



PO Box 1500
YELLOWKNIFE NT X1A 2R3

NT648310

May 9, 2014

Mr. Willard Hagen, Chair
Mackenzie Valley Land and Water Board
7TH FLOOR – 4922 48TH ST., PO BOX 2130
YELLOWKNIFE, NT X1A 2P6

Water Licence MV2012L8-0010 – Air Quality Reports for the Week of April 27th

Dear Mr. Hagen:

This report is meant to satisfy commitments made in the May 21, 2013, responses to review comments on the roaster plans. Our commitment was to provide weekly summaries of the following data;

- PM10 measurements captured by the contractor and the fence-line program.
- All other available and quality assured data, including TSP, trace elements (metals) and asbestos data.

The attached report provides a weekly summary of monitoring data collected during the week of April 27th – May 3rd, 2014.

Additional air quality information for the Giant Mine can be found on the NWT Air Quality Monitoring Network web page, <http://aqm.enr.gov.nt.ca>.

If you have any questions please contact Adrian Paradis at 867.669.2425.

Sincerely,

Adrian Paradis
Regulatory Manager
Giant Mine Remediation Project

Encl. Weekly Ambient Air Quality Monitoring Summary April 27th – May 3rd, 2014
c.c.: Distribution List



May 7, 2014

Belinda Campbell
Environmental Specialist
Public Works Government Services Canada
295 Charlotte Street
Sydney, NS B1P 1C6

SLR Project No.: 208.04600.00000

Dear Ms. Campbell,

**RE: WEEKLY AMBIENT AIR QUALITY MONITORING SUMMARY
GIANT MINE SITE
YELLOWKNIFE, NORTHWEST TERRITORIES**

1.0 INTRODUCTION

As part of the remediation program being undertaken at the Giant Mine site, an ambient air monitoring program for fugitive dust has been established to monitor the effects of the remediation program on the local airshed and allow for appropriate mitigation steps to reduce the potential for fugitive dust if required. An integrated approach has been developed including a tiered air quality monitoring program starting at the site fenceline (property lease boundary) and extending into the community. The following sections provide a summary of the fenceline and community ambient air monitoring data collected during the week ending May 3, 2014. Additional information and air quality monitoring results can be found on the Government of the Northwest Territories website at <http://aqm.enr.gov.nt.ca/>.

2.0 FENCELINE MONITORING PROGRAM

Real-time fenceline monitoring was conducted during the hours of on-site remediation activities using a Dusttrak DRX aerosol monitor at six locations as shown in attached Drawing 1. The purpose of the real time monitoring is to continuously monitor fugitive dust on-site during remedial activities and compare concentrations to approved short term action levels. The real-time monitoring is intended to assist site managers in assessing or modifying site activities to prevent exceedances of the project criteria. Risk based action level (RBAL) 15-minute average criteria have been established for particulate matter greater than 10 microns in diameter (PM₁₀) and total suspended particulate (TSP). Details associated with the RBAL for 15-minute average PM₁₀ concentrations (159 µg/m³) and 15-minute average TSP concentrations (333 µg/m³) are outlined in the Air Quality Management Plan (AECOM, 2013).

SLR initiated the fenceline monitoring program prior to the start up of the the Roaster Complex remediation on April 23, 2014. The actual start date for the active season in support of the Roaster Complex remediation is yet to be determined.

2.1 PM₁₀ Fenceline Monitoring

During the week ending May 3, 2014, there were sixteen (16) 15-minute average PM₁₀ concentrations exceeding the PM₁₀ RBAL concentration of 159 µg/m³. All exceedances occurred at Site D between 7 AM and 11 AM local time on May 2, 2014. The exceedances were the result of fugitive dust emissions of particulate caused by soil erosion from the south tailings pond area associated with strong winds from the north-northwest. Mitigation measures including watering of the tailings areas to prevent further fugitive dust emissions were promptly implemented. The maximum PM₁₀ hourly concentration measured at the community stations on May 2, 2014 was 104 µg/m³, measured at the NDL station, while the maximum PM₁₀ 24-hour average concentration measured on May 2, 2014 at the community stations was 31 µg/m³, measured at the NDL station which did not exceed the Ontario Ambient Air Quality Standard of 50 µg/m³.

