DRAFT REPORT

AMBIENT AIR QUALITY ASSESSMENT CONDUCTED FOR THE ANVIL RANGE MINE

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1. INTRODUCTION

The Faro, Yukon area hosts several lead/zinc deposits some of which were mined in various stages from 1969 to 1998. The Anvil Range Mining Corporation complex (which is located in this area and includes both the Faro and Vangorda Plateau mine sites), is being decommissioned and is currently managed in a maintenance state while a Final Closure and Reclamation Plan is being developed.

RWDI AIR Inc. (RWDI) was retained by Gartner Lee Limited to conduct an ambient air quality monitoring program to determine ambient air contaminant concentrations in the vicinity of the complex; these concentration measurements are required for the follow-up human health and risk assessments.

There were two components of the ambient air quality monitoring program; an intensive monitoring program and a consolidated monitoring program, which were conducted from September 9 to 21, 2005 and September 25 to November 6, 2005, respectively.

- Intensive Program: The purpose of the intensive program was to measure fugitive dust and elemental concentrations adjacent to fugitive dust sources over continuous 24-hour periods for two weeks. These data were to be applied to develop emission rates and a dispersion modelling approach to estimate ambient concentrations over a full range of meteorological conditions and locations. Bulk dust samples from the various sources were also to be collected for analysis of silt content, moisture levels and particle size fractionation to support the emission rate estimates.

- Consolidated Program: The consolidated monitoring program was designed to collect ambient air quality samples based on a National Air Pollution Surveillance (NAPS) cycle (i.e., a 24 hour sample once every 6 days) to measure fugitive dust and metal concentrations and provide an indication of ambient contaminant concentrations. These data were to assist with the calibration of the dispersion model.

The focus of both programs was to measure ambient concentrations of particulate matter with aerodynamic dimensions less than 10 μm (i.e. PM_{10}) and ambient metal concentrations.

The weather conditions during the monitoring period were extremely wet and as a result, there were no visible fugitive emissions. Therefore, RWDI, in consultation with Gartner Lee, and Deloitte and Touche revised the frequency of sampling during the intensive monitoring program. Specifically, instead of monitoring over continuous 24-hour periods, the frequency of the intensive monitoring program was reduced to the NAPS cycle. Similarly, due to the wet weather conditions, the bulk sampling program was not conducted.

2. AMBIENT AIR QUALITY OBJECTIVES

Regulatory agencies have identified ambient air quality criteria specifying maximum contaminant concentration levels in the atmosphere. These criteria are typically based on a lowest-observable-level-of-effect and incorporate a safety factor.

Although the Yukon applies the air quality criteria set forth in the Canada Wide Standards (CWS) and the National Ambient Air Quality Objectives (NAAQO), these standards do not include the contaminants monitored in this assessment. For this reason, Ontario's Ambient Air Quality Criteria (AAQC) were used to provide acceptable thresholds for the majority of the contaminants in this assessment. Air quality criteria for aluminium, bismuth and thallium have not been established either within Canada, the U.S. Environmental Protection Agency (EPA) or by the World Health Organization (WHO).

Table 2.1 summarizes the ambient air quality criteria for the contaminants being evaluated in this assessment.

Table 2.1 Ontario AAQC for Assessed Contaminants.

Contaminant	**Ontario AAQC 24-h (µg/m³)**
PM_{10}	50[1.]
Iron (Fe)	4
Aluminum (Al)	n/a
Antimony (Sb)	25
Arsenic (As)	0.3
Barium (Ba)	10
Beryllium (Be)	0.01
Bismuth (Bi)	n/a[2.]
Cadmium (Cd)	2
Chromium (Cr)	1.5
Cobalt (Co)	0.1
Copper (Cu)	50
Lead (Pb)	2
Manganese (Mn)	2.5
Mercury (Hg)	2
Molybdenum (Mo)	120
Nickel (Ni)	2
Selenium (Se)	10
Silver (Ag)	1
Thallium (Tl)	n/a[2.]
Tin (Sn)	10
Titanium (Ti)	120
Vanadium (V)	2
Zinc (Zn)	120

Notes:
1. PM_{10} is an Interim Ontario AAQC (Ontario, Ministry of the Environment, September 2001).
2. n/a indicates an AAQC has not been set

3. METHODOLOGY

3.1 Sampling Method

Both the intensive and consolidated sampling programs focused on the measurement of inhalable particulate matter (PM_{10}). The PM_{10} filters were analyzed for the following metals:

- aluminum
- antimony
- arsenic
- barium
- beryllium
- bismuth
- cadmium
- cobalt
- chromium
- copper
- iron
- lead
- mercury
- molybdenum
- manganese
- nickel
- selenium
- silver
- tin
- titanium
- thallium
- vanadium
- zinc

Sampling for PM_{10} was based on the U.S. EPA Compendium Method IO-2.3 "Sampling of Ambient Air for Total Suspended Particulate Matter and PM_{10} Using a Low-Volume Sampler".

Battery powered Airmetrics "Minivol" samplers were used to collect PM_{10} data as 110 VAC power was not available. They were also more practical for shipping and deployment. While these samplers do not have accreditation as U.S. EPA equivalent method devices, they have been widely accepted by regulatory agencies in a number of jurisdictions.

All samples were collected on filters at a flow rate of approximately 5 liters/min for a duration of 24 hours. A digital photograph was taken at each sample site when each filter was installed and basic meteorological conditions (wind speed, wind direction, temperature, cloud cover, barometric pressure) were recorded.

