMS 12 Millennium Mine 18-Dec	AMS 13 Fort McKay South 18-Dec	AMS 15 CNRL Horizon 18-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.13	0.83		0.55
3	1-Butene	0.03				
4	Acetaldehyde	0.2	3.54	2.23		
5	Butane	0.03	0.5	2.63	0.3	0.44
6	Methanol	2	7.16	24.8	2.07	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.27	2.3	0.06	0.88
11	1-Pentene	0.03				
12	Acetone	0.2	1.8	1.97	0.69	
13	Pentane	0.03		2.55		
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03		0.66		
24	3-Methylpentane	0.03		1.25		
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03		4.8		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03		1.78		
32	Cyclohexane	0.03		0.38		
33	Benzene	0.03	0.06	0.26		
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.04	0.86		
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03		0.24		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 18-Dec	AMS 6 Patricia McInnes 18-Dec	AMS 7 Athabasca Valley 18-Dec	AMS 14 Anzac 18-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.05		0.1	
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	0.47	0.57	0.69	0.43
6	Methanol	2			3.03	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.16	0.18	0.18	
11	1-Pentene	0.03				
12	Acetone	0.2	0.58	0.37		
13	Pentane	0.03				
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03				
24	3-Methylpentane	0.03				
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03				
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				
33	Benzene	0.03	0.03			
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03				
39	Methylcyclohexane	0.03				
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03		0.05	0.09	
44	3-Methylheptane	0.03				
45	Octane	0.03				
46	Ethyl benzene	0.03				
47	m,p-Xylene	0.03				
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03				
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 24-Dec	AMS 12 Millennium Mine 24-Dec	AMS 13 Fort McKay South 24-Dec	AMS 15 CNRL Horizon 24-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.51	0.3	0.24	1
3	1-Butene	0.03				
4	Acetaldehyde	0.2	1.33	1.44	1.62	
5	Butane	0.03	1.25	0.75	0.58	0.43
6	Methanol	2	7.62		1.38	
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	0.92	2.64	1.21	1.45
11	1-Pentene	0.03				
12	Acetone	0.2	1.44	0.79	0.97	0.39
13	Pentane	0.03	1.26	7.1	2.23	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03				
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03				
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03			0.16	
24	3-Methylpentane	0.03	0.06		0.06	0.1
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.18			
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03				0.16
33	Benzene	0.03	0.07	0.05	0.1	0.03
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.38	0.3		
39	Methylcyclohexane	0.03	0.31	0.29		0.23
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.28			
43	Toluene	0.03	0.38	0.29	0.06	
44	3-Methylheptane	0.03				
45	Octane	0.03	0.45	0.46		
46	Ethyl benzene	0.03	0.04			
47	m,p-Xylene	0.03	0.08	0.05		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.03			
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.04			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	0.29	0.37		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 24-Dec	AMS 6 Patricia McInnes 24-Dec	AMS 7 Athabasca Valley 24-Dec	AMS 14 Anzac 24-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	0.28	0.63	0.6	0.2
3	1-Butene	0.03				
4	Acetaldehyde	0.2	2.27	1.53	1.17	2.16
5	Butane	0.03	0.54	1.28	1.07	0.66
6	Methanol	2	0.98	4.51	4.56	3.19
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	1.34	1.43	1.38	0.22
11	1-Pentene	0.03				
12	Acetone	0.2	0.97	0.64	0.6	2.64
13	Pentane	0.03	2.63	2.51	3.04	
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.07			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.2			
22	Cyclopentane	0.03				
23	2-Methylpentane	0.03	0.46	0.16		
24	3-Methylpentane	0.03	0.25	0.09	0.11	
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.24	0.28		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03				
32	Cyclohexane	0.03	0.17		0.14	
33	Benzene	0.03	0.18	0.17	0.1	0.06
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03			0.11	
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.13	0.46	0.67	
39	Methylcyclohexane	0.03		0.35	0.44	
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03			0.46	
43	Toluene	0.03	0.13	0.45	0.6	0.09
44	3-Methylheptane	0.03			0.2	
45	Octane	0.03			0.98	
46	Ethyl benzene	0.03		0.06	0.09	
47	m,p-Xylene	0.03	0.08	0.1	0.19	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.04	0.04	0.07	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03				
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03	0.14			
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03		0.07		
60	Naphthalene	0.03	0.37	0.27	0.24	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 30-Dec	AMS 12 Millennium Mine 30-Dec	AMS 13 Fort McKay South 30-Dec	AMS 15 CNRL Horizon 30-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	1.49	0.98	2.2	2.74
3	1-Butene	0.03				
4	Acetaldehyde	0.2	2.61			
5	Butane	0.03	1.72	1.55	1.63	1.33
6	Methanol	2	2.32			
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	5.65	3.52	4.55	5.01
11	1-Pentene	0.03				
12	Acetone	0.2	0.73	1.03		0.45
13	Pentane	0.03	11.8	6.74	3.88	2.69
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.52	0.73	0.2	0.21
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.5	0.99	0.26	
22	Cyclopentane	0.03	0.57	0.2		0.26
23	2-Methylpentane	0.03	2.65	1.01	0.57	0.48
24	3-Methylpentane	0.03	1.44	0.59	0.55	0.63
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.82	0.53	0.36	0.21
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.25	0.22	0.2	0.31
32	Cyclohexane	0.03	0.32	0.29	0.46	0.71
33	Benzene	0.03	0.3	0.23	0.16	0.13
34	2-Methylhexane	0.03	0.1			
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03				
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.42	0.39	0.42	0.38
39	Methylcyclohexane	0.03	0.51	0.49	0.56	0.62
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03				
43	Toluene	0.03	0.36	0.66	0.07	0.2
44	3-Methylheptane	0.03				
45	Octane	0.03	0.37	0.76		
46	Ethyl benzene	0.03		0.08		
47	m,p-Xylene	0.03		0.22		
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03		0.12		
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03		0.07		
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

VOC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 30-Dec	AMS 6 Patricia McInnes 30-Dec	AMS 7 Athabasca Valley 30-Dec	AMS 14 Anzac 30-Dec
#	Compound Name	MDL				
1	Formaldehyde	2				
2	Isobutane	0.03	2.27	0.94	0.63	0.55
3	1-Butene	0.03				
4	Acetaldehyde	0.2				
5	Butane	0.03	1.91	1.69	1.26	1.19
6	Methanol	2	0.84	1.84		2.48
7	trans-2-Butene	0.03				
8	cis-2-Butene	0.03				
9	3-Methyl-1-butene	0.03				
10	Isopentane	0.03	4.8	2.43	1.21	1.13
11	1-Pentene	0.03				
12	Acetone	0.2	0.8	0.67	0.52	
13	Pentane	0.03	4.57	5.72		1.16
14	Isoprene	0.03				
15	trans-2-Pentene	0.03				
16	cis-2-Pentene	0.03				
17	2-Methyl-2-butene	0.03				
18	2,2-Dimethylbutane	0.03	0.22			
19	Cyclopentene	0.03				
20	4-Methyl-1-pentene	0.03				
21	2,3-Dimethylbutane	0.03	0.49			
22	Cyclopentane	0.03	0.19			
23	2-Methylpentane	0.03	0.83	0.23	0.09	
24	3-Methylpentane	0.03	0.87	0.25		
25	2-Methyl-1-pentene	0.03				
26	Hexane	0.03	0.45	0.29		
27	Methyl ethyl ketone	0.2				
28	cis-2-Hexene	0.03				
29	trans-2-Hexene	0.03				
30	2,4-Dimethylpentane	0.03				
31	Methylcyclopentane	0.03	0.26	0.16	0.07	
32	Cyclohexane	0.03	0.51			
33	Benzene	0.03	0.23	0.23	0.14	0.09
34	2-Methylhexane	0.03				
35	2,3-Dimethylpentane	0.03				
36	3-Methylhexane	0.03	0.17			
37	2,2,4-Trimethylpentane	0.03				
38	Heptane	0.03	0.51		0.34	
39	Methylcyclohexane	0.03	0.68	0.33	0.29	0.21
40	Methyl isobutyl ketone	0.2				
41	2,3,4-Trimethylpentane	0.03				
42	2-Methylheptane	0.03	0.34	0.29	0.31	
43	Toluene	0.03	0.49	0.56	0.34	
44	3-Methylheptane	0.03				
45	Octane	0.03	0.66		0.54	
46	Ethyl benzene	0.03	0.06	0.06	0.05	
47	m,p-Xylene	0.03	0.14	0.19	0.1	
48	Styrene	0.03				
49	Nonane	0.03				
50	o-Xylene	0.03	0.07	0.06	0.04	
51	Isopropylbenzene	0.03				
52	alpha Pinene	0.03	0.06			
53	n-Propylbenzene	0.03				
54	1,3,5-Trimethylbenzene	0.03				
55	beta Pinene	0.03				
56	Decane	0.03				
57	1,2,4-Trimethylbenzene	0.03				
58	Undecane	0.03				
59	Dodecane	0.03				
60	Naphthalene	0.03	0.28			



VOC Canisters			Results - Percentage of Samples Detected > 0			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing	Millennium Mine	Fort McKay South	CNRL Horizon
1	Formaldehyde	2	-	-	-	-
2	Isobutane	0.03	43.3	43.3	49.2	51.7
3	1-Butene	0.03	3.3	1.7	6.6	6.7
4	Acetaldehyde	0.2	51.7	50	52.5	40
5	Butane	0.03	46.7	50	55.7	60
6	Methanol	2	55	55	80.3	58.3
7	trans-2-Butene	0.03	1.7	1.7	1.6	3.3
8	cis-2-Butene	0.03	-	-	-	1.7
9	3-Methyl-1-butene	0.03	-	-	-	1.7
10	Isopentane	0.03	71.7	66.7	67.2	76.7
11	1-Pentene	0.03	3.3	1.7	3.3	3.3
12	Acetone	0.2	61.7	66.7	72.1	63.3
13	Pentane	0.03	40	40	37.7	28.3
14	Isoprene	0.03	21.7	20	27.9	21.7
15	trans-2-Pentene	0.03	-	-	-	1.7
16	cis-2-Pentene	0.03	-	-	1.6	1.7
17	2-Methyl-2-butene	0.03	-	-	-	1.7
18	2,2-Dimethylbutane	0.03	36.7	33.3	23	21.7
19	Cyclopentene	0.03	-	-	1.6	1.7
20	4-Methyl-1-pentene	0.03	-	-	-	-
21	2,3-Dimethylbutane	0.03	35	30	24.6	25
22	Cyclopentane	0.03	16.7	3.3	11.5	13.3
23	2-Methylpentane	0.03	48.3	28.3	44.3	33.3
24	3-Methylpentane	0.03	46.7	23.3	41	45
25	2-Methyl-1-pentene	0.03	-	-	-	-
26	Hexane	0.03	46.7	28.3	41	36.7
27	Methyl ethyl ketone	0.2	-	-	3.3	3.3
28	cis-2-Hexene	0.03	-	-	-	-
29	trans-2-Hexene	0.03	-	-	-	-
30	2,4-Dimethylpentane	0.03	-	1.7	4.9	5
31	Methylcyclopentane	0.03	23.3	20	26.2	36.7
32	Cyclohexane	0.03	15	18.3	19.7	41.7
33	Benzene	0.03	70	63.3	72.1	63.3
34	2-Methylhexane	0.03	11.7	1.7	13.1	11.7
35	2,3-Dimethylpentane	0.03	3.3	1.7	6.6	10
36	3-Methylhexane	0.03	13.3	11.7	18	18.3
37	2,2,4-Trimethylpentane	0.03	-	-	1.6	1.7
38	Heptane	0.03	25	18.3	36.1	30
39	Methylcyclohexane	0.03	31.7	28.3	34.4	45
40	Methyl isobutyl ketone	0.2	-	-	-	1.7
41	2,3,4-Trimethylpentane	0.03	1.7	-	-	-
42	2-Methylheptane	0.03	13.3	1.7	19.7	13.3
43	Toluene	0.03	66.7	75	83.6	55
44	3-Methylheptane	0.03	3.3	1.7	9.8	5
45	Octane	0.03	20	10	19.7	18.3
46	Ethyl benzene	0.03	8.3	5	39.3	6.7
47	m,p-Xylene	0.03	16.7	18.3	54.1	21.7
48	Styrene	0.03	-	-	-	1.7
49	Nonane	0.03	5	3.3	16.4	10
50	o-Xylene	0.03	10	10	39.3	10
51	Isopropylbenzene	0.03	1.7	-	1.6	-
52	alpha Pinene	0.03	51.7	38.3	54.1	55
53	n-Propylbenzene	0.03	-	-	-	-
54	1,3,5-Trimethylbenzene	0.03	1.7	-	-	-
55	beta Pinene	0.03	1.7	-	3.3	1.7
56	Decane	0.03	3.3	1.7	13.1	3.3
57	1,2,4-Trimethylbenzene	0.03	3.3	-	9.8	-
58	Undecane	0.03	1.7	1.7	6.6	-
59	Dodecane	0.03	-	-	1.6	-
60	Naphthalene	0.03	3.3	5	6.6	-



VOC Canisters			Results - Percentage of Samples Detected > 0			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay	Patricia McInnes	Athabasca Valley	Anzac
1	Formaldehyde	2	-	-	-	-
2	Isobutane	0.03	53.8	41.7	50.8	41
3	1-Butene	0.03	6.2	8.3	6.6	1.6
4	Acetaldehyde	0.2	49.2	45	42.6	50.8
5	Butane	0.03	55.4	65	63.9	49.2
6	Methanol	2	53.8	66.7	72.1	68.9
7	trans-2-Butene	0.03	1.5	1.7	1.6	-
8	cis-2-Butene	0.03	-	-	-	-
9	3-Methyl-1-butene	0.03	-	-	-	-
10	Isopentane	0.03	75.4	70	72.1	50.8
11	1-Pentene	0.03	-	-	-	1.6
12	Acetone	0.2	72.3	71.7	70.5	72.1
13	Pentane	0.03	41.5	40	29.5	32.8
14	Isoprene	0.03	26.2	18.3	24.6	23
15	trans-2-Pentene	0.03	-	-	-	-
16	cis-2-Pentene	0.03	-	-	1.6	-
17	2-Methyl-2-butene	0.03	-	-	3.3	-
18	2,2-Dimethylbutane	0.03	33.8	1.7	11.5	1.6
19	Cyclopentene	0.03	-	-	-	-
20	4-Methyl-1-pentene	0.03	-	-	-	-
21	2,3-Dimethylbutane	0.03	35.4	15	18	6.6
22	Cyclopentane	0.03	16.9	1.7	4.9	3.3
23	2-Methylpentane	0.03	50.8	31.7	31.1	21.3
24	3-Methylpentane	0.03	52.3	28.3	24.6	14.8
25	2-Methyl-1-pentene	0.03	-	-	1.6	-
26	Hexane	0.03	50.8	33.3	26.2	19.7
27	Methyl ethyl ketone	0.2	-	-	-	-
28	cis-2-Hexene	0.03	-	-	-	-
29	trans-2-Hexene	0.03	-	-	-	-
30	2,4-Dimethylpentane	0.03	-	5	1.6	-
31	Methylcyclopentane	0.03	26.2	23.3	19.7	11.5
32	Cyclohexane	0.03	32.3	5	9.8	8.2
33	Benzene	0.03	73.8	68.3	70.5	65.6
34	2-Methylhexane	0.03	15.4	11.7	6.6	1.6
35	2,3-Dimethylpentane	0.03	6.2	5	3.3	-
36	3-Methylhexane	0.03	30.8	16.7	13.1	9.8
37	2,2,4-Trimethylpentane	0.03	-	10	4.9	3.3
38	Heptane	0.03	53.8	28.3	18	6.6
39	Methylcyclohexane	0.03	40	23.3	18	16.4
40	Methyl isobutyl ketone	0.2	-	-	-	-
41	2,3,4-Trimethylpentane	0.03	1.5	-	3.3	-
42	2-Methylheptane	0.03	24.6	5	8.2	1.6
43	Toluene	0.03	84.6	80	72.1	72.1
44	3-Methylheptane	0.03	12.3	-	3.3	-
45	Octane	0.03	27.7	6.7	6.6	3.3
46	Ethyl benzene	0.03	33.8	13.3	13.1	4.9
47	m,p-Xylene	0.03	56.9	43.3	31.1	11.5
48	Styrene	0.03	3.1	-	-	-
49	Nonane	0.03	12.3	1.7	3.3	3.3
50	o-Xylene	0.03	36.9	23.3	13.1	14.8
51	Isopropylbenzene	0.03	4.6	-	1.6	-
52	alpha Pinene	0.03	61.5	38.3	31.1	41
53	n-Propylbenzene	0.03	1.5	-	1.6	-
54	1,3,5-Trimethylbenzene	0.03	1.5	-	1.6	-
55	beta Pinene	0.03	-	-	-	-
56	Decane	0.03	9.2	3.3	1.6	3.3
57	1,2,4-Trimethylbenzene	0.03	10.8	6.7	4.9	3.3
58	Undecane	0.03	1.5	1.7	1.6	1.6
59	Dodecane	0.03	-	1.7	-	1.6
60	Naphthalene	0.03	10.8	6.7	4.9	6.6



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

2013
Indicated Sites and Dates

#	Compound Name	MDL	Results - Total Times Sampled			
			AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing	Millennium Mine	Fort McKay South	CNRL Horizon
1	Formaldehyde	2	60	60	61	60
2	Isobutane	0.03	60	60	61	60
3	1-Butene	0.03	60	60	61	60
4	Acetaldehyde	0.2	60	60	61	60
5	Butane	0.03	60	60	61	60
6	Methanol	2	60	60	61	60
7	trans-2-Butene	0.03	60	60	61	60
8	cis-2-Butene	0.03	60	60	61	60
9	3-Methyl-1-butene	0.03	60	60	61	60
10	Isopentane	0.03	60	60	61	60
11	1-Pentene	0.03	60	60	61	60
12	Acetone	0.2	60	60	61	60
13	Pentane	0.03	60	60	61	60
14	Isoprene	0.03	60	60	61	60
15	trans-2-Pentene	0.03	60	60	61	60
16	cis-2-Pentene	0.03	60	60	61	60
17	2-Methyl-2-butene	0.03	60	60	61	60
18	2,2-Dimethylbutane	0.03	60	60	61	60
19	Cyclopentene	0.03	60	60	61	60
20	4-Methyl-1-pentene	0.03	60	60	61	60
21	2,3-Dimethylbutane	0.03	60	60	61	60
22	Cyclopentane	0.03	60	60	61	60
23	2-Methylpentane	0.03	60	60	61	60
24	3-Methylpentane	0.03	60	60	61	60
25	2-Methyl-1-pentene	0.03	60	60	61	60
26	Hexane	0.03	60	60	61	60
27	Methyl ethyl ketone	0.2	60	60	61	60
28	cis-2-Hexene	0.03	60	60	61	60
29	trans-2-Hexene	0.03	60	60	61	60
30	2,4-Dimethylpentane	0.03	60	60	61	60
31	Methylcyclopentane	0.03	60	60	61	60
32	Cyclohexane	0.03	60	60	61	60
33	Benzene	0.03	60	60	61	60
34	2-Methylhexane	0.03	60	60	61	60
35	2,3-Dimethylpentane	0.03	60	60	61	60
36	3-Methylhexane	0.03	60	60	61	60
37	2,2,4-Trimethylpentane	0.03	60	60	61	60
38	Heptane	0.03	60	60	61	60
39	Methylcyclohexane	0.03	60	60	61	60
40	Methyl isobutyl ketone	0.2	60	60	61	60
41	2,3,4-Trimethylpentane	0.03	60	60	61	60
42	2-Methylheptane	0.03	60	60	61	60
43	Toluene	0.03	60	60	61	60
44	3-Methylheptane	0.03	60	60	61	60
45	Octane	0.03	60	60	61	60
46	Ethyl benzene	0.03	60	60	61	60
47	m,p-Xylene	0.03	60	60	61	60
48	Styrene	0.03	60	60	61	60
49	Nonane	0.03	60	60	61	60
50	o-Xylene	0.03	60	60	61	60
51	Isopropylbenzene	0.03	60	60	61	60
52	alpha Pinene	0.03	60	60	61	60
53	n-Propylbenzene	0.03	60	60	61	60
54	1,3,5-Trimethylbenzene	0.03	60	60	61	60
55	beta Pinene	0.03	60	60	61	60
56	Decane	0.03	60	60	61	60
57	1,2,4-Trimethylbenzene	0.03	60	60	61	60
58	Undecane	0.03	60	60	61	60
59	Dodecane	0.03	60	60	61	60
60	Naphthalene	0.03	60	60	61	60



#	Compound Name	MDL	Results - Total Times Sampled			
			AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay	Patricia McInnes	Athabasca Valley	Anzac
1	Formaldehyde	2	65	60	61	61
2	Isobutane	0.03	65	60	61	61
3	1-Butene	0.03	65	60	61	61
4	Acetaldehyde	0.2	65	60	61	61
5	Butane	0.03	65	60	61	61
6	Methanol	2	65	60	61	61
7	trans-2-Butene	0.03	65	60	61	61
8	cis-2-Butene	0.03	65	60	61	61
9	3-Methyl-1-butene	0.03	65	60	61	61
10	Isopentane	0.03	65	60	61	61
11	1-Pentene	0.03	65	60	61	61
12	Acetone	0.2	65	60	61	61
13	Pentane	0.03	65	60	61	61
14	Isoprene	0.03	65	60	61	61
15	trans-2-Pentene	0.03	65	60	61	61
16	cis-2-Pentene	0.03	65	60	61	61
17	2-Methyl-2-butene	0.03	65	60	61	61
18	2,2-Dimethylbutane	0.03	65	60	61	61
19	Cyclopentene	0.03	65	60	61	61
20	4-Methyl-1-pentene	0.03	65	60	61	61
21	2,3-Dimethylbutane	0.03	65	60	61	61
22	Cyclopentane	0.03	65	60	61	61
23	2-Methylpentane	0.03	65	60	61	61
24	3-Methylpentane	0.03	65	60	61	61
25	2-Methyl-1-pentene	0.03	65	60	61	61
26	Hexane	0.03	65	60	61	61
27	Methyl ethyl ketone	0.2	65	60	61	61
28	cis-2-Hexene	0.03	65	60	61	61
29	trans-2-Hexene	0.03	65	60	61	61
30	2,4-Dimethylpentane	0.03	65	60	61	61
31	Methylcyclopentane	0.03	65	60	61	61
32	Cyclohexane	0.03	65	60	61	61
33	Benzene	0.03	65	60	61	61
34	2-Methylhexane	0.03	65	60	61	61
35	2,3-Dimethylpentane	0.03	65	60	61	61
36	3-Methylhexane	0.03	65	60	61	61
37	2,2,4-Trimethylpentane	0.03	65	60	61	61
38	Heptane	0.03	65	60	61	61
39	Methylcyclohexane	0.03	65	60	61	61
40	Methyl isobutyl ketone	0.2	65	60	61	61
41	2,3,4-Trimethylpentane	0.03	65	60	61	61
42	2-Methylheptane	0.03	65	60	61	61
43	Toluene	0.03	65	60	61	61
44	3-Methylheptane	0.03	65	60	61	61
45	Octane	0.03	65	60	61	61
46	Ethyl benzene	0.03	65	60	61	61
47	m,p-Xylene	0.03	65	60	61	61
48	Styrene	0.03	65	60	61	61
49	Nonane	0.03	65	60	61	61
50	o-Xylene	0.03	65	60	61	61
51	Isopropylbenzene	0.03	65	60	61	61
52	alpha Pinene	0.03	65	60	61	61
53	n-Propylbenzene	0.03	65	60	61	61
54	1,3,5-Trimethylbenzene	0.03	65	60	61	61
55	beta Pinene	0.03	65	60	61	61
56	Decane	0.03	65	60	61	61
57	1,2,4-Trimethylbenzene	0.03	65	60	61	61
58	Undecane	0.03	65	60	61	61
59	Dodecane	0.03	65	60	61	61
60	Naphthalene	0.03	65	60	61	61



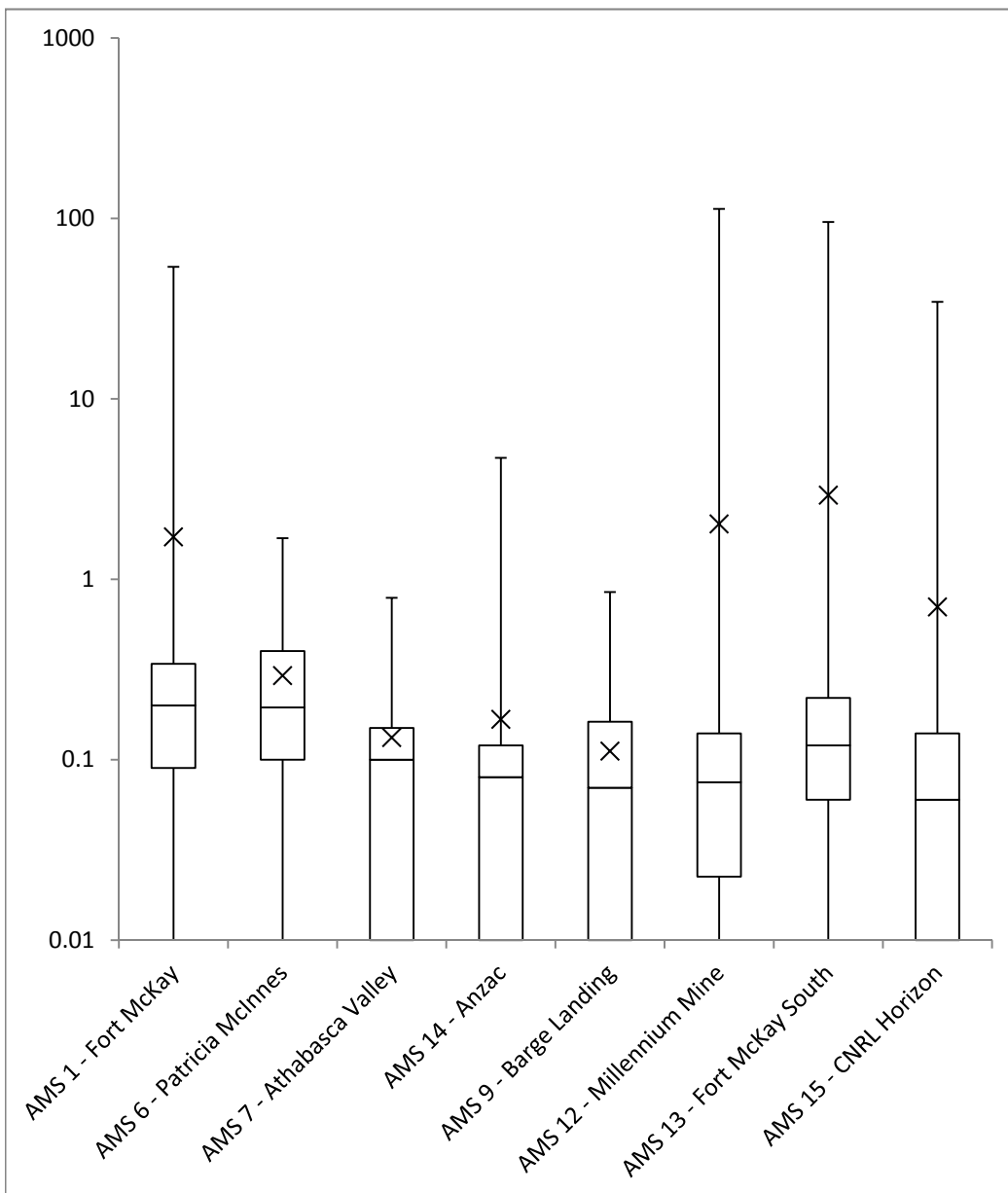
VOC Canisters			Results - Yearly Average (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay	Patricia McInnes	Athabasca Valley	Anzac
1	Formaldehyde	2	0	0	0	0
2	Isobutane	0.03	0.27	0.22	0.3	0.14
3	1-Butene	0.03	0.06	0.04	0.04	0.02
4	Acetaldehyde	0.2	3.2	3.09	2.7	3.56
5	Butane	0.03	0.8	0.77	0.92	0.5
6	Methanol	2	3.39	10.79	7.61	7.04
7	trans-2-Butene	0.03	0	0	0	0
8	cis-2-Butene	0.03	0	0	0	0
9	3-Methyl-1-butene	0.03	0	0	0	0
10	Isopentane	0.03	0.84	0.54	0.49	0.27
11	1-Pentene	0.03	0	0	0	0
12	Acetone	0.2	1.79	2.05	1.66	2.44
13	Pentane	0.03	0.73	0.43	0.3	0.24
14	Isoprene	0.03	0.22	0.09	0.13	0.09
15	trans-2-Pentene	0.03	0	0	0	0
16	cis-2-Pentene	0.03	0	0	0	0
17	2-Methyl-2-butene	0.03	0	0	0	0
18	2,2-Dimethylbutane	0.03	0.04	0	0.01	0.01
19	Cyclopentene	0.03	0	0	0	0
20	4-Methyl-1-pentene	0.03	0	0	0	0
21	2,3-Dimethylbutane	0.03	0.06	0.01	0.01	0.02
22	Cyclopentane	0.03	0.04	0.01	0	0.01
23	2-Methylpentane	0.03	0.2	0.05	0.04	0.11
24	3-Methylpentane	0.03	0.12	0.03	0.02	0.22
25	2-Methyl-1-pentene	0.03	0	0	0	0
26	Hexane	0.03	0.16	0.05	0.03	1.11
27	Methyl ethyl ketone	0.2	0	0	0	0
28	cis-2-Hexene	0.03	0	0	0	0
29	trans-2-Hexene	0.03	0	0	0	0
30	2,4-Dimethylpentane	0.03	0	0	0	0
31	Methylcyclopentane	0.03	0.03	0.01	0.02	0.24
32	Cyclohexane	0.03	0.12	0.03	0.01	0.03
33	Benzene	0.03	0.15	0.13	0.13	0.1
34	2-Methylhexane	0.03	0.02	0.01	0	0
35	2,3-Dimethylpentane	0.03	0.01	0.01	0	0
36	3-Methylhexane	0.03	0.05	0.04	0.02	0.01
37	2,2,4-Trimethylpentane	0.03	0	0.01	0.01	0
38	Heptane	0.03	0.19	0.05	0.05	0.02
39	Methylcyclohexane	0.03	0.1	0.04	0.03	0.03
40	Methyl isobutyl ketone	0.2	0	0	0	0
41	2,3,4-Trimethylpentane	0.03	0	0	0	0
42	2-Methylheptane	0.03	0.06	0.01	0.02	0
43	Toluene	0.03	1.76	0.29	0.13	0.17
44	3-Methylheptane	0.03	0.01	0	0	0
45	Octane	0.03	0.18	0.03	0.03	0.02
46	Ethyl benzene	0.03	0.06	0.03	0.03	0.01
47	m,p-Xylene	0.03	0.25	0.2	0.18	0.11
48	Styrene	0.03	0	0	0	0
49	Nonane	0.03	0.02	0.01	0	0.02
50	o-Xylene	0.03	0.09	0.06	0.04	0.04
51	Isopropylbenzene	0.03	0	0	0	0
52	alpha Pinene	0.03	0.16	0.06	0.04	0.1
53	n-Propylbenzene	0.03	0.01	0	0	0
54	1,3,5-Trimethylbenzene	0.03	0	0	0	0
55	beta Pinene	0.03	0	0	0	0
56	Decane	0.03	0.01	0.01	0	0.05
57	1,2,4-Trimethylbenzene	0.03	0.01	0.04	0.01	0.01
58	Undecane	0.03	0	0.03	0	0.02
59	Dodecane	0.03	0	0	0	0.01
60	Naphthalene	0.03	0.12	0.09	0.09	0.26



VOC Canisters			Results - Yearly Average (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing	Millennium Mine	Fort McKay South	CNRL Horizon
1	Formaldehyde	2	0	0	0	0
2	Isobutane	0.03	0.2	0.18	0.24	0.67
3	1-Butene	0.03	0.03	0.02	0.03	0.04
4	Acetaldehyde	0.2	3.32	2.99	3.76	4.01
5	Butane	0.03	0.52	0.49	0.66	0.87
6	Methanol	2	4.72	7.07	20.27	6.67
7	trans-2-Butene	0.03	0	0.01	0	0.01
8	cis-2-Butene	0.03	0	0	0	0.01
9	3-Methyl-1-butene	0.03	0	0	0	0
10	Isopentane	0.03	0.71	0.52	0.56	1.08
11	1-Pentene	0.03	0	0	0	0.01
12	Acetone	0.2	1.51	1.76	2.27	1.87
13	Pentane	0.03	0.79	0.56	0.53	0.52
14	Isoprene	0.03	0.1	0.12	0.23	0.1
15	trans-2-Pentene	0.03	0	0	0	0.02
16	cis-2-Pentene	0.03	0	0	0	0.01
17	2-Methyl-2-butene	0.03	0	0	0	0.02
18	2,2-Dimethylbutane	0.03	0.06	0.05	0.03	0.02
19	Cyclopentene	0.03	0	0	0.01	0
20	4-Methyl-1-pentene	0.03	0	0	0	0
21	2,3-Dimethylbutane	0.03	0.07	0.07	0.04	0.04
22	Cyclopentane	0.03	0.05	0.01	0.02	0.04
23	2-Methylpentane	0.03	0.29	0.07	0.14	0.12
24	3-Methylpentane	0.03	0.15	0.05	0.09	0.14
25	2-Methyl-1-pentene	0.03	0	0	0	0
26	Hexane	0.03	0.12	0.14	0.11	0.2
27	Methyl ethyl ketone	0.2	0	0	0.01	0.04
28	cis-2-Hexene	0.03	0	0	0	0
29	trans-2-Hexene	0.03	0	0	0	0
30	2,4-Dimethylpentane	0.03	0	0	0	0.01
31	Methylcyclopentane	0.03	0.02	0.05	0.03	0.08
32	Cyclohexane	0.03	0.02	0.04	0.05	0.23
33	Benzene	0.03	0.14	0.12	0.14	0.31
34	2-Methylhexane	0.03	0.01	0	0.01	0.01
35	2,3-Dimethylpentane	0.03	0	0.01	0.01	0.03
36	3-Methylhexane	0.03	0.02	0.03	0.03	0.05
37	2,2,4-Trimethylpentane	0.03	0	0	0.01	0.01
38	Heptane	0.03	0.05	0.06	0.09	0.08
39	Methylcyclohexane	0.03	0.05	0.05	0.05	0.1
40	Methyl isobutyl ketone	0.2	0	0	0	0
41	2,3,4-Trimethylpentane	0.03	0	0	0	0
42	2-Methylheptane	0.03	0.02	0.02	0.02	0.02
43	Toluene	0.03	0.11	2.03	2.93	0.7
44	3-Methylheptane	0.03	0	0.02	0.01	0
45	Octane	0.03	0.05	0.06	0.06	0.04
46	Ethyl benzene	0.03	0.02	0.03	0.07	0.02
47	m,p-Xylene	0.03	0.07	0.13	0.24	0.15
48	Styrene	0.03	0	0	0	0.02
49	Nonane	0.03	0.01	0.02	0.02	0.01
50	o-Xylene	0.03	0.03	0.06	0.11	0.03
51	Isopropylbenzene	0.03	0	0	0	0
52	alpha Pinene	0.03	0.11	0.09	0.23	0.14
53	n-Propylbenzene	0.03	0	0	0	0
54	1,3,5-Trimethylbenzene	0.03	0	0	0	0
55	beta Pinene	0.03	0.01	0	0.01	0.01
56	Decane	0.03	0	0.01	0.01	0
57	1,2,4-Trimethylbenzene	0.03	0	0	0.04	0
58	Undecane	0.03	0	0.05	0.01	0
59	Dodecane	0.03	0	0	0	0
60	Naphthalene	0.03	0.01	0.02	0.05	0



Toluene						Results (ppbv)	
Station	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.00	0.09	0.20	0.34	53.90	1.72	
AMS 6 - Patricia McInnes	0.00	0.10	0.19	0.40	1.69	0.29	
AMS 7 - Athabasca Valley	0.00	0.00	0.09	0.14	0.78	0.13	
AMS 14 - Anzac	0.00	0.00	0.07	0.11	4.70	0.17	
AMS 9 - Barge Landing	0.00	0.00	0.06	0.15	0.84	0.11	
AMS 12 - Millennium Mine	0.00	0.02	0.08	0.14	113.00	2.03	
AMS 13 - Fort McKay South	0.00	0.06	0.12	0.22	95.60	2.93	
AMS 15 - CNRL Horizon	0.00	0.00	0.05	0.13	34.50	0.70	

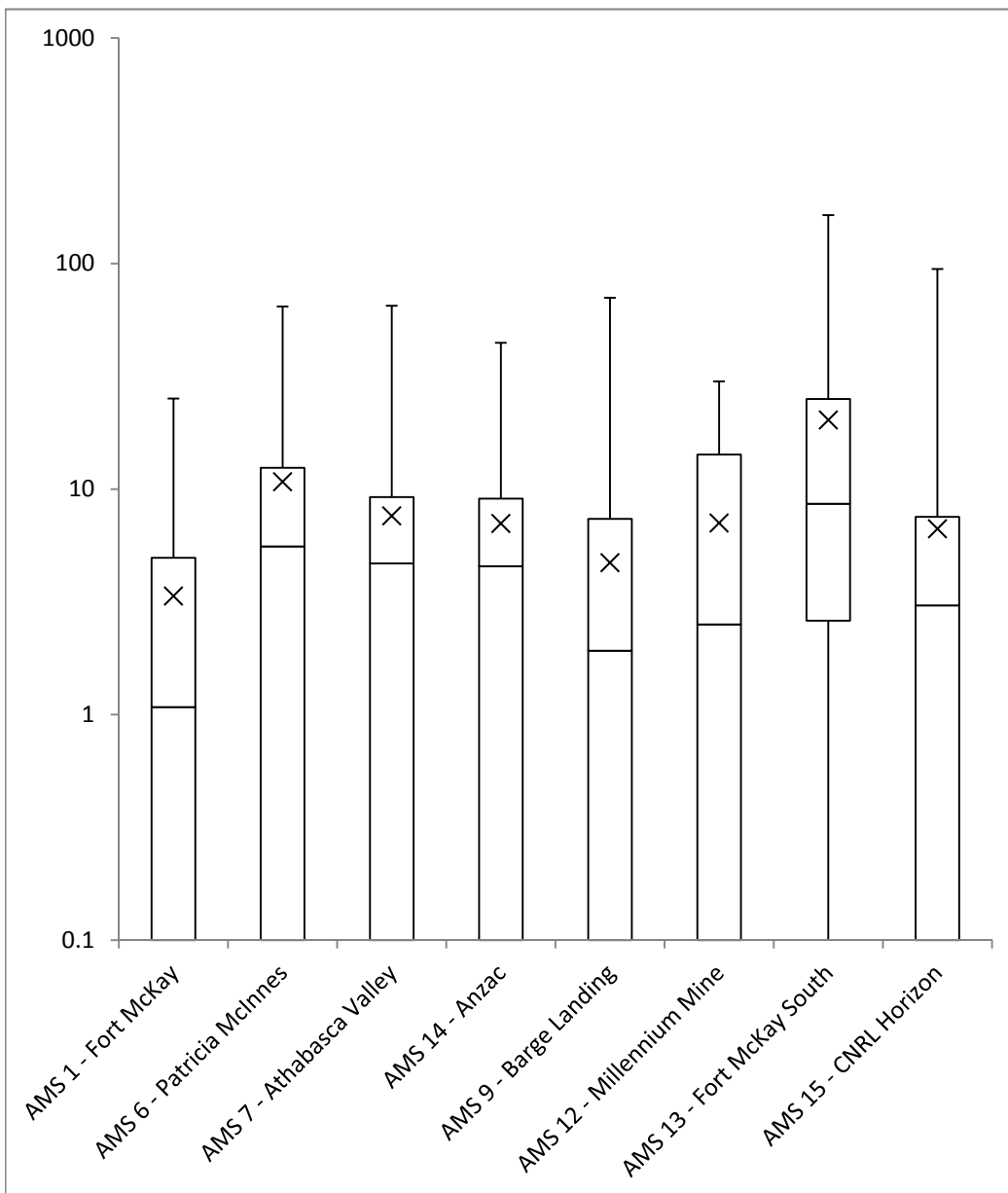




WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

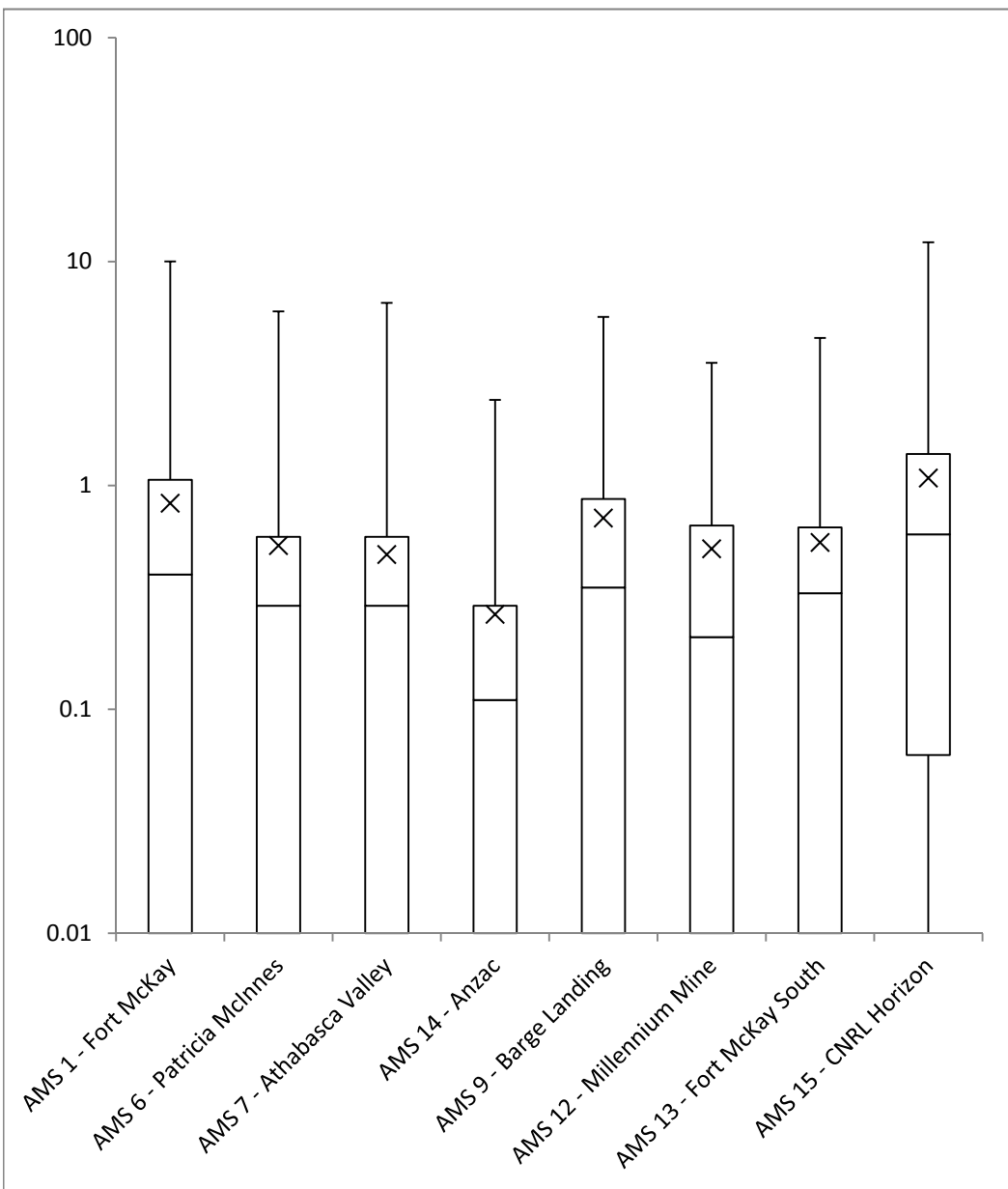
2013
Select Compound Summary

Methanol						Results (ppbv)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.98	4.86	25.10	3.36
AMS 6 - Patricia McInnes	0.00	0.00	5.47	12.32	64.40	10.78
AMS 7 - Athabasca Valley	0.00	0.00	4.58	9.11	64.90	7.61
AMS 14 - Anzac	0.00	0.00	4.45	8.97	44.40	7.04
AMS 9 - Barge Landing	0.00	0.00	1.82	7.27	70.40	4.72
AMS 12 - Millennium Mine	0.00	0.00	2.41	14.13	29.90	7.07
AMS 13 - Fort McKay South	0.00	2.61	8.61	25.10	164.00	20.27
AMS 15 - CNRL Horizon	0.00	0.00	2.95	7.43	94.50	6.67



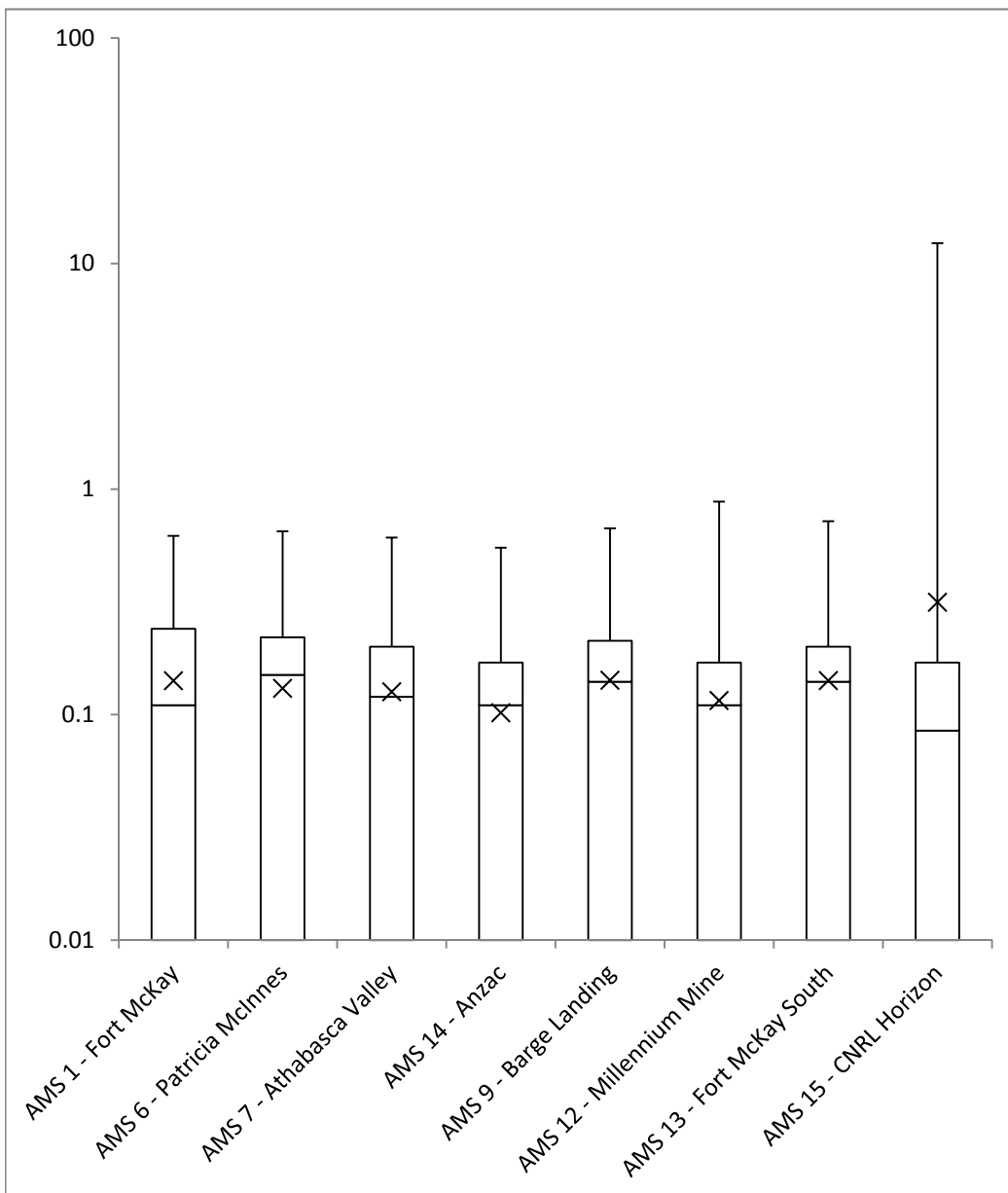


Isopentane						Results (ppbv)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.39	1.05	10.00	0.83
AMS 6 - Patricia McInnes	0.00	0.00	0.28	0.58	5.98	0.54
AMS 7 - Athabasca Valley	0.00	0.00	0.28	0.58	6.53	0.49
AMS 14 - Anzac	0.00	0.00	0.10	0.28	2.40	0.27
AMS 9 - Barge Landing	0.00	0.00	0.34	0.86	5.65	0.71
AMS 12 - Millennium Mine	0.00	0.00	0.20	0.65	3.52	0.52
AMS 13 - Fort McKay South	0.00	0.00	0.32	0.64	4.55	0.56
AMS 15 - CNRL Horizon	0.00	0.06	0.61	1.38	12.20	1.08



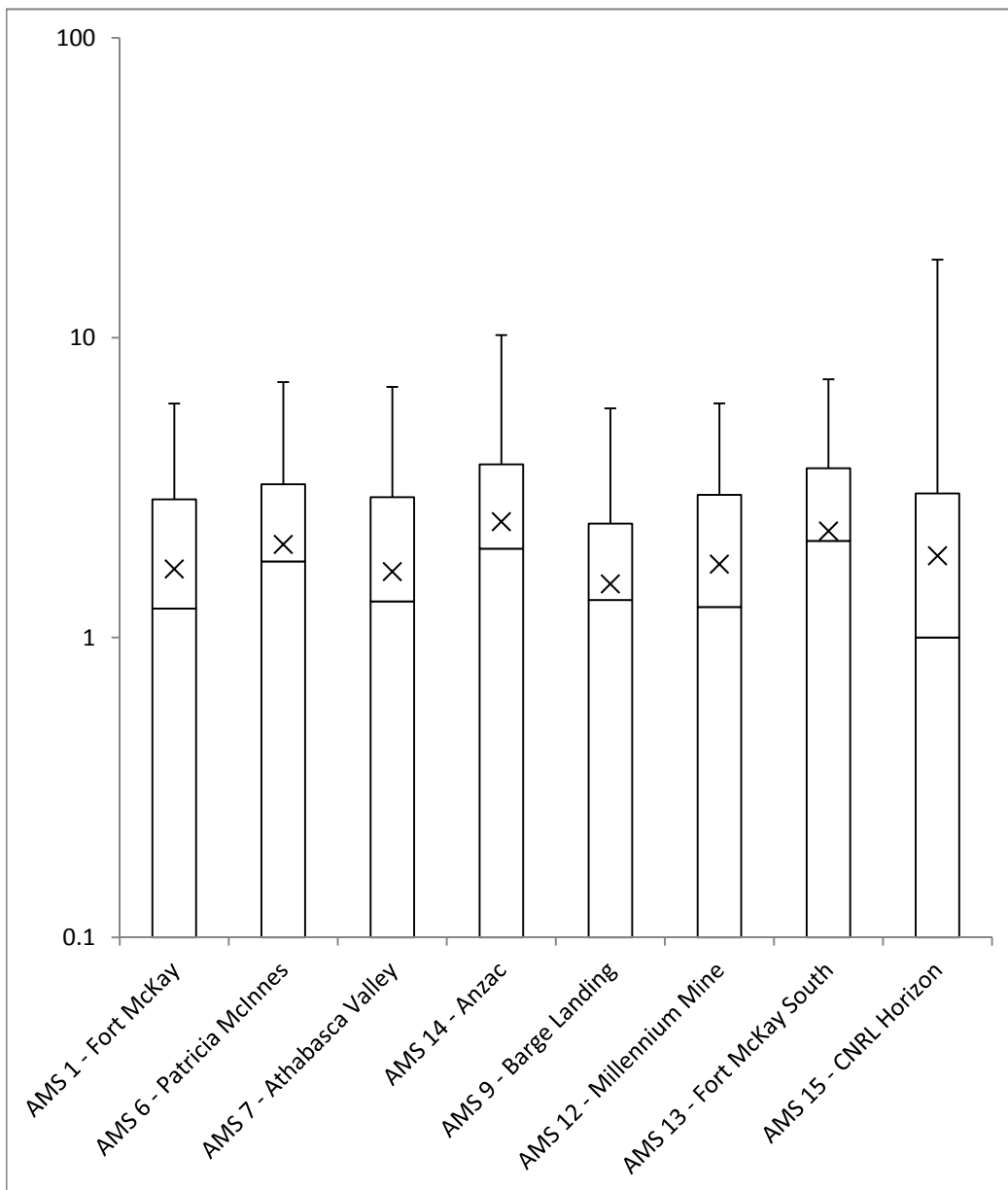


Benzene						Results (ppbv)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.10	0.23	0.61	0.14
AMS 6 - Patricia McInnes	0.00	0.00	0.14	0.21	0.64	0.13
AMS 7 - Athabasca Valley	0.00	0.00	0.11	0.19	0.60	0.13
AMS 14 - Anzac	0.00	0.00	0.10	0.16	0.54	0.10
AMS 9 - Barge Landing	0.00	0.00	0.13	0.20	0.66	0.14
AMS 12 - Millennium Mine	0.00	0.00	0.10	0.16	0.87	0.12
AMS 13 - Fort McKay South	0.00	0.00	0.13	0.19	0.71	0.14
AMS 15 - CNRL Horizon	0.00	0.00	0.08	0.16	12.30	0.31





Acetone						Results (ppbv)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	1.15	2.79	5.93	1.69
AMS 6 - Patricia McInnes	0.00	0.00	1.70	3.14	7.01	2.05
AMS 7 - Athabasca Valley	0.00	0.00	1.22	2.84	6.75	1.66
AMS 14 - Anzac	0.00	0.00	1.88	3.68	10.10	2.44
AMS 9 - Barge Landing	0.00	0.00	1.24	2.30	5.71	1.51
AMS 12 - Millennium Mine	0.00	0.00	1.16	2.89	5.94	1.76
AMS 13 - Fort McKay South	0.00	0.00	2.00	3.57	7.17	2.27
AMS 15 - CNRL Horizon	0.00	0.00	0.90	2.92	18.10	1.87

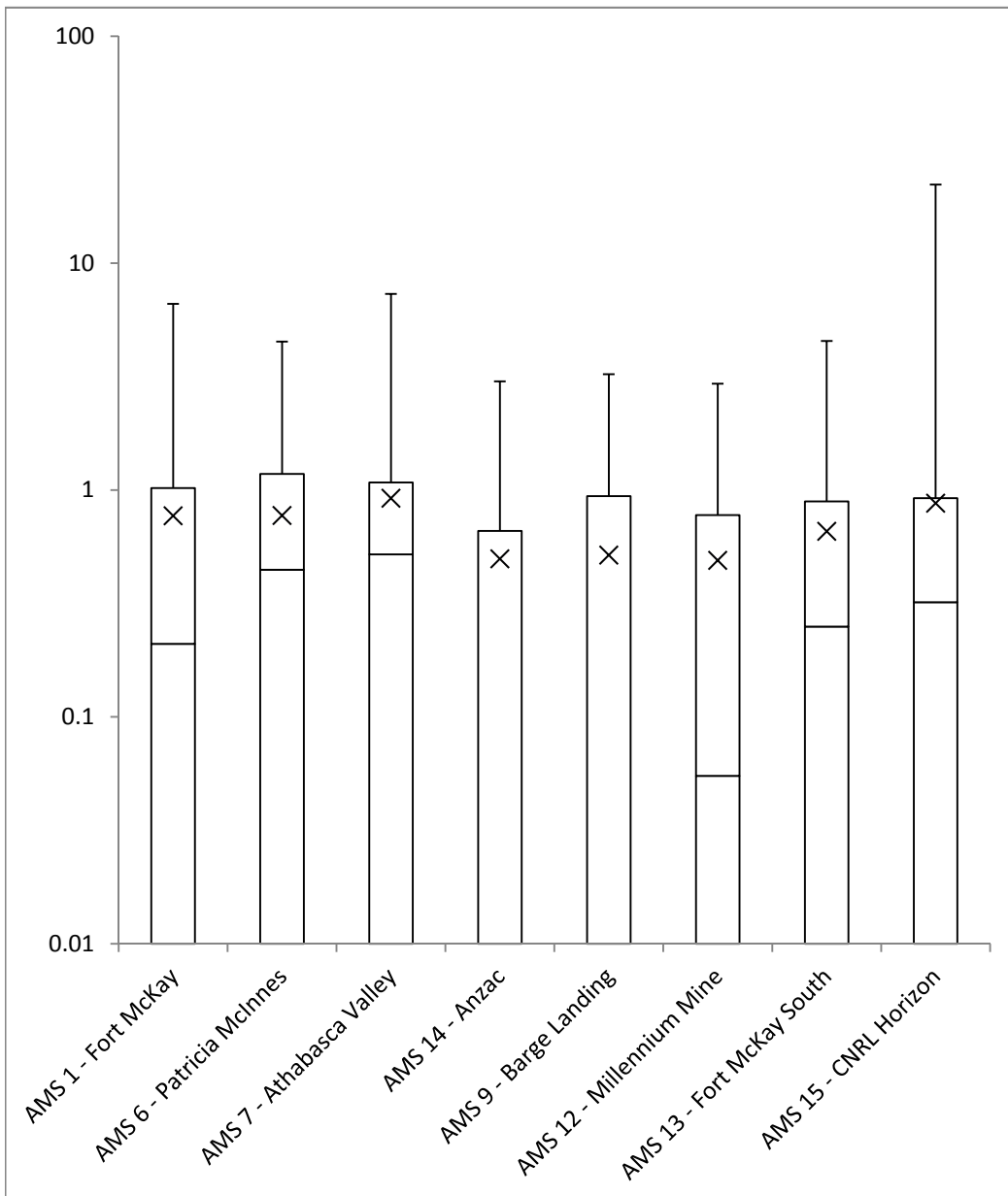




WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

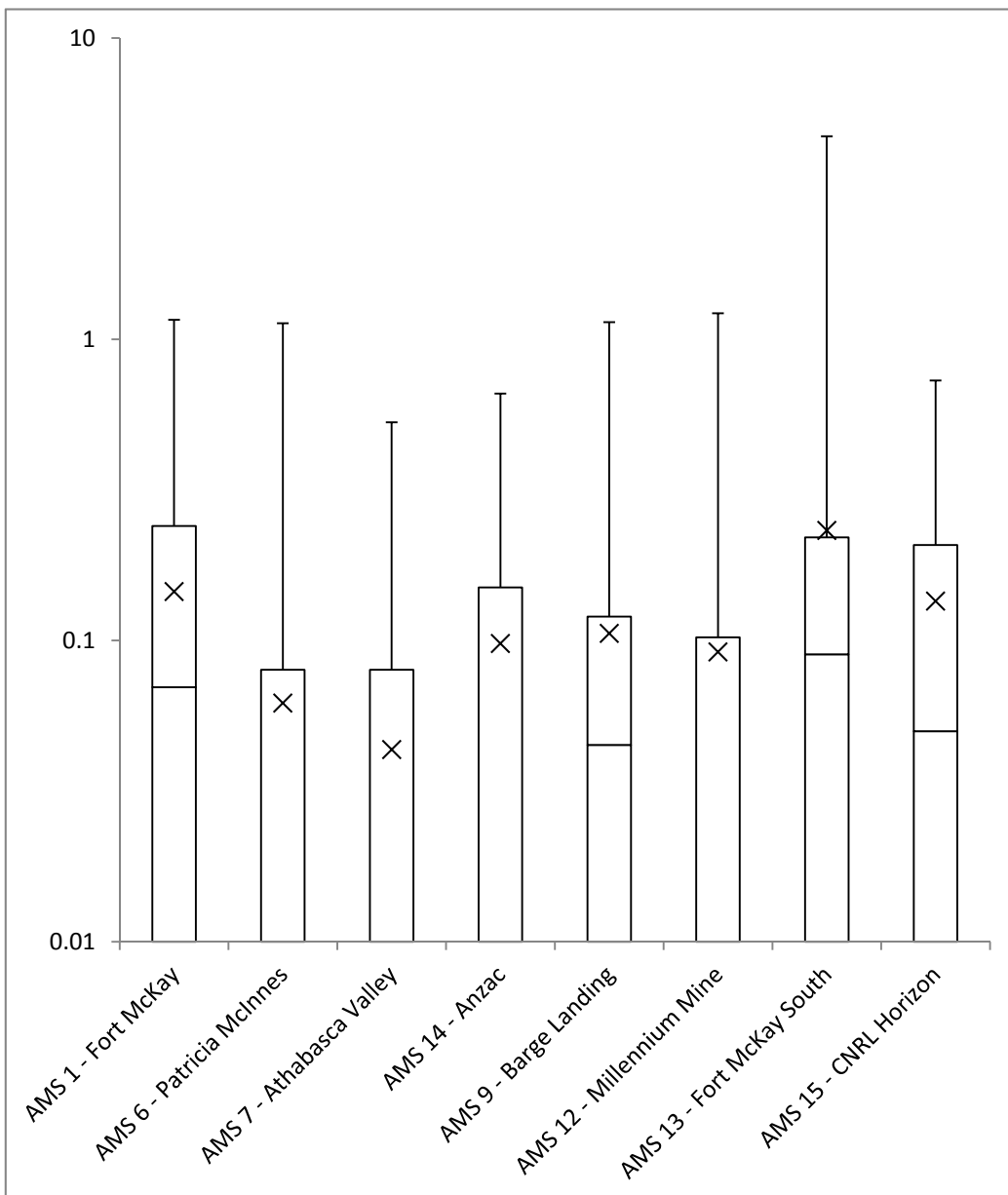
2013
Select Compound Summary

Butane						Results (ppbv)	
Station	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.00	0.00	0.20	1.01	6.60	0.77	
AMS 6 - Patricia McInnes	0.00	0.00	0.44	1.17	4.50	0.77	
AMS 7 - Athabasca Valley	0.00	0.00	0.51	1.07	7.31	0.92	
AMS 14 - Anzac	0.00	0.00	0.00	0.65	3.00	0.50	
AMS 9 - Barge Landing	0.00	0.00	0.00	0.93	3.23	0.52	
AMS 12 - Millennium Mine	0.00	0.00	0.05	0.76	2.93	0.49	
AMS 13 - Fort McKay South	0.00	0.00	0.24	0.88	4.53	0.66	
AMS 15 - CNRL Horizon	0.00	0.00	0.31	0.91	22.20	0.87	



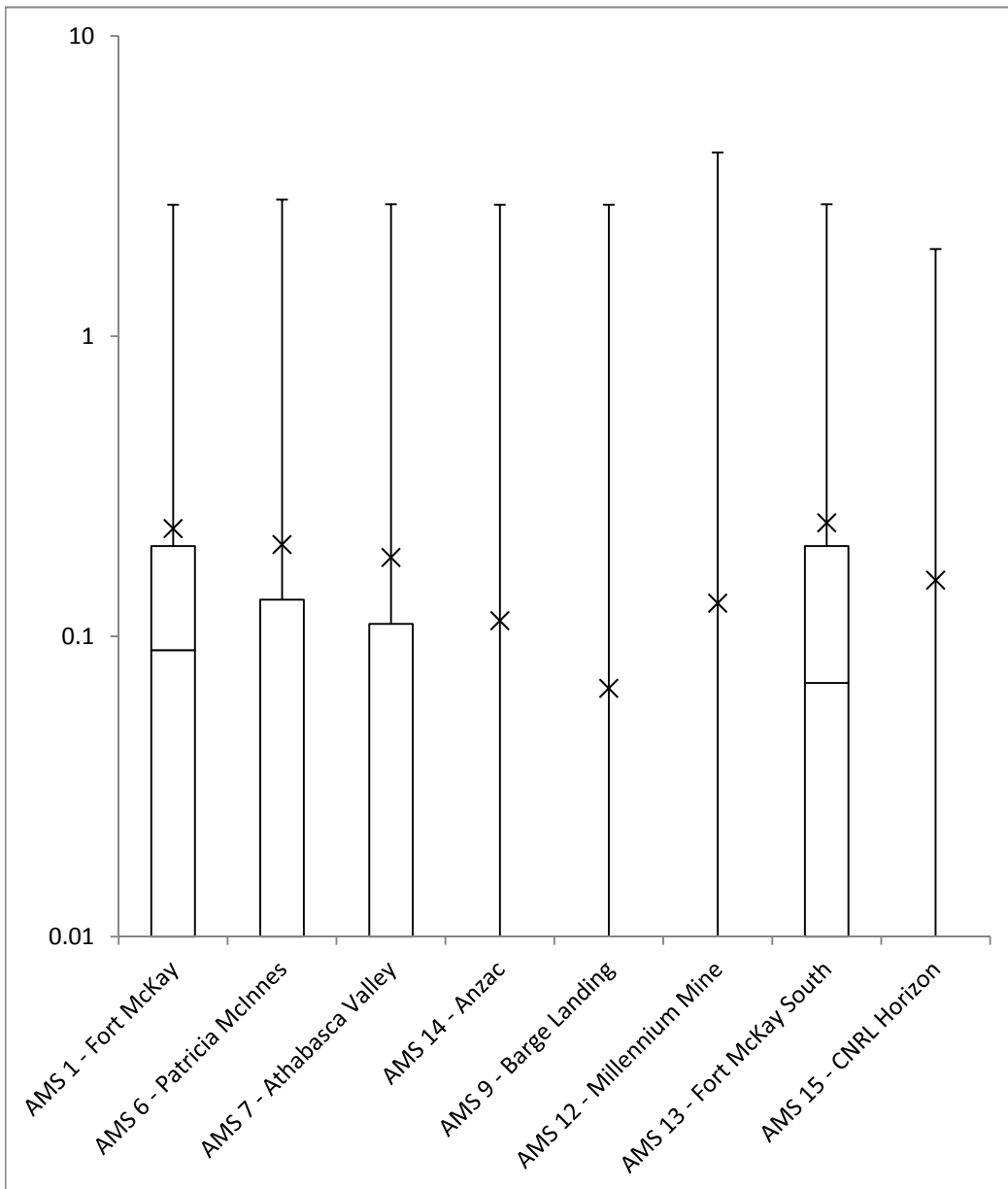


alpha Pinene						Results (ppbv)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.06	0.23	1.15	0.15
AMS 6 - Patricia McInnes	0.00	0.00	0.00	0.07	1.12	0.06
AMS 7 - Athabasca Valley	0.00	0.00	0.00	0.07	0.52	0.04
AMS 14 - Anzac	0.00	0.00	0.00	0.14	0.65	0.10
AMS 9 - Barge Landing	0.00	0.00	0.04	0.11	1.13	0.11
AMS 12 - Millennium Mine	0.00	0.00	0.00	0.09	1.21	0.09
AMS 13 - Fort McKay South	0.00	0.00	0.08	0.21	4.71	0.23
AMS 15 - CNRL Horizon	0.00	0.00	0.04	0.20	0.72	0.14



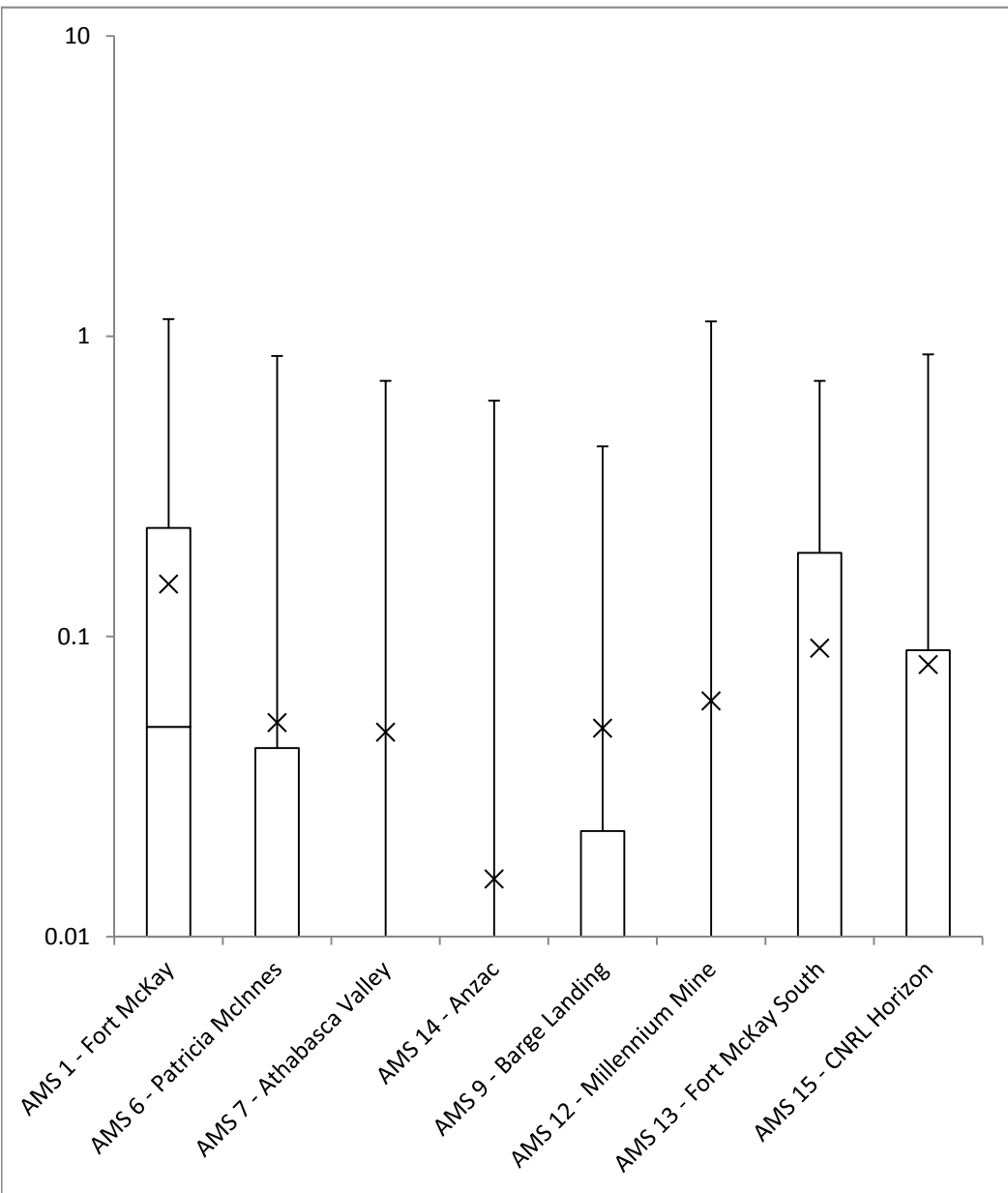


m,p-Xylene					Results (ppbv)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.08	0.19	2.73	0.23
AMS 6 - Patricia McInnes	0.00	0.00	0.00	0.12	2.84	0.20
AMS 7 - Athabasca Valley	0.00	0.00	0.00	0.10	2.74	0.18
AMS 14 - Anzac	0.00	0.00	0.00	0.00	2.73	0.11
AMS 9 - Barge Landing	0.00	0.00	0.00	0.00	2.73	0.07
AMS 12 - Millennium Mine	0.00	0.00	0.00	0.00	4.08	0.13
AMS 13 - Fort McKay South	0.00	0.00	0.06	0.19	2.74	0.24
AMS 15 - CNRL Horizon	0.00	0.00	0.00	0.00	1.94	0.15





Heptane						Results (ppbv)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.04	0.22	1.13	0.15
AMS 6 - Patricia McInnes	0.00	0.00	0.00	0.03	0.85	0.05
AMS 7 - Athabasca Valley	0.00	0.00	0.00	0.00	0.70	0.05
AMS 14 - Anzac	0.00	0.00	0.00	0.00	0.60	0.02
AMS 9 - Barge Landing	0.00	0.00	0.00	0.01	0.42	0.05
AMS 12 - Millennium Mine	0.00	0.00	0.00	0.00	1.11	0.06
AMS 13 - Fort McKay South	0.00	0.00	0.00	0.18	0.70	0.09
AMS 15 - CNRL Horizon	0.00	0.00	0.00	0.08	0.86	0.08

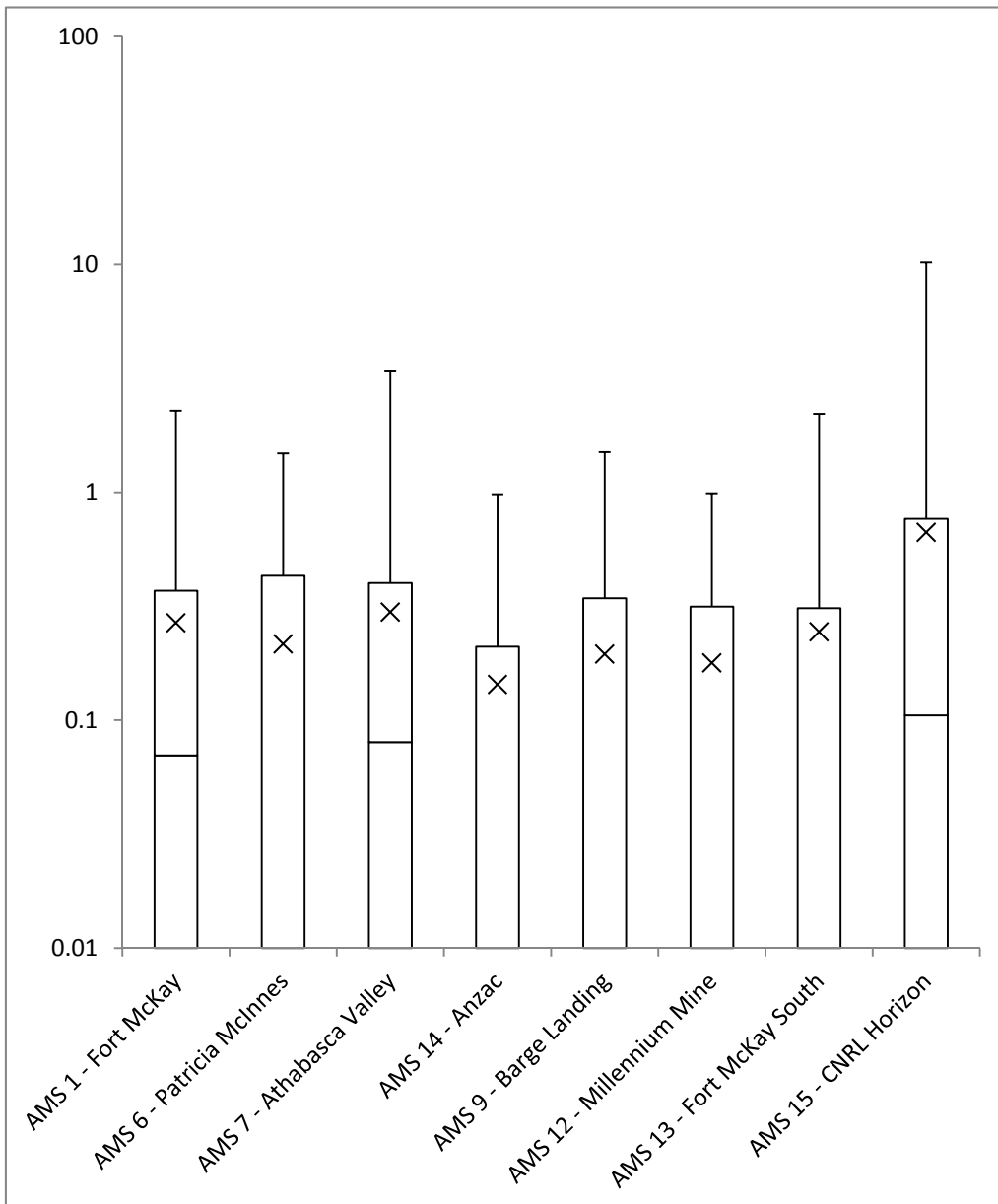




WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Volatile Organic Compounds (VOCs)