The daily maximum 15-minute average PM₁₀ concentrations measured each day are summarized in Table 1 and average concentrations shown in Figure 1.

**Table 1. Fenceline PM₁₀ Daily Maximum 15-Minute Average Concentrations (µg/m³)
 April 27 – May 3, 2014**

Sampling Location	Site A	Site B	Site C	Site D	Site E	Site F
Date						
April 27, 2014 ⁽¹⁾	--	--	--	--	--	--
April 28, 2014	16.2	6.9	30.5	12.6	10.6	5.3
April 29, 2014	6.6	4.2	4.8	11.0	3.6	3.8
April 30, 2014	3.7	5.9	9.0	3.7	7.6	4.2
May 1, 2014	4.3	4.6	4.3	14.0	4.4	5.9
May 2, 2014	4.8	26.8	5.7	923.9	5.2	16.9
May 3, 2014	6.9	4.7	5.5	5.8	8.8	2.9

Note: 1.) No on-site remediation activities or air quality monitoring conducted on Sunday, April 27, 2014.
 2.) Bold indicates the maximum 15 minute concentration measured.

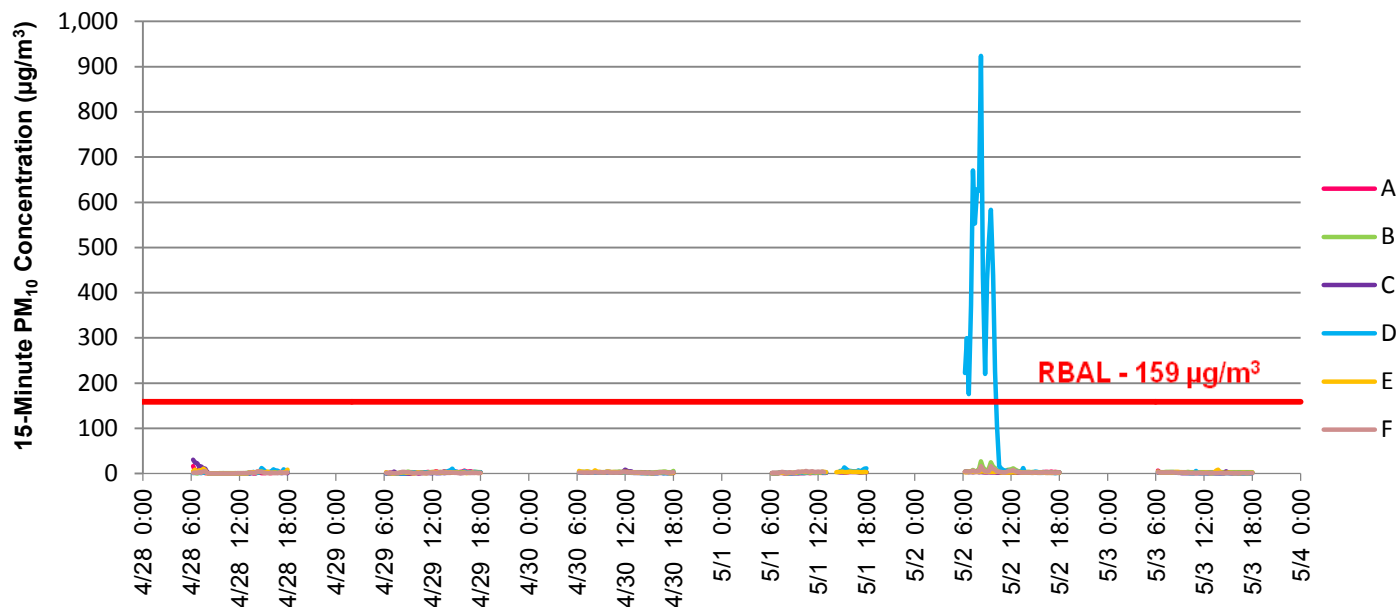


Figure 1. Fenceline Daily 15-Minute Average PM₁₀ Concentrations

2.2 TSP Fenceline Monitoring

During the week ending May 3, 2014 there were sixteen (16) 15-minute averages with a concentration exceeding the RBAL for TSP (333 µg/m³). All exceedances occurred at Site D between 7 AM and 11 AM local time on May 2, 2014. The exceedances were the result of fugitive dust emissions of particulate caused by soil erosion from the south tailings pond area associated with strong winds from the north-northwest. Mitigation measures including watering of the tailings areas to prevent further fugitive dust emissions were promptly implemented. The maximum 15-minute average TSP concentrations measured each day during the reporting period are summarized in Table 2 and average concentrations shown in Figure 2.

**Table 2. Fenceline TSP Daily Maximum 15-Minute Average Concentrations (µg/m³)
April 27 – May 3, 2014**

Sampling Location	Site A	Site B	Site C	Site D	Site E	Site F
Date						
April 27, 2014 ⁽¹⁾	--	--	--	--	--	--
April 28, 2014	16.2	6.9	30.5	14.2	10.6	5.5
April 29, 2014	7.4	4.4	5.6	12.1	4.2	4.1
April 30, 2014	4.0	6.3	10.3	4.0	8.0	4.3
May 1, 2014	5.3	6.0	5.2	15.7	5.7	6.2
May 2, 2014	5.1	30.3	6.4	1058.8	5.5	18.5
May 3, 2014	7.5	5.1	6.1	6.8	10.9	3.0

Note: 1.) No on-site remediation activities or air quality monitoring conducted on Sunday, April 27, 2014.
2.) Bold indicates the maximum 15 minute concentration measured.