3.2 Sampling Locations and Periods

3.2.1 Intensive Monitoring Program

Figure 3.1 shows the locations of the intensive monitors relative to the mine site. Table 3.1 lists their respective UTM coordinates.

Three sets of ambient measurements were collected (September 9, September 13 and September 21, 2005) at each of the eight monitor locations. The MiniVol samplers were then moved to the consolidated sampling locations.

Table 3.1 Intensive Monitor Locations (UTM Zone 8U, NAD83)

Monitor (Unit ID)	NAD83 UTM Easting (m)	NAD83 UTM Northing (m)	Area Represented by the Monitoring Location
I1 (3851)	580848	6913772	Tailings and polishing pond
I2 (0018)	582068	6913323	Second and intermediate tailings ponds
I3 (0527)	582474	6913233	Original and second tailings ponds
I4 (0501)	583260	6913155	Original tailings pond, road to faro mine site.
I5 (0542)	582911	6914000	Emergency tailings pond area
I6 (0528)	583013	6914587	Heavy haul road, mill and waste rock area
I7 (0511)	584261	6914640	Faro mine pit, road to pit bottom, waste rock area
I8 (3756)	584020	6913922	Main waste rock dump area

3.2.2 Consolidated Monitoring Program

Figure 3.2 shows these locations relative to the mine site. Table 3.2 lists the respective UTM coordinates of these sites.

Ambient measurements were collected at each of these locations on the following dates:

- September 25, 2005
- October 1, 2005
- October 7, 2005
- October 13, 2005
- October 19, 2005
- October 25, 2005
- October 31, 2005
- November 6, 2005

Table 3.2 Consolidated Monitor Locations (UTM Zone 8U, NAD83)

Monitor (Unit ID)	NAD83 UTM Easting (m)	NAD83 UTM Northing (m)	Area the Monitor Site Represents
C1 (3851)	579360	6915085	Tailings impoundments
C2 (0018)	580526	6914579	Tailings impoundments
C3 (0542)	583515	6915488	Rock dumps and pit
C4 (0528)	583013	6914587	Tailings impoundments
C5 (0527)	584910	6915455	Rock dumps and pit
C6 (0501)	587100	6902735	Faro town site
C7 (3756)	594328	6905177	Harvesting/hunting areas
C8 (0511)	594818	6903549	Reference area for background concentrations

Figure 3.1 Intensive Monitor Locations for the Anvil Range Mine Complex

Figure 3.2 Consolidated Monitor Locations for the Anvil Range Mine Complex

3.3 Sampling Results, Calibrations and Calculations

Maxxam Analytics Inc. of Edmonton, Alberta analyzed the samples on a mass/filter basis. This was done both gravimetrically (to determine the mass of PM_{10}) and using Inductively Coupled Plasma-Mass Spectrometry (to determine the mass of the various metals).

Calibration sheets for each MiniVol sampler were provided by the supplier, which related air-flow at standard conditions to actual conditions [Airmetrics, June 2001]. These equations were applied along with meteorological observations to calculate the actual 24 hour air-flow through the sampler and the resulting contaminant concentration ($\mu g/m^3$). The specific calibration data for each Airmetrics MiniVol sampler are summarized in Table 3.1.

Table 3.3 Calibration Data for the Airmetrics MiniVol Samplers

Unit ID	Calibration Data					
	m_{vol}	b_{vol}	r^2	T_{std} (K)	P_{std} (mm Hg)	Q_{ind} (lpm)
C1/I1 (3851)	0.9286	0.1279	0.9998	298	760	5
C2/I2 (0018)	0.9179	0.2240	0.9997	298	760	5
C3/I5 (0542)	1.0422	-0.2976	0.9996	298	760	5
C4/I6 (0528)	0.9597	-0.0030	0.9998	298	760	5
C5/I3 (0527)	1.0067	-0.1051	0.9998	298	760	5
C6/I4 (0501)	1.0028	0.1646	0.9999	298	760	5
C7/I8 (3756)	0.9335	0.1373	0.9998	298	760	5
C8/I7 (0511)	0.9110	0.2538	0.9996	298	760	5

The following equation was used to calculated air flow through each sampler (Airmetrics, June 2001):

$$Q_{act} = (m_{vol} Q_{ind} + b_{vol}) \times \sqrt{\frac{P_{std}}{P_{act}} \times \frac{T_{act}}{T_{std}}}$$

Where: Q_{act} = actual flow rate (liters/minute)

m_{vol} = calibration multiplier constant

Q_{ind} = MiniVol indicated flow rate (liters/minute)

b_{vol} = calibration constant

P_{std} = standard atmospheric pressure (760 mm Hg)

P_{act} = actual ambient pressure (mm Hg)

T_{std} = standard temperature (298 K)

T_{act} = actual ambient temperature (K)

In many cases, contaminant concentration measurements were less than the lowest detectable limit (LDL). As a conservatism in such cases, the contaminant levels were assumed to be at the LDL. See tables 4.1 through 4.27 for the LDLs.

There were a few instances when the MiniVol samplers froze or were blown over by the wind. In these cases, the data were not used and the results were reported as 'not valid' in the tables that follow.

3.4 Quality Assurance Measures

A number of quality assurance measures were implemented during the sampling program to ensure the integrity of the results. These measures included detailed documentation of all field activities, analyses of a number of unexposed samples (blanks) and a number of laboratory related measures including sample handling procedures and instrument calibrations.

All of the samplers were bench-tested prior to field deployment. The samplers were flow calibrated periodically during the program using a dry calibration unit.