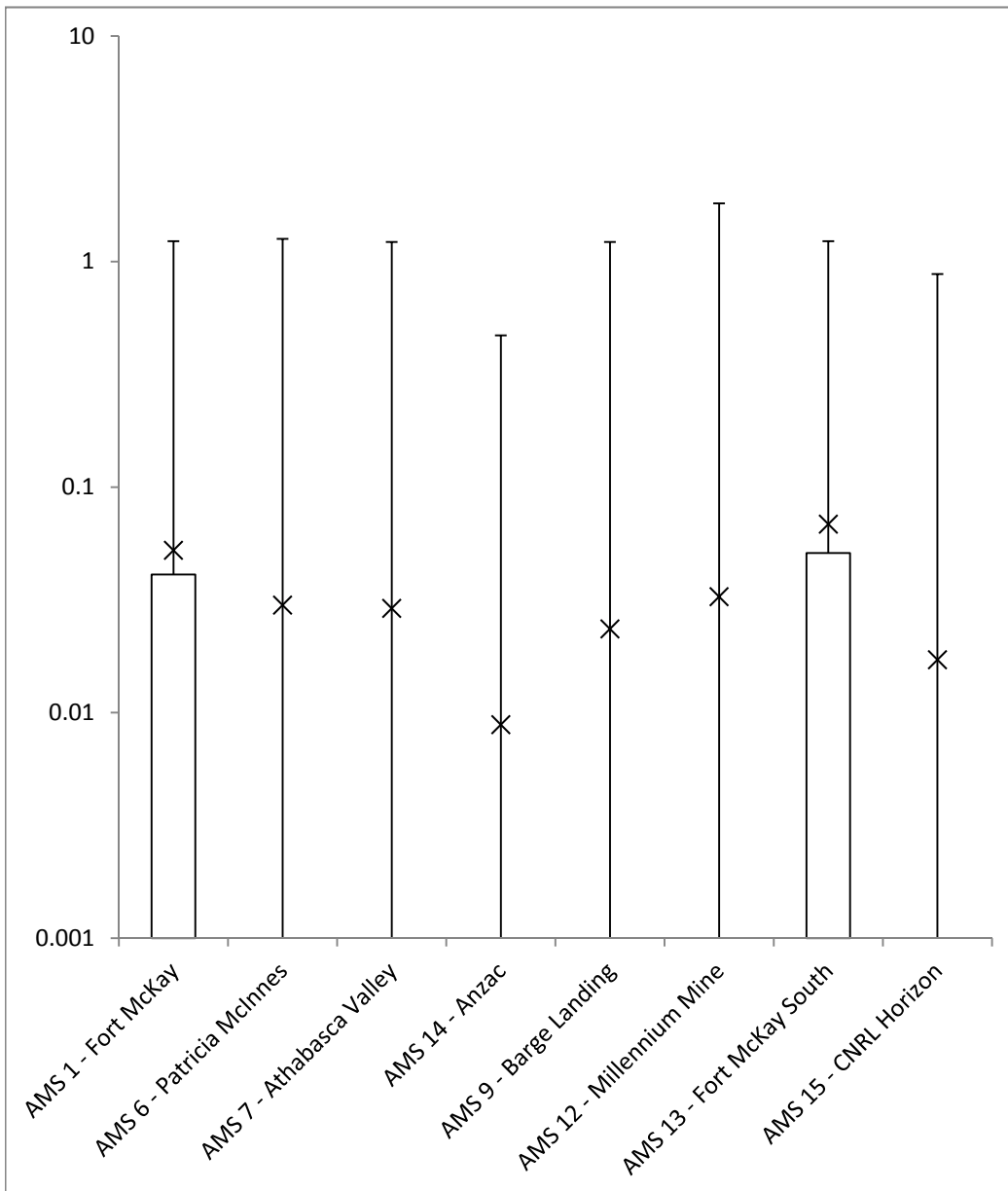
2013
Select Compound Summary

Isobutane						Results (ppbv)	
Station	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.00	0.00	0.06	0.36	2.27	0.27	
AMS 6 - Patricia McInnes	0.00	0.00	0.00	0.42	1.47	0.22	
AMS 7 - Athabasca Valley	0.00	0.00	0.07	0.39	3.38	0.30	
AMS 14 - Anzac	0.00	0.00	0.00	0.20	0.97	0.14	
AMS 9 - Barge Landing	0.00	0.00	0.00	0.33	1.49	0.20	
AMS 12 - Millennium Mine	0.00	0.00	0.00	0.31	0.98	0.18	
AMS 13 - Fort McKay South	0.00	0.00	0.00	0.30	2.20	0.24	
AMS 15 - CNRL Horizon	0.00	0.00	0.09	0.75	10.20	0.67	



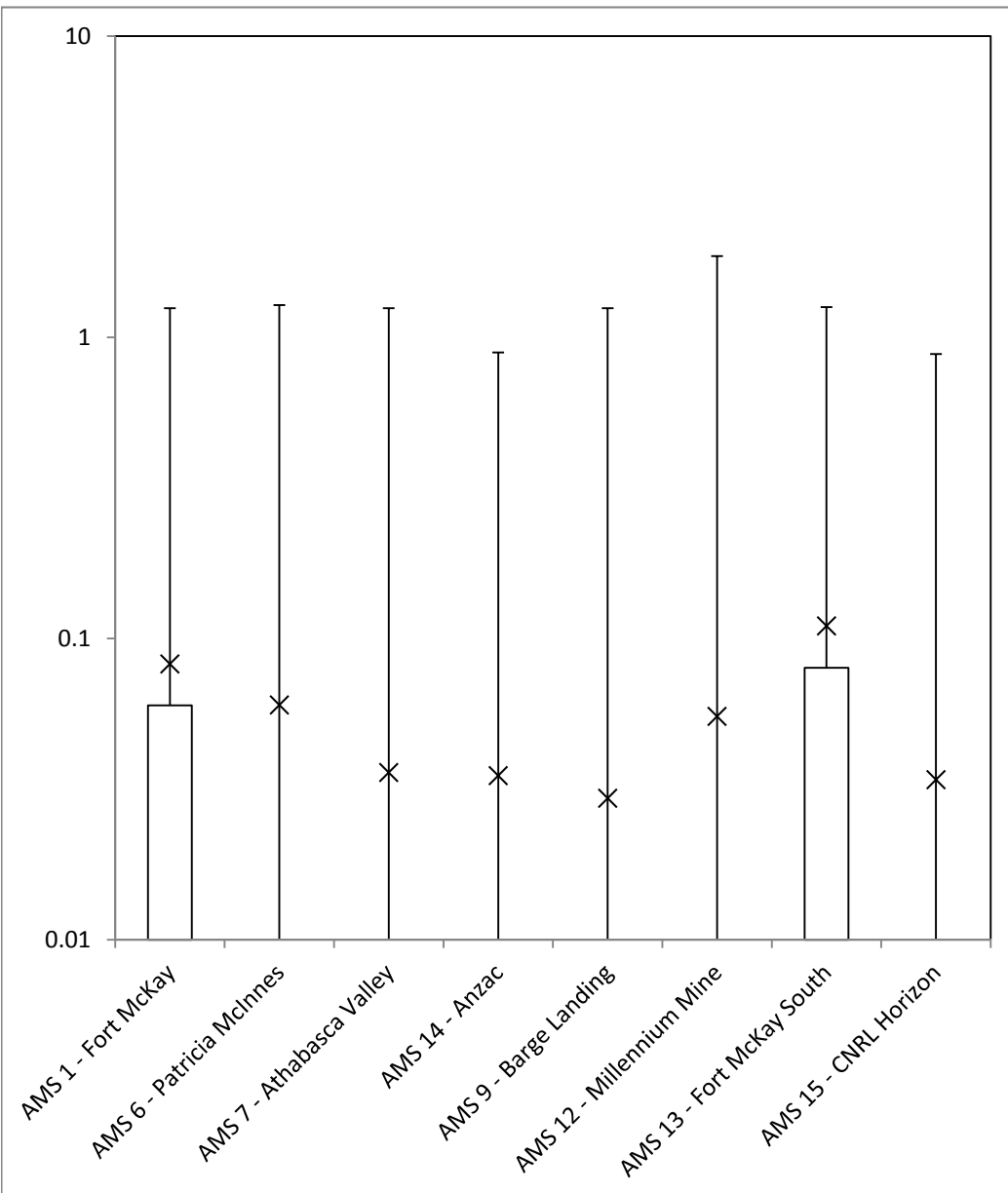


Ethyl benzene					Results (ppbv)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.00	0.00	0.00	0.04	1.23	0.05
AMS 6 - Patricia McInnes	0.00	0.00	0.00	0.00	1.26	0.03
AMS 7 - Athabasca Valley	0.00	0.00	0.00	0.00	1.22	0.03
AMS 14 - Anzac	0.00	0.00	0.00	0.00	0.47	0.01
AMS 9 - Barge Landing	0.00	0.00	0.00	0.00	1.22	0.02
AMS 12 - Millennium Mine	0.00	0.00	0.00	0.00	1.81	0.03
AMS 13 - Fort McKay South	0.00	0.00	0.00	0.05	1.23	0.07
AMS 15 - CNRL Horizon	0.00	0.00	0.00	0.00	0.88	0.02





Station	o-Xylene						Results (ppbv)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.00	0.00	0.00	0.05	1.24	0.08		
AMS 6 - Patricia McInnes	0.00	0.00	0.00	0.00	1.27	0.06		
AMS 7 - Athabasca Valley	0.00	0.00	0.00	0.00	1.24	0.04		
AMS 14 - Anzac	0.00	0.00	0.00	0.00	0.88	0.04		
AMS 9 - Barge Landing	0.00	0.00	0.00	0.00	1.24	0.03		
AMS 12 - Millennium Mine	0.00	0.00	0.00	0.00	1.85	0.06		
AMS 13 - Fort McKay South	0.00	0.00	0.00	0.07	1.25	0.11		
AMS 15 - CNRL Horizon	0.00	0.00	0.00	0.00	0.87	0.03		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Reduced Sulphur Compounds: Alberta Innovates - Technology Futures
Vegreville, Alberta

DATA SUMMARY

Aurora Atmospheric Inc.
Calgary, Alberta

This page intentionally left blank



RSC Canisters			Results (ppbv)		
#	Compound Name	MDL	AMS 9	AMS 13	AMS 15
			Barge Landing 04-Jan	Syncrude UE 1 04-Jan	CNRL Horizon 04-Jan
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1	0.6	0.5	0.5
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 04-Jan	Patricia McInnes 04-Jan	Athabasca Valley 04-Jan	Anzac 04-Jan
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.7	0.5	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.6			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 10-Jan	AMS 12 Millennium Mine 10-Jan	AMS 13 Syncrude UE 1 10-Jan	AMS 15 CNRL Horizon 10-Jan
#	Compound Name	MDL				
1	Hydrogen sulphide	1	2			
2	Carbonyl sulphide	1	0.7	0.7	0.7	0.4
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.5			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1	0.2			
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 10-Jan	Patricia McInnes 10-Jan	Athabasca Valley 10-Jan	Anzac 10-Jan
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9	0.8	0.9	0.4
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.6		0.6	
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 16-Jan	Millennium Mine 16-Jan	Syncrude UE 1 16-Jan	CNRL Horizon 16-Jan
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.8	0.9	0.9	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1	0.2			
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 16-Jan	Patricia McInnes 16-Jan	Athabasca Valley 16-Jan	Anzac 16-Jan
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.7	0.6	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.6			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 22-Jan	Millennium Mine 22-Jan	Syncrude UE 1 22-Jan	CNRL Horizon 22-Jan
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	1	0.6	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 22-Jan	AMS 6 Patricia McInnes 22-Jan	AMS 7 Athabasca Valley 22-Jan	AMS 14 Anzac 22-Jan
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.5	0.5	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.5			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 28-Jan	Millennium Mine 28-Jan	Syncrude UE 1 28-Jan	CNRL Horizon 28-Jan
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.6	0.4	0.4
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 28-Jan	AMS 6 Patricia McInnes 28-Jan	AMS 7 Athabasca Valley 28-Jan	AMS 14 Anzac 28-Jan
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.6	0.6	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.4			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 03-Feb	AMS 12 Millennium Mine 03-Feb	AMS 13 Syncrude UE 1 03-Feb	AMS 15 CNRL Horizon 03-Feb
#	Compound Name	MDL				
1	Hydrogen sulphide	1			0.6	
2	Carbonyl sulphide	1	0.5	0.5	0.9	0.7
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 03-Feb	Patricia McInnes 03-Feb	Athabasca Valley 03-Feb	Anzac 03-Feb
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.5	0.6	0.4
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 09-Feb	Millennium Mine 09-Feb	Syncrude UE 1 09-Feb	CNRL Horizon 09-Feb
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.6	0.7	0.9	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 09-Feb	Patricia McInnes 09-Feb	Athabasca Valley 09-Feb	Anzac 09-Feb
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9	0.6	0.7	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2			0.1
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 15-Feb	Millennium Mine 15-Feb	Syncrude UE 1 15-Feb	CNRL Horizon 15-Feb
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9	0.6	0.7	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.1			0.1
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 15-Feb	AMS 6 Patricia McInnes 15-Feb	AMS 7 Athabasca Valley 15-Feb	AMS 14 Anzac 15-Feb
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.8	0.5	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.4			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 21-Feb	Millennium Mine 21-Feb	Syncrude UE 1 21-Feb	CNRL Horizon 21-Feb
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.4	1	0.3
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 21-Feb	AMS 6 Patricia McInnes 21-Feb	AMS 7 Athabasca Valley 21-Feb	AMS 14 Anzac 21-Feb
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.4	0.4	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 27-Feb	AMS 6 Patricia McInnes 27-Feb	AMS 7 Athabasca Valley 27-Feb	AMS 14 Anzac 27-Feb
#	Compound Name	MDL				
1	Hydrogen sulphide	1	0.7			
2	Carbonyl sulphide	1	0.9	0.5	0.6	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 27-Feb	AMS 12 Millennium Mine 27-Feb	AMS 13 Syncrude UE 1 27-Feb	AMS 15 CNRL Horizon 27-Feb
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.7	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)		
			AMS 9 Barge Landing 05-Mar	AMS 12 Millennium Mine 05-Mar	AMS 13 Syncrude UE 1 05-Mar
#	Compound Name	MDL			
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1	0.6	0.6	0.8
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 05-Mar	Patricia McInnes 05-Mar	Athabasca Valley 05-Mar	Anzac 05-Mar
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.6	0.8	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 11-Mar	Millennium Mine 11-Mar	Syncrude UE 1 11-Mar	CNRL Horizon 11-Mar
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.6	0.8	0.8	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 11-Mar	AMS 6 Patricia McInnes 11-Mar	AMS 7 Athabasca Valley 11-Mar	AMS 14 Anzac 11-Mar
#	Compound Name	MDL				
1	Hydrogen sulphide	1		0.4		
2	Carbonyl sulphide	1	1	0.3	0.4	0.7
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 17-Mar	AMS 12 Millennium Mine 17-Mar	AMS 13 Syncrude UE 1 17-Mar	AMS 15 CNRL Horizon 17-Mar
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.2	0.2	0.1	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 17-Mar	Patricia McInnes 17-Mar	Athabasca Valley 17-Mar	Anzac 17-Mar
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.8		0.8	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.5			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 23-Mar	AMS 12 Millennium Mine 23-Mar	AMS 13 Syncrude UE 1 23-Mar	AMS 15 CNRL Horizon 23-Mar
#	Compound Name	MDL				
1	Hydrogen sulphide	1		0.5		
2	Carbonyl sulphide	1		0.9	0.7	
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 23-Mar	AMS 6 Patricia McInnes 23-Mar	AMS 7 Athabasca Valley 23-Mar	AMS 14 Anzac 23-Mar
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.7	1	0.5	0.2
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.4			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 29-Mar	Millennium Mine 29-Mar	Syncrude UE 1 29-Mar	CNRL Horizon 29-Mar
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.3	0.3	0.1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 29-Mar	Patricia McInnes 29-Mar	Athabasca Valley 29-Mar	Anzac 29-Mar
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	2	0.7	0.9	0.2
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 04-Apr	Millennium Mine 04-Apr	Syncrude UE 1 04-Apr	CNRL Horizon 04-Apr
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.3	0.4	0.4	0.2
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 04-Apr	AMS 6 Patricia McInnes 04-Apr	AMS 7 Athabasca Valley 04-Apr	AMS 14 Anzac 04-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.7	0.2	0.4	0.2
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 10-Apr	Millennium Mine 10-Apr	Syncrude UE 1 10-Apr	CNRL Horizon 10-Apr
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.3		0.4	0.2
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 10-Apr	AMS 6 Patricia McInnes 10-Apr	AMS 7 Athabasca Valley 10-Apr	AMS 14 Anzac 10-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1		0.4		0.3
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 16-Apr	AMS 12 Millennium Mine 16-Apr	AMS 13 Syncrude UE 1 16-Apr	AMS 15 CNRL Horizon 16-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1		1	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 16-Apr	AMS 6 Patricia McInnes 16-Apr	AMS 7 Athabasca Valley 16-Apr	AMS 14 Anzac 16-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1	0.2			
2	Carbonyl sulphide	1	1	0.9		
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 22-Apr	AMS 12 Millennium Mine 22-Apr	AMS 13 Syncrude UE 1 22-Apr	AMS 15 CNRL Horizon 22-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	1	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 22-Apr	AMS 6 Patricia McInnes 22-Apr	AMS 7 Athabasca Valley 22-Apr	AMS 14 Anzac 22-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	1	1	0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3		0.2	
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 28-Apr	AMS 12 Millennium Mine 28-Apr	AMS 13 Syncrude UE 1 28-Apr	AMS 15 CNRL Horizon 28-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1	0.9			
2	Carbonyl sulphide	1	1	0.8	1	
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 28-Apr	AMS 6 Patricia McInnes 28-Apr	AMS 7 Athabasca Valley 28-Apr	AMS 14 Anzac 28-Apr
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	2	2		0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.6	0.3		
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)
			AMS 1
			Fort McKay
#	Compound Name	MDL	03-May
1	Hydrogen sulphide	1	
2	Carbonyl sulphide	1	0.8
3	Methyl mercaptan	1	
4	Ethyl mercaptan	1	
5	Dimethyl sulphide	1	
6	Carbon disulphide	1	
7	Isopropyl mercaptan	1	
8	tert-Butyl mercaptan	1	
9	Propyl mercaptan	1	
10.1	Thiophene	1	
10.2	Isobutyl mercaptan	1	
10.3	sec-Butyl mercaptan	1	
11	Ethyl sulphide	1	
12	Butyl mercaptan	1	
13	tert-Pentyl mercaptan	1	
14	Dimethyl disulphide	1	
15	2-methyl Thiophene	1	
16	3-methyl Thiophene	1	
17	Pentyl mercaptan	1	
18	2-ethyl Thiophene	1	
19	Allyl sulphide	1	
20	2,5-dimethyl Thiophene	1	



RSC Canisters			Results (ppbv)		
			AMS 9 Barge Landing 04-May	AMS 12 Millennium Mine 04-May	AMS 13 Syncrude UE 1 04-May
#	Compound Name	MDL			
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1	0.6	1	
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1	0.3		
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 04-May	Patricia McInnes 04-May	Athabasca Valley 04-May	Anzac 04-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1		1	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 10-May	Millennium Mine 10-May	Syncrude UE 1 10-May	CNRL Horizon 10-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.9	1	0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 10-May	Patricia McInnes 10-May	Athabasca Valley 10-May	Anzac 10-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	1	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.2	0.2		
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 16-May	Millennium Mine 16-May	Syncrude UE 1 16-May	CNRL Horizon 16-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	1		1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 16-May	Patricia McInnes 16-May	Athabasca Valley 16-May	Anzac 16-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	2	1	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.5			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 22-May	Millennium Mine 22-May	Syncrude UE 1 22-May	CNRL Horizon 22-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.8	1	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1			0.1	0.4
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 22-May	Patricia McInnes 22-May	Athabasca Valley 22-May	Anzac 22-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	2	1	0.9	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.5	0.1		
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 28-May	Millennium Mine 28-May	Syncrude UE 1 28-May	CNRL Horizon 28-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9	0.7	0.4	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 28-May	Patricia McInnes 28-May	Athabasca Valley 28-May	Anzac 28-May
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.4	0.7	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1			0.5	
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 03-Jun	AMS 12 Millennium Mine 03-Jun	AMS 13 Syncrude UE 1 03-Jun	AMS 15 CNRL Horizon 03-Jun
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.6	0.7	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1		0.6		
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 03-Jun	AMS 6 Patricia McInnes 03-Jun	AMS 7 Athabasca Valley 03-Jun	AMS 14 Anzac 03-Jun
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.5	0.6	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 09-Jun	Millennium Mine 09-Jun	Syncrude UE 1 09-Jun	CNRL Horizon 09-Jun
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.3		0.8	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 09-Jun	AMS 6 Patricia McInnes 09-Jun	AMS 7 Athabasca Valley 09-Jun	AMS 14 Anzac 09-Jun
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9	0.3	0.2	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 15-Jun	Millennium Mine 15-Jun	Syncrude UE 1 15-Jun	CNRL Horizon 15-Jun
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.3	0.4	0.2	0.4
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 15-Jun	AMS 6 Patricia McInnes 15-Jun	AMS 7 Athabasca Valley 15-Jun	AMS 14 Anzac 15-Jun
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.8	0.2		0.3
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	1			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 21-Jun	Millennium Mine 21-Jun	Syncrude UE 1 21-Jun	CNRL Horizon 21-Jun
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.7	0.9	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.1		0.1	0.1
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 21-Jun	Patricia McInnes 21-Jun	Athabasca Valley 21-Jun	Anzac 21-Jun
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	2	1	1	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3		0.1	0.1
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 27-Jun	Millennium Mine 27-Jun	Syncrude UE 1 27-Jun	CNRL Horizon 27-Jun
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.7	0.5	0.6	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 27-Jun	Patricia McInnes 27-Jun	Athabasca Valley 27-Jun	Anzac 27-Jun
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.8	0.8	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.3			
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9	AMS 12	AMS 13	AMS 15
#	Compound Name	MDL	Barge Landing	Millennium Mine	Syncrude UE 1	CNRL Horizon
			03-Jul	03-Jul	03-Jul	03-Jul
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 03-Jul	AMS 6 Patricia McInnes 03-Jul	AMS 7 Athabasca Valley 03-Jul	AMS 14 Anzac 03-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 09-Jul	AMS 12 Millennium Mine 09-Jul	AMS 13 Syncrude UE 1 09-Jul	AMS 15 CNRL Horizon 09-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.2	0.1		
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 09-Jul	AMS 6 Patricia McInnes 09-Jul	AMS 7 Athabasca Valley 09-Jul	AMS 14 Anzac 09-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.1			
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1	0.1	0.2		
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 15-Jul	AMS 12 Millennium Mine 15-Jul	AMS 13 Syncrude UE 1 15-Jul	AMS 15 CNRL Horizon 15-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 15-Jul	AMS 6 Patricia McInnes 15-Jul	AMS 7 Athabasca Valley 15-Jul	AMS 14 Anzac 15-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 21-Jul	AMS 12 Millennium Mine 21-Jul	AMS 13 Syncrude UE 1 21-Jul	AMS 15 CNRL Horizon 21-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 21-Jul	AMS 6 Patricia McInnes 21-Jul	AMS 7 Athabasca Valley 21-Jul	AMS 14 Anzac 21-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 27-Jul	AMS 12 Millennium Mine 27-Jul	AMS 13 Syncrude UE 1 27-Jul	AMS 15 CNRL Horizon 27-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 27-Jul	AMS 6 Patricia McInnes 27-Jul	AMS 7 Athabasca Valley 27-Jul	AMS 14 Anzac 27-Jul
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 02-Aug	AMS 12 Millennium Mine 02-Aug	AMS 13 Syncrude UE 1 02-Aug	AMS 15 CNRL Horizon 02-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 02-Aug	AMS 6 Patricia McInnes 02-Aug	AMS 7 Athabasca Valley 02-Aug	AMS 14 Anzac 02-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1			0.8	
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 08-Aug	AMS 12 Millennium Mine 08-Aug	AMS 13 Syncrude UE 1 08-Aug	AMS 15 CNRL Horizon 08-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 08-Aug	AMS 6 Patricia McInnes 08-Aug	AMS 7 Athabasca Valley 08-Aug	AMS 14 Anzac 08-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)		
#	Compound Name	MDL	AMS 9	AMS 13	AMS 15
			Barge Landing 14-Aug	Syncrude UE 1 14-Aug	CNRL Horizon 14-Aug
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1	1	1	2
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 14-Aug	Patricia McInnes 14-Aug	Athabasca Valley 14-Aug	Anzac 14-Aug
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.8	2	0.4	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 20-Aug	AMS 12 Millennium Mine 20-Aug	AMS 13 Syncrude UE 1 20-Aug	AMS 15 CNRL Horizon 20-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 20-Aug	AMS 6 Patricia McInnes 20-Aug	AMS 7 Athabasca Valley 20-Aug	AMS 14 Anzac 20-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 26-Aug	AMS 6 Patricia McInnes 26-Aug	AMS 7 Athabasca Valley 26-Aug	AMS 14 Anzac 26-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 26-Aug	AMS 12 Millennium Mine 26-Aug	AMS 13 Syncrude UE 1 26-Aug	AMS 15 CNRL Horizon 26-Aug
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1		0.6		0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 01-Sep	AMS 12 Millennium Mine 01-Sep	AMS 13 Syncrude UE 1 01-Sep	AMS 15 CNRL Horizon 01-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 01-Sep	AMS 6 Patricia McInnes 01-Sep	AMS 7 Athabasca Valley 01-Sep	AMS 14 Anzac 01-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 07-Sep	AMS 12 Millennium Mine 07-Sep	AMS 13 Syncrude UE 1 07-Sep	AMS 15 CNRL Horizon 07-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 07-Sep	AMS 6 Patricia McInnes 07-Sep	AMS 7 Athabasca Valley 07-Sep	AMS 14 Anzac 07-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)
#	Compound Name	MDL	AMS 1 Fort McKay 12-Sep
1	Hydrogen sulphide	1	
2	Carbonyl sulphide	1	1
3	Methyl mercaptan	1	
4	Ethyl mercaptan	1	
5	Dimethyl sulphide	1	
6	Carbon disulphide	1	
7	Isopropyl mercaptan	1	
8	tert-Butyl mercaptan	1	
9	Propyl mercaptan	1	
10.1	Thiophene	1	
10.2	Isobutyl mercaptan	1	
10.3	sec-Butyl mercaptan	1	
11	Ethyl sulphide	1	
12	Butyl mercaptan	1	
13	tert-Pentyl mercaptan	1	
14	Dimethyl disulphide	1	
15	2-methyl Thiophene	1	
16	3-methyl Thiophene	1	
17	Pentyl mercaptan	1	
18	2-ethyl Thiophene	1	
19	Allyl sulphide	1	
20	2,5-dimethyl Thiophene	1	



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 13-Sep	AMS 12 Millennium Mine 13-Sep	AMS 13 Syncrude UE 1 13-Sep	AMS 15 CNRL Horizon 13-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 13-Sep	AMS 6 Patricia McInnes 13-Sep	AMS 7 Athabasca Valley 13-Sep	AMS 14 Anzac 13-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 19-Sep	AMS 12 Millennium Mine 19-Sep	AMS 13 Syncrude UE 1 19-Sep	AMS 15 CNRL Horizon 19-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 19-Sep	AMS 6 Patricia McInnes 19-Sep	AMS 7 Athabasca Valley 19-Sep	AMS 14 Anzac 19-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1			2	
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 25-Sep	AMS 12 Millennium Mine 25-Sep	AMS 13 Syncrude UE 1 25-Sep	AMS 15 CNRL Horizon 25-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 25-Sep	AMS 6 Patricia McInnes 25-Sep	AMS 7 Athabasca Valley 25-Sep	AMS 14 Anzac 25-Sep
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 01-Oct	AMS 12 Millennium Mine 01-Oct	AMS 13 Syncrude UE 1 01-Oct	AMS 15 CNRL Horizon 01-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 01-Oct	AMS 6 Patricia McInnes 01-Oct	AMS 7 Athabasca Valley 01-Oct	AMS 14 Anzac 01-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 07-Oct	AMS 12 Millennium Mine 07-Oct	AMS 13 Syncrude UE 1 07-Oct	AMS 15 CNRL Horizon 07-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 07-Oct	AMS 6 Patricia McInnes 07-Oct	AMS 7 Athabasca Valley 07-Oct	AMS 14 Anzac 07-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 13-Oct	AMS 12 Millennium Mine 13-Oct	AMS 13 Syncrude UE 1 13-Oct	AMS 15 CNRL Horizon 13-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)		
#	Compound Name	MDL	AMS 1	AMS 6	AMS 14
			Fort McKay 13-Oct	Patricia McInnes 13-Oct	Anzac 13-Oct
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1			
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)
			AMS 7
			Athabasca Valley
			15-Oct
#	Compound Name	MDL	
1	Hydrogen sulphide	1	
2	Carbonyl sulphide	1	
3	Methyl mercaptan	1	
4	Ethyl mercaptan	1	
5	Dimethyl sulphide	1	
6	Carbon disulphide	1	
7	Isopropyl mercaptan	1	
8	tert-Butyl mercaptan	1	
9	Propyl mercaptan	1	
10.1	Thiophene	1	
10.2	Isobutyl mercaptan	1	
10.3	sec-Butyl mercaptan	1	
11	Ethyl sulphide	1	
12	Butyl mercaptan	1	
13	tert-Pentyl mercaptan	1	
14	Dimethyl disulphide	1	
15	2-methyl Thiophene	1	
16	3-methyl Thiophene	1	
17	Pentyl mercaptan	1	
18	2-ethyl Thiophene	1	
19	Allyl sulphide	1	
20	2,5-dimethyl Thiophene	1	



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 19-Oct	AMS 12 Millennium Mine 19-Oct	AMS 13 Syncrude UE 1 19-Oct	AMS 15 CNRL Horizon 19-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 19-Oct	AMS 6 Patricia McInnes 19-Oct	AMS 7 Athabasca Valley 19-Oct	AMS 14 Anzac 19-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 25-Oct	AMS 12 Millennium Mine 25-Oct	AMS 13 Syncrude UE 1 25-Oct	AMS 15 CNRL Horizon 25-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters	#	Compound Name	MDL	Results (ppbv)			
				AMS 1 Fort McKay 25-Oct	AMS 6 Patricia McInnes 25-Oct	AMS 7 Athabasca Valley 25-Oct	AMS 14 Anzac 25-Oct
	1	Hydrogen sulphide	1				
	2	Carbonyl sulphide	1				
	3	Methyl mercaptan	1				
	4	Ethyl mercaptan	1				
	5	Dimethyl sulphide	1				
	6	Carbon disulphide	1				
	7	Isopropyl mercaptan	1				
	8	tert-Butyl mercaptan	1				
	9	Propyl mercaptan	1				
	10.1	Thiophene	1				
	10.2	Isobutyl mercaptan	1				
	10.3	sec-Butyl mercaptan	1				
	11	Ethyl sulphide	1				
	12	Butyl mercaptan	1				
	13	tert-Pentyl mercaptan	1				
	14	Dimethyl disulphide	1				
	15	2-methyl Thiophene	1				
	16	3-methyl Thiophene	1				
	17	Pentyl mercaptan	1				
	18	2-ethyl Thiophene	1				
	19	Allyl sulphide	1				
	20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 31-Oct	Millennium Mine 31-Oct	Syncrude UE 1 31-Oct	CNRL Horizon 31-Oct
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 31-Oct	AMS 6 Patricia McInnes 31-Oct	AMS 7 Athabasca Valley 31-Oct	AMS 14 Anzac 31-Oct
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9	1		
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 06-Nov	AMS 12 Millennium Mine 06-Nov	AMS 13 Syncrude UE 1 06-Nov	AMS 15 CNRL Horizon 06-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.7	0.8	0.8	0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 06-Nov	AMS 6 Patricia McInnes 06-Nov	AMS 7 Athabasca Valley 06-Nov	AMS 14 Anzac 06-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1		1	0.9	0.9
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 12-Nov	Millennium Mine 12-Nov	Syncrude UE 1 12-Nov	CNRL Horizon 12-Nov
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.6	0.5	0.6
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)		
			AMS 1 Fort McKay 12-Nov	AMS 6 Patricia McInnes 12-Nov	AMS 14 Anzac 12-Nov
#	Compound Name	MDL			
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1	0.8	0.5	0.9
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)
#	Compound Name	MDL	AMS 7 Athabasca Valley 13-Nov
1	Hydrogen sulphide	1	
2	Carbonyl sulphide	1	0.9
3	Methyl mercaptan	1	
4	Ethyl mercaptan	1	
5	Dimethyl sulphide	1	
6	Carbon disulphide	1	
7	Isopropyl mercaptan	1	
8	tert-Butyl mercaptan	1	
9	Propyl mercaptan	1	
10.1	Thiophene	1	
10.2	Isobutyl mercaptan	1	
10.3	sec-Butyl mercaptan	1	
11	Ethyl sulphide	1	
12	Butyl mercaptan	1	
13	tert-Pentyl mercaptan	1	
14	Dimethyl disulphide	1	
15	2-methyl Thiophene	1	
16	3-methyl Thiophene	1	
17	Pentyl mercaptan	1	
18	2-ethyl Thiophene	1	
19	Allyl sulphide	1	
20	2,5-dimethyl Thiophene	1	



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 18-Nov	Millennium Mine 18-Nov	Syncrude UE 1 18-Nov	CNRL Horizon 18-Nov
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.9		0.8	0.5
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 18-Nov	AMS 6 Patricia McInnes 18-Nov	AMS 7 Athabasca Valley 18-Nov	AMS 14 Anzac 18-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1	0.5	0.5		
2	Carbonyl sulphide	1	0.7	0.3		
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 24-Nov	AMS 12 Millennium Mine 24-Nov	AMS 13 Syncrude UE 1 24-Nov	AMS 15 CNRL Horizon 24-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 24-Nov	AMS 6 Patricia McInnes 24-Nov	AMS 7 Athabasca Valley 24-Nov	AMS 14 Anzac 24-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1		0.9	0.6	
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 30-Nov	AMS 12 Millennium Mine 30-Nov	AMS 13 Syncrude UE 1 30-Nov	AMS 15 CNRL Horizon 30-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1				
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 30-Nov	AMS 6 Patricia McInnes 30-Nov	AMS 7 Athabasca Valley 30-Nov	AMS 14 Anzac 30-Nov
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.6			
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)		
#	Compound Name	MDL	AMS 12	AMS 13	AMS 15
			Millennium Mine 06-Dec	Syncrude UE 1 06-Dec	CNRL Horizon 06-Dec
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1			
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)		
			AMS 1 Fort McKay 06-Dec	AMS 7 Athabasca Valley 06-Dec	AMS 14 Anzac 06-Dec
#	Compound Name	MDL			
1	Hydrogen sulphide	1			
2	Carbonyl sulphide	1			
3	Methyl mercaptan	1			
4	Ethyl mercaptan	1			
5	Dimethyl sulphide	1			
6	Carbon disulphide	1			
7	Isopropyl mercaptan	1			
8	tert-Butyl mercaptan	1			
9	Propyl mercaptan	1			
10.1	Thiophene	1			
10.2	Isobutyl mercaptan	1			
10.3	sec-Butyl mercaptan	1			
11	Ethyl sulphide	1			
12	Butyl mercaptan	1			
13	tert-Pentyl mercaptan	1			
14	Dimethyl disulphide	1			
15	2-methyl Thiophene	1			
16	3-methyl Thiophene	1			
17	Pentyl mercaptan	1			
18	2-ethyl Thiophene	1			
19	Allyl sulphide	1			
20	2,5-dimethyl Thiophene	1			



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 12-Dec	AMS 12 Millennium Mine 12-Dec	AMS 13 Syncrude UE 1 12-Dec	AMS 15 CNRL Horizon 12-Dec
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1		0.2		0.3
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 12-Dec	Patricia McInnes 12-Dec	Athabasca Valley 12-Dec	Anzac 12-Dec
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.5	0.4	0.1	0.4
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 18-Dec	Millennium Mine 18-Dec	Syncrude UE 1 18-Dec	CNRL Horizon 18-Dec
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	0.7	0.4	0.7	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 18-Dec	Patricia McInnes 18-Dec	Athabasca Valley 18-Dec	Anzac 18-Dec
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	1	0.6	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 9 Barge Landing 24-Dec	AMS 12 Millennium Mine 24-Dec	AMS 13 Syncrude UE 1 24-Dec	AMS 15 CNRL Horizon 24-Dec
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	1	0.7	1
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
			AMS 1 Fort McKay 24-Dec	AMS 6 Patricia McInnes 24-Dec	AMS 7 Athabasca Valley 24-Dec	AMS 14 Anzac 24-Dec
#	Compound Name	MDL				
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1		0.8	2
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing 30-Dec	Millennium Mine 30-Dec	Syncrude UE 1 30-Dec	CNRL Horizon 30-Dec
1	Hydrogen sulphide	1				
2	Carbonyl sulphide	1	1	0.7	0.9	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results (ppbv)			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay 30-Dec	Patricia McInnes 30-Dec	Athabasca Valley 30-Dec	Anzac 30-Dec
1	Hydrogen sulphide	1				0.7
2	Carbonyl sulphide	1	0.8	0.5	0.5	0.8
3	Methyl mercaptan	1				
4	Ethyl mercaptan	1				
5	Dimethyl sulphide	1				
6	Carbon disulphide	1				
7	Isopropyl mercaptan	1				
8	tert-Butyl mercaptan	1				
9	Propyl mercaptan	1				
10.1	Thiophene	1				
10.2	Isobutyl mercaptan	1				
10.3	sec-Butyl mercaptan	1				
11	Ethyl sulphide	1				
12	Butyl mercaptan	1				
13	tert-Pentyl mercaptan	1				
14	Dimethyl disulphide	1				
15	2-methyl Thiophene	1				
16	3-methyl Thiophene	1				
17	Pentyl mercaptan	1				
18	2-ethyl Thiophene	1				
19	Allyl sulphide	1				
20	2,5-dimethyl Thiophene	1				



RSC Canisters			Results - Percentage of Samples Detected > 0			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing	Millennium Mine	Syncrude UE 1	CNRL Horizon
1	Hydrogen sulphide	1	3.3	1.7	1.6	-
2	Carbonyl sulphide	1	61.7	57.6	57.4	61
3	Methyl mercaptan	1	-	-	-	-
4	Ethyl mercaptan	1	-	-	-	-
5	Dimethyl sulphide	1	-	-	-	-
6	Carbon disulphide	1	10	1.7	3.3	5.1
7	Isopropyl mercaptan	1	-	-	-	-
8	tert-Butyl mercaptan	1	1.7	-	-	-
9	Propyl mercaptan	1	-	-	-	-
10.1	Thiophene	1	-	-	-	-
10.2	Isobutyl mercaptan	1	-	-	-	-
10.3	sec-Butyl mercaptan	1	-	-	-	-
11	Ethyl sulphide	1	-	-	-	-
12	Butyl mercaptan	1	-	-	-	-
13	tert-Pentyl mercaptan	1	-	-	-	-
14	Dimethyl disulphide	1	3.3	-	-	-
15	2-methyl Thiophene	1	-	-	-	-
16	3-methyl Thiophene	1	-	-	-	-
17	Pentyl mercaptan	1	-	-	-	-
18	2-ethyl Thiophene	1	-	-	-	-
19	Allyl sulphide	1	-	-	-	-
20	2,5-dimethyl Thiophene	1	-	-	-	-



RSC Canisters			Results - Percentage of Samples Detected > 0			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay	Patricia McInnes	Athabasca Valley	Anzac
1	Hydrogen sulphide	1	4.6	3.3	-	1.6
2	Carbonyl sulphide	1	64.6	63.3	59	59
3	Methyl mercaptan	1	-	-	-	-
4	Ethyl mercaptan	1	-	-	-	-
5	Dimethyl sulphide	1	-	-	-	-
6	Carbon disulphide	1	40	6.7	6.6	3.3
7	Isopropyl mercaptan	1	-	-	-	-
8	tert-Butyl mercaptan	1	-	-	-	-
9	Propyl mercaptan	1	-	-	-	-
10.1	Thiophene	1	-	-	-	-
10.2	Isobutyl mercaptan	1	-	-	-	-
10.3	sec-Butyl mercaptan	1	-	-	-	-
11	Ethyl sulphide	1	-	-	-	-
12	Butyl mercaptan	1	-	-	-	-
13	tert-Pentyl mercaptan	1	-	-	-	-
14	Dimethyl disulphide	1	-	-	-	-
15	2-methyl Thiophene	1	-	-	-	-
16	3-methyl Thiophene	1	-	-	-	-
17	Pentyl mercaptan	1	-	-	-	-
18	2-ethyl Thiophene	1	-	-	-	-
19	Allyl sulphide	1	-	-	-	-
20	2,5-dimethyl Thiophene	1	-	-	-	-



RSC Canisters

Results - Total Times Sampled

#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing	Millennium Mine	Syncrude UE 1	CNRL Horizon
1	Hydrogen sulphide	1	60	59	61	59
2	Carbonyl sulphide	1	60	59	61	59
3	Methyl mercaptan	1	60	59	61	59
4	Ethyl mercaptan	1	60	59	61	59
5	Dimethyl sulphide	1	60	59	61	59
6	Carbon disulphide	1	60	59	61	59
7	Isopropyl mercaptan	1	60	59	61	59
8	tert-Butyl mercaptan	1	60	59	61	59
9	Propyl mercaptan	1	60	59	61	59
10.1	Thiophene	1	60	59	61	59
10.2	Isobutyl mercaptan	1	60	59	61	59
10.3	sec-Butyl mercaptan	1	60	59	61	59
11	Ethyl sulphide	1	60	59	61	59
12	Butyl mercaptan	1	60	59	61	59
13	tert-Pentyl mercaptan	1	60	59	61	59
14	Dimethyl disulphide	1	60	59	61	59
15	2-methyl Thiophene	1	60	59	61	59
16	3-methyl Thiophene	1	60	59	61	59
17	Pentyl mercaptan	1	60	59	61	59
18	2-ethyl Thiophene	1	60	59	61	59
19	Allyl sulphide	1	60	59	61	59
20	2,5-dimethyl Thiophene	1	60	59	61	59



RSC Canisters			Results - Total Times Sampled			
			AMS 1 Fort McKay	AMS 6 Patricia McInnes	AMS 7 Athabasca Valley	AMS 14 Anzac
#	Compound Name	MDL				
1	Hydrogen sulphide	1	65	60	61	61
2	Carbonyl sulphide	1	65	60	61	61
3	Methyl mercaptan	1	65	60	61	61
4	Ethyl mercaptan	1	65	60	61	61
5	Dimethyl sulphide	1	65	60	61	61
6	Carbon disulphide	1	65	60	61	61
7	Isopropyl mercaptan	1	65	60	61	61
8	tert-Butyl mercaptan	1	65	60	61	61
9	Propyl mercaptan	1	65	60	61	61
10.1	Thiophene	1	65	60	61	61
10.2	Isobutyl mercaptan	1	65	60	61	61
10.3	sec-Butyl mercaptan	1	65	60	61	61
11	Ethyl sulphide	1	65	60	61	61
12	Butyl mercaptan	1	65	60	61	61
13	tert-Pentyl mercaptan	1	65	60	61	61
14	Dimethyl disulphide	1	65	60	61	61
15	2-methyl Thiophene	1	65	60	61	61
16	3-methyl Thiophene	1	65	60	61	61
17	Pentyl mercaptan	1	65	60	61	61
18	2-ethyl Thiophene	1	65	60	61	61
19	Allyl sulphide	1	65	60	61	61
20	2,5-dimethyl Thiophene	1	65	60	61	61



RSC Canisters			Results - Yearly Average			
#	Compound Name	MDL	AMS 1	AMS 6	AMS 7	AMS 14
			Fort McKay	Patricia McInnes	Athabasca Valley	Anzac
1	Hydrogen sulphide	1	0.02	0.02	0	0.01
2	Carbonyl sulphide	1	0.65	0.47	0.42	0.41
3	Methyl mercaptan	1	0	0	0	0
4	Ethyl mercaptan	1	0	0	0	0
5	Dimethyl sulphide	1	0	0	0	0
6	Carbon disulphide	1	0.16	0.01	0.02	0
7	Isopropyl mercaptan	1	0	0	0	0
8	tert-Butyl mercaptan	1	0	0	0	0
9	Propyl mercaptan	1	0	0	0	0
10.1	Thiophene	1	0	0	0	0
10.2	Isobutyl mercaptan	1	0	0	0	0
10.3	sec-Butyl mercaptan	1	0	0	0	0
11	Ethyl sulphide	1	0	0	0	0
12	Butyl mercaptan	1	0	0	0	0
13	tert-Pentyl mercaptan	1	0	0	0	0
14	Dimethyl disulphide	1	0	0	0	0
15	2-methyl Thiophene	1	0	0	0	0
16	3-methyl Thiophene	1	0	0	0	0
17	Pentyl mercaptan	1	0	0	0	0
18	2-ethyl Thiophene	1	0	0	0	0
19	Allyl sulphide	1	0	0	0	0
20	2,5-dimethyl Thiophene	1	0	0	0	0



RSC Canisters			Results - Yearly Average			
#	Compound Name	MDL	AMS 9	AMS 12	AMS 13	AMS 15
			Barge Landing	Millennium Mine	Syncrude UE 1	CNRL Horizon
1	Hydrogen sulphide	1	0.05	0.01	0.01	0
2	Carbonyl sulphide	1	0.42	0.38	0.41	0.42
3	Methyl mercaptan	1	0	0	0	0
4	Ethyl mercaptan	1	0	0	0	0
5	Dimethyl sulphide	1	0	0	0	0
6	Carbon disulphide	1	0.02	0.01	0	0.01
7	Isopropyl mercaptan	1	0	0	0	0
8	tert-Butyl mercaptan	1	0.01	0	0	0
9	Propyl mercaptan	1	0	0	0	0
10.1	Thiophene	1	0	0	0	0
10.2	Isobutyl mercaptan	1	0	0	0	0
10.3	sec-Butyl mercaptan	1	0	0	0	0
11	Ethyl sulphide	1	0	0	0	0
12	Butyl mercaptan	1	0	0	0	0
13	tert-Pentyl mercaptan	1	0	0	0	0
14	Dimethyl disulphide	1	0.01	0	0	0
15	2-methyl Thiophene	1	0	0	0	0
16	3-methyl Thiophene	1	0	0	0	0
17	Pentyl mercaptan	1	0	0	0	0
18	2-ethyl Thiophene	1	0	0	0	0
19	Allyl sulphide	1	0	0	0	0
20	2,5-dimethyl Thiophene	1	0	0	0	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Particulate Matter - Metals: ALS Canada Ltd
Burlington, Ontario

DATA SUMMARY

Aurora Atmospherics Inc.
Calgary, Alberta

This page intentionally left blank



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	4-Jan	4-Jan	4-Jan	4-Jan			4-Jan		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	26.106	24.1	24	24			1		
Particulate Matter (µg/m3)	2.68	3.07	2.79	1.38			-17.0		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0205	0.0408	0.0186	0.00955	0.2	0.42677073	0.870		
Arsenic	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Barium	0.000530	0.00105	0.00150	<0.000208	0.005	0.009410391	0.00507		
Beryllium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Boron	<0.00766	<0.00830	<0.00833	<0.00833	0.2	<	<0.200		
Cadmium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Chromium	0.000976	<0.000830	0.00325	0.00316	0.02	0.066503156	0.0264		
Cobalt	0.000313	0.000181	0.000666	0.000271	0.002	0.011405625	0.0107		
Copper	0.0107	0.0178	0.00591	0.00743	0.01	0.06705293	0.0293		
Lead	0.000261	0.000285	0.000611	<0.000208	0.005	<	<0.00500		
Manganese	0.00186	0.00292	0.00537	0.000183	0.002	0.050770629	0.0315		
Molybdenum	0.000576	0.000218	0.000541	0.000605	0.002	0.02457952	0.00832		
Nickel	0.00135	0.00128	0.00235	<0.000833	0.02	0.031736098	<0.0200		
Silver	<0.0000766	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.00200		
Strontium	0.000284	0.000238	0.000306	<0.000208	0.005	0.006872297	<0.00500		
Titanium	0.000870	0.00174	<0.000833	<0.000833	0.02	<	<0.0200		
Uranium	<0.0000766	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.00200		
Vanadium (corr)	<0.000766	<0.000830	<0.000833	0.000956	0.02	<	<0.0200		
Zinc	0.0116	0.0108	0.0145	0.00655	0.02	0.502646859	0.286		
Iron	0.0470	0.0449	0.0539	0.0195	0.2	1.402576289	1.21		
Phosphorus	<0.192	<0.207	<0.208	<0.208	5	<	<5.00		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.998	24.05	24.013	24.011	24.003	1
Particulate Matter (µg)	8.79	4.32	4.52	1.08	3.28	5.71	5.25	4.96	-10.0
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0772	0.0417	0.0594	0.0807	0.143	0.0375	0.0608	0.0526	0.409
Arsenic	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Barium	0.00168	0.00349	0.00545	0.000591	0.00238	0.00128	0.00150	0.000981	0.00608
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Boron	<0.00833	<0.00830	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.200
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Chromium	0.00148	0.000878	0.00274	0.00733	0.00308	0.00105	0.00108	0.00314	<0.0200
Cobalt	0.000529	0.000177	0.00114	0.000528	0.000373	0.000140	0.000485	0.000234	0.00614
Copper	0.0521	0.0199	0.0337	0.0379	0.00173	0.0177	0.00167	0.00105	0.0282
Lead	0.000425	0.000336	0.000672	<0.000208	0.000355	0.000226	0.000311	0.000295	<0.00500
Manganese	0.00704	0.00307	0.00323	0.00202	0.0110	0.00461	0.00481	0.00258	0.0382
Molybdenum	0.000719	0.000326	0.000199	0.000148	<0.0000832	0.000274	0.000293	0.00107	0.00711
Nickel	0.00261	0.00100	0.000868	0.000841	0.00156	0.00105	0.00147	0.000984	0.0341
Silver	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.00200
Strontium	0.000603	0.000463	0.000954	0.000292	0.00124	0.000389	0.000544	0.000562	<0.00500
Titanium	0.00375	0.00312	0.00214	<0.000833	0.00360	0.00189	0.00248	<0.000833	0.0263
Uranium	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.00200
Vanadium (corr)	0.00421	<0.000830	0.00111	0.00229	0.00235	0.00103	<0.000833	0.00181	<0.0200
Zinc	0.0171	0.0131	0.0221	0.0101	0.0135	0.0223	0.0202	0.0142	0.144
Iron	0.228	0.152	0.161	0.0597	0.694	0.113	0.117	0.185	0.770



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	10-Jan	10-Jan	10-Jan	10-Jan			10-Jan		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24.1	24.1	24	24			1		
Particulate Matter (µg/m3)	8.46	6.97	6.29	5.46			-16.0		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0172	0.0248	0.0958	0.0157	0.2	0.42677073	0.342		
Arsenic	0.000413	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Barium	0.000806	0.000755	0.00120	0.000291	0.005	0.009410391	<0.00500		
Beryllium	<0.000207	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Boron	<0.00830	<0.00830	<0.00833	<0.00833	0.2	<	<0.200		
Cadmium	<0.000207	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Chromium	0.00234	0.00307	0.00313	0.00263	0.02	0.066503156	0.0235		
Cobalt	0.000230	0.000275	0.000167	0.000182	0.002	0.011405625	0.0126		
Copper	0.00174	0.00774	0.00599	0.00340	0.01	0.06705293	0.174		
Lead	0.000975	0.000825	0.000905	0.000748	0.005	<	0.0135		
Manganese	0.00288	0.00203	0.00233	0.00169	0.002	0.050770629	0.0371		
Molybdenum	0.00107	0.000327	0.000509	<0.0000833	0.002	0.02457952	0.00960		
Nickel	0.00120	0.00116	0.00146	<0.000833	0.02	0.031736098	0.0330		
Silver	<0.0000830	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.00200		
Strontium	0.000327	0.000364	0.000296	0.000290	0.005	0.006872297	<0.00500		
Titanium	<0.000830	<0.000830	<0.000833	<0.000833	0.02	<	0.0515		
Uranium	<0.0000830	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.00200		
Vanadium (corr)	0.00127	0.00147	0.00109	0.00128	0.02	<	<0.0200		
Zinc	0.0234	0.0179	0.0126	0.00943	0.02	0.502646859	0.215		
Iron	0.0461	0.0727	0.0722	0.0478	0.2	1.402576289	0.948		
Phosphorus	<0.207	<0.207	<0.208	<0.208	5	<	<5.00		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.009	24.047	24.01	24	24.012	1
Particulate Matter (µg)	13.5	7.92	7.01	6.12	17.7	10.5	13.0	11.0	0.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0806	0.0258	0.0354	0.0446	0.305	0.0534	0.137	0.152	0.324
Arsenic	0.000290	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	0.000287	<0.00500
Barium	0.00261	0.00192	0.00370	0.000982	0.00367	0.00194	0.00226	0.00204	<0.00500
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.200
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Chromium	0.00350	0.00273	0.00242	0.00253	0.00313	0.00301	0.00291	0.00268	0.0264
Cobalt	0.000552	0.000139	0.000262	0.000274	0.000415	0.000525	0.000333	0.000566	0.00514
Copper	0.00441	0.00589	0.0171	0.0205	0.00291	0.0128	0.00341	0.00344	0.0288
Lead	0.00121	0.000717	0.000972	0.000842	0.00119	0.000806	0.000855	0.00108	<0.00500
Manganese	0.00670	0.00176	0.00562	0.00386	0.0135	0.0293	0.00695	0.0323	0.0514
Molybdenum	0.00107	0.000268	0.000264	0.000211	0.000330	0.000416	0.00124	0.00115	0.0161
Nickel	0.00513	0.00157	0.00164	0.00172	0.00171	0.00210	0.00173	0.00284	0.0529
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.00200
Strontium	0.000908	0.000458	0.000672	0.000459	0.00201	0.000713	0.00123	0.00116	<0.00500
Titanium	0.00227	0.00100	0.00236	<0.000833	0.00728	0.00139	0.00366	0.00546	<0.0200
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.00200
Vanadium (corr)	0.00686	0.00165	0.00118	0.00154	0.00247	0.00443	0.00342	0.00244	<0.0200
Zinc	0.0276	0.00934	0.00993	0.0227	0.0211	0.0155	0.0216	0.0241	0.112
Iron	0.214	0.120	0.148	0.0572	0.832	0.174	0.312	0.493	1.42



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac				
Sample Date	16-Jan	16-Jan	16-Jan	16-Jan				
PM Size(µm)	2.5	2.5	2.5	2.5				
Total Air Volume (m3)	24	24.1	24	24				
Particulate Matter (µg/m3)	5.38	5.31	5.75	4.88				
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)		
Aluminum	0.0453	0.0215	0.0205	0.0228	0.2	0.42677073		
Arsenic	<0.000208	0.000310	0.00546	<0.000208	0.005	<		
Barium	0.000356	0.000713	0.00127	0.00112	0.005	0.009410391		
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<		
Boron	<0.00833	<0.00830	<0.00833	<0.00833	0.2	<		
Cadmium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<		
Chromium	0.00237	0.00332	0.00463	0.00365	0.02	0.066503156		
Cobalt	0.000184	0.000453	0.000588	0.000493	0.002	0.011405625		
Copper	0.0117	0.00465	0.0270	0.00653	0.01	0.06705293		
Lead	0.00103	0.000888	0.0719	0.00105	0.005	<		
Manganese	0.00213	0.00395	0.0213	0.0111	0.002	0.050770629		
Molybdenum	0.000319	0.00149	0.00114	0.000479	0.002	0.02457952		
Nickel	<0.000833	0.00160	0.00765	0.00202	0.02	0.031736098		
Silver	<0.000833	<0.000830	0.0000968	<0.000833	0.002	<		
Strontium	0.000422	0.000507	0.000538	0.000384	0.005	0.006872297		
Titanium	<0.000833	<0.000830	<0.000833	<0.000833	0.02	<		
Uranium	<0.000833	<0.000830	<0.000833	<0.000833	0.002	<		
Vanadium (corr)	<0.000833	0.00113	<0.000833	0.00149	0.02	<		
Zinc	0.0103	0.0147	0.0457	0.0109	0.02	0.502646859		
Iron	0.0221	0.0560	2.12	0.0544	0.2	1.402576289		
Phosphorus	<0.208	<0.207	<0.208	<0.208	5	<		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River
Sample Date	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.001	24.052	24.01	24.01	24.013
Particulate Matter (µg)	9.71	7.14	10.2	4.83	7.48	6.58	8.00	9.20
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
Aluminum	0.0826	0.0516	0.0661	0.0280	0.139	0.0710	0.0500	0.145
Arsenic	<0.000208	0.000218	0.00588	<0.000208	0.000252	<0.000208	<0.000208	0.000253
Barium	0.00120	0.00217	0.00519	0.000911	0.00184	0.000681	0.000612	0.00181
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00211	0.00298	0.00544	0.00268	0.00249	0.00271	0.00267	0.00295
Cobalt	0.000341	0.000303	0.00201	0.000450	0.000543	0.000243	0.000458	0.000291
Copper	0.0764	0.00732	0.0569	0.0246	0.00169	0.0179	0.00166	0.00197
Lead	0.00179	0.000982	0.0701	0.00176	0.00139	0.00104	0.00102	0.00128
Manganese	0.00591	0.00461	0.0254	0.00349	0.00611	0.00259	0.00304	0.00684
Molybdenum	0.000110	0.000540	0.00140	0.000665	0.000188	0.000232	0.000219	0.00103
Nickel	0.00119	0.00317	0.0106	0.00282	0.000939	0.00173	0.000979	0.000929
Silver	0.000199	<0.000830	0.0000911	<0.000833	<0.000832	<0.000833	<0.000833	<0.000833
Strontium	0.000853	0.000755	0.00147	0.000594	0.00113	0.000607	0.000803	0.00111
Titanium	0.00222	0.00152	0.00401	0.00395	0.00303	<0.000833	<0.000833	0.00643
Uranium	<0.000833	<0.000830	<0.000830	<0.000833	<0.000832	<0.000833	<0.000833	<0.000833
Vanadium (corr)	<0.000833	0.00142	0.00104	0.00160	0.000953	<0.000833	<0.000833	0.00108
Zinc	0.0194	0.00766	0.0455	0.0112	0.0152	0.0203	0.0126	0.0156
Iron	0.200	0.129	2.19	0.0688	0.325	0.0769	0.0916	0.305



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	22-Jan	22-Jan	22-Jan	22-Jan			22-Jan		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24	24.1	24	24			1		
Particulate Matter (µg/m3)	7.33	5.85	10.1	4.17			4.00		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0228	0.0220	0.0346	0.119	0.2	0.42677073	0.330		
Arsenic	<0.000208	<0.000207	0.0143	<0.000208	0.005	<	<0.00500		
Barium	0.00114	0.00101	0.00322	0.00189	0.005	0.009410391	0.00858		
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Boron	<0.00833	<0.00830	<0.00833	<0.00833	0.2	<	<0.200		
Cadmium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.00500		
Chromium	0.00417	0.00372	0.00847	0.00410	0.02	0.066503156	0.0530		
Cobalt	0.000175	0.000404	0.00173	0.000400	0.002	0.011405625	0.0121		
Copper	0.0376	0.0141	0.0584	0.0174	0.01	0.06705293	0.0235		
Lead	0.00192	0.00168	0.172	0.00198	0.005	<	<0.00500		
Manganese	0.00754	0.00458	0.0597	0.00266	0.002	0.050770629	0.0663		
Molybdenum	0.000350	0.000447	0.00249	0.000193	0.002	0.02457952	0.0186		
Nickel	0.00101	0.00324	0.0202	0.00404	0.02	0.031736098	<0.0200		
Silver	<0.0000833	<0.0000830	0.0000967	<0.0000833	0.002	<	<0.00200		
Strontium	0.000314	0.000239	0.000478	0.000753	0.005	0.006872297	0.00798		
Titanium	0.00299	<0.000830	<0.000833	0.00173	0.02	<	<0.0200		
Uranium	<0.0000833	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.00200		
Vanadium (corr)	0.00118	0.00151	0.00125	0.00135	0.02	<	<0.0200		
Zinc	0.0191	0.0161	0.352	0.0146	0.02	0.502646859	0.538		
Iron	0.0900	0.0536	8.48	0.132	0.2	1.402576289	0.401		
Phosphorus	<0.208	<0.207	<0.208	<0.208	5	<	<5.00		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.003	24.053	24	24.009	24.013	1
Particulate Matter (µg)	11.2	7.83	15.8	0.583	11.8	7.38	17.0	6.87	-23.0
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.109	0.0590	0.133	0.0345	0.154	0.0378	0.103	0.0718	0.317
Arsenic	0.000253	0.000241	0.0143	<0.000208	0.000317	<0.000208	<0.000208	<0.000208	<0.00500
Barium	0.00493	0.00301	0.0143	0.00313	0.00530	0.00197	0.00279	0.00203	0.00549
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00831	<0.00833	<0.00833	<0.00833	<0.200
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00500
Chromium	0.00477	0.00386	0.00914	0.00283	0.00383	0.00314	0.00341	0.00395	0.0443
Cobalt	0.000281	0.000377	0.00176	0.000357	0.000433	0.000401	0.000225	0.000337	0.0113
Copper	0.234	0.0225	0.0778	0.0781	0.00425	0.0185	0.00293	0.00375	0.0334
Lead	0.00206	0.00182	0.184	0.00164	0.00262	0.00151	0.00233	0.00270	<0.00500
Manganese	0.0117	0.00569	0.0648	0.00214	0.0129	0.00422	0.00646	0.00549	0.0359
Molybdenum	0.000539	0.000840	0.00280	0.000138	0.000907	0.00127	0.000324	0.000307	0.00774
Nickel	0.00188	0.00322	0.0241	0.00185	0.00159	0.000856	0.00111	0.00166	0.0231
Silver	0.000213	<0.0000833	0.000116	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.00200
Strontium	0.00120	0.00123	0.00200	0.000419	0.00160	0.000518	0.000946	0.00111	<0.00500
Titanium	0.00168	0.00221	0.00821	<0.000833	0.00328	<0.000833	0.00214	0.00132	<0.0200
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.00200
Vanadium (corr)	0.00345	0.00178	0.00154	0.00125	0.00195	0.000966	0.00189	0.00104	<0.0200
Zinc	0.0229	0.0265	0.385	0.00729	0.0299	0.0141	0.0154	0.0179	0.243
Iron	0.302	0.159	8.79	0.104	0.389	0.115	0.223	0.152	0.238



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	28-Jan	28-Jan	28-Jan	28-Jan			28-Jan		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24	24	24	24			1		
Particulate Matter (µg/m3)	2.38	5.13	4.00	5.33			3.00		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0319	0.0290	0.0243	0.0206	0.2	0.267359344	0.265		
Arsenic	0.00101	0.000587	0.000512	0.000553	0.005	<	<0.00500		
Barium	0.00113	0.000677	0.000574	0.000577	0.005	<	<0.00500		
Beryllium	0.000297	<0.000208	<0.000208	<0.000208	0.005	<	<0.00500		
Boron	<0.00833	<0.00833	<0.00833	<0.00833	0.2	<	<0.200		
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.00500		
Chromium	0.00324	0.00587	0.00339	0.00313	0.02	0.066703664	0.0740		
Cobalt	0.000502	0.000176	0.000322	0.000267	0.002	0.009018094	0.00667		
Copper	0.0174	0.00333	0.00206	0.00311	0.01	0.040101094	0.0210		
Lead	0.00345	0.00282	0.00277	0.00259	0.005	<	<0.00500		
Manganese	0.00608	0.00198	0.00211	0.00423	0.002	0.201465891	0.0711		
Molybdenum	0.00116	0.000335	0.000148	0.000369	0.002	0.013857492	0.00362		
Nickel	0.00183	0.000995	0.000926	<0.000833	0.02	0.026733141	0.0371		
Silver	0.000134	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.00200		
Strontium	0.0533	0.000715	0.000614	0.000513	0.005	<	0.00668		
Titanium	<0.000833	<0.000833	<0.000833	<0.000833	0.02	<	<0.0200		
Uranium	0.000198	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.00200		
Vanadium (corr)	0.000935	0.00258	0.00102	0.00106	0.02	<	<0.0200		
Zinc	0.0127	0.00804	0.0103	0.00882	0.02	0.180717047	0.101		
Iron	0.0710	0.0845	0.0509	0.0614	0.2	0.68491207	0.752		
Phosphorus	<0.208	<0.208	<0.208	<0.208	5	<	<5.00		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.008	17.206	24.013	24.008	24.011	1
Particulate Matter (µg)	6.04	3.13	8.13	7.00	14.1	7.20	5.04	13.0	1.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.151	0.0666	0.102	0.0655	0.271	0.0926	0.0410	0.268	0.251
Arsenic	0.000815	0.000594	0.000660	0.000612	0.00136	0.000733	0.000691	0.000754	<0.00500
Barium	0.00167	0.00127	0.00232	0.00113	0.00369	0.00165	0.00127	0.00362	<0.00500
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000291	<0.000208	<0.000208	<0.000208	<0.00500
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.0116	<0.00833	<0.00833	<0.00833	<0.200
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000291	<0.000208	<0.000208	<0.000208	<0.00500
Chromium	0.00351	0.00394	0.00468	0.00352	0.00563	0.00374	0.00275	0.00471	0.0966
Cobalt	0.000401	0.000359	0.000427	0.000393	0.00158	0.000282	0.000509	0.000827	0.00319
Copper	0.0742	0.00528	0.0192	0.00553	0.00853	0.00947	0.00310	0.00456	0.0206
Lead	0.00355	0.00305	0.00331	0.00277	0.00380	0.00334	0.00326	0.00447	<0.00500
Manganese	0.00550	0.00444	0.00690	0.00251	0.0136	0.0113	0.00416	0.0185	0.0614
Molybdenum	0.000589	0.000370	0.000291	0.000271	0.000907	0.000745	0.000106	0.000381	0.00831
Nickel	0.00170	0.00162	0.00106	0.00152	0.0104	0.0170	0.000882	0.00945	<0.0200
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	0.000195	<0.0000833	<0.0000833	<0.0000833	<0.00200
Strontium	0.00125	0.000876	0.00138	0.000703	0.00232	0.00110	0.000952	0.00215	0.0128
Titanium	0.00124	0.000852	0.00255	<0.000833	0.00578	0.00188	<0.000833	0.00696	<0.0200
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	0.000345	<0.0000833	<0.0000833	<0.0000833	<0.00200
Vanadium (corr)	0.00146	0.00286	0.00143	0.00127	0.00254	0.00131	<0.000833	0.00221	0.0237
Zinc	0.0133	0.00972	0.0129	0.00823	0.0162	0.00893	0.00812	0.0344	0.0862
Iron	0.243	0.152	0.264	0.108	0.688	0.231	0.125	0.731	0.638



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	3-Feb	3-Feb	3-Feb	3-Feb				3-Feb	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	24.1	111.2	24	24				1	
Particulate Matter (µg/m3)	4.98	2.72	3.15	1.60				-3.00	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0259	0.00755	0.0419	0.0232	0.2	0.267359344	0.340		
Arsenic	0.000724	0.000195	0.000286	0.000273	0.005	<	<0.00500		
Barium	0.000884	0.000514	0.00165	0.000580	0.005	<	<0.00500		
Beryllium	<0.000207	<0.0000450	<0.000208	<0.000208	0.005	<	<0.00500		
Boron	<0.00830	<0.00180	<0.00833	<0.00833	0.2	<	<0.200		
Cadmium	<0.000207	<0.0000450	<0.000208	<0.000208	0.005	<	<0.00500		
Chromium	0.00352	0.00107	0.00374	0.00410	0.02	0.066703664	0.0851		
Cobalt	0.000532	0.0000349	0.000251	0.000260	0.002	0.009018094	0.00551		
Copper	0.0353	0.00868	0.0144	0.00598	0.01	0.040101094	0.0263		
Lead	0.00205	0.00157	0.00199	0.00146	0.005	<	<0.00500		
Manganese	0.00259	0.00133	0.00577	0.00227	0.002	0.201465891	0.0889		
Molybdenum	0.00188	0.000191	0.000123	0.000297	0.002	0.013857492	0.0119		
Nickel	0.000995	0.000302	0.00452	0.00109	0.02	0.026733141	<0.0200		
Silver	0.000104	<0.0000180	<0.0000833	<0.0000833	0.002	<	<0.00200		
Strontium	0.000432	0.000172	0.000543	0.000265	0.005	<	<0.00500		
Titanium	<0.000830	<0.000180	<0.000833	<0.000833	0.02	<	<0.0200		
Uranium	0.000111	<0.0000180	<0.0000833	<0.0000833	0.002	<	<0.00200		
Vanadium (corr)	0.00126	0.000612	0.00101	0.00105	0.02	<	0.0206		
Zinc	0.00970	0.00476	0.0112	0.00880	0.02	0.180717047	0.108		
Iron	0.0637	0.0251	0.125	0.0393	0.2	0.68491207	0.613		
Phosphorus	<0.207	<0.0450	<0.208	<0.208	5	<	<5.00		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	111.03	24.1	24.008	24.054	24.012	24.007	24.011	2
Particulate Matter (µg)	44.5	4.35	5.86	2.87	8.67	7.51	3.47	14.0	2.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.420	0.0316	0.0758	0.0257	0.167	0.0736	0.0855	0.304	0.151
Arsenic	0.00151	0.000226	0.000313	0.000268	0.000330	0.000350	0.000399	0.000557	<0.00250
Barium	0.00854	0.00173	0.00280	0.000456	0.00217	0.00131	0.00119	0.00409	0.00271
Beryllium	<0.000208	<0.0000450	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00250
Boron	<0.00833	<0.00180	<0.00830	<0.00833	<0.00831	<0.00833	<0.00833	<0.00833	<0.100
Cadmium	<0.000208	<0.0000450	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.00250
Chromium	0.00510	0.00129	0.00320	0.00387	0.00330	0.00394	0.00437	0.00404	0.0436
Cobalt	0.000560	0.000170	0.000293	0.000173	0.000388	0.000198	0.000235	0.000498	0.00928
Copper	0.139	0.00942	0.0412	0.0202	0.0105	0.0175	0.00492	0.00269	0.0233
Lead	0.00953	0.00169	0.00218	0.00141	0.00190	0.00221	0.00238	0.00278	<0.00250
Manganese	0.0276	0.00321	0.0113	0.0220	0.0106	0.00762	0.0100	0.0207	0.0613
Molybdenum	0.00102	0.000194	<0.0000830	0.000245	<0.0000831	0.000127	0.000938	0.000918	0.0145
Nickel	0.00372	0.000656	0.00121	<0.000833	0.000907	<0.000833	0.00127	0.00174	0.0285
Silver	0.000178	<0.0000180	<0.0000830	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.00100
Strontium	0.00317	0.000455	0.000795	0.000499	0.00108	0.000655	0.000631	0.00161	<0.00250
Titanium	0.0150	0.00208	0.00121	<0.000833	0.00284	<0.000833	<0.000833	0.00825	<0.0100
Uranium	<0.0000833	<0.0000180	<0.0000830	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.00100
Vanadium (corr)	0.00544	0.000865	0.000961	0.000883	0.00136	0.00162	0.00179	0.00210	0.0105
Zinc	0.0352	0.00570	0.0264	0.00593	0.00913	0.00775	0.00980	0.0163	0.0662
Iron	1.18	0.0854	0.240	0.0391	0.441	0.184	0.183	0.932	0.470



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	9-Feb	9-Feb	9-Feb	9-Feb			9-Feb-2013		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24	104	24	24			24		
Particulate Matter (µg/m3)	1.60	4.45	4.19	2.46			-1.07		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0122	0.0387	0.0132	0.0243	0.2	0.2797395	0.0105		
Arsenic	0.000295	0.000184	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000264	0.00287	0.000380	0.000300	0.005	0.009171068	<0.000208		
Beryllium	<0.000208	<0.0000481	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00833	<0.00192	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000208	<0.0000481	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00316	0.00109	0.00407	0.00273	0.02	0.072948484	0.00347		
Cobalt	0.000124	0.0000957	<0.0000833	0.00195	0.002	0.007055438	0.000143		
Copper	0.0232	0.00339	0.00220	0.00661	0.01	0.118017453	0.000681		
Lead	0.000792	0.00334	0.000361	0.000412	0.005	<	<0.000208		
Manganese	0.00247	0.00313	0.00189	0.00233	0.002	0.08839675	0.00184		
Molybdenum	0.000945	0.000280	0.000481	0.0000976	0.002	0.037101708	0.000450		
Nickel	<0.000833	0.000888	<0.000833	0.00295	0.02	<	<0.000833		
Silver	<0.0000833	<0.0000192	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	<0.000208	0.000350	<0.000208	0.000275	0.005	<	<0.000208		
Titanium	<0.000833	0.00165	<0.000833	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000833	<0.0000192	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000833	0.00131	0.00121	0.00122	0.02	<	<0.000833		
Zinc	0.00561	0.00635	0.00692	0.00523	0.02	0.164133688	0.00536		
Iron	0.0566	0.210	0.0382	0.0416	0.2	0.748618063	0.0314		
Phosphorus	<0.208	<0.0481	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb-2013	9-Feb-2013
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	104	24.1	24.001	24.05	24.007	24.005	104.15	24
Particulate Matter (µg)	6.20	3.17	5.48	3.10	5.77	3.62	3.16	1.39	-0.583
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0373	0.00673	0.577	0.0333	0.0621	0.0277	0.0343	0.0134	<0.00833
Arsenic	0.000211	0.000258	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000480	<0.000208
Barium	0.00108	0.000808	0.00153	0.000637	0.00104	0.000574	<0.000208	0.000181	<0.000208
Beryllium	<0.000208	<0.0000481	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000480	<0.000208
Boron	<0.00833	<0.00192	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00192	<0.00833
Cadmium	<0.000208	<0.0000481	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000480	<0.000208
Chromium	0.00347	0.000784	0.00319	0.00271	0.00396	0.00306	0.00285	0.000678	0.00239
Cobalt	0.000276	0.0000519	0.000129	0.000198	0.000195	<0.0000833	<0.0000833	0.0000594	0.000196
Copper	0.109	0.00191	0.00636	0.0215	0.00243	0.0242	0.0201	0.000419	<0.000417
Lead	0.000987	0.00309	0.000566	0.000467	0.000685	0.000450	0.000338	0.000141	<0.000208
Manganese	0.00652	0.00196	0.00357	0.00412	0.00544	0.00297	0.00162	0.00137	0.00182
Molybdenum	0.000404	0.000670	0.000491	<0.0000833	0.00101	0.000525	0.000900	<0.0000192	<0.0000833
Nickel	0.00119	0.000454	0.00114	0.000981	0.000884	0.00163	0.00158	<0.000192	<0.000833
Silver	0.000107	<0.0000192	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000192	<0.0000833
Strontium	0.000387	0.000101	0.000381	<0.000208	0.000509	<0.000208	<0.000208	0.0000822	<0.000208
Titanium	<0.000833	0.000421	<0.000830	0.000906	<0.000832	<0.000833	<0.000833	<0.000192	<0.000833
Uranium	<0.0000833	<0.0000192	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000192	<0.0000833
Vanadium (corr)	0.00149	0.000698	0.00125	0.00127	0.00126	0.000972	<0.000833	0.000215	<0.000833
Zinc	0.00684	0.00566	0.0111	0.00663	0.00938	0.00707	0.00436	0.00224	0.00444
Iron	0.116	0.128	0.101	0.0494	0.170	0.0913	0.0371	0.0287	0.0241



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	15-Feb	15-Feb	15-Feb	15-Feb				15-Feb	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	24	24.1	24	24				24	
Particulate Matter (µg/m3)	7.03	1.61	4.10	1.92				-0.875	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0215	0.0163	0.0323	0.0130	0.2	0.2797395	0.00858		
Arsenic	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.00153	0.000752	0.00224	0.000361	0.005	0.009171068	<0.000208		
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00833	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00191	0.00277	0.00262	0.00261	0.02	0.072948484	0.00264		
Cobalt	0.000280	0.000373	0.000405	0.000316	0.002	0.007055438	0.000459		
Copper	0.00942	0.00351	0.00439	0.0164	0.01	0.118017453	0.000497		
Lead	0.00109	0.000526	0.00219	0.000806	0.005	<	<0.000208		
Manganese	0.00760	0.00173	0.00598	0.00178	0.002	0.08839675	0.00141		
Molybdenum	0.000140	0.000322	0.000158	<0.0000833	0.002	0.037101708	0.000198		
Nickel	0.00114	0.00126	0.000959	<0.000833	0.02	<	<0.000833		
Silver	<0.0000833	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000747	<0.000207	0.000378	<0.000208	0.005	<	<0.000208		
Titanium	<0.000833	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000833	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000833	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Zinc	0.0185	0.00500	0.0102	0.0101	0.02	0.164133688	0.00319		
Iron	0.0612	0.0322	0.0918	0.0244	0.2	0.748618063	0.0292		
Phosphorus	<0.208	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	88	24.1	23.994	24.051	24.008	24.01	23.998	24
Particulate Matter (µg)	11.4	4.14	7.07	2.71	9.48	5.58	3.92	5.71	0.726
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0640	0.0285	0.0405	0.0192	0.141	0.0447	0.0362	0.0434	0.0115
Arsenic	<0.000208	0.0000602	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00340	0.00148	0.00848	0.000532	0.00242	0.00222	0.000888	0.00168	<0.000208
Beryllium	<0.000208	<0.0000568	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00227	<0.00830	<0.00834	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.0000568	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00253	0.000916	0.00259	0.00223	0.00337	0.00184	0.00292	0.00276	0.00196
Cobalt	0.000600	0.0000865	0.000157	0.000269	0.00192	0.000363	0.000189	0.000189	0.000224
Copper	0.0281	0.00138	0.00894	0.0494	0.00304	0.0218	0.00119	0.00131	0.00205
Lead	0.00128	0.000520	0.00254	0.00178	0.000904	0.000693	0.000361	0.000408	<0.000208
Manganese	0.00815	0.00213	0.00543	0.00291	0.00861	0.00518	0.00284	0.00352	0.00152
Molybdenum	0.000769	0.000295	0.000397	<0.0000834	0.000494	0.000747	0.000707	0.000399	0.000234
Nickel	0.00233	0.000787	<0.000830	<0.000834	0.00141	0.00189	<0.000833	0.000894	<0.000833
Silver	<0.0000833	<0.0000227	<0.0000830	<0.0000834	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00154	0.000296	0.000916	<0.000208	0.00107	0.000653	0.000293	0.000779	0.000306
Titanium	0.00170	0.00146	0.00412	<0.000834	0.00243	0.00101	<0.000833	0.00288	<0.000833
Uranium	<0.0000833	<0.0000227	<0.0000830	<0.0000834	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00287	0.00203	<0.000830	<0.000834	0.00104	0.00118	<0.000833	0.00194	<0.000833
Zinc	0.0206	0.00353	0.0114	0.0226	0.0226	0.0104	0.00655	0.00719	0.00379
Iron	0.217	0.0972	0.284	0.0795	0.385	0.173	0.0854	0.138	0.0234