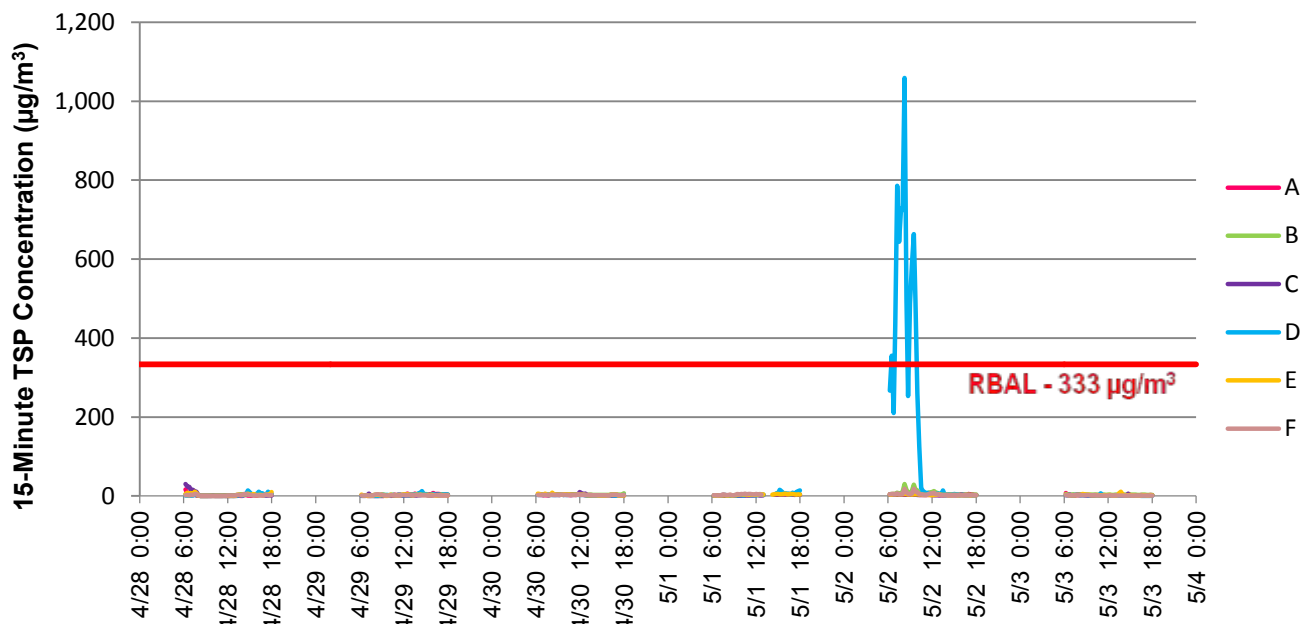


Figure 2: Fenceline Daily 15-Minute Average TSP Concentrations

2.3 Data recovery efficiencies

The overall data recovery efficiency for the fenceline monitoring for the period was 97.2%. Data loss of the fenceline monitoring was due to network response training exercises occurring on May 1, 2014. Fenceline monitoring data recovery efficiencies are provided in Table 3.

Table 3. PM_{10} and TSP Fenceline Data Recovery Statistics (%)
 April 27 – May 3, 2014

Sampling Location	Site A	Site B	Site C	Site D	Site E	Site F
Date	Site A	Site B	Site C	Site D	Site E	Site F
April 27, 2014 ⁽¹⁾	--	--	--	--	--	--
April 28, 2014	100.0	100.0	100.0	100.0	100.0	100.0
April 29, 2014	100.0	100.0	100.0	100.0	100.0	100.0
April 30, 2014	100.0	100.0	100.0	100.0	100.0	100.0
May 1, 2014	87.5	85.4	89.6	87.5	91.7	56.3
May 2, 2014	100.0	100.0	100.0	100.0	100.0	100.0
May 3, 2014	100.0	100.0	100.0	100.0	100.0	100.0

Note: 1.) Fenceline monitoring initiated on April 23, 2014.

2.4 Field QA/QC

Quality controls included zero and PM response checks for each fenceline instrument prior to daily monitoring, as specified by instrument manufacturer operator manuals. Single point flow checks are conducted once per week for each fenceline instrument. Further routine checks included checking wires, tubing, enclosure integrity, calibration settings, and communications checks between instrument, wireless modem and remote data server. Instrument batteries are also checked for adequate power levels prior to morning deployment and beginning daily monitoring operations. Instrument optical alarms are monitored on an hourly basis to verify non-condensing sample inlet air during operation at or below freezing conditions.