Chain of custody forms were completed and submitted along with the samples to the laboratory

4. RESULTS: AMBIENT PM_{10} AND METAL CONCENTRATIONS

Tables 4.1 through 4.3 show the ambient PM_{10} and metal concentrations at each intensive monitoring location for the September 9, 2005 to September 21, 2005 time period. Tables 4.2 through 4.25 show the ambient PM_{10} and metal concentrations at each consolidated monitoring location for the September 25, 2005 to November 6, 2005 time period.

Ambient PM_{10} concentrations at all monitoring locations for all samples are well below the 24-hour Ontario Interim AAQC of 50 µg/m³. Ambient metal concentrations at all monitoring locations for all sample periods are well below their respective 24-hour Ontario AAQCs. There are no ambient air quality criteria for aluminium, bismuth and thallium.

The ambient PM_{10} and metal concentrations do not change as a function of proximity to the sources of fugitive dust. This would indicate that due to the wet weather, fugitive dust emissions were likely negligible during both the intensive and consolidated monitoring programs. The ambient measurements are therefore likely reflective of pristine conditions.

Table 4.1 PM_{10} and Metal Concentrations ($\mu g/m^3$) at Intensive Monitors

Monitor Location - Sample Period		PM_{10}	Iron (Fe)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)
Ontario 24-h AAQC		50	4	n/a	25	0.3	10	0.01	n/a
Lowest Detectable Limit			0.028-0.030	0.004-0.005	0.001	0.003	0.001	0.001	0.004-0.005
I1-001	September 9	3.3	**0.030**	0.011	0.002	**0.003**	**0.001**	**0.001**	**0.005**
I1-002	September 13	2.7	**0.030**	0.014	**0.001**	**0.003**	0.001	**0.001**	**0.005**
I1-003	September 21	2.7	0.030	0.017	**0.001**	**0.003**	**0.001**	**0.001**	**0.005**
I2-001	September 9	2.7	**0.030**	0.009	**0.001**	**0.003**	**0.001**	0.001	**0.004**
I2-002	September 13	2.5	0.074	0.012	**0.001**	**0.003**	0.003	0.001	**0.004**
I2-003	September 21	4.5	0.060	0.017	**0.001**	**0.003**	0.002	0.001	**0.005**
I3-001	September 9	2.8	0.058	0.012	**0.001**	**0.003**	0.001	**0.001**	**0.004**
I3-002	September 13	2.8	**0.029**	0.010	**0.001**	**0.003**	0.002	0.001	**0.004**
I3-003	September 21	1.6	**0.029**	0.013	**0.001**	**0.003**	**0.001**	**0.001**	**0.004**
I4-001	September 9	3.5	**0.028**	0.007	**0.001**	**0.003**	**0.001**	0.001	**0.004**
I4-002	September 13	2.8	**0.028**	0.011	**0.001**	**0.003**	0.001	**0.001**	**0.004**
I4-003	September 21	2.8	0.028	0.011	**0.001**	**0.003**	**0.001**	0.001	**0.004**
I5-001	September 9	3.8	0.029	0.146	**0.001**	**0.003**	0.001	**0.001**	**0.004**
I5-002	September 13	3.5	0.102	0.018	**0.001**	**0.003**	**0.001**	0.001	**0.004**
I5-003	September 21	3.5	0.029	0.007	0.002	**0.003**	**0.001**	0.001	**0.004**
I6-001	September 9	3.7	**0.030**	0.058	**0.001**	**0.003**	**0.001**	**0.001**	**0.004**
I6-002	September 13	2.1	0.030	0.013	**0.001**	**0.003**	0.001	**0.001**	**0.004**
I6-003	September 21	14.6	0.030	0.008	**0.001**	**0.003**	**0.001**	**0.001**	**0.005**
I7-001	September 9	2.8	0.090	0.010	**0.001**	**0.003**	**0.001**	**0.001**	**0.004**
I7-002	September 13	3.6	**0.030**	0.012	**0.001**	**0.003**	**0.001**	0.001	**0.004**
I7-003	September 21	2.1	0.060	0.011	**0.001**	**0.003**	**0.001**	**0.001**	**0.005**
I8-001	September 9	2.5	**0.030**	0.007	**0.001**	**0.003**	**0.001**	**0.001**	**0.004**
I8-002	September 13	2.4	**0.030**	0.012	**0.001**	**0.003**	**0.001**	**0.001**	**0.004**
I8-003	September 21	2.0	**0.030**	0.011	**0.001**	**0.003**	**0.001**	**0.001**	**0.005**