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	21-Feb	21-Feb	21-Feb	21-Feb					21-Feb
PM Size(µm)	2.5	2.5	2.5	2.5					2.5
Total Air Volume (m3)	25.687	24.1	24.1	24					24
Particulate Matter (µg/m3)	8.58	7.17	7.11	7.02					0.545
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0891	0.0313	0.0399	0.0328	0.2	0.2797395	0.00972		
Arsenic	0.000205	<0.000207	0.000219	<0.000208	0.005	<	<0.000208		
Barium	0.00131	0.00118	0.00219	0.000653	0.005	0.009171068	<0.000208		
Beryllium	<0.000195	<0.000207	<0.000207	<0.000208	0.005	<	<0.000208		
Boron	<0.000779	<0.000830	<0.000830	<0.000833	0.2	<	<0.000833		
Cadmium	<0.000195	<0.000207	<0.000207	<0.000208	0.005	<	<0.000208		
Chromium	0.00245	0.00342	0.00294	0.00373	0.02	0.072948484	0.00395		
Cobalt	0.000216	0.000198	0.000151	0.000142	0.002	0.007055438	0.000173		
Copper	0.00152	0.00328	0.00391	0.00492	0.01	0.118017453	0.000788		
Lead	0.00100	0.000884	0.00119	0.000586	0.005	<	<0.000208		
Manganese	0.00539	0.00234	0.00331	0.00481	0.002	0.08839675	0.00167		
Molybdenum	0.00136	0.000233	0.000331	0.0000836	0.002	0.037101708	0.000505		
Nickel	0.00101	<0.000830	<0.000830	0.00123	0.02	<	<0.000833		
Silver	<0.0000779	<0.0000830	<0.0000830	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000330	0.000514	0.000371	0.000324	0.005	<	<0.000208		
Titanium	0.000861	<0.000830	<0.000830	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000779	<0.0000830	<0.0000830	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	0.00129	0.00101	0.000939	<0.000833	0.02	<	0.000967		
Zinc	0.0114	0.00637	0.0108	0.00592	0.02	0.164133688	0.00603		
Iron	0.0838	0.0615	0.0856	0.0323	0.2	0.748618063	0.0310		
Phosphorus	<0.195	<0.207	<0.207	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24	24.011	24.049	24.009	24.009	24.001	24
Particulate Matter (µg)	19.2	7.89	8.90	5.58	35.3	12.3	14.4	10.1	1.67
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.182	0.0606	0.0757	0.0488	0.710	0.110	0.179	0.141	0.00973
Arsenic	0.000251	<0.000207	0.000216	<0.000208	<0.000208	0.000311	0.000380	<0.000208	0.000428
Barium	0.00435	0.00375	0.00690	0.000989	0.0108	0.00321	0.00333	0.00253	0.000639
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	0.000224
Boron	<0.00833	<0.00830	<0.00833	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00288	0.00305	0.00305	0.00381	0.00314	0.00307	0.00394	0.00326	0.00302
Cobalt	0.000361	0.000203	0.000162	0.000140	0.000840	0.000601	0.000600	0.000268	0.000574
Copper	0.00255	0.00390	0.00905	0.00287	0.00274	0.00194	0.00162	0.00366	0.00117
Lead	0.00116	0.000907	0.00153	0.000559	0.00115	0.00115	0.00122	0.000706	0.000585
Manganese	0.0150	0.00356	0.00544	0.00404	0.0533	0.00704	0.00696	0.00657	0.00181
Molybdenum	0.000810	0.000410	0.000266	0.000172	0.000904	0.00106	0.000533	0.000263	0.00126
Nickel	0.00265	0.00410	0.000971	<0.000833	0.00327	0.00267	0.00115	0.00115	0.000857
Silver	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	0.000277
Strontium	0.00169	0.000501	0.000892	0.000329	0.00479	0.00107	0.00120	0.000880	0.000537
Titanium	0.00547	0.00164	0.00353	<0.000833	0.0238	0.00321	0.00466	0.00362	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	0.000514
Vanadium (corr)	0.00583	0.00114	0.000841	0.00306	0.00421	0.00247	0.00247	0.00200	0.00104
Zinc	0.0198	0.00669	0.0111	0.00473	0.0194	0.0103	0.00969	0.00663	0.00401
Iron	0.578	0.115	0.239	0.0819	2.69	0.302	0.418	0.306	0.0104



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	27-Feb	27-Feb	27-Feb	27-Feb					27-Feb
PM Size(µm)	2.5	2.5	2.5	2.5					2.5
Total Air Volume (m3)	26.024	24.1	24	24					24
Particulate Matter (µg/m3)	12.5	3.16	3.89	2.60					1.66
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0378	0.0420	0.0346	0.0972	0.2	0.2797395	0.0147		
Arsenic	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.00124	0.00131	0.00254	0.000569	0.005	0.009171068	<0.000208		
Beryllium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.000769	<0.000830	<0.000833	<0.000833	0.2	<	<0.00833		
Cadmium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00181	0.00275	0.00237	0.00258	0.02	0.072948484	0.00253		
Cobalt	0.000229	0.000225	0.000110	0.000878	0.002	0.007055438	0.0000894		
Copper	0.0104	0.0214	0.00914	0.00813	0.01	0.118017453	0.00113		
Lead	0.000427	0.000290	0.000462	0.000409	0.005	<	<0.000208		
Manganese	0.00409	0.00446	0.00222	0.00220	0.002	0.08839675	0.00241		
Molybdenum	0.000374	<0.0000830	<0.0000833	0.000316	0.002	0.037101708	0.000250		
Nickel	<0.000769	<0.000830	<0.000833	0.00347	0.02	<	<0.000833		
Silver	<0.0000769	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000401	0.000285	0.000456	<0.000208	0.005	<	<0.000208		
Titanium	<0.000769	<0.000830	0.000932	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000769	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000769	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Zinc	0.0132	0.0113	0.00723	0.0122	0.02	0.164133688	0.00451		
Iron	0.163	0.276	0.159	0.0772	0.2	0.748618063	0.0625		
Phosphorus	<0.192	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24	24.05	24.011	24.011	24	24
Particulate Matter (µg)	27.8	7.82	23.8	3.64	59.9	26.3	34.6	43.8	-0.733
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.319	0.0603	0.224	0.0432	1.23	0.417	0.503	0.793	0.0109
Arsenic	<0.000208	<0.000207	0.000216	<0.000208	0.000724	0.000245	0.000352	0.000561	<0.000208
Barium	0.00618	0.00422	0.0129	0.000847	0.0187	0.00729	0.00763	0.0135	<0.000208
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.000833	<0.000830	<0.000830	<0.000833	<0.000832	<0.000833	<0.000833	<0.000833	<0.000833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00262	0.00212	0.00279	0.00200	0.00407	0.00278	0.00336	0.00368	0.00219
Cobalt	0.000392	0.000166	0.000290	0.000164	0.00133	0.000474	0.000519	0.000876	0.000153
Copper	0.0779	0.0147	0.0172	0.0267	0.00378	0.0506	0.00401	0.00395	0.000528
Lead	0.000646	0.000372	0.000903	0.000335	0.00166	0.000805	0.000862	0.00106	<0.000208
Manganese	0.0203	0.00368	0.0137	0.00349	0.0975	0.0222	0.0277	0.0589	0.00191
Molybdenum	0.000380	<0.0000830	0.000461	<0.0000833	0.000718	0.000287	0.000344	0.000520	0.000133
Nickel	0.00217	<0.000830	0.00141	0.000863	0.00297	0.00199	0.00194	0.00278	0.000870
Silver	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00267	0.000684	0.00297	0.000612	0.00849	0.00276	0.00506	0.00643	<0.000208
Titanium	0.0104	0.00263	0.00930	<0.000833	0.0323	0.0112	0.0154	0.0239	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000830	<0.0000833	0.0000870	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00305	<0.000830	0.00110	<0.000833	0.00448	0.00328	0.00282	0.00430	<0.000833
Zinc	0.0200	0.00707	0.0119	0.00466	0.0218	0.0165	0.0186	0.0240	0.00321
Iron	1.17	0.308	1.01	0.138	5.00	1.38	1.75	3.12	0.0301



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	5-Mar	5-Mar	5-Mar	5-Mar			5-Mar
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.072	24.1	24	24			24
Particulate Matter (µg/m3)	6.75	4.56	6.33	2.79			0.917
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0743	0.0279	0.0595	0.0215	0.2	0.3954798	0.0537
Arsenic	0.000718	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.00184	0.00113	0.00285	0.000750	0.005	<	0.000319
Beryllium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Boron	0.00816	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00366	0.00248	0.00284	0.00365	0.02	0.087916631	0.00375
Cobalt	<0.0000767	0.000191	<0.0000833	<0.0000833	0.002	0.024563925	<0.0000833
Copper	0.00300	0.0110	0.00555	0.0115	0.01	0.047798063	0.00200
Lead	0.000445	0.000441	0.000650	0.000822	0.005	<	<0.000208
Manganese	0.00727	0.00309	0.00564	0.00656	0.002	0.054385088	0.00270
Molybdenum	<0.0000767	0.000143	0.000230	<0.0000833	0.002	0.023650094	<0.0000833
Nickel	0.00299	0.00247	0.00238	0.00389	0.02	0.059907525	0.00173
Silver	<0.0000767	<0.0000830	<0.0000833	0.000147	0.002	<	<0.0000833
Strontium	0.000674	0.000463	0.000641	0.000229	0.005	<	<0.000208
Titanium	0.00193	<0.000830	0.000996	<0.000833	0.02	<	<0.000833
Uranium	<0.0000767	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium	0.00165	<0.000830	0.000968	0.000866	0.02	<	0.000888
Zinc	0.0208	0.00993	0.0125	0.0179	0.02	0.296371875	0.00345
Iron	0.284	0.0897	0.234	0.0858	0.2	1.059444225	0.0328
Phosphorus	<0.192	<0.207	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.009	24.052	24.01	24.009	24.001	24
Particulate Matter (µg)	51.9	13.3	37.3	4.29	64.0	24.3	38.8	101	0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	1.08	0.233	0.521	0.0633	1.20	0.456	0.761	2.37	0.0127
Arsenic	0.00151	0.000275	0.000552	<0.000208	0.000984	0.000626	0.00157	0.00228	<0.000208
Barium	0.0185	0.00899	0.0162	0.00278	0.165	0.00865	0.0118	0.0329	<0.000208
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	0.0110	<0.00830	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	0.00958	<0.00833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00570	0.00272	0.00424	0.00410	0.00521	0.00342	0.00488	0.00748	0.00293
Cobalt	0.00100	<0.0000830	0.000292	<0.0000833	0.00377	0.000336	0.000639	0.00192	<0.0000833
Copper	0.00755	0.0154	0.0311	0.0497	0.00780	0.0151	0.00552	0.00659	0.00195
Lead	0.00163	0.000736	0.00138	0.00123	0.00174	0.000757	0.00100	0.00252	<0.000208
Manganese	0.0771	0.0154	0.0416	0.00527	0.0868	0.0282	0.0527	0.163	0.00184
Molybdenum	0.000788	0.000323	0.000613	<0.0000833	0.000984	0.000758	0.000122	0.000909	<0.0000833
Nickel	0.00985	0.00217	0.00574	0.00331	0.00760	0.00280	0.0102	0.00720	0.00293
Silver	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	0.000150	<0.0000833
Strontium	0.00814	0.00185	0.00480	0.000487	0.00792	0.00328	0.00615	0.0184	<0.000208
Titanium	0.0400	0.00758	0.0156	<0.000833	0.0307	0.0148	0.0198	0.110	0.00203
Uranium	0.0000939	<0.0000830	<0.0000830	<0.0000833	0.000102	<0.0000833	<0.0000833	0.000190	<0.0000833
Vanadium	0.0118	0.00142	0.00258	0.00128	0.00501	0.00319	0.00479	0.0109	<0.000833
Zinc	0.0458	0.0169	0.0285	0.0128	0.0338	0.0205	0.0230	0.0327	0.00460
Iron	4.08	0.767	2.23	0.325	4.28	1.43	3.09	8.80	0.0343



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	11-Mar	11-Mar	11-Mar	11-Mar			11-Mar
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.049	24.1	24	24			24
Particulate Matter (µg/m3)	6.14	3.98	3.88	3.42			-0.250
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0213	0.0250	0.0320	0.0278	0.2	0.3954798	0.0104
Arsenic	0.000311	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.000574	0.00100	0.00100	0.000937	0.005	<	<0.000208
Beryllium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00768	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000192	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00257	0.00306	0.00274	0.00366	0.02	0.087916631	0.00230
Cobalt	<0.0000768	<0.0000830	<0.0000833	<0.0000833	0.002	0.024563925	<0.0000833
Copper	0.00270	0.0137	0.00333	0.0137	0.01	0.047798063	0.000981
Lead	0.000594	0.000600	0.000653	0.000551	0.005	<	<0.000208
Manganese	0.00466	0.00196	0.00302	0.00208	0.002	0.054385088	0.00205
Molybdenum	0.000231	0.000393	0.000284	0.000180	0.002	0.023650094	0.000161
Nickel	0.00180	0.00134	0.00168	0.00122	0.02	0.059907525	0.00151
Silver	<0.0000768	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000447	0.000428	0.000389	0.000310	0.005	<	<0.000208
Titanium	<0.000768	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000768	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium	<0.000768	0.00128	0.00184	0.00154	0.02	<	<0.000833
Zinc	0.0187	0.00895	0.0115	0.00790	0.02	0.296371875	0.00508
Iron	0.0524	0.0638	0.0614	0.0648	0.2	1.059444225	0.0227
Phosphorus	<0.192	<0.207	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.997	24.049	24.01	24.01	24.008	24
Particulate Matter (µg)	7.88	6.06	7.39	18.8	13.0	5.54	5.87	5.71	-0.250
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0831	0.0487	0.0820	0.0418	0.244	0.0721	0.0956	0.108	0.0192
Arsenic	<0.000208	<0.000207	<0.000207	<0.000208	0.000235	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00104	0.00206	0.00358	0.000542	0.00367	0.00150	0.00115	0.00123	<0.000208
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00185	0.00287	0.00298	0.00323	0.00276	0.00201	0.00324	0.00387	0.00258
Cobalt	0.000131	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Copper	0.0520	0.0171	0.0307	0.0422	0.00614	0.0108	0.00153	0.00185	0.00172
Lead	0.00194	0.000592	0.000894	0.000609	0.00100	0.000676	0.000747	0.000804	<0.000208
Manganese	0.00574	0.00392	0.00774	0.00398	0.0244	0.00522	0.00532	0.00844	0.00137
Molybdenum	<0.0000833	0.000373	0.000462	0.000164	0.000337	0.000124	0.000510	0.000238	0.00103
Nickel	0.00430	0.00179	0.00209	0.00269	0.00355	0.00471	0.00213	0.00192	0.00118
Silver	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000728	0.000644	0.00106	0.000432	0.00169	0.000739	0.000727	0.000828	<0.000208
Titanium	0.00248	0.00151	0.00270	<0.000833	0.00944	0.00158	0.00165	0.00228	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium	<0.000833	0.00144	0.00223	0.00146	0.00197	<0.000833	0.00101	0.00120	<0.000833
Zinc	0.0411	0.0152	0.00976	0.00865	0.0150	0.0148	0.00747	0.0117	0.00568
Iron	0.306	0.135	0.249	0.110	0.827	0.159	0.283	0.265	0.0346



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	17-Mar	17-Mar	17-Mar	17-Mar				17-Mar	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	27.261	24.1	24	24				24	
Particulate Matter (µg/m3)	4.15	4.52	6.21	4.25				-0.792	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0195	0.0183	0.0251	0.103	0.2	0.3954798	0.0157		
Arsenic	0.000285	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000345	0.000285	0.00101	0.000221	0.005	<	<0.000208		
Beryllium	<0.000183	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00734	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000183	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00208	0.00311	0.00262	0.00233	0.02	0.087916631	0.00208		
Cobalt	<0.0000734	<0.0000830	<0.0000833	<0.0000833	0.002	0.024563925	<0.0000833		
Copper	0.00572	0.00179	0.00222	0.0171	0.01	0.047798063	0.000751		
Lead	0.000469	0.000572	0.000630	0.000546	0.005	<	<0.000208		
Manganese	0.00241	0.00200	0.00276	0.00133	0.002	0.054385088	0.00112		
Molybdenum	0.000280	0.000311	0.000253	0.000268	0.002	0.023650094	0.0000841		
Nickel	0.00781	0.00137	0.00142	0.00262	0.02	0.059907525	0.00115		
Silver	<0.0000734	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000246	0.000244	0.000362	<0.000208	0.005	<	<0.000208		
Titanium	<0.000734	<0.000830	0.00321	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000734	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium	0.00140	0.00191	0.00153	<0.000833	0.02	<	<0.000833		
Zinc	0.00849	0.0118	0.0156	0.0142	0.02	0.296371875	0.00640		
Iron	0.0676	0.0621	0.102	0.0365	0.2	1.059444225	0.0268		
Phosphorus	<0.183	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.005	24.051	24.01	24.012	24.009	24
Particulate Matter (µg)	10.5	13.7	13.9	7.92	24.8	6.54	29.0	51.2	-0.250
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.118	0.128	0.147	0.600	0.387	0.103	0.645	0.831	0.0102
Arsenic	0.000242	<0.000207	0.000228	<0.000208	0.000443	<0.000208	0.000515	0.000679	<0.000208
Barium	0.00169	0.00243	0.00510	0.00119	0.00576	0.00163	0.00689	0.0161	<0.000208
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00248	0.00276	0.00257	0.00316	0.00426	0.00233	0.00512	0.00392	0.00216
Cobalt	<0.0000833	0.00132	<0.0000830	<0.0000833	0.000189	<0.0000833	0.000326	0.000537	<0.0000833
Copper	0.0125	0.00841	0.0192	0.121	0.00612	0.00835	0.00308	0.00410	0.00230
Lead	0.000703	0.00104	0.000914	0.00121	0.00134	0.000623	0.00123	0.00149	<0.000208
Manganese	0.00602	0.00917	0.0123	0.00406	0.0355	0.0436	0.0272	0.0578	0.0160
Molybdenum	0.000258	0.000426	0.000495	0.000204	0.000859	0.000483	0.000554	0.000710	<0.0000833
Nickel	0.00232	0.00579	0.00321	0.00501	0.00437	0.00281	0.00347	0.00448	0.00203
Silver	<0.0000833	<0.0000830	<0.0000830	0.000173	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000959	0.00372	0.00203	0.000552	0.00339	0.000741	0.00332	0.00664	<0.000208
Titanium	0.00467	0.00422	0.00620	0.00135	0.0138	0.00304	0.0183	0.0358	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium	0.00235	0.00268	0.00234	0.00170	0.00360	0.00158	0.00311	0.00495	<0.000833
Zinc	0.00847	0.0180	0.0197	0.0118	0.0190	0.00774	0.0170	0.0186	0.0119
Iron	0.340	0.407	0.574	0.195	1.63	0.294	1.44	3.16	0.0439



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac		
Sample Date	23-Mar	23-Mar	23-Mar	23-Mar		
PM Size(µm)	2.5	2.5	2.5	2.5		
Total Air Volume (m3)	26.477	24.1	24	24		
Particulate Matter (µg/m3)	3.36	7.01	7.71	6.13		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)
Aluminum	0.0203	0.0275	0.0515	0.0246	0.2	0.3954798
Arsenic	0.000259	<0.000207	<0.000208	<0.000208	0.005	<
Barium	0.000417	0.00110	0.00278	0.000467	0.005	<
Beryllium	<0.000189	<0.000207	<0.000208	<0.000208	0.005	<
Boron	<0.00755	<0.00830	<0.00833	<0.00833	0.2	<
Cadmium	<0.000189	<0.000207	<0.000208	<0.000208	0.005	<
Chromium	0.00282	0.00247	0.00309	0.00288	0.02	0.087916631
Cobalt	0.000316	0.000240	0.000272	0.000201	0.002	0.024563925
Copper	0.00578	0.0184	0.00943	0.0258	0.01	0.047798063
Lead	0.000569	0.000646	0.00167	0.000560	0.005	<
Manganese	0.00151	0.00157	0.00379	0.00169	0.002	0.054385088
Molybdenum	<0.0000755	<0.0000830	<0.0000833	<0.0000833	0.002	0.023650094
Nickel	0.00288	0.00325	0.00374	0.00272	0.02	0.059907525
Silver	<0.0000755	<0.0000830	<0.0000833	<0.0000833	0.002	<
Strontium	0.000259	0.000280	0.00101	0.000263	0.005	<
Titanium	<0.000755	<0.000830	<0.000833	<0.000833	0.02	<
Uranium	<0.0000755	<0.0000830	<0.0000833	<0.0000833	0.002	<
Vanadium	0.000818	0.00219	0.00242	0.00156	0.02	<
Zinc	0.00552	0.0106	0.0163	0.00484	0.02	0.296371875
Iron	0.0422	0.0734	0.128	0.0601	0.2	1.059444225
Phosphorus	<0.189	<0.207	<0.208	<0.208	5	<

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.997	24.05	24.012	24.012	24.002	24
Particulate Matter (µg)	5.08	9.42	11.9	6.29	13.3	3.25	5.58	9.87	1.25
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0457	0.0550	0.108	0.0502	0.0974	0.0345	0.0572	0.126	0.0178
Arsenic	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.000818	0.00430	0.00893	0.000923	0.00196	0.00103	0.000878	0.00227	0.000484
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00267	0.00377	0.00326	0.00275	0.00301	0.00340	0.00322	0.00447	0.00274
Cobalt	0.000341	0.000586	0.000330	0.000662	0.000415	0.000232	0.000339	0.000369	0.000482
Copper	0.0268	0.0462	0.0815	0.137	0.00521	0.0110	0.00426	0.00383	0.00268
Lead	0.000674	0.000850	0.00187	0.000607	0.00110	0.000638	0.000658	0.000932	<0.000208
Manganese	0.00253	0.00346	0.00627	0.00237	0.00783	0.00434	0.00404	0.0109	0.00113
Molybdenum	<0.0000833	0.000250	0.000287	<0.0000833	0.000408	<0.0000833	<0.0000833	0.000208	<0.0000833
Nickel	0.00350	0.0187	0.00581	0.00516	0.00642	0.00295	0.00561	0.00243	0.00425
Silver	0.000182	<0.0000830	0.0000831	0.000145	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000425	0.000726	0.00186	0.000447	0.000856	0.000403	0.000386	0.000906	<0.000208
Titanium	0.00212	0.00196	0.00426	<0.000833	0.00371	<0.000833	0.00181	0.00393	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium	0.00141	0.00479	0.00406	0.00226	0.00620	0.00123	0.00131	0.00242	<0.000833
Zinc	0.00835	0.0120	0.0148	0.0136	0.0213	0.0135	0.00799	0.0200	0.00788
Iron	0.0840	0.178	0.247	0.133	0.321	0.0959	0.153	0.456	0.0756



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	29-Mar	29-Mar	29-Mar	29-Mar				29-Mar	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	25.611	24.1	24	24				24	
Particulate Matter (µg/m3)	5.54	7.43	9.33	2.17				1.13	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0378	0.0615	0.0621	0.0329	0.2	0.3954798	0.0352		
Arsenic	0.000398	0.000356	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000994	0.00132	0.00310	0.000635	0.005	<	<0.000208		
Beryllium	<0.000195	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00781	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000195	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00215	0.00316	0.00321	0.00278	0.02	0.087916631	0.00231		
Cobalt	0.000456	0.000338	0.00160	0.000414	0.002	0.024563925	0.00159		
Copper	0.00433	0.0239	0.00590	0.0209	0.01	0.047798063	0.00197		
Lead	0.000817	0.00119	0.00126	0.000970	0.005	<	<0.000208		
Manganese	0.00424	0.00264	0.00392	0.00274	0.002	0.054385088	0.00116		
Molybdenum	0.000158	0.000603	0.000492	0.000121	0.002	0.023650094	<0.0000833		
Nickel	0.00275	0.00691	0.00434	0.00226	0.02	0.059907525	0.00278		
Silver	<0.0000781	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000695	0.000390	0.000645	0.000590	0.005	<	<0.000208		
Titanium	<0.000781	0.00151	0.00133	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000781	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium	0.00161	0.00456	0.00327	0.00121	0.02	<	<0.000833		
Zinc	0.00953	0.00900	0.203	0.0469	0.02	0.296371875	0.00697		
Iron	0.0903	0.114	0.224	0.155	0.2	1.059444225	0.0264		
Phosphorus	<0.195	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24	23.995	24.052	24.011	24.009	24.003	24
Particulate Matter (µg)	15.3	23.3	18.3	6.63	29.0	9.25	9.08	11.1	0.833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.150	0.238	0.277	0.106	0.313	0.161	0.169	0.200	0.0121
Arsenic	0.000383	0.000439	0.000265	0.000236	0.000409	<0.000208	0.000238	0.000226	<0.000208
Barium	0.00437	0.00745	0.0120	0.00317	0.00536	0.00351	0.00308	0.00407	0.000216
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00833	<0.00834	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	0.000214	<0.000207	<0.000208	<0.000208	0.000296	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00281	0.00378	0.00349	0.00459	0.00303	0.00378	0.00301	0.00287	0.00187
Cobalt	0.000341	0.000403	0.00134	0.00123	0.00118	0.000867	0.000997	0.000709	0.000414
Copper	0.0198	0.0375	0.0480	0.143	0.00813	0.0124	0.00715	0.00265	0.00590
Lead	0.00120	0.00168	0.00180	0.00127	0.00161	0.00126	0.00133	0.00111	<0.000208
Manganese	0.0136	0.0159	0.0186	0.00855	0.0210	0.0139	0.0127	0.0207	0.000883
Molybdenum	0.000229	0.000894	0.000738	0.000401	0.000811	0.000304	0.000126	0.000127	<0.0000833
Nickel	0.00369	0.00328	0.00591	0.00505	0.0143	0.00569	0.0106	0.00363	0.00536
Silver	0.00391	<0.0000830	<0.0000833	0.000118	<0.0000832	<0.0000833	<0.0000833	<0.0000833	0.0000985
Strontium	0.00209	0.00228	0.00302	0.000908	0.0177	0.00208	0.00168	0.00300	<0.000208
Titanium	0.00589	0.0105	0.0190	0.00226	0.0103	0.00537	0.00664	0.0170	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000833	<0.0000834	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium	0.00274	0.00657	0.00448	0.00121	0.00615	0.00293	0.00147	0.00164	<0.000833
Zinc	0.00624	0.0295	0.0241	0.0264	0.0177	0.0235	0.0191	0.00902	0.00437
Iron	0.736	0.913	0.997	0.683	1.18	0.606	0.716	1.13	0.0392



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	4-Apr	4-Apr	4-Apr	4-Apr			4-Apr		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	26.35	24.1	24	24			24		
Particulate Matter (µg/m3)	5.46	7.05	8.38	8.92			-0.167		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0600	0.0676	0.0989	0.0380	0.2	0.426882131	0.0144		
Arsenic	0.000326	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000685	0.00164	0.00206	0.000762	0.005	0.009941775	0.000233		
Beryllium	<0.000190	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.000759	<0.000830	<0.000833	<0.000833	0.2	<	<0.000833		
Cadmium	<0.000190	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00161	0.00212	0.00206	0.00196	0.02	0.061681313	0.00165		
Cobalt	0.000888	0.00301	0.00114	0.00100	0.002	0.058452188	0.00117		
Copper	0.00493	0.00565	0.00335	0.00469	0.01	0.069535613	<0.000417		
Lead	0.000759	0.00107	0.00103	0.000611	0.005	<	<0.000208		
Manganese	0.00325	0.00540	0.00691	0.00192	0.002	0.07577145	0.00103		
Molybdenum	0.000356	0.000765	0.000945	0.000622	0.002	0.025680863	0.000704		
Nickel	0.00175	0.00310	0.00411	0.00136	0.02	0.093866231	0.00129		
Silver	<0.0000759	0.000928	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000480	0.00178	0.00110	0.000340	0.005	0.006267575	0.000223		
Titanium	0.00118	0.00180	0.00208	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000759	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000759	0.00229	0.00123	<0.000833	0.02	<	<0.000833		
Zinc	0.0118	0.0121	0.0249	0.0101	0.02	0.240930356	0.00491		
Iron	0.154	0.262	0.310	0.0903	0.2	2.256530363	0.0239		
Phosphorus	<0.190	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.995	24.052	24.011	24.013	24.014	24
Particulate Matter (µg)	1.50	32.2	50.0	2.50	53.5	22.3	5.37	32.3	0.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0567	0.604	0.928	0.0680	0.963	0.531	0.144	0.604	0.0120
Arsenic	<0.000208	0.000461	0.000680	<0.000208	0.000687	0.000385	0.000224	0.000344	<0.000208
Barium	0.000577	0.00841	0.0158	0.00121	0.0130	0.00612	0.00249	0.00774	0.000406
Beryllium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00830	<0.00834	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00237	0.00294	0.00342	0.00152	0.00346	0.00230	0.00198	0.00214	0.00135
Cobalt	0.00167	0.00137	0.00401	0.00121	0.00569	0.00285	0.00219	0.000870	0.000837
Copper	0.00134	0.00855	0.0353	0.0480	0.00479	0.00382	0.00171	0.00151	<0.000417
Lead	0.000232	0.00165	0.00194	0.000705	0.00206	0.00130	0.00106	0.00141	<0.000208
Manganese	0.00295	0.0379	0.0637	0.00397	0.0585	0.0307	0.0126	0.0377	0.00107
Molybdenum	0.000683	0.00117	0.000695	<0.0000834	0.000564	<0.0000833	0.000636	<0.0000833	<0.0000833
Nickel	0.00241	0.00411	0.00499	0.00281	0.00621	0.00268	0.00248	0.00248	0.00144
Silver	<0.0000833	<0.0000830	<0.0000830	<0.0000834	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000356	0.00514	0.0123	0.00105	0.00972	0.00313	0.00121	0.00469	<0.000208
Titanium	<0.000833	0.0194	0.0305	0.00171	0.0312	0.0191	0.00559	0.0356	<0.000833
Uranium	<0.0000833	<0.0000830	0.0000874	<0.0000834	0.000106	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00591	0.00503	<0.000834	0.00439	0.00202	0.000963	0.00244	<0.000833
Zinc	0.0124	0.0169	0.0288	0.0107	0.0251	0.0128	0.0115	0.0115	0.00727
Iron	0.119	2.04	3.23	0.195	3.46	1.41	0.643	2.19	0.0222



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	10-Apr	10-Apr	10-Apr	10-Apr			10-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.42	24.1	23.4	24			24
Particulate Matter (µg/m3)	7.08	4.48	5.30	3.08			0.167
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.266	0.0379	0.0783	0.0425	0.2	0.426882131	0.0205
Arsenic	0.000305	<0.000207	<0.000214	<0.000208	0.005	<	<0.000208
Barium	0.00137	0.00101	0.00213	0.000434	0.005	0.009941775	<0.000208
Beryllium	<0.000197	<0.000207	<0.000214	<0.000208	0.005	<	<0.000208
Boron	<0.00787	<0.00830	<0.00855	<0.00833	0.2	<	<0.00833
Cadmium	<0.000197	<0.000207	<0.000214	<0.000208	0.005	<	<0.000208
Chromium	0.00369	0.00259	0.00259	0.00187	0.02	0.061681313	0.00236
Cobalt	0.00111	0.00435	0.000955	0.000909	0.002	0.058452188	0.000391
Copper	0.00174	0.00112	0.00456	0.00259	0.01	0.069535613	<0.000417
Lead	0.00120	0.000821	0.00102	0.000601	0.005	<	<0.000208
Manganese	0.00533	0.00199	0.00479	0.00349	0.002	0.07577145	0.000869
Molybdenum	0.00131	0.000249	0.000427	0.000224	0.002	0.025680863	0.000702
Nickel	0.00240	0.000884	0.00180	0.00549	0.02	0.093866231	0.00136
Silver	<0.0000787	<0.0000830	<0.0000855	0.000167	0.002	<	<0.0000833
Strontium	0.000816	0.000448	0.000609	0.000254	0.005	0.006267575	0.000255
Titanium	0.000841	<0.000830	0.00237	<0.000833	0.02	<	0.00120
Uranium	<0.0000787	<0.0000830	<0.0000855	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.00111	<0.000830	<0.000855	<0.000833	0.02	<	<0.000833
Zinc	0.0137	0.00652	0.00673	0.0122	0.02	0.240930356	0.00640
Iron	0.157	0.0800	0.193	0.0587	0.2	2.256530363	0.0198
Phosphorus	<0.197	<0.207	<0.214	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	23.4	24.002	24.047	24.011	24.01	23.997	24
Particulate Matter (µg)	18.9	12.1	23.4	9.46	37.6	16.4	22.6	25.2	0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.259	0.156	0.388	0.176	0.910	0.201	0.580	0.405	0.0147
Arsenic	0.000366	0.000243	0.000331	<0.000208	0.000574	<0.000208	0.000503	0.000334	<0.000208
Barium	0.00531	0.00409	0.00965	0.00408	0.00951	0.00405	0.00719	0.00532	<0.000208
Beryllium	<0.000208	<0.000207	<0.000214	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00830	<0.00855	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000207	<0.000214	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00276	0.00257	0.00252	0.00247	0.00286	0.00246	0.00287	0.00280	0.00208
Cobalt	0.00183	0.00166	0.00228	0.00161	0.00163	0.00133	0.00117	0.00253	0.000284
Copper	0.00460	0.00313	0.00809	0.00349	0.00168	0.00938	0.00193	0.00498	0.00103
Lead	0.00128	0.00109	0.00152	0.00111	0.00165	0.00115	0.00144	0.00127	<0.000208
Manganese	0.0199	0.0212	0.0221	0.00819	0.0264	0.0109	0.0178	0.0177	0.000775
Molybdenum	0.000298	0.000336	0.000488	0.000519	0.000199	0.000139	0.000304	0.000482	0.00125
Nickel	0.00263	0.00126	0.00469	0.00261	0.00306	0.00217	0.00280	0.00230	<0.000833
Silver	<0.0000833	<0.0000830	<0.0000855	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00252	0.00125	0.00305	0.00142	0.00581	0.00158	0.00360	0.00293	<0.000208
Titanium	0.00895	0.00537	0.0154	0.00622	0.0308	0.00682	0.0147	0.0126	<0.000833
Uranium	<0.0000833	<0.0000830	<0.0000855	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00329	0.000898	0.00161	0.000850	0.00326	0.00197	0.00269	0.00332	<0.000833
Zinc	0.0157	0.0121	0.0223	0.00808	0.0153	0.0127	0.00860	0.0154	0.00376
Iron	1.11	0.459	1.30	0.356	1.51	0.597	1.25	1.06	0.0140



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	16-Apr	16-Apr	16-Apr	16-Apr			16-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	4.71	8.42	9.42	5.46			-0.0417
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0769	0.184	0.122	0.0370	0.2	0.426882131	0.0175
Arsenic	0.000253	0.000233	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.00122	0.00129	0.00300	0.00111	0.005	0.009941775	0.000441
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00209	0.00381	0.00267	0.00236	0.02	0.061681313	0.00196
Cobalt	0.00127	0.000650	0.000972	0.000482	0.002	0.058452188	0.000339
Copper	0.00971	0.00804	0.00311	0.0287	0.01	0.069535613	0.00198
Lead	0.000619	0.000750	0.000705	0.000650	0.005	<	<0.000208
Manganese	0.0126	0.00468	0.00918	0.00304	0.002	0.07577145	0.00311
Molybdenum	0.000123	0.00138	0.000289	<0.0000833	0.002	0.025680863	<0.0000833
Nickel	0.0126	0.00366	0.00165	0.00133	0.02	0.093866231	0.00114
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000604	0.000855	0.000943	0.000400	0.005	0.006267575	0.000384
Titanium	0.00138	0.00114	0.00260	0.00184	0.02	<	<0.0000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	<0.000833	0.00167	0.00157	0.000854	0.02	<	<0.000833
Zinc	0.00871	0.0143	0.0179	0.00741	0.02	0.240930356	0.00702
Iron	0.179	0.202	0.263	0.131	0.2	2.256530363	0.0219
Phosphorus	<0.208	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	23.995	24.052	24.014	24.009	24	24
Particulate Matter (µg)	21.7	20.8	26.2	12.2	35.9	11.9	11.8	29.3	-0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.436	0.403	0.597	0.162	0.813	0.265	0.292	0.687	0.0190
Arsenic	0.000320	0.000375	0.000443	<0.000208	0.000569	<0.000208	0.000244	0.000262	<0.000208
Barium	0.00587	0.00668	0.0136	0.00662	0.00935	0.00380	0.00427	0.00714	0.000284
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00834	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00279	0.00323	0.00322	0.00270	0.00369	0.00257	0.00258	0.00318	0.00163
Cobalt	0.00282	0.00215	0.000906	0.000577	0.00111	0.000786	0.000728	0.00164	0.000630
Copper	0.0256	0.0102	0.0584	0.126	0.00410	0.0921	0.00471	0.00235	0.000681
Lead	0.000983	0.00107	0.00123	0.000846	0.00123	0.000702	0.000704	0.00100	<0.000208
Manganese	0.0307	0.0228	0.0403	0.0220	0.0369	0.0192	0.0221	0.0446	0.00260
Molybdenum	<0.0000833	0.000458	0.000616	<0.0000834	0.000543	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Nickel	0.00223	0.00218	0.00226	0.00130	0.00292	0.00159	0.00231	0.00248	0.00124
Silver	<0.0000833	<0.0000833	<0.0000830	0.000120	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00372	0.00336	0.00465	0.00163	0.00555	0.00231	0.00193	0.00574	<0.000208
Titanium	0.0210	0.0165	0.0200	0.00715	0.0315	0.00920	0.0143	0.0297	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000834	0.0000851	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00174	0.00334	0.00376	0.00143	0.00386	0.00119	0.00278	0.00258	<0.000833
Zinc	0.0170	0.0153	0.0266	0.00781	0.0238	0.0119	0.0120	0.0118	0.00634
Iron	1.47	1.26	1.96	0.596	1.84	0.895	1.11	2.06	0.0379



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	22-Apr	22-Apr	22-Apr	22-Apr					22-Apr
PM Size(µm)	2.5	2.5	2.5	2.5					2.5
Total Air Volume (m3)	25.837	24.1	24	24					24
Particulate Matter (µg/m3)	3.02	4.65	5.92	3.63					-0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0684	0.0817	0.103	0.0476	0.2	0.426882131	0.0190		
Arsenic	0.000381	0.000245	0.000271	<0.000208	0.005	<	<0.000208		
Barium	0.00221	0.00125	0.00294	0.000677	0.005	0.009941775	0.000275		
Beryllium	<0.000194	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00774	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000194	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00226	0.00301	0.00273	0.00230	0.02	0.061681313	0.00255		
Cobalt	0.00103	0.000150	0.000191	0.0000947	0.002	0.058452188	0.000159		
Copper	0.00444	0.00491	0.00530	0.00883	0.01	0.069535613	0.00125		
Lead	0.00226	0.00205	0.00258	0.00152	0.005	<	<0.000208		
Manganese	0.00814	0.00554	0.00645	0.00353	0.002	0.07577145	0.00197		
Molybdenum	0.000552	0.000135	0.000228	0.000131	0.002	0.025680863	0.000774		
Nickel	0.00218	0.000862	<0.000833	<0.000833	0.02	0.093866231	0.000922		
Silver	<0.0000774	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.00106	0.00120	0.000717	0.000341	0.005	0.006267575	<0.000208		
Titanium	0.00148	<0.000830	0.00421	0.00101	0.02	<	<0.000833		
Uranium	<0.0000774	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000774	0.000985	0.00110	<0.000833	0.02	<	<0.000833		
Zinc	0.0162	0.00928	0.0115	0.0277	0.02	0.240930356	0.00749		
Iron	0.140	0.180	0.285	0.102	0.2	2.256530363	0.0272		
Phosphorus	<0.194	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	25.27	24.1	23.996	24.053	24.014	24.008	23.998	24
Particulate Matter (µg)	-0.250	17.1	28.4	11.8	46.9	7.25	27.1	29.4	-0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0271	0.322	0.551	0.226	0.835	0.140	0.506	0.727	0.0284
Arsenic	<0.000208	0.000342	0.000658	0.000355	0.000804	<0.000208	0.000510	0.000551	<0.000208
Barium	0.000413	0.00629	0.0161	0.00445	0.0130	0.00222	0.00831	0.0103	0.000381
Beryllium	<0.000208	<0.000198	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00791	<0.00830	<0.00833	<0.00831	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000198	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00312	0.00326	0.00383	0.00230	0.00509	0.00215	0.00284	0.00379	0.00403
Cobalt	0.000314	0.000371	0.000619	0.000243	0.00300	0.000162	0.000491	0.00105	0.000931
Copper	0.00130	0.00620	0.0219	0.0478	0.0121	0.0191	0.00269	0.00325	0.00612
Lead	<0.000208	0.00257	0.00333	0.00217	0.00345	0.00211	0.00274	0.00309	0.000581
Manganese	0.00284	0.0186	0.0337	0.0112	0.0537	0.00716	0.0277	0.0509	0.0188
Molybdenum	<0.0000833	0.000229	0.000548	<0.0000833	0.000769	<0.0000833	<0.0000833	0.000164	0.000820
Nickel	<0.000833	0.00101	0.00200	0.000951	0.0407	0.00103	0.00162	0.00227	0.00150
Silver	<0.0000833	<0.0000791	<0.0000830	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000264	0.00256	0.00452	0.00154	0.00885	0.00111	0.00507	0.00564	0.000433
Titanium	<0.000833	0.00865	0.0157	0.00787	0.0240	0.00372	0.0157	0.0311	<0.000833
Uranium	<0.0000833	<0.0000791	<0.0000830	<0.0000833	0.0000870	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00202	0.00296	0.00148	0.00420	<0.000833	0.00209	0.00292	<0.000833
Zinc	0.00880	0.0121	0.0241	0.00756	0.0196	0.0110	0.0190	0.0226	0.0812
Iron	0.0815	1.05	2.09	0.546	2.83	0.351	1.43	2.47	0.0647



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	28-Apr	28-Apr	28-Apr	28-Apr			28-Apr		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	25.91	24.1	24	24			24		
Particulate Matter (µg/m3)	3.24	4.48	4.75	3.46			0.00		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0255	0.0470	0.0742	0.0244	0.2	0.426882131	0.0185		
Arsenic	0.000261	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000356	0.00102	0.00136	0.000361	0.005	0.009941775	0.000219		
Beryllium	<0.000193	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00772	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000193	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00167	0.00228	0.00234	0.00228	0.02	0.061681313	0.00307		
Cobalt	0.000102	0.000256	0.000298	0.000109	0.002	0.058452188	0.0000973		
Copper	0.00661	0.00488	0.00155	0.00527	0.01	0.069535613	0.00285		
Lead	0.000681	0.000968	0.00123	0.000661	0.005	<	<0.000208		
Manganese	0.00228	0.00552	0.00661	0.00286	0.002	0.07577145	0.00199		
Molybdenum	0.000465	0.000174	0.0000904	0.000315	0.002	0.025680863	0.000690		
Nickel	<0.000772	0.000989	0.000881	0.00114	0.02	0.093866231	<0.000833		
Silver	<0.0000772	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000348	0.000519	0.000551	0.000304	0.005	0.006267575	<0.000208		
Titanium	<0.000772	0.00120	0.00135	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000772	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000772	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Zinc	0.00476	0.0139	0.00979	0.00587	0.02	0.240930356	0.00959		
Iron	0.0863	0.0949	0.173	0.0383	0.2	2.256530363	0.0358		
Phosphorus	<0.193	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	25.14	24.1	23.996	24.05	24.013	24.011	24.009	24
Particulate Matter (µg)	0.875	9.86	18.2	3.63	9.56	5.75	6.25	9.95	-0.333
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0235	0.185	0.283	0.0376	0.128	0.0599	0.111	0.148	0.0269
Arsenic	<0.000208	<0.000199	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.000287	0.00342	0.00730	0.000723	0.00198	0.00103	0.00178	0.00260	0.00108
Beryllium	<0.000208	<0.000199	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00796	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000199	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00242	0.00260	0.00262	0.00225	0.00220	0.00257	0.00287	0.00259	0.00239
Cobalt	0.000148	0.000455	0.000520	0.0000928	0.000451	0.000155	0.000200	0.000212	0.0000960
Copper	0.00173	0.00561	0.00936	0.0180	0.00149	0.0139	0.00180	0.00237	0.000518
Lead	<0.000208	0.00103	0.00122	0.000814	0.00109	0.000984	0.000838	0.00122	<0.000208
Manganese	0.00257	0.0115	0.0206	0.00248	0.00738	0.00555	0.0103	0.0136	0.00535
Molybdenum	0.000496	0.000176	0.000406	0.000183	0.000617	0.000255	0.000324	0.000281	0.00122
Nickel	<0.000833	0.00823	0.00129	<0.000833	0.00116	<0.000833	<0.000833	0.000857	<0.000833
Silver	<0.0000833	<0.0000796	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000219	0.00133	0.00244	0.000485	0.00139	0.000878	0.000803	0.00166	0.000432
Titanium	<0.000833	0.00686	0.0116	0.00106	0.00420	0.00146	0.00320	0.00575	<0.000833
Uranium	<0.0000833	<0.0000796	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00119	0.00168	<0.000833	0.00178	<0.000833	<0.000833	0.00100	<0.000833
Zinc	0.0165	0.0104	0.0138	0.00417	0.00730	0.00583	0.00740	0.00640	0.00781
Iron	0.0809	0.573	1.27	0.0720	0.377	0.160	0.277	0.728	0.0419



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	4-May	4-May	4-May	4-May					
PM Size(µm)	2.5	2.5	2.5	2.5					
Total Air Volume (m3)	24.941	24.1	24	24					
Particulate Matter (µg/m3)	4.74	3.58	5.36	3.64					
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0701	0.0944	0.132	0.0610	0.2	0.697437488	0.0170		
Arsenic	0.000335	<0.000207	0.000994	<0.000208	0.005	<	<0.000208		
Barium	0.00151	0.00189	0.00514	0.000952	0.005	<	<0.000208		
Beryllium	<0.000200	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00802	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000200	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00217	0.00310	0.00287	0.00252	0.02	0.059668688	0.00242		
Cobalt	0.000238	0.000576	0.000321	0.000359	0.002	0.008423138	0.000169		
Copper	0.00639	0.00867	0.0115	0.0158	0.01	0.068252981	0.000803		
Lead	0.000585	0.000507	0.000761	0.000390	0.005	<	<0.000208		
Manganese	0.00384	0.00540	0.0106	0.00302	0.002	0.058793788	0.00169		
Molybdenum	0.000706	0.000574	0.000771	<0.000833	0.002	0.054056456	0.000256		
Nickel	<0.000802	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Silver	<0.0000802	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000491	0.000592	0.00112	0.000362	0.005	<	<0.000208		
Titanium	0.000981	0.00244	0.00613	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000802	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000802	0.000989	0.000911	<0.000833	0.02	<	<0.000833		
Zinc	0.0416	0.0159	0.0198	0.00880	0.02	0.285995831	0.00596		
Iron	0.161	0.306	0.402	0.163	0.2	1.297757488	0.0317		
Phosphorus	<0.200	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	4-May	4-May	4-May	4-May	4-May	4-May	4-May	4-May	4-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.446	24.1	24.002	24.05	24.011	24.008	24.003	24
Particulate Matter (µg)	0.580	20.5	20.3	9.85	30.5	10.5	24.4	32.8	-0.865
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0345	0.470	0.467	0.241	0.715	0.185	0.607	0.611	0.0200
Arsenic	<0.000208	0.000333	0.00113	<0.000208	0.000473	0.000270	0.000359	0.000406	<0.000208
Barium	0.000609	0.00912	0.0154	0.00358	0.00835	0.00323	0.00775	0.00935	<0.000208
Beryllium	<0.000208	<0.000205	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00818	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000205	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00248	0.00396	0.00271	0.00236	0.00375	0.00369	0.00375	0.00362	0.00149
Cobalt	0.000285	0.000847	0.000558	0.000402	0.00114	0.000254	0.000740	0.000899	0.000128
Copper	0.00209	0.0103	0.0198	0.0550	0.00224	0.00175	0.00208	0.00198	0.000526
Lead	0.000289	0.000795	0.00110	0.000634	0.00104	0.000549	0.000896	0.00120	<0.000208
Manganese	0.00229	0.0318	0.0271	0.0113	0.0349	0.0110	0.0332	0.0487	0.00219
Molybdenum	0.000345	0.000545	0.000380	<0.000833	0.000828	0.00148	0.000146	0.000209	0.000677
Nickel	<0.000833	0.00130	0.00130	<0.000833	0.00185	<0.000833	0.00163	0.00149	<0.000833
Silver	<0.0000833	<0.0000818	<0.0000830	<0.000833	<0.000832	<0.000833	<0.000833	<0.000833	<0.0000833
Strontium	0.000490	0.00360	0.00335	0.00105	0.00520	0.00159	0.00483	0.00507	<0.000208
Titanium	<0.000833	0.0194	0.0190	0.00770	0.0252	0.00581	0.0161	0.0240	<0.000833
Uranium	<0.0000833	<0.0000818	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00247	0.00188	0.00109	0.00326	0.00191	0.00255	0.00294	<0.000833
Zinc	0.0182	0.0250	0.0300	0.0122	0.0163	0.0113	0.0225	0.0174	0.00883
Iron	0.0369	1.81	1.62	0.621	1.96	0.622	1.24	2.79	0.0153



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	10-May	10-May	10-May	10-May				10-May	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	25.731	24.1	24	24				24	
Particulate Matter (µg/m3)	2.46	6.69	5.64	3.40				0.486	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0424	0.0666	0.104	0.0341	0.2	0.697437488	0.0117		
Arsenic	0.000496	0.000771	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000542	0.00188	0.00499	0.000466	0.005	<	<0.000208		
Beryllium	<0.000194	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00777	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000194	0.000262	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00157	0.00324	0.00301	0.00321	0.02	0.059668688	0.00260		
Cobalt	0.0000962	0.000185	0.000150	0.000178	0.002	0.008423138	0.0000977		
Copper	0.00502	0.00873	0.00423	0.00648	0.01	0.068252981	0.000810		
Lead	0.000409	0.00127	0.000608	0.000390	0.005	<	<0.000208		
Manganese	0.00687	0.00613	0.00573	0.00251	0.002	0.058793788	0.00146		
Molybdenum	0.000595	0.000286	0.000357	0.000302	0.002	0.054056456	0.000797		
Nickel	0.00279	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Silver	<0.0000777	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000320	0.000581	0.000758	0.000268	0.005	<	<0.000208		
Titanium	0.00131	0.00178	0.00202	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000777	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000777	0.00115	0.000964	0.000918	0.02	<	<0.000833		
Zinc	0.00549	0.0291	0.0105	0.00457	0.02	0.285995831	0.00447		
Iron	0.123	0.190	0.274	0.0922	0.2	1.297757488	0.0344		
Phosphorus	<0.194	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	10-May	10-May	10-May	10-May	10-May	10-May	10-May	10-May	10-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	25.057	24.1	24.001	24.05	24	24.009	24	24
Particulate Matter (µg)	0.931	19.6	21.6	7.44	67.6	7.53	13.9	13.0	0.125
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0221	0.394	0.500	0.130	1.30	0.122	0.315	0.206	0.0145
Arsenic	<0.000208	<0.000200	0.000267	<0.000208	0.000895	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.000461	0.00675	0.0108	0.00180	0.0186	0.00182	0.00453	0.00345	<0.000208
Beryllium	<0.000208	<0.000200	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00798	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000200	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00262	0.00386	0.00212	0.00301	0.00569	0.00228	0.00390	0.00500	0.00224
Cobalt	0.000151	0.000475	0.000464	0.000191	0.00197	0.000198	0.000525	0.000374	<0.0000833
Copper	0.00140	0.00886	0.0143	0.0185	0.00590	0.0281	0.0109	0.00233	0.000693
Lead	<0.000208	0.000828	0.000974	0.000489	0.00187	0.000439	0.000977	0.000574	<0.000208
Manganese	0.00247	0.0214	0.0272	0.00655	0.0699	0.00750	0.0201	0.0189	0.00137
Molybdenum	0.000335	0.000475	0.000506	0.000417	0.000846	0.000626	0.000525	0.000747	0.00169
Nickel	<0.000833	0.00165	0.00431	<0.000833	0.00459	<0.000833	0.00227	0.000917	<0.000833
Silver	<0.0000833	<0.0000798	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	<0.000208	0.00273	0.00362	0.000867	0.0118	0.00105	0.00204	0.00193	<0.000208
Titanium	<0.000833	0.0154	0.0154	0.00334	0.0423	0.00300	0.00808	0.00988	<0.000833
Uranium	<0.0000833	<0.0000798	<0.0000830	<0.0000833	0.000133	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00283	0.00214	0.00114	0.00680	0.000996	0.00191	0.00166	<0.000833
Zinc	0.00582	0.0129	0.0167	0.00464	0.0185	0.138	0.0149	0.0116	0.00547
Iron	0.0680	1.15	1.51	0.357	4.32	0.419	1.09	1.03	0.0535



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	16-May	16-May	16-May	16-May			16-May		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24.108	24	24	24			24		
Particulate Matter (µg/m3)	5.53	5.83	5.86	2.57			1.03		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0603	0.0771	0.0796	0.0272	0.2	0.697437488	0.0191		
Arsenic	<0.000207	0.000458	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.000903	0.00274	0.00507	0.000787	0.005	<	0.000663		
Beryllium	<0.000207	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00830	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000207	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00333	0.00318	0.00306	0.00309	0.02	0.059668688	0.00310		
Cobalt	0.000353	0.000308	0.000278	0.000203	0.002	0.008423138	0.000203		
Copper	0.00420	0.0109	0.00889	0.00699	0.01	0.068252981	0.00196		
Lead	0.000692	0.000684	0.000642	0.000401	0.005	<	<0.000208		
Manganese	0.00940	0.00565	0.00546	0.00629	0.002	0.058793788	0.00287		
Molybdenum	<0.0000830	0.000362	0.000695	<0.0000833	0.002	0.054056456	<0.0000833		
Nickel	0.00147	0.000933	0.00154	<0.000833	0.02	<	0.000956		
Silver	<0.0000830	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000456	0.000534	0.000772	0.000329	0.005	<	0.00110		
Titanium	<0.000830	0.00199	0.00318	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000830	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	0.000852	0.000895	0.000907	<0.000833	0.02	<	<0.000833		
Zinc	0.0148	0.0145	0.0109	0.00807	0.02	0.285995831	0.00704		
Iron	0.167	0.265	0.298	0.111	0.2	1.297757488	0.0692		
Phosphorus	<0.207	<0.208	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	16-May	16-May	16-May	16-May	16-May	16-May	16-May	16-May	16-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	15.5	23.901	24.1	24.007	24.049	24.009	15.397	24.006	24
Particulate Matter (µg)	13.2	19.9	24.2	8.54	37.5	11.9	13.0	22.7	0.500
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.201	0.374	0.390	0.143	0.618	0.136	0.170	0.303	<0.00833
Arsenic	<0.000323	0.000478	0.000418	<0.000208	0.000404	<0.000208	<0.000325	<0.000208	<0.000208
Barium	0.00403	0.0102	0.0184	0.00296	0.0104	0.00291	0.00320	0.0839	0.000472
Beryllium	<0.000323	<0.000209	<0.000207	<0.000208	<0.000208	<0.000208	<0.000325	<0.000208	<0.000208
Boron	<0.0129	<0.00837	<0.00830	<0.00833	<0.00832	<0.00833	<0.0130	<0.00833	<0.00833
Cadmium	<0.000323	<0.000209	<0.000207	<0.000208	<0.000208	<0.000208	<0.000325	<0.000208	<0.000208
Chromium	0.00536	0.00378	0.00387	0.00250	0.00434	0.00313	0.00613	0.00391	0.00244
Cobalt	0.000638	0.000727	0.000601	0.000248	0.00107	0.000298	0.000369	0.000487	0.000172
Copper	0.180	0.00949	0.0171	0.0329	0.0179	0.0145	0.00843	0.00537	0.00379
Lead	0.00769	0.000968	0.00110	0.000620	0.00121	0.000685	0.00154	0.000861	<0.000208
Manganese	0.0175	0.0234	0.0262	0.0108	0.0333	0.0182	0.0137	0.0287	0.00242
Molybdenum	<0.000129	0.000252	0.000457	<0.0000833	0.000539	0.000322	<0.000130	<0.0000833	0.000121
Nickel	0.00213	0.00122	0.00165	<0.000833	0.00227	0.000938	0.00257	0.00188	<0.000833
Silver	<0.000129	<0.0000837	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.000130	<0.0000833	<0.0000833
Strontium	0.00241	0.00340	0.00344	0.000739	0.00565	0.00119	0.00145	0.00412	<0.000208
Titanium	0.00493	0.0109	0.0128	0.00618	0.0166	0.00243	0.00401	0.00987	<0.000833
Uranium	<0.000129	<0.0000837	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.000130	<0.0000833	<0.0000833
Vanadium (corr)	0.00182	0.00198	0.00201	0.00102	0.00314	0.00125	0.00170	0.00197	<0.000833
Zinc	0.0275	0.0250	0.0250	0.0125	0.0244	0.0167	0.0236	0.0220	0.00589
Iron	0.768	1.31	1.49	0.418	1.96	0.462	0.691	1.27	0.0322



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	22-May	22-May	22-May	22-May				22-May	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	24.126	24.1	24	24				24	
Particulate Matter (µg/m3)	6.71	5.09	5.47	4.32				0.944	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0795	0.0608	0.0568	0.0408	0.2	0.697437488	0.0104		
Arsenic	0.000277	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.00106	0.00130	0.00193	0.000650	0.005	<	<0.000208		
Beryllium	<0.000207	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00829	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000207	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00321	0.00341	0.00373	0.00297	0.02	0.059668688	0.00130		
Cobalt	0.000291	0.000192	0.000338	0.000710	0.002	0.008423138	0.000171		
Copper	0.00537	0.00936	0.00492	0.00750	0.01	0.068252981	0.00190		
Lead	0.000595	0.000668	0.000674	0.000775	0.005	<	<0.000208		
Manganese	0.00862	0.00368	0.00379	0.00358	0.002	0.058793788	0.00289		
Molybdenum	<0.0000829	0.000119	0.000104	0.000495	0.002	0.054056456	0.000274		
Nickel	0.00419	0.00221	0.00249	0.00409	0.02	<	<0.000833		
Silver	<0.0000829	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000857	0.000468	0.000439	0.000249	0.005	<	<0.000208		
Titanium	<0.000829	0.00170	0.00244	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000829	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	0.000949	0.000893	0.000987	0.000965	0.02	<	<0.000833		
Zinc	0.0154	0.0170	0.0144	0.0160	0.02	0.285995831	0.00826		
Iron	0.317	0.201	0.219	0.0826	0.2	1.297757488	0.0394		
Phosphorus	<0.207	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	22-May	22-May	22-May	22-May	22-May	22-May	22-May	22-May	22-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	0	23.822	24.1	24.012	24.051	24.007	24.008	24.012	24
Particulate Matter (µg)	1.29	21.9	24.0	7.66	64.8	14.1	26.8	20.5	0.708
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0203	0.331	0.489	0.0928	1.26	0.217	0.507	0.288	0.0146
Arsenic	<0.000208	<0.000210	0.000457	<0.000208	0.000684	<0.000208	0.000396	<0.000208	<0.000208
Barium	0.000273	0.00716	0.0109	0.00126	0.0140	0.00891	0.00720	0.00378	0.000249
Beryllium	<0.000208	<0.000210	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00840	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000210	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00365	0.00386	0.00395	0.00216	0.00526	0.00353	0.00339	0.00294	0.00231
Cobalt	0.000530	0.000424	0.000870	0.000285	0.00241	0.000383	0.000787	0.000477	0.000240
Copper	0.0127	0.0111	0.00918	0.0162	0.00695	0.0172	0.00565	0.00239	0.00472
Lead	0.000562	0.000872	0.00185	0.000729	0.00203	0.000828	0.00106	0.000782	0.000277
Manganese	0.00411	0.0194	0.0356	0.0137	0.0407	0.0177	0.0394	0.0260	0.00328
Molybdenum	<0.0000833	0.000192	0.000303	<0.0000833	0.000423	0.000470	0.000186	0.000286	0.000596
Nickel	<0.000833	0.00158	0.00657	0.00145	0.00429	0.00166	0.00395	0.00145	<0.000833
Silver	<0.0000833	<0.0000840	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000239	0.00236	0.00322	0.000648	0.00948	0.00195	0.00310	0.00226	<0.000208
Titanium	<0.000833	0.0116	0.0159	0.00345	0.0330	0.0111	0.0157	0.0154	<0.000833
Uranium	<0.0000833	<0.0000840	<0.0000830	<0.0000833	0.000124	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.000842	0.00184	0.00243	0.00100	0.00525	0.00147	0.00223	0.00170	<0.000833
Zinc	0.0111	0.0183	0.0299	0.0198	0.0259	0.0116	0.0173	0.0105	0.0129
Iron	0.0682	1.11	2.04	0.326	2.21	0.589	1.68	1.25	0.0564



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	28-May	28-May	28-May	28-May					28-May
PM Size(µm)	2.5	2.5	2.5	2.5					2.5
Total Air Volume (m3)	23.681	24.1	24	24					24
Particulate Matter (µg/m3)	6.76	12.7	13.6	7.63					0.375
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0547	0.0933	0.138	0.118	0.2	0.697437488	0.0131		
Arsenic	0.000328	0.00129	0.000283	0.000294	0.005	<	<0.000208		
Barium	0.000747	0.00226	0.00290	0.000539	0.005	<	0.000932		
Beryllium	<0.000211	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00845	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000211	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00190	0.00213	0.00258	0.00175	0.02	0.059668688	0.00158		
Cobalt	0.000236	0.000302	0.00137	0.000166	0.002	0.008423138	0.000233		
Copper	0.00942	0.0113	0.00777	0.0112	0.01	0.068252981	0.00206		
Lead	0.000338	0.000440	0.00193	0.000393	0.005	<	<0.000208		
Manganese	0.00854	0.00988	0.00670	0.00855	0.002	0.058793788	0.00294		
Molybdenum	0.000146	0.000288	0.00113	0.000121	0.002	0.054056456	0.000250		
Nickel	0.00490	0.00498	0.00138	0.000860	0.02	<	0.00250		
Silver	<0.0000845	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000429	0.000810	0.000871	0.000227	0.005	<	<0.000208		
Titanium	0.00267	0.00334	0.00532	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000845	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000845	0.00106	0.000962	<0.000833	0.02	<	<0.000833		
Zinc	0.00657	0.00890	0.0173	0.00835	0.02	0.285995831	0.00475		
Iron	0.193	0.362	0.389	0.149	0.2	1.297757488	0.0158		
Phosphorus	<0.211	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	28-May	28-May	28-May	28-May	28-May	28-May	28-May	28-May	28-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.508	24	24.013	24.05	24.89	24.006	24.002	24
Particulate Matter (µg)	19.9	38.7	46.2	15.8	70.9	13.5	27.0	55.3	0.458
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.338	0.535	0.593	0.139	0.908	0.113	0.528	0.748	0.00876
Arsenic	0.000448	0.00104	0.000636	0.000468	0.000703	<0.000201	0.000449	0.000740	<0.000208
Barium	0.00559	0.0139	0.0153	0.00434	0.0130	0.00181	0.00674	0.0133	0.000363
Beryllium	<0.000208	<0.000213	<0.000208	<0.000208	<0.000208	<0.000201	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00851	<0.00833	<0.00833	<0.00832	<0.00804	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000213	<0.000208	<0.000208	<0.000208	<0.000201	<0.000208	<0.000208	<0.000208
Chromium	0.00205	0.00344	0.00314	0.00191	0.00396	0.00209	0.00260	0.00367	0.00175
Cobalt	0.000417	0.000691	0.000821	0.000337	0.00136	0.000283	0.000536	0.00121	0.000122
Copper	0.0306	0.0115	0.0165	0.0491	0.00491	0.0187	0.00227	0.00524	0.00116
Lead	0.00107	0.00167	0.00242	0.000578	0.00140	0.000591	0.000722	0.00134	<0.000208
Manganese	0.0254	0.0332	0.0444	0.0135	0.0629	0.0120	0.0278	0.0882	0.00552
Molybdenum	0.000186	0.000389	0.000603	0.000243	0.000641	0.000255	0.0000984	0.000358	0.000731
Nickel	0.00209	0.00251	0.00282	0.00277	0.00555	0.00121	0.00233	0.00411	0.00110
Silver	<0.0000833	<0.0000851	<0.0000833	<0.0000833	<0.0000832	<0.0000804	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00259	0.00561	0.00492	0.00107	0.0104	0.00126	0.00336	0.00813	<0.000208
Titanium	0.0129	0.0187	0.0197	0.00516	0.0289	0.00361	0.0142	0.0316	<0.000833
Uranium	<0.0000833	<0.0000851	<0.0000833	<0.0000833	0.0000968	<0.0000804	<0.0000833	0.0000976	<0.0000833
Vanadium (corr)	0.00235	0.00334	0.00364	0.00113	0.00513	0.00141	0.00205	0.00403	<0.000833
Zinc	0.0119	0.0245	0.0247	0.00833	0.0161	0.00787	0.0138	0.0203	0.00713
Iron	1.43	1.90	2.35	0.862	3.46	0.431	1.64	4.78	0.0432



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	3-Jun	3-Jun	3-Jun	3-Jun			3-Jun		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	23.9	24	24	24			24		
Particulate Matter (µg/m3)	11.7	8.88	9.58	5.75			0.375		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.112	0.0836	0.125	0.0455	0.2	0.366378438	0.00992		
Arsenic	0.000374	0.000862	0.000258	0.00296	0.005	<	<0.000208		
Barium	0.00171	0.00235	0.00428	0.00133	0.005	0.007999227	<0.000208		
Beryllium	<0.000209	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00837	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000209	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00242	0.00169	0.00193	0.00202	0.02	0.069606117	0.00175		
Cobalt	0.000367	0.000169	0.000151	0.000171	0.002	0.013668648	0.000122		
Copper	0.0148	0.00643	0.00776	0.0189	0.01	0.052137984	0.00136		
Lead	0.000261	0.00101	0.000526	0.000233	0.005	0.020018602	<0.000208		
Manganese	0.00165	0.00112	0.00152	<0.000833	0.002	0.234887801	<0.000833		
Molybdenum	<0.000837	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833		
Nickel	0.00327	0.00166	0.00104	0.00127	0.02	<	0.00177		
Silver	<0.000837	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833		
Strontium	0.000958	0.000587	0.000776	0.000261	0.005	<	<0.000208		
Titanium	0.00221	0.00187	0.00287	<0.000833	0.02	<	<0.000833		
Uranium	<0.000837	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833		
Vanadium (corr)	0.00134	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833		
Zinc	0.0183	0.0149	0.0217	0.00643	0.02	0.249494977	0.00231		
Iron	0.246	0.211	0.256	0.0729	0.2	2.238284707	0.0241		
Phosphorus	<0.209	<0.208	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.721	25.2	24.011	24.049	24.006	24.009	24.002	24
Particulate Matter (µg)	36.2	23.4	36.4	11.0	79.3	24.4	38.4	35.6	0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.868	0.533	0.937	0.143	1.96	0.478	0.956	0.807	0.0104
Arsenic	0.000711	0.000938	0.000845	0.00305	0.00108	0.000357	0.000687	0.000522	<0.000208
Barium	0.0127	0.0124	0.0229	0.00154	0.0203	0.00718	0.0119	0.00872	<0.000208
Beryllium	<0.000208	<0.000211	<0.000198	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00843	<0.00794	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000211	<0.000198	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00340	0.00262	0.00342	0.00186	0.00489	0.00248	0.00284	0.00293	0.00167
Cobalt	0.000781	0.000701	0.000639	0.000192	0.00357	0.000463	0.000751	0.000853	0.000234
Copper	0.0438	0.00992	0.0130	0.0721	0.00389	0.00912	0.00329	0.00229	0.00123
Lead	0.00106	0.00136	0.00159	0.000396	0.00186	0.000605	0.000852	0.000793	<0.000208
Manganese	0.0332	0.0252	0.0352	0.00291	0.0488	0.0195	0.0316	0.0268	<0.000833
Molybdenum	0.000143	<0.000843	0.000124	<0.000833	0.000164	<0.000833	<0.000833	<0.000833	<0.000833
Nickel	0.00353	0.00960	0.00238	0.00473	0.00481	0.00287	0.00396	0.00287	0.00464
Silver	<0.000833	<0.000843	<0.000794	<0.000833	<0.000832	<0.000833	<0.000833	<0.000833	<0.000833
Strontium	0.0102	0.00433	0.00552	0.000612	0.0136	0.00321	0.00529	0.00465	<0.000208
Titanium	0.0236	0.0154	0.0282	0.00289	0.0383	0.0148	0.0227	0.0183	<0.000833
Uranium	<0.000833	<0.000843	<0.000794	<0.000833	0.000166	<0.000833	<0.000833	<0.000833	<0.000833
Vanadium (corr)	0.00502	0.00176	0.00288	<0.000833	0.00692	0.00304	0.00368	0.00376	<0.000833
Zinc	0.0328	0.0252	0.0343	0.0399	0.0220	0.0130	0.00880	0.0102	0.00784
Iron	2.25	1.71	2.44	0.229	3.33	1.06	1.80	1.76	0.117



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	9-Jun	9-Jun	9-Jun	9-Jun			9-Jun		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24.537	24.1	24	22.7			24		
Particulate Matter (µg/m3)	0.693	1.29	2.08	0.705			0.417		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0207	0.0153	0.0261	0.0168	0.2	0.366378438	0.0114		
Arsenic	<0.000204	<0.000207	<0.000208	<0.000220	0.005	<	<0.000208		
Barium	0.000527	0.000436	0.000491	0.000300	0.005	0.007999227	0.00121		
Beryllium	<0.000204	<0.000207	<0.000208	<0.000220	0.005	<	<0.000208		
Boron	<0.000815	<0.000830	<0.000833	<0.000881	0.2	<	<0.000833		
Cadmium	<0.000204	<0.000207	<0.000208	<0.000220	0.005	<	<0.000208		
Chromium	0.00188	0.00261	0.00244	0.00329	0.02	0.069606117	0.00175		
Cobalt	0.000128	0.000264	0.000244	0.000236	0.002	0.013668648	0.000281		
Copper	0.00483	0.00101	0.00197	0.00246	0.01	0.052137984	0.00116		
Lead	<0.000204	<0.000207	<0.000208	<0.000220	0.005	0.020018602	<0.000208		
Manganese	<0.0000815	<0.0000830	0.0254	<0.0000881	0.002	0.234887801	0.00160		
Molybdenum	0.000214	<0.0000830	0.000579	<0.0000881	0.002	<	<0.0000833		
Nickel	<0.000815	0.00152	0.00136	0.00113	0.02	<	<0.000833		
Silver	<0.0000815	<0.0000830	<0.0000833	<0.0000881	0.002	<	<0.0000833		
Strontium	0.000342	<0.000207	0.000270	<0.000220	0.005	<	<0.000208		
Titanium	<0.000815	<0.000830	<0.000833	<0.000881	0.02	<	<0.000833		
Uranium	<0.0000815	<0.0000830	<0.0000833	<0.0000881	0.002	<	<0.0000833		
Vanadium (corr)	<0.000815	0.00130	0.00592	0.00107	0.02	<	<0.000833		
Zinc	0.00751	0.00341	0.0108	0.00493	0.02	0.249494977	0.00561		
Iron	0.0674	0.0417	0.0424	0.0431	0.2	2.238284707	0.0419		
Phosphorus	<0.204	<0.207	<0.208	<0.220	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.278	25.2	22.653	24.054	24.006	24.011	24.01	24
Particulate Matter (µg)	1.50	2.10	2.74	1.63	1.58	1.54	1.29	2.79	0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0280	0.0244	0.0385	0.0328	0.0345	0.0210	0.0272	0.0503	0.0148
Arsenic	<0.000208	<0.000206	<0.000198	<0.000221	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.000227	0.000640	0.000874	0.000319	0.000262	0.000821	0.000261	0.000548	<0.000208
Beryllium	<0.000208	<0.000206	<0.000198	<0.000221	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00824	<0.00794	<0.00883	<0.00831	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000206	<0.000198	<0.000221	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00241	0.00267	0.00243	0.00217	0.00280	0.00241	0.00256	0.00256	0.00196
Cobalt	0.000633	0.000146	0.000247	0.000369	0.000232	0.000184	0.000187	0.00155	0.000660
Copper	0.0130	0.00142	0.0107	0.00591	0.00114	0.00723	0.00129	0.00154	0.000702
Lead	<0.000208	<0.000206	<0.000198	<0.000221	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Manganese	0.00312	<0.0000824	0.000964	<0.0000883	<0.0000831	0.00199	0.0179	0.00151	<0.0000833
Molybdenum	<0.0000833	0.0000903	0.000743	<0.0000883	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Nickel	0.00115	0.00126	0.00229	0.00203	<0.000831	<0.000833	<0.000833	0.00105	<0.000833
Silver	<0.0000833	<0.0000824	<0.0000794	<0.0000883	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	<0.000208	<0.000206	0.000350	<0.000221	0.000219	0.000222	<0.000208	0.000376	<0.000208
Titanium	0.000886	<0.000824	0.00189	<0.000883	<0.000831	<0.000833	<0.000833	<0.000833	<0.000833
Uranium	<0.0000833	<0.0000824	<0.0000794	<0.0000883	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00203	0.00853	<0.000883	<0.000831	<0.000833	<0.000833	<0.000833	<0.000833
Zinc	0.00897	0.0102	0.0144	0.00587	0.00737	0.00523	0.00401	0.0124	0.00341
Iron	0.0459	0.0807	0.0846	0.0484	0.0734	0.0468	0.0554	0.176	0.0396



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	15-Jun	15-Jun	15-Jun	15-Jun			15-Jun		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	24.09	24.1	24	24			24		
Particulate Matter (µg/m3)	9.80	11.9	18.9	7.17			0.583		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0233	0.0448	0.0364	0.0185	0.2	0.366378438	0.0212		
Arsenic	0.000289	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Barium	0.00129	0.00158	0.00169	0.000259	0.005	0.007999227	0.000305		
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00830	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00214	0.00324	0.00239	0.00211	0.02	0.069606117	0.00287		
Cobalt	0.000284	0.00394	0.000205	0.000233	0.002	0.013668648	0.000295		
Copper	0.00978	0.00365	0.00122	0.00543	0.01	0.052137984	0.000516		
Lead	0.00360	0.0175	0.0253	0.00273	0.005	0.020018602	0.000362		
Manganese	0.00472	0.0143	0.0165	0.00282	0.002	0.234887801	0.00228		
Molybdenum	<0.0000830	0.000255	0.000713	<0.0000833	0.002	<	0.000459		
Nickel	<0.000830	0.00161	0.00124	<0.000833	0.02	<	<0.000833		
Silver	<0.0000830	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	<0.000208	0.000887	0.000445	<0.000208	0.005	<	<0.000208		
Titanium	<0.000830	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000830	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000830	0.00291	0.00735	<0.000833	0.02	<	<0.000833		
Zinc	0.00788	0.0171	0.0183	0.00651	0.02	0.249494977	0.00612		
Iron	0.0425	0.113	0.0894	0.0418	0.2	2.238284707	0.0399		
Phosphorus	<0.208	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.8005	25.2	24.006	24.053	24.007	31.425	24.011	24
Particulate Matter (µg)	13.3	11.8	16.0	10.8	12.8	15.7	21.4	16.7	-0.167
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0349	0.0883	0.101	0.0465	0.0868	0.0493	1.02	0.0903	0.0153
Arsenic	<0.000208	<0.000210	<0.000198	<0.000208	<0.000208	<0.000208	0.00348	<0.000208	<0.000208
Barium	0.000700	0.00431	0.00335	0.000721	0.000703	0.00113	0.00191	0.00156	<0.000208
Beryllium	<0.000208	<0.000210	<0.000198	<0.000208	<0.000208	<0.000208	<0.000159	<0.000208	<0.000208
Boron	<0.00833	<0.00840	<0.00794	<0.00833	<0.00831	<0.00833	<0.00636	<0.00833	<0.00833
Cadmium	<0.000208	<0.000210	<0.000198	<0.000208	<0.000208	<0.000208	<0.000159	<0.000208	<0.000208
Chromium	0.00243	0.00255	0.00240	0.00178	0.00219	0.00258	0.00780	0.00299	0.00260
Cobalt	0.000802	0.000469	0.000267	0.000494	0.000366	0.000214	0.000158	0.000753	0.000202
Copper	0.0130	0.00263	0.0287	0.0256	0.000675	0.0116	0.00684	0.00163	<0.000417
Lead	0.00156	0.000784	0.0121	0.000725	0.00547	0.00167	0.00382	0.00919	0.00127
Manganese	0.00428	0.00567	0.0123	0.00308	0.00631	0.00487	0.00810	0.00973	0.00205
Molybdenum	<0.0000833	0.000179	0.000310	<0.0000833	<0.0000831	<0.0000833	<0.0000636	<0.0000833	0.000938
Nickel	<0.000833	0.000903	0.00113	<0.000833	<0.000831	<0.000833	0.00489	<0.000833	<0.000833
Silver	<0.0000833	<0.0000840	<0.0000794	<0.0000833	<0.0000831	<0.0000833	0.0000760	<0.0000833	<0.0000833
Strontium	0.000346	0.000726	0.000925	0.000321	0.000280	0.000371	0.000602	0.000725	<0.000208
Titanium	0.00113	0.00250	0.00324	0.00106	<0.000831	<0.000833	0.00502	0.00257	<0.000833
Uranium	<0.0000833	<0.0000840	<0.0000794	<0.0000833	<0.0000831	<0.0000833	<0.0000636	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00228	0.00302	<0.000833	<0.000831	<0.000833	0.000849	0.000871	<0.000833
Zinc	0.00986	0.00705	0.0213	0.00760	0.0115	0.0107	0.0810	0.0108	0.00415
Iron	0.120	0.289	0.320	0.0692	0.151	0.125	0.575	0.444	0.0649