3.0 COMMUNITY MONITORING PROGRAM

Ambient air quality monitoring was conducted at three locations within the community of Yellowknife. These locations included NDL station (located on N'Dilo First Nation), YCC station (located in the vicinity of the Yellowknife Cruising Club marina), and the NAPS (National Air Pollution Surveillance) station (located at 49th Street and 52 Avenue in Yellowknife, NT). The community station locations are shown in attached Drawing 2.

Ambient air monitoring for PM_{2.5} and PM₁₀ was conducted at the community stations using Met One Beta Attenuation Mass (BAM) 1020 monitors. Monitoring of PM_{2.5} and PM₁₀ was measured on a continuous basis and recorded hourly.

3.1 Particulate Matter less than 2.5 Microns (PM_{2.5})

There were no 24-hour average PM_{2.5} concentrations in excess of the Northwest Territories Ambient Air Quality Standard of 30 µg/m³ measured during the reporting period. Seventeen (17) hours of PM_{2.5} data were invalidated at the NDL station from April 28 to May 3, 2014 due to shelter temperature variation greater than two degrees Celsius per hour and/or concentrations below screening validation criteria of -3 µg/m³. Twenty-six (26) hours of data were missing on April 29 and 30, 2014, at the NAPS. The reason for the data loss at NAPS is unknown. PM_{2.5} maximum hourly and 24-hour average concentrations at each of the three community stations are summarized in Table 4 and shown in Figure 3.