Notes: Bold text indicates measurement is below LDL

Table 4.2 PM_{10} and Metal Concentrations (µg/m³) at Intensive Monitors

Monitor Location - Sample Period		Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)
Ontario 24-h AAQC		2	1.5	0.1	50	2	2.5	2	120
Lowest Detectable Limit		0.001	0.003	0.001	0.001	0.001	0.003	0.000	0.001
I1-001	September 9	**0.001**	0.008	**0.001**	0.001	**0.001**	**0.003**	**0.000**	**0.001**
I1-002	September 13	**0.001**	0.006	**0.001**	0.004	**0.001**	**0.003**	**0.000**	**0.001**
I1-003	September 21	**0.001**	0.006	**0.001**	**0.001**	0.006	**0.003**	**0.000**	**0.001**
I2-001	September 9	**0.001**	0.007	**0.001**	0.003	**0.001**	**0.003**	**0.000**	**0.001**
I2-002	September 13	**0.001**	0.006	**0.001**	0.001	0.002	**0.003**	**0.000**	**0.001**
I2-003	September 21	**0.001**	0.006	**0.001**	0.001	**0.001**	**0.003**	**0.000**	**0.001**
I3-001	September 9	**0.001**	0.004	**0.001**	**0.001**	**0.001**	**0.003**	0.000	**0.001**
I3-002	September 13	**0.001**	0.004	**0.001**	**0.001**	0.002	**0.003**	**0.000**	**0.001**
I3-003	September 21	**0.001**	0.006	**0.001**	0.001	0.001	**0.003**	**0.000**	**0.001**
I4-001	September 9	**0.001**	0.006	**0.001**	**0.001**	0.001	**0.003**	**0.000**	**0.001**
I4-002	September 13	**0.001**	0.004	**0.001**	**0.001**	0.002	**0.003**	**0.000**	**0.001**
I4-003	September 21	**0.001**	0.008	**0.001**	0.001	0.002	**0.003**	**0.000**	**0.001**
I5-001	September 9	**0.001**	0.009	**0.001**	0.001	0.002	**0.003**	**0.000**	**0.001**
I5-002	September 13	**0.001**	0.004	**0.001**	0.001	0.002	**0.003**	**0.000**	**0.001**
I5-003	September 21	**0.001**	0.007	**0.001**	**0.001**	0.001	**0.003**	**0.000**	**0.001**
I6-001	September 9	**0.001**	0.004	**0.001**	0.003	0.001	**0.003**	**0.000**	**0.001**
I6-002	September 13	**0.001**	0.006	**0.001**	0.001	0.001	**0.003**	**0.000**	**0.001**
I6-003	September 21	**0.001**	0.005	**0.001**	**0.001**	0.001	**0.003**	**0.000**	**0.001**
I7-001	September 9	**0.001**	0.004	**0.001**	**0.001**	**0.001**	0.003	**0.000**	**0.001**
I7-002	September 13	**0.001**	0.007	**0.001**	**0.001**	0.001	**0.003**	**0.000**	**0.001**
I7-003	September 21	**0.001**	0.005	**0.001**	0.001	**0.001**	**0.003**	**0.000**	**0.001**
I8-001	September 9	**0.001**	**0.003**	**0.001**	**0.001**	**0.001**	**0.003**	**0.000**	**0.001**
I8-002	September 13	**0.001**	0.009	**0.001**	**0.001**	**0.001**	**0.003**	**0.000**	**0.001**
I8-003	September 21	**0.001**	0.008	**0.001**	0.001	0.003	**0.003**	**0.000**	**0.001**

Notes: Bold text indicates measurement is below LDL

Table 4.3 PM_{10} and Metal Concentrations (µg/m³) at Intensive Monitors

Monitor Location - Sample Period		Nickel (Ni)	Selenium (Se)	Silver (Ag)	Thallium (Tl)	Tin (Sn)	Titanium (Ti)	Vanadium (V)	Zinc (Zn)
Ontario 24-h AAQC		2	10	1	n/a	10	120	2	120
Lowest Detectable Limit		0.001-0.002	0.003	0.000	0.001	0.003	0.003	0.004-0.005	0.001-0.002
I1-001	September 9	**0.002**	0.005	0.001	**0.001**	0.005	**0.003**	**0.005**	0.005
I1-002	September 13	**0.002**	0.006	**0.000**	**0.001**	**0.003**	**0.003**	**0.005**	0.005
I1-003	September 21	**0.002**	0.006	0.001	**0.001**	**0.003**	**0.003**	**0.005**	0.005
I2-001	September 9	**0.001**	0.009	**0.000**	**0.001**	0.003	**0.003**	**0.004**	0.003
I2-002	September 13	**0.001**	0.003	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.003
I2-003	September 21	**0.002**	0.003	0.001	**0.001**	**0.003**	**0.003**	**0.005**	0.021
I3-001	September 9	**0.001**	0.004	0.002	**0.001**	0.003	**0.003**	**0.004**	0.003
I3-002	September 13	**0.001**	0.007	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.003
I3-003	September 21	**0.001**	0.007	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.003
I4-001	September 9	**0.001**	0.004	0.000	**0.001**	**0.003**	**0.003**	**0.004**	0.001
I4-002	September 13	**0.001**	0.006	**0.000**	**0.001**	**0.003**	**0.003**	**0.004**	0.004
I4-003	September 21	**0.001**	0.007	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.007
I5-001	September 9	**0.001**	0.003	**0.000**	**0.001**	0.003	**0.003**	**0.004**	0.010
I5-002	September 13	**0.001**	0.004	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.006
I5-003	September 21	**0.001**	0.003	**0.000**	**0.001**	0.006	**0.003**	**0.004**	0.006
I6-001	September 9	**0.001**	**0.003**	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.007
I6-002	September 13	**0.001**	0.009	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.003
I6-003	September 21	**0.002**	**0.003**	**0.000**	**0.001**	0.003	**0.003**	**0.005**	0.008
I7-001	September 9	**0.001**	0.004	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.003
I7-002	September 13	**0.001**	0.004	**0.000**	**0.001**	**0.003**	**0.003**	**0.004**	0.003
I7-003	September 21	**0.002**	0.006	0.001	**0.001**	**0.003**	**0.003**	**0.005**	0.003
I8-001	September 9	**0.001**	0.004	**0.000**	**0.001**	**0.003**	**0.003**	**0.004**	0.001
I8-002	September 13	**0.001**	0.004	0.001	**0.001**	**0.003**	**0.003**	**0.004**	0.001
I8-003	September 21	**0.002**	**0.003**	0.001	**0.001**	**0.003**	**0.003**	**0.005**	0.002