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	21-Jun	21-Jun	21-Jun	21-Jun			21-Jun
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.765	24.1	24	24			24
Particulate Matter (µg/m3)	7.91	9.50	7.88	3.79			0.583
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.107	0.143	0.153	0.0335	0.2	0.366378438	0.0118
Arsenic	0.000271	0.000690	0.000379	<0.000208	0.005	<	<0.000208
Barium	0.00148	0.00315	0.00416	0.000574	0.005	0.0079999227	0.000243
Beryllium	<0.000210	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00842	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000210	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00439	0.00220	0.00236	0.00244	0.02	0.069606117	0.00220
Cobalt	0.000342	0.000489	0.000340	0.000165	0.002	0.013668648	0.000126
Copper	0.0217	0.0130	0.00676	0.0189	0.01	0.052137984	0.00194
Lead	0.0102	0.0663	0.0110	0.000905	0.005	0.020018602	0.00119
Manganese	0.00687	0.00753	0.00979	0.00763	0.002	0.234887801	0.0163
Molybdenum	<0.0000842	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833
Nickel	0.00175	0.000989	<0.000833	<0.000833	0.02	<	0.00151
Silver	<0.0000842	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000756	0.000845	0.000759	0.000230	0.005	<	<0.000208
Titanium	<0.000842	0.00346	0.00379	<0.000833	0.02	<	<0.000833
Uranium	<0.0000842	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.00111	0.00113	0.000949	<0.000833	0.02	<	<0.000833
Zinc	0.00721	0.00813	0.0118	0.0121	0.02	0.249494977	0.00428
Iron	0.203	0.396	0.392	0.107	0.2	2.238284707	0.109
Phosphorus	<0.210	<0.207	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	Albian Muskeg River	
Sample Date	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.521	25.2	24.01	24.052	24.01	24.011	24
Particulate Matter (µg)	27.5	77.3	46.7	11.2	65.9	18.1	68.7	0.667
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.498	1.53	1.21	0.199	1.38	0.324	1.31	0.0169
Arsenic	0.000518	0.00160	0.00113	<0.000208	0.000764	<0.000208	0.000863	<0.000208
Barium	0.00779	0.0294	0.0285	0.00275	0.0151	0.00429	0.0181	0.00119
Beryllium	<0.000208	<0.000213	<0.000198	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00850	<0.00794	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000213	<0.000198	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00340	0.00565	0.00462	0.00231	0.00496	0.00299	0.00474	0.00205
Cobalt	0.000579	0.00119	0.000969	0.000143	0.00183	0.000363	0.00185	0.000159
Copper	0.0454	0.0188	0.0297	0.0656	0.00453	0.00174	0.00359	0.00101
Lead	0.00607	0.0293	0.0128	0.00110	0.00469	0.00180	0.00291	0.0252
Manganese	0.0261	0.109	0.0618	0.0103	0.0518	0.0134	0.0946	0.0219
Molybdenum	<0.0000833	<0.0000850	0.000177	<0.0000833	0.0000974	<0.0000833	0.000143	<0.0000833
Nickel	0.00181	0.00352	0.00285	0.00133	0.0132	0.00160	0.00482	<0.000833
Silver	0.0000897	<0.0000850	<0.0000794	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00519	0.0124	0.00741	0.000726	0.0102	0.00243	0.0113	<0.000208
Titanium	0.0128	0.0669	0.0378	0.00492	0.0421	0.00999	0.0427	<0.000833
Uranium	<0.0000833	0.000145	0.0000926	<0.0000833	0.000138	<0.0000833	0.000135	<0.0000833
Vanadium (corr)	0.00300	0.00640	0.00468	0.00101	0.00570	0.00255	0.00577	<0.000833
Zinc	0.0137	0.0291	0.0373	0.00724	0.0329	0.00851	0.0160	0.00878
Iron	1.44	6.91	3.91	0.425	3.03	0.712	5.37	0.0530



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	27-Jun	27-Jun	27-Jun	27-Jun					27-Jun
PM Size(µm)	2.5	2.5	2.5	2.5					2.5
Total Air Volume (m3)	24	24.1	24	24					24
Particulate Matter (µg/m3)	3.75	2.07	2.79	1.13					0.208
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0310	0.151	0.0279	0.0159	0.2	0.366378438	0.0280		
Arsenic	0.000311	<0.000207	<0.000208	0.000338	0.005	<	<0.000208		
Barium	0.00124	0.00285	0.00244	0.000891	0.005	0.007999227	<0.000208		
Beryllium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00833	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000208	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00160	0.00980	0.00279	0.00269	0.02	0.069606117	0.00355		
Cobalt	0.000323	0.000455	0.00211	<0.0000833	0.002	0.013668648	0.000122		
Copper	0.00809	0.0273	0.0132	0.0117	0.01	0.052137984	0.00120		
Lead	0.00393	0.00160	0.000749	0.000276	0.005	0.020018602	0.00114		
Manganese	0.00796	0.00656	0.00414	0.00168	0.002	0.234887801	0.00405		
Molybdenum	0.000158	0.000614	<0.0000833	<0.0000833	0.002	<	0.000571		
Nickel	0.00372	0.00148	0.000866	<0.000833	0.02	<	<0.000833		
Silver	<0.0000833	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000228	0.000874	0.000296	0.000621	0.005	<	<0.000208		
Titanium	<0.000833	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000833	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium (corr)	<0.000833	<0.000830	<0.000833	<0.000833	0.02	<	<0.000833		
Zinc	0.00533	0.0417	0.00505	0.00340	0.02	0.249494977	0.00668		
Iron	0.0389	0.206	0.280	0.0212	0.2	2.238284707	0.286		
Phosphorus	<0.208	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.739	25.2	24.009	24.053	24.015	23.847	24.014	24
Particulate Matter (µg)	6.75	4.93	8.17	6.08	7.11	6.75	9.02	11.1	-0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0411	0.0515	0.112	0.0220	0.0899	0.0283	0.0223	0.0908	0.0178
Arsenic	0.000240	<0.000211	<0.000198	0.000359	<0.000208	<0.000208	<0.000210	<0.000208	<0.000208
Barium	0.00187	0.00235	0.00664	0.00115	0.000763	0.000607	0.000717	0.00150	<0.000208
Beryllium	<0.000208	<0.000211	<0.000198	<0.000208	<0.000208	<0.000208	<0.000210	<0.000208	<0.000208
Boron	<0.00833	<0.00842	<0.00794	<0.00833	<0.00831	<0.00833	<0.00839	<0.00833	<0.00833
Cadmium	<0.000208	<0.000211	<0.000198	<0.000208	<0.000208	<0.000208	<0.000210	<0.000208	<0.000208
Chromium	0.00186	0.00239	0.00252	0.00199	0.00269	0.00330	0.00214	0.00271	0.00170
Cobalt	0.000149	0.000367	0.000455	0.000108	0.000773	0.000112	0.00227	0.000274	0.000316
Copper	0.0202	0.0108	0.0324	0.0372	0.00146	0.000751	0.000579	0.00199	0.00105
Lead	0.00175	0.000447	0.000410	0.000239	0.000551	0.000387	0.000508	0.000403	0.0544
Manganese	0.00449	0.00325	0.00473	0.00309	0.00421	0.00255	0.00372	0.0103	0.00448
Molybdenum	<0.0000833	<0.0000842	<0.0000794	<0.0000833	<0.0000831	0.000103	<0.0000839	0.000171	0.000212
Nickel	0.000872	<0.000842	<0.000794	<0.000833	0.000846	0.00101	<0.000839	0.00120	<0.000833
Silver	<0.0000833	<0.0000842	<0.0000794	<0.0000833	<0.0000831	<0.0000833	<0.0000839	<0.0000833	<0.0000833
Strontium	0.000536	0.000380	0.000909	0.000692	0.000381	0.000244	0.000261	0.000929	<0.000208
Titanium	0.00329	0.000851	0.00321	<0.000833	<0.000831	<0.000833	<0.000839	0.00192	0.00119
Uranium	<0.0000833	<0.0000842	<0.0000794	<0.0000833	<0.0000831	<0.0000833	<0.0000839	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	<0.000842	<0.000794	<0.000833	<0.000831	0.00112	<0.000839	0.000897	<0.000833
Zinc	0.00654	0.0127	0.00559	0.00402	0.00624	0.00311	0.00514	0.00510	0.00326
Iron	0.130	0.124	0.328	0.0492	0.193	0.0917	0.117	0.628	0.0398



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	3-Jul	3-Jul	3-Jul	3-Jul			3-Jul		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	23.285	24.1	24	24			24		
Particulate Matter (µg/m3)	8.59	7.54	5.17	7.83			-0.653		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0870	0.0694	0.0489	0.0573	0.2	0.396164893	0.0168		
Arsenic	0.000326	<0.000207	0.000226	<0.000208	0.005	<	<0.000208		
Barium	0.00103	0.00126	0.00265	0.000648	0.005	0.017977464	0.000390		
Beryllium	<0.000215	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00859	<0.00830	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000215	<0.000207	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00463	0.00316	0.00328	0.00275	0.02	0.106523464	0.00295		
Cobalt	0.000868	0.000760	0.000183	0.000362	0.002	0.007872366	0.000172		
Copper	0.0134	0.00151	0.00753	0.0163	0.01	0.052008415	0.00135		
Lead	0.000781	0.000313	0.000419	0.000342	0.005	<	0.000293		
Manganese	0.00485	0.00420	0.00390	0.00303	0.002	0.272541563	0.00602		
Molybdenum	<0.0000859	0.000122	<0.0000833	<0.0000833	0.002	0.010704335	0.000370		
Nickel	0.00106	<0.000830	<0.000833	<0.000833	0.02	<	0.00173		
Silver	0.000178	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000484	0.000507	0.000529	0.000237	0.005	<	0.000313		
Titanium	<0.000859	<0.000830	0.00259	<0.000833	0.02	<	<0.000833		
Uranium	<0.0000859	<0.0000830	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium	0.00110	<0.000830	<0.000833	<0.000833	0.02	0.025111371	<0.000833		
Zinc	0.0159	0.00674	0.00885	0.0110	0.02	0.297446277	0.0427		
Iron	0.111	0.207	0.177	0.158	0.2	0.880868045	0.0499		
Phosphorus	<0.215	<0.207	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.095	25.2	24.008	24.05	24.009	23.414	24.014	25.2
Particulate Matter (µg)	12.9	14.4	22.7	17.5	44.2	38.8	65.5	75.2	0.542
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.120	0.228	0.349	0.236	0.704	0.729	1.11	1.00	0.0167
Arsenic	<0.000208	<0.000216	0.000415	<0.000208	0.000486	0.000522	0.000759	0.000607	<0.000198
Barium	0.00270	0.00494	0.0119	0.00444	0.00973	0.0147	0.0211	0.0171	0.000212
Beryllium	<0.000208	<0.000216	<0.000198	<0.000208	<0.000208	<0.000208	<0.000214	<0.000208	<0.000198
Boron	<0.00833	<0.00866	<0.00794	<0.00833	<0.00832	<0.00833	<0.00854	<0.00833	<0.00794
Cadmium	<0.000208	<0.000216	<0.000198	<0.000208	<0.000208	<0.000208	<0.000214	<0.000208	<0.000198
Chromium	0.00286	0.00320	0.00419	0.00261	0.00512	0.00402	0.00504	0.00442	0.00263
Cobalt	0.000220	0.000427	0.000489	0.000387	0.00124	0.00110	0.00161	0.00131	0.000211
Copper	0.0356	0.00487	0.0123	0.0487	0.00473	0.00310	0.00361	0.00316	0.00132
Lead	0.000513	0.000543	0.000811	0.000630	0.00125	0.00130	0.00173	0.00162	<0.000198
Manganese	0.00967	0.0144	0.0268	0.0174	0.0449	0.0961	0.0668	0.0673	0.00127
Molybdenum	<0.0000833	<0.0000866	<0.0000794	<0.0000833	0.000144	<0.0000833	<0.0000854	<0.0000833	0.000781
Nickel	0.000912	0.00110	0.00140	0.000895	0.00298	0.00287	0.00321	0.00469	<0.000794
Silver	<0.0000833	<0.0000866	<0.0000794	<0.0000833	<0.0000832	<0.0000833	<0.0000854	<0.0000833	<0.0000794
Strontium	0.00117	0.00199	0.00308	0.00101	0.00639	0.00367	0.00994	0.00911	<0.000198
Titanium	0.00326	0.00800	0.0125	0.00867	0.0270	0.0249	0.0336	0.0445	<0.000794
Uranium	<0.0000833	<0.0000866	<0.0000794	<0.0000833	<0.0000832	<0.0000833	0.000162	0.000148	<0.0000794
Vanadium	0.00102	0.00136	0.00188	0.00120	0.00472	0.00329	0.00506	0.00477	<0.000794
Zinc	0.0113	0.0153	0.0261	0.00918	0.0255	0.0236	0.0171	0.0216	0.00741
Iron	0.402	0.905	1.34	0.666	2.65	5.74	2.61	3.59	0.0410



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	9-Jul	9-Jul	9-Jul	9-Jul			9-Jul
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.592	24	24	24			24
Particulate Matter (µg/m3)	13.8	11.4	12.6	10.8			0.0278
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0569	0.0777	0.0625	0.0855	0.2	0.396164893	0.0396
Arsenic	0.000318	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.00120	0.00202	0.00349	0.00106	0.005	0.017977464	0.000243
Beryllium	<0.000212	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00848	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000212	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00239	0.00206	0.00216	0.00218	0.02	0.106523464	0.00245
Cobalt	0.000645	0.000365	0.000186	0.000769	0.002	0.007872366	0.000196
Copper	0.0137	0.0137	0.0122	0.0153	0.01	0.052008415	0.00184
Lead	0.000496	0.000436	0.000493	0.000979	0.005	<	<0.000208
Manganese	0.00616	0.00511	0.00429	0.00463	0.002	0.272541563	0.00353
Molybdenum	0.000290	<0.000833	0.000191	<0.000833	0.002	0.010704335	<0.000833
Nickel	0.00155	<0.000833	0.000984	0.00105	0.02	<	<0.000833
Silver	<0.0000848	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833
Strontium	0.000546	0.000430	0.000522	0.000300	0.005	<	<0.000208
Titanium	0.00194	0.00164	0.00172	<0.000833	0.02	<	<0.000833
Uranium	<0.0000848	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833
Vanadium	0.00180	<0.000833	<0.000833	<0.000833	0.02	0.025111371	<0.000833
Zinc	0.0161	0.0135	0.00939	0.0136	0.02	0.297446277	0.0142
Iron	0.202	0.203	0.209	0.201	0.2	0.880868045	0.207
Phosphorus	<0.212	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.56	25.2	24.007	24.052	24.009	23.649	24.001	24
Particulate Matter (µg)	23.0	28.9	33.1	16.4	28.8	24.2	22.0	26.0	-0.222
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.238	0.374	0.414	0.226	0.299	0.180	0.233	0.277	0.0229
Arsenic	0.000359	0.000402	0.000472	<0.000208	0.000237	0.000220	<0.000211	0.000412	<0.000208
Barium	0.00481	0.00871	0.0156	0.00257	0.00471	0.00343	0.00379	0.00542	0.000299
Beryllium	<0.000208	<0.000212	<0.000198	<0.000208	<0.000208	<0.000208	<0.000211	<0.000208	<0.000208
Boron	<0.00833	<0.00849	<0.00794	<0.00833	<0.00832	<0.00833	<0.00846	<0.00833	<0.00833
Cadmium	<0.000208	<0.000212	<0.000198	<0.000208	<0.000208	<0.000208	<0.000211	<0.000208	<0.000208
Chromium	0.00293	0.00280	0.00281	0.00238	0.00353	0.00361	0.00274	0.00345	0.00199
Cobalt	0.000496	0.00463	0.000750	0.000406	0.000536	0.000331	0.000460	0.000450	0.000334
Copper	0.0264	0.0154	0.0168	0.0337	0.00482	0.00281	0.00206	0.00641	0.00228
Lead	0.000610	0.000858	0.00108	0.000511	0.000622	0.000540	0.000570	0.000895	<0.000208
Manganese	0.0159	0.0217	0.0284	0.00843	0.0232	0.0116	0.0133	0.0253	0.00294
Molybdenum	0.000423	0.000109	0.000352	<0.000833	0.000304	0.000532	0.000211	0.000577	0.000428
Nickel	0.00290	0.00287	0.00204	0.00205	0.00209	0.00158	0.00157	0.00218	<0.000833
Silver	<0.000833	<0.000849	<0.000794	<0.000833	<0.000832	<0.000833	<0.000846	<0.000833	<0.000833
Strontium	0.00259	0.00237	0.00318	0.000687	0.00254	0.00146	0.00207	0.00278	<0.000208
Titanium	0.00796	0.0121	0.0154	0.00319	0.00800	0.00527	0.00760	0.0113	<0.000833
Uranium	<0.000833	<0.000849	<0.000794	<0.000833	<0.000832	<0.000833	<0.000846	<0.000833	<0.000833
Vanadium	0.00310	0.00181	0.00181	<0.000833	0.00213	0.00314	0.00236	0.00279	<0.000833
Zinc	0.0296	0.0408	0.0269	0.0115	0.0186	0.0139	0.0121	0.0438	0.00969
Iron	0.975	1.22	1.73	0.350	1.49	0.773	0.767	1.69	0.0444



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank	
Station Name	Fort McKay	Athabasca Valley	Anzac				
Sample Date	15-Jul	15-Jul	15-Jul			15-Jul	
PM Size(µm)	2.5	2.5	2.5			2.5	
Total Air Volume (m3)	24	24	24			24	
Particulate Matter (µg/m3)	2.65	2.82	0.0278			-1.17	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)	
Aluminum	0.0421	0.0536	0.159	0.2	0.396164893	0.0266	
Arsenic	<0.000208	0.000332	<0.000208	0.005	<	<0.000208	
Barium	0.000562	0.00453	0.00146	0.005	0.017977464	0.00176	
Beryllium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208	
Boron	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833	
Cadmium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208	
Chromium	0.00380	0.00471	0.00365	0.02	0.106523464	0.00480	
Cobalt	0.000566	0.000244	0.000203	0.002	0.007872366	0.000729	
Copper	0.0163	0.00876	0.0243	0.01	0.052008415	0.00194	
Lead	0.000228	0.000342	0.000447	0.005	<	<0.000208	
Manganese	0.00292	0.00500	0.00344	0.002	0.272541563	0.00295	
Molybdenum	<0.0000833	<0.0000833	<0.0000833	0.002	0.010704335	<0.0000833	
Nickel	<0.000833	<0.000833	0.00110	0.02	<	0.000889	
Silver	<0.0000833	<0.0000833	0.000349	0.002	<	<0.0000833	
Strontium	0.000242	0.000565	0.000330	0.005	<	<0.000208	
Titanium	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833	
Uranium	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833	
Vanadium	<0.000833	0.00188	0.00101	0.02	0.025111371	0.00106	
Zinc	0.0153	0.0118	0.0189	0.02	0.297446277	0.0170	
Iron	0.225	0.252	0.151	0.2	0.880868045	0.262	
Phosphorus	<0.208	<0.208	<0.208	5	<	<0.208	

Station #	AMS 1	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.051	24.007	24	24	24
Particulate Matter (µg)	6.85	20.2	-0.250	25.6	2.01	6.67	26.5	-0.278
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.119	0.347	0.0806	0.383	0.0891	0.0457	0.712	<0.00833
Arsenic	<0.000208	0.000656	<0.000208	0.000360	<0.000208	<0.000208	0.000476	<0.000208
Barium	0.00249	0.0128	0.00347	0.00897	0.00299	0.00189	0.0110	0.000396
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00463	0.00528	0.00410	0.00511	0.00492	0.00232	0.00551	0.00381
Cobalt	0.000606	0.000857	0.000248	0.000981	0.000525	0.000650	0.00133	0.000558
Copper	0.0546	0.0371	0.0762	0.00239	0.00184	0.000992	0.00297	0.000947
Lead	0.000336	0.000946	0.000549	0.000594	0.000447	<0.000208	0.00105	<0.000208
Manganese	0.00864	0.0227	0.00761	0.0250	0.00661	0.00716	0.0600	0.00466
Molybdenum	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Nickel	0.0358	0.00333	0.00193	0.00180	<0.000833	<0.000833	0.00341	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00115	0.00311	0.000702	0.00368	0.000855	0.000423	0.00659	<0.000208
Titanium	0.00185	0.0123	0.00155	0.0112	0.000975	<0.000833	0.0272	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium	0.00154	0.00320	0.00149	0.00327	0.00146	0.000841	0.00392	0.000879
Zinc	0.0143	0.0346	0.0348	0.0197	0.0109	0.00990	0.0181	0.00969
Iron	0.487	1.61	0.513	1.60	0.328	0.149	3.71	0.0940



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	21-Jul	21-Jul	21-Jul	21-Jul			21-Jul		
PM Size(µm)	2.5	2.5	2.5	2.5			2.5		
Total Air Volume (m3)	23.65	23.715	24	24			24		
Particulate Matter (µg/m3)	7.34	13.2	11.3	6.42			-0.924		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0530	0.0584	0.0561	0.0225	0.2	0.396164893	<0.00833		
Arsenic	<0.000211	0.000463	0.000908	<0.000208	0.005	<	<0.000208		
Barium	0.00105	0.00192	0.00328	0.00185	0.005	0.017977464	0.000680		
Beryllium	<0.000211	<0.000211	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	<0.00846	<0.00843	<0.00833	<0.00833	0.2	<	<0.00833		
Cadmium	<0.000211	<0.000211	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00373	0.00546	0.00486	0.00298	0.02	0.106523464	0.00401		
Cobalt	0.000790	0.000269	0.000288	0.000179	0.002	0.007872366	0.000325		
Copper	0.0296	0.0150	0.00795	0.0448	0.01	0.052008415	0.00120		
Lead	0.000286	0.000448	0.000464	<0.000208	0.005	<	0.000318		
Manganese	0.00489	0.00516	0.0104	0.00254	0.002	0.272541563	0.00254		
Molybdenum	0.000156	0.000413	0.000371	<0.0000833	0.002	0.010704335	<0.0000833		
Nickel	0.000890	0.00116	0.00112	0.000836	0.02	<	0.00103		
Silver	<0.0000846	<0.0000843	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Strontium	0.000458	0.000609	0.000528	0.000285	0.005	<	<0.000208		
Titanium	<0.000846	<0.000843	0.00475	0.00127	0.02	<	<0.000833		
Uranium	<0.0000846	<0.0000843	<0.0000833	<0.0000833	0.002	<	<0.0000833		
Vanadium	0.00122	0.00515	0.00347	0.00112	0.02	0.025111371	0.000898		
Zinc	0.0112	0.0165	0.0173	0.0108	0.02	0.297446277	0.0130		
Iron	0.366	0.298	0.293	0.166	0.2	0.880868045	0.0773		
Phosphorus	<0.211	<0.211	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	26.1	24.011	24.05	24.008	23.776	24.005	24
Particulate Matter (µg)	23.9	46.1	37.1	20.8	89.0	1.37	20.5	52.6	-0.368
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.481	0.775	0.594	0.296	1.93	0.238	0.541	0.897	<0.00833
Arsenic	0.000380	0.000917	0.00139	0.000367	0.00137	0.000220	0.000485	0.000647	<0.000208
Barium	0.00608	0.0142	0.0128	0.00557	0.0214	0.00349	0.0163	0.0116	0.00114
Beryllium	<0.000208	<0.000208	<0.000192	<0.000208	<0.000208	<0.000208	<0.000210	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00766	<0.00833	<0.00832	<0.00833	<0.00841	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000192	<0.000208	<0.000208	<0.000208	<0.000210	<0.000208	<0.000208
Chromium	0.00425	0.00557	0.00452	0.00346	0.00689	0.00382	0.00427	0.00451	0.00389
Cobalt	0.000777	0.000872	0.000705	0.000380	0.00201	0.000377	0.00128	0.00115	0.000126
Copper	0.0772	0.0194	0.0278	0.134	0.00623	0.00194	0.00228	0.00253	0.00109
Lead	0.000613	0.00109	0.00145	0.000639	0.00198	0.000386	0.000822	0.00108	<0.000208
Manganese	0.0301	0.0454	0.0314	0.0219	0.0832	0.0165	0.0212	0.0634	0.00159
Molybdenum	0.000175	0.000741	0.000534	0.000175	0.000530	0.000108	0.000161	0.000302	0.0000940
Nickel	0.00192	0.00332	0.00261	0.00145	0.00609	0.00124	0.00205	0.00281	<0.000833
Silver	<0.0000833	<0.0000833	0.0000968	<0.0000833	<0.0000832	<0.0000833	<0.0000841	<0.0000833	<0.0000833
Strontium	0.00357	0.00551	0.00421	0.00142	0.0137	0.00171	0.00333	0.00565	<0.000208
Titanium	0.0128	0.0247	0.0203	0.00912	0.0472	0.00784	0.0125	0.0284	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000766	<0.0000833	0.000133	<0.0000833	<0.0000841	0.0000835	<0.0000833
Vanadium	0.00271	0.00761	0.00576	0.00219	0.00822	0.00195	0.00310	0.00441	0.000921
Zinc	0.0197	0.0302	0.0355	0.0188	0.0291	0.0134	0.0176	0.0171	0.0127
Iron	2.09	3.03	2.24	0.947	5.57	1.14	1.47	4.03	0.0383



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Athabasca Valley			
Sample Date	7-Sep	7-Sep			7-Sep
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	6.08	6.92			-0.208
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0408	0.0917	0.2	0.58975125	<0.00833
Arsenic	<0.000208	0.000718	0.005	<	<0.000208
Barium	<0.000208	0.00233	0.005	<	<0.000208
Beryllium	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00436	0.00409	0.02	0.099437325	0.000889
Cobalt	0.000554	0.000484	0.002	0.022902113	0.0000940
Copper	0.00232	0.00574	0.01	0.036934331	<0.000417
Lead	0.000264	0.00118	0.005	0.006733119	<0.000208
Manganese	0.00361	0.00686	0.002	0.997633256	0.00201
Molybdenum	0.000232	0.000393	0.002	0.035320519	0.000439
Nickel	<0.000833	0.00113	0.02	0.033989531	<0.000833
Silver	0.0000946	<0.0000833	0.002	<	<0.0000833
Strontium	0.000377	0.000471	0.005	0.0058511	<0.000208
Titanium	<0.000833	0.00234	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.000947	0.00103	0.02	0.024266081	<0.000833
Zinc	0.0108	0.0225	0.02	0.458229075	0.00502
Iron	0.173	0.206	0.2	1.356313594	0.00868
Phosphorus	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.052	24	24	24	24
Particulate Matter (µg)	44.1	15.0	36.3	13.8	40.2	33.6	16.3	30.5	0.361
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.105	0.242	0.354	0.0791	0.568	0.0614	0.0832	0.321	0.0191
Arsenic	0.000234	<0.000208	0.000819	<0.000208	0.000398	<0.000208	<0.000208	0.000281	<0.000208
Barium	0.000616	0.00514	0.0112	0.000624	0.00759	<0.000208	0.000458	0.00291	<0.000208
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00286	0.00441	0.00386	0.00304	0.00415	0.00311	0.00440	0.00418	0.00317
Cobalt	0.000399	0.000733	0.000532	0.000323	0.00120	0.000408	0.000309	0.000580	0.000305
Copper	0.0439	0.00454	0.0108	0.0553	0.00253	0.00444	0.00157	0.00364	0.000978
Lead	0.000569	0.000852	0.00158	0.000477	0.00103	0.000600	0.000353	0.000896	<0.000208
Manganese	0.00779	0.0140	0.0204	0.0135	0.0313	0.0200	0.00905	0.0174	0.00389
Molybdenum	0.0000987	0.000362	0.000513	0.000140	0.000607	0.000609	0.000372	0.000632	0.00139
Nickel	0.00114	0.00151	0.00143	0.00133	0.00277	0.00259	0.00126	0.00214	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000832	0.000171	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000901	0.00271	0.00250	0.000536	0.00517	0.000493	0.000808	0.00295	<0.000208
Titanium	0.00172	0.00617	0.0104	0.00193	0.0177	<0.000833	<0.000833	0.0135	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.000122	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.00145	0.00171	0.000905	0.00310	0.000866	0.00114	0.00201	<0.000833
Zinc	0.0376	0.0170	0.0330	0.0130	0.0165	0.0173	0.0146	0.0188	0.0128
Iron	0.314	0.662	1.03	0.242	1.68	0.139	0.316	0.691	0.0352



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes			
Sample Date	13-Sep	13-Sep			13-Sep
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	11.0	6.04			0.971
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.209	0.116	0.2	0.58975125	0.0316
Arsenic	0.000417	0.000376	0.005	<	<0.000208
Barium	0.00240	0.00103	0.005	<	<0.000208
Beryllium	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00226	0.00350	0.02	0.099437325	0.00353
Cobalt	0.000264	0.000213	0.002	0.022902113	0.000431
Copper	0.0150	0.00511	0.01	0.036934331	0.00181
Lead	0.000462	0.000306	0.005	0.006733119	<0.000208
Manganese	0.0188	0.00798	0.002	0.997633256	0.00653
Molybdenum	0.00119	0.000806	0.002	0.035320519	0.000626
Nickel	0.00116	0.000945	0.02	0.033989531	0.00118
Silver	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.00144	0.000720	0.005	0.0058511	<0.000208
Titanium	0.00697	0.00186	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.00112	0.00209	0.02	0.024266081	<0.000833
Zinc	0.0130	0.00714	0.02	0.458229075	0.0300
Iron	0.819	0.257	0.2	1.356313594	0.0246
Phosphorus	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24.052	24.003	24	24	24
Particulate Matter (µg)	17.6	36.5	39.2	17.3	75.0	31.0	20.3	51.9	0.180
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.452	0.808	0.730	0.205	1.76	0.387	0.339	0.639	0.0130
Arsenic	0.000389	0.000793	0.000747	<0.000208	0.00140	0.000326	0.000218	0.000355	<0.000208
Barium	0.00619	0.0141	0.0170	0.00311	0.0153	0.00603	0.00388	0.00801	<0.000208
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00252	0.00401	0.00487	0.00319	0.00609	0.00357	0.00374	0.00560	0.00302
Cobalt	0.000500	0.000779	0.000948	0.000339	0.00150	0.000442	0.000350	0.000731	0.000173
Copper	0.0260	0.00753	0.0222	0.107	0.00649	0.00395	0.00279	0.00308	0.00123
Lead	0.000669	0.000863	0.00112	0.000610	0.00223	0.000740	0.000433	0.000916	0.000213
Manganese	0.0365	0.0395	0.0425	0.0157	0.0681	0.0288	0.0187	0.0507	0.00267
Molybdenum	0.000296	0.000596	0.00110	0.000138	0.000742	0.000747	0.000347	0.000289	0.00107
Nickel	0.00147	0.00230	0.00272	0.00340	0.00590	0.00191	0.00286	0.00263	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000830	<0.000833	<0.000832	<0.000833	<0.000833	<0.000833	<0.0000833
Strontium	0.00339	0.00748	0.00567	0.00118	0.0113	0.00279	0.00124	0.00511	<0.000208
Titanium	0.0194	0.0276	0.0269	0.00545	0.0399	0.0147	0.00809	0.0270	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.000833	0.000127	<0.000833	<0.000833	0.0000950	<0.000833
Vanadium (corr)	0.00207	0.00448	0.00402	0.00167	0.00527	0.00213	0.00210	0.00297	<0.000833
Zinc	0.0113	0.0172	0.0238	0.0303	0.145	0.0115	0.0114	0.0196	0.00530
Iron	1.85	1.93	2.08	0.500	3.86	1.68	0.797	2.24	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	19-Sep	19-Sep	19-Sep	19-Sep			19-Sep
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	4.79	1.85	3.42	1.00			0.554
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0548	0.0382	0.0748	0.0178	0.2	0.58975125	0.0458
Arsenic	0.000582	0.00140	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.000683	0.000688	0.00293	<0.000208	0.005	<	<0.000208
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00362	0.00417	0.00454	0.00358	0.02	0.099437325	0.00482
Cobalt	0.000166	0.000179	0.000147	<0.0000833	0.002	0.022902113	0.000143
Copper	0.0256	0.00957	0.00550	0.0165	0.01	0.036934331	0.00194
Lead	0.000374	0.000314	0.000449	<0.000208	0.005	0.006733119	<0.000208
Manganese	0.00438	0.00211	0.00558	0.00309	0.002	0.997633256	0.00362
Molybdenum	0.000336	0.000252	0.000698	<0.0000833	0.002	0.035320519	0.000219
Nickel	0.00130	<0.000833	0.00117	<0.000833	0.02	0.033989531	0.000840
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.002	<	0.0000869
Strontium	0.000432	0.000276	0.000505	<0.000208	0.005	0.0058511	<0.000208
Titanium	<0.000833	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.00190	0.000994	0.00123	0.000834	0.02	0.024266081	0.00118
Zinc	0.0106	0.0134	0.0141	0.00861	0.02	0.458229075	0.0150
Iron	0.150	0.106	0.167	0.0546	0.2	1.356313594	0.0607
Phosphorus	<0.208	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.055	24	24	24	24
Particulate Matter (µg)	10.8	5.00	14.2	0.904	7.69	7.75	10.3	12.8	2.90
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.203	0.0940	0.331	0.0342	0.169	0.149	0.136	0.288	0.0269
Arsenic	0.000536	0.00188	0.000261	<0.000208	<0.000208	0.000222	<0.000208	0.000218	<0.000208
Barium	0.00285	0.00310	0.0127	<0.000208	0.00230	0.00198	0.00119	0.00389	<0.000208
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00831	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00427	0.00463	0.00455	0.00385	0.00447	0.00342	0.00448	0.00450	0.00437
Cobalt	0.000283	0.000251	0.000386	0.000153	0.000363	0.000362	0.000251	0.000560	0.000258
Copper	0.0484	0.0100	0.00901	0.0437	0.00194	0.0447	0.00458	0.00302	0.00301
Lead	0.000392	0.000419	0.000729	<0.000208	0.000318	0.000387	0.000340	0.000463	0.000360
Manganese	0.0121	0.00482	0.0192	0.00420	0.0113	0.00896	0.00869	0.0221	0.0179
Molybdenum	0.000318	0.000491	0.000813	<0.0000833	0.00120	0.000915	0.000120	0.0000941	0.000594
Nickel	0.00147	0.00106	0.00127	<0.000833	0.000929	0.00453	0.000868	0.00132	0.00102
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00220	0.000720	0.00244	0.000280	0.00129	0.00146	0.00105	0.00215	<0.000208
Titanium	0.00524	0.00102	0.00960	<0.000833	0.00305	0.00184	0.00338	0.00702	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00282	0.00129	0.00189	0.000957	0.00161	0.00206	0.00270	0.00248	0.00101
Zinc	0.00925	0.0145	0.0270	0.0194	0.0124	0.0117	0.0167	0.0124	0.0124
Iron	0.631	0.340	1.07	0.112	0.518	0.537	0.405	1.25	0.121



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank			
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley						
Sample Date	25-Sep	25-Sep	25-Sep						
PM Size(µm)	2.5	2.5	2.5						
Total Air Volume (m3)	24	24	24						
Particulate Matter (µg/m3)	3.63	4.17	4.38						
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)			
Aluminum	0.0545	0.0385	0.0671	0.2	0.58975125	0.0314			
Arsenic	0.000382	<0.000208	<0.000208	0.005	<	<0.000208			
Barium	0.000334	0.00130	0.00217	0.005	<	<0.000208			
Beryllium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208			
Boron	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833			
Cadmium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208			
Chromium	0.00432	0.00513	0.00468	0.02	0.099437325	0.00406			
Cobalt	0.000256	0.000166	0.000196	0.002	0.022902113	0.000290			
Copper	0.0250	0.00744	0.00467	0.01	0.036934331	0.00131			
Lead	0.000272	0.000218	0.000408	0.005	0.006733119	0.00177			
Manganese	0.00355	0.00269	0.00450	0.002	0.997633256	0.00161			
Molybdenum	0.000322	0.000221	0.000393	0.002	0.035320519	0.000957			
Nickel	0.00237	<0.000833	0.000891	0.02	0.033989531	0.00141			
Silver	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833			
Strontium	0.000450	0.000365	0.000541	0.005	0.0058511	<0.000208			
Titanium	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833			
Uranium	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833			
Vanadium (corr)	0.00113	0.00140	0.00151	0.02	0.024266081	0.000989			
Zinc	0.00606	0.00951	0.0117	0.02	0.458229075	0.0112			
Iron	0.179	0.108	0.226	0.2	1.356313594	0.0941			
Phosphorus	<0.208	<0.208	<0.208	5	<	<0.208			

Station #	AMS 1	AMS 6	AMS 7	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.05	24	24	24	24
Particulate Matter (µg)	19.3	12.3	23.2	20.5	8.42	7.79	20.1	-0.0185
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.344	0.226	0.494	0.313	0.0909	0.174	0.359	0.0100
Arsenic	0.000361	<0.000208	0.000384	0.000209	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00973	0.00378	0.0134	0.00437	0.00165	0.00228	0.00501	<0.000208
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00493	0.00474	0.00536	0.00481	0.00396	0.00477	0.00570	0.00358
Cobalt	0.000415	0.000582	0.000565	0.000528	0.000255	0.000228	0.00103	0.000181
Copper	0.0698	0.0122	0.0198	0.00439	0.0286	0.00149	0.00262	0.000950
Lead	0.000531	0.000431	0.000981	0.000724	0.000738	0.000282	0.000603	<0.000208
Manganese	0.0255	0.0464	0.0248	0.0226	0.00875	0.0108	0.0296	0.00135
Molybdenum	0.000159	0.000330	0.000665	0.000681	0.000675	0.000462	0.000796	0.00127
Nickel	0.00131	0.00142	0.00157	0.00154	<0.000833	0.00169	0.00173	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00335	0.00164	0.00342	0.00270	0.000952	0.00118	0.00321	<0.000208
Titanium	0.0112	0.00502	0.0132	0.00714	0.00146	0.00252	0.0111	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00245	0.00204	0.00277	0.00229	0.00113	0.00179	0.00224	0.000884
Zinc	0.0117	0.0129	0.0271	0.0205	0.0162	0.00790	0.0243	0.00281
Iron	1.48	0.658	1.54	1.14	0.323	0.523	1.59	0.0274



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	1-Oct	1-Oct	1-Oct			1-Oct
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	2.53	1.96	3.10			-0.222
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0251	0.0241	0.0269	0.2	0.637800896	0.0292
Arsenic	0.00146	0.00132	0.000904	0.005	<	0.00116
Barium	0.000632	0.00249	0.000599	0.005	0.018315052	0.000365
Beryllium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00318	0.0414	0.00296	0.02	0.063699302	0.0114
Cobalt	0.000376	0.000501	0.000209	0.002	0.025190615	0.000182
Copper	0.00275	0.0184	0.00658	0.01	0.151276542	<0.000417
Lead	0.000454	0.000384	0.000406	0.005	<	<0.000208
Manganese	0.00243	0.00685	0.00581	0.002	0.261322141	0.00302
Molybdenum	<0.0000833	0.000349	<0.0000833	0.002	<	0.000759
Nickel	0.00321	0.0131	0.000971	0.02	0.055487984	0.00328
Silver	0.000157	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	<0.000208	0.000219	<0.000208	0.005	0.008586641	<0.000208
Titanium	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Zinc	0.00895	0.00960	0.00822	0.02	0.287381578	0.00901
Iron	0.0471	0.214	0.0947	0.2	1.120768974	0.0709
Phosphorus	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.012	24.054	24	24	24	24
Particulate Matter (µg)	2.97	4.42	6.25	4.91	3.49	3.60	2.83	3.78	-0.305
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0431	0.0560	0.139	0.0433	0.0532	0.0491	0.0350	0.0693	0.0283
Arsenic	0.00287	0.00196	0.00172	0.00120	0.00147	0.00167	0.00112	0.00101	0.00123
Barium	0.000788	0.00208	0.00249	0.000907	0.000901	0.00119	0.000701	0.00120	0.0126
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00831	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00329	0.00362	0.00404	0.0113	0.00353	0.00379	0.00371	0.00413	0.00225
Cobalt	0.000556	0.000239	0.000602	0.000341	0.000462	0.000281	0.000230	0.000331	0.000351
Copper	0.0331	0.0109	0.0148	0.0213	0.00168	0.00235	0.000514	0.00188	0.00857
Lead	0.000758	0.000347	0.000535	0.000354	0.000311	0.000608	0.000372	0.000811	0.000279
Manganese	0.00538	0.00430	0.0186	0.00490	0.00625	0.00557	0.00276	0.0122	0.00577
Molybdenum	<0.0000833	<0.0000833	0.000338	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	0.000143
Nickel	0.000963	0.00270	0.00155	0.00488	0.00117	<0.000833	0.00178	0.00166	0.00138
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000258	0.000420	0.000550	0.000226	0.000253	0.000335	<0.000208	0.000470	<0.000208
Titanium	<0.000833	0.000853	0.00132	<0.000833	0.00310	<0.000833	<0.000833	0.000933	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	0.000870	<0.000833	<0.000833	<0.000831	<0.000833	<0.000833	<0.000833	<0.000833
Zinc	0.0120	0.00979	0.0387	0.00741	0.00895	0.0140	0.00712	0.0239	0.0133
Iron	0.0826	0.159	0.261	0.103	0.297	0.134	0.121	0.185	0.0540



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	7-Oct	7-Oct	7-Oct	7-Oct			7-Oct
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	3.03	3.20	2.81	2.73			0.558
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0253	0.0616	0.0347	0.0234	0.2	0.637800896	0.0331
Arsenic	0.000815	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.000831	0.00322	0.00217	0.00218	0.005	0.018315052	0.000452
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00247	0.00327	0.00226	0.00190	0.02	0.063699302	0.00248
Cobalt	0.000731	0.000863	0.00195	0.000611	0.002	0.025190615	0.00182
Copper	0.0285	0.00265	0.0102	0.0425	0.01	0.151276542	0.000765
Lead	0.000263	0.000303	0.000266	0.000371	0.005	<	<0.000208
Manganese	0.00541	0.00511	0.0175	0.00241	0.002	0.261322141	0.00441
Molybdenum	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Nickel	0.00149	0.00121	<0.000833	0.000902	0.02	0.055487984	0.00180
Silver	0.000208	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000239	0.000329	0.000284	0.000296	0.005	0.008586641	<0.000208
Titanium	<0.000833	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	<0.000833	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Zinc	0.00947	0.0180	0.0183	0.0165	0.02	0.287381578	0.0226
Iron	0.0502	0.140	0.0995	0.0390	0.2	1.120768974	0.0751
Phosphorus	<0.208	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	Albian Muskeg River	
Sample Date	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.054	24	24	24
Particulate Matter (µg)	6.46	4.29	5.08	4.02	5.57	7.75	4.46	0.892
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0532	0.0888	0.147	0.0292	0.0617	0.0825	0.0325	0.0260
Arsenic	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00136	0.00555	0.00651	0.00106	0.00119	0.00331	0.000813	0.000494
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00831	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00233	0.00221	0.00238	0.00171	0.00282	0.00225	0.00275	0.00267
Cobalt	0.000593	0.000295	0.00137	0.000574	0.00250	0.000912	0.000281	0.000227
Copper	0.0413	0.00436	0.00614	0.0871	0.00146	0.00912	0.000515	0.000888
Lead	0.000554	0.000300	0.000855	<0.000208	0.000213	0.000305	<0.000208	<0.000208
Manganese	0.00793	0.00913	0.0169	0.00468	0.00959	0.00834	0.00657	0.00448
Molybdenum	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833
Nickel	0.00114	0.00102	0.000960	<0.000833	0.000894	<0.000833	<0.000833	0.00149
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000408	0.000717	0.00128	0.000221	0.000480	0.000758	0.000258	<0.000208
Titanium	<0.000833	0.00380	0.00430	<0.000833	<0.000831	0.00161	<0.000833	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	<0.000833	0.000873	<0.000833	<0.000831	0.000904	<0.000833	<0.000833
Zinc	0.0212	0.0118	0.0125	0.00824	0.0143	0.0159	0.0112	0.0178
Iron	0.180	0.262	0.475	0.0700	0.195	0.287	0.0963	0.197



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Athabasca Valley			
Sample Date	13-Oct	13-Oct			13-Oct
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	6.33	4.79			-0.917
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0836	0.127	0.2	0.637800896	0.0274
Arsenic	<0.000208	0.000278	0.005	<	<0.000208
Barium	0.00254	0.00501	0.005	0.018315052	0.000331
Beryllium	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00248	0.00483	0.02	0.063699302	0.00368
Cobalt	0.000694	0.000442	0.002	0.025190615	0.000194
Copper	0.0216	0.0108	0.01	0.151276542	0.00925
Lead	0.000508	0.00143	0.005	<	<0.000208
Manganese	0.0151	0.0152	0.002	0.261322141	0.00544
Molybdenum	<0.0000833	<0.0000833	0.002	<	<0.0000833
Nickel	0.00348	0.00238	0.02	0.055487984	0.00138
Silver	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000679	0.000814	0.005	0.008586641	<0.000208
Titanium	0.00169	0.00260	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	<0.000833	0.00101	0.02	<	<0.000833
Zinc	0.0212	0.0296	0.02	0.287381578	0.0145
Iron	0.392	0.390	0.2	1.120768974	0.0529
Phosphorus	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.05	24	24	24	24
Particulate Matter (µg)	27.6	21.7	33.4	7.58	33.3	9.58	13.0	22.7	-2.04
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.551	0.489	0.870	0.170	0.821	0.172	0.299	0.434	0.0197
Arsenic	0.000210	0.000368	0.000889	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.0119	0.0156	0.0242	0.00389	0.0104	0.00318	0.00591	0.00737	0.000434
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00318	0.00514	0.00504	0.00237	0.0227	0.00271	0.00338	0.00364	0.00202
Cobalt	0.000732	0.000768	0.00154	0.000654	0.00149	0.000647	0.000982	0.000693	0.000146
Copper	0.0473	0.0329	0.0446	0.196	0.00568	0.00554	0.00143	0.00462	0.000856
Lead	0.000977	0.00148	0.00213	0.000844	0.00121	0.000558	0.000626	0.00104	<0.000208
Manganese	0.0414	0.0359	0.0521	0.0128	0.0408	0.0117	0.0256	0.0337	0.0137
Molybdenum	<0.0000833	<0.0000833	0.0000914	<0.0000833	0.000950	<0.0000833	<0.0000833	0.000127	<0.0000833
Nickel	0.00226	0.00285	0.00413	0.00197	0.00939	0.00135	0.00183	0.00248	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00504	0.00949	0.00558	0.000945	0.00598	0.00169	0.00253	0.00344	<0.000208
Titanium	0.0202	0.0156	0.0268	0.00474	0.0217	0.00422	0.00707	0.0144	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00365	0.00234	0.00345	0.000841	0.00375	0.00172	0.00233	0.00369	<0.000833
Zinc	0.0211	0.0340	0.0368	0.0148	0.0392	0.0172	0.0226	0.0215	0.0146
Iron	2.43	1.70	2.92	0.647	2.22	0.558	0.938	1.51	0.0335



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	MDL		Lab Blank	Travel Blank
Station Name	Fort McKay				
Sample Date	19-Oct				19-Oct
PM Size(µm)	2.5				2.5
Total Air Volume (m3)	24				24
Particulate Matter (µg/m3)	2.82				-1.53
Unit	(µg/m3)	(µg)	(µg)	(µg)	(µg/sample)
Aluminum	0.0580	0.2	0.637800896	0.0170	
Arsenic	0.000236	0.005	<	<0.000208	
Barium	0.00128	0.005	0.018315052	0.000322	
Beryllium	<0.000208	0.005	<	<0.000208	
Boron	<0.00833	0.2	<	<0.00833	
Cadmium	<0.000208	0.005	<	<0.000208	
Chromium	0.00165	0.02	0.063699302	0.00311	
Cobalt	0.00123	0.002	0.025190615	0.000497	
Copper	0.0296	0.01	0.151276542	0.000826	
Lead	0.000395	0.005	<	<0.000208	
Manganese	0.00650	0.002	0.261322141	0.00492	
Molybdenum	<0.0000833	0.002	<	<0.0000833	
Nickel	<0.000833	0.02	0.055487984	0.00116	
Silver	0.000140	0.002	<	<0.0000833	
Strontium	0.000280	0.005	0.008586641	<0.000208	
Titanium	<0.000833	0.02	<	<0.000833	
Uranium	<0.0000833	0.002	<	<0.0000833	
Vanadium (corr)	<0.000833	0.02	<	<0.000833	
Zinc	0.0137	0.02	0.287381578	0.0103	
Iron	0.124	0.2	1.120768974	0.0296	
Phosphorus	<0.208	5	<	<0.208	

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24.052	24	24	24	24
Particulate Matter (µg)	9.75	9.38	14.1	3.94	7.32	6.88	8.21	4.50	-1.17
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.225	0.153	0.362	0.0556	0.0978	0.117	0.172	0.0867	0.0153
Arsenic	<0.000208	<0.000208	0.000335	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00378	0.00564	0.0110	0.00150	0.00248	0.00223	0.00318	0.00135	0.000375
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00832	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00206	0.00186	0.00232	0.00272	0.00194	0.00297	0.00267	0.00182	0.00260
Cobalt	0.000470	0.000392	0.000947	0.00126	0.00121	0.00124	0.000571	0.000271	0.000281
Copper	0.0531	0.0277	0.0217	0.0763	0.00181	0.00655	0.00179	0.00222	0.00111
Lead	0.000440	0.000595	0.000673	0.00179	0.000459	0.000499	0.000394	0.000216	<0.000208
Manganese	0.0200	0.0134	0.0305	0.00882	0.0144	0.0117	0.0185	0.00897	0.00337
Molybdenum	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Nickel	0.00140	0.00129	0.00198	0.00259	0.00110	0.00174	0.00138	0.000999	0.00124
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00158	0.00136	0.00229	0.000350	0.000747	0.000885	0.00127	0.000636	0.000496
Titanium	0.00480	0.00375	0.00956	<0.000833	0.00241	0.00293	0.00336	0.00210	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000832	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00163	0.00125	0.00154	<0.000833	<0.000832	<0.000833	0.00132	<0.000833	<0.000833
Zinc	0.0228	0.0234	0.0266	0.0154	0.0496	0.0139	0.0184	0.0160	0.00646
Iron	0.709	0.441	1.08	0.113	0.269	0.366	0.647	0.307	0.0291



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	MDL	Lab Blank	Travel Blank
Station Name			
Sample Date			25-Oct
PM Size(µm)			2.5
Total Air Volume (m3)			24
Particulate Matter (µg/m3)			-2.11
Unit	(µg)	(µg)	(µg/sample)
Aluminum	0.2	0.637800896	0.0224
Arsenic	0.005	<	0.000210
Barium	0.005	0.018315052	0.000515
Beryllium	0.005	<	<0.000208
Boron	0.2	<	<0.00833
Cadmium	0.005	<	<0.000208
Chromium	0.02	0.063699302	0.00391
Cobalt	0.002	0.025190615	0.00180
Copper	0.01	0.151276542	0.00159
Lead	0.005	<	0.00187
Manganese	0.002	0.261322141	0.00374
Molybdenum	0.002	<	0.000654
Nickel	0.02	0.055487984	0.00121
Silver	0.002	<	<0.0000833
Strontium	0.005	0.008586641	0.000550
Titanium	0.02	<	<0.000833
Uranium	0.002	<	<0.0000833
Vanadium (corr)	0.02	<	<0.000833
Zinc	0.02	0.287381578	0.0179
Iron	0.2	1.120768974	0.0469
Phosphorus	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24
Particulate Matter (µg)	21.3	5.71	12.4	16.0	4.96	4.83	9.21	-1.22
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.575	0.165	0.349	0.296	0.123	0.151	0.290	0.0213
Arsenic	0.000836	0.000495	0.000344	0.000289	<0.000208	0.000302	0.000236	0.000232
Barium	0.00846	0.00485	0.0108	0.00435	0.00171	0.00236	0.00678	0.000550
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00264	0.00667	0.00333	0.00254	0.00182	0.00219	0.0167	0.00663
Cobalt	0.00403	0.000279	0.000415	0.000585	0.000442	0.00202	0.00113	0.000743
Copper	0.0345	0.00437	0.00842	0.00168	0.00848	0.00135	0.00233	0.00327
Lead	0.00424	0.00244	0.00133	0.00381	0.00219	0.00244	0.00113	0.00196
Manganese	0.0309	0.0107	0.0219	0.0173	0.00594	0.0102	0.0254	0.00327
Molybdenum	0.0000875	<0.0000833	0.0000986	0.000110	<0.0000833	<0.0000833	0.000353	0.000336
Nickel	0.00233	0.00338	0.00132	0.00140	<0.000833	0.00117	0.00660	0.00369
Silver	<0.0000833	0.0000945	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00535	0.000902	0.00226	0.00277	0.00101	0.00122	0.00253	<0.000208
Titanium	0.0475	0.00405	0.00965	0.00737	0.00227	0.00266	0.00894	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00216	0.000870	0.00156	0.00214	<0.000833	<0.000833	0.00227	<0.000833
Zinc	0.0274	0.0221	0.0174	0.0202	0.0173	0.0166	0.0180	0.0115
Iron	1.76	0.698	1.04	0.980	0.251	0.482	1.23	0.0822



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Athabasca Valley			
Sample Date	31-Oct	31-Oct			31-Oct
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	4.58	13.2			-0.278
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0539	0.101	0.2	0.637800896	0.0210
Arsenic	0.00648	0.00411	0.005	<	0.00189
Barium	0.00271	0.00671	0.005	0.018315052	0.000288
Beryllium	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	0.000788	0.000672	0.005	<	0.000230
Chromium	0.00313	0.00228	0.02	0.063699302	0.00224
Cobalt	0.000281	0.000601	0.002	0.025190615	0.000906
Copper	0.0205	0.0202	0.01	0.151276542	0.00267
Lead	0.0620	0.0488	0.005	<	0.0200
Manganese	0.00661	0.0102	0.002	0.261322141	0.00374
Molybdenum	0.000148	0.000225	0.002	<	<0.0000833
Nickel	0.000988	0.00100	0.02	0.055487984	0.00169
Silver	0.0000835	0.0000878	0.002	<	<0.0000833
Strontium	0.000463	0.000936	0.005	0.008586641	<0.000208
Titanium	0.00102	0.00320	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	<0.000833	0.00103	0.02	<	<0.000833
Zinc	0.0601	0.0673	0.02	0.287381578	0.0282
Iron	0.147	0.333	0.2	1.120768974	0.0330
Phosphorus	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24	24
Particulate Matter (µg)	44.9	24.4	33.1	4.21	53.1	44.9	30.8	60.4	-0.542
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.521	0.340	0.677	0.0666	1.13	0.279	0.457	1.18	0.0211
Arsenic	0.00649	0.00227	0.00374	0.00171	0.00419	0.00532	0.00163	0.00133	0.00279
Barium	0.0144	0.00997	0.0202	0.00312	0.0156	0.00636	0.00937	0.0214	0.000417
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	0.00100	0.000376	0.000642	0.000313	0.000738	0.00101	0.000441	0.000230	0.000277
Chromium	0.00299	0.00246	0.00281	0.00419	0.0169	0.00246	0.0286	0.0109	0.00263
Cobalt	0.000818	0.000428	0.000784	0.000243	0.00159	0.000650	0.000812	0.00187	0.000339
Copper	0.0564	0.0208	0.0220	0.0299	0.00796	0.0252	0.00505	0.00495	0.00360
Lead	0.0620	0.0203	0.0363	0.0175	0.0415	0.0565	0.0156	0.00631	0.0207
Manganese	0.0388	0.0170	0.0390	0.00527	0.0554	0.0156	0.0507	0.112	0.00471
Molybdenum	0.000321	0.000289	0.000572	0.000231	0.000781	0.000154	0.000653	0.000581	0.000172
Nickel	0.00247	0.00144	0.00202	0.00134	0.00773	0.00171	0.0156	0.00436	0.00140
Silver	0.000103	<0.0000833	0.0000900	<0.0000833	0.000127	0.0000907	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00484	0.00206	0.00498	0.000481	0.00887	0.00222	0.00560	0.00971	<0.000208
Titanium	0.0152	0.00925	0.0205	0.000924	0.0272	0.00625	0.0119	0.0404	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	0.0000986	<0.0000833	<0.0000833	0.000116	<0.0000833
Vanadium (corr)	0.00333	0.00144	0.00312	<0.000833	0.00501	0.00145	0.00245	0.00499	<0.000833
Zinc	0.0958	0.0517	0.0713	0.0353	0.0755	0.0740	0.0362	0.0629	0.0215
Iron	2.17	1.00	2.27	0.271	3.15	0.827	2.53	6.38	0.0363



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 6	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes			
Sample Date	6-Nov			6-Nov
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	4.58			-0.309
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0394	0.2	0.388044023	0.0142
Arsenic	0.000363	0.005	0.006024063	<0.000208
Barium	0.00187	0.005	0.013238672	0.000465
Beryllium	<0.000208	0.005	<	<0.000208
Boron	<0.00833	0.2	<	<0.00833
Cadmium	<0.000208	0.005	<	<0.000208
Chromium	0.00354	0.02	0.09378982	0.00365
Cobalt	0.000359	0.002	0.011668383	0.000252
Copper	0.00896	0.01	0.057820148	0.00178
Lead	0.00364	0.005	0.042473063	0.00167
Manganese	0.00339	0.002	0.059290594	0.00187
Molybdenum	<0.0000833	0.002	0.037157438	0.000364
Nickel	0.00155	0.02	0.020760797	<0.000833
Silver	<0.0000833	0.002	<	<0.0000833
Strontium	0.000282	0.005	0.012416531	<0.000208
Titanium	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.000975	0.02	0.022136359	0.000839
Zinc	0.0207	0.02	0.298948664	0.0127
Iron	0.0983	0.2	0.614352586	0.0489
Phosphorus	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 13	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Fort McKay South	Albian Muskeg River	
Sample Date	6-Nov	6-Nov	6-Nov	6-Nov	6-Nov	6-Nov	6-Nov
PM Size(µm)	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24	24	24
Particulate Matter (µg)	43.9	26.8	77.2	63.8	42.5	58.7	-2.55
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	1.00	0.181	0.779	0.125	0.905	0.808	0.0284
Arsenic	0.00155	0.000433	0.000856	0.000616	0.00102	0.000912	0.000289
Barium	0.0319	0.00541	0.0235	0.00337	0.0189	0.0138	0.000712
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	0.000220	<0.000208	<0.000208	<0.000208	<0.000208	0.000213	<0.000208
Chromium	0.00638	0.00368	0.00526	0.00350	0.00461	0.00527	0.00325
Cobalt	0.00113	0.000327	0.00111	0.000392	0.00101	0.000981	0.000169
Copper	0.0211	0.00597	0.0119	0.0191	0.0164	0.00448	0.00272
Lead	0.00750	0.00344	0.00490	0.00475	0.00296	0.00321	0.00238
Manganese	0.0747	0.00884	0.0494	0.00848	0.0909	0.0675	0.00127
Molybdenum	0.000724	<0.0000833	0.000495	<0.0000833	0.000117	0.000442	0.000876
Nickel	0.00500	0.000900	0.00251	0.00115	0.00282	0.00317	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00905	0.00124	0.00550	0.000969	0.00772	0.00678	<0.000208
Titanium	0.0423	0.00750	0.0355	0.00292	0.0464	0.0341	<0.000833
Uranium	0.000127	<0.0000833	<0.0000833	<0.0000833	0.0000971	0.0000873	<0.0000833
Vanadium (corr)	0.00893	0.00144	0.00389	0.00117	0.00526	0.00677	<0.000833
Zinc	0.0427	0.0307	0.0422	0.0249	0.0331	0.0359	0.0120
Iron	4.50	0.524	3.10	0.369	4.30	4.07	0.0584



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Anzac			
Sample Date	12-Nov	12-Nov	12-Nov			12-Nov
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	27.8	16.1	9.00			5.29
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0290	0.0282	0.0384	0.2	0.388044023	0.0472
Arsenic	0.00173	0.000802	0.000540	0.005	0.006024063	0.000349
Barium	0.00181	0.00263	0.00139	0.005	0.013238672	0.000273
Beryllium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833
Cadmium	0.000377	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00473	0.00392	0.00366	0.02	0.09378982	0.00415
Cobalt	0.000320	0.0000912	0.000103	0.002	0.011668383	0.000196
Copper	0.0142	0.0234	0.0276	0.01	0.057820148	0.00116
Lead	0.00427	0.00413	0.00275	0.005	0.042473063	0.00232
Manganese	0.00735	0.00573	0.00290	0.002	0.059290594	0.00152
Molybdenum	0.00254	0.000341	0.000536	0.002	0.037157438	0.000737
Nickel	0.00199	<0.000833	<0.000833	0.02	0.020760797	<0.000833
Silver	0.000148	0.0000894	<0.0000833	0.002	<	<0.0000833
Strontium	0.000294	0.000259	0.000233	0.005	0.012416531	0.000282
Titanium	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.00170	0.00100	0.00122	0.02	0.022136359	0.000915
Zinc	0.0405	0.0367	0.0258	0.02	0.298948664	0.0250
Iron	0.196	0.156	0.116	0.2	0.614352586	0.114
Phosphorus	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	
Sample Date	12-Nov	12-Nov	12-Nov	12-Nov	12-Nov	12-Nov
PM Size(µm)	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24.049	24
Particulate Matter (µg)	75.5	15.1	17.8	13.5	51.1	51.8
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.206	0.0540	0.0998	0.101	0.651	0.0138
Arsenic	0.00186	0.000778	0.00100	0.000850	0.00110	0.000315
Barium	0.00758	0.00712	0.0219	0.00463	0.0148	0.00121
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00832	<0.00833
Cadmium	0.000396	0.000235	<0.000207	<0.000208	0.000230	<0.000208
Chromium	0.00397	0.00347	0.00383	0.00305	0.00538	0.0197
Cobalt	0.000514	0.000256	0.000231	0.000197	0.000932	0.000402
Copper	0.0244	0.0229	0.0117	0.0713	0.00459	0.000938
Lead	0.00626	0.00419	0.00581	0.00516	0.00363	0.00170
Manganese	0.0202	0.00394	0.00789	0.00903	0.0530	0.00125
Molybdenum	0.00160	0.000477	0.000754	0.000301	0.000883	0.00166
Nickel	0.00469	<0.000833	0.00183	0.000877	0.00255	0.00170
Silver	0.000157	0.0000883	0.0000907	<0.0000833	0.000126	<0.0000833
Strontium	0.00254	0.000820	0.00143	0.00126	0.00653	<0.000208
Titanium	0.00945	0.00255	0.00570	0.00370	0.0266	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	0.000214	<0.0000833
Vanadium (corr)	0.00957	0.000956	0.00142	0.00128	0.00409	<0.000833
Zinc	0.0658	0.0287	0.0304	0.0199	0.0611	0.0119
Iron	1.04	0.231	0.569	0.481	3.30	0.0820



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	MDL	Lab Blank	Travel Blank
Station Name			
Sample Date			18-Nov
PM Size(µm)			2.5
Total Air Volume (m3)			24
Particulate Matter (µg/m3)			60.5
Unit	(µg)	(µg)	(µg/sample)
Aluminum	0.2	0.388044023	0.0170
Arsenic	0.005	0.006024063	<0.000208
Barium	0.005	0.013238672	0.000272
Beryllium	0.005	<	<0.000208
Boron	0.2	<	<0.00833
Cadmium	0.005	<	<0.000208
Chromium	0.02	0.09378982	0.00415
Cobalt	0.002	0.011668383	0.000297
Copper	0.01	0.057820148	0.000737
Lead	0.005	0.042473063	0.000486
Manganese	0.002	0.059290594	0.0128
Molybdenum	0.002	0.037157438	0.000396
Nickel	0.02	0.020760797	<0.000833
Silver	0.002	<	<0.0000833
Strontium	0.005	0.012416531	<0.000208
Titanium	0.02	<	<0.000833
Uranium	0.002	<	<0.0000833
Vanadium (corr)	0.02	0.022136359	0.00100
Zinc	0.02	0.298948664	0.0105
Iron	0.2	0.614352586	0.0410
Phosphorus	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	
Sample Date	18-Nov	18-Nov	18-Nov	18-Nov	18-Nov	18-Nov
PM Size(µm)	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.054	24
Particulate Matter (µg)	22.4	6.46	7.75	6.92	5.16	-28.6
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0625	0.0723	0.0548	0.0345	0.0483	0.0204
Arsenic	0.000311	0.000402	<0.000208	<0.000208	0.000233	0.000287
Barium	0.00132	0.00107	0.00370	0.00176	0.000720	0.00111
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00831	<0.00833
Cadmium	0.00314	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00351	0.00499	0.00407	0.00322	0.00400	0.00332
Cobalt	0.000391	0.000153	0.000149	0.000120	0.000541	0.000258
Copper	0.0442	0.00215	0.00798	0.0791	0.00827	0.00624
Lead	0.00309	0.00161	0.00150	0.000984	0.00221	0.00129
Manganese	0.00507	0.00384	0.00702	0.00176	0.00352	0.000979
Molybdenum	0.000231	0.000638	0.000307	0.000121	0.000168	0.000967
Nickel	<0.000833	0.00104	<0.000833	<0.000833	<0.000831	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833
Strontium	0.000508	0.000425	0.000788	0.000250	0.000436	<0.000208
Titanium	0.00103	<0.000833	<0.000833	<0.000833	<0.000831	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000831	<0.0000833
Vanadium (corr)	0.00104	0.00360	0.00193	0.00104	0.00109	<0.000833
Zinc	0.0174	0.0487	0.0157	0.0302	0.0202	0.00957
Iron	0.223	0.206	0.236	0.0923	0.221	0.0370



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank			
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley						
Sample Date	24-Nov	24-Nov	24-Nov				24-Nov		
PM Size(µm)	2.5	2.5	2.5				2.5		
Total Air Volume (m3)	24	24	24				24		
Particulate Matter (µg/m3)	5.29	3.85	7.13				0.0104		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)			
Aluminum	0.0325	0.0201	0.0342	0.2	0.388044023	0.0275			
Arsenic	0.000412	<0.000208	0.00317	0.005	0.006024063	0.000263			
Barium	0.00117	0.000484	0.000856	0.005	0.013238672	0.000448			
Beryllium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208			
Boron	<0.00833	<0.00833	<0.00833	0.2	<	<0.00833			
Cadmium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208			
Chromium	0.00352	0.00372	0.00294	0.02	0.09378982	0.00449			
Cobalt	0.000260	0.000851	0.000628	0.002	0.011668383	0.000132			
Copper	0.0207	0.00332	0.00301	0.01	0.057820148	0.000728			
Lead	0.000679	0.00137	0.0153	0.005	0.042473063	0.00141			
Manganese	0.00212	0.00236	0.0107	0.002	0.059290594	0.00235			
Molybdenum	0.000443	0.000208	0.000142	0.002	0.037157438	0.000331			
Nickel	0.00113	<0.000833	<0.000833	0.02	0.020760797	<0.000833			
Silver	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833			
Strontium	<0.000208	<0.000208	0.000331	0.005	0.012416531	<0.000208			
Titanium	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833			
Uranium	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833			
Vanadium (corr)	<0.000833	0.00183	0.000945	0.02	0.022136359	<0.000833			
Zinc	0.0105	0.0110	0.0432	0.02	0.298948664	0.0135			
Iron	0.0611	0.0344	0.0818	0.2	0.614352586	0.0401			
Phosphorus	<0.208	<0.208	<0.208	5	<	<0.208			

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.001	24	24	24	24	24
Particulate Matter (µg)	8.25	10.3	9.38	3.62	7.13	6.75	6.29	17.4	0.817
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.150	0.0536	0.0903	0.0362	0.0852	0.0626	0.119	0.260	0.0463
Arsenic	0.000380	0.00369	0.000609	<0.000208	0.000253	0.000309	0.000261	0.000284	0.000223
Barium	0.00156	0.00154	0.00310	0.000436	0.00205	0.00155	0.00182	0.00347	0.000401
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00432	0.00380	0.00417	0.00354	0.00464	0.00417	0.00478	0.00466	0.00397
Cobalt	0.000180	0.00213	0.000475	0.000101	0.000203	0.000144	0.000836	0.000429	0.000133
Copper	0.0357	0.00505	0.00548	0.00642	0.00129	0.00409	0.00398	0.00199	0.00137
Lead	0.00143	0.0177	0.00290	0.000879	0.00119	0.00139	0.00105	0.00107	0.000508
Manganese	0.00675	0.0250	0.0104	0.00731	0.00763	0.00457	0.00703	0.0181	0.00360
Molybdenum	0.000456	0.000273	0.000201	0.000216	0.000422	0.000219	0.000263	0.000368	0.000628
Nickel	<0.000833	<0.000833	0.000986	<0.000833	0.00111	<0.000833	0.00102	0.00142	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000720	0.000594	0.000836	<0.000208	0.000647	0.000404	0.000538	0.00197	<0.000208
Titanium	0.00117	<0.000833	0.00323	<0.000833	0.00161	<0.000833	<0.000833	0.00862	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00133	0.00204	0.00166	0.00157	0.00358	0.00120	0.00131	0.00203	0.000929
Zinc	0.0188	0.0796	0.0326	0.0343	0.0295	0.0135	0.0288	0.0401	0.0719
Iron	0.296	0.153	0.390	0.0439	0.292	0.157	0.249	0.915	0.252



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 14	MDL	Lab Blank
Station Name	Anzac		
Sample Date	27-Nov		
PM Size(µm)	2.5		
Total Air Volume (m3)	24		
Particulate Matter (µg/m3)	2.15		
Unit	(µg/m3)	(µg)	(µg)
Aluminum	0.0286	0.2	0.388044023
Arsenic	<0.000208	0.005	0.006024063
Barium	0.000437	0.005	0.013238672
Beryllium	<0.000208	0.005	<
Boron	0.0229	0.2	<
Cadmium	<0.000208	0.005	<
Chromium	0.00406	0.02	0.09378982
Cobalt	0.000152	0.002	0.011668383
Copper	0.000656	0.01	0.057820148
Lead	0.000818	0.005	0.042473063
Manganese	0.00145	0.002	0.059290594
Molybdenum	0.000171	0.002	0.037157438
Nickel	0.000983	0.02	0.020760797
Silver	<0.0000833	0.002	<
Strontium	<0.000208	0.005	0.012416531
Titanium	<0.000833	0.02	<
Uranium	<0.0000833	0.002	<
Vanadium (corr)	0.00118	0.02	0.022136359
Zinc	0.0324	0.02	0.298948664
Iron	0.0285	0.2	0.614352586
Phosphorus	<0.208	5	<

Station #	AMS 14	MDL	Lab Blank
Station Name	Anzac		
Sample Date	27-Nov		
PM Size(µm)	2.5		
Total Air Volume (m3)	24		
Particulate Matter (µg)	2.15		
Unit	(µg/m3)	(µg)	(µg)
Aluminum	0.0286	0.2	0.388044023
Arsenic	<0.000208	0.005	0.006024063
Barium	0.000437	0.005	0.013238672
Beryllium	<0.000208	0.005	<
Boron	0.0229	0.2	<
Cadmium	<0.000208	0.005	<
Chromium	0.00406	0.02	0.09378982
Cobalt	0.000152	0.002	0.011668383
Copper	0.000656	0.01	0.057820148
Lead	0.000818	0.005	0.042473063
Manganese	0.00145	0.002	0.059290594
Molybdenum	0.000171	0.002	0.037157438
Nickel	0.000983	0.02	0.020760797
Silver	<0.0000833	0.002	<
Strontium	<0.000208	0.005	0.012416531
Titanium	<0.000833	0.02	<
Uranium	<0.0000833	0.002	<
Vanadium (corr)	0.00118	0.02	0.022136359
Zinc	0.0324	0.02	0.298948664
Iron	0.0285	0.2	0.614352586
Phosphorus	<0.208	5	<



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	30-Nov	30-Nov	30-Nov	30-Nov				30-Nov	
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)	24	24	24	24				24	
Particulate Matter (µg/m3)	9.33	7.29	5.79	5.75				91.9	
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)		
Aluminum	0.0589	0.0279	0.0353	0.0185	0.2	0.592923281	0.0132		
Arsenic	0.000565	0.000237	<0.000208	0.000468	0.005	0.01106625	0.000290		
Barium	0.00167	0.000907	0.00176	0.000513	0.005	0.019374	0.000333		
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208		
Boron	0.0158	0.0282	0.0276	0.0270	0.2	0.448779656	0.0263		
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208		
Chromium	0.00408	0.00282	0.00350	0.00282	0.02	0.091299375	0.00389		
Cobalt	0.000439	0.000291	0.000440	0.000309	0.002	0.014590969	0.000468		
Copper	0.0634	0.0103	0.00361	0.00396	0.01	0.058994063	0.00147		
Lead	0.00379	0.00137	0.00159	0.00114	0.005	0.133146656	0.000809		
Manganese	0.0144	0.00390	0.00335	0.00181	0.002	0.093757688	0.00151		
Molybdenum	0.00228	0.00244	0.000798	0.000470	0.002	0.017881875	0.000785		
Nickel	0.000995	<0.000833	<0.000833	<0.000833	0.02	0.039110156	0.00158		
Silver	<0.000833	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833		
Strontium	0.000281	<0.000208	0.000247	<0.000208	0.005	<	<0.000208		
Titanium	0.000860	0.00105	<0.000833	<0.000833	0.02	<	<0.000833		
Uranium	<0.000833	<0.000833	<0.000833	<0.000833	0.002	<	<0.000833		
Vanadium (corr)	0.00165	<0.000833	0.000880	<0.000833	0.02	<	0.000965		
Zinc	0.104	0.0351	0.0385	0.0344	0.02	0.960458625	0.0280		
Iron	0.187	0.104	0.0884	0.0163	0.2	0.951890438	0.0308		
Phosphorus	<0.208	<0.208	<0.208	<0.208	5	<	<0.208		

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24	24
Particulate Matter (µg)	15.2	6.17	6.56	6.00	12.7	7.88	8.67	15.2	27.2
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0831	0.0270	0.0267	0.0264	0.0718	0.0364	0.0551	0.0879	0.0176
Arsenic	0.000371	0.000292	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00313	0.00263	0.00454	0.00149	0.00229	0.00344	0.00137	0.00236	0.00367
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	0.0142	0.0263	0.0242	0.0233	0.0251	0.0245	0.0260	0.0266	0.0265
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00331	0.00275	0.00365	0.00275	0.00350	0.00276	0.00324	0.00422	0.00394
Cobalt	0.000610	0.000274	0.000232	0.000383	0.000529	0.000372	0.000308	0.000193	0.000351
Copper	0.0883	0.00920	0.0165	0.0157	0.00295	0.0124	0.00468	0.00361	0.00103
Lead	0.00340	0.00178	0.00274	0.00143	0.00172	0.00249	0.00215	0.00150	0.000640
Manganese	0.0188	0.00401	0.00538	0.00329	0.00754	0.00484	0.00440	0.0196	0.00136
Molybdenum	0.00102	0.000827	0.000793	0.000859	0.000649	0.000510	0.000694	0.000813	0.000218
Nickel	0.00169	<0.000833	0.000949	<0.000833	<0.000833	0.000987	0.000854	0.00143	<0.000833
Silver	<0.000833	<0.000833	<0.000830	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833
Strontium	0.000649	0.000242	0.000386	<0.000208	0.000604	0.000493	0.000340	0.000772	<0.000208
Titanium	0.00197	<0.000833	0.000929	<0.000833	0.00105	<0.000833	<0.000833	0.00688	<0.000833
Uranium	<0.000833	<0.000833	<0.000830	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833
Vanadium (corr)	0.00242	<0.000833	<0.000830	<0.000833	0.00103	0.00231	0.00110	0.00252	0.000880
Zinc	0.0727	0.0315	0.0444	0.0422	0.0486	0.0434	0.0434	0.0548	0.0359
Iron	0.267	0.0720	0.143	0.100	0.272	0.0972	0.163	0.338	0.0314



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Anzac			
Sample Date	6-Dec	6-Dec			6-Dec
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	4.46	3.58			16.3
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0187	0.0176	0.2	0.469611206	0.0234
Arsenic	<0.000208	<0.000208	0.005	<	<0.000208
Barium	0.000833	0.000361	0.005	0.010447969	0.000284
Beryllium	<0.000208	<0.000208	0.005	<	<0.000208
Boron	<0.00833	<0.00833	0.2	0.347371706	<0.00833
Cadmium	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00339	0.00322	0.02	0.0665178	0.00319
Cobalt	<0.0000833	<0.0000833	0.002	0.003931081	<0.0000833
Copper	0.00353	0.00347	0.01	0.0256692	0.000686
Lead	0.000776	0.00108	0.005	0.008942981	0.000253
Manganese	0.00479	0.00183	0.002	0.272760431	0.00231
Molybdenum	0.0000942	0.000206	0.002	0.037176244	0.000494
Nickel	<0.000833	<0.000833	0.02	0.022494225	<0.000833
Silver	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000454	0.000417	0.005	<	<0.000208
Titanium	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.000851	0.000853	0.02	0.022165588	<0.000833
Zinc	0.0104	0.0174	0.02	0.239170144	0.0232
Iron	0.159	0.125	0.2	0.659142431	0.0139
Phosphorus	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24	24	24	24
Particulate Matter (µg)	14.0	5.58	16.5	4.54	34.7	62.9	31.6	3.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.130	0.0357	0.0858	0.0226	0.0556	0.0589	0.0944	0.00935
Arsenic	0.000321	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00405	0.00165	0.0103	0.000808	0.00200	0.00178	0.00214	0.000649
Beryllium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00329	0.00320	0.00329	0.00349	0.00276	0.00395	0.0114	0.00262
Cobalt	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Copper	0.0702	0.00518	0.0194	0.00141	0.0159	0.00162	0.00312	0.000514
Lead	0.00110	0.000936	0.00133	0.000956	0.000737	0.000800	0.00116	<0.000208
Manganese	0.00897	0.00384	0.00681	0.00143	0.00350	0.00486	0.00742	0.00179
Molybdenum	0.000814	0.000127	0.000322	0.000591	0.000114	0.000918	0.00111	0.000155
Nickel	0.00412	0.00126	0.00137	0.000931	0.00115	<0.000833	0.00144	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.00140	0.000731	0.00152	0.000636	0.000726	0.000777	0.00136	<0.000208
Titanium	0.00365	<0.000833	0.00537	<0.000833	0.00247	<0.000833	0.00159	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00488	0.000860	0.000974	0.000915	0.00123	0.00110	0.00240	<0.000833
Zinc	0.0413	0.0300	0.0263	0.0113	0.0121	0.00728	0.0314	0.0103
Iron	0.397	0.106	0.498	0.0770	0.175	0.143	0.310	0.0180