Table 4. Community Stations Maximum Hourly and 24-hour Average PM_{2.5} Concentrations (µg/m³) – April 27 – May 3, 2014

Sampling Location	NDL Station		NAPS Station		YCC Station	
	Maximum Hourly average PM _{2.5} concentration	24-hour average PM _{2.5} concentration	Maximum Hourly average PM _{2.5} concentration	24-hour average PM _{2.5} concentration	Maximum Hourly average PM _{2.5} concentration	24-hour average PM _{2.5} concentration
April 27, 2014	13.0	6.2	8.0	4.1	8.0	5.0
April 28, 2014	16.0	4.0	6.0	3.9	6.0	4.3
April 29, 2014	12.0	5.6	-- ⁽¹⁾	-- ⁽¹⁾	8.0	3.4
April 30, 2014	11.0	5.6	-- ⁽¹⁾	-- ⁽¹⁾	12.0	5.5
May 1, 2014	13.0	4.5	7.0	4.0	8.0	5.5

Sampling Location	NDL Station		NAPS Station		YCC Station	
	Value 1	Value 2	Value 1	Value 2	Value 1	Value 2
May 2, 2014	12.0	6.3	8.0	4.9	9.0	5.8
May 3, 2014	10.0	5.3	8.0	4.2	9.0	5.1

Note: 1.) Data recovery below 75% completeness criteria.

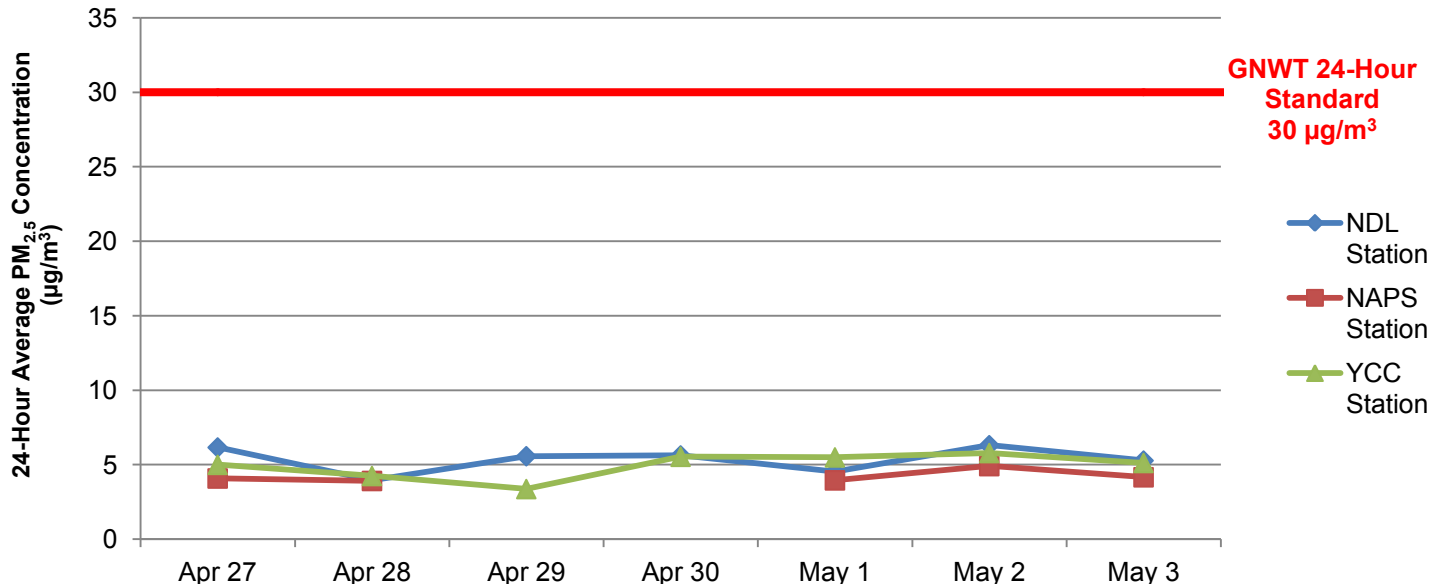


Figure 3: Community Stations 24-hour Average PM_{2.5} Concentrations

3.2 Particulate Matter less than 10 Microns (PM₁₀)

There were two (2) 24-hour average PM₁₀ concentrations exceeding the Ontario Ambient Air Quality