Notes: Bold text indicates measurement is below LDL

Table 4.4 PM_{10} Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	PM_{10} (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	1.8	2.8	not valid	not valid	2.5	1.2	not valid	not valid
October 1	1.4	1.4	3.8	2.1	1.0	3.3	2.0	not valid
October 7	0.2	0.2	2.0	1.6	1.8	2.1	1.6	1.5
October 13	2.4	3.4	1.8	2.0	2.2	2.1	2.7	2.4
October 19	3.4	11.5	7.0	2.4	not valid	2.8	2.9	not valid
October 25	not valid	4.0	4.9	not valid	2.0	2.6	41.7	not valid
October 31	2.5	2.0	9.4	2.1	not valid	19.6	1.4	not valid
November 6	3.3	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 50 µg/m³

Table 4.5 Iron (Fe) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Iron (Fe) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.197	0.045	not valid	not valid	0.044	0.056	not valid	not valid
October 1	0.091	0.060	**0.029**	0.030	0.044	**0.028**	0.060	not valid
October 7	0.030	0.075	0.029	**0.029**	0.029	**0.028**	0.105	0.165
October 13	0.045	**0.030**	**0.029**	0.045	0.073	**0.028**	0.030	0.030
October 19	0.076	0.514	0.044	0.046	not valid	**0.028**	0.212	not valid
October 25	not valid	0.105	0.029	not valid	0.088	0.098	0.105	not valid
October 31	**0.031**	**0.031**	**0.030**	**0.031**	not valid	0.128	0.138	not valid
November 6	0.050	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 4 µg/m³, Bold text indicates measurement is below LDL

Lowest Detectable Limit = 0.028 – 0.05 µg/m³

Table 4.6 Aluminum (Al) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Aluminum (Al) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.006	0.007	not valid	not valid	0.010	0.008	not valid	not valid
October 1	0.008	0.006	0.006	0.011	0.006	0.008	0.008	not valid
October 7	0.009	0.007	0.010	0.008	0.012	0.007	0.120	0.088
October 13	0.006	0.008	0.010	0.011	0.006	0.014	0.006	0.009
October 19	0.018	0.027	0.015	0.014	not valid	0.011	0.018	not valid
October 25	not valid	0.023	0.006	not valid	0.007	0.008	0.011	not valid
October 31	0.009	0.008	**0.004**	0.017	not valid	0.010	0.009	not valid
November 6	0.013	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = n/a µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.004 – 0.008 µg/m³

Table 4.7 Antimony (Sb) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Antimony (Sb) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	**0.001**	not valid
October 7	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	0.001	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 19	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
October 25	not valid	**0.001**	**0.001**	not valid	0.001	**0.001**	**0.001**	not valid
October 31	0.004	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
November 6	**0.001**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 25 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.8 Arsenic (As) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Arsenic (As) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.003**	**0.003**	not valid	not valid	**0.003**	**0.003**	not valid	not valid
October 1	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	not valid
October 7	**0.003**	**0.003**	0.004	0.003	**0.003**	**0.003**	**0.003**	0.003
October 13	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**
October 19	**0.003**	**0.003**	**0.003**	**0.003**	not valid	**0.003**	**0.003**	not valid
October 25	not valid	**0.003**	**0.003**	not valid	**0.003**	**0.003**	**0.003**	not valid
October 31	**0.003**	**0.003**	**0.003**	**0.003**	not valid	**0.003**	**0.003**	not valid
November 6	**0.005**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 0.3 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.003 – 0.008 µg/m³

Table 4.9 Barium (Ba) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Barium (Ba) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	0.001	**0.001**	**0.001**	**0.001**	**0.001**	not valid
October 7	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	**0.001**	**0.001**	**0.001**	0.001	**0.001**	**0.001**	**0.001**	**0.001**
October 19	0.002	0.076	0.001	0.001	not valid	**0.001**	**0.001**	not valid
October 25	not valid	0.007	0.001	not valid	**0.001**	**0.001**	**0.001**	not valid
October 31	0.006	0.001	**0.001**	0.001	not valid	**0.001**	**0.001**	not valid
November 6	0.002	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 10 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.10 Beryllium (Be) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Beryllium (Be) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	not valid
October 7	**0.001**	0.001	0.001	**0.001**	0.001	0.001	**0.001**	0.001
October 13	0.001	0.001	0.002	0.001	0.003	**0.001**	0.004	0.003
October 19	0.003	0.004	0.005	**0.001**	not valid	0.001	0.001	not valid
October 25	not valid	0.002	0.002	not valid	**0.001**	**0.001**	0.003	not valid
October 31	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
November 6	0.008	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 0.01 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.11 Bismuth (Bi) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Bismuth (Bi) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.005**	**0.004**	not valid	not valid	**0.004**	**0.004**	not valid	not valid
October 1	**0.005**	**0.004**	**0.004**	**0.005**	**0.004**	**0.004**	0.005	not valid
October 7	**0.005**	**0.004**	**0.004**	**0.005**	**0.004**	**0.004**	**0.004**	0.004
October 13	**0.005**	**0.005**	**0.004**	**0.005**	**0.004**	**0.004**	**0.005**	**0.005**
October 19	**0.005**	**0.005**	**0.004**	**0.005**	not valid	**0.004**	**0.005**	not valid
October 25	not valid	**0.005**	**0.004**	not valid	**0.004**	**0.004**	**0.005**	not valid
October 31	**0.005**	**0.005**	**0.004**	**0.005**	not valid	**0.004**	**0.005**	not valid
November 6	**0.008**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = n/a µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.004 – 0.008 µg/m³