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay			
Sample Date	12-Dec			12-Dec
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	11.2			46.6
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0296	0.2	0.469611206	0.0148
Arsenic	0.000477	0.005	<	<0.000208
Barium	0.00113	0.005	0.010447969	0.000861
Beryllium	<0.000208	0.005	<	<0.000208
Boron	<0.00833	0.2	0.347371706	<0.00833
Cadmium	<0.000208	0.005	<	<0.000208
Chromium	0.00354	0.02	0.0665178	0.00323
Cobalt	0.000235	0.002	0.003931081	0.000403
Copper	0.0438	0.01	0.0256692	0.00123
Lead	0.00198	0.005	0.008942981	0.000755
Manganese	0.00411	0.002	0.272760431	0.000978
Molybdenum	0.00146	0.002	0.037176244	0.000938
Nickel	<0.000833	0.02	0.022494225	0.00106
Silver	<0.000833	0.002	<	<0.000833
Strontium	0.000236	0.005	<	<0.000208
Titanium	<0.000833	0.02	<	<0.000833
Uranium	<0.000833	0.002	<	<0.000833
Vanadium (corr)	<0.000833	0.02	0.022165588	0.000904
Zinc	0.0137	0.02	0.239170144	0.00559
Iron	0.0928	0.2	0.659142431	0.0663
Phosphorus	<0.208	5	<	<0.208

Station #	AMS 1	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	48.1	24	24	24	24	24	24
Particulate Matter (µg)	18.0	25.5	18.3	41.3	15.4	25.8	89.8	-0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.107	0.0863	0.0224	0.195	0.0677	0.102	0.235	0.0171
Arsenic	0.000373	0.000390	0.000330	0.000352	<0.000208	0.000292	0.000481	<0.000208
Barium	0.00267	0.00641	0.000506	0.00276	0.00265	0.00271	0.00327	0.000308
Beryllium	<0.000208	<0.000104	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00416	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000104	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00365	0.00191	0.00334	0.00371	0.00376	0.00330	0.00430	0.00288
Cobalt	0.000349	0.000390	0.000339	0.000994	0.000217	0.000936	0.000433	0.000450
Copper	0.0930	0.0112	0.00204	0.00266	0.0161	0.00396	0.00545	0.000438
Lead	0.00236	0.00235	0.00269	0.00281	0.00148	0.00220	0.00325	0.000539
Manganese	0.00911	0.00814	0.00158	0.0110	0.00696	0.0121	0.0381	0.00109
Molybdenum	0.000116	0.000146	0.000269	<0.000833	0.000158	0.000103	0.000451	0.00127
Nickel	0.000973	0.000641	<0.000833	0.00130	<0.000833	0.000986	0.00140	<0.000833
Silver	<0.000833	<0.000416	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833
Strontium	0.000943	0.00136	0.000571	0.00467	0.000946	0.00257	0.00330	<0.000208
Titanium	0.00393	0.00408	<0.000833	0.00425	0.00109	0.00198	0.00805	<0.000833
Uranium	<0.000833	<0.000416	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833	<0.000833
Vanadium (corr)	0.00129	0.000868	0.000975	0.00172	0.00111	0.00132	0.00186	<0.000833
Zinc	0.0167	0.0431	0.0100	0.0380	0.0127	0.0150	0.0276	0.00731
Iron	0.366	0.445	0.0393	0.471	0.248	0.307	0.586	0.0222



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	MDL		Lab Blank		Travel Blank	
Station Name					18-Dec	
Sample Date					2.5	
PM Size(µm)					24	
Total Air Volume (m3)					0.00	
Particulate Matter (µg/m3)					0.00	
Unit	(µg)	(µg)	(µg/sample)			
Aluminum	0.2	0.469611206	0.0119			
Arsenic	0.005	<	<0.000208			
Barium	0.005	0.010447969	0.000270			
Beryllium	0.005	<	<0.000208			
Boron	0.2	0.347371706	<0.00833			
Cadmium	0.005	<	<0.000208			
Chromium	0.02	0.0665178	0.00317			
Cobalt	0.002	0.003931081	<0.0000833			
Copper	0.01	0.0256692	0.00105			
Lead	0.005	0.008942981	0.000760			
Manganese	0.002	0.272760431	0.00267			
Molybdenum	0.002	0.037176244	0.000851			
Nickel	0.02	0.022494225	<0.000833			
Silver	0.002	<	<0.0000833			
Strontium	0.005	<	<0.000208			
Titanium	0.02	<	<0.000833			
Uranium	0.002	<	<0.0000833			
Vanadium (corr)	0.02	0.022165588	<0.000833			
Zinc	0.02	0.239170144	0.00832			
Iron	0.2	0.659142431	0.0216			
Phosphorus	5	<	<0.208			

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.009	24	24	24	24	24
Particulate Matter (µg)	52.9	25.8	14.6	7.58	27.2	19.5	12.9	30.7	48.7
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0611	0.0295	0.0365	0.0249	0.210	0.0657	0.0484	0.0586	0.0120
Arsenic	0.000392	0.000317	0.000313	0.000211	0.000369	<0.000208	0.000224	0.000275	<0.000208
Barium	0.00223	0.00122	0.00467	0.000558	0.00438	0.000991	0.00104	0.00117	0.000279
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	<0.00833	<0.00833	<0.00830	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833	<0.00833
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00399	0.00297	0.00332	0.00335	0.00341	0.00389	0.00251	0.00202	0.00263
Cobalt	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	0.000175	<0.0000833	<0.0000833
Copper	0.0561	0.00320	0.0140	0.0286	0.0124	0.0108	0.00206	0.00296	0.000523
Lead	0.00190	0.00430	0.00172	0.00177	0.00242	0.00160	0.00182	0.00184	0.000546
Manganese	0.00325	0.00251	0.00303	0.00413	0.0130	0.00372	0.00448	0.00546	0.000709
Molybdenum	0.00105	0.000583	0.000370	0.000190	0.000561	0.000315	0.000871	0.000246	0.00180
Nickel	<0.000833	0.000963	<0.000830	0.00241	0.00210	<0.000833	<0.000833	0.00150	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000558	0.000567	0.000713	0.000422	0.00121	0.000515	0.000687	0.000631	<0.000208
Titanium	<0.000833	<0.000833	0.00221	<0.000833	0.00638	<0.000833	<0.000833	0.00220	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00119	0.00311	0.00101	0.00144	0.00146	0.000993	0.00139	0.00152	<0.000833
Zinc	0.0115	0.0124	0.0175	0.0113	0.0228	0.0112	0.0150	0.0142	0.00692
Iron	0.107	0.0594	0.197	0.0641	0.638	0.117	0.143	0.103	0.0147



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Athabasca Valley			
Sample Date	24-Dec			24-Dec
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	5.79			23.5
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0333	0.2	0.469611206	0.0194
Arsenic	<0.000208	0.005	<	0.00140
Barium	0.00124	0.005	0.010447969	0.000981
Beryllium	<0.000208	0.005	<	<0.000208
Boron	0.0255	0.2	0.347371706	0.0215
Cadmium	<0.000208	0.005	<	<0.000208
Chromium	0.00401	0.02	0.0665178	0.00280
Cobalt	<0.0000833	0.002	0.003931081	0.000128
Copper	0.00484	0.01	0.0256692	0.000974
Lead	0.00121	0.005	0.008942981	0.00840
Manganese	0.0102	0.002	0.272760431	0.00740
Molybdenum	0.000153	0.002	0.037176244	0.000495
Nickel	<0.000833	0.02	0.022494225	<0.000833
Silver	<0.0000833	0.002	<	<0.0000833
Strontium	0.000213	0.005	<	<0.000208
Titanium	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	<0.000833	0.02	0.022165588	<0.000833
Zinc	0.0220	0.02	0.239170144	0.0213
Iron	0.111	0.2	0.659142431	0.0325
Phosphorus	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.006	24	24	24	24	24
Particulate Matter (µg)	36.4	27.3	39.8	29.5	10.7	17.9	1.58	14.4	28.2
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0595	0.0406	0.0456	0.0281	0.150	0.0338	0.0552	0.0749	0.0303
Arsenic	0.000223	<0.000208	<0.000207	<0.000208	0.000251	<0.000208	<0.000208	<0.000208	<0.000208
Barium	0.00103	0.00323	0.00371	0.0413	0.00294	0.000814	0.000716	0.00106	0.00159
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	0.0220	0.0210	0.0229	0.0202	0.0231	0.0188	0.0205	0.0245	0.0221
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00233	0.00456	0.00241	0.00203	0.00257	0.00204	0.00225	0.00227	0.00195
Cobalt	0.000129	0.000152	<0.0000830	0.000105	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Copper	0.0282	0.0432	0.0189	0.0876	0.00179	0.0109	0.00205	0.00138	0.00111
Lead	0.000866	0.000930	0.00120	0.00158	0.00224	0.00110	0.000861	0.000993	0.000501
Manganese	0.00294	0.0246	0.0247	0.00283	0.0128	0.00229	0.00420	0.00564	0.00313
Molybdenum	0.000307	<0.0000833	0.000194	<0.0000833	0.000312	<0.0000833	<0.0000833	<0.0000833	0.00129
Nickel	<0.000833	0.00115	<0.000830	<0.000833	0.000833	<0.000833	<0.000833	<0.000833	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000324	0.000418	0.000683	0.00138	0.000893	0.000274	0.000254	0.000412	<0.000208
Titanium	<0.000833	0.00141	0.00154	0.00100	0.00289	<0.000833	<0.000833	0.000974	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	<0.000833	<0.000833	0.000938	<0.000833	0.00157	<0.000833	<0.000833	<0.000833	<0.000833
Zinc	0.0104	0.0325	0.0190	0.0126	0.0221	0.00743	0.0393	0.0168	0.0195
Iron	0.0880	0.133	0.140	0.0318	0.493	0.0731	0.183	0.156	0.0687



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Metals

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley			
Sample Date	30-Dec	30-Dec	30-Dec			30-Dec
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	15.0	6.71	4.88			1.75
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Aluminum	0.0262	0.0176	0.0167	0.2	0.469611206	0.0112
Arsenic	0.00100	0.00101	0.000427	0.005	<	<0.000208
Barium	0.000818	0.000806	0.000919	0.005	0.010447969	0.000216
Beryllium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Boron	0.0298	0.0250	0.0243	0.2	0.347371706	0.0223
Cadmium	<0.000208	<0.000208	<0.000208	0.005	<	<0.000208
Chromium	0.00224	0.00246	0.00203	0.02	0.0665178	0.00222
Cobalt	<0.0000833	<0.0000833	<0.0000833	0.002	0.003931081	<0.0000833
Copper	0.0539	0.0102	0.00389	0.01	0.0256692	0.000891
Lead	0.00327	0.00265	0.00148	0.005	0.008942981	0.000697
Manganese	0.00300	0.00212	0.00292	0.002	0.272760431	0.00170
Molybdenum	0.00169	0.000677	0.000638	0.002	0.037176244	0.000604
Nickel	<0.000833	0.000892	0.000899	0.02	0.022494225	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Strontium	0.000319	<0.000208	0.000222	0.005	<	<0.000208
Titanium	<0.000833	<0.000833	<0.000833	0.02	<	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000833	0.002	<	<0.0000833
Vanadium (corr)	0.00200	0.00355	0.00305	0.02	0.022165588	<0.000833
Zinc	0.0213	0.0105	0.00980	0.02	0.239170144	0.00513
Iron	0.0607	0.0326	0.0367	0.2	0.659142431	0.0218
Phosphorus	<0.208	<0.208	<0.208	5	<	<0.208

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24	24
Particulate Matter (µg)	12.4	24.5	5.98	64.3	70.4	24.5	13.8	63.2	0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Aluminum	0.0356	0.0198	0.0259	0.0335	0.0573	0.0221	0.0300	0.0471	0.0235
Arsenic	0.000729	0.000862	0.000406	0.00123	0.000869	0.000423	0.000559	0.000668	<0.000208
Barium	0.00156	0.000634	0.000899	0.000937	0.00194	0.000915	0.000728	0.00169	0.000329
Beryllium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Boron	0.0266	0.0245	0.0262	0.0246	0.0282	0.0232	0.0259	0.0259	0.0270
Cadmium	<0.000208	<0.000208	<0.000207	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208	<0.000208
Chromium	0.00256	0.00202	0.0142	0.00226	0.00297	0.00218	0.00241	0.00286	0.00278
Cobalt	<0.0000833	0.000343	<0.0000830	0.00122	<0.0000833	<0.0000833	<0.0000833	0.000132	<0.0000833
Copper	0.163	0.00808	0.00740	0.228	0.00342	0.0198	0.00210	0.00506	0.00145
Lead	0.00219	0.00212	0.00143	0.00463	0.00338	0.00188	0.00223	0.00281	0.000503
Manganese	0.00510	0.0726	0.00291	0.00235	0.00698	0.00260	0.00289	0.0108	0.00270
Molybdenum	0.000917	0.000833	0.000692	0.000699	0.00109	0.000446	0.000580	0.000658	0.00129
Nickel	0.00113	<0.000833	<0.000830	0.0124	0.00129	0.00106	<0.000833	0.00266	<0.000833
Silver	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Strontium	0.000581	0.000210	0.000226	0.000466	0.000746	0.000309	0.000412	0.000628	0.00153
Titanium	<0.000833	<0.000833	<0.000830	0.00125	0.00181	<0.000833	<0.000833	0.00140	<0.000833
Uranium	<0.0000833	<0.0000833	<0.0000830	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833	<0.0000833
Vanadium (corr)	0.00261	0.00414	0.00317	0.00507	0.00543	0.00195	0.00122	0.00292	<0.000833
Zinc	0.0187	0.0111	0.0124	0.0159	0.0405	0.0125	0.0110	0.0273	0.0119
Iron	0.109	0.0334	0.0758	0.0477	0.206	0.0722	0.0706	0.232	0.0560



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Particulate Matter - Percentage of Samples Detected > 0

2013
 Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	percent detected	percent detected	percent detected	percent detected			percent detected
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)							
Particulate Matter (µg/m3)							
Unit					(µg)	(µg)	
Aluminum	100	98.1	100	100			93.2
Arsenic	76.9	48.1	42.3	20.8			11.9
Barium	100	98.1	100	93.8			62.7
Beryllium	1.9	-	-	-			-
Boron	5.8	3.8	5.8	4.2			5.1
Cadmium	1.9	3.8	1.9	-			1.7
Chromium	100	98.1	100	100			100
Cobalt	92.3	90.4	88.5	87.5			89.8
Copper	100	98.1	100	100			93.2
Lead	96.2	96.2	98.1	87.5			37.3
Manganese	96.2	96.2	98.1	93.8			96.6
Molybdenum	76.9	78.8	80.8	56.3			74.6
Nickel	73.1	69.2	65.4	56.3			52.5
Silver	11.5	11.5	5.8	6.3			3.4
Strontium	94.2	86.5	98.1	70.8			15.3
Titanium	36.5	34.6	44.2	12.5			3.4
Uranium	3.8	-	-	-			-
Vanadium	55.8	73.1	75	56.3			32.2
Zinc	100	100	100	100			100
Iron	100	100	100	100			100
Phosphorus	-	-	-	-			-

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	percent detected	percent detected	percent detected	percent detected	percent detected	percent detected	percent detected	percent detected	percent detected
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)									
Particulate Matter (µg)									
Unit									
Aluminum	100	100	100	100	100	100	100	100	90
Arsenic	63.9	64.4	73.8	32.2	71.2	37.3	54.4	59.3	13.3
Barium	100	100	100	98.3	100	98.3	98.2	100	63.3
Beryllium	-	-	-	-	3.4	-	1.8	-	1.7
Boron	6.6	5.1	4.9	5.1	6.8	5.1	5.3	6.8	6.7
Cadmium	8.2	3.4	1.6	1.7	5.1	1.7	1.8	3.4	1.7
Chromium	100	100	100	100	100	100	100	100	98.3
Cobalt	93.4	93.2	90.2	91.5	93.2	88.1	91.2	93.2	83.3
Copper	100	100	100	100	100	100	100	100	95
Lead	93.4	96.6	98.4	93.2	98.3	96.6	93	96.6	35
Manganese	98.4	96.6	98.4	96.6	96.6	98.3	98.2	98.3	95
Molybdenum	73.8	74.6	88.5	52.5	81.4	71.2	68.4	76.3	75
Nickel	82	84.7	88.5	69.5	93.2	71.2	80.7	93.2	41.7
Silver	16.4	3.4	9.8	8.5	5.1	5.1	1.8	1.7	3.3
Strontium	96.7	98.3	100	91.5	100	98.3	94.7	100	13.3
Titanium	77	86.4	95.1	57.6	89.8	71.2	70.2	93.2	5
Uranium	3.3	1.7	4.9	-	32.2	1.7	3.5	15.3	1.7
Vanadium	77	89.8	93.4	74.6	89.8	83.1	80.7	91.5	25
Zinc	100	100	100	100	100	100	100	100	100
Iron	100	100	100	100	100	100	100	100	98.3



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Total Times Sampled

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	times detected	times detected	times detected	times detected			times detected
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)							
Particulate Matter (µg/m3)							
Unit					(µg)	(µg)	
Aluminum	52	52	52	48			59
Arsenic	52	52	52	48			59
Barium	52	52	52	48			59
Beryllium	52	52	52	48			59
Boron	52	52	52	48			59
Cadmium	52	52	52	48			59
Chromium	52	52	52	48			59
Cobalt	52	52	52	48			59
Copper	52	52	52	48			59
Lead	52	52	52	48			59
Manganese	52	52	52	48			59
Molybdenum	52	52	52	48			59
Nickel	52	52	52	48			59
Silver	52	52	52	48			59
Strontium	52	52	52	48			59
Titanium	52	52	52	48			59
Uranium	52	52	52	48			59
Vanadium	52	52	52	48			59
Zinc	52	52	52	48			59
Iron	52	52	52	48			59
Phosphorus	52	52	52	48			59

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	times detected	times detected	times detected	times detected	times detected	times detected	times detected	times detected	times detected
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)									
Particulate Matter (µg)									
Unit									
Aluminum	61	59	61	59	59	59	57	59	60
Arsenic	61	59	61	59	59	59	57	59	60
Barium	61	59	61	59	59	59	57	59	60
Beryllium	61	59	61	59	59	59	57	59	60
Boron	61	59	61	59	59	59	57	59	60
Cadmium	61	59	61	59	59	59	57	59	60
Chromium	61	59	61	59	59	59	57	59	60
Cobalt	61	59	61	59	59	59	57	59	60
Copper	61	59	61	59	59	59	57	59	60
Lead	61	59	61	59	59	59	57	59	60
Manganese	61	59	61	59	59	59	57	59	60
Molybdenum	61	59	61	59	59	59	57	59	60
Nickel	61	59	61	59	59	59	57	59	60
Silver	61	59	61	59	59	59	57	59	60
Strontium	61	59	61	59	59	59	57	59	60
Titanium	61	59	61	59	59	59	57	59	60
Uranium	61	59	61	59	59	59	57	59	60
Vanadium	61	59	61	59	59	59	57	59	60
Zinc	61	59	61	59	59	59	57	59	60
Iron	61	59	61	59	59	59	57	59	60



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Yearly Average (ug/m3)

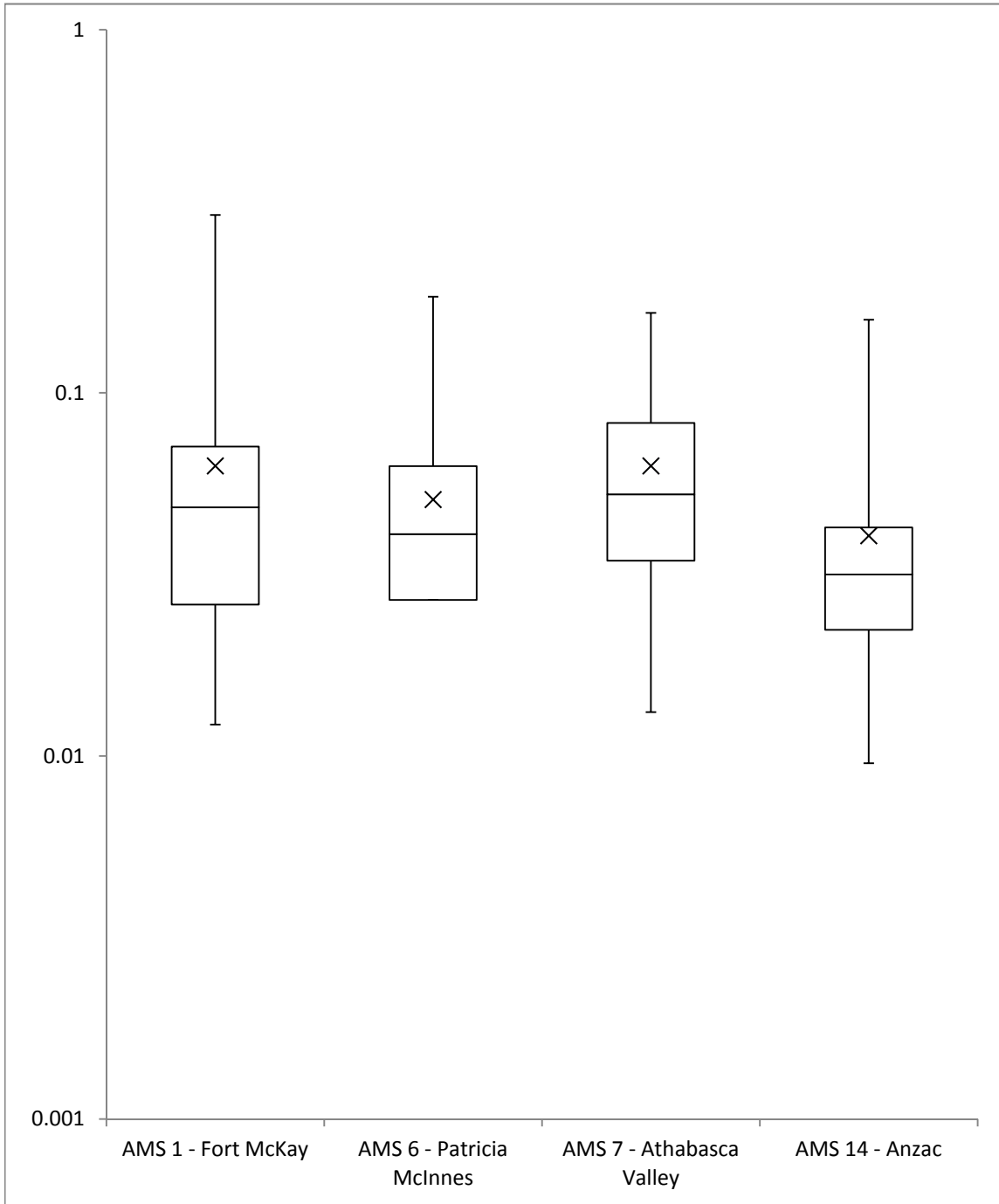
2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	average	average	average	average			average
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)							
Particulate Matter (µg/m3)							
Unit	(µg)	(µg)	(µg)	(µg)	(µg)	(µg)	(µg)
Aluminum	0.063	0.051	0.063	0.04			0.054
Arsenic	0	0	0.001	0			0
Barium	0.001	0.001	0.003	0.001			0.001
Beryllium	0	0	0	0			0
Boron	0.001	0.001	0.001	0.001			0.001
Cadmium	0	0	0	0			0
Chromium	0.003	0.003	0.004	0.003			0.007
Cobalt	0.001	0	0	0			0.001
Copper	0.015	0.009	0.008	0.013			0.006
Lead	0.001	0.004	0.007	0.001			0.001
Manganese	0.006	0.006	0.008	0.007			0.008
Molybdenum	0.001	0	0	0			0.001
Nickel	0.002	0.001	0.002	0.001			0.002
Silver	0	0	0	0			0
Strontium	0.002	0	0.001	0			0
Titanium	0.001	0.001	0.001	0.001			0.001
Uranium	0	0	0	0			0
Vanadium	0.001	0.001	0.001	0.001			0.001
Zinc	0.016	0.014	0.029	0.013			0.034
Iron	0.179	0.143	0.389	0.11			0.115
Phosphorus	0	0	0	0			0

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	average	average	average	average	average	average	average	average	average
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)									
Particulate Matter (µg)									
Unit	(µg)	(µg)	(µg)	(µg)	(µg)	(µg)	(µg)	(µg)	(µg)
Aluminum	0.234	0.234	0.342	0.114	0.551	0.182	0.282	0.412	0.042
Arsenic	0.001	0	0.001	0	0.001	0	0	0	0
Barium	0.005	0.006	0.011	0.003	0.007	0.003	0.004	0.008	0.001
Beryllium	0	0	0	0	0	0	0	0	0
Boron	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
Cadmium	0	0	0	0	0	0	0	0	0
Chromium	0.004	0.003	0.004	0.003	0.005	0.003	0.004	0.004	0.006
Cobalt	0.001	0.001	0.001	0	0.001	0	0.001	0.001	0.001
Copper	0.044	0.012	0.021	0.053	0.004	0.013	0.003	0.003	0.004
Lead	0.003	0.002	0.007	0.001	0.002	0.002	0.001	0.001	0.002
Manganese	0.016	0.017	0.023	0.011	0.03	0.015	0.017	0.032	0.008
Molybdenum	0	0	0	0	0	0	0	0	0.001
Nickel	0.004	0.002	0.003	0.002	0.004	0.002	0.002	0.002	0.003
Silver	0	0	0	0	0	0	0	0	0
Strontium	0.002	0.002	0.003	0.001	0.005	0.001	0.002	0.004	0
Titanium	0.008	0.008	0.012	0.004	0.016	0.005	0.007	0.015	0
Uranium	0	0	0	0	0	0	0	0	0
Vanadium	0.002	0.002	0.002	0.001	0.003	0.002	0.002	0.003	0.001
Zinc	0.022	0.02	0.032	0.018	0.025	0.018	0.017	0.021	0.023
Iron	0.831	0.802	1.324	0.343	1.613	0.652	0.791	1.637	0.105



Aluminum PM 2.5	Results (µg/m3)					
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0122	0.0261	0.0484	0.0712	0.3090	0.0629
AMS 6 - Patricia McInnes	0.0000	0.0269	0.0408	0.0628	0.1840	0.0508
AMS 7 - Athabasca Valley	0.0132	0.0345	0.0525	0.0826	0.1660	0.0629
AMS 14 - Anzac	0.0095	0.0223	0.0316	0.0426	0.1590	0.0404

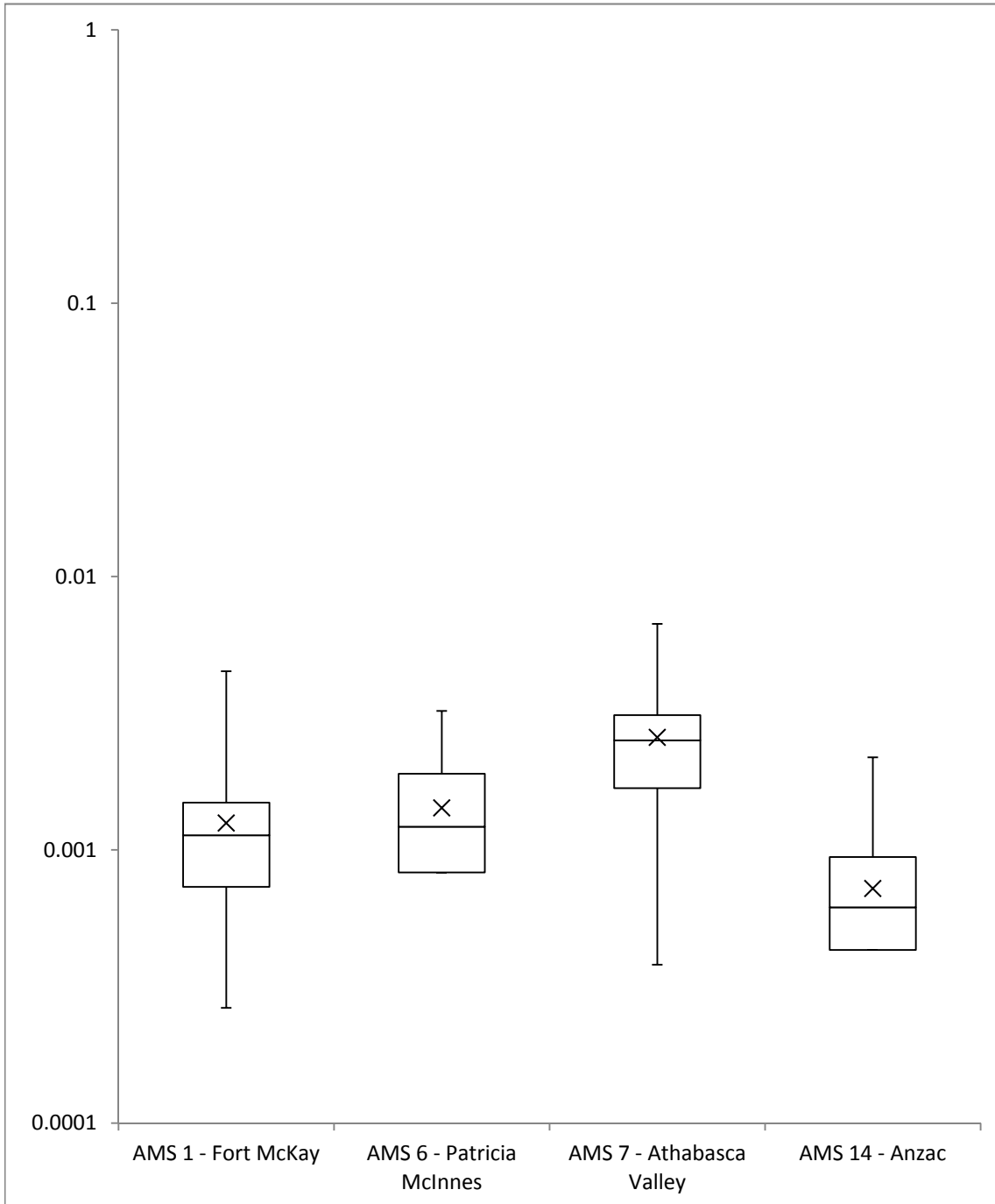




Arsenic PM 2.5					Results ($\mu\text{g}/\text{m}^3$)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0002	0.0003	0.0004	0.0031	0.0004
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0004	0.0065	0.0004
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0004	0.0143	0.0007
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0030	0.0002



Station	Barium PM 2.5						Results ($\mu\text{g}/\text{m}^3$)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0003	0.0007	0.0011	0.0015	0.0045	0.0013	
AMS 6 - Patricia McInnes	0.0000	0.0008	0.0012	0.0019	0.0032	0.0014	
AMS 7 - Athabasca Valley	0.0004	0.0017	0.0025	0.0031	0.0067	0.0026	
AMS 14 - Anzac	0.0000	0.0004	0.0006	0.0009	0.0022	0.0007	





Beryllium PM 2.5					Results ($\mu\text{g}/\text{m}^3$)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



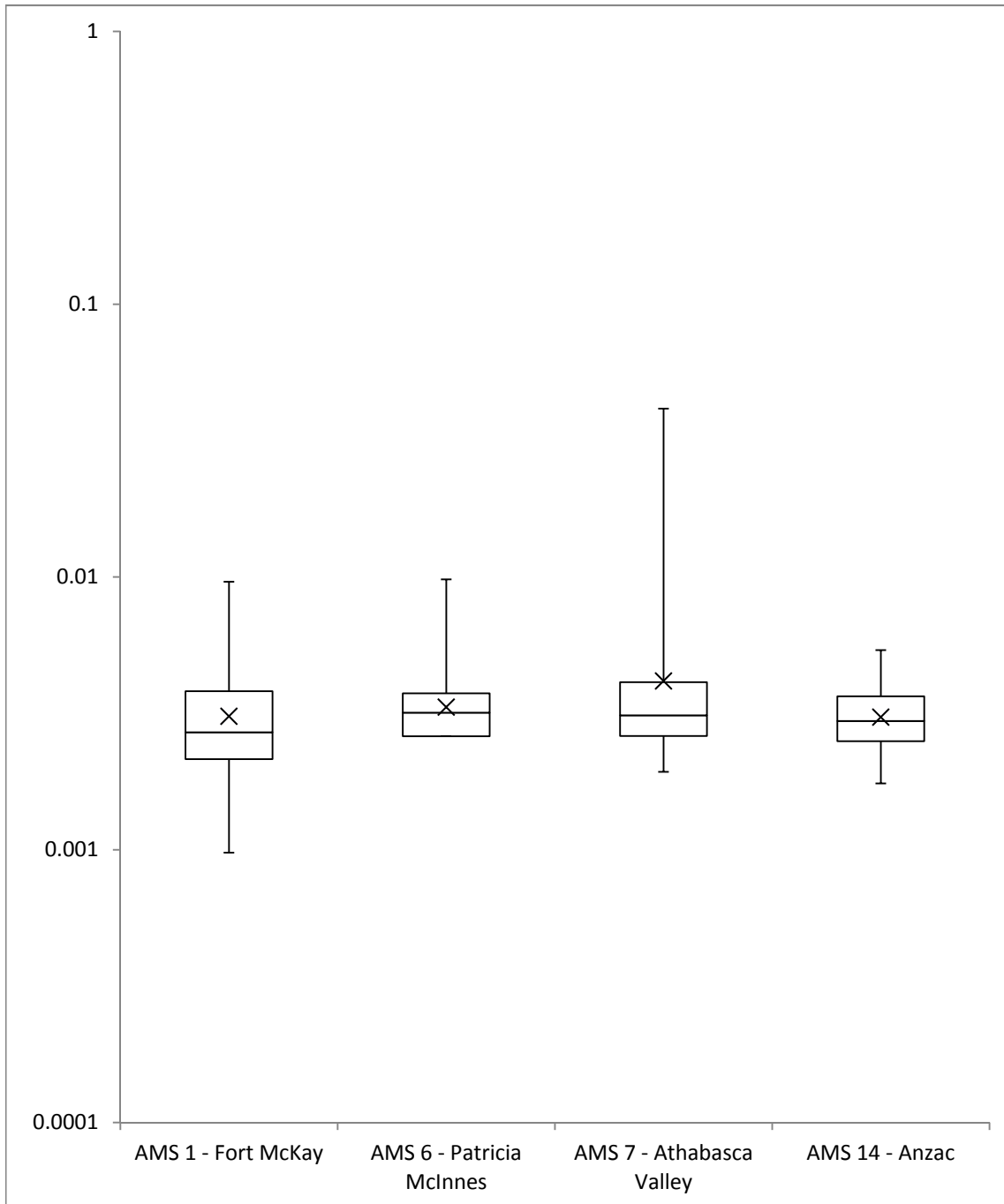
Boron PM 2.5					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0298	0.0010
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0282	0.0010
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0276	0.0015
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0270	0.0010



Cadmium PM 2.5					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0008	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0007	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

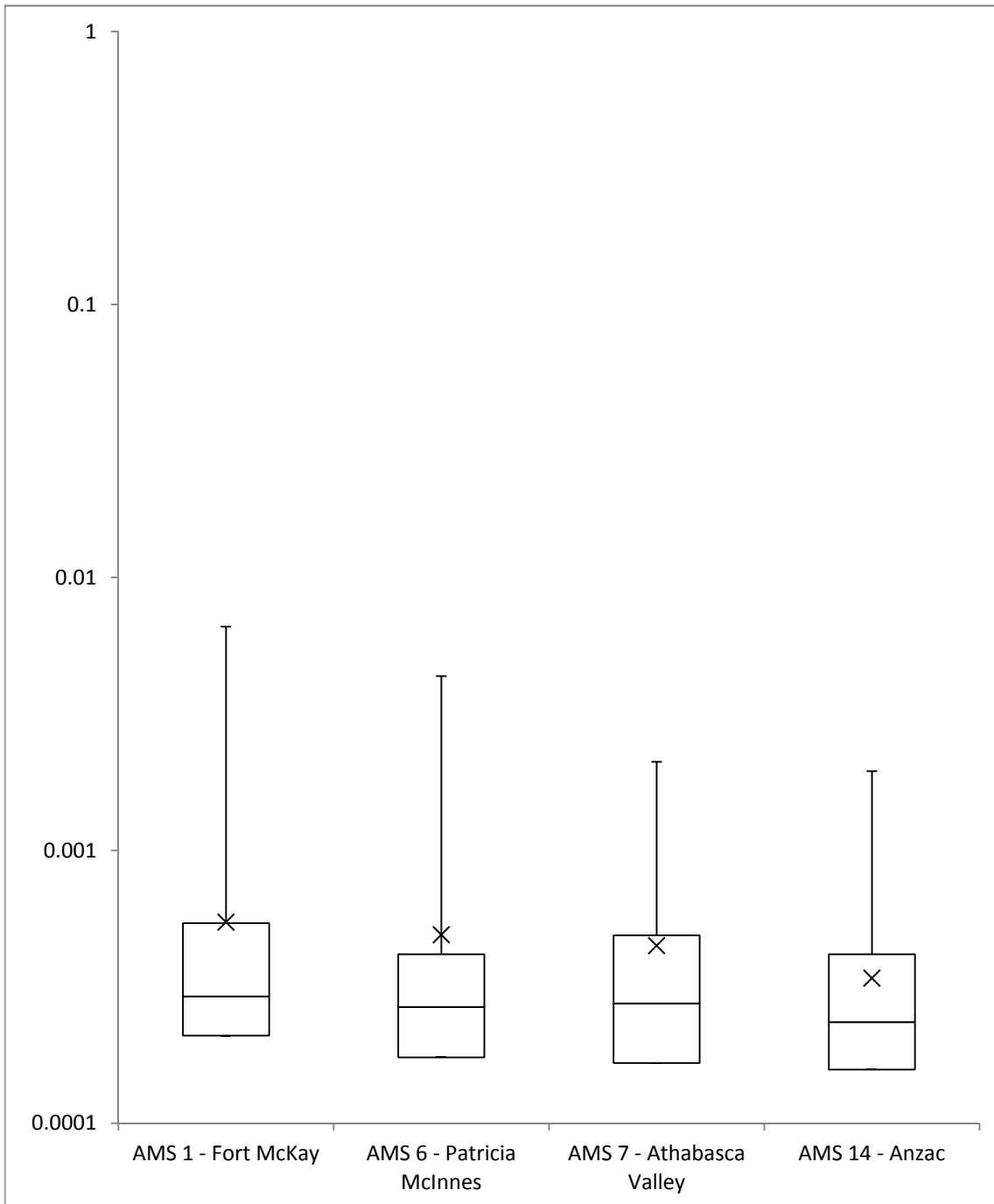


Station	Chromium PM 2.5					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0010	0.0021	0.0027	0.0038	0.0096	0.0031
AMS 6 - Patricia McInnes	0.0000	0.0026	0.0032	0.0037	0.0098	0.0033
AMS 7 - Athabasca Valley	0.0019	0.0026	0.0031	0.0041	0.0414	0.0042
AMS 14 - Anzac	0.0018	0.0025	0.0030	0.0037	0.0054	0.0031



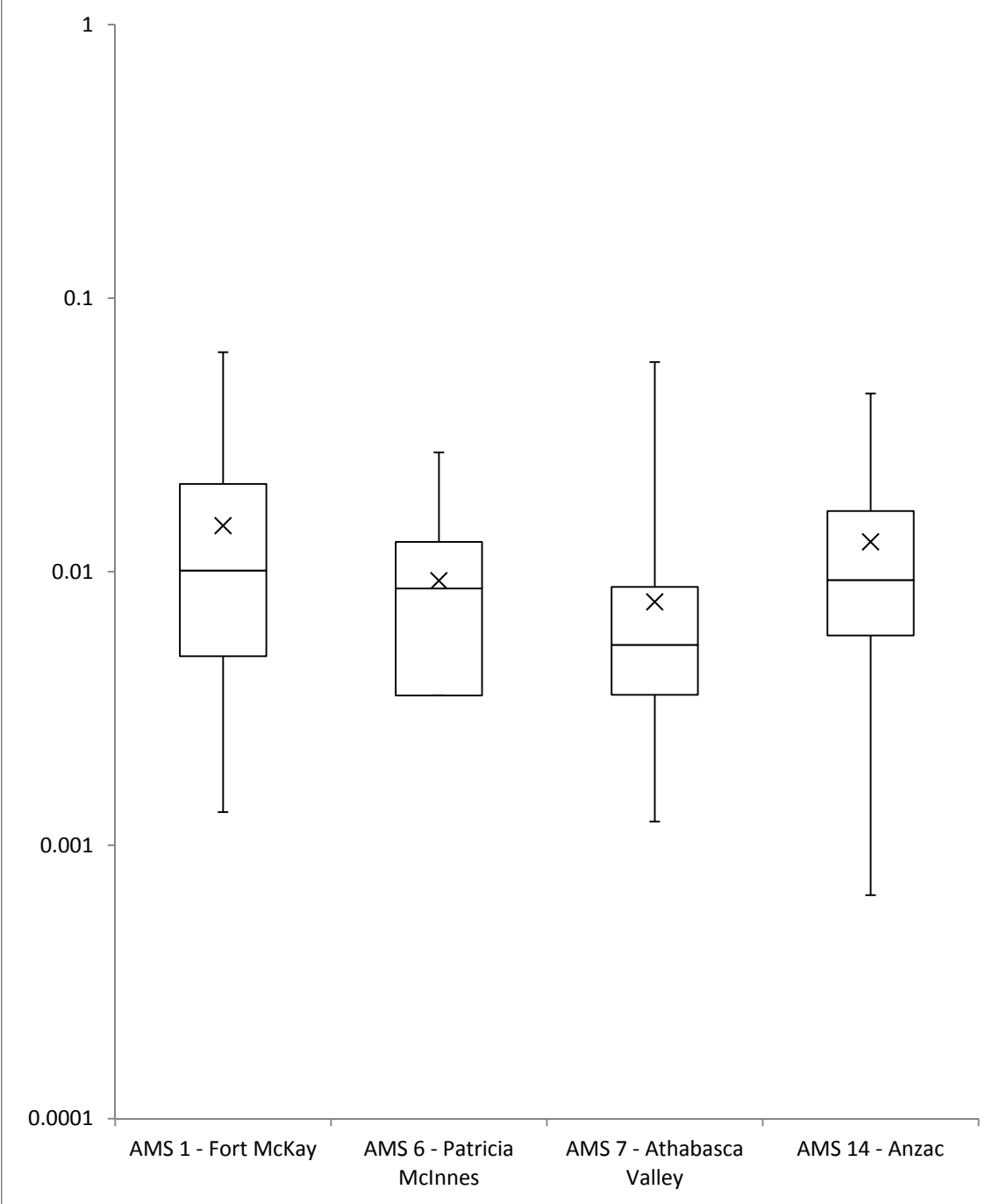


Station	Cobalt PM 2.5						Results ($\mu\text{g}/\text{m}^3$)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0002	0.0003	0.0005	0.0066	0.0005	
AMS 6 - Patricia McInnes	0.0000	0.0002	0.0003	0.0004	0.0044	0.0005	
AMS 7 - Athabasca Valley	0.0000	0.0002	0.0003	0.0005	0.0021	0.0004	
AMS 14 - Anzac	0.0000	0.0002	0.0002	0.0004	0.0019	0.0003	



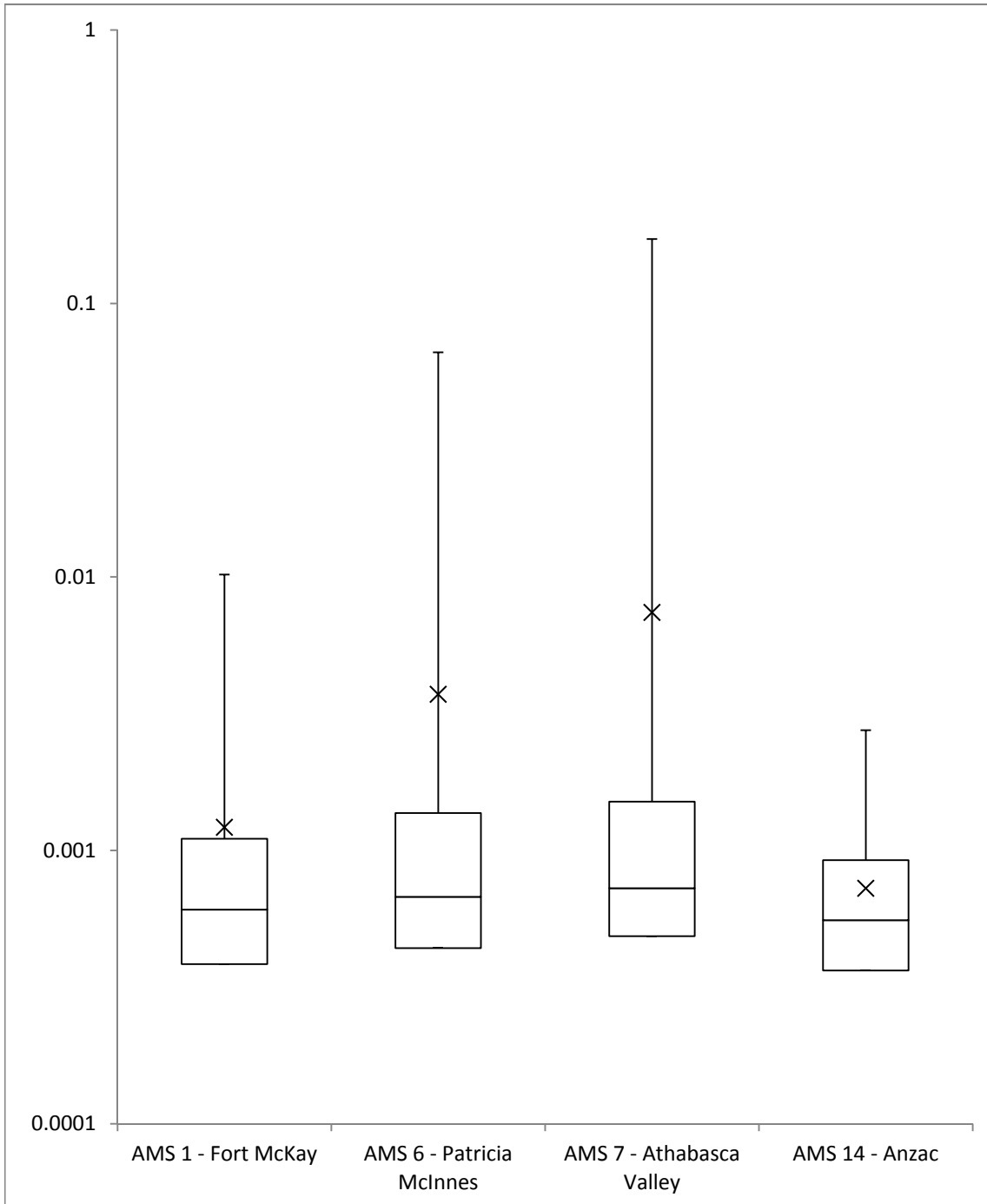


Station	Results ($\mu\text{g}/\text{m}^3$)					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0013	0.0049	0.0101	0.0209	0.0634	0.0147
AMS 6 - Patricia McInnes	0.0000	0.0035	0.0087	0.0128	0.0273	0.0093
AMS 7 - Athabasca Valley	0.0012	0.0035	0.0054	0.0088	0.0584	0.0078
AMS 14 - Anzac	0.0007	0.0058	0.0093	0.0167	0.0448	0.0129



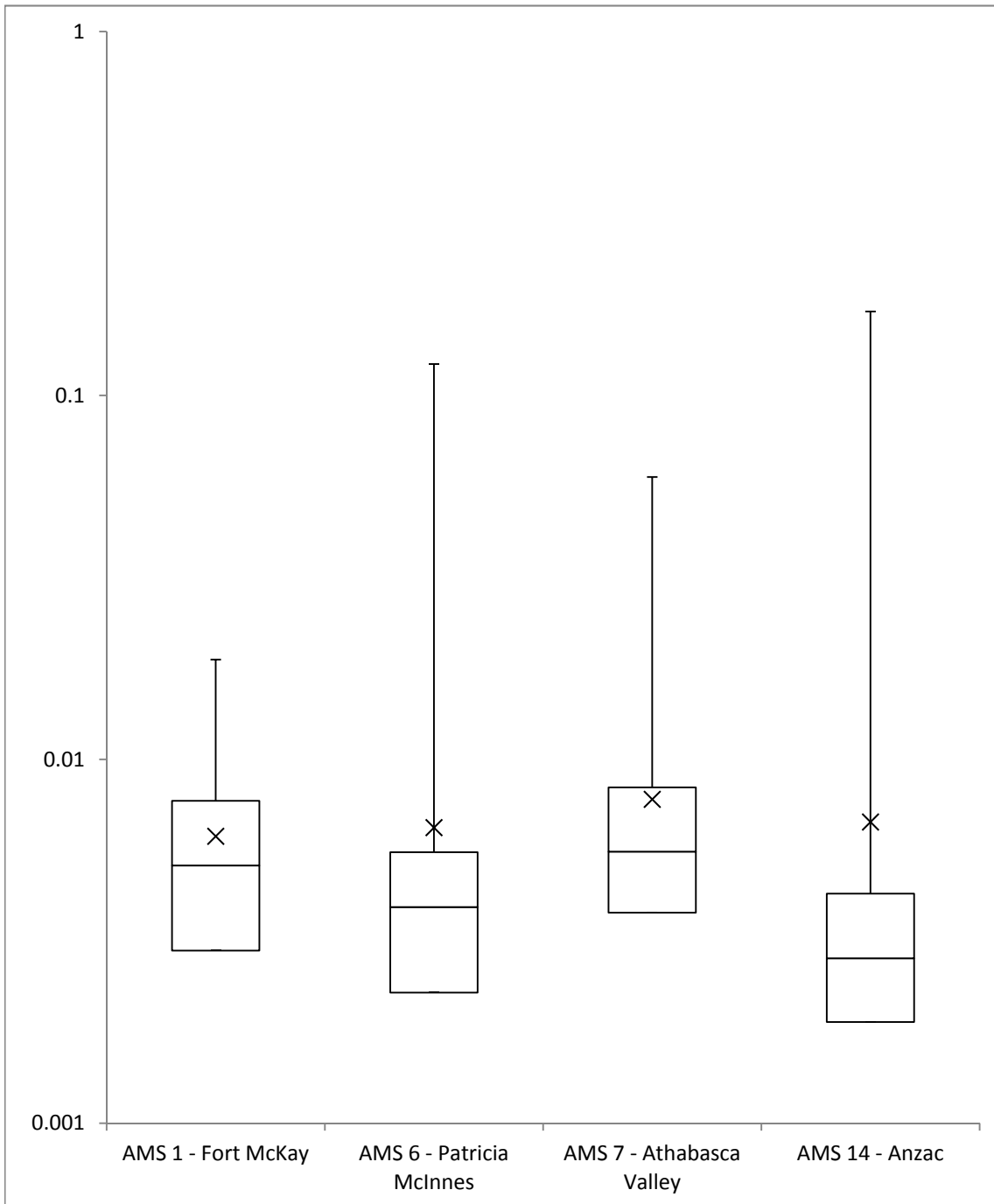


Lead PM 2.5	Results (µg/m3)					
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0004	0.0006	0.0011	0.0102	0.0012
AMS 6 - Patricia McInnes	0.0000	0.0004	0.0007	0.0014	0.0663	0.0037
AMS 7 - Athabasca Valley	0.0000	0.0005	0.0007	0.0015	0.1720	0.0074
AMS 14 - Anzac	0.0000	0.0004	0.0006	0.0009	0.0027	0.0007



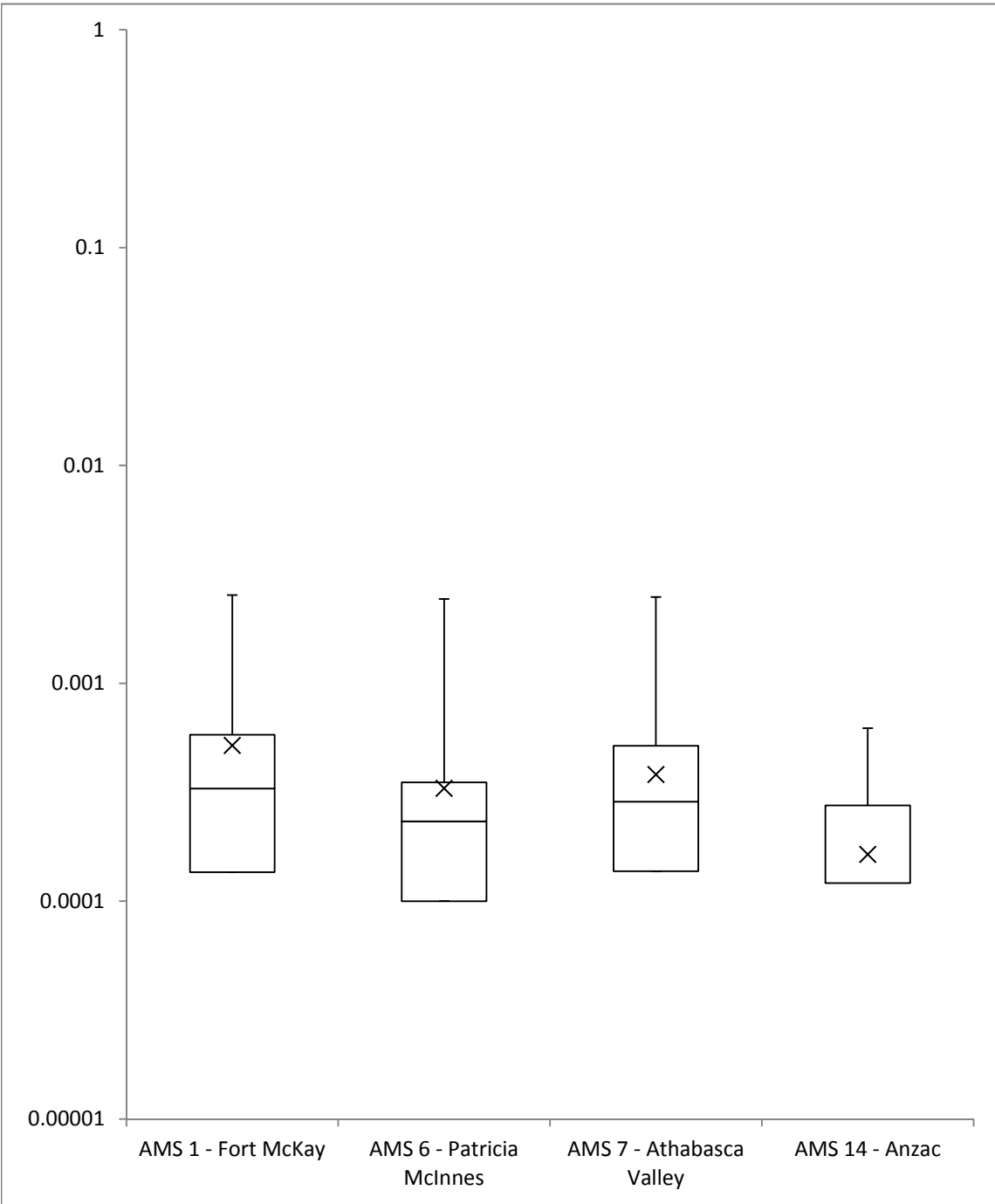


Manganese PM 2.5	Results ($\mu\text{g}/\text{m}^3$)					
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0030	0.0051	0.0077	0.0188	0.0061
AMS 6 - Patricia McInnes	0.0000	0.0023	0.0039	0.0056	0.1220	0.0065
AMS 7 - Athabasca Valley	0.0000	0.0038	0.0056	0.0084	0.0597	0.0078
AMS 14 - Anzac	0.0000	0.0019	0.0028	0.0043	0.1700	0.0067



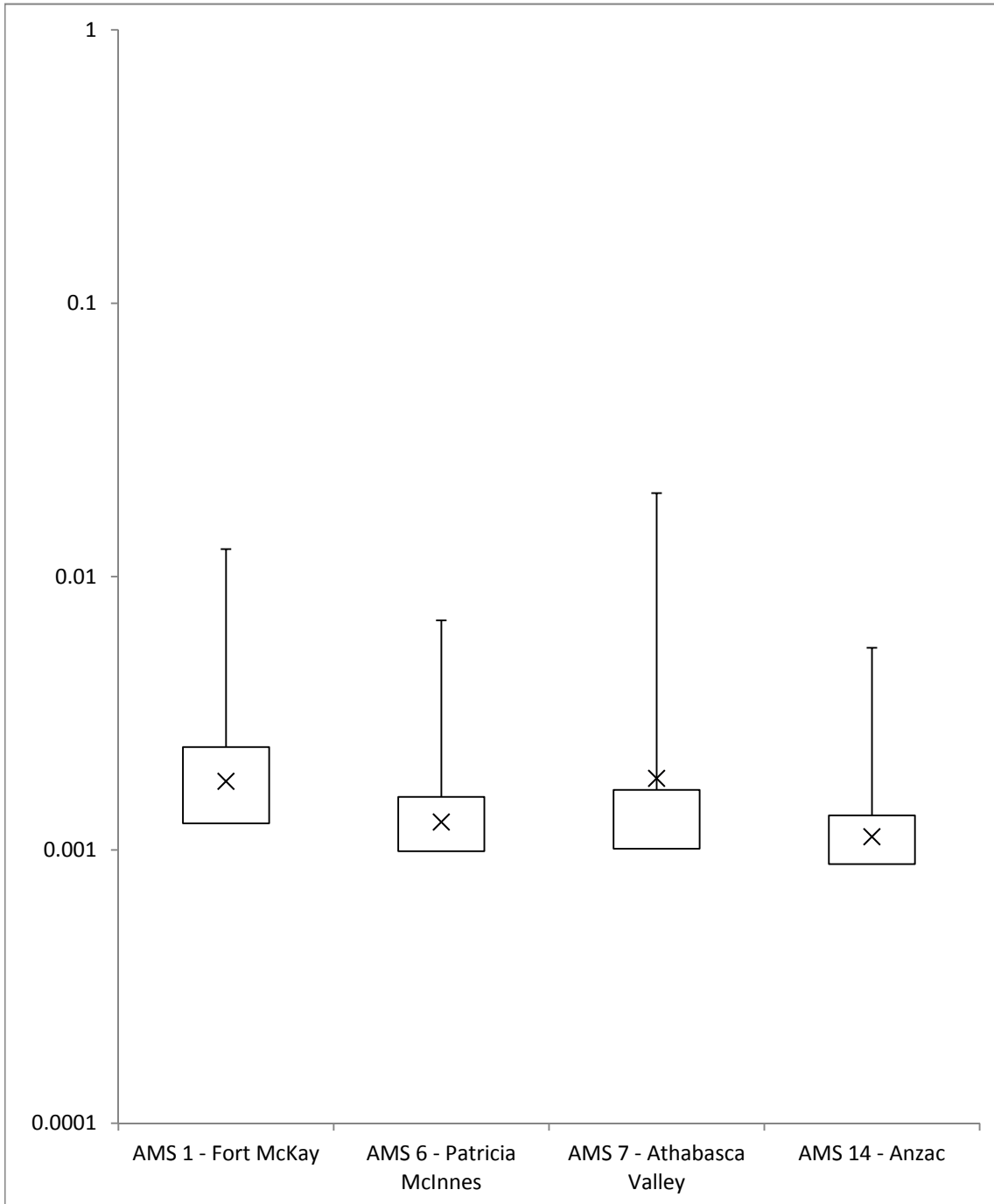


Station	Molybdenum PM 2.5						Results ($\mu\text{g}/\text{m}^3$)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0001	0.0003	0.0006	0.0025	0.0005	
AMS 6 - Patricia McInnes	0.0000	0.0001	0.0002	0.0004	0.0024	0.0003	
AMS 7 - Athabasca Valley	0.0000	0.0001	0.0003	0.0005	0.0025	0.0004	
AMS 14 - Anzac	0.0000	0.0000	0.0001	0.0003	0.0006	0.0002	





Station	Nickel PM 2.5						Results ($\mu\text{g}/\text{m}^3$)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0000	0.0012	0.0024	0.0126	0.0018	
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0010	0.0016	0.0069	0.0013	
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0010	0.0017	0.0202	0.0018	
AMS 14 - Anzac	0.0000	0.0000	0.0009	0.0013	0.0055	0.0011	

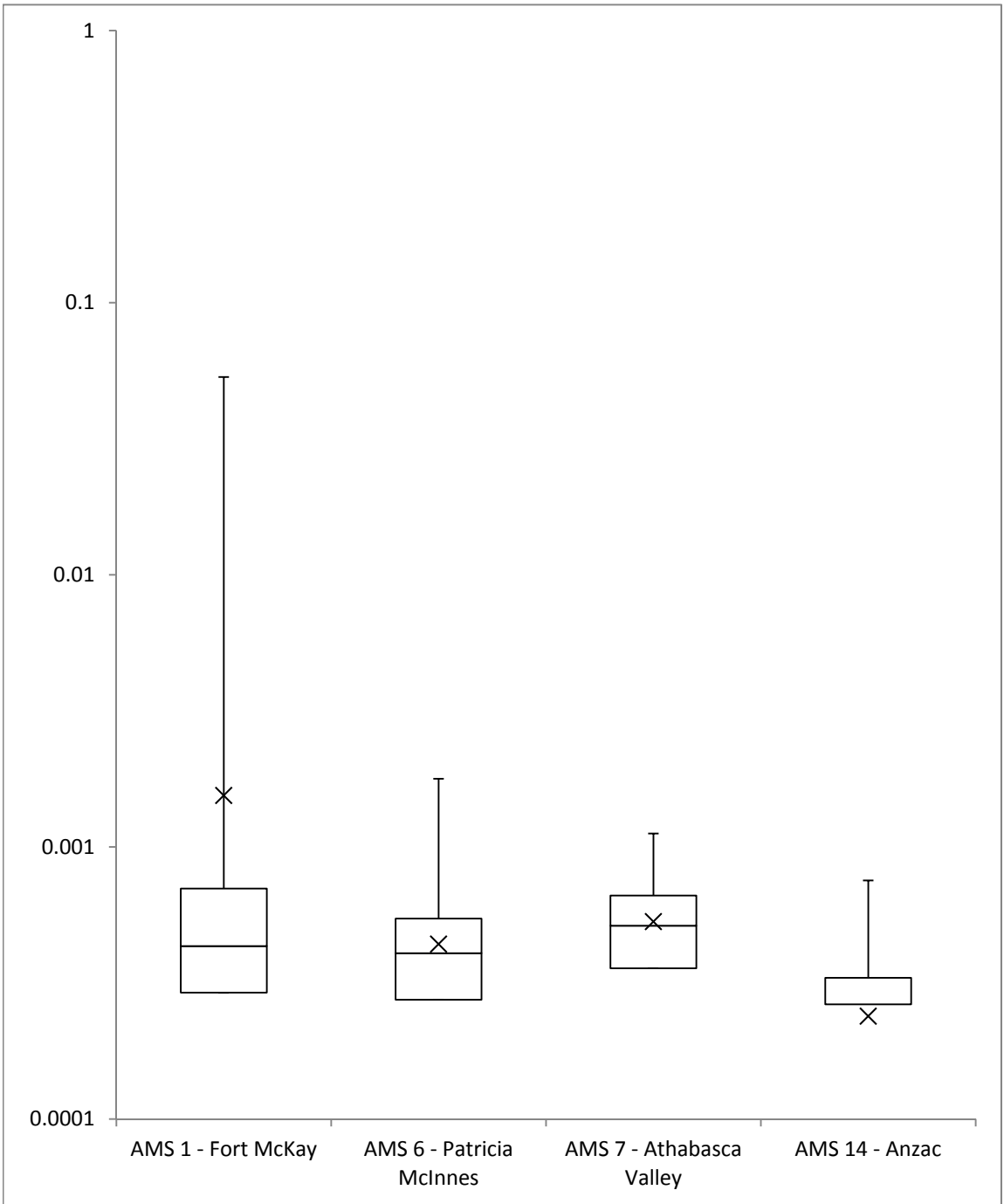




Silver PM 2.5					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0009	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000



Station	Strontium PM 2.5						Results ($\mu\text{g}/\text{m}^3$)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0003	0.0004	0.0007	0.0533	0.0015	
AMS 6 - Patricia McInnes	0.0000	0.0003	0.0004	0.0005	0.0018	0.0004	
AMS 7 - Athabasca Valley	0.0000	0.0004	0.0005	0.0007	0.0011	0.0005	
AMS 14 - Anzac	0.0000	0.0000	0.0003	0.0003	0.0008	0.0002	





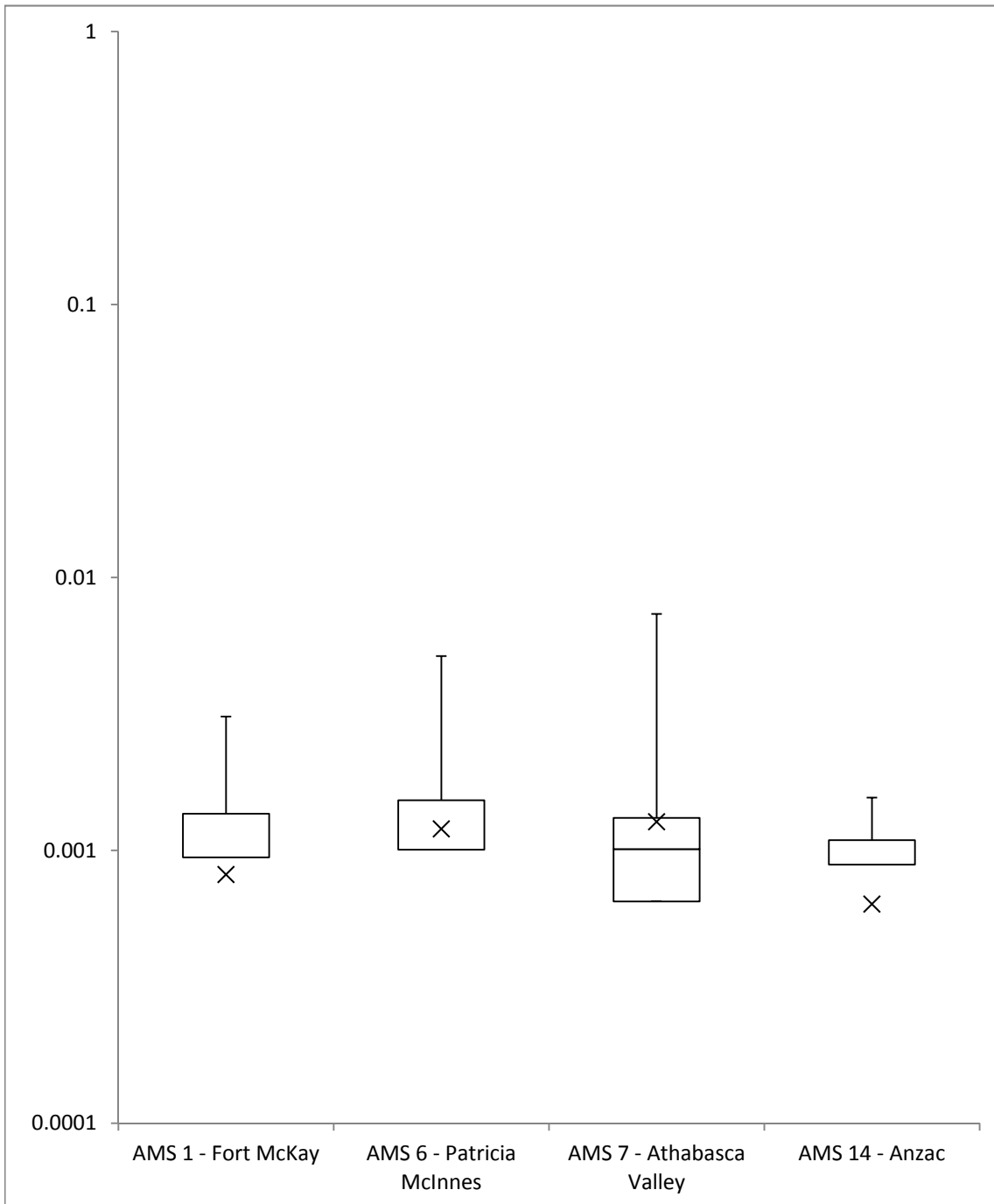
Titanium PM 2.5					Results ($\mu\text{g}/\text{m}^3$)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0012	0.0109	0.0009
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0015	0.0038	0.0007
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0025	0.0061	0.0012
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0315	0.0009



Uranium PM 2.5					Results ($\mu\text{g}/\text{m}^3$)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

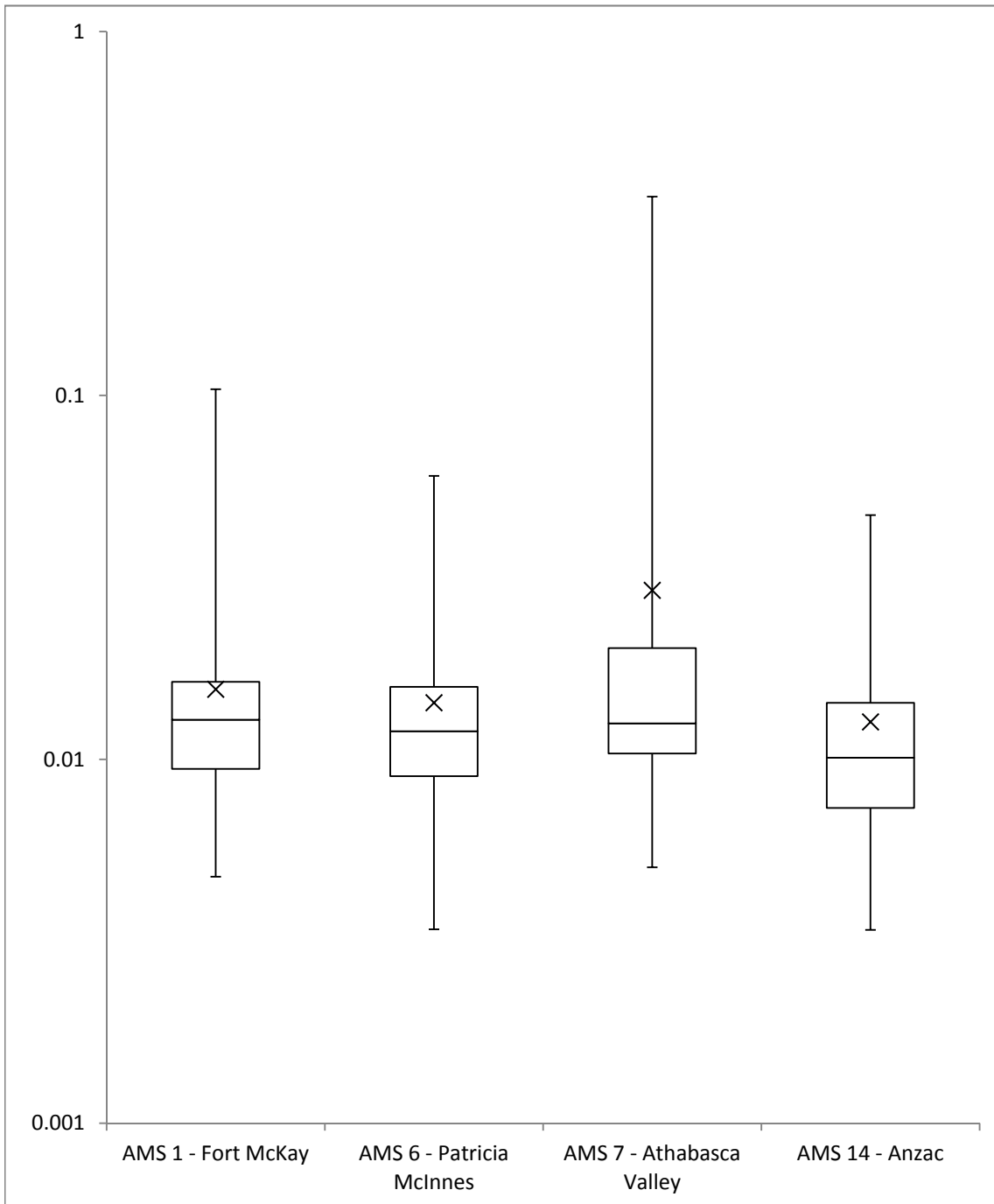


Station	Vanadium (corr) PM 2.5					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0009	0.0014	0.0031	0.0008
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0010	0.0015	0.0052	0.0012
AMS 7 - Athabasca Valley	0.0000	0.0006	0.0010	0.0013	0.0074	0.0013
AMS 14 - Anzac	0.0000	0.0000	0.0009	0.0011	0.0016	0.0006



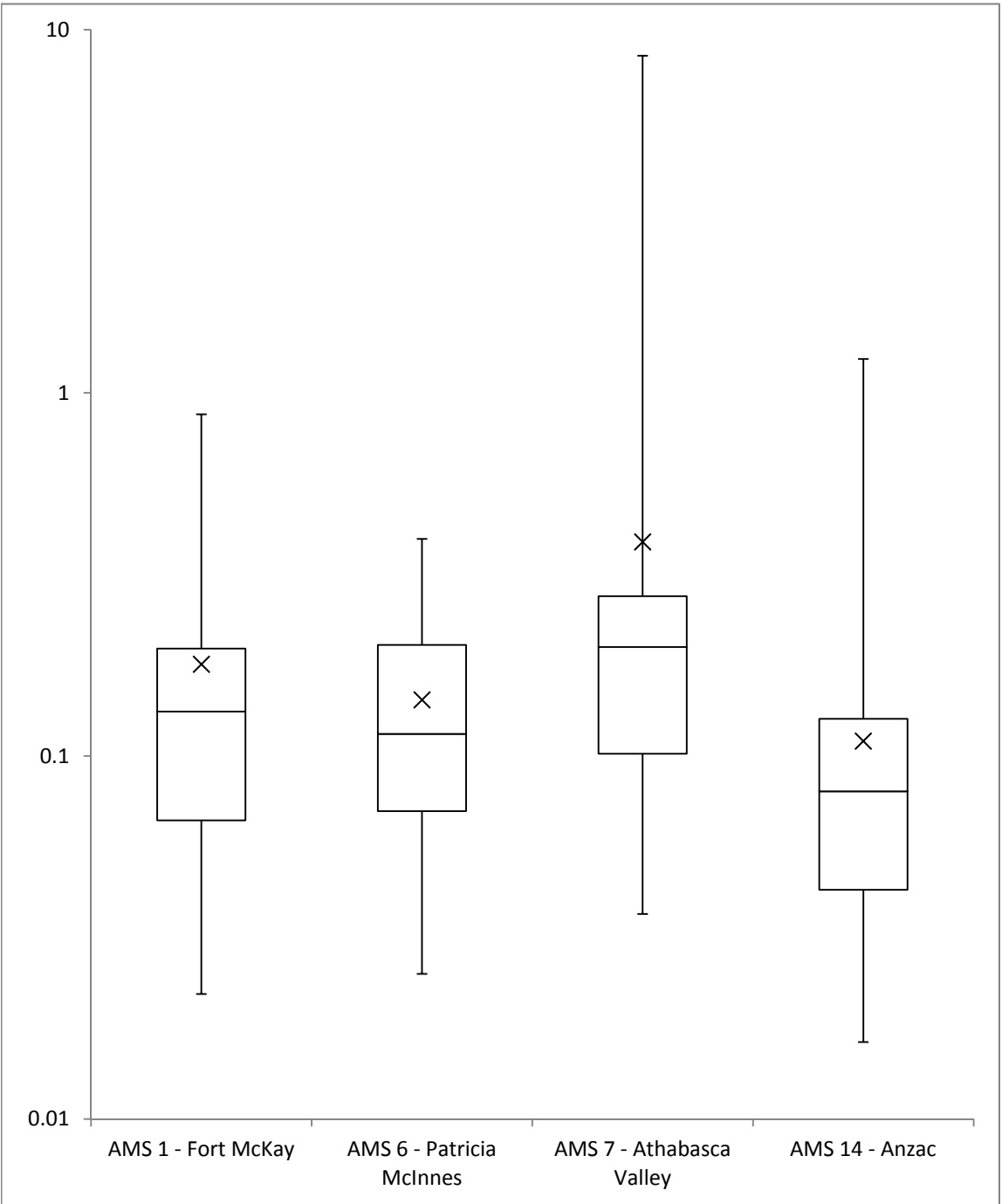


Zinc PM 2.5						Results (µg/m3)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0048	0.0094	0.0128	0.0163	0.1040	0.0156
AMS 6 - Patricia McInnes	0.0034	0.0090	0.0120	0.0158	0.0601	0.0143
AMS 7 - Athabasca Valley	0.0050	0.0104	0.0126	0.0202	0.3520	0.0291
AMS 14 - Anzac	0.0034	0.0074	0.0101	0.0143	0.0469	0.0127





Iron PM 2.5						Results (µg/m3)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0221	0.0665	0.1325	0.1975	0.8730	0.1788
AMS 6 - Patricia McInnes	0.0251	0.0705	0.1150	0.2023	0.3960	0.1427
AMS 7 - Athabasca Valley	0.0367	0.1014	0.1995	0.2755	8.4800	0.3885
AMS 14 - Anzac	0.0163	0.0428	0.0799	0.1265	1.2400	0.1099