Table 4.12 Cadmium (Cd) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Cadmium (Cd) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	0.003	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	not valid
October 7	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001
October 13	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 19	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
October 25	not valid	**0.001**	**0.001**	not valid	**0.001**	**0.001**	**0.001**	not valid
October 31	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
November 6	**0.001**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 2 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.13 Chromium (Cr) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Chromium (Cr) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.009	**0.003**	not valid	not valid	0.010	0.007	not valid	not valid
October 1	0.008	0.010	0.009	0.014	0.007	0.010	0.005	not valid
October 7	0.008	0.007	0.006	0.009	0.006	0.006	0.007	0.013
October 13	0.006	0.008	0.006	0.005	0.004	0.006	0.006	0.003
October 19	0.006	0.006	0.003	0.008	not valid	0.006	0.006	not valid
October 25	not valid	0.006	0.007	not valid	0.007	0.010	0.003	not valid
October 31	**0.003**	**0.003**	**0.003**	0.005	not valid	0.004	0.006	not valid
November 6	**0.005**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 1.5 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.003 – 0.005 µg/m³

Table 4.14 Cobalt (Co) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Cobalt (Co) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	not valid
October 7	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 19	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
October 25	not valid	**0.001**	**0.001**	not valid	**0.001**	**0.001**	**0.001**	not valid
October 31	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
November 6	**0.002**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes Ontario 24-h AAQC = 0.1 µg/m³, Bold text indicates measurement is below LDL

Lowest Detectable Limit = 0.001 – 0.002 µg/m³

Table 4.15 Copper (Cu) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Copper (Cu) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.001	0.008	not valid	not valid	0.002	0.001	not valid	not valid
October 1	**0.001**	0.001	0.004	0.003	0.004	0.002	0.213	not valid
October 7	0.004	0.002	0.001	0.001	0.002	0.003	0.001	0.003
October 13	0.013	0.003	0.003	0.003	0.002	0.003	0.003	0.002
October 19	0.004	0.006	0.001	0.002	not valid	0.002	0.003	not valid
October 25	not valid	0.002	0.007	not valid	0.003	0.001	0.002	not valid
October 31	0.003	0.005	**0.001**	0.001	not valid	0.001	0.001	not valid
November 6	0.005	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 50 µg/m³, Bold text indicates measurement is below LDL

Lowest Detectable Limit = 0.001 µg/m³

Table 4.16 Lead (Pb) Concentrations (µg/m³) at Consolidated Monitors

	Lead (Pb) Concentrations (µg/m³)							
Sample Date (2005)	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	0.001	not valid	not valid	0.001	**0.001**	not valid	not valid
October 1	0.008	0.007	0.005	0.043	0.004	0.006	0.002	not valid
October 7	**0.001**	0.001	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	**0.001**	**0.001**	0.001	0.004	0.002	**0.001**	**0.001**	**0.001**
October 19	0.005	0.062	0.002	0.003	not valid	**0.001**	**0.001**	not valid
October 25	not valid	0.009	0.002	not valid	0.001	**0.001**	**0.001**	not valid
October 31	0.006	0.001	0.001	0.003	not valid	**0.001**	**0.001**	not valid
November 6	**0.001**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 2 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.17 Manganese (Mn) Concentrations (µg/m³) at Consolidated Monitors

	Manganese (Mn) Concentrations (µg/m³)							
Sample Date (2005)	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.003**	**0.003**	not valid	not valid	**0.003**	**0.003**	not valid	not valid
October 1	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	not valid
October 7	**0.003**	0.003	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	0.003
October 13	0.006	0.005	0.004	0.005	0.004	0.004	0.005	0.006
October 19	0.006	0.012	0.006	0.006	not valid	0.004	0.008	not valid
October 25	not valid	0.008	0.006	not valid	0.006	0.006	0.006	not valid
October 31	**0.003**	**0.003**	**0.003**	0.003	not valid	**0.003**	**0.003**	not valid
November 6	0.010	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 2.5 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.003 – 0.005 µg/m³

Table 4.18 Mercury (Hg) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Mercury (Hg) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.000**	**0.000**	not valid	not valid	**0.000**	**0.000**	not valid	not valid
October 1	**0.000**	0.000	0.000	0.000	**0.000**	**0.000**	0.000	not valid
October 7	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
October 13	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000
October 19	0.001	0.001	0.001	0.001	not valid	0.000	0.001	not valid
October 25	not valid	0.001	0.001	not valid	0.001	0.000	0.000	not valid
October 31	0.001	0.001	0.001	0.000	not valid	0.001	0.001	not valid
November 6	0.001	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 2 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.000 µg/m³

Table 4.19 Molybdenum (Mo) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Molybdenum (Mo) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	not valid
October 7	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 19	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
October 25	not valid	**0.001**	**0.001**	not valid	**0.001**	**0.001**	**0.001**	not valid
October 31	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
November 6	**0.001**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 120 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.20 Nickel (Ni) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Nickel (Ni) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.003	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.002**	**0.001**	**0.001**	**0.002**	**0.001**	**0.001**	**0.002**	not valid
October 7	**0.002**	**0.001**	**0.001**	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	**0.002**	**0.002**	**0.001**	**0.002**	**0.001**	**0.001**	**0.002**	**0.002**
October 19	**0.002**	**0.002**	**0.001**	**0.002**	not valid	**0.001**	**0.002**	not valid
October 25	not valid	**0.002**	**0.001**	not valid	**0.001**	**0.001**	**0.002**	not valid
October 31	0.003	0.003	**0.001**	0.002	not valid	0.001	0.003	not valid
November 6	**0.003**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 2 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 – 0.003 µg/m³

Table 4.21 Selenium (Se) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Selenium (Se) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.006	0.004	not valid	not valid	**0.003**	**0.003**	not valid	not valid
October 1	0.009	0.003	**0.003**	0.005	0.006	0.007	0.003	not valid
October 7	**0.003**	0.004	0.009	0.008	0.006	0.006	0.007	0.004
October 13	0.005	**0.003**	0.007	**0.003**	**0.003**	0.006	0.011	**0.003**
October 19	0.005	**0.003**	0.004	**0.003**	not valid	**0.003**	**0.003**	not valid
October 25	not valid	0.005	0.003	not valid	0.004	0.004	**0.003**	not valid
October 31	0.008	0.012	0.016	0.018	not valid	0.006	0.005	not valid
November 6	**0.005**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 10 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.003 – 0.005 µg/m³

Table 4.22 Silver (Ag) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Silver (Ag) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.001	0.002	not valid	not valid	0.002	0.001	not valid	not valid
October 1	**0.000**	**0.000**	**0.000**	0.001	**0.000**	0.001	0.001	not valid
October 7	**0.000**	0.001	0.000	0.002	0.001	0.001	0.001	0.000
October 13	**0.000**	**0.000**	0.001	**0.000**	**0.000**	0.001	**0.000**	**0.000**
October 19	**0.000**	**0.000**	**0.000**	**0.000**	not valid	0.001	0.001	not valid
October 25	not valid	**0.000**	**0.000**	not valid	0.000	0.002	0.000	not valid
October 31	**0.000**	**0.000**	0.001	0.003	not valid	0.001	0.001	not valid
November 6	0.002	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 1 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.000 µg/m³

Table 4.23 Thallium (Tl) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Thallium (Tl) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.001**	**0.001**	not valid	not valid	**0.001**	**0.001**	not valid	not valid
October 1	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	not valid
October 7	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 13	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
October 19	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
October 25	not valid	**0.001**	**0.001**	not valid	**0.001**	**0.001**	**0.001**	not valid
October 31	**0.001**	**0.001**	**0.001**	**0.001**	not valid	**0.001**	**0.001**	not valid
November 6	**0.001**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = n/a µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 µg/m³

Table 4.24 Tin (Sn) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Tin (Sn) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.003**	**0.003**	not valid	not valid	**0.003**	**0.003**	not valid	not valid
October 1	**0.003**	**0.003**	**0.003**	0.003	0.004	**0.003**	**0.003**	not valid
October 7	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**
October 13	0.008	0.008	0.004	0.005	0.003	0.004	0.005	0.005
October 19	0.003	**0.003**	0.003	0.003	not valid	0.004	0.005	not valid
October 25	not valid	**0.003**	0.004	not valid	0.003	0.003	**0.003**	not valid
October 31	0.011	0.006	**0.003**	**0.003**	not valid	0.004	0.005	not valid
November 6	**0.005**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 10 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.003 - 0.005 µg/m³

Table 4.25 Titanium (Ti) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Titanium (Ti) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.003**	**0.003**	not valid	not valid	**0.003**	**0.003**	not valid	not valid
October 1	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	not valid
October 7	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**
October 13	0.006	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**	**0.003**
October 19	0.003	**0.003**	**0.003**	**0.003**	not valid	**0.003**	**0.003**	not valid
October 25	not valid	**0.003**	**0.003**	not valid	**0.003**	**0.003**	**0.003**	not valid
October 31	**0.003**	**0.003**	0.004	0.003	not valid	**0.003**	**0.003**	not valid
November 6	**0.005**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 120 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.003 – 0.005 µg/m³

Table 4.26 Vanadium (V) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Vanadium (V) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	**0.005**	**0.004**	not valid	not valid	**0.004**	**0.004**	not valid	not valid
October 1	**0.005**	**0.004**	**0.004**	**0.005**	**0.004**	**0.004**	**0.005**	not valid
October 7	**0.005**	**0.004**	**0.004**	**0.005**	**0.004**	**0.004**	**0.004**	**0.004**
October 13	**0.005**	**0.005**	**0.004**	**0.005**	**0.004**	**0.004**	**0.005**	**0.005**
October 19	**0.005**	**0.005**	**0.004**	**0.005**	not valid	**0.004**	**0.005**	not valid
October 25	not valid	**0.005**	**0.004**	not valid	**0.004**	**0.004**	**0.005**	not valid
October 31	**0.005**	**0.005**	**0.004**	**0.005**	not valid	**0.004**	**0.005**	not valid
November 6	**0.008**	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 2 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.004 – 0.008 µg/m³

Table 4.27 Zinc (Z) Concentrations (µg/m³) at Consolidated Monitors

Sample Date (2005)	Zinc (Zn) Concentrations (µg/m³)							
	C1	C2	C3	C4	C5	C6	C7	C8
September 25	0.003	0.007	not valid	not valid	0.003	0.003	not valid	not valid
October 1	0.021	0.018	0.021	0.060	0.019	0.064	0.120	not valid
October 7	0.018	0.016	0.019	0.005	0.006	0.003	0.016	0.031
October 13	0.058	0.041	0.052	0.051	0.040	0.119	0.051	0.042
October 19	0.038	0.109	0.044	0.043	not valid	0.038	0.050	not valid
October 25	not valid	0.074	0.025	not valid	0.053	0.036	0.051	not valid
October 31	0.039	0.041	0.037	0.041	not valid	0.040	0.035	not valid
November 6	0.071	not valid	not valid	not valid	not valid	not valid	not valid	not valid

Notes: Ontario 24-h AAQC = 120 µg/m³, Bold text indicates measurement is below LDL
Lowest Detectable Limit = 0.001 – 0.003 µg/m³

5. SUMMARY OF RESULTS

Table 5.1 provides a summary the intensive monitoring results. Table 5.2 provides a summary of the consolidated monitoring results.