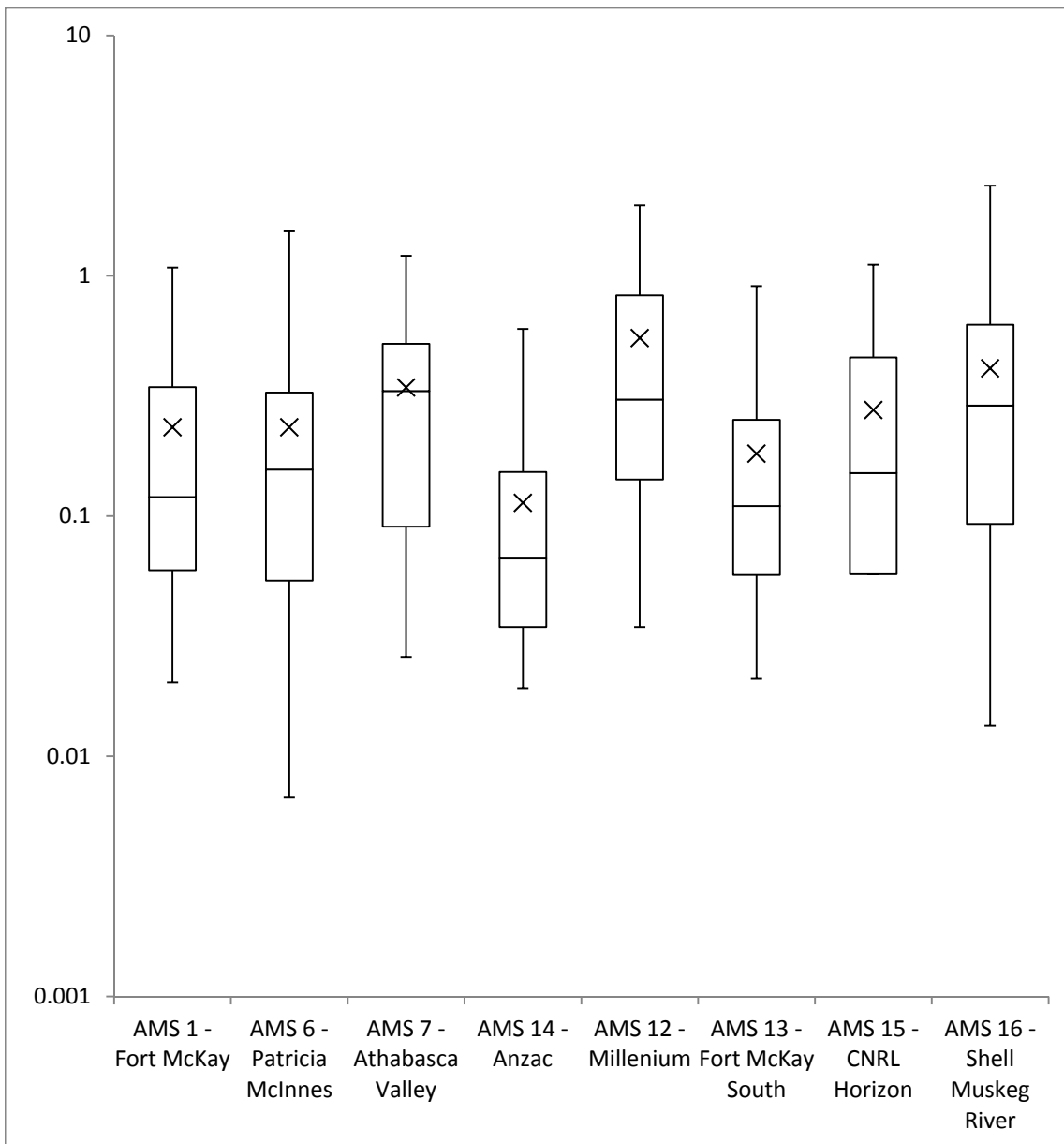




Phosphorus PM 2.5					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

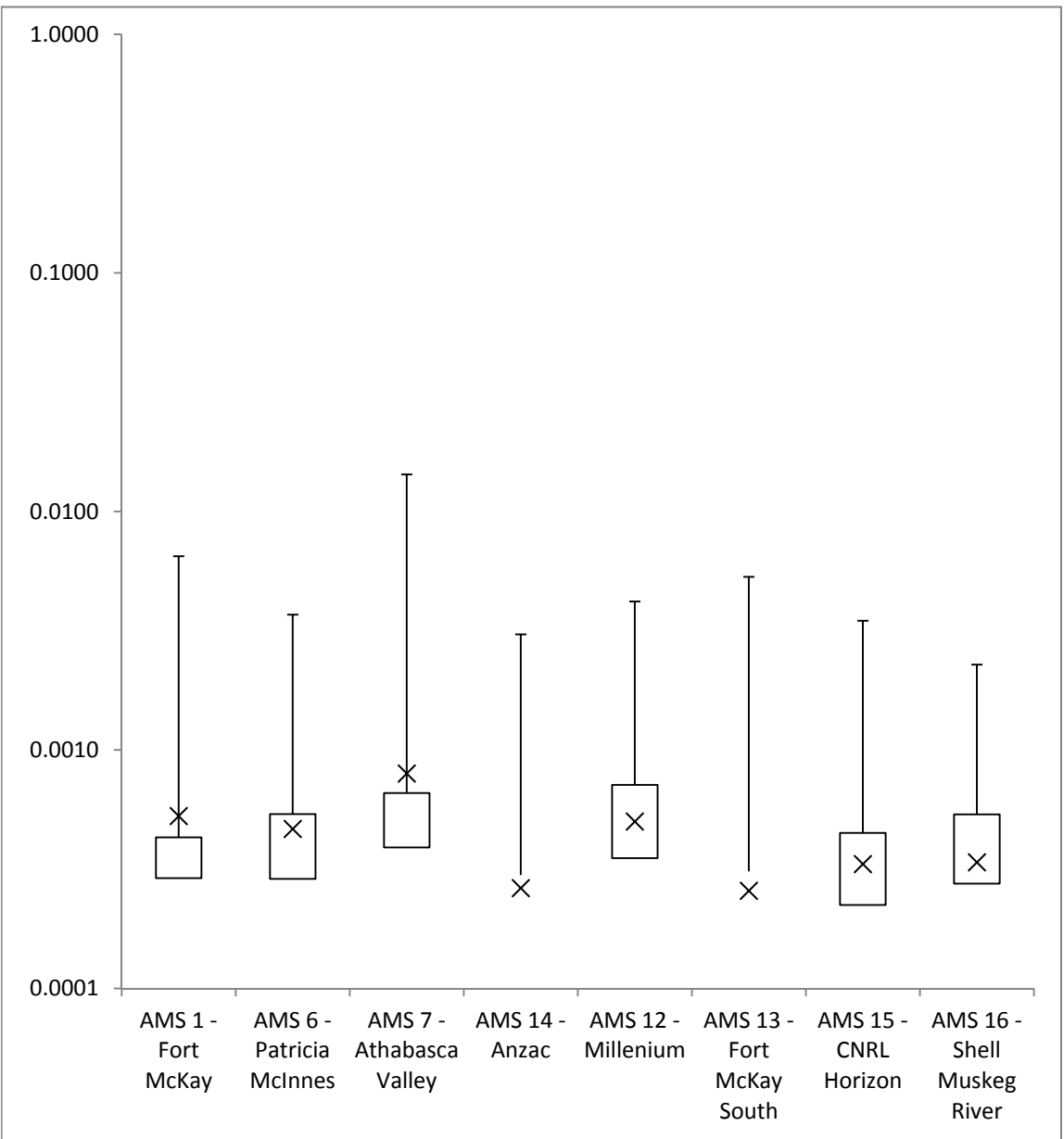


Station	Aluminum PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0203	0.0595	0.1200	0.3440	1.0800	0.2340	
AMS 6 - Patricia McInnes	0.0067	0.0538	0.1560	0.3265	1.5300	0.2340	
AMS 7 - Athabasca Valley	0.0259	0.0903	0.3310	0.5210	1.2100	0.3424	
AMS 14 - Anzac	0.0192	0.0345	0.0666	0.1525	0.6000	0.1135	
AMS 12 - Millenium	0.0345	0.1420	0.3050	0.8280	1.9600	0.5507	
AMS 13 - Fort McKay South	0.0210	0.0569	0.1100	0.2515	0.9050	0.1817	
AMS 15 - CNRL Horizon	0.0000	0.0572	0.1510	0.4570	1.1100	0.2763	
AMS 16 - Shell Muskeg River	0.0134	0.0926	0.2880	0.6250	2.3700	0.4118	



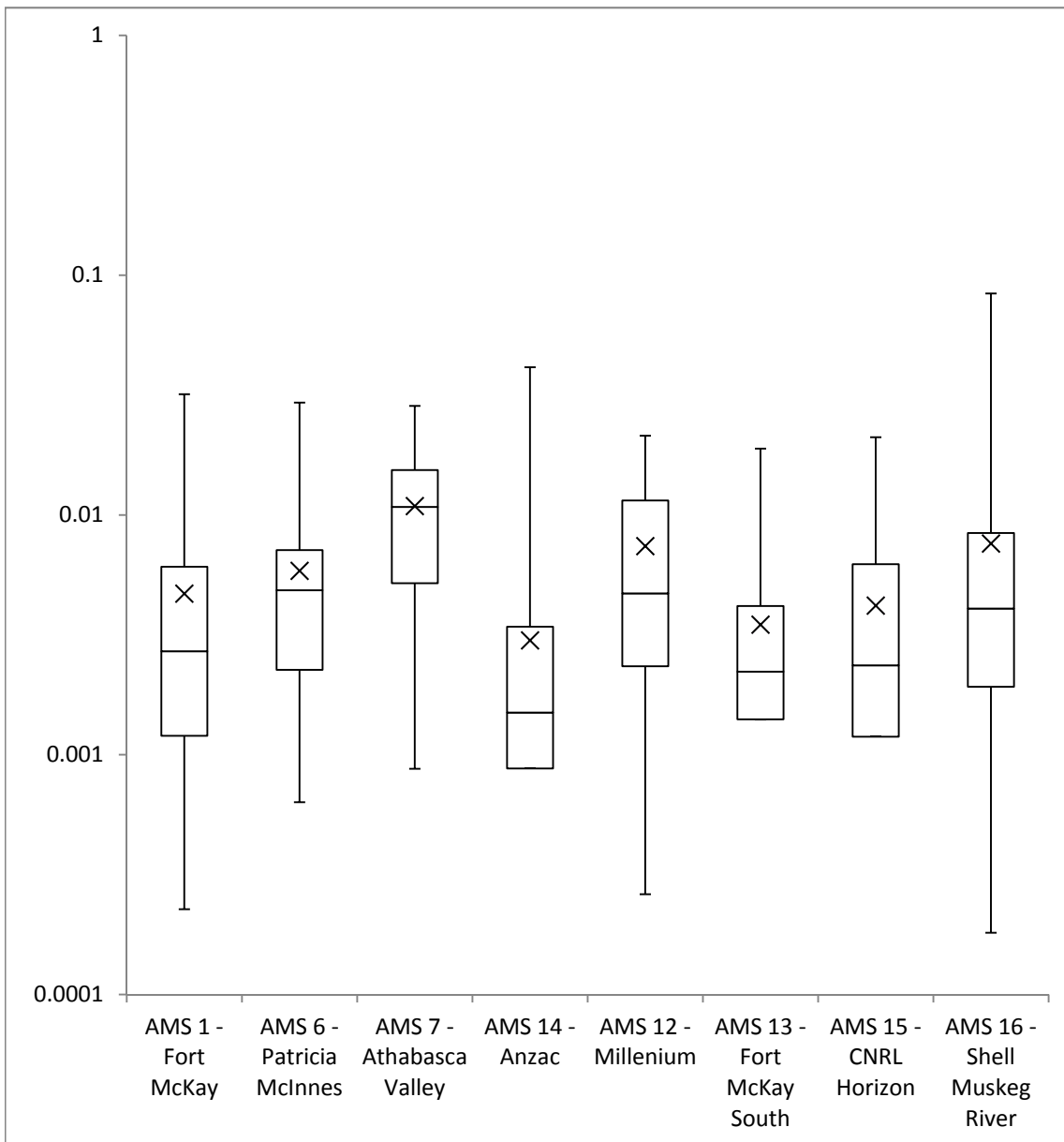


Station	Arsenic PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0000	0.0003	0.0004	0.0065	0.0005	
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0003	0.0005	0.0037	0.0005	
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0004	0.0007	0.0143	0.0008	
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0003	0.0030	0.0003	
AMS 12 - Millenium	0.0000	0.0000	0.0004	0.0007	0.0042	0.0005	
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0003	0.0053	0.0003	
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0002	0.0004	0.0035	0.0003	
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0003	0.0005	0.0023	0.0003	





Station	Results (µg/m ³)					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0002	0.0012	0.0027	0.0061	0.0319	0.0047
AMS 6 - Patricia McInnes	0.0006	0.0023	0.0049	0.0071	0.0294	0.0058
AMS 7 - Athabasca Valley	0.0009	0.0052	0.0108	0.0154	0.0285	0.0109
AMS 14 - Anzac	0.0000	0.0009	0.0015	0.0034	0.0413	0.0030
AMS 12 - Millenium	0.0003	0.0023	0.0047	0.0115	0.0214	0.0074
AMS 13 - Fort McKay South	0.0000	0.0014	0.0022	0.0042	0.0189	0.0035
AMS 15 - CNRL Horizon	0.0000	0.0012	0.0024	0.0062	0.0211	0.0042
AMS 16 - Shell Muskeg River	0.0002	0.0019	0.0041	0.0084	0.0839	0.0076





Beryllium PM 10					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 12 - Millenium	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



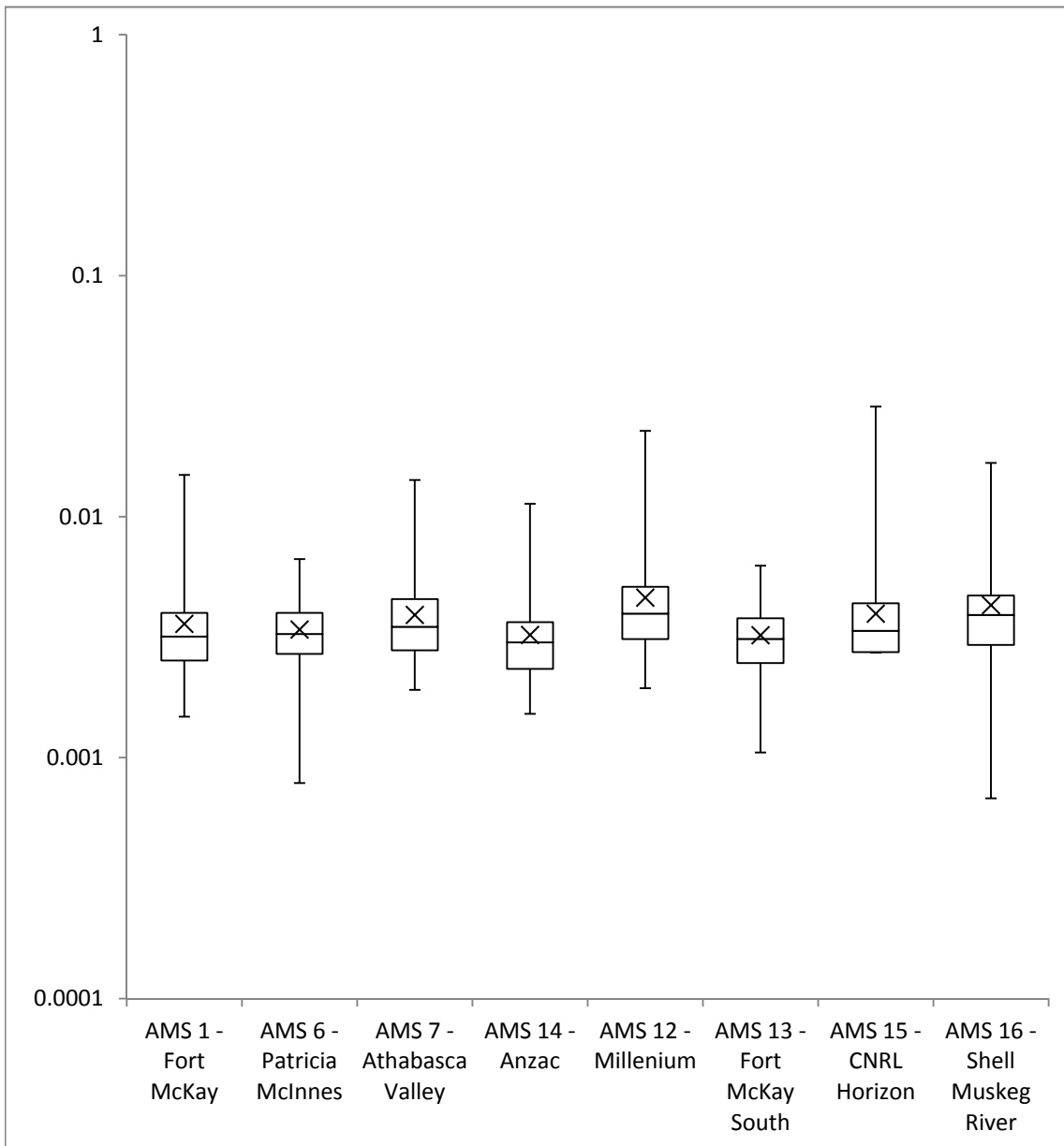
Station	Results (µg/m3)					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0266	0.0012
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0263	0.0012
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0262	0.0012
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0246	0.0012
AMS 12 - Millenium	0.0000	0.0000	0.0000	0.0000	0.0282	0.0015
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.0245	0.0011
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0260	0.0013
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0000	0.0266	0.0015



Cadmium PM 10					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0031	0.0001
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000
AMS 12 - Millenium	0.0000	0.0000	0.0000	0.0000	0.0007	0.0000
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000

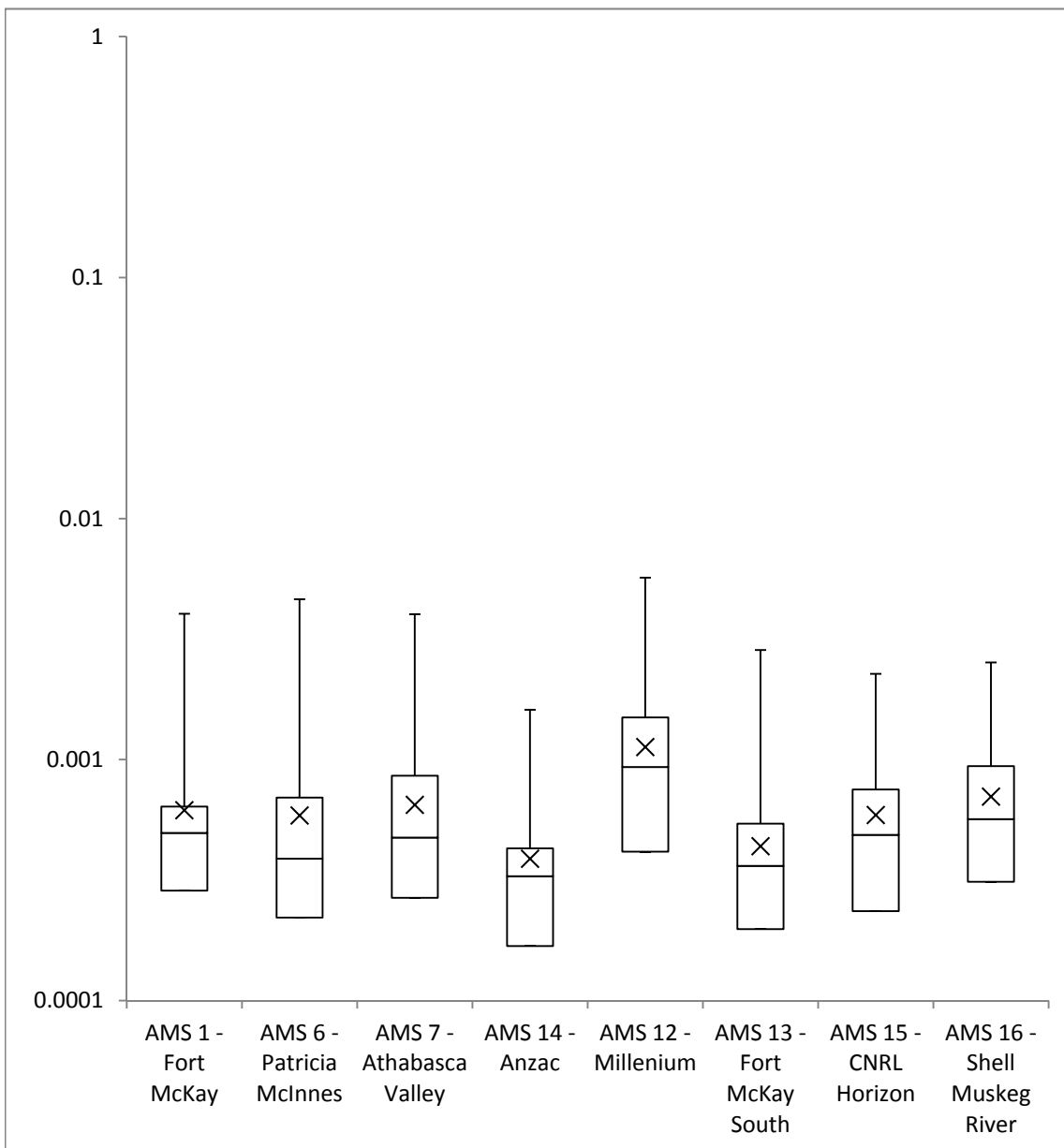


Station	Chromium PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0015	0.0025	0.0032	0.0040	0.0149	0.0036	
AMS 6 - Patricia McInnes	0.0008	0.0027	0.0033	0.0040	0.0067	0.0034	
AMS 7 - Athabasca Valley	0.0019	0.0028	0.0035	0.0046	0.0142	0.0039	
AMS 14 - Anzac	0.0015	0.0023	0.0030	0.0036	0.0113	0.0032	
AMS 12 - Millenium	0.0019	0.0031	0.0040	0.0051	0.0227	0.0046	
AMS 13 - Fort McKay South	0.0010	0.0025	0.0031	0.0038	0.0063	0.0032	
AMS 15 - CNRL Horizon	0.0000	0.0027	0.0034	0.0044	0.0286	0.0040	
AMS 16 - Shell Muskeg River	0.0007	0.0029	0.0039	0.0047	0.0167	0.0043	



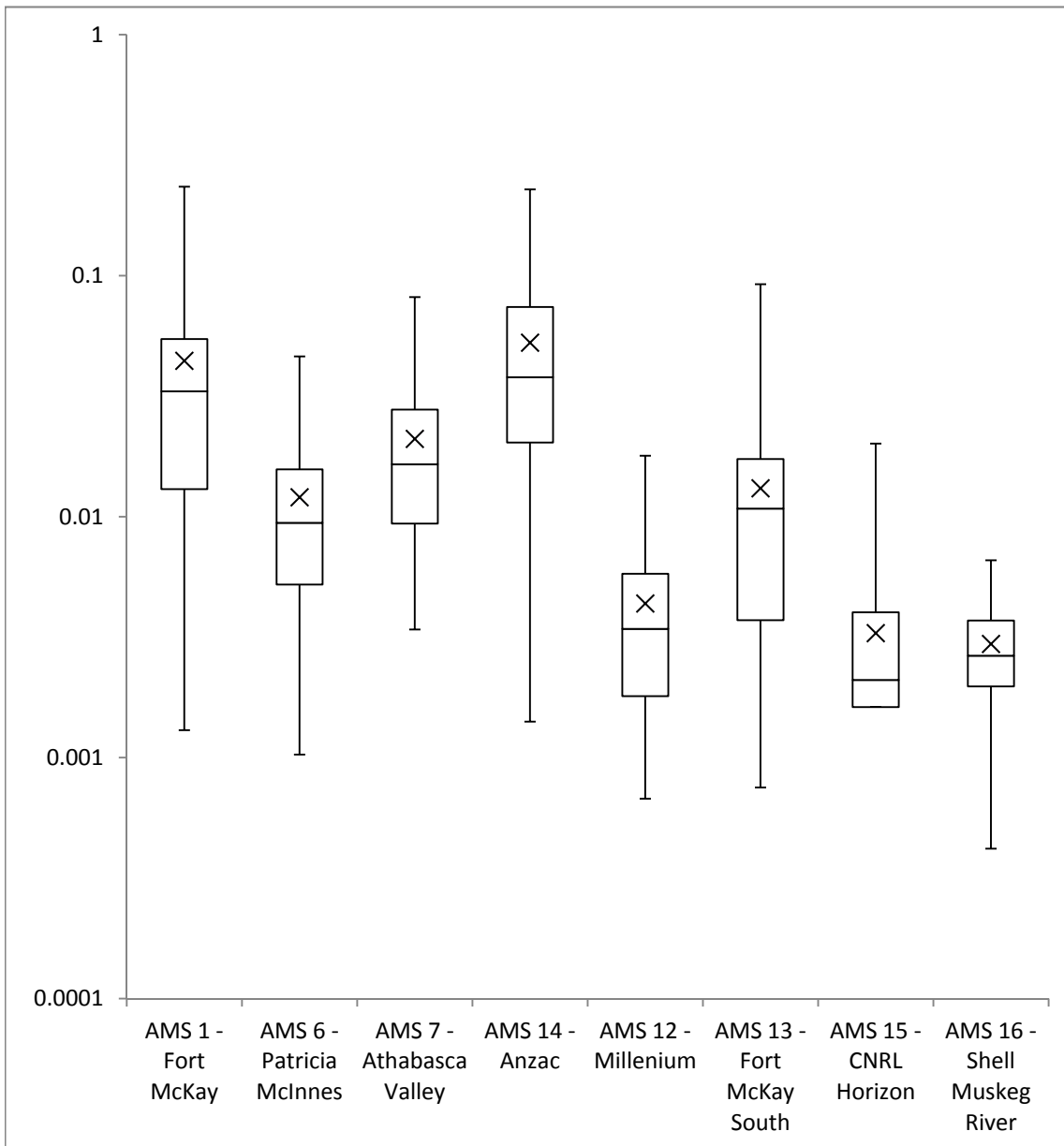


Station	Cobalt PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0003	0.0005	0.0006	0.0040	0.0006	
AMS 6 - Patricia McInnes	0.0000	0.0002	0.0004	0.0007	0.0046	0.0006	
AMS 7 - Athabasca Valley	0.0000	0.0003	0.0005	0.0009	0.0040	0.0006	
AMS 14 - Anzac	0.0000	0.0002	0.0003	0.0004	0.0016	0.0004	
AMS 12 - Millenium	0.0000	0.0004	0.0009	0.0015	0.0057	0.0011	
AMS 13 - Fort McKay South	0.0000	0.0002	0.0004	0.0005	0.0029	0.0004	
AMS 15 - CNRL Horizon	0.0000	0.0002	0.0005	0.0008	0.0023	0.0006	
AMS 16 - Shell Muskeg River	0.0000	0.0003	0.0006	0.0009	0.0025	0.0007	



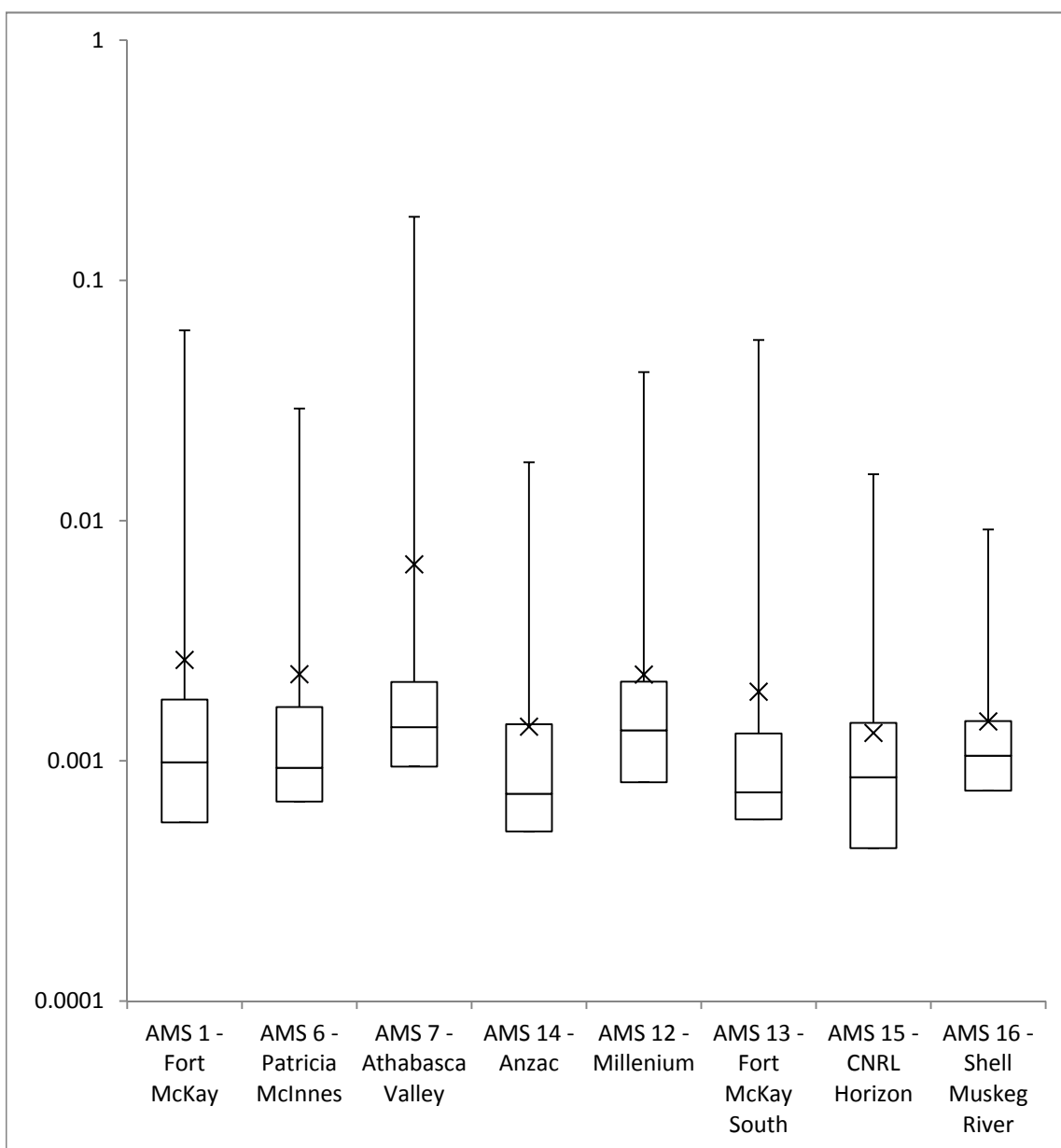


Station	Copper PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0013	0.0130	0.0331	0.0546	0.2340	0.0443	
AMS 6 - Patricia McInnes	0.0010	0.0052	0.0094	0.0157	0.0462	0.0120	
AMS 7 - Athabasca Valley	0.0034	0.0094	0.0165	0.0278	0.0815	0.0210	
AMS 14 - Anzac	0.0014	0.0203	0.0379	0.0741	0.2280	0.0527	
AMS 12 - Millenium	0.0007	0.0018	0.0034	0.0058	0.0179	0.0044	
AMS 13 - Fort McKay South	0.0008	0.0037	0.0108	0.0173	0.0921	0.0131	
AMS 15 - CNRL Horizon	0.0000	0.0016	0.0021	0.0040	0.0201	0.0033	
AMS 16 - Shell Muskeg River	0.0004	0.0020	0.0026	0.0037	0.0066	0.0030	



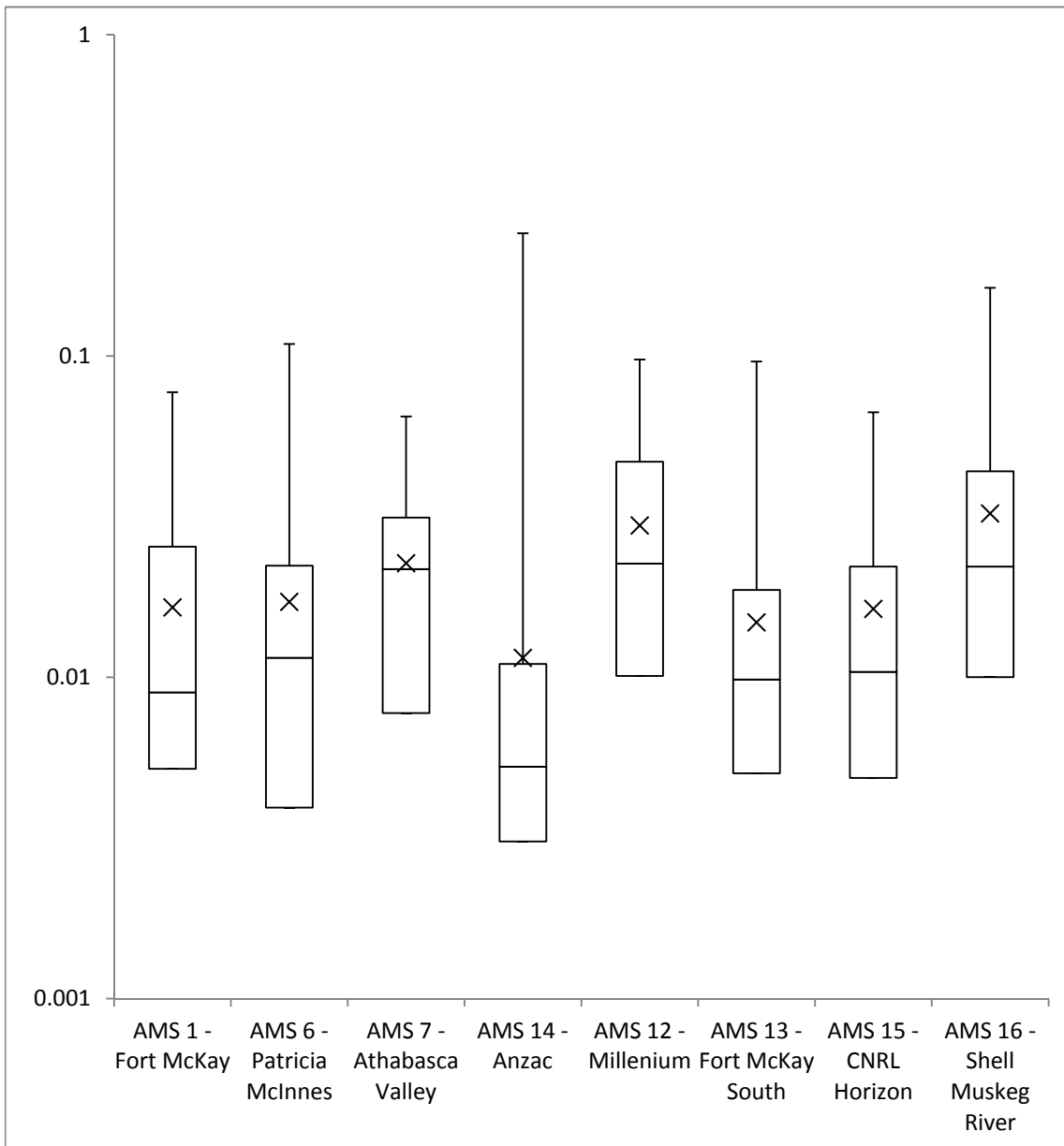


Station	Lead PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0006	0.0010	0.0018	0.0620	0.0026	
AMS 6 - Patricia McInnes	0.0000	0.0007	0.0009	0.0017	0.0293	0.0023	
AMS 7 - Athabasca Valley	0.0000	0.0009	0.0014	0.0021	0.1840	0.0066	
AMS 14 - Anzac	0.0000	0.0005	0.0007	0.0014	0.0175	0.0014	
AMS 12 - Millenium	0.0000	0.0008	0.0013	0.0021	0.0415	0.0023	
AMS 13 - Fort McKay South	0.0000	0.0006	0.0007	0.0013	0.0565	0.0019	
AMS 15 - CNRL Horizon	0.0000	0.0004	0.0009	0.0014	0.0156	0.0013	
AMS 16 - Shell Muskeg River	0.0000	0.0008	0.0010	0.0015	0.0092	0.0015	



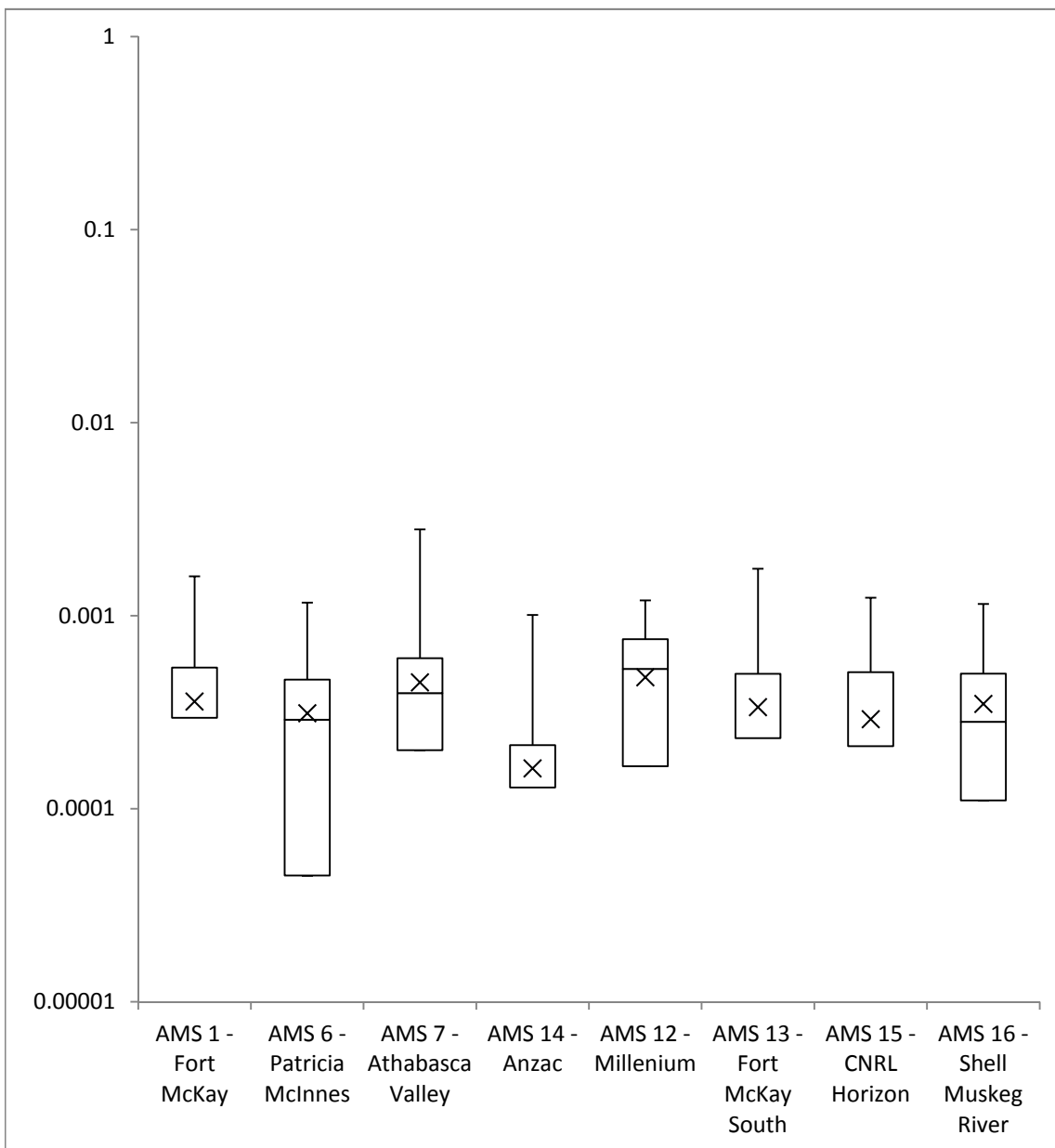


Station	Manganese PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0052	0.0090	0.0255	0.0771	0.0165		
AMS 6 - Patricia McInnes	0.0000	0.0039	0.0115	0.0223	0.1090	0.0172		
AMS 7 - Athabasca Valley	0.0000	0.0077	0.0217	0.0314	0.0648	0.0227		
AMS 14 - Anzac	0.0000	0.0031	0.0053	0.0110	0.2410	0.0115		
AMS 12 - Millenium	0.0000	0.0101	0.0226	0.0468	0.0975	0.0297		
AMS 13 - Fort McKay South	0.0000	0.0050	0.0098	0.0187	0.0961	0.0148		
AMS 15 - CNRL Horizon	0.0000	0.0049	0.0104	0.0221	0.0668	0.0163		
AMS 16 - Shell Muskeg River	0.0000	0.0100	0.0221	0.0437	0.1630	0.0323		



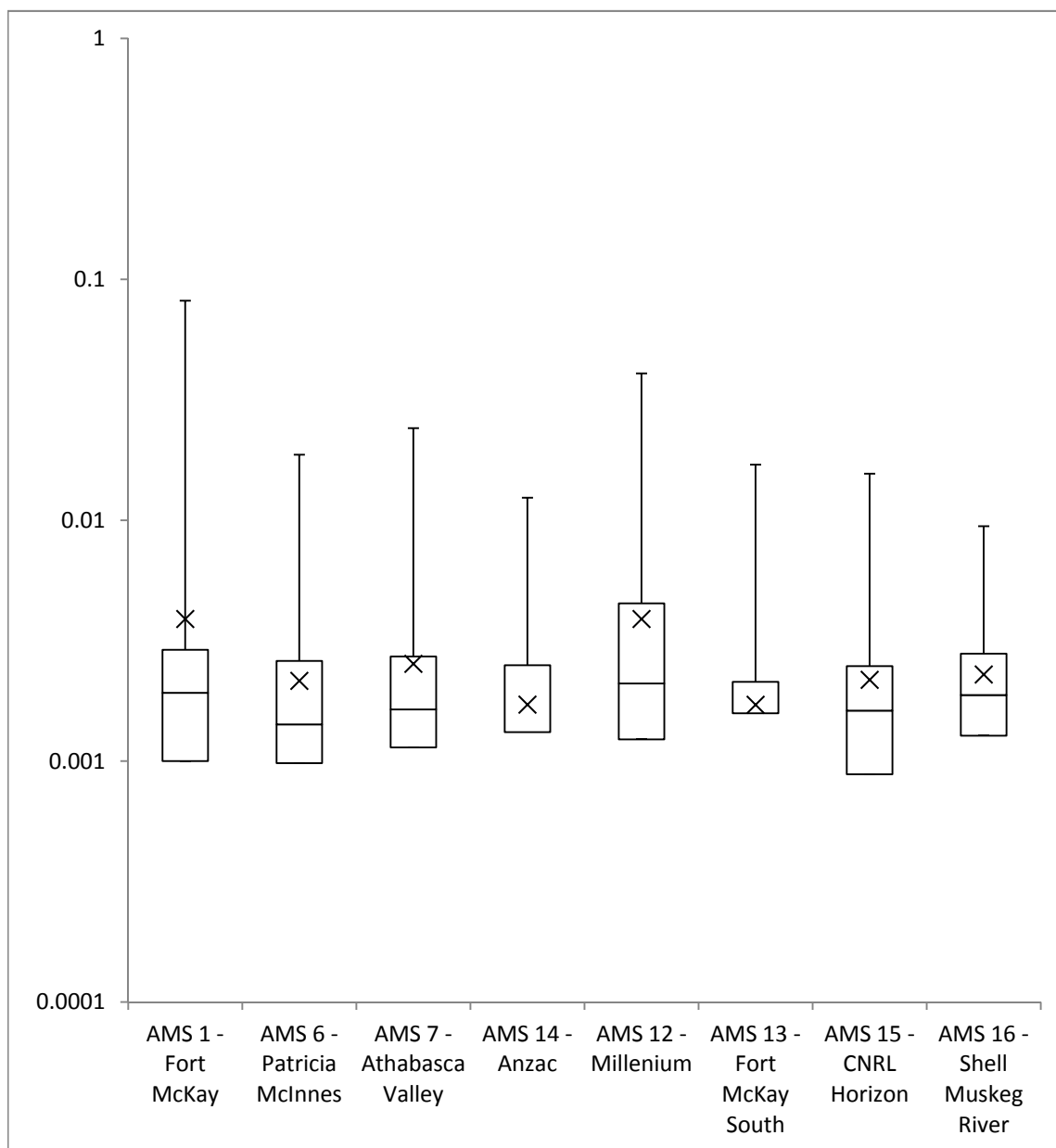


Station	Molybdenum PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0000	0.0003	0.0005	0.0016	0.0004		
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0003	0.0005	0.0012	0.0003		
AMS 7 - Athabasca Valley	0.0000	0.0002	0.0004	0.0006	0.0028	0.0005		
AMS 14 - Anzac	0.0000	0.0000	0.0001	0.0002	0.0010	0.0002		
AMS 12 - Millenium	0.0000	0.0002	0.0005	0.0008	0.0012	0.0005		
AMS 13 - Fort McKay South	0.0000	0.0000	0.0002	0.0005	0.0018	0.0003		
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0002	0.0005	0.0012	0.0003		
AMS 16 - Shell Muskeg River	0.0000	0.0001	0.0003	0.0005	0.0012	0.0003		





Station	Nickel PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0010	0.0019	0.0029	0.0815	0.0039		
AMS 6 - Patricia McInnes	0.0000	0.0010	0.0014	0.0026	0.0187	0.0022		
AMS 7 - Athabasca Valley	0.0000	0.0011	0.0016	0.0027	0.0241	0.0025		
AMS 14 - Anzac	0.0000	0.0000	0.0013	0.0025	0.0124	0.0017		
AMS 12 - Millenium	0.0000	0.0012	0.0021	0.0045	0.0407	0.0039		
AMS 13 - Fort McKay South	0.0000	0.0000	0.0016	0.0021	0.0170	0.0017		
AMS 15 - CNRL Horizon	0.0000	0.0009	0.0016	0.0025	0.0156	0.0022		
AMS 16 - Shell Muskeg River	0.0000	0.0013	0.0019	0.0028	0.0094	0.0023		

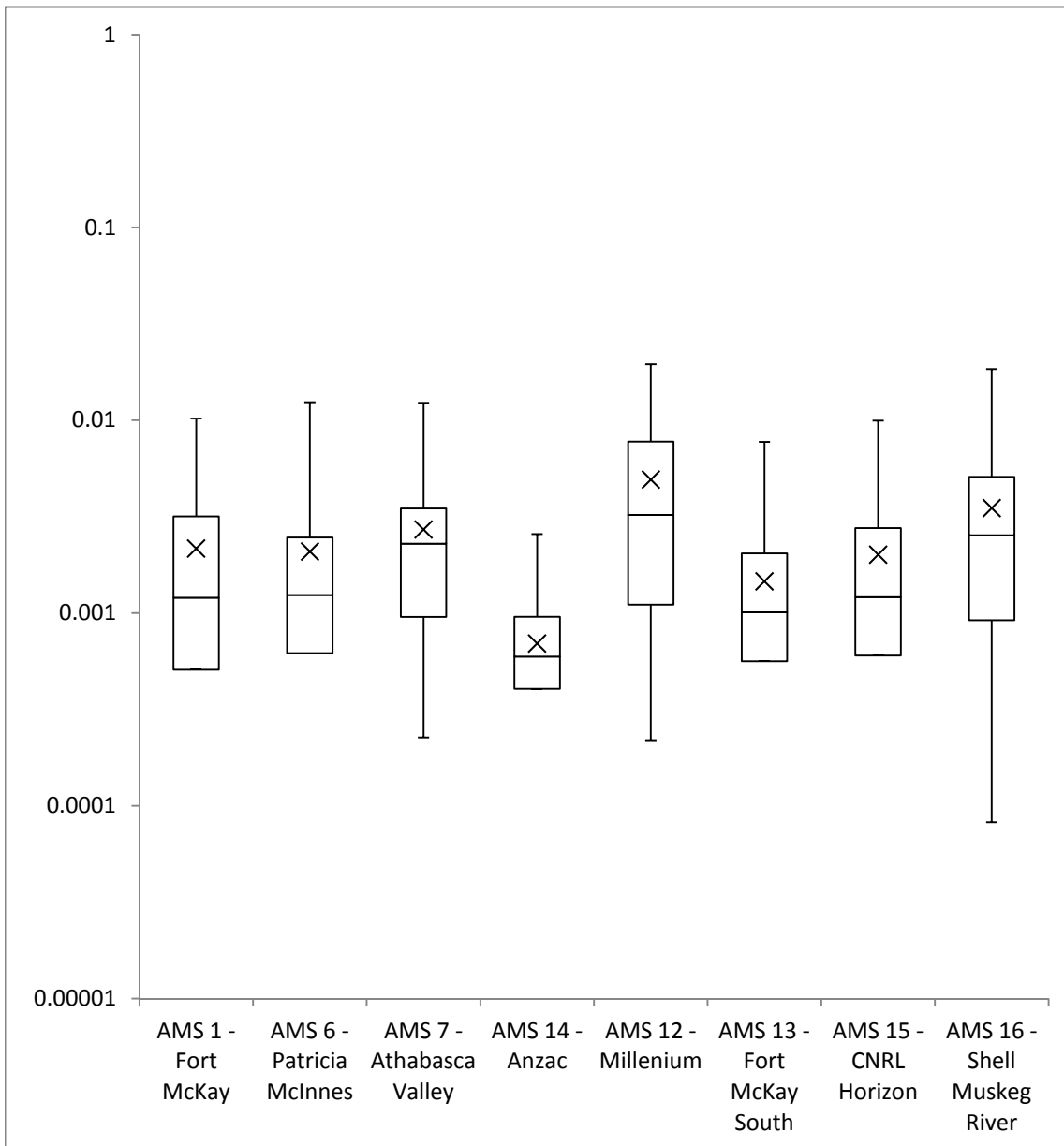




Silver PM 10					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0039	0.0001
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
AMS 12 - Millenium	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000

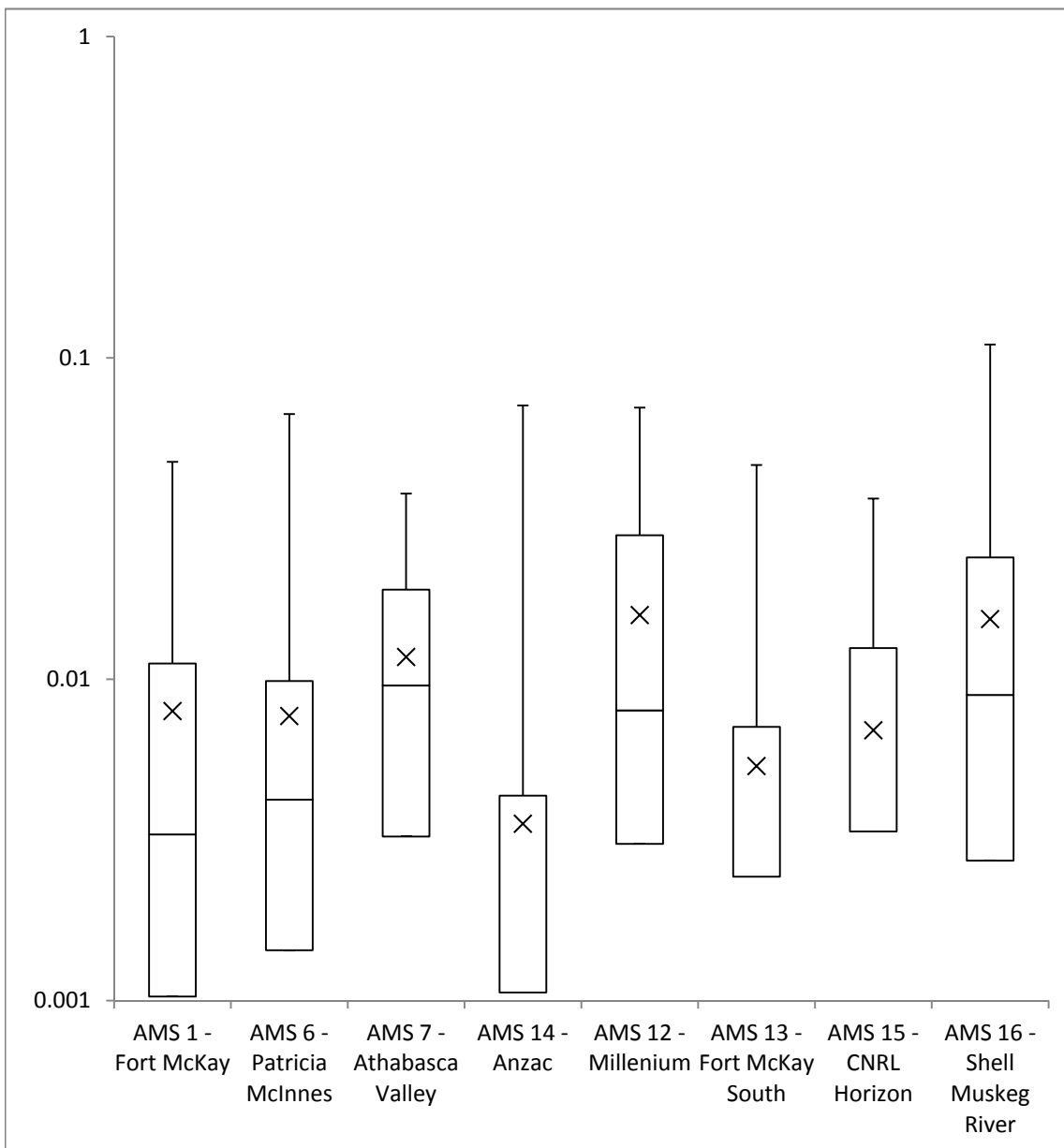


Station	Strontium PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0005	0.0012	0.0032	0.0102	0.0022		
AMS 6 - Patricia McInnes	0.0000	0.0006	0.0012	0.0025	0.0124	0.0021		
AMS 7 - Athabasca Valley	0.0002	0.0010	0.0023	0.0035	0.0123	0.0027		
AMS 14 - Anzac	0.0000	0.0004	0.0006	0.0010	0.0026	0.0007		
AMS 12 - Millenium	0.0002	0.0011	0.0032	0.0077	0.0195	0.0049		
AMS 13 - Fort McKay South	0.0000	0.0006	0.0010	0.0020	0.0077	0.0015		
AMS 15 - CNRL Horizon	0.0000	0.0006	0.0012	0.0028	0.0099	0.0020		
AMS 16 - Shell Muskeg River	0.0001	0.0009	0.0025	0.0051	0.0184	0.0035		





Station	Titanium PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0010	0.0033	0.0112	0.0475	0.0080		
AMS 6 - Patricia McInnes	0.0000	0.0014	0.0042	0.0099	0.0669	0.0077		
AMS 7 - Athabasca Valley	0.0000	0.0032	0.0096	0.0190	0.0378	0.0117		
AMS 14 - Anzac	0.0000	0.0000	0.0011	0.0043	0.0711	0.0036		
AMS 12 - Millenium	0.0000	0.0031	0.0080	0.0280	0.0700	0.0158		
AMS 13 - Fort McKay South	0.0000	0.0000	0.0024	0.0071	0.0464	0.0054		
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0034	0.0125	0.0365	0.0069		
AMS 16 - Shell Muskeg River	0.0000	0.0027	0.0089	0.0239	0.1100	0.0154		

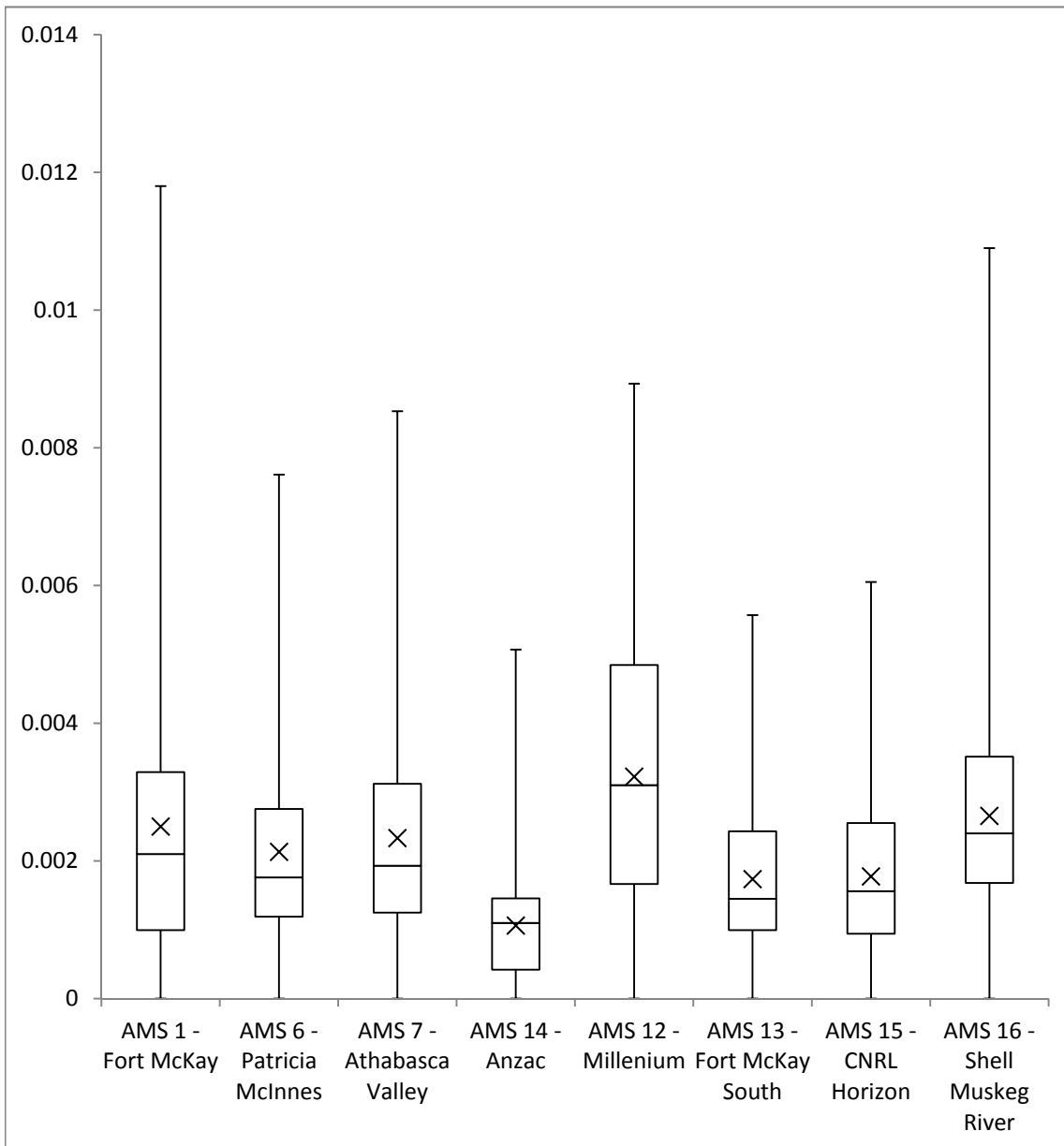




Uranium PM 10					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMS 12 - Millenium	0.0000	0.0000	0.0000	0.0001	0.0003	0.0000
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000

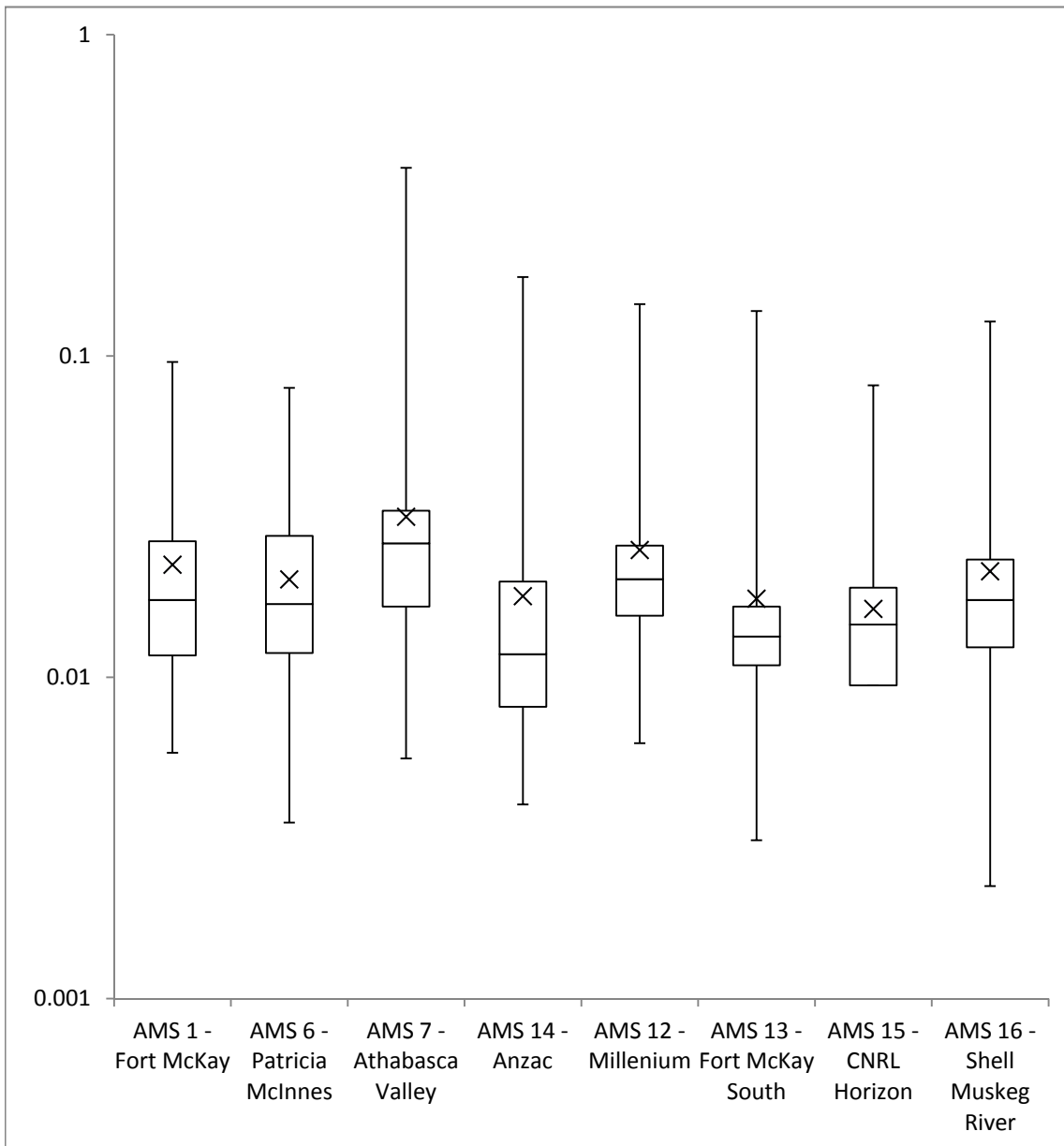


Station	Vanadium (corr) PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0010	0.0021	0.0033	0.0118	0.0025		
AMS 6 - Patricia McInnes	0.0000	0.0012	0.0018	0.0028	0.0076	0.0021		
AMS 7 - Athabasca Valley	0.0000	0.0012	0.0019	0.0031	0.0085	0.0023		
AMS 14 - Anzac	0.0000	0.0004	0.0011	0.0015	0.0051	0.0011		
AMS 12 - Millenium	0.0000	0.0017	0.0031	0.0048	0.0089	0.0032		
AMS 13 - Fort McKay South	0.0000	0.0010	0.0014	0.0024	0.0056	0.0017		
AMS 15 - CNRL Horizon	0.0000	0.0009	0.0016	0.0026	0.0060	0.0018		
AMS 16 - Shell Muskeg River	0.0000	0.0017	0.0024	0.0035	0.0109	0.0027		



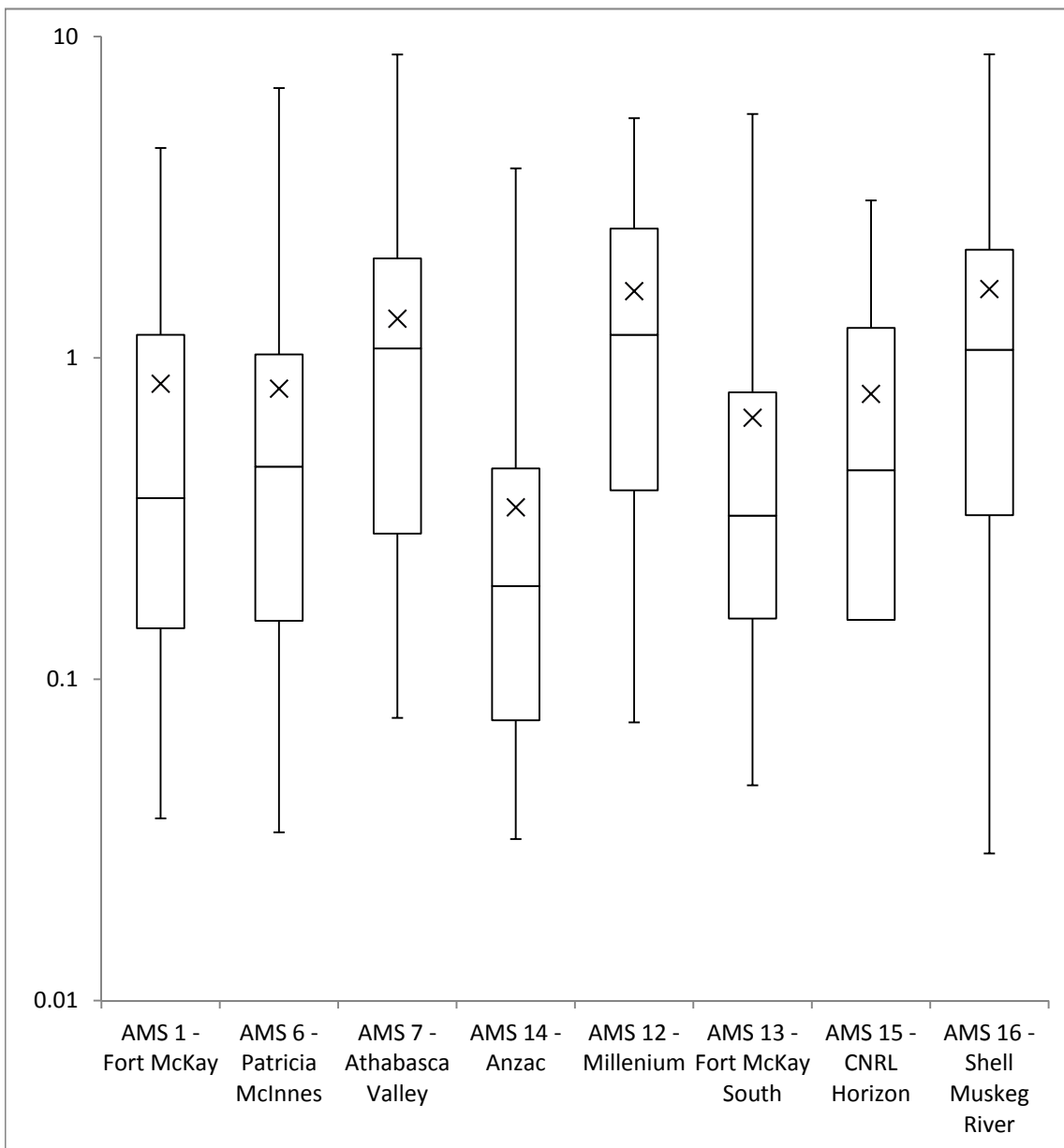


Station	Zinc PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0058	0.0117	0.0174	0.0265	0.0958	0.0224		
AMS 6 - Patricia McInnes	0.0035	0.0119	0.0169	0.0276	0.0796	0.0202		
AMS 7 - Athabasca Valley	0.0056	0.0166	0.0261	0.0330	0.3850	0.0316		
AMS 14 - Anzac	0.0040	0.0081	0.0118	0.0199	0.1760	0.0179		
AMS 12 - Millenium	0.0062	0.0155	0.0202	0.0257	0.1450	0.0249		
AMS 13 - Fort McKay South	0.0031	0.0109	0.0134	0.0166	0.1380	0.0176		
AMS 15 - CNRL Horizon	0.0000	0.0094	0.0146	0.0190	0.0810	0.0163		
AMS 16 - Shell Muskeg River	0.0022	0.0124	0.0174	0.0233	0.1280	0.0214		





Station	Iron PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0369	0.1440	0.3660	1.1800	4.5000	0.8314	
AMS 6 - Patricia McInnes	0.0334	0.1520	0.4590	1.0250	6.9100	0.8025	
AMS 7 - Athabasca Valley	0.0758	0.2840	1.0700	2.0400	8.7900	1.3241	
AMS 14 - Anzac	0.0318	0.0745	0.1950	0.4530	3.8900	0.3426	
AMS 12 - Millenium	0.0734	0.3870	1.1800	2.5250	5.5700	1.6126	
AMS 13 - Fort McKay South	0.0468	0.1545	0.3230	0.7815	5.7400	0.6515	
AMS 15 - CNRL Horizon	0.0000	0.1530	0.4470	1.2400	3.0900	0.7723	
AMS 16 - Shell Muskeg River	0.0287	0.3240	1.0600	2.1700	8.8000	1.6373	





Station	Phosphorus PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 12 - Millenium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

This page intentionally left blank

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Particulate Matter - Ions: ALS Canada Ltd
Burlington, Ontario

DATA SUMMARY

Aurora Atmospherics Inc.
Calgary, Alberta

This page intentionally left blank



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	4-Jan	4-Jan	4-Jan	4-Jan			4-Jan
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.106	24.1	24	24			1
Particulate Matter (µg/m3)	2.68	3.07	2.79	1.38			-17.0
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0223	<0.0166	0.0181	0.0208	0.4	<	<0.400
Nitrate	0.168	0.361	0.295	0.116	0.2	1.63856549	1.38
Sulphate	1.09	0.814	0.569	1.04	1	1.42	<1.00
Ammonium (as N)	0.360	0.308	0.228	0.211	0.5	<	<0.500
Calcium	<0.0766	<0.0830	<0.0833	<0.0833	2	<	<2.00
Magnesium	<0.0383	<0.0415	<0.0417	<0.0417	1	<	<1.00
Potassium	0.0252	0.0249	0.0346	0.0110	0.2	<	<0.200

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan	4-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.998	24.05	24.013	24.011	24.003	1
Particulate Matter (µg/m3)	8.79	4.32	4.52	1.08	3.28	5.71	5.25	4.96	-10.0
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0267	0.0227	0.0384	0.0221	<0.0166	<0.0167	0.0350	<0.0167	<0.400
Nitrate	0.330	0.490	0.459	0.0862	0.280	0.142	0.313	0.116	1.13
Sulphate	1.44	0.692	0.613	0.674	0.801	1.34	1.86	1.49	1.07
Ammonium (as N)	0.455	0.277	0.241	0.203	0.261	0.431	0.550	0.428	<0.500
Calcium	<0.0833	<0.0830	0.0913	<0.0833	0.169	<0.0833	<0.0833	<0.0833	<2.00
Magnesium	<0.0417	<0.0415	<0.0415	<0.0417	<0.0416	<0.0416	<0.0416	<0.0417	<1.00
Potassium	0.0193	0.0215	0.0267	<0.00833	0.0101	0.0492	0.0280	0.0234	<0.200



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	10-Jan	10-Jan	10-Jan	10-Jan			10-Jan
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.1	24.1	24	24			1
Particulate Matter (µg/m3)	8.46	6.97	6.29	5.46			-16.0
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0192	0.0219	0.0282	0.0217	0.4	<	<0.400
Nitrate	0.335	0.399	0.577	0.224	0.2	1.63856549	1.28
Sulphate	2.34	3.86	2.59	2.48	1	1.42	2.03
Ammonium (as N)	0.607	1.05	0.770	0.639	0.5	<	<0.500
Calcium	<0.0830	<0.0830	<0.0833	0.0921	2	<	<2.00
Magnesium	<0.0415	<0.0415	<0.0417	<0.0417	1	<	<1.00
Potassium	0.109	0.0341	0.0329	0.0250	0.2	<	<0.200

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan	10-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.009	24.047	24.01	24	24.012	1
Particulate Matter (µg/m3)	13.5	7.92	7.01	6.12	17.7	10.5	13.0	11.0	0.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0715	0.0238	0.0362	0.0295	0.0372	0.0397	0.104	0.0252	0.506
Nitrate	0.763	0.558	0.747	0.404	0.533	0.475	0.477	0.388	1.52
Sulphate	2.31	3.53	2.67	2.49	2.14	2.11	2.12	2.53	1.10
Ammonium (as N)	0.629	0.952	0.767	0.626	0.580	0.578	0.586	0.677	<0.500
Calcium	0.0871	<0.0833	<0.0830	<0.0833	0.219	0.125	0.143	0.156	<2.00
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	<0.0416	<0.0416	<0.0417	<0.0416	<1.00
Potassium	0.152	0.0337	0.0262	0.0229	0.0229	0.0301	0.0302	0.0290	<0.200



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank			
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date	16-Jan	16-Jan	16-Jan	16-Jan					
PM Size(µm)	2.5	2.5	2.5	2.5					
Total Air Volume (m3)	24	24.1	24	24					
Particulate Matter (µg/m3)	5.38	5.31	5.75	4.88					
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)			
Chloride	0.105	0.0363	0.0339	<0.0167	0.4	<			
Nitrate	0.493	0.543	0.653	0.311	0.2	1.63856549			
Sulphate	0.949	1.73	1.43	1.64	1	1.42			
Ammonium (as N)	0.217	0.449	0.337	0.439	0.5	<			
Calcium	0.0834	<0.0830	<0.0833	<0.0833	2	<			
Magnesium	<0.0417	<0.0415	<0.0417	<0.0417	1	<			
Potassium	0.0392	0.0471	0.0703	0.0319	0.2	<			

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River
Sample Date	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan	16-Jan
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.001	24.052	24.01	24.01	24.013
Particulate Matter (µg/m3)	9.71	7.14	10.2	4.83	7.48	6.58	8.00	9.20
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
Chloride	0.184	0.0374	0.0956	0.0172	0.109	0.173	0.212	0.313
Nitrate	0.621	0.682	0.960	0.391	0.638	0.494	0.579	0.553
Sulphate	1.21	1.98	1.65	1.84	1.26	1.02	1.27	1.21
Ammonium (as N)	0.257	0.501	0.344	0.471	0.167	0.228	0.248	0.268
Calcium	<0.0833	<0.0830	0.134	<0.0833	0.164	0.0844	0.0868	0.105
Magnesium	0.0488	<0.0415	0.0542	<0.0417	0.0604	<0.0416	0.0533	0.0568
Potassium	0.0426	0.0241	0.118	0.0300	0.0299	0.0379	0.0450	0.0297



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	22-Jan	22-Jan	22-Jan	22-Jan			22-Jan
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24.1	24	24			1
Particulate Matter (µg/m3)	7.33	5.85	10.1	4.17			4.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0166	0.0640	0.0248	0.4	<	0.945
Nitrate	0.325	0.485	0.778	0.140	0.2	1.63856549	1.55
Sulphate	0.605	0.997	0.771	1.18	1	1.42	1.89
Ammonium (as N)	0.224	0.390	0.341	0.375	0.5	<	<0.500
Calcium	<0.0833	<0.0830	0.107	<0.0833	2	<	2.35
Magnesium	<0.0417	<0.0415	<0.0417	<0.0417	1	<	<1.00
Potassium	0.0790	0.0505	0.0555	0.0869	0.2	<	0.231

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan	22-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.003	24.053	24	24.009	24.013	1
Particulate Matter (µg/m3)	11.2	7.83	15.8	0.583	11.8	7.38	17.0	6.87	-23.0
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0272	0.0254	0.115	0.0197	0.0629	<0.0167	0.0174	0.0745	<0.400
Nitrate	0.556	0.608	1.16	0.188	0.138	0.316	0.550	0.310	0.939
Sulphate	0.630	1.01	0.865	1.21	1.09	0.494	0.759	0.862	<1.00
Ammonium (as N)	0.243	0.391	0.282	0.363	0.415	0.169	0.295	0.235	<0.500
Calcium	0.115	<0.0833	0.241	<0.0833	0.161	<0.0833	<0.0833	<0.0833	<2.00
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	<0.0416	<0.0417	<0.0417	<0.0416	<1.00
Potassium	0.0755	0.0615	0.0601	0.0357	0.185	0.0560	0.0594	0.0532	0.214



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	28-Jan	28-Jan	28-Jan	28-Jan			28-Jan
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			1
Particulate Matter (µg/m3)	2.38	5.13	4.00	5.33			3.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.147	0.0691	0.0811	0.0171	0.4	0.47805425	0.414
Nitrate	0.254	0.255	0.337	0.106	0.2	2.814728272	0.816
Sulphate	0.957	1.81	1.45	2.03	1	1.297196	1.05
Ammonium (as N)	0.268	0.458	0.375	0.417	0.5	<	<0.500
Calcium	<0.0833	<0.0833	<0.0833	0.115	2	<	<2.00
Magnesium	<0.0417	0.0551	0.0596	0.0515	1	<	<1.00
Potassium	0.0253	0.0368	0.0303	0.0785	0.2	0.4482375	<0.200

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan	28-Jan
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.008	17.206	24.013	24.008	24.011	1
Particulate Matter (µg/m3)	6.04	3.13	8.13	7.00	14.1	7.20	5.04	13.0	1.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.221	0.115	0.403	0.0232	0.124	0.199	0.266	0.275	0.418
Nitrate	0.322	0.298	0.407	0.195	0.396	0.416	0.282	0.382	1.18
Sulphate	1.04	1.81	1.54	2.17	1.39	0.961	0.968	1.22	1.17
Ammonium (as N)	0.248	0.425	0.381	0.429	0.300	0.193	0.211	0.235	<0.500
Calcium	<0.0833	0.100	0.112	0.0932	0.248	0.179	<0.0833	0.161	<2.00
Magnesium	0.0715	0.0622	0.0694	0.0590	0.0666	0.0589	0.0621	0.0702	<1.00
Potassium	0.0385	0.0342	0.104	0.0297	0.0133	0.0212	0.0129	0.0321	<0.200



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	3-Feb	3-Feb	3-Feb	3-Feb			3-Feb
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.1	111.2	24	24			1
Particulate Matter (µg/m3)	4.98	2.72	3.15	1.60			-3.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0228	<0.00360	0.0357	0.0169	0.4	0.47805425	0.465
Nitrate	0.268	0.371	0.343	0.159	0.2	2.814728272	0.835
Sulphate	1.04	0.919	0.683	0.696	1	1.297196	1.17
Ammonium (as N)	0.244	0.301	0.243	0.214	0.5	<	<0.500
Calcium	<0.0830	0.0242	0.129	<0.0833	2	<	<2.00
Magnesium	<0.0415	<0.00899	<0.0417	<0.0417	1	<	<1.00
Potassium	0.0191	0.0309	0.0106	<0.00833	0.2	0.4482375	<0.200

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb	3-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	111.03	24.1	24.008	24.054	24.012	24.007	24.011	2
Particulate Matter (µg/m3)	44.5	4.35	5.86	2.87	8.67	7.51	3.47	14.0	2.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0577	0.00984	0.0612	0.0174	0.0280	0.0254	<0.0167	0.0214	<0.200
Nitrate	2.46	0.451	0.398	0.196	0.310	0.344	0.225	0.418	0.550
Sulphate	6.44	0.935	0.683	0.711	0.596	0.877	2.18	0.762	<0.500
Ammonium (as N)	1.72	0.281	0.213	0.222	0.193	0.256	0.640	0.237	<0.250
Calcium	0.560	0.0621	<0.0830	<0.0833	0.105	0.0996	<0.0833	0.189	<1.00
Magnesium	0.119	0.0149	<0.0415	<0.0417	<0.0416	<0.0416	<0.0417	<0.0416	<0.500
Potassium	0.203	0.0448	0.0355	<0.00833	0.0513	0.0710	<0.00833	<0.00833	0.671



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	9-Feb	9-Feb	9-Feb	9-Feb			9-Feb-2013
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	104	24	24			24
Particulate Matter (µg/m3)	1.60	4.45	4.19	2.46			-1.07
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	0.173	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0628	0.186	0.109	0.0826	0.2	1.639355922	0.0581
Sulphate	0.852	0.775	1.02	0.922	1	1.18	<0.0417
Ammonium (as N)	0.283	0.224	0.341	0.274	0.5	<	<0.0208
Calcium	<0.0833	0.0560	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	0.00966	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0179	0.0296	<0.00833	0.0630	0.2	<	0.0648

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb	9-Feb-2013	9-Feb-2013
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	104	24.1	24.001	24.05	24.007	24.005	104.15	24
Particulate Matter (µg/m3)	6.20	3.17	5.48	3.10	5.77	3.62	3.16	1.39	-0.583
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.00445	0.0312	<0.0167	<0.0166	0.0170	<0.0167	<0.00384	<0.0167
Nitrate	0.136	0.176	0.190	0.0727	0.127	0.0814	0.0585	0.0371	0.0703
Sulphate	0.893	0.752	1.05	0.941	0.875	0.758	0.768	0.206	<0.0417
Ammonium (as N)	0.293	0.251	0.353	0.295	0.252	0.244	0.241	0.0667	<0.0208
Calcium	<0.0833	<0.0192	0.0939	<0.0833	<0.0832	<0.0833	<0.0833	0.0245	<0.0833
Magnesium	<0.0417	<0.00962	<0.0415	<0.0417	<0.0416	<0.0417	<0.0417	<0.00960	<0.0417
Potassium	0.00973	0.0452	0.0161	0.0271	0.148	<0.00833	<0.00833	0.0180	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	15-Feb	15-Feb	15-Feb	15-Feb			15-Feb
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24.1	24	24			24
Particulate Matter (µg/m3)	7.03	1.61	4.10	1.92			-0.875
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0218	<0.0166	0.0213	<0.0167	0.4	<	<0.0167
Nitrate	0.248	0.0740	0.232	0.0624	0.2	1.639355922	0.0383
Sulphate	0.872	0.225	0.358	0.233	1	1.18	<0.0417
Ammonium (as N)	0.269	0.0536	0.109	0.0425	0.5	<	<0.0208
Calcium	<0.0833	<0.0830	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.128	0.0150	0.0172	0.0108	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb	15-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	88	24.1	23.994	24.051	24.008	24.01	23.998	24
Particulate Matter (µg/m3)	11.4	4.14	7.07	2.71	9.48	5.58	3.92	5.71	0.726
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0325	0.0835	0.559	0.0244	0.0274	0.0227	0.0202	<0.0167	<0.0167
Nitrate	0.426	0.0840	0.490	0.0992	0.202	0.196	0.138	0.121	0.0589
Sulphate	0.953	0.944	0.403	0.464	0.326	0.507	0.296	1.10	<0.0417
Ammonium (as N)	0.278	0.215	0.114	0.0635	0.0703	0.162	0.0690	0.352	<0.0208
Calcium	0.117	0.0599	0.103	<0.0834	0.122	0.110	<0.0833	0.0987	<0.0833
Magnesium	<0.0417	0.0125	<0.0415	<0.0417	<0.0416	<0.0417	<0.0416	<0.0417	<0.0417
Potassium	0.146	0.0181	0.0448	0.0171	0.0593	0.0390	0.0317	0.0340	0.0325



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	21-Feb	21-Feb	21-Feb	21-Feb			21-Feb
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.687	24.1	24.1	24			24
Particulate Matter (µg/m3)	8.58	7.17	7.11	7.02			0.545
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0206	0.0184	0.0232	<0.0167	0.4	<	<0.0167
Nitrate	0.307	0.654	0.478	0.0735	0.2	1.639355922	0.0411
Sulphate	2.59	2.23	2.20	2.10	1	1.18	<0.0417
Ammonium (as N)	0.778	0.796	0.726	0.582	0.5	<	<0.0208
Calcium	<0.0779	0.108	<0.0830	0.0863	2	<	<0.0833
Magnesium	<0.0389	<0.0415	<0.0415	<0.0417	1	<	<0.0417
Potassium	0.0790	0.0534	0.0363	0.0219	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb	21-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24	24.011	24.049	24.009	24.009	24.001	24
Particulate Matter (µg/m3)	19.2	7.89	8.90	5.58	35.3	12.3	14.4	10.1	1.67
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.126	0.0435	0.183	0.0298	0.0465	0.130	0.0230	0.0304	<0.0167
Nitrate	0.609	0.710	0.699	0.135	0.596	0.567	0.793	0.180	0.0395
Sulphate	2.78	2.24	2.32	2.21	2.21	2.61	4.16	2.33	0.0875
Ammonium (as N)	0.812	0.776	0.733	0.571	0.632	0.794	1.23	0.678	<0.0208
Calcium	0.259	0.100	0.106	0.121	0.753	0.185	0.173	0.136	<0.0833
Magnesium	<0.0417	<0.0415	<0.0417	<0.0416	0.0866	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0858	0.0804	0.0518	0.0322	0.0891	0.0544	0.0576	0.0391	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	27-Feb	27-Feb	27-Feb	27-Feb			27-Feb
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.024	24.1	24	24			24
Particulate Matter (µg/m3)	12.5	3.16	3.89	2.60			1.66
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0222	0.0528	0.112	0.0191	0.4	<	0.0227
Nitrate	0.619	0.353	0.424	0.122	0.2	1.639355922	0.277
Sulphate	1.72	0.789	0.751	0.699	1	1.18	0.121
Ammonium (as N)	0.602	0.300	0.271	0.223	0.5	<	<0.0208
Calcium	0.322	0.0890	<0.0833	0.0944	2	<	0.229
Magnesium	<0.0384	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0802	0.0269	0.0316	0.0152	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb	27-Feb
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24	24.05	24.011	24.011	24	24
Particulate Matter (µg/m3)	27.8	7.82	23.8	3.64	59.9	26.3	34.6	43.8	-0.733
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.234	0.786	6.53	0.0216	0.198	0.496	0.0981	0.149	<0.0167
Nitrate	1.24	0.485	0.553	0.166	0.534	0.947	1.61	1.12	0.102
Sulphate	2.06	0.807	0.803	0.756	0.764	1.79	3.04	1.45	0.224
Ammonium (as N)	0.665	0.298	0.274	0.237	0.228	0.556	0.909	0.424	<0.0208
Calcium	0.482	0.124	0.386	0.0936	1.61	0.643	1.48	1.70	0.125
Magnesium	0.0524	<0.0415	0.0651	<0.0417	0.158	0.0571	0.0749	0.130	<0.0417
Potassium	0.106	0.0245	0.169	0.0110	0.0726	0.0596	0.0610	0.0744	0.00929



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	5-Mar	5-Mar	5-Mar	5-Mar			5-Mar
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.072	24.1	24	24			24
Particulate Matter (µg/m3)	6.75	4.56	6.33	2.79			0.917
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0154	0.0959	0.263	0.0202	0.4	<	<0.0167
Nitrate	0.258	0.307	0.422	0.0684	0.2	1.128736864	0.0498
Sulphate	1.12	1.15	1.10	1.01	1	<	<0.0417
Ammonium (as N)	0.356	0.397	0.357	0.326	0.5	<	<0.0208
Calcium	0.0785	0.188	0.154	0.210	2	<	0.218
Magnesium	<0.0384	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0510	0.0453	0.0763	0.0251	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar	5-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.009	24.052	24.01	24.009	24.001	24
Particulate Matter (µg/m3)	51.9	13.3	37.3	4.29	64.0	24.3	38.8	101	0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.171	0.717	4.80	0.0477	0.0953	0.368	0.0677	0.179	0.0231
Nitrate	1.11	0.554	0.826	0.118	0.692	0.648	0.922	0.937	0.0565
Sulphate	1.54	1.01	1.29	1.11	1.17	1.29	1.52	1.46	0.0768
Ammonium (as N)	0.449	0.351	0.407	0.351	0.353	0.379	0.491	0.411	<0.0208
Calcium	1.43	0.177	0.600	0.0912	1.74	0.772	1.24	3.78	<0.0833
Magnesium	0.0659	<0.0415	0.0674	<0.0417	0.0909	0.0512	0.0630	0.145	<0.0417
Potassium	0.108	0.0498	0.201	0.126	0.0917	0.112	0.227	0.0798	0.0442



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	11-Mar	11-Mar	11-Mar	11-Mar			11-Mar
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.049	24.1	24	24			24
Particulate Matter (µg/m3)	6.14	3.98	3.88	3.42			-0.250
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0169	<0.0166	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.316	0.351	0.338	0.152	0.2	1.128736864	0.0526
Sulphate	0.761	1.50	1.42	1.23	1	<	0.0422
Ammonium (as N)	0.232	0.464	0.420	0.370	0.5	<	<0.0208
Calcium	<0.0768	<0.0830	0.244	<0.0833	2	<	0.0886
Magnesium	<0.0384	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0376	0.0472	0.0290	0.0816	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar	11-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.997	24.049	24.01	24.01	24.008	24
Particulate Matter (µg/m3)	7.88	6.06	7.39	18.8	13.0	5.54	5.87	5.71	-0.250
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0358	0.122	0.490	0.0438	0.0323	0.0400	0.116	0.0284	<0.0167
Nitrate	0.514	0.539	0.512	0.246	0.508	0.378	0.407	0.368	0.0506
Sulphate	0.910	1.53	1.54	1.32	1.17	0.862	0.814	0.854	<0.0417
Ammonium (as N)	0.262	0.473	0.428	0.379	0.337	0.226	0.232	0.234	<0.0208
Calcium	0.146	0.204	0.180	<0.0833	0.219	0.124	<0.0833	0.237	0.204
Magnesium	<0.0417	<0.0415	<0.0415	<0.0417	<0.0416	<0.0416	<0.0416	<0.0417	<0.0417
Potassium	0.0423	0.0533	0.0394	0.0273	0.0410	0.0598	0.0279	0.0201	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	17-Mar	17-Mar	17-Mar	17-Mar			17-Mar
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	27.261	24.1	24	24			24
Particulate Matter (µg/m3)	4.15	4.52	6.21	4.25			-0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0244	0.0204	0.0471	0.115	0.4	<	<0.0167
Nitrate	0.181	0.141	0.407	0.137	0.2	1.128736864	0.0447
Sulphate	1.95	2.13	1.76	0.974	1	<	<0.0417
Ammonium (as N)	0.422	0.601	0.502	0.239	0.5	<	<0.0208
Calcium	0.387	<0.0830	0.0884	0.0987	2	<	0.148
Magnesium	<0.0367	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0129	0.0363	0.116	0.0650	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar	17-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.005	24.051	24.01	24.012	24.009	24
Particulate Matter (µg/m3)	10.5	13.7	13.9	7.92	24.8	6.54	29.0	51.2	-0.250
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0923	0.288	0.915	0.0382	0.0722	0.0848	0.0494	0.0782	0.0308
Nitrate	0.460	0.668	0.884	0.320	0.629	0.349	0.545	0.690	0.0632
Sulphate	2.32	2.47	1.75	1.81	2.14	1.51	1.22	1.63	<0.0417
Ammonium (as N)	0.477	0.630	0.495	0.413	0.567	0.382	0.348	0.344	<0.0208
Calcium	0.228	0.198	0.208	0.146	0.403	0.243	0.129	1.82	0.146
Magnesium	<0.0417	<0.0415	0.0415	<0.0417	0.0498	<0.0416	<0.0416	0.144	<0.0417
Potassium	0.0621	0.0467	0.0846	0.0730	0.0228	0.0173	0.0354	0.0322	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac		
Sample Date	23-Mar	23-Mar	23-Mar	23-Mar		
PM Size(µm)	2.5	2.5	2.5	2.5		
Total Air Volume (m3)	26.477	24.1	24	24		
Particulate Matter (µg/m3)	3.36	7.01	7.71	6.13		
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)
Chloride	<0.0151	<0.0166	<0.0167	0.0176	0.4	<
Nitrate	0.153	0.257	0.317	0.149	0.2	1.128736864
Sulphate	1.38	2.98	2.94	2.78	1	<
Ammonium (as N)	0.412	0.864	0.797	0.700	0.5	<
Calcium	<0.0755	<0.0830	0.0869	0.123	2	<
Magnesium	<0.0378	<0.0415	<0.0417	<0.0417	1	<
Potassium	0.0267	0.0598	0.0699	0.0363	0.2	<

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar	23-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.997	24.05	24.012	24.012	24.002	24
Particulate Matter (µg/m3)	5.08	9.42	11.9	6.29	13.3	3.25	5.58	9.87	1.25
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0252	0.137	0.272	0.0327	0.0204	0.0256	<0.0167	0.0219	<0.0167
Nitrate	0.288	0.368	0.599	0.138	0.306	0.164	0.226	0.245	0.0537
Sulphate	1.52	2.94	2.91	2.46	3.33	1.30	1.28	1.93	0.0437
Ammonium (as N)	0.461	0.838	0.794	0.600	0.917	0.392	0.380	0.521	<0.0208
Calcium	<0.0833	<0.0830	0.233	0.0847	0.133	<0.0833	<0.0833	0.0868	<0.0833
Magnesium	<0.0417	<0.0415	<0.0415	<0.0417	<0.0416	<0.0416	<0.0416	<0.0417	<0.0417
Potassium	0.0281	0.0635	0.108	0.0348	0.0565	0.0140	0.0134	0.0220	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	29-Mar	29-Mar	29-Mar	29-Mar			29-Mar
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.611	24.1	24	24			24
Particulate Matter (µg/m3)	5.54	7.43	9.33	2.17			1.13
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0233	0.0372	0.156	0.0242	0.4	<	0.0172
Nitrate	0.109	0.225	0.321	0.159	0.2	1.128736864	0.0530
Sulphate	1.64	1.50	1.33	0.803	1	<	<0.0417
Ammonium (as N)	0.475	0.430	0.406	0.211	0.5	<	<0.0208
Calcium	<0.0781	0.272	0.222	0.144	2	<	0.197
Magnesium	<0.0390	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0154	0.0284	0.0394	<0.00833	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar	29-Mar
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24	23.995	24.052	24.011	24.009	24.003	24
Particulate Matter (µg/m3)	15.3	23.3	18.3	6.63	29.0	9.25	9.08	11.1	0.833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.100	0.696	1.83	0.124	0.0671	0.107	0.0704	0.124	<0.0167
Nitrate	0.217	0.396	0.470	0.174	0.242	0.269	0.270	0.210	0.0435
Sulphate	1.84	1.48	1.47	0.761	2.90	1.61	1.47	0.932	<0.0417
Ammonium (as N)	0.516	0.433	0.386	0.214	0.782	0.442	0.415	0.262	<0.0208
Calcium	0.276	0.273	0.277	0.0950	0.417	0.251	0.153	0.306	<0.0833
Magnesium	<0.0417	<0.0415	<0.0417	<0.0417	<0.0416	<0.0416	<0.0417	<0.0417	<0.0417
Potassium	0.0109	0.0425	0.122	0.0110	0.0704	0.0148	<0.00833	0.0129	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	4-Apr	4-Apr	4-Apr	4-Apr			4-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	26.35	24.1	24	24			24
Particulate Matter (µg/m3)	5.46	7.05	8.38	8.92			-0.167
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0209	0.0204	0.0445	<0.0167	0.4	0.4523052	0.0185
Nitrate	0.222	0.255	0.323	0.130	0.2	2.325767051	0.0573
Sulphate	0.862	1.14	0.977	0.751	1	1.412951333	<0.0417
Ammonium (as N)	0.253	0.301	0.254	0.230	0.5	0	<0.0208
Calcium	<0.0759	0.107	0.279	0.187	2	0	0.169
Magnesium	<0.0380	<0.0415	<0.0417	<0.0417	1	0	<0.0417
Potassium	0.0429	0.0342	0.0618	0.0274	0.2	0	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr	4-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	23.995	24.052	24.011	24.013	24.014	24
Particulate Matter (µg/m3)	1.50	32.2	50.0	2.50	53.5	22.3	5.37	32.3	0.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.262	0.582	<0.0167	0.140	0.0867	0.0345	0.138	<0.0167
Nitrate	0.0656	0.462	0.604	0.151	0.423	0.307	0.323	0.295	0.0601
Sulphate	0.0755	1.13	1.17	0.622	1.19	1.00	1.05	1.13	0.0506
Ammonium (as N)	<0.0208	0.297	0.252	0.181	0.223	0.250	0.264	0.268	<0.0208
Calcium	<0.0833	0.844	1.35	0.0877	1.96	0.649	0.155	0.446	<0.0833
Magnesium	<0.0417	0.0614	0.0853	<0.0417	0.0855	0.0457	<0.0416	0.0494	<0.0417
Potassium	0.00848	0.0506	0.149	0.0182	0.0509	0.0619	0.0259	0.0295	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	10-Apr	10-Apr	10-Apr	10-Apr			10-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.42	24.1	23.4	24			24
Particulate Matter (µg/m3)	7.08	4.48	5.30	3.08			0.167
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0187	0.0457	0.0441	<0.0167	0.4	0.4523052	<0.0167
Nitrate	0.152	0.216	0.274	0.0790	0.2	2.325767051	0.0356
Sulphate	1.31	0.845	0.904	0.757	1	1.412951333	<0.0417
Ammonium (as N)	0.419	0.281	0.261	0.246	0.5	0	<0.0208
Calcium	<0.0787	0.108	0.108	0.112	2	0	<0.0833
Magnesium	<0.0393	<0.0415	<0.0427	<0.0417	1	0	<0.0417
Potassium	0.0311	0.0293	0.0333	0.0157	0.2	0	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr	10-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	23.4	24.002	24.047	24.011	24.01	23.997	24
Particulate Matter (µg/m3)	18.9	12.1	23.4	9.46	37.6	16.4	22.6	25.2	0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.156	0.407	1.43	0.190	0.0446	0.0984	0.0228	0.0257	<0.0167
Nitrate	0.432	0.447	0.625	0.241	0.242	0.337	0.511	0.422	0.0348
Sulphate	1.55	0.939	1.13	0.853	1.01	1.55	1.19	1.11	<0.0417
Ammonium (as N)	0.452	0.294	0.293	0.256	0.229	0.457	0.365	0.323	<0.0208
Calcium	0.307	0.331	0.335	0.142	0.309	0.211	0.191	0.314	<0.0833
Magnesium	<0.0417	0.0502	0.0567	<0.0417	<0.0416	<0.0416	<0.0416	<0.0417	<0.0417
Potassium	0.0770	0.0349	0.237	0.0291	0.0317	0.0342	0.0319	0.0284	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	16-Apr	16-Apr	16-Apr	16-Apr			16-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	4.71	8.42	9.42	5.46			-0.0417
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	0.0328	0.0177	0.4	0.4523052	<0.0167
Nitrate	0.0968	0.123	0.200	0.0885	0.2	2.325767051	0.0383
Sulphate	0.354	0.846	0.743	0.695	1	1.412951333	<0.0417
Ammonium (as N)	0.130	0.271	0.213	0.226	0.5	0	<0.0208
Calcium	<0.0833	0.130	0.252	0.149	2	0	0.123
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	0	<0.0417
Potassium	0.0265	0.0232	0.0313	0.0361	0.2	0	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr	16-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	23.995	24.052	24.014	24.009	24	24
Particulate Matter (µg/m3)	21.7	20.8	26.2	12.2	35.9	11.9	11.8	29.3	-0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0540	0.0813	0.320	0.0503	0.0618	0.0383	0.0245	0.0842	0.0188
Nitrate	0.224	0.289	0.362	0.170	0.248	0.148	0.141	0.165	0.0530
Sulphate	0.491	0.877	0.799	0.742	0.549	0.377	0.414	0.384	<0.0417
Ammonium (as N)	0.120	0.282	0.226	0.220	0.150	0.111	0.121	0.118	<0.0208
Calcium	0.332	0.345	0.529	0.120	0.795	0.338	0.243	0.778	0.135
Magnesium	<0.0417	<0.0417	0.0601	<0.0417	0.0560	<0.0416	<0.0417	0.0518	<0.0417
Potassium	0.0192	0.0247	0.0792	0.0422	0.0381	0.0855	0.0162	0.0401	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	22-Apr	22-Apr	22-Apr	22-Apr			22-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.837	24.1	24	24			24
Particulate Matter (µg/m3)	3.03	4.66	5.90	3.64			-0.0972
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0215	<0.0166	0.0167	<0.0167	0.4	0.4523052	<0.0167
Nitrate	0.0580	0.117	0.121	0.0767	0.2	2.325767051	0.0838
Sulphate	1.60	1.79	1.97	1.56	1	1.412951333	0.0422
Ammonium (as N)	0.421	0.505	0.541	0.445	0.5	<	<0.0208
Calcium	<0.0774	<0.0830	0.164	0.190	2	<	0.143
Magnesium	<0.0387	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.116	0.0346	0.0359	0.0321	0.2	0.3838774	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr	22-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	25.27	24.1	23.996	24.053	24.014	24.008	23.998	24
Particulate Matter (µg/m3)	-0.250	17.1	28.4	11.8	46.9	7.25	27.1	29.4	-0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.0749	0.323	0.0180	0.131	<0.0167	0.0479	0.0930	<0.0167
Nitrate	0.0561	0.227	0.332	0.168	0.300	0.119	0.253	0.283	0.0126
Sulphate	0.0638	1.77	2.13	1.73	2.22	1.62	1.91	1.71	<0.0417
Ammonium (as N)	<0.0208	0.433	0.522	0.475	0.483	0.401	0.479	0.409	<0.0208
Calcium	<0.0833	0.178	0.381	0.165	2.11	0.350	0.877	0.853	<0.0833
Magnesium	<0.0417	<0.0396	0.0534	<0.0417	0.0930	<0.0416	0.0552	0.0506	<0.0417
Potassium	0.0107	0.0333	0.0623	0.0428	0.0637	0.0207	0.0402	0.0363	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	28-Apr	28-Apr	28-Apr	28-Apr			28-Apr
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.91	24.1	24	24			24
Particulate Matter (µg/m3)	3.24	4.50	4.75	3.44			0.0139
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.119	0.0686	0.0662	0.0321	0.4	0.4523052	<0.0167
Nitrate	0.222	0.243	0.223	0.155	0.2	2.325767051	0.0838
Sulphate	1.52	1.93	1.71	1.40	1	1.412951333	0.0609
Ammonium (as N)	0.357	0.480	0.433	0.345	0.5	<	<0.0208
Calcium	<0.0772	<0.0830	0.0959	<0.0833	2	<	<0.0833
Magnesium	<0.0386	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0390	0.0246	0.0221	0.0193	0.2	0.3838774	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr	28-Apr
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	25.14	24.1	23.996	24.05	24.013	24.011	24.009	24
Particulate Matter (µg/m3)	0.861	9.86	18.2	3.64	9.55	5.76	6.25	9.97	-0.319
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.104	0.229	0.0714	0.102	0.159	0.185	0.346	<0.0167
Nitrate	0.0534	0.210	0.405	0.159	0.275	0.245	0.232	0.286	0.0375
Sulphate	0.103	1.56	2.09	1.49	2.78	1.72	1.64	1.92	<0.0417
Ammonium (as N)	<0.0208	0.385	0.453	0.345	0.652	0.340	0.386	0.356	<0.0208
Calcium	<0.0833	<0.0796	0.163	<0.0833	0.202	0.163	<0.0833	0.122	<0.0833
Magnesium	<0.0417	<0.0398	0.0455	<0.0417	<0.0416	<0.0416	<0.0416	<0.0417	<0.0417
Potassium	<0.00833	0.0206	0.0416	0.0193	0.0323	0.0253	0.0245	0.0348	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	4-May	4-May	4-May	4-May			4-May
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.941	24.1	24	24			24
Particulate Matter (µg/m3)	4.74	3.58	5.36	3.64			-0.0313
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0160	0.0230	0.0381	0.0209	0.4	<	<0.0167
Nitrate	0.129	0.121	0.132	0.154	0.2	1.91	0.0593
Sulphate	0.499	0.374	0.385	0.358	1	1.54563875	<0.0417
Ammonium (as N)	0.150	0.114	0.131	0.104	0.5	<	<0.0208
Calcium	<0.0802	<0.0830	0.209	0.0899	2	<	<0.0833
Magnesium	<0.0401	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0369	0.0230	0.0286	0.0167	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	4-May	4-May	4-May	4-May	4-May	4-May	4-May	4-May	4-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.446	24.1	24.002	24.05	24.011	24.008	24.003	24
Particulate Matter (µg/m3)	0.580	20.5	20.3	9.85	30.5	10.5	24.4	32.8	-0.865
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.262	0.263	0.208	0.0928	0.0295	0.0337	0.0906	<0.0167
Nitrate	0.0581	0.151	0.190	0.122	0.171	0.199	0.199	0.215	0.0411
Sulphate	0.0513	0.526	0.476	0.372	0.685	0.478	0.433	0.862	<0.0417
Ammonium (as N)	<0.0208	0.141	0.115	0.0981	0.118	0.138	0.111	0.188	<0.0208
Calcium	<0.0833	0.195	0.269	0.111	0.549	0.232	0.531	0.659	<0.0833
Magnesium	<0.0417	<0.0409	0.0498	<0.0417	0.0465	<0.0416	<0.0417	0.0619	<0.0417
Potassium	<0.00833	0.0508	0.0702	0.0401	0.0461	0.0453	0.0260	0.0314	0.0212



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	10-May	10-May	10-May	10-May			10-May
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	25.731	24.1	24	24			24
Particulate Matter (µg/m3)	2.46	6.69	5.64	3.40			0.486
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0155	<0.0166	0.0424	<0.0167	0.4	<	<0.0167
Nitrate	0.0560	0.156	0.174	0.155	0.2	1.91	0.125
Sulphate	0.449	0.586	1.03	0.779	1	1.54563875	<0.0417
Ammonium (as N)	0.154	0.159	0.303	0.244	0.5	<	<0.0208
Calcium	<0.0777	<0.0830	<0.0833	0.0938	2	<	<0.0833
Magnesium	<0.0389	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0146	0.0340	0.0300	0.0171	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	10-May	10-May	10-May	10-May	10-May	10-May	10-May	10-May	10-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	25.057	24.1	24.001	24.05	24	24.009	24	24
Particulate Matter (µg/m3)	0.931	19.6	21.6	7.44	67.6	7.53	13.9	13.0	0.125
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.0676	0.177	<0.0167	0.100	0.0177	0.0269	0.0373	<0.0167
Nitrate	0.0937	0.231	0.197	0.172	0.177	0.115	0.201	0.152	0.0597
Sulphate	<0.0417	1.21	1.15	0.918	1.57	0.558	0.671	0.574	<0.0417
Ammonium (as N)	<0.0208	0.323	0.309	0.285	0.331	0.180	0.109	0.160	<0.0208
Calcium	<0.0833	<0.0798	<0.0830	<0.0833	1.10	0.226	0.156	0.218	<0.0833
Magnesium	<0.0417	<0.0399	<0.0415	<0.0417	0.0983	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	<0.00833	0.0578	0.0507	0.0182	0.0481	0.0183	0.0227	0.0186	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	16-May	16-May	16-May	16-May			16-May
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.108	24	24	24			24
Particulate Matter (µg/m3)	5.53	5.83	5.86	2.57			1.03
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0223	0.0219	0.0281	<0.0167	0.4	<	<0.0167
Nitrate	0.0748	0.0534	0.0767	0.0407	0.2	1.91	0.0130
Sulphate	0.491	0.534	0.498	0.389	1	1.54563875	<0.0417
Ammonium (as N)	0.172	0.174	0.157	0.123	0.5	<	<0.0208
Calcium	<0.0830	<0.0833	0.143	<0.0833	2	<	<0.0833
Magnesium	<0.0415	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0175	0.0355	0.0327	0.00839	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	16-May	16-May	16-May	16-May	16-May	16-May	16-May	16-May	16-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	15.5	23.901	24.1	24.007	24.049	24.009	15.397	24.006	24
Particulate Matter (µg/m3)	13.2	19.9	24.2	8.54	37.5	11.9	13.0	22.7	0.500
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0643	0.160	0.218	0.0624	0.0928	0.0262	0.0450	0.0398	<0.0167
Nitrate	0.152	0.130	0.163	0.0770	0.134	0.0818	0.142	0.139	0.0174
Sulphate	0.596	0.594	0.588	0.403	0.915	0.528	0.568	0.895	<0.0417
Ammonium (as N)	0.157	0.172	0.156	0.130	0.179	0.152	0.144	0.244	<0.0208
Calcium	0.216	0.304	0.408	<0.0833	0.777	0.149	0.220	0.360	<0.0833
Magnesium	<0.0645	0.0511	0.0642	<0.0417	0.0531	<0.0417	<0.0649	<0.0417	<0.0417
Potassium	0.0151	0.0314	0.0726	0.0261	0.0522	0.0396	0.0260	0.0372	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	22-May	22-May	22-May	22-May			22-May
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.126	24.1	24	24			24
Particulate Matter (µg/m3)	6.71	5.09	5.47	4.32			0.944
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0166	0.0233	0.0178	<0.0167	0.4	<	<0.0167
Nitrate	0.0373	0.0394	0.0186	0.0372	0.2	1.91	0.0178
Sulphate	0.659	0.632	0.620	0.544	1	1.54563875	<0.0417
Ammonium (as N)	0.203	0.213	0.205	0.200	0.5	<	<0.0208
Calcium	<0.0829	0.0940	0.206	<0.0833	2	<	<0.0833
Magnesium	<0.0414	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0165	0.0171	0.0117	0.0149	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	22-May	22-May	22-May	22-May	22-May	22-May	22-May	22-May	22-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	0	23.822	24.1	24.012	24.051	24.007	24.008	24.012	24
Particulate Matter (µg/m3)	1.29	21.9	24.0	7.66	64.8	14.1	26.8	20.5	0.708
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0196	0.113	0.0669	0.0217	0.173	0.0197	0.0385	0.0252	<0.0167
Nitrate	0.0320	0.0936	0.0823	0.0758	0.0950	0.0739	0.140	0.0723	0.0241
Sulphate	0.0805	0.632	0.655	0.646	1.02	0.656	0.726	0.668	0.0729
Ammonium (as N)	<0.0208	0.200	0.210	0.217	0.201	0.191	0.194	0.211	<0.0208
Calcium	<0.0833	0.467	0.466	0.0851	0.979	0.307	0.580	0.581	<0.0833
Magnesium	<0.0417	0.0740	<0.0415	<0.0416	0.0514	<0.0417	0.0553	0.0504	<0.0417
Potassium	<0.00833	0.0338	0.0269	0.0218	0.0561	0.0259	0.0478	0.0228	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	28-May	28-May	28-May	28-May			28-May
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.681	24.1	24	24			24
Particulate Matter (µg/m3)	6.76	12.7	13.6	7.63			0.375
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0169	<0.0166	0.0226	<0.0167	0.4	<	<0.0167
Nitrate	0.0705	0.0984	0.163	0.0636	0.2	1.91	0.0454
Sulphate	0.881	1.84	1.73	1.24	1	1.54563875	0.0622
Ammonium (as N)	0.325	0.587	0.506	0.445	0.5	<	<0.0208
Calcium	<0.0845	0.273	0.139	0.297	2	<	0.120
Magnesium	<0.0422	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0145	0.0246	0.0699	0.0186	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	28-May	28-May	28-May	28-May	28-May	28-May	28-May	28-May	28-May
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.508	24	24.013	24.05	24.89	24.006	24.002	24
Particulate Matter (µg/m3)	19.9	38.7	46.2	15.8	70.9	13.5	27.0	55.3	0.458
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0339	0.0690	0.112	0.0430	0.115	0.0212	0.0233	0.111	<0.0167
Nitrate	0.151	0.439	0.455	0.137	0.370	0.0983	0.131	0.263	0.350
Sulphate	0.937	1.87	1.97	1.35	1.80	1.00	1.02	0.977	0.0496
Ammonium (as N)	0.287	0.540	0.487	0.461	0.422	0.346	0.307	0.232	<0.0208
Calcium	0.327	0.718	0.822	0.208	3.43	0.333	0.339	1.58	<0.0833
Magnesium	<0.0417	0.0910	0.0828	<0.0416	0.139	<0.0402	<0.0417	0.0959	<0.0417
Potassium	0.0201	0.0447	0.0717	0.0357	0.0440	0.0329	0.0298	0.0296	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	3-Jun	3-Jun	3-Jun	3-Jun			3-Jun
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.9	24	24	24			24
Particulate Matter (µg/m3)	11.7	8.88	9.58	5.75			0.375
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0857	0.0482	0.0925	0.0431	0.2	1.414478024	0.0225
Sulphate	1.16	0.667	0.644	0.508	1	1.66956725	<0.0417
Ammonium (as N)	0.366	0.218	0.195	0.175	0.5	<	<0.0208
Calcium	0.201	0.117	0.163	0.113	2	<	<0.0833
Magnesium	<0.0418	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0424	0.0281	0.0325	0.0323	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun	3-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.721	25.2	24.011	24.049	24.006	24.009	24.002	24
Particulate Matter (µg/m3)	36.2	23.4	36.4	11.0	79.3	24.4	38.4	35.6	0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.111	0.0827	0.0947	<0.0167	0.110	0.0253	<0.0167	0.0303	<0.0167
Nitrate	0.226	0.168	0.160	0.110	0.221	0.151	0.156	0.138	0.0190
Sulphate	1.23	0.887	0.691	0.595	1.21	1.14	1.22	1.17	<0.0417
Ammonium (as N)	0.334	0.226	0.190	0.191	0.273	0.272	0.346	0.259	<0.0208
Calcium	0.451	0.342	0.388	0.107	1.19	0.441	0.343	0.538	<0.0833
Magnesium	0.0520	0.0548	0.0543	<0.0416	0.102	0.0420	0.0569	0.0536	<0.0417
Potassium	0.0590	0.0416	0.0519	0.0563	0.0728	0.0653	0.0457	0.0454	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	9-Jun	9-Jun	9-Jun	9-Jun			9-Jun
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.537	24.1	24	22.7			24
Particulate Matter (µg/m3)	0.693	1.29	2.08	0.705			0.417
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0163	<0.0166	<0.0167	<0.0176	0.4	<	<0.0167
Nitrate	0.0429	0.0327	0.0632	0.0355	0.2	1.414478024	0.0605
Sulphate	0.0741	0.400	0.626	0.195	1	1.66956725	<0.0417
Ammonium (as N)	<0.0204	0.122	0.197	0.0413	0.5	<	<0.0208
Calcium	<0.0815	<0.0830	<0.0833	<0.0881	2	<	<0.0833
Magnesium	<0.0408	<0.0415	<0.0417	<0.0441	1	<	<0.0417
Potassium	<0.00815	0.0314	0.0138	<0.00881	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun	9-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.278	25.2	22.653	24.054	24.006	24.011	24.01	24
Particulate Matter (µg/m3)	1.50	2.10	2.74	1.63	1.58	1.54	1.29	2.79	0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	<0.0165	<0.0159	<0.0177	0.0316	<0.0167	<0.0167	<0.0167	<0.0167
Nitrate	0.0482	0.0418	0.0418	0.0565	0.0887	0.0577	0.0585	0.0810	0.0466
Sulphate	0.0790	0.403	0.643	0.187	0.0603	0.0623	0.126	0.121	0.0588
Ammonium (as N)	<0.0208	0.101	0.194	0.0390	<0.0208	<0.0208	0.0455	<0.0208	<0.0208
Calcium	<0.0833	<0.0824	<0.0794	<0.0883	<0.0831	<0.0833	<0.0833	<0.0833	<0.0833
Magnesium	<0.0417	<0.0412	<0.0397	<0.0441	<0.0416	<0.0417	<0.0416	<0.0416	<0.0417
Potassium	<0.00833	0.0130	0.0201	<0.00883	<0.00831	<0.00833	0.00946	<0.00833	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	15-Jun	15-Jun	15-Jun	15-Jun			15-Jun
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.09	24.1	24	24			24
Particulate Matter (µg/m3)	9.80	11.9	18.9	7.17			0.583
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0166	0.0224	<0.0167	0.0180	0.4	<	<0.0167
Nitrate	0.0398	0.157	0.0972	0.0822	0.2	1.414478024	0.0522
Sulphate	0.391	1.04	1.30	0.460	1	1.66956725	0.0515
Ammonium (as N)	0.126	0.301	0.392	0.127	0.5	<	<0.0208
Calcium	<0.0830	0.110	0.0923	<0.0833	2	<	<0.0833
Magnesium	<0.0415	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0395	0.0496	0.0948	0.0494	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun	15-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.8005	25.2	24.006	24.053	24.007	31.425	24.011	24
Particulate Matter (µg/m3)	13.3	11.8	16.0	10.8	12.8	15.7	21.4	16.7	-0.167
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0614	0.0547	0.0241	0.0604	0.0586	<0.0167	0.0423	<0.0167	0.0254
Nitrate	0.143	0.0988	0.184	0.212	0.183	0.136	0.0857	0.103	0.0454
Sulphate	0.439	0.936	0.982	1.09	0.465	0.433	0.329	0.513	0.0614
Ammonium (as N)	0.149	0.282	0.298	0.152	0.137	0.123	0.0467	0.145	<0.0208
Calcium	<0.0833	0.0990	0.212	0.0863	0.0994	<0.0833	0.0724	0.199	<0.0833
Magnesium	<0.0417	<0.0420	<0.0397	<0.0417	<0.0416	<0.0417	<0.0318	<0.0416	<0.0417
Potassium	0.112	0.0646	0.0850	0.0654	0.0570	0.0890	0.0597	0.0596	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	21-Jun	21-Jun	21-Jun	21-Jun			21-Jun
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.765	24.1	24	24			24
Particulate Matter (µg/m3)	7.91	9.50	7.88	3.79			0.583
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0168	0.0249	0.0189	0.0396	0.4	<	0.0179
Nitrate	0.0766	0.0984	0.0830	0.0747	0.2	1.414478024	0.0656
Sulphate	0.811	0.726	0.600	0.343	1	1.66956725	0.0559
Ammonium (as N)	0.260	0.189	0.130	0.110	0.5	<	<0.0208
Calcium	<0.0842	0.189	0.234	0.0905	2	<	<0.0833
Magnesium	<0.0421	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0279	0.0173	0.0265	0.0214	0.2	<	0.00929

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	Albian Muskeg River	
Sample Date	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun	21-Jun
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.521	25.2	24.01	24.052	24.01	24.011	24
Particulate Matter (µg/m3)	27.5	77.3	46.7	11.2	65.9	18.1	68.7	0.667
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0460	0.453	0.141	0.0215	0.194	0.0291	0.102	0.0200
Nitrate	0.195	0.288	0.268	0.0877	1.13	0.218	0.643	0.0190
Sulphate	0.904	1.14	0.733	0.343	1.59	0.904	1.34	0.0576
Ammonium (as N)	0.249	0.130	0.0605	0.100	0.312	0.285	0.284	<0.0208
Calcium	0.549	1.64	0.765	0.127	1.46	0.302	2.32	<0.0833
Magnesium	<0.0417	0.218	0.0554	<0.0416	0.0682	<0.0416	0.0954	<0.0417
Potassium	0.0675	0.0445	0.0417	0.0356	0.248	0.0391	0.0444	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	27-Jun	27-Jun	27-Jun	27-Jun			27-Jun
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24.1	24	24			24
Particulate Matter (µg/m3)	3.75	2.07	2.79	1.13			0.208
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0166	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0628	0.0409	0.0514	0.0779	0.2	1.414478024	0.0518
Sulphate	0.993	0.214	0.209	0.165	1	1.66956725	0.0512
Ammonium (as N)	0.312	0.0442	0.0338	0.0275	0.5	<	<0.0208
Calcium	<0.0833	<0.0830	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0125	0.00960	0.0113	0.0563	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun	27-Jun
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.739	25.2	24.009	24.053	24.015	23.847	24.014	24
Particulate Matter (µg/m3)	6.75	4.93	8.17	6.08	7.11	6.75	9.02	11.1	-0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	<0.0168	0.0636	0.0218	<0.0166	<0.0167	<0.0168	0.0178	<0.0167
Nitrate	0.0680	0.0723	0.102	0.0790	0.0895	0.0664	0.121	0.0908	0.190
Sulphate	1.04	0.274	0.249	0.183	0.279	0.920	1.30	1.08	0.0443
Ammonium (as N)	0.328	0.0626	0.0573	0.0327	0.0492	0.283	0.365	0.324	<0.0208
Calcium	<0.0833	<0.0842	0.171	<0.0833	<0.0831	<0.0833	<0.0839	0.217	<0.0833
Magnesium	<0.0417	<0.0421	<0.0397	<0.0417	<0.0416	<0.0416	<0.0419	<0.0416	<0.0417
Potassium	0.0396	0.0246	0.0491	0.0671	0.0471	0.0508	0.0457	0.0319	0.0457



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	3-Jul	3-Jul	3-Jul	3-Jul			3-Jul
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.285	24.1	24	24			24
Particulate Matter (µg/m3)	8.59	7.54	5.17	7.83			-0.653
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0337	<0.0166	0.0179	0.0261	0.4	0.565940857	<0.0167
Nitrate	0.0831	0.0464	0.0518	0.0747	0.2	0.934968111	0.0415
Sulphate	0.530	0.552	0.539	0.505	1	1.681030429	0.0612
Ammonium (as N)	0.125	0.157	0.142	0.140	0.5	<	<0.0208
Calcium	0.214	0.0988	<0.0833	0.0939	2	<	<0.0833
Magnesium	<0.0429	<0.0415	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0588	0.0575	0.0961	0.0566	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul	3-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.095	25.2	24.008	24.05	24.009	23.414	24.014	25.2
Particulate Matter (µg/m3)	12.9	14.4	22.7	17.5	44.2	38.8	65.5	75.2	0.542
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0301	0.0454	0.0659	0.0295	0.0687	0.0357	0.0609	0.0777	0.0193
Nitrate	0.0605	0.113	0.107	0.0849	0.122	0.136	0.110	0.182	0.0271
Sulphate	0.493	0.579	0.525	0.534	1.09	0.649	0.770	0.796	0.0684
Ammonium (as N)	0.146	0.151	0.128	0.155	0.240	0.170	0.145	0.128	<0.0198
Calcium	0.139	0.321	0.402	0.231	1.42	0.768	0.559	0.989	<0.0794
Magnesium	<0.0417	<0.0433	0.0441	<0.0417	0.0774	0.0551	0.0506	0.0926	<0.0397
Potassium	0.116	0.0284	0.0494	0.0563	0.0381	0.0393	0.147	0.0605	<0.00794



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	9-Jul	9-Jul	9-Jul	9-Jul			9-Jul
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.592	24	24	24			24
Particulate Matter (µg/m3)	13.8	11.4	12.6	10.8			0.0278
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0232	0.0236	0.0216	0.0189	0.4	0.565940857	0.0219
Nitrate	0.0840	0.0470	0.0613	0.0545	0.2	0.934968111	0.0549
Sulphate	2.50	0.746	0.711	0.916	1	1.681030429	0.0810
Ammonium (as N)	0.762	0.252	0.238	0.284	0.5	<	<0.0208
Calcium	<0.0848	0.121	0.211	<0.0833	2	<	<0.0833
Magnesium	<0.0424	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0742	0.0497	0.0555	0.0893	0.2	<	0.380

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul	9-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	23.56	25.2	24.007	24.052	24.009	23.649	24.001	24
Particulate Matter (µg/m3)	23.0	28.9	33.1	16.4	28.8	24.2	22.0	26.0	-0.222
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0301	0.0416	0.0578	0.0385	0.0356	0.0204	0.0208	0.0263	0.0259
Nitrate	0.125	0.161	0.133	0.157	0.144	0.122	0.128	0.168	0.0352
Sulphate	2.40	0.871	0.865	0.951	0.932	3.05	1.29	1.71	0.0489
Ammonium (as N)	0.733	0.237	0.243	0.279	0.247	0.891	0.364	0.500	<0.0208
Calcium	0.398	0.493	0.555	0.107	0.299	0.366	0.323	0.514	<0.0833
Magnesium	<0.0417	0.0543	0.0615	0.0452	0.0429	<0.0417	<0.0423	0.0440	<0.0417
Potassium	0.0613	0.0625	0.0731	0.152	0.0691	0.0729	0.0964	0.253	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Athabasca Valley	Anzac			
Sample Date	15-Jul	15-Jul	15-Jul			15-Jul
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	2.65	2.82	0.0278			-1.17
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	0.4	0.565940857	<0.0167
Nitrate	0.0581	0.0696	0.0632	0.2	0.934968111	0.0530
Sulphate	0.172	0.371	0.357	1	1.681030429	0.0682
Ammonium (as N)	0.0344	0.106	0.121	0.5	<	0.0246
Calcium	<0.0833	0.151	<0.0833	2	<	0.177
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.195	0.0161	0.0170	0.2	<	0.0652

Station #	AMS 1	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul	15-Jul
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.051	24.007	24	24	24
Particulate Matter (µg/m3)	6.85	20.2	-0.250	25.6	2.01	6.67	26.5	-0.278
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.0454	<0.0167	0.0353	0.0196	<0.0167	0.100	<0.0167
Nitrate	0.100	0.143	0.0830	0.166	0.103	0.0838	0.121	0.0486
Sulphate	0.211	0.575	0.397	0.688	0.217	0.529	0.408	0.106
Ammonium (as N)	0.0336	0.159	0.112	0.151	0.0478	0.0252	0.0419	<0.0208
Calcium	0.100	0.290	0.170	0.761	<0.0833	0.0865	1.10	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	0.0463	<0.0417	<0.0417	0.0735	<0.0417
Potassium	0.0101	0.0521	0.0344	0.0322	0.0230	0.0212	0.0285	0.0108



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	21-Jul	21-Jul	21-Jul	21-Jul			21-Jul
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.65	23.715	24	24			24
Particulate Matter (µg/m3)	7.34	13.2	11.3	6.42			-0.924
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0169	0.0175	0.0181	<0.0167	0.4	0.565940857	0.0320
Nitrate	0.0582	0.0816	0.149	0.0834	0.2	0.934968111	0.0715
Sulphate	0.815	1.92	1.68	0.951	1	1.681030429	0.0658
Ammonium (as N)	0.251	0.608	0.464	0.310	0.5	<	<0.0208
Calcium	0.198	0.307	0.399	0.214	2	<	<0.0833
Magnesium	<0.0423	<0.0422	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0104	0.100	0.0382	0.0243	0.2	<	0.0454

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul	21-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	26.1	24.011	24.05	24.008	23.776	24.005	24
Particulate Matter (µg/m3)	23.9	46.1	37.1	20.8	89.0	1.37	20.5	52.6	-0.368
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0272	0.0780	0.0766	<0.0167	0.0953	<0.0167	<0.0168	0.0550	<0.0167
Nitrate	0.173	0.382	0.354	0.185	0.325	0.145	0.136	0.231	0.0265
Sulphate	0.938	2.31	1.81	1.06	1.43	0.978	0.993	1.15	0.0454
Ammonium (as N)	0.254	0.586	0.463	0.323	0.267	0.293	0.290	0.252	<0.0208
Calcium	0.750	0.756	0.816	0.421	2.94	0.512	0.213	1.30	<0.0833
Magnesium	0.0504	0.0775	0.0655	<0.0416	0.114	<0.0417	<0.0421	0.0918	<0.0417
Potassium	0.0325	0.0873	0.0687	0.0391	0.0402	0.0209	0.0432	0.0289	0.0341



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	27-Jul	27-Jul	27-Jul	27-Jul			27-Jul
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	2.83	4.60	3.93	4.15			1.42
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	<0.0167	0.4	0.565940857	<0.0167
Nitrate	0.0747	0.0798	0.0980	0.0364	0.2	0.934968111	0.0415
Sulphate	1.23	0.475	0.488	0.419	1	1.681030429	0.0438
Ammonium (as N)	0.372	0.133	0.147	0.122	0.5	<	<0.0208
Calcium	0.131	<0.0833	<0.0833	0.197	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0534	0.0176	0.0468	0.0145	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	27-Jul	27-Jul	27-Jul	27-Jul	27-Jul	27-Jul	27-Jul	27-Jul	27-Jul
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24.1	24.09	24.055	24	23.927	24.01	24
Particulate Matter (µg/m3)	23.0	1.38	20.5	11.9	23.2	15.6	17.3	14.6	-0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0602	0.0179	0.0542	0.0174	0.0275	0.0229	0.0185	<0.0167	<0.0167
Nitrate	0.199	0.148	0.138	0.0984	0.177	0.172	0.140	0.177	0.0245
Sulphate	1.51	0.575	0.579	0.544	0.658	1.28	1.83	0.864	0.0477
Ammonium (as N)	0.374	0.176	0.0894	0.137	0.0691	0.358	0.447	0.215	<0.0208
Calcium	0.301	<0.0830	0.398	0.205	0.536	0.322	0.487	0.228	<0.0833
Magnesium	0.0436	<0.0415	0.0720	0.0883	0.0749	0.0642	0.0912	<0.0416	<0.0417
Potassium	0.0727	0.119	0.0435	0.126	0.0412	0.0399	0.0672	0.101	0.0421



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	2-Aug	2-Aug	2-Aug	2-Aug			2-Aug
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24.032	24	24	24			24
Particulate Matter (µg/m3)	6.82	3.21	4.38	0.875			0.292
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0166	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0466	0.0466	0.0593	0.0372	0.2	0.745535441	0.0182
Sulphate	1.75	0.181	0.222	0.165	1	1.4092368	0.101
Ammonium (as N)	0.507	0.0413	0.0660	0.0297	0.5	<	<0.0208
Calcium	<0.0832	0.207	<0.0833	0.134	2	<	0.148
Magnesium	<0.0416	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0255	0.0852	0.0156	<0.00833	0.2	<	0.00884

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	2-Aug	2-Aug	2-Aug	2-Aug	2-Aug	2-Aug	2-Aug	2-Aug	2-Aug
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24.1	24	24.012	24.05	24.006	24	24	24
Particulate Matter (µg/m3)	23.3	11.9	13.6	3.37	16.4	16.4	24.4	16.0	0.417
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0281	0.0303	0.0470	<0.0167	0.0278	0.0221	0.0246	0.0271	<0.0167
Nitrate	0.129	0.0905	0.0237	0.0517	0.0769	0.128	0.217	0.137	0.0403
Sulphate	1.76	0.235	0.227	0.226	0.296	1.43	2.66	0.595	0.0762
Ammonium (as N)	0.459	0.0378	0.0288	0.0505	0.0266	0.387	0.644	0.144	<0.0208
Calcium	0.498	0.167	0.184	0.107	0.165	0.359	0.415	0.491	0.0955
Magnesium	<0.0417	<0.0415	<0.0417	<0.0416	<0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0320	0.0322	0.0363	0.0182	0.0339	0.0342	0.0243	0.0232	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	8-Aug	8-Aug	8-Aug	8-Aug			8-Aug
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	12.3	6.46	6.46	6.83			-2.46
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	0.0170	<0.0167	0.4	<	<0.0167
Nitrate	0.0617	0.0190	0.0466	0.0680	0.2	0.745535441	0.0415
Sulphate	1.35	0.383	0.265	0.280	1	1.4092368	0.0762
Ammonium (as N)	0.404	0.0868	0.0852	0.0248	0.5	<	<0.0208
Calcium	0.126	0.118	0.301	0.185	2	<	0.130
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0327	0.0195	0.0249	0.0279	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	8-Aug	8-Aug	8-Aug	8-Aug	8-Aug	8-Aug	8-Aug	8-Aug	8-Aug
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.011	24.069	24	24.316	24	24
Particulate Matter (µg/m3)	0.833	35.3	24.9	25.3	91.6	27.4	40.8	53.5	-0.750
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.140	0.0813	0.0344	0.0839	<0.0167	0.0605	0.0548	<0.0167
Nitrate	0.0269	0.128	0.210	<0.00833	0.275	0.162	0.410	0.186	0.0237
Sulphate	0.119	0.541	0.307	0.213	0.892	2.08	1.41	0.592	0.0631
Ammonium (as N)	<0.0208	0.108	0.0835	<0.0208	0.147	0.649	0.365	0.0724	<0.0208
Calcium	<0.0833	0.689	0.372	0.271	1.85	0.672	0.453	1.41	<0.0833
Magnesium	<0.0417	0.0886	0.0615	<0.0416	0.0848	<0.0417	0.0420	0.0988	<0.0417
Potassium	<0.00833	0.0436	0.0311	0.0377	0.0426	0.0316	0.0424	0.0242	0.0386



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	14-Aug	14-Aug	14-Aug	14-Aug			14-Aug
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	23.544	23.515	24	24			24
Particulate Matter (µg/m3)	17.8	11.3	11.9	9.00			1.42
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0198	<0.0170	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.116	0.0432	0.0395	0.0707	0.2	0.745535441	0.0415
Sulphate	3.39	1.48	1.28	1.38	1	1.4092368	0.0523
Ammonium (as N)	0.840	0.402	0.336	0.404	0.5	<	<0.0208
Calcium	0.256	0.308	0.152	0.242	2	<	<0.0833
Magnesium	0.0431	<0.0425	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0514	0.0839	0.0791	0.0360	0.2	<	0.0521

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	14-Aug	14-Aug	14-Aug	14-Aug	14-Aug	14-Aug	14-Aug	14-Aug	14-Aug
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	25.2	24.007	24.053	24.011	23.586	24.008	24
Particulate Matter (µg/m3)	36.2	18.9	35.9	22.3	58.1	35.0	40.8	30.2	0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0247	<0.0167	0.0574	0.0196	0.0469	0.0177	<0.0170	0.0175	<0.0167
Nitrate	0.348	0.153	0.278	0.231	0.266	0.267	0.275	0.221	0.0233
Sulphate	3.42	1.41	1.59	1.46	1.63	2.74	1.86	1.96	<0.0417
Ammonium (as N)	0.736	0.340	0.395	0.412	0.360	0.602	0.431	0.484	<0.0208
Calcium	0.708	0.296	0.569	0.347	1.07	0.828	0.738	0.585	0.114
Magnesium	0.0617	0.0449	0.0688	0.0549	0.0688	0.0637	0.0713	0.0490	<0.0417
Potassium	0.0819	0.0743	0.120	0.0728	0.104	0.0941	0.0850	0.0529	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	20-Aug	20-Aug	20-Aug	20-Aug			20-Aug
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	1.71	1.67	1.79	1.00			9.17
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0411	0.0443	0.0597	0.125	0.2	0.745535441	0.0597
Sulphate	0.402	0.335	0.299	0.289	1	1.4092368	<0.0417
Ammonium (as N)	0.126	0.0728	0.0895	0.0769	0.5	<	<0.0208
Calcium	0.134	<0.0833	0.129	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	<0.00833	<0.00833	<0.00833	0.0805	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	20-Aug	20-Aug	20-Aug	20-Aug	20-Aug	20-Aug	20-Aug	20-Aug	20-Aug
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.05	24	24	24	24
Particulate Matter (µg/m3)	1.25	5.58	10.7	-2.79	13.0	2.63	4.38	27.3	10.5
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0184	0.0202	0.0502	<0.0167	0.0538	<0.0167	<0.0167	0.0382	0.0202
Nitrate	0.0767	0.0779	0.0565	0.0601	0.111	0.0557	0.0419	0.0348	0.0684
Sulphate	0.388	0.358	0.370	0.299	0.460	0.327	0.488	0.618	0.0565
Ammonium (as N)	0.0931	0.0904	0.111	0.0770	0.0897	0.0954	0.114	0.108	<0.0208
Calcium	0.0845	0.0879	0.542	<0.0833	0.214	0.132	0.140	0.337	<0.0833
Magnesium	<0.0417	<0.0417	0.0504	<0.0417	<0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0131	0.0191	0.0175	0.0227	0.0161	0.0163	0.0286	0.0215	0.0459



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	26-Aug	26-Aug	26-Aug	26-Aug			26-Aug
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	25.5	13.3	12.7	2.85			0.0833
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	<0.0167	0.4	0.491681667	<0.0167
Nitrate	0.0790	0.0739	0.0913	0.0790	0.2	1.139802912	0.0565
Sulphate	3.68	6.46	10.8	0.929	1	1.4261665	0.0655
Ammonium (as N)	0.992	1.63	2.34	0.256	0.5	<	<0.0208
Calcium	<0.0833	0.239	0.247	0.202	2	<	<0.0833
Magnesium	<0.0417	0.0465	0.0429	<0.0417	1	<	<0.0417
Potassium	0.0389	0.0862	0.205	0.0493	0.2	<	0.00884

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	26-Aug	26-Aug	26-Aug	26-Aug	26-Aug	26-Aug	26-Aug	26-Aug	26-Aug
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.012	24.054	24	24	24	24
Particulate Matter (µg/m3)	16.6	22.8	31.1	12.9	30.3	19.4	13.0	21.6	15.5
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0166	0.0200	<0.0166	<0.0167	<0.0167	<0.0167	<0.0167
Nitrate	0.0869	0.167	0.218	0.0833	0.133	0.0980	0.0739	0.0838	0.0640
Sulphate	4.03	6.79	9.25	0.871	6.63	3.84	1.11	3.53	0.0630
Ammonium (as N)	1.01	1.62	2.20	0.241	1.62	0.924	0.286	0.886	<0.0208
Calcium	0.178	0.422	0.620	0.313	0.414	0.274	0.263	0.267	<0.0833
Magnesium	<0.0417	0.0630	0.0896	<0.0416	0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.148	0.154	0.210	0.0804	0.192	0.118	0.0638	0.122	0.0108



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Athabasca Valley	Anzac			
Sample Date	1-Sep	1-Sep	1-Sep			1-Sep
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	7.25	8.71	3.33			-0.604
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0703	0.0593	0.0573	0.2	1.437953854	0.0395
Sulphate	0.321	0.483	0.336	1	<	<0.0417
Ammonium (as N)	0.0988	0.136	0.107	0.5	<	<0.0208
Calcium	<0.0833	0.124	0.157	2	<	0.0929
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0246	0.0319	0.0186	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	1-Sep	1-Sep	1-Sep	1-Sep	1-Sep	1-Sep	1-Sep	1-Sep	1-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.05	24	24	24	24
Particulate Matter (µg/m3)	9.38	13.9	18.7	16.7	39.8	18.4	11.3	23.3	1.60
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.0279	0.0435	<0.0167	0.0678	0.0237	0.0170	0.0188	<0.0167
Nitrate	0.124	0.111	0.144	0.106	0.179	0.140	0.0949	0.141	0.0447
Sulphate	0.313	0.493	0.494	0.346	0.691	0.290	0.268	0.614	<0.0417
Ammonium (as N)	0.0824	0.135	0.133	0.109	0.124	0.0776	0.0728	0.161	<0.0208
Calcium	<0.0833	0.122	0.183	0.125	0.621	0.239	0.142	0.282	0.0919
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	0.0515	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0512	0.0454	0.0610	0.0394	0.0369	0.0691	0.0376	0.0509	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Athabasca Valley			
Sample Date	7-Sep	7-Sep			7-Sep
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	6.08	6.92			-0.208
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0585	0.0917	0.2	1.437953854	0.0360
Sulphate	0.453	0.397	1	<	0.0514
Ammonium (as N)	0.102	0.0967	0.5	<	<0.0208
Calcium	0.214	0.185	2	<	0.155
Magnesium	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0333	0.0289	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep	7-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.052	24	24	24	24
Particulate Matter (µg/m3)	44.1	15.0	36.3	13.8	40.2	33.6	16.3	30.5	0.361
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0596	0.0268	0.0888	<0.0167	0.0652	0.0263	<0.0167	0.0345	<0.0167
Nitrate	0.205	0.121	0.188	0.0767	0.106	0.152	0.0703	0.160	0.0593
Sulphate	1.24	0.482	0.556	0.366	0.668	1.00	0.437	2.04	0.0747
Ammonium (as N)	0.298	0.137	0.114	0.0873	0.0947	0.245	0.121	0.540	<0.0208
Calcium	0.618	0.299	0.481	0.191	0.774	0.463	0.172	0.595	0.102
Magnesium	0.0651	<0.0417	0.0873	<0.0417	0.0748	0.0517	<0.0417	0.0696	<0.0417
Potassium	0.0604	0.0430	0.0576	0.0179	0.0260	0.0456	0.0150	0.0259	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6		MDL	Lab Blank	Travel Blank				
Station Name	Fort McKay	Patricia McInnes								
Sample Date	13-Sep	13-Sep					13-Sep			
PM Size(µm)	2.5	2.5					2.5			
Total Air Volume (m3)	24	24					24			
Particulate Matter (µg/m3)	11.0	6.04					0.971			
Unit	(µg/m3)	(µg/m3)		(µg)	(µg)		(µg/sample)			
Chloride	<0.0167	<0.0167		0.4	<		<0.0167			
Nitrate	0.0648	0.0372		0.2	1.437953854		0.0454			
Sulphate	0.237	0.767		1	<		<0.0417			
Ammonium (as N)	0.0595	0.218		0.5	<		<0.0208			
Calcium	0.106	0.287		2	<		0.182			
Magnesium	0.0513	<0.0417		1	<		<0.0417			
Potassium	0.0136	0.0131		0.2	<		<0.00833			

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep	13-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24.052	24.003	24	24	24
Particulate Matter (µg/m3)	17.6	36.5	39.2	17.3	75.0	31.0	20.3	51.9	0.180
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0273	0.0663	0.0737	<0.0167	0.0960	0.0501	0.0175	0.0487	<0.0167
Nitrate	0.105	0.215	0.249	0.104	0.115	0.0865	0.0530	0.0972	0.0379
Sulphate	0.363	1.02	0.823	0.599	1.30	0.346	0.270	0.478	<0.0417
Ammonium (as N)	0.0564	0.242	0.175	0.174	<0.0208	0.0534	0.0644	0.0588	<0.0208
Calcium	0.611	0.749	0.540	0.299	1.62	0.760	0.198	0.640	0.144
Magnesium	0.0668	0.0892	0.0790	<0.0417	0.0779	0.0489	<0.0417	0.0648	<0.0417
Potassium	0.0148	0.0357	0.0456	0.0346	0.0206	0.0210	0.0169	0.0193	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	19-Sep	19-Sep	19-Sep	19-Sep			19-Sep
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	4.79	1.85	3.42	1.00			0.554
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0423	0.143	0.0498	0.0134	0.2	1.437953854	0.0269
Sulphate	0.834	0.119	0.118	0.0707	1	<	<0.0417
Ammonium (as N)	0.236	<0.0208	<0.0208	<0.0208	0.5	<	<0.0208
Calcium	<0.0833	0.113	<0.0833	<0.0833	2	<	0.103
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0155	0.00875	0.0102	<0.00833	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep	19-Sep
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.055	24	24	24	24
Particulate Matter (µg/m3)	10.8	5.00	14.2	0.904	7.69	7.75	10.3	12.8	2.90
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0252	0.0217	0.0580	<0.0167	0.0266	0.0266	<0.0167	0.0216	<0.0167
Nitrate	0.0897	0.0620	0.106	0.0261	0.0832	0.102	0.101	0.100	0.0225
Sulphate	0.867	0.128	0.125	0.0765	0.341	0.673	1.21	0.969	<0.0417
Ammonium (as N)	0.243	<0.0208	<0.0208	0.0292	0.0618	0.168	0.358	0.277	<0.0208
Calcium	0.126	0.0881	0.123	0.0852	0.150	0.145	0.116	0.269	0.0920
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	<0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0215	0.0153	0.0200	0.00938	0.0102	0.0207	0.0219	0.0193	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley			
Sample Date	25-Sep	25-Sep	25-Sep			25-Sep
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	3.63	4.17	4.38			0.863
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0411	0.0443	0.0684	0.2	1.437953854	0.0119
Sulphate	0.147	0.836	0.974	1	<	0.0464
Ammonium (as N)	0.0595	0.256	0.301	0.5	<	<0.0208
Calcium	<0.0833	0.183	0.206	2	<	0.130
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.00911	0.0163	0.0194	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep	25-Sep
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.05	24	24	24	24
Particulate Matter (µg/m3)	19.3	12.3	23.2	20.5	8.42	7.79	20.1	-0.0185
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0496	0.0227	0.0613	0.0415	<0.0167	<0.0167	0.0320	<0.0167
Nitrate	0.0775	0.140	0.187	0.138	0.0794	0.0474	0.0929	0.0182
Sulphate	0.256	0.947	1.16	0.389	0.227	0.286	0.431	0.0450
Ammonium (as N)	0.0544	0.268	0.302	0.0638	0.0440	0.0577	0.0705	<0.0208
Calcium	0.359	0.239	0.303	0.495	0.267	0.0913	0.422	<0.0833
Magnesium	<0.0417	<0.0417	0.0504	<0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0192	0.0238	0.0379	0.0136	0.0168	0.0129	0.0129	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	1-Oct	1-Oct	1-Oct			1-Oct
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	2.53	1.96	3.10			-0.222
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0435	0.0522	0.0530	0.2	2.366553341	0.0676
Sulphate	0.940	0.939	1.04	1	1.9133085	0.0690
Ammonium (as N)	0.291	0.212	0.253	0.5	<	<0.0208
Calcium	<0.0833	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0270	0.0182	0.0198	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct	1-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24.012	24.054	24	24	24	24
Particulate Matter (µg/m3)	2.97	4.42	6.25	4.91	3.49	3.60	2.83	3.78	-0.305
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	<0.0167	0.0342	<0.0167	<0.0166	<0.0167	<0.0167	0.0238	0.0169
Nitrate	0.0866	0.0941	0.139	0.0770	0.0939	0.0988	0.0806	0.115	0.0585
Sulphate	0.454	0.942	1.07	1.04	0.813	0.469	0.383	0.547	0.0595
Ammonium (as N)	0.0313	0.173	0.306	0.296	0.133	<0.0208	<0.0208	0.0405	<0.0208
Calcium	<0.0833	<0.0833	<0.0833	<0.0833	0.0984	<0.0833	<0.0833	<0.0833	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	<0.0416	<0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0160	0.0296	0.0407	0.0506	0.0393	0.0208	0.0266	0.0239	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	7-Oct	7-Oct	7-Oct	7-Oct			7-Oct
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	3.03	3.20	2.81	2.73			0.558
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	0.0227	<0.0167	0.4	<	<0.0167
Nitrate	0.0261	0.0573	0.0498	0.0877	0.2	2.366553341	0.0502
Sulphate	0.349	0.540	0.386	0.544	1	1.9133085	0.0417
Ammonium (as N)	0.0254	0.114	0.0240	0.0543	0.5	<	<0.0208
Calcium	<0.0833	<0.0833	<0.0833	0.0974	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	<0.00833	0.0147	0.0142	0.0160	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	Albian Muskeg River	
Sample Date	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct	7-Oct
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.054	24	24	24
Particulate Matter (µg/m3)	6.46	4.29	5.08	4.02	5.57	7.75	4.46	0.892
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	<0.0167	0.0174	0.0222	<0.0167	0.0167	<0.0167	<0.0167	<0.0167
Nitrate	0.108	0.0941	0.0818	0.0723	0.0785	0.0783	0.0696	0.0474
Sulphate	0.588	0.391	0.398	0.424	0.327	0.558	0.304	<0.0417
Ammonium (as N)	0.0249	0.114	0.133	0.141	0.0434	0.0325	<0.0208	<0.0208
Calcium	<0.0833	<0.0833	0.179	<0.0833	<0.0831	0.119	<0.0833	<0.0833
Magnesium	<0.0417	<0.0417	0.0516	<0.0417	<0.0416	<0.0417	<0.0417	<0.0417
Potassium	0.0202	0.0383	0.0302	0.0304	0.0361	0.0201	0.0123	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Athabasca Valley			
Sample Date	13-Oct	13-Oct			13-Oct
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	6.33	4.79			-0.917
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.0727	0.108	0.2	2.366553341	0.0296
Sulphate	2.06	0.736	1	1.9133085	0.0449
Ammonium (as N)	0.410	0.0887	0.5	<	<0.0208
Calcium	<0.0833	0.241	2	<	0.114
Magnesium	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.00955	0.0372	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct	13-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.05	24	24	24	24
Particulate Matter (µg/m3)	27.6	21.7	33.4	7.58	33.3	9.58	13.0	22.7	-2.04
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0404	0.0437	0.0604	0.0212	0.0491	0.0168	<0.0167	0.0183	0.0295
Nitrate	0.217	0.221	0.287	0.110	0.201	0.192	0.142	0.219	0.0711
Sulphate	2.20	0.891	0.841	0.697	1.48	1.87	1.56	2.83	<0.0417
Ammonium (as N)	0.408	0.0733	<0.0208	0.0703	0.0860	0.372	0.361	0.581	<0.0208
Calcium	0.790	0.423	0.589	0.200	0.854	0.382	0.233	0.480	<0.0833
Magnesium	0.0459	<0.0417	0.0824	<0.0417	0.0501	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0187	0.0156	0.0330	0.0251	0.0113	0.0183	0.0116	0.0218	0.107



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay			
Sample Date	19-Oct			19-Oct
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	2.82			-1.53
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	0.4	<	<0.0167
Nitrate	0.0387	0.2	2.366553341	0.0585
Sulphate	0.526	1	1.9133085	0.114
Ammonium (as N)	0.107	0.5	<	<0.0208
Calcium	<0.0833	2	<	<0.0833
Magnesium	<0.0417	1	<	<0.0417
Potassium	<0.00833	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct	19-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24.052	24	24	24	24
Particulate Matter (µg/m3)	9.75	9.38	14.1	3.94	7.32	6.88	8.21	4.50	-1.17
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0190	0.0191	0.0510	0.0206	0.0200	0.0213	0.0176	0.0187	<0.0167
Nitrate	0.106	0.161	0.167	0.0964	0.0781	0.0893	0.110	0.0617	0.0150
Sulphate	0.594	0.554	0.457	0.405	0.429	0.441	0.505	0.263	0.0602
Ammonium (as N)	0.0708	0.0566	0.0829	0.101	0.0667	0.0856	0.114	<0.0208	<0.0208
Calcium	<0.0833	0.127	0.173	<0.0833	0.168	0.128	0.0845	0.0981	<0.0833
Magnesium	<0.0417	<0.0417	0.0468	<0.0417	<0.0416	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0206	0.0248	0.0290	0.0244	0.0370	0.0166	0.0121	<0.00833	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	MDL	Lab Blank	Travel Blank
Station Name			
Sample Date			25-Oct
PM Size(µm)			2.5
Total Air Volume (m3)			24
Particulate Matter (µg/m3)			-2.11
Unit	(µg)	(µg)	(µg/sample)
Chloride	0.4	<	0.0167
Nitrate	0.2	2.366553341	0.0613
Sulphate	1	1.9133085	0.115
Ammonium (as N)	0.5	<	<0.0208
Calcium	2	<	0.257
Magnesium	1	<	<0.0417
Potassium	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct	25-Oct
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24
Particulate Matter (µg/m3)	21.3	5.71	12.4	16.0	4.96	4.83	9.21	-1.22
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0343	0.0171	0.0292	0.0433	<0.0167	0.0447	0.0261	<0.0167
Nitrate	0.0581	0.0478	0.0480	0.0822	0.0407	0.0356	0.104	0.0838
Sulphate	0.334	0.230	0.287	0.626	0.216	0.274	0.448	0.0675
Ammonium (as N)	<0.0208	<0.0208	<0.0207	<0.0208	0.0432	0.0325	0.0749	<0.0208
Calcium	0.646	0.161	0.116	0.326	0.165	0.0915	0.335	0.114
Magnesium	0.201	<0.0417	0.0505	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	<0.00833	<0.00833	<0.00830	<0.00833	<0.00833	0.00964	0.0246	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Athabasca Valley			
Sample Date	31-Oct	31-Oct			31-Oct
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	4.58	13.2			-0.278
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.142	0.161	0.2	2.366553341	0.0206
Sulphate	0.470	1.17	1	1.9133085	0.0437
Ammonium (as N)	0.0772	0.279	0.5	<	<0.0208
Calcium	0.260	0.158	2	<	0.279
Magnesium	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0913	0.0769	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct	31-Oct
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24	24
Particulate Matter (µg/m3)	44.9	24.4	33.1	4.21	53.1	44.9	30.8	60.4	-0.542
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0505	0.0349	0.0615	<0.0167	0.0548	0.0250	0.0304	0.0564	<0.0167
Nitrate	0.386	0.157	0.263	0.0624	0.430	0.160	0.189	0.514	0.0530
Sulphate	0.577	0.622	1.47	0.418	1.13	0.399	0.506	1.42	0.0501
Ammonium (as N)	0.0683	0.0448	0.186	0.0360	0.0773	<0.0208	<0.0208	<0.0208	<0.0208
Calcium	0.730	0.270	0.688	0.114	1.59	0.521	1.34	2.25	0.0999
Magnesium	0.0476	<0.0417	0.0849	<0.0417	0.0823	<0.0417	0.0518	0.0930	<0.0417
Potassium	0.148	0.0632	0.0847	0.0831	0.127	0.0695	0.0545	0.0770	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 6	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes			
Sample Date	6-Nov			6-Nov
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	4.58			-0.309
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	<0.0167	0.4	0	0.0170
Nitrate	0.382	0.2	1.017285955	0.0352
Sulphate	0.625	1	1.77869	0.0763
Ammonium (as N)	0.181	0.5	<	<0.0208
Calcium	0.342	2	<	0.262
Magnesium	<0.0417	1	<	<0.0417
Potassium	0.0591	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 13	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Fort McKay South	Albian Muskeg River	
Sample Date	6-Nov	6-Nov	6-Nov	6-Nov	6-Nov	6-Nov	6-Nov
PM Size(µm)	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24	24	24
Particulate Matter (µg/m3)	43.9	26.8	77.2	63.8	42.5	58.7	-2.55
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0752	0.0556	0.646	0.0187	0.0488	0.0362	<0.0167
Nitrate	0.833	0.564	0.740	0.398	0.849	0.591	0.0680
Sulphate	1.46	0.653	0.736	0.710	1.39	1.89	0.0648
Ammonium (as N)	0.273	0.145	0.231	0.163	0.298	0.345	<0.0208
Calcium	1.31	0.232	0.555	0.307	1.86	1.41	0.213
Magnesium	0.0730	<0.0417	0.0779	<0.0417	0.109	0.0569	<0.0417
Potassium	0.0930	0.0746	0.0899	0.0884	0.0871	0.0880	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Anzac			
Sample Date	12-Nov	12-Nov	12-Nov			12-Nov
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	27.8	16.1	9.00			5.29
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0177	0.0219	<0.0167	0.4	0	<0.0167
Nitrate	2.31	2.03	0.640	0.2	1.017285955	0.0557
Sulphate	1.79	1.30	1.18	1	1.77869	0.0534
Ammonium (as N)	0.862	0.708	0.402	0.5	<	<0.0208
Calcium	<0.0833	0.162	0.219	2	<	0.127
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.267	0.182	0.0888	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	
Sample Date	12-Nov	12-Nov	12-Nov	12-Nov	12-Nov	12-Nov
PM Size(µm)	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24.049	24
Particulate Matter (µg/m3)	75.5	15.1	17.8	13.5	51.1	51.8
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0783	0.0582	0.0570	0.0222	0.0607	<0.0167
Nitrate	2.56	1.78	1.91	0.779	2.04	0.0466
Sulphate	1.91	1.07	1.39	1.20	1.41	0.0650
Ammonium (as N)	0.695	0.604	0.735	0.426	0.490	<0.0208
Calcium	0.430	0.113	0.116	0.332	1.11	<0.0833
Magnesium	0.0438	<0.0417	<0.0415	<0.0417	0.0740	<0.0417
Potassium	0.259	0.156	0.125	0.0932	0.255	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	MDL	Lab Blank	Travel Blank
Station Name			
Sample Date			18-Nov
PM Size(µm)			2.5
Total Air Volume (m3)			24
Particulate Matter (µg/m3)			60.5
Unit	(µg)	(µg)	(µg/sample)
Chloride	0.4	0	<0.0167
Nitrate	0.2	1.017285955	0.0439
Sulphate	1	1.77869	0.0969
Ammonium (as N)	0.5	<	<0.0208
Calcium	2	<	<0.0833
Magnesium	1	<	<0.0417
Potassium	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	
Sample Date	18-Nov	18-Nov	18-Nov	18-Nov	18-Nov	18-Nov
PM Size(µm)	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24.054	24
Particulate Matter (µg/m3)	22.4	6.46	7.75	6.92	5.16	-28.6
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.169	0.0564	0.114	0.0334	0.108	<0.0167
Nitrate	0.140	0.331	0.415	0.193	0.164	0.0395
Sulphate	0.409	0.847	0.711	0.499	0.446	0.0838
Ammonium (as N)	0.0558	0.244	0.192	0.0884	0.103	<0.0208
Calcium	<0.0833	<0.0833	0.0886	<0.0833	<0.0831	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	<0.0416	<0.0417
Potassium	0.0121	0.0251	0.0991	0.0204	0.0160	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley			
Sample Date	24-Nov	24-Nov	24-Nov			24-Nov
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	5.29	3.85	7.13			0.0104
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0737	0.0194	0.0415	0.4	0	0.0190
Nitrate	0.0783	0.0545	0.0648	0.2	1.017285955	0.0166
Sulphate	0.521	0.574	0.328	1	1.77869	0.0494
Ammonium (as N)	0.116	0.130	0.0733	0.5	<	<0.0208
Calcium	<0.0833	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0381	0.0341	0.0185	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov	24-Nov
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.001	24	24	24	24	24
Particulate Matter (µg/m3)	8.25	10.3	9.38	3.62	7.13	6.75	6.29	17.4	0.817
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0230	0.0710	0.209	<0.0167	0.0228	0.0321	0.0252	0.0285	0.0183
Nitrate	0.0877	0.106	0.127	0.0439	0.0636	0.0743	0.0779	0.107	0.0316
Sulphate	0.543	0.652	0.510	0.510	0.725	0.513	0.477	0.670	0.0511
Ammonium (as N)	0.0561	0.166	0.0574	0.132	0.152	0.135	0.0867	0.0866	<0.0208
Calcium	<0.0833	<0.0833	<0.0830	<0.0833	<0.0833	0.118	<0.0833	0.148	<0.0833
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0371	0.0424	0.0362	0.0244	0.0335	0.0401	0.0312	0.0267	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 14	MDL	Lab Blank
Station Name	Anzac		
Sample Date	27-Nov		
PM Size(µm)	2.5		
Total Air Volume (m3)	24		
Particulate Matter (µg/m3)	2.15		
Unit	(µg/m3)	(µg)	(µg)
Chloride	<0.0167	0.4	0
Nitrate	0.0806	0.2	1.017285955
Sulphate	1.03	1	1.77869
Ammonium (as N)	0.239	0.5	<
Calcium	<0.0833	2	<
Magnesium	<0.0417	1	<
Potassium	0.0301	0.2	<
Station #			
Station Name			
Sample Date			
PM Size(µm)			
Total Air Volume (m3)			
Particulate Matter (µg/m3)			
Unit			
Chloride			
Nitrate			
Sulphate			
Ammonium (as N)			
Calcium			
Magnesium			
Potassium			



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date	30-Nov	30-Nov	30-Nov	30-Nov			30-Nov
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24	24			24
Particulate Matter (µg/m3)	9.33	7.29	5.79	5.75			91.9
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0283	0.0187	<0.0167	<0.0167	0.4	<	<0.0167
Nitrate	0.504	0.428	0.304	0.311	0.2	1.773729358	0.0530
Sulphate	1.07	0.394	0.372	0.377	1	1.802263	0.0466
Ammonium (as N)	0.335	0.207	0.148	0.161	0.5	<	<0.0208
Calcium	<0.0833	<0.0833	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.121	0.0761	0.0642	0.0803	0.2	<	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov	30-Nov
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24	24
Particulate Matter (µg/m3)	15.2	6.17	6.56	6.00	12.7	7.88	8.67	15.2	27.2
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0384	0.0527	0.293	<0.0167	0.0181	0.0318	<0.0167	0.0169	<0.0167
Nitrate	0.494	0.487	0.389	0.234	0.573	0.292	0.292	0.572	0.0340
Sulphate	1.10	0.417	0.430	0.464	0.522	0.793	0.805	1.27	0.0651
Ammonium (as N)	0.354	0.198	0.162	0.157	0.232	0.259	0.282	0.417	<0.0208
Calcium	<0.0833	<0.0833	<0.0830	<0.0833	<0.0833	<0.0833	<0.0833	0.0993	<0.0833
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.138	0.0755	0.0863	0.0863	0.119	0.0861	0.0714	0.109	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 6	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Patricia McInnes	Anzac			
Sample Date	6-Dec	6-Dec			6-Dec
PM Size(µm)	2.5	2.5			2.5
Total Air Volume (m3)	24	24			24
Particulate Matter (µg/m3)	4.46	3.58			16.3
Unit	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.403	0.321	0.4	0.6924694	0.0188
Nitrate	0.298	0.304	0.2	1.584025683	0.0478
Sulphate	0.601	0.669	1	1.4470698	0.0496
Ammonium (as N)	0.138	0.166	0.5	<	<0.0208
Calcium	<0.0833	<0.0833	2	<	<0.0833
Magnesium	0.0422	0.0461	1	<	<0.0417
Potassium	0.0442	0.0357	0.2	0.2844422	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec	6-Dec
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24	24	24	24	24	24
Particulate Matter (µg/m3)	14.0	5.58	16.5	4.54	34.7	62.9	31.6	3.00
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.632	0.641	0.927	0.609	0.426	0.765	0.397	0.0267
Nitrate	0.586	0.324	0.493	0.451	0.432	0.281	0.668	0.0419
Sulphate	0.807	0.644	0.770	0.729	0.575	0.683	1.91	0.194
Ammonium (as N)	0.226	0.151	0.202	0.190	0.127	0.125	0.449	<0.0208
Calcium	0.0924	<0.0833	<0.0833	<0.0833	<0.0833	<0.0833	0.152	<0.0833
Magnesium	0.0652	0.0570	0.0521	0.0518	0.0440	0.0557	0.0835	<0.0417
Potassium	0.0915	0.0538	0.0632	0.0490	0.0494	0.0421	0.117	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay			
Sample Date	12-Dec			12-Dec
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	11.2			46.6
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0351	0.4	0.6924694	0.0188
Nitrate	0.315	0.2	1.584025683	0.0731
Sulphate	0.699	1	1.4470698	0.0805
Ammonium (as N)	0.201	0.5	<	<0.0208
Calcium	<0.0833	2	<	0.121
Magnesium	<0.0417	1	<	<0.0417
Potassium	0.0439	0.2	0.2844422	<0.00833

Station #	AMS 1	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec	12-Dec
PM Size(µm)	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	48.1	24	24	24	24	24	24
Particulate Matter (µg/m3)	18.0	25.5	18.3	41.3	15.4	25.8	89.8	-0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.147	0.440	0.380	0.351	0.212	0.119	0.212	0.0275
Nitrate	0.492	0.373	0.265	0.239	0.394	0.358	0.681	0.0814
Sulphate	0.710	0.878	0.893	0.930	0.804	0.931	1.09	0.0679
Ammonium (as N)	0.204	0.209	0.244	0.146	0.218	0.204	0.289	0.0236
Calcium	0.0870	0.131	0.0992	0.174	0.184	0.0836	0.373	0.133
Magnesium	<0.0417	0.0527	<0.0417	0.0546	<0.0417	<0.0417	0.0533	<0.0417
Potassium	0.0488	0.0661	0.0449	0.0379	0.0537	0.0415	0.145	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	MDL	Lab Blank	Travel Blank
Station Name			
Sample Date			18-Dec
PM Size(µm)			2.5
Total Air Volume (m3)			24
Particulate Matter (µg/m3)			0.00
Unit	(µg)	(µg)	(µg/sample)
Chloride	0.4	0.6924694	0.0263
Nitrate	0.2	1.584025683	0.0474
Sulphate	1	1.4470698	0.0514
Ammonium (as N)	0.5	<	<0.0208
Calcium	2	<	<0.0833
Magnesium	1	<	<0.0417
Potassium	0.2	0.2844422	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec	18-Dec
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.009	24	24	24	24	24
Particulate Matter (µg/m3)	52.9	25.8	14.6	7.58	27.2	19.5	12.9	30.7	48.7
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0618	0.101	0.138	0.111	0.113	0.0906	0.0650	0.106	0.0186
Nitrate	0.228	0.218	0.200	0.216	0.312	0.201	0.0972	0.219	0.0395
Sulphate	0.691	0.938	0.675	0.865	0.752	0.605	0.782	0.600	<0.0417
Ammonium (as N)	0.197	0.264	0.173	0.246	0.0751	0.151	0.177	0.171	<0.0208
Calcium	<0.0833	<0.0833	<0.0830	<0.0833	0.130	<0.0833	<0.0833	<0.0833	<0.0833
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	0.0463	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0730	0.0376	0.0312	0.0352	0.0446	0.0314	0.0284	0.0489	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Athabasca Valley			
Sample Date	24-Dec			24-Dec
PM Size(µm)	2.5			2.5
Total Air Volume (m3)	24			24
Particulate Matter (µg/m3)	5.79			23.5
Unit	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0180	0.4	0.6924694	<0.0167
Nitrate	0.590	0.2	1.584025683	0.0462
Sulphate	0.703	1	1.4470698	0.0624
Ammonium (as N)	0.342	0.5	<	<0.0208
Calcium	<0.0833	2	<	<0.0833
Magnesium	<0.0417	1	<	<0.0417
Potassium	0.0529	0.2	0.2844422	0.00902

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec	24-Dec
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24.006	24	24	24	24	24
Particulate Matter (µg/m3)	36.4	27.3	39.8	29.5	10.7	17.9	1.58	14.4	28.2
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0266	0.0455	0.0606	0.0171	0.0238	0.0295	0.0264	0.0196	<0.0167
Nitrate	0.112	0.798	0.654	0.104	0.550	0.0988	0.0889	0.136	0.0692
Sulphate	0.467	0.881	0.831	0.636	0.815	0.465	0.488	0.448	0.0506
Ammonium (as N)	0.141	0.400	0.342	0.219	0.332	0.140	0.147	0.133	<0.0208
Calcium	<0.0833	<0.0833	<0.0830	<0.0833	0.0911	<0.0833	<0.0833	<0.0833	<0.0833
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417
Potassium	0.0304	0.0522	0.0802	0.0379	0.0504	0.0206	0.0242	0.0283	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Ions

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley			
Sample Date	30-Dec	30-Dec	30-Dec			30-Dec
PM Size(µm)	2.5	2.5	2.5			2.5
Total Air Volume (m3)	24	24	24			24
Particulate Matter (µg/m3)	15.0	6.71	4.88			1.75
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg)	(µg)	(µg/sample)
Chloride	0.0219	0.0214	0.0233	0.4	0.6924694	<0.0167
Nitrate	0.433	0.384	0.172	0.2	1.584025683	0.0462
Sulphate	1.55	1.68	1.22	1	1.4470698	0.0486
Ammonium (as N)	0.469	0.522	0.368	0.5	<	<0.0208
Calcium	<0.0833	<0.0833	<0.0833	2	<	<0.0833
Magnesium	<0.0417	<0.0417	<0.0417	1	<	<0.0417
Potassium	0.0688	0.0506	0.0299	0.2	0.2844422	<0.00833

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec	30-Dec
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)	24	24	24.1	24	24	24	24	24	24
Particulate Matter (µg/m3)	12.4	24.5	5.98	64.3	70.4	24.5	13.8	63.2	0.792
Unit	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/sample)
Chloride	0.0461	0.0202	0.0558	0.0249	0.0268	0.0371	0.0534	0.0194	<0.0167
Nitrate	0.625	0.354	0.250	0.578	0.807	0.317	0.573	0.646	0.0395
Sulphate	1.59	1.57	1.22	2.12	2.58	0.979	0.967	2.03	0.0434
Ammonium (as N)	0.471	0.497	0.387	0.530	0.726	0.310	0.282	0.552	<0.0208
Calcium	<0.0833	<0.0833	<0.0830	<0.0833	0.119	<0.0833	<0.0833	0.0863	<0.0833
Magnesium	<0.0417	<0.0417	<0.0415	<0.0417	0.0447	<0.0417	<0.0417	0.0424	<0.0417
Potassium	0.0718	0.101	0.0338	0.0536	0.131	0.0380	0.0378	0.0638	<0.00833



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Particulate Matter - Percentage of Samples Detected > 0

2013
 Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date							
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)							
Particulate Matter (µg/m3)							
Unit					(µg)	(µg)	
Chloride	48.1	46.2	59.6	37.5			25.4
Nitrate	100	100	100	100			100
Sulphate	100	100	100	100			66.1
Ammonium (as N)	98.1	98.1	98.1	97.9			1.7
Calcium	23.1	53.8	59.6	56.3			40.7
Magnesium	3.8	7.7	3.8	4.2			-
Potassium	92.3	98.1	96.2	89.6			16.9

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date									
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)									
Particulate Matter (µg/m3)									
Unit									
Chloride	77	91.5	96.7	69.5	91.5	76.3	70.2	86.4	26.7
Nitrate	100	100	100	98.3	100	100	100	100	100
Sulphate	98.4	100	100	100	100	100	100	100	63.3
Ammonium (as N)	85.2	96.6	95.1	98.3	94.9	94.9	96.5	93.2	1.7
Calcium	59	66.1	82	59.3	88.1	76.3	68.4	88.1	23.3
Magnesium	17	17	34	5	33	12	13	26	0
Potassium	54	58	60	56	57	56	54	56	14



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
 Particulate Matter - Total Times Sampled

2013
 Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac			
Sample Date							
PM Size(µm)	2.5	2.5	2.5	2.5			2.5
Total Air Volume (m3)							
Particulate Matter (µg/m3)							
Unit					(µg)	(µg)	
Chloride	52	52	52	48			59
Nitrate	52	52	52	48			59
Sulphate	52	52	52	48			59
Ammonium (as N)	52	52	52	48			59
Calcium	52	52	52	48			59
Magnesium	52	52	52	48			59
Potassium	52	52	52	48			59

Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date									
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)									
Particulate Matter (µg/m3)									
Unit									
Chloride	61	59	61	59	59	59	57	59	60
Nitrate	61	59	61	59	59	59	57	59	60
Sulphate	61	59	61	59	59	59	57	59	60
Ammonium (as N)	61	59	61	59	59	59	57	59	60
Calcium	61	59	61	59	59	59	57	59	60
Magnesium	61	59	61	59	59	59	57	59	60
Potassium	61	59	61	59	59	59	57	59	60



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
Particulate Matter - Yearly Average

2013
Indicated Sites and Dates

Station #	AMS 1	AMS 6	AMS 7	AMS 14	MDL	Lab Blank	Travel Blank		
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac					
Sample Date									
PM Size(µm)	2.5	2.5	2.5	2.5				2.5	
Total Air Volume (m3)									
Particulate Matter (µg/m3)									
Unit					(µg)	(µg)			
Chloride	0.0176	0.025	0.0276	0.0165				0.0351	
Nitrate	0.1966	0.2182	0.2042	0.1165				0.1471	
Sulphate	1.1124	1.1308	1.1308	0.8625				0.1421	
Ammonium (as N)	0.3229	0.3341	0.3126	0.2396				0.0004	
Calcium	0.043	0.0928	0.1081	0.0839				0.1028	
Magnesium	0.0018	0.003	0.002	0.002				0	
Potassium	0.0457	0.041	0.0417	0.0334				0.0148	

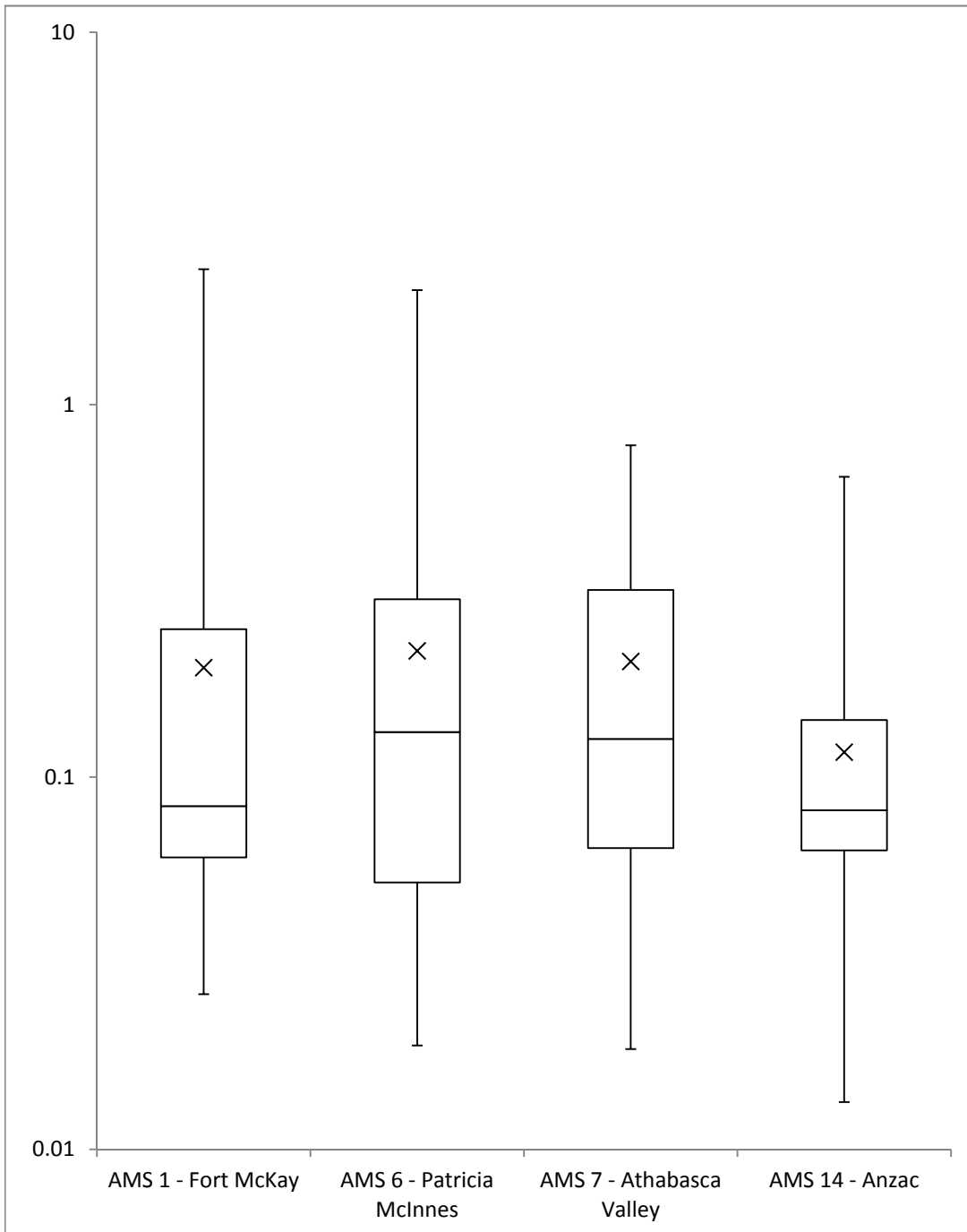
Station #	AMS 1	AMS 6	AMS 7	AMS 14	AMS 12	AMS 13	AMS 15	AMS 16	Travel Blank
Station Name	Fort McKay	Patricia McInnes	Athabasca Valley	Anzac	Millenium	Fort McKay South	CNRL Horizon	Albian Muskeg River	
Sample Date									
PM Size(µm)	10	10	10	10	10	10	10	10	10
Total Air Volume (m3)									
Particulate Matter (µg/m3)									
Unit									
Chloride	0.0619	0.1199	0.401	0.0454	0.0686	0.0596	0.0527	0.0677	0.0208
Nitrate	0.3458	0.3088	0.3704	0.1691	0.312	0.2272	0.2563	0.2756	0.1375
Sulphate	1.1191	1.1342	1.1302	0.8814	1.1964	1.0371	1.0604	1.1338	0.0964
Ammonium (as N)	0.29	0.3088	0.296	0.2347	0.2718	0.2735	0.2772	0.2707	0.0004
Calcium	0.2432	0.2172	0.2957	0.0998	0.668	0.2729	0.2361	0.5567	0.0302
Magnesium	1.1737	1.1646	2.1341	0.2992	2.4122	0.6915	0.7833	1.9682	0
Potassium	3.37141	2.788	4.1686	2.48348	3.5068	2.4852	2.2268	2.6202	1.32719



Station	Chloride PM 2.5						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0222	0.1470	0.0176		
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0225	0.4030	0.0250		
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0181	0.0344	0.2630	0.0276		
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0190	0.3210	0.0165		

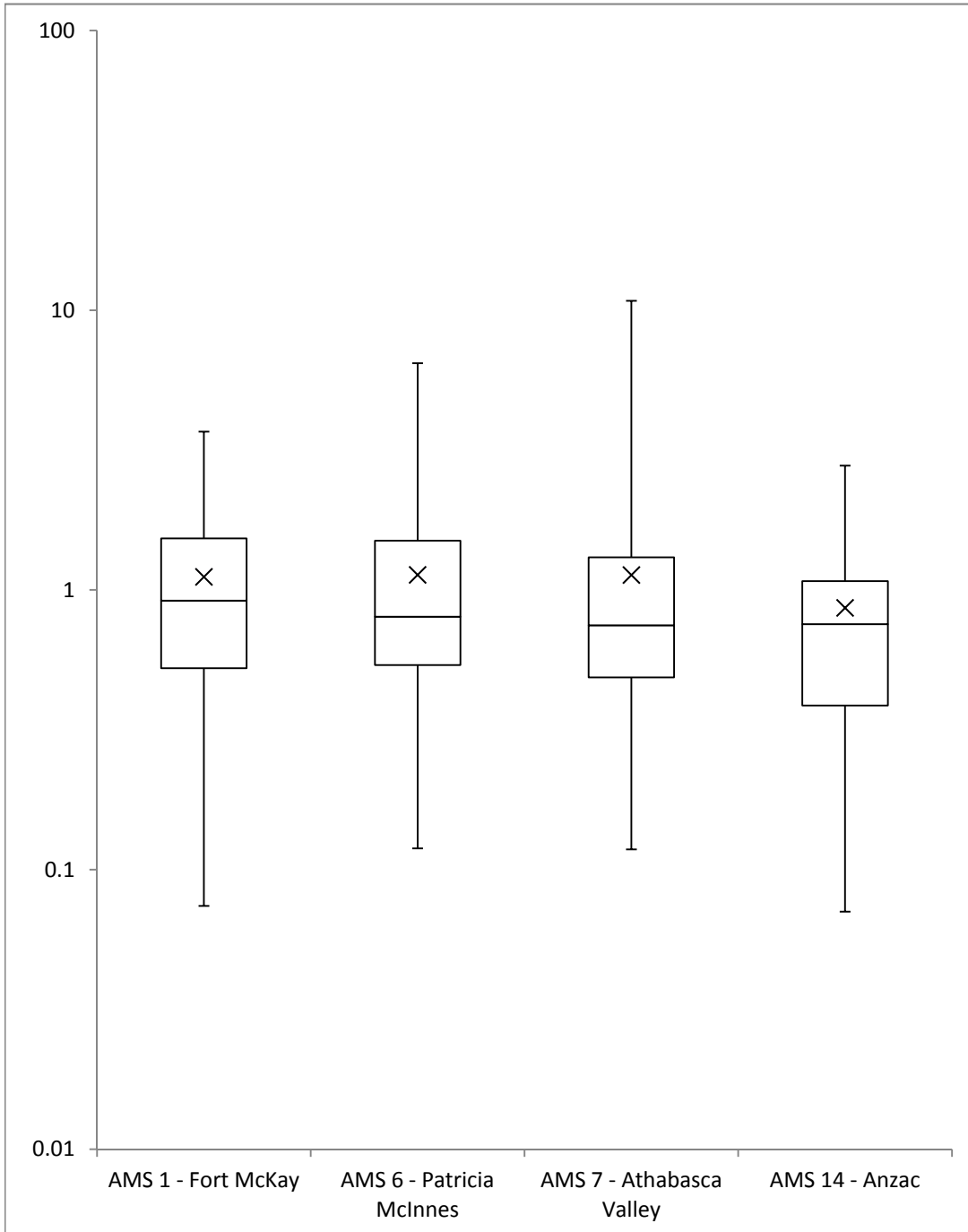


Station	Nitrate PM 2.5 Results ($\mu\text{g}/\text{m}^3$)					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0261	0.0608	0.0835	0.2495	2.3100	0.1966
AMS 6 - Patricia McInnes	0.0190	0.0521	0.1320	0.3002	2.0300	0.2182
AMS 7 - Athabasca Valley	0.0186	0.0644	0.1265	0.3180	0.7780	0.2042
AMS 14 - Anzac	0.0134	0.0635	0.0814	0.1423	0.6400	0.1165



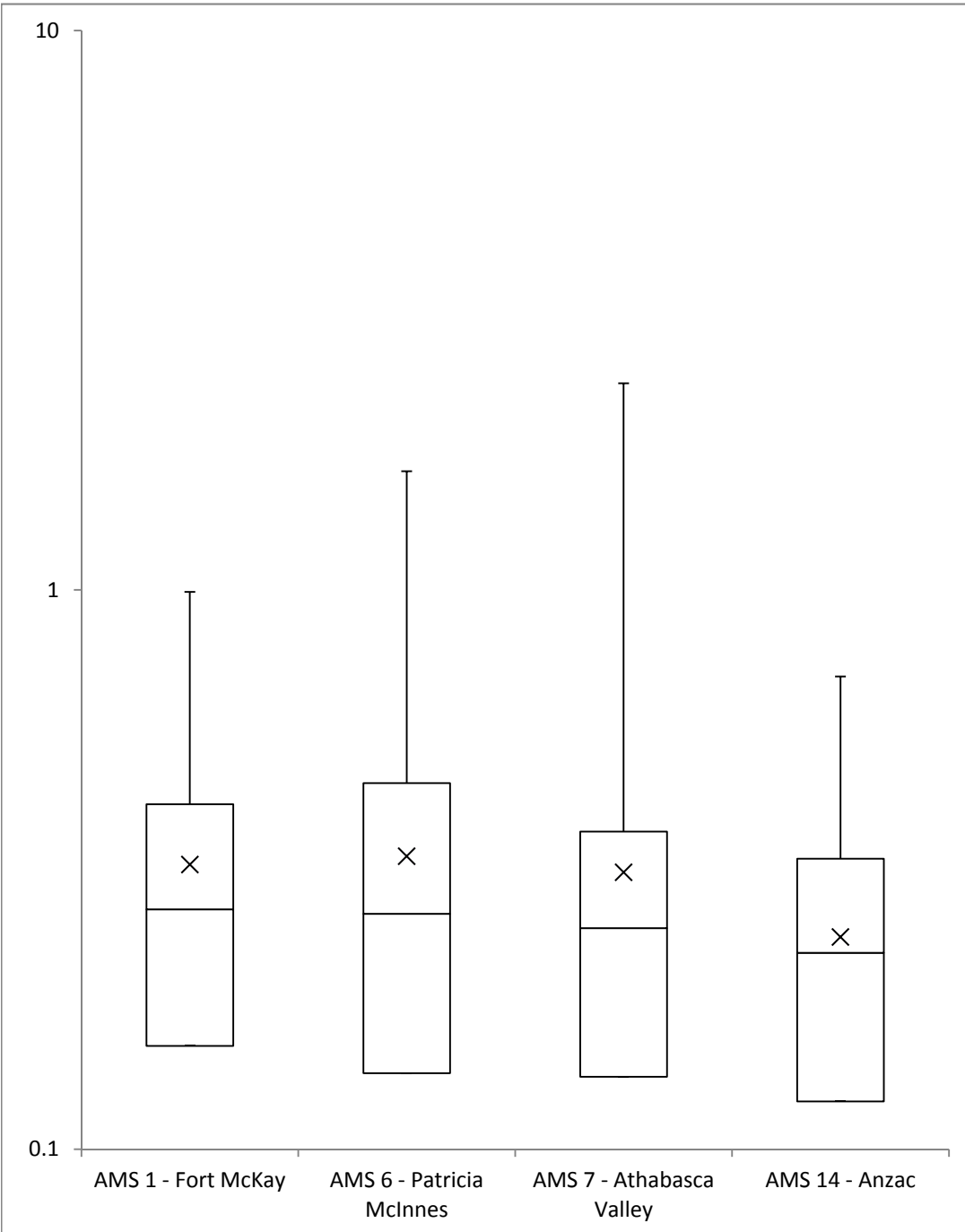


Station	Sulphate PM 2.5						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0741	0.5247	0.9150	1.5275	3.6800	1.1124	
AMS 6 - Patricia McInnes	0.1190	0.5385	0.8015	1.5000	6.4600	1.1308	
AMS 7 - Athabasca Valley	0.1180	0.4868	0.7470	1.3075	10.8000	1.1308	
AMS 14 - Anzac	0.0707	0.3860	0.7540	1.0750	2.7800	0.8625	





Ammonium (as N) PM 2.5						Results (µg/m3)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.1530	0.2685	0.4137	0.9920	0.3229
AMS 6 - Patricia McInnes	0.0000	0.1367	0.2635	0.4513	1.6300	0.3341
AMS 7 - Athabasca Valley	0.0000	0.1348	0.2485	0.3697	2.3400	0.3126
AMS 14 - Anzac	0.0000	0.1217	0.2245	0.3307	0.7000	0.2396





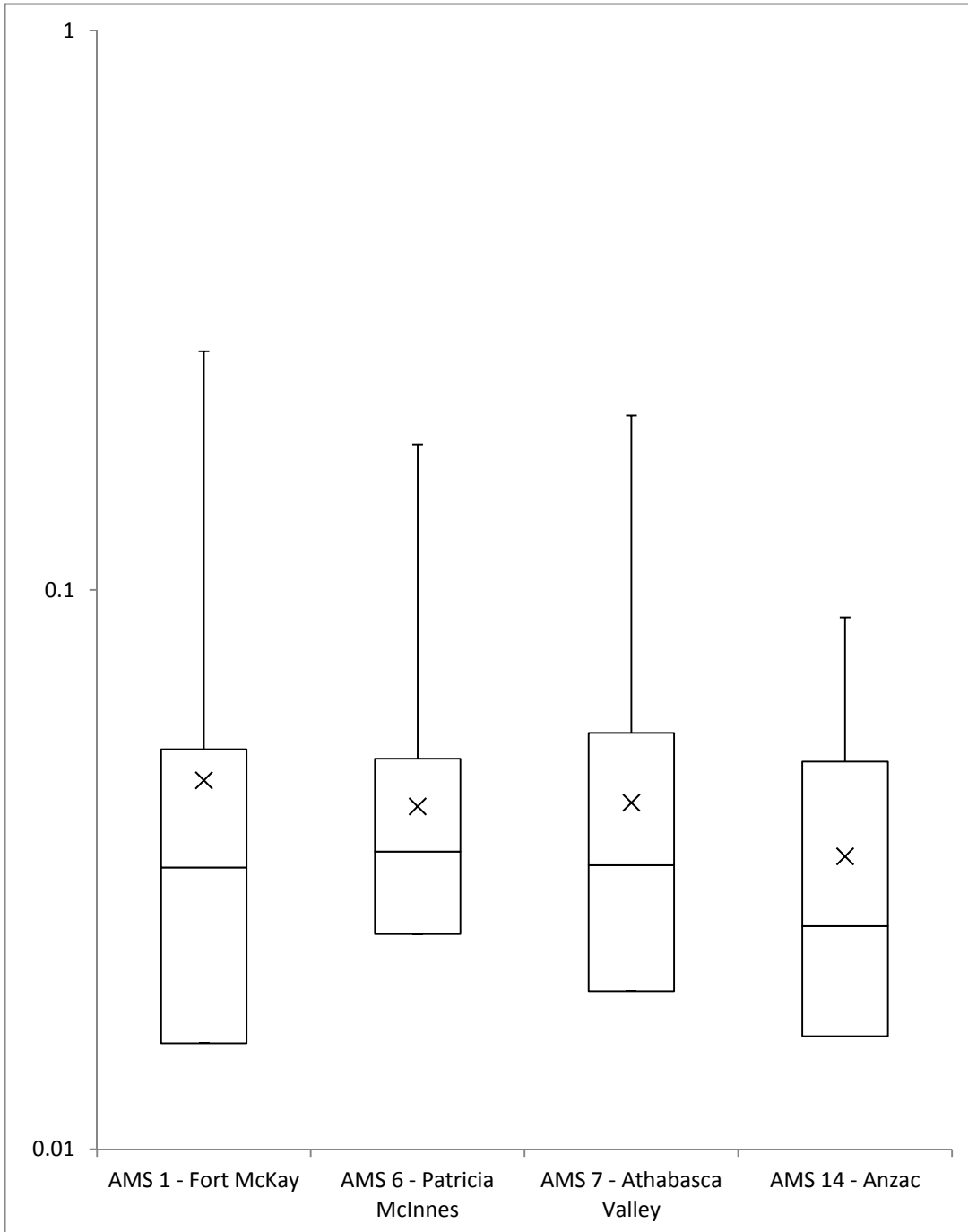
Calcium PM 2.5					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.3870	0.0430
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0725	0.1673	0.3420	0.0928
AMS 7 - Athabasca Valley	0.0000	0.0000	0.1075	0.1903	0.3990	0.1081
AMS 14 - Anzac	0.0000	0.0000	0.0913	0.1452	0.2970	0.0839



Station	Magnesium PM 2.5					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0000	0.0513	0.0018
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0000	0.0551	0.0030
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0000	0.0000	0.0596	0.0020
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0515	0.0020

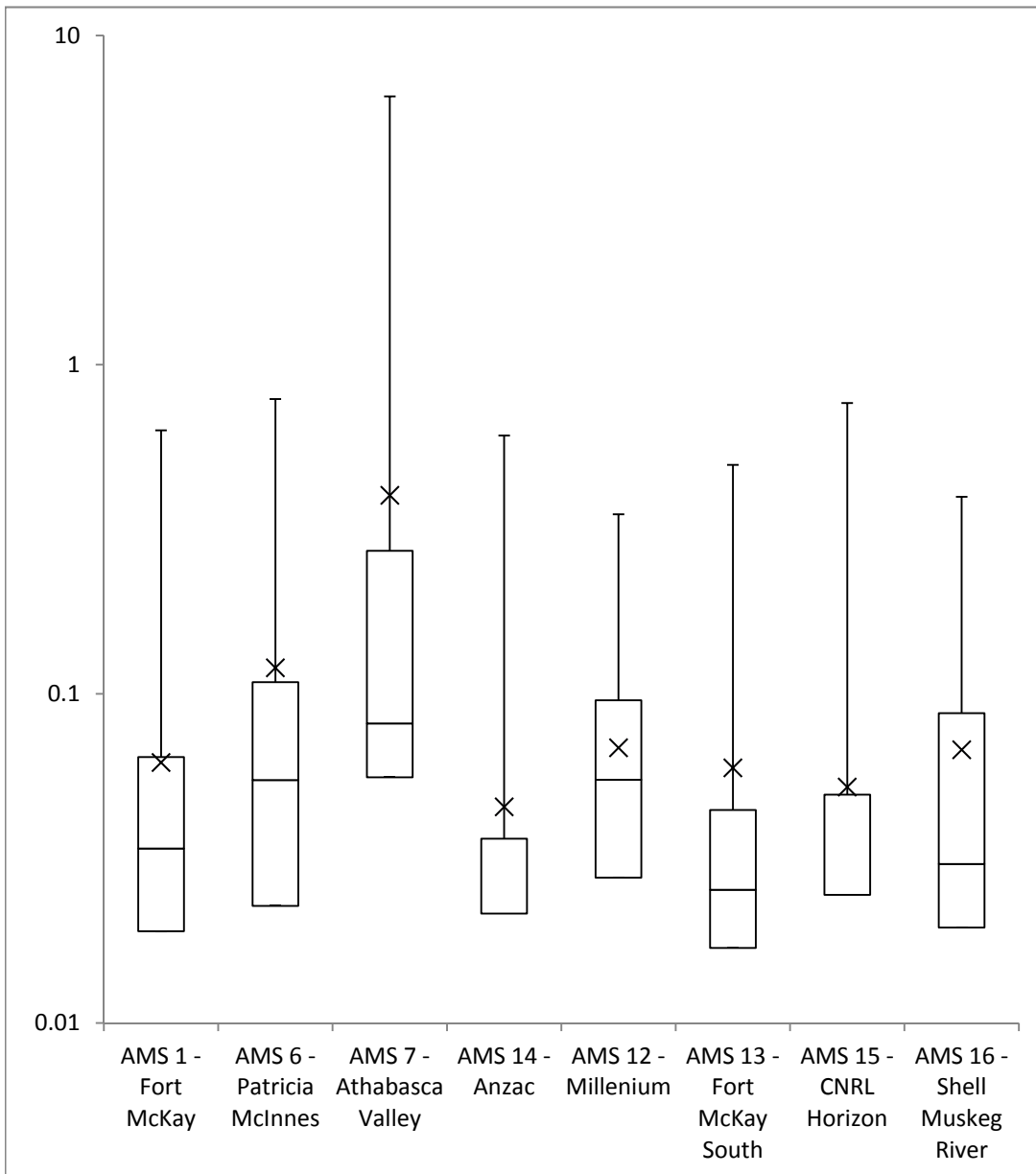


Station	Potassium PM 2.5 Results ($\mu\text{g}/\text{m}^3$)					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0155	0.0319	0.0519	0.2670	0.0457
AMS 6 - Patricia McInnes	0.0000	0.0242	0.0341	0.0499	0.1820	0.0410
AMS 7 - Athabasca Valley	0.0000	0.0192	0.0322	0.0555	0.2050	0.0417
AMS 14 - Anzac	0.0000	0.0159	0.0250	0.0493	0.0893	0.0334



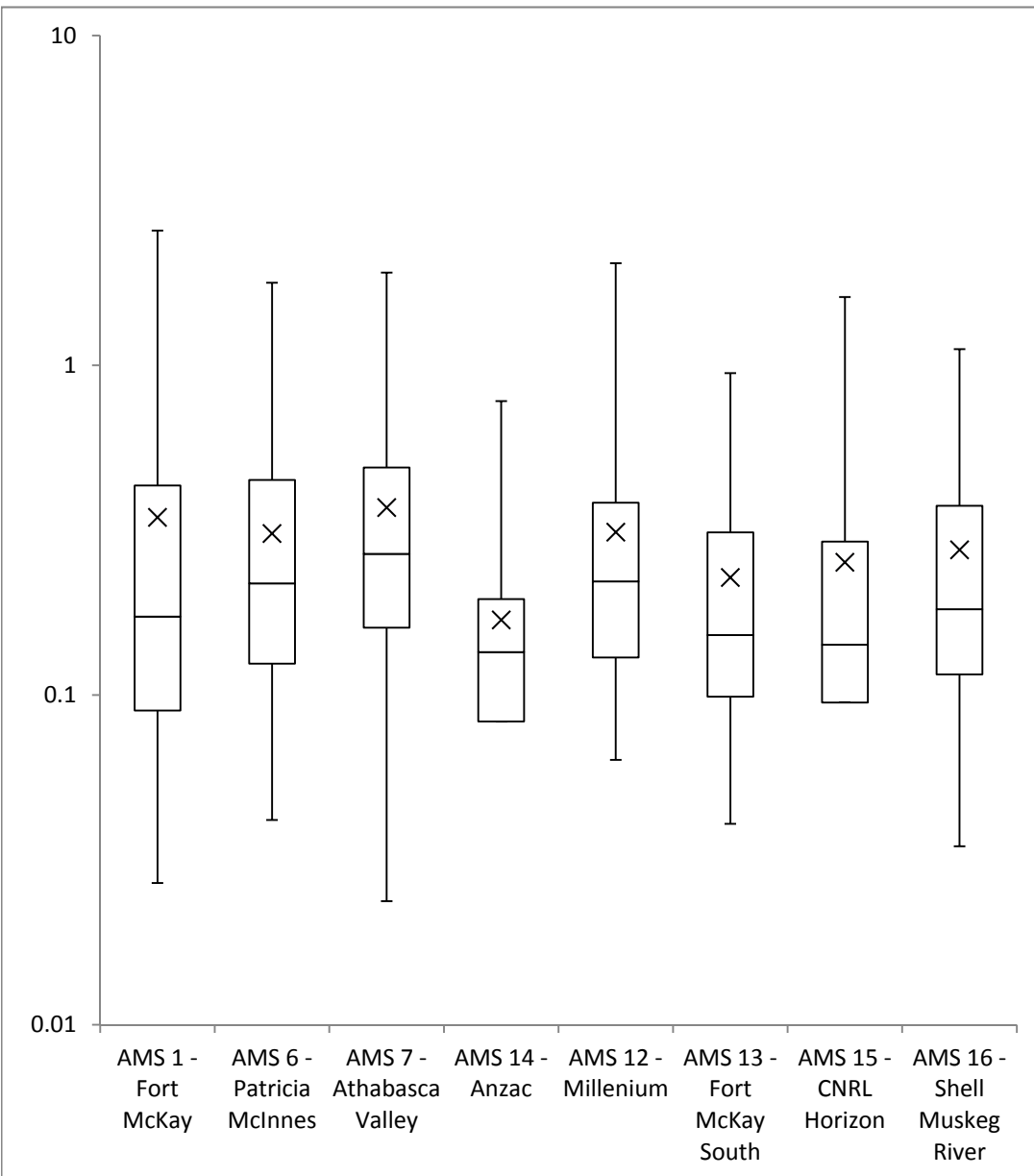


Station	Chloride PM 10						Results (µg/m3)	
	Minimum	Q1	Median	Q3	Maximum	Average		
AMS 1 - Fort McKay	0.0000	0.0190	0.0339	0.0643	0.6320	0.0619		
AMS 6 - Patricia McInnes	0.0000	0.0227	0.0547	0.1085	0.7860	0.1199		
AMS 7 - Athabasca Valley	0.0000	0.0558	0.0813	0.2720	6.5300	0.4010		
AMS 14 - Anzac	0.0000	0.0000	0.0215	0.0363	0.6090	0.0454		
AMS 12 - Millenium	0.0000	0.0276	0.0548	0.0957	0.3510	0.0686		
AMS 13 - Fort McKay South	0.0000	0.0169	0.0254	0.0444	0.4960	0.0596		
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0245	0.0494	0.7650	0.0521		
AMS 16 - Shell Muskeg River	0.0000	0.0195	0.0304	0.0874	0.3970	0.0677		



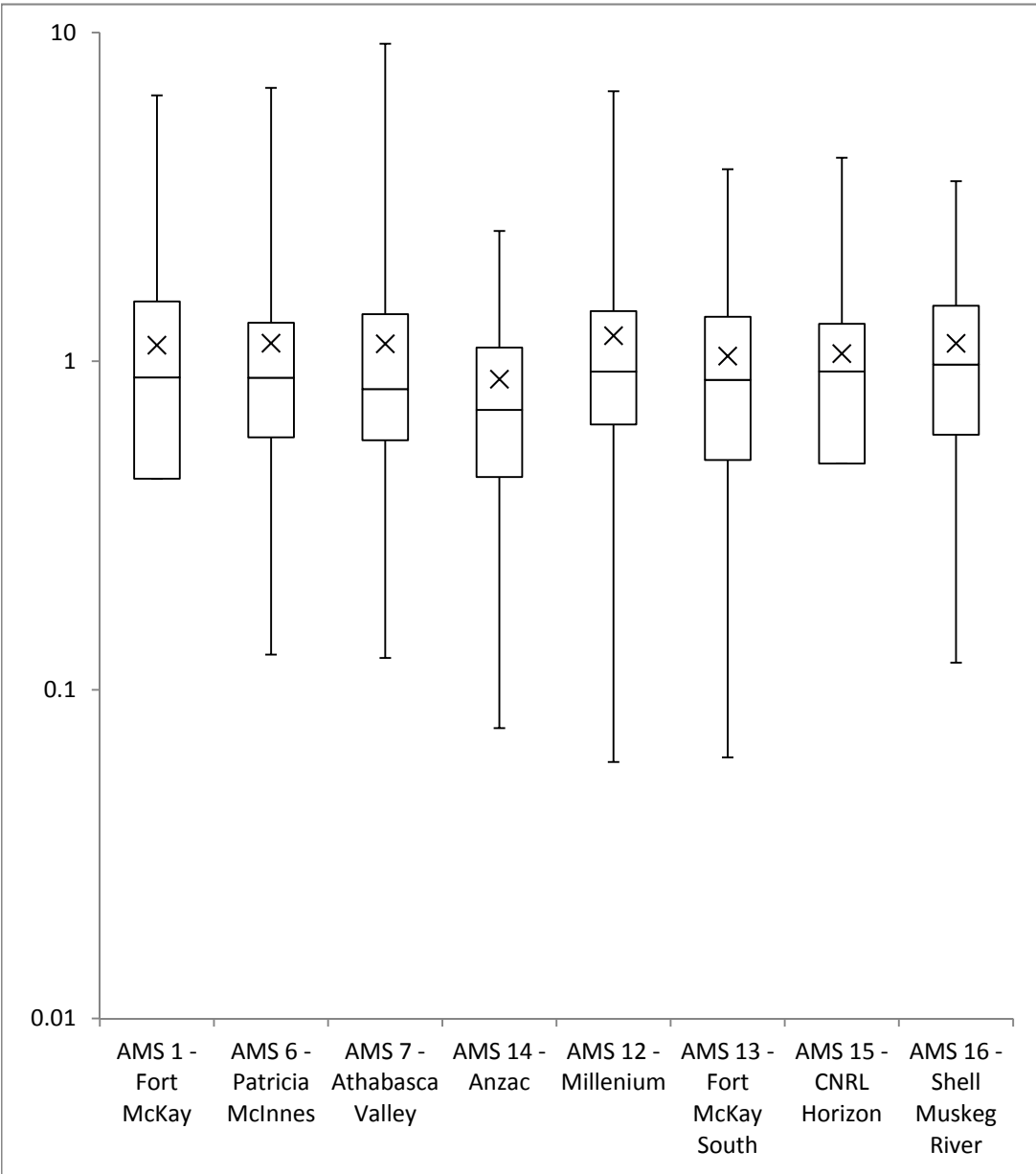


Station	Nitrate PM 10 Results ($\mu\text{g}/\text{m}^3$)					
	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0269	0.0897	0.1730	0.4320	2.5600	0.3458
AMS 6 - Patricia McInnes	0.0418	0.1245	0.2180	0.4490	1.7800	0.3088
AMS 7 - Athabasca Valley	0.0237	0.1600	0.2680	0.4900	1.9100	0.3704
AMS 14 - Anzac	0.0000	0.0831	0.1350	0.1955	0.7790	0.1691
AMS 12 - Millenium	0.0636	0.1300	0.2210	0.3830	2.0400	0.3120
AMS 13 - Fort McKay South	0.0407	0.0988	0.1520	0.3115	0.9470	0.2272
AMS 15 - CNRL Horizon	0.0000	0.0949	0.1420	0.2920	1.6100	0.2526
AMS 16 - Shell Muskeg River	0.0348	0.1155	0.1820	0.3750	1.1200	0.2756



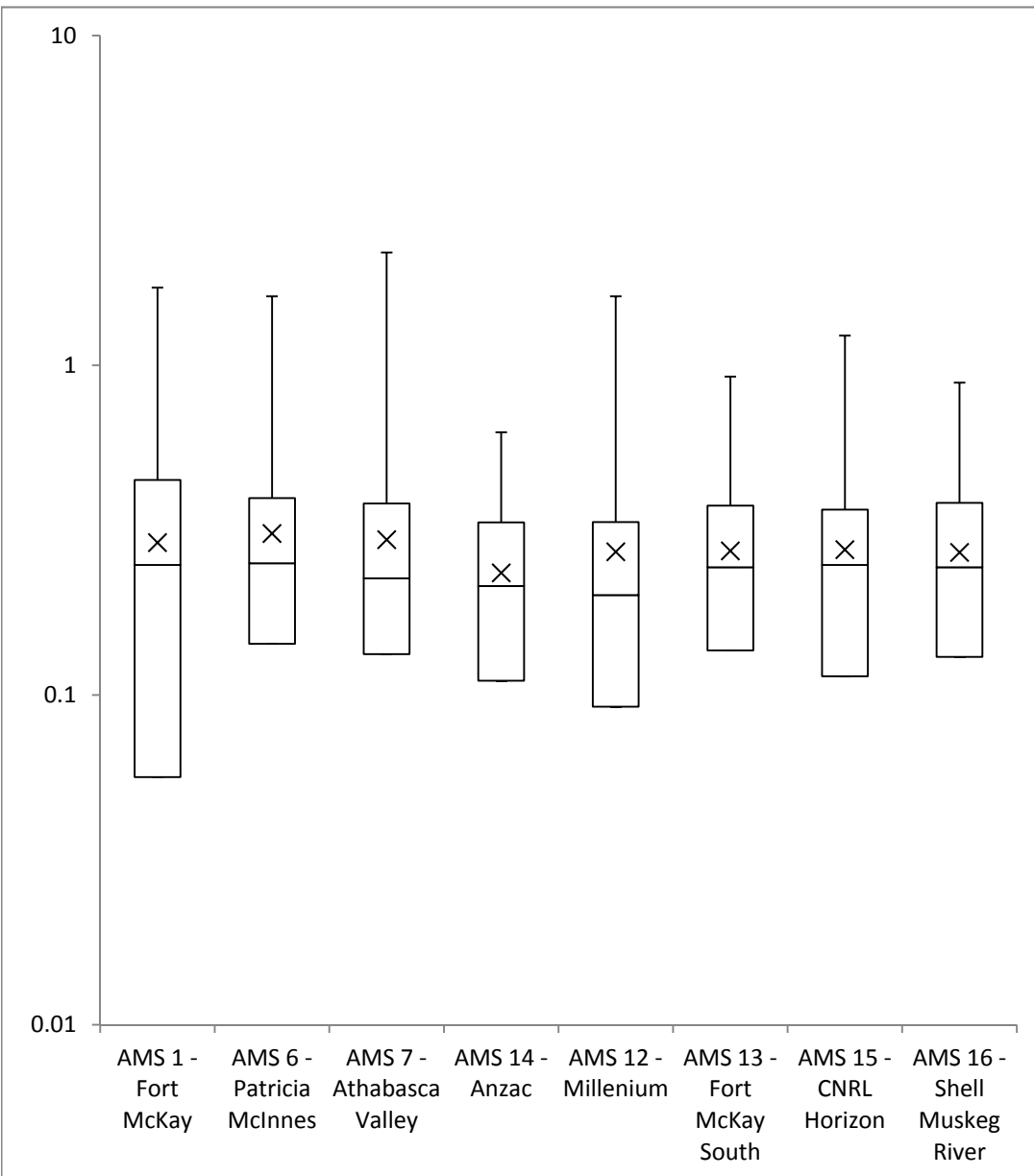


Station	Sulphate PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.4390	0.8930	1.5200	6.4400	1.1191	
AMS 6 - Patricia McInnes	0.1280	0.5865	0.8910	1.3100	6.7900	1.1342	
AMS 7 - Athabasca Valley	0.1250	0.5750	0.8230	1.3900	9.2500	1.1302	
AMS 14 - Anzac	0.0765	0.4440	0.7110	1.1000	2.4900	0.8814	
AMS 12 - Millenium	0.0603	0.6420	0.9300	1.4200	6.6300	1.1964	
AMS 13 - Fort McKay South	0.0623	0.5005	0.8770	1.3650	3.8400	1.0371	
AMS 15 - CNRL Horizon	0.0000	0.4880	0.9310	1.3000	4.1600	1.0543	
AMS 16 - Shell Muskeg River	0.1210	0.5975	0.9770	1.4750	3.5300	1.1338	



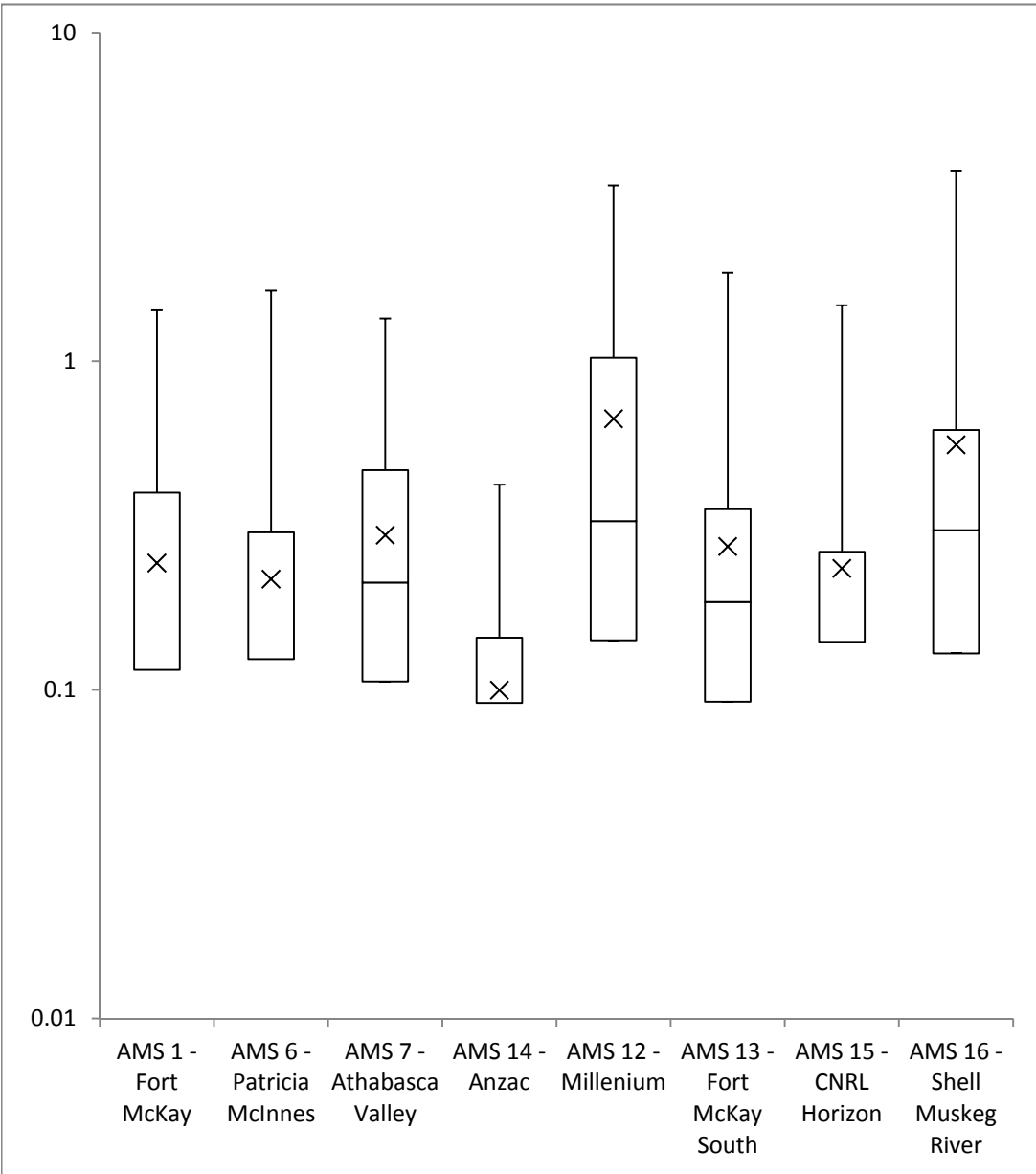


Ammonium (as N) PM 10						Results (µg/m3)
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0564	0.2480	0.4490	1.7200	0.2900
AMS 6 - Patricia McInnes	0.0000	0.1430	0.2510	0.3955	1.6200	0.3088
AMS 7 - Athabasca Valley	0.0000	0.1330	0.2260	0.3810	2.2000	0.2960
AMS 14 - Anzac	0.0000	0.1105	0.2140	0.3340	0.6260	0.2347
AMS 12 - Millenium	0.0000	0.0922	0.2010	0.3345	1.6200	0.2718
AMS 13 - Fort McKay South	0.0000	0.1365	0.2440	0.3755	0.9240	0.2735
AMS 15 - CNRL Horizon	0.0000	0.1140	0.2480	0.3650	1.2300	0.2759
AMS 16 - Shell Muskeg River	0.0000	0.1305	0.2440	0.3825	0.8860	0.2707





Station	Calcium PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0000	0.1150	0.3980	1.4300	0.2432	
AMS 6 - Patricia McInnes	0.0000	0.0000	0.1240	0.3015	1.6400	0.2172	
AMS 7 - Athabasca Valley	0.0000	0.1060	0.2120	0.4660	1.3500	0.2957	
AMS 14 - Anzac	0.0000	0.0000	0.0912	0.1440	0.4210	0.0998	
AMS 12 - Millenium	0.0000	0.1415	0.3260	1.0245	3.4300	0.6680	
AMS 13 - Fort McKay South	0.0000	0.0920	0.1850	0.3545	1.8600	0.2729	
AMS 15 - CNRL Horizon	0.0000	0.0000	0.1400	0.2630	1.4800	0.2341	
AMS 16 - Shell Muskeg River	0.0000	0.1290	0.3060	0.6175	3.7800	0.5567	

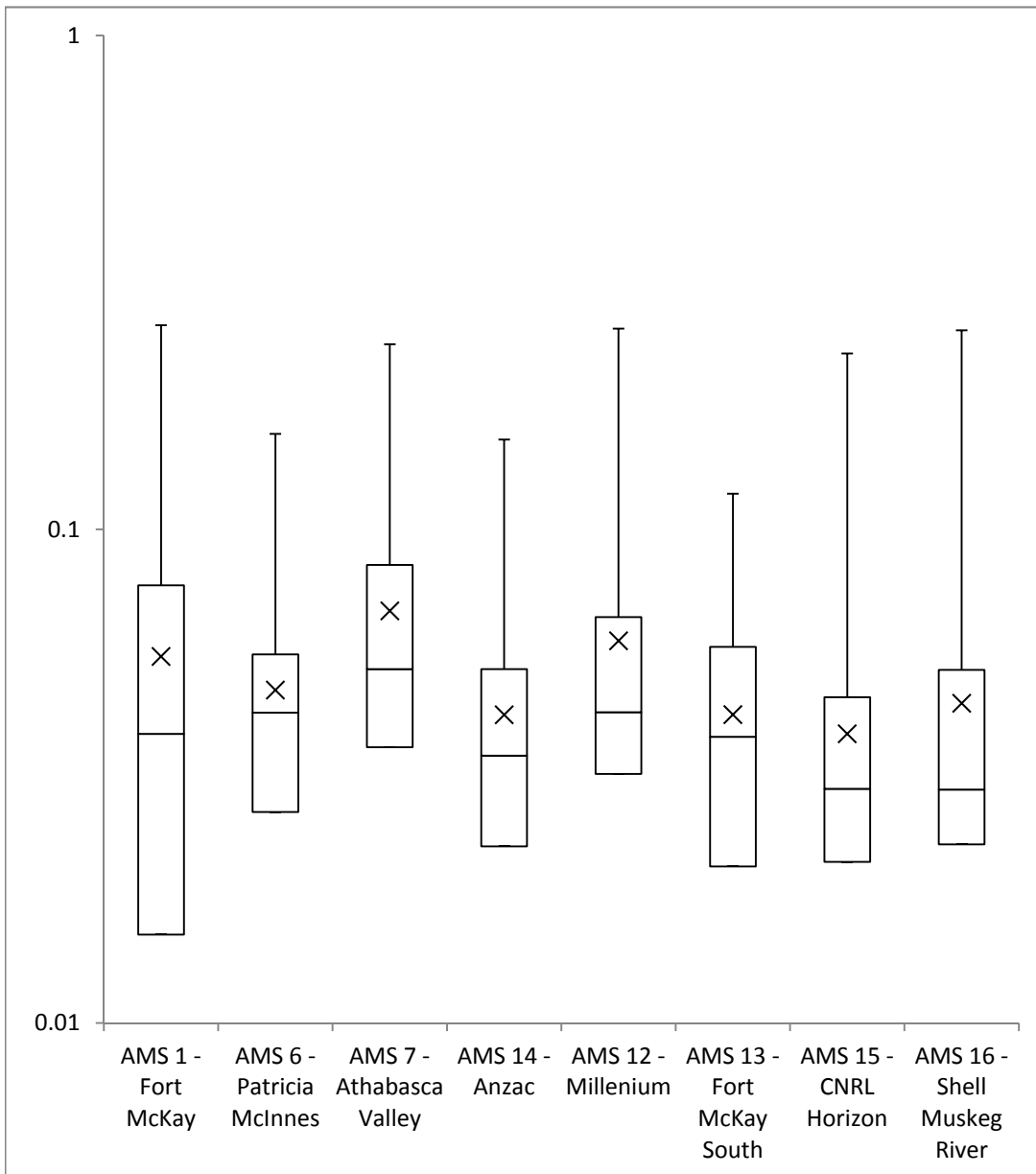




Magnesium PM 10					Results (µg/m3)	
Station	Minimum	Q1	Median	Q3	Maximum	Average
AMS 1 - Fort McKay	0.0000	0.0000	0.0000	0.0438	0.2010	0.0192
AMS 6 - Patricia McInnes	0.0000	0.0000	0.0000	0.0299	0.2180	0.0197
AMS 7 - Athabasca Valley	0.0000	0.0000	0.0468	0.0615	0.0896	0.0350
AMS 14 - Anzac	0.0000	0.0000	0.0000	0.0000	0.0883	0.0051
AMS 12 - Millenium	0.0000	0.0000	0.0463	0.0744	0.1580	0.0409
AMS 13 - Fort McKay South	0.0000	0.0000	0.0000	0.0000	0.1090	0.0117
AMS 15 - CNRL Horizon	0.0000	0.0000	0.0000	0.0000	0.0912	0.0137
AMS 16 - Shell Muskeg River	0.0000	0.0000	0.0000	0.0594	0.1450	0.0334



Station	Potassium PM 10						Results (µg/m3)
	Minimum	Q1	Median	Q3	Maximum	Average	
AMS 1 - Fort McKay	0.0000	0.0151	0.0385	0.0770	0.2590	0.0553	
AMS 6 - Patricia McInnes	0.0000	0.0268	0.0425	0.0558	0.1560	0.0473	
AMS 7 - Athabasca Valley	0.0000	0.0362	0.0521	0.0847	0.2370	0.0683	
AMS 14 - Anzac	0.0000	0.0228	0.0348	0.0521	0.1520	0.0421	
AMS 12 - Millenium	0.0000	0.0320	0.0426	0.0664	0.2550	0.0594	
AMS 13 - Fort McKay South	0.0000	0.0208	0.0380	0.0578	0.1180	0.0421	
AMS 15 - CNRL Horizon	0.0000	0.0212	0.0298	0.0457	0.2270	0.0385	
AMS 16 - Shell Muskeg River	0.0000	0.0230	0.0297	0.0519	0.2530	0.0444	



This page intentionally left blank

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

INTEGRATED MONITORING PROGRAM ANNUAL REPORT

DATA SUMMARY 2013

Prepared
February 18, 2014

SAMPLE COLLECTION

Wood Buffalo Environmental Association
Fort McMurray, Alberta

LABORATORY ANALYSIS

Precipitation Chemistry: Alberta Innovates - Technology Futures
Vegreville, Alberta

DATA SUMMARY

Aurora Atmospheric Inc.
Calgary, Alberta

This page intentionally left blank



Sample	Station	Year	Sample Start Date	Start Time	Sample End Date	End Time	Catch of Collector (ml)	pH (pH units)	Sulphate (mg/L)	Nitrate (mg/L)	Ammonium (mg/L)	Chloride (mg/L)	Ortho Phosphate (mg/L)	Sodium (mg/L)	Comments
Sample	Station	Year					65302	65322	65321	65318	65316	65390	65311		
PR-2013061	Bertha Ganter	2013	16/Jan/2013	1:55 PM	31/Jan/2013	1:55 PM	157.63	5.62	0.329 V	0.929 V	0.014 V	0.184 V	0.000 L	0.12 V	Trace particle contamination
PR-2013175	Bertha Ganter	2013	31/Jan/2013	3:14 PM	06/Feb/2013	3:14 PM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013097	Bertha Ganter	2013	06/Feb/2013	12:00 PM	13/Feb/2013	12:00 PM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry Week
PR-2013176	Bertha Ganter	2013	13/Feb/2013	12:00 PM	20/Feb/2013	12:00 PM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013096	Bertha Ganter	2013	20/Feb/2013	3:00 PM	27/Feb/2013	3:00 PM	418.22	6.541	0.661 V	1.178 V	0.067 V	0.412 V	0.000 L	0.256 V	Trace particle contamination
PR-2013129	Bertha Ganter	2013	27/Feb/2013	10:00 AM	06/Mar/2013	10:00 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013131	Bertha Ganter	2013	06/Mar/2013	9:00 AM	13/Mar/2013	9:00 AM	72.39	7.61	0.922 V	0.899 V	0.006 L	0.127 V	0.000 L	0.103 V	moderate particle contamination
PR-2013132	Bertha Ganter	2013	13/Mar/2013	9:00 AM	20/Mar/2013	9:00 AM	28.9	6.67	3.055 V	0.805 V	0.076 V	0.374 V	0.000 L	0.227 V	Trace particle/ fiber contamination
PR-2013158	Bertha Ganter	2013	20/Mar/2013	10:00 AM	27/Mar/2013	10:00 AM	153.72	6.675	0.459 V	1.426 V	0.263 V	0.519 V	0.231 V	0.261 V	Trace fiber contamination
PR-2013159	Bertha Ganter	2013	27/Mar/2013	10:00 AM	03/Apr/2013	10:00 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013204	Bertha Ganter	2013	18/Apr/2013	1:33 PM	24/Apr/2013	1:33 PM	106.38	6.832	0.868 V	1.136 V	0.254 V	1.15 V	0.000 L	0.736 V	Trace particle contamination
PR-2013206	Bertha Ganter	2013	10/Apr/2013	3:07 PM	18/Apr/2013	3:07 PM	53.53	7.46	4.179 V	1.063 V	0.981 V	1.339 V	0.000 L	0.909 V	Moderate particle contamination
PR-2013230	Bertha Ganter	2013	24/Apr/2013	10:00 AM	01/May/2013	10:00 AM	540.36	6.343	0.446 V	0.386 V	0.038 V	0.103 V	0.000 L	0.063 V	
PR-2013231	Bertha Ganter	2013	01/May/2013	10:00 AM	08/May/2013	10:00 AM	58.51	6.799	2.462 V	2.401 V	0.381 V	1.152 V	0.000 L	0.7 V	Trace particle contamination
PR-2013244	Bertha Ganter	2013	08/May/2013	9:00 AM	16/May/2013	9:00 AM	103.7	7.031	0.583 V	0.439 V	0.128 V	0.231 V	0.062 V	0.141 V	
PR-2013270	Bertha Ganter	2013	16/May/2013	10:00 AM	22/May/2013	10:00 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013271	Bertha Ganter	2013	22/May/2013	9:00 AM	29/May/2013	9:00 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry Week
PR-2013286	Bertha Ganter	2013	29/May/2013	9:00 AM	06/Jun/2013	9:00 AM	836.7	4.989	2.27 V	1.096 V	0.061 V	0.139 V	0.000 L	0.041 V	Gross particle contamination
PR-2013293	Bertha Ganter	2013	06/Jun/2013	10:00 AM	12/Jun/2013	10:00 AM	1022.5	5.31	0.237 V	0.172 V	0.004 L	0.036 V	0.000 L	0.014 V	Trace particle contamination
PR-2013318	Bertha Ganter	2013	12/Jun/2013	12:00 PM	19/Jun/2013	12:00 PM	854.74	5.54	0.293 V	0.22 V	0.007 L	0.081 V	0.000 L	0.042 V	Trace particle contamination
PR-2013328	Bertha Ganter	2013	19/Jun/2013	1:00 PM	26/Jun/2013	1:00 PM	409.68	6.13	1.566 V	0.749 V	0.102 V	0.108 V	0.000 L	0.052 V	Moderate particle contamination
PR-2013341	Bertha Ganter	2013	26/Jun/2013	10:30 AM	03/Jul/2013	10:30 AM	84.7	5.47	2.008 V	0.844 V	0.07 V	0.713 V	0.043 V	0.355 V	Moderate particle contamination
PR-2013356	Bertha Ganter	2013	03/Jul/2013	9:00 AM	10/Jul/2013	9:00 AM	568.92	5.27	0.702 V	0.605 V	0.14 V	0.177 V	0.069 V	0.041 V	Insects in sample
PR-2013362	Bertha Ganter	2013	10/Jul/2013	9:00 AM	17/Jul/2013	9:00 AM	362.27	4.69	2.096 V	0.432 V	0.285 V	0.067 V	0.000 L	0.021 V	Trace particle contamination
PR-2013373	Bertha Ganter	2013	17/Jul/2013	2:00 PM	24/Jul/2013	2:00 PM	183.48	4.63	2.626 V	0.71 V	0.027 V	0.768 V	0.000 L	0.464 V	Trace particle contamination
PR-2013396	Bertha Ganter	2013	24/Jul/2013	12:00 AM	31/Jul/2013	12:00 AM	654.6	5.84	0.926 V	0.37 V	0.149 V	0.134 V	0.070 V	0.056 V	Trace particle contamination
PR-2013411	Bertha Ganter	2013	31/Jul/2013	11:35 AM	07/Aug/2013	11:35 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013412	Bertha Ganter	2013	07/Aug/2013	9:00 AM	14/Aug/2013	9:00 AM	335.59	6.67	0.861 V	0.575 V	0.779 V	0.436 V	0.128 V	0.17 V	Moderate particle contamination
PR-2013432	Bertha Ganter	2013	14/Aug/2013	9:00 AM	21/Aug/2013	9:00 AM	190.32	6.82	1.596 V	1.008 V	0.258 V	0.905 V	0.000 L	0.574 V	Trace particle contamination
PR-2013444	Bertha Ganter	2013	21/Aug/2013	12:00 AM	28/Aug/2013	12:00 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2013454	Bertha Ganter	2013	28/Aug/2013	9:30 AM	04/Sep/2013	9:30 AM	180.63	6.49	1.138 V	0.579 V	0.04 V	0.287 V	0.000 L	0.133 V	Moderate particle contamination
PR-2013480	Bertha Ganter	2013	04/Sep/2013	8:10 AM	09/Sep/2013	8:10 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry Week
PR-2013481	Bertha Ganter	2013	11/Sep/2013	9:50 AM	18/Sep/2013	9:50 AM	381	6.69	0.924 V	0.637 V	0.316 V	0.088 V	0.000 L	0.069 V	
PR-2014003	Bertha Ganter	2013	27/Nov/2013	12:35 PM	04/Dec/2013	12:35 PM	80	7.43	0.955 V	1.245 V	0.038 V	0.876 V	0.000 L	0.554 V	
PR-2014005	Bertha Ganter	2013	04/Dec/2013	10:40 AM	11/Dec/2013	10:40 AM		0	0 I	0 I	0 I	0 I	0.000 I	0 I	Dry week
PR-2014001	Bertha Ganter	2013	11/Dec/2013	2:00 PM	18/Dec/2013	2:00 PM	97	7.36	0.566 V	1.05 V	0.202 V	0.864 V	0.000 L	0.529 V	
PR-2014014	Bertha Ganter	2013	18/Dec/2013	3:00 PM	25/Dec/2013	3:00 PM	476.77	6.69	0.216 V	0.382 V	0 L	0.107 V	0.000 L	0.057 V	Gross particle contamination



Sample	Station	Year	Sample Start Date	Start Time	Sample End Date	End Time	Potassium (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Spec. Cond. (us/cm)	Total Acidity (ueq/L)	Strong Acidity (ueq/L)	Cond. Ratio	Ion Ratio	Comments
Sample	Station	Year					65312	22111	65313	65303	65330	65306	65402	65401	
PR-2013061	Bertha Ganter	2013	16/Jan/2013	1:55 PM	31/Jan/2013	1:55 PM	0.113 V	0.237 V	0.132 V	4.8299999 V	18.19 V	0 L	1.0181	1.168662341	Trace particle contamination
PR-2013175	Bertha Ganter	2013	31/Jan/2013	3:14 PM	06/Feb/2013	3:14 PM	0 I	0 I	0 I	0 I	0 I	0 I	0 I	0	0 Dry week
PR-2013097	Bertha Ganter	2013	06/Feb/2013	12:00 PM	13/Feb/2013	12:00 PM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0 Dry Week
PR-2013176	Bertha Ganter	2013	13/Feb/2013	12:00 PM	20/Feb/2013	12:00 PM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0 Dry week
PR-2013096	Bertha Ganter	2013	20/Feb/2013	3:00 PM	27/Feb/2013	3:00 PM	0.157 V	0.668 V	0.105 V	7.6500001 V	17.69 V	0 L	0.9871	0.99538491	Trace particle contamination
PR-2013129	Bertha Ganter	2013	27/Feb/2013	10:00 AM	06/Mar/2013	10:00 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0 Dry week
PR-2013131	Bertha Ganter	2013	06/Mar/2013	9:00 AM	13/Mar/2013	9:00 AM	0.073 V	3.235 V	0.462 V	0 I	0 I	0 I	0	0.869089329	moderate particle contamination
PR-2013132	Bertha Ganter	2013	13/Mar/2013	9:00 AM	20/Mar/2013	9:00 AM	0.094 V	2.147 V	0.176 V	0 I	0 I	0 I	0	1.256338103	Trace particle/ fiber contamination
PR-2013158	Bertha Ganter	2013	20/Mar/2013	10:00 AM	27/Mar/2013	10:00 AM	0.082 V	0.656 V	0.121 V	7.98 V	17.1 V	0 L	0.8503	0.913596074	Trace fiber contamination
PR-2013159	Bertha Ganter	2013	27/Mar/2013	10:00 AM	03/Apr/2013	10:00 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0 Dry week
PR-2013204	Bertha Ganter	2013	18/Apr/2013	1:33 PM	24/Apr/2013	1:33 PM	0.292 V	0.636 V	0.106 V	11.36 V	15.82 V	0 L	0.9255	0.922491297	Trace fiber contamination
PR-2013206	Bertha Ganter	2013	10/Apr/2013	3:07 PM	18/Apr/2013	3:07 PM	0.309 V	1.696 V	0.281 V	0 I	14.89 L	0 L	0	0.74046432	Moderate fiber contamination
PR-2013230	Bertha Ganter	2013	24/Apr/2013	10:00 AM	01/May/2013	10:00 AM	0.063 V	0.46 V	0.071 V	4.6199999 V	15.63 V	0 L	1.1199	1.22243514	
PR-2013231	Bertha Ganter	2013	01/May/2013	10:00 AM	08/May/2013	10:00 AM	0.283 V	1.61 V	0.264 V	0 I	15.28 V	0 L	0	1.050314703	
PR-2013244	Bertha Ganter	2013	08/May/2013	9:00 AM	16/May/2013	9:00 AM	0.143 V	0.771 V	0.137 V	8.1400003 V	16.27 V	0 L	0.9658	0.831107051	
PR-2013270	Bertha Ganter	2013	16/May/2013	10:00 AM	22/May/2013	10:00 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0
PR-2013271	Bertha Ganter	2013	22/May/2013	9:00 AM	29/May/2013	9:00 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0
PR-2013286	Bertha Ganter	2013	29/May/2013	9:00 AM	06/Jun/2013	9:00 AM	0.161 V	0.669 V	0.104 V	10.42 V	30.14 V	13.07999992 L	0.8684	0.886225448	
PR-2013293	Bertha Ganter	2013	06/Jun/2013	10:00 AM	12/Jun/2013	10:00 AM	0.034 V	0.11 V	0.034 V	3.0799999 V	22.91 V	0 L	1.0288	1.50721647	
PR-2013318	Bertha Ganter	2013	12/Jun/2013	12:00 PM	19/Jun/2013	12:00 PM	0.039 V	0.174 V	0.042 V	3.3 V	16.03 V	0 L	1.1538	1.308687916	Trace fiber contamination
PR-2013328	Bertha Ganter	2013	19/Jun/2013	1:00 PM	26/Jun/2013	1:00 PM	0.052 V	0.902 V	0.115 V	8.1199999 V	18.33 V	0 L	1.0091	1.185844865	
PR-2013341	Bertha Ganter	2013	26/Jun/2013	10:30 AM	03/Jul/2013	10:30 AM	0.083 V	0.844 V	0.141 V	10.94 V	17.9 V	0 L	0.951	1.002362976	
PR-2013356	Bertha Ganter	2013	03/Jul/2013	9:00 AM	10/Jul/2013	9:00 AM	0.093 V	0.392 V	0.046 V	6.9499998 V	29.38 V	0 L	1.0671	1.252039555	Trace particle contamination
PR-2013362	Bertha Ganter	2013	10/Jul/2013	9:00 AM	17/Jul/2013	9:00 AM	0.049 V	0.282 V	0.055 V	12.6 V	37.61 V	9.340000153 L	0.9234	1.080305879	Insect in sample
PR-2013373	Bertha Ganter	2013	17/Jul/2013	2:00 PM	24/Jul/2013	2:00 PM	0.094 V	0.657 V	0.091 V	17 V	38.28 V	0 L	0.9109	0.997185464	
PR-2013396	Bertha Ganter	2013	24/Jul/2013	12:00 AM	31/Jul/2013	12:00 AM	0.037 V	0.351 V	0.06 V	5.2800002 V	15.99 V	0 L	1.0231	1.026364422	
PR-2013411	Bertha Ganter	2013	31/Jul/2013	11:35 AM	07/Aug/2013	11:35 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0
PR-2013412	Bertha Ganter	2013	07/Aug/2013	9:00 AM	14/Aug/2013	9:00 AM	0.247 V	0.253 V	0.064 V	9.4300003 V	15.11 V	0 L	0.9969	1.129840186	Trace fiber contamination
PR-2013432	Bertha Ganter	2013	14/Aug/2013	9:00 AM	21/Aug/2013	9:00 AM	0.236 V	1.123 V	0.187 V	13.8 V	14.11 L	0 L	0.9766	1.088543797	Odour present
PR-2013444	Bertha Ganter	2013	21/Aug/2013	12:00 AM	28/Aug/2013	12:00 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0
PR-2013454	Bertha Ganter	2013	28/Aug/2013	9:30 AM	04/Sep/2013	9:30 AM	0.198 V	0.763 V	0.113 V	7.46 V	14.09 L	0 L	0.9906	1.079642979	
PR-2013480	Bertha Ganter	2013	04/Sep/2013	8:10 AM	09/Sep/2013	8:10 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0 Dry Week
PR-2013481	Bertha Ganter	2013	11/Sep/2013	9:50 AM	18/Sep/2013	9:50 AM	0.087 V	0.718 V	0.109 V	7.7600002 V	15.04 V	0 L	0.9948	1.21044349	
PR-2014003	Bertha Ganter	2013	27/Nov/2013	12:35 PM	04/Dec/2013	12:35 PM	0.281 V	2.829 V	0.288 V	19.700001 V	14.83 L	0 L	0.8854	1.009074226	
PR-2014005	Bertha Ganter	2013	04/Dec/2013	10:40 AM	11/Dec/2013	10:40 AM	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0 Dry week
PR-2014001	Bertha Ganter	2013	11/Dec/2013	2:00 PM	18/Dec/2013	2:00 PM	0.129 V	1.957 V	0.227 V	15.6 V	14.09 L	0 L	0.8683	0.931081262	
PR-2014014	Bertha Ganter	2013	18/Dec/2013	3:00 PM	25/Dec/2013	3:00 PM	0.069 V	0.53 V	0.108 V	4.29 V	16.28 V	0 L	0.9642	1.056124118	Gross particle contamination

This page intentionally left blank