Table 5.1 Summary of Intensive Monitoring Results

Contaminant	Ontario 24-h AAQC	Minimum (µg/m³)	Maximum (µg/m³)	Average (µg/m³)	Comment
PM10	50.0	1.613	14.616	3.391	
Iron (Fe)	4.0	0.028	0.102	0.041	
Aluminum (Al)	120.0	0.007	0.146	0.019	
Antimony (Sb)	25.0	0.001	0.002	0.001	Majority of results were below LDL
Arsenic (As)	0.3	0.003	0.003	0.003	Majority of results were below LDL
Barium (Ba)	10.0	0.001	0.003	0.001	Majority of results were below LDL
Beryllium (Be)	0.0	0.001	0.001	0.001	Majority of results were below LDL
Bismuth (Bi)	n/a	0.004	0.005	0.004	Majority of results were below LDL
Cadmium (Cd)	2.0	0.001	0.001	0.001	Majority of results were below LDL
Chromium (Cr)	1.5	0.003	0.009	0.006	
Cobalt (Co)	0.1	0.001	0.001	0.001	Majority of results were below LDL
Copper (Cu)	50.0	0.001	0.004	0.001	
Lead (Pb)	2.0	0.001	0.006	0.002	
Manganese (Mn)	2.5	0.003	0.003	0.003	Majority of results were below LDL
Mercury (Hg)	2.0	0.000	0.000	0.000	Majority of results were below LDL
Molybdenum (Mo)	120.0	0.001	0.001	0.001	Majority of results were below LDL
Nickel (Ni)	2.0	0.001	0.002	0.001	Majority of results were below LDL
Selenium (Se)	10.0	0.003	0.009	0.005	
Silver (Ag)	1.0	0.000	0.002	0.001	
Thallium (Tl)	n/a	0.001	0.001	0.001	Majority of results were below LDL
Tin (Sn)	10.0	0.003	0.006	0.003	Majority of results were below LDL
Titanium (Ti)	120.0	0.003	0.003	0.003	Majority of results were below LDL
Vanadium (V)	2.0	0.004	0.005	0.004	Majority of results were below LDL
Zinc (Zn)	120.0	0.001	0.021	0.005	

Table 5.2 Summary of Consolidated Monitoring Results

Contaminant	Ontario 24-h AAQC	Minimum (µg/m³)	Maximum (µg/m³)	Average (µg/m³)	Comment
PM10	50.0	0.151	41.695	3.976	
Iron (Fe)	4.0	0.028	0.514	0.073	
Aluminum (Al)	120.0	0.004	0.120	0.014	
Antimony (Sb)	25.0	0.001	0.004	0.001	Majority of results were below LDL
Arsenic (As)	0.3	0.003	0.005	0.003	Majority of results were below LDL
Barium (Ba)	10.0	0.001	0.076	0.003	Majority of results were below LDL
Beryllium (Be)	0.0	0.001	0.008	0.001	
Bismuth (Bi)	n/a	0.004	0.008	0.005	Majority of results were below LDL
Cadmium (Cd)	2.0	0.001	0.003	0.001	Majority of results were below LDL
Chromium (Cr)	1.5	0.003	0.014	0.007	
Cobalt (Co)	0.1	0.001	0.002	0.001	Majority of results were below LDL
Copper (Cu)	50.0	0.001	0.213	0.008	
Lead (Pb)	2.0	0.001	0.062	0.004	
Manganese (Mn)	2.5	0.003	0.012	0.004	
Mercury (Hg)	2.0	0.000	0.001	0.000	
Molybdenum (Mo)	120.0	0.001	0.001	0.001	Majority of results were below LDL
Nickel (Ni)	2.0	0.001	0.003	0.002	Majority of results were below LDL
Selenium (Se)	10.0	0.003	0.018	0.006	
Silver (Ag)	1.0	0.000	0.003	0.001	
Thallium (Tl)	n/a	0.001	0.001	0.001	Majority of results were below LDL
Tin (Sn)	10.0	0.003	0.011	0.004	
Titanium (Ti)	120.0	0.003	0.006	0.003	Majority of results were below LDL
Vanadium (V)	2.0	0.004	0.008	0.005	Majority of results were below LDL
Zinc (Zn)	120.0	0.003	0.120	0.039	

6. CONCLUSIONS AND RECOMMENDATIONS

The data for the September 9 to September 21, 2005 timeframe (Intensive Monitoring Program) and for the September 25 to November 6, 2005 timeframe (Consolidated Monitoring Program) indicate that ambient 24-hour PM_{10} and metal concentrations are below Ontario Ambient Air Quality Criteria (Interim Ontario AAQC in the case of PM_{10}).

Due to the wet weather, fugitive dust emissions were likely negligible during both the intensive and consolidated monitoring programs. The ambient measurements are likely more reflective of pristine conditions than of worst-case conditions that could be experienced at the mine site during dry, windy events. The ambient measurements collected can not be applied to develop emission rates and a dispersion modelling approach. Therefore, it is recommended that the program be re-implemented during early Summer of 2006.

7. REFERENCES

Ontario, Ministry of the Environment, September 2001. Summary of Impingement Standards, Point of Impingement Guidelines and Ambient Air Quality Criteria (AAQC). Available at www.ene.gov.on.ca/envision/air/airquality/standards.htm.

Airmetrics, June 2001. MiniVol Portable Air Sampler, Operation Manual Version 4.2C.

APPENDIX A

Lab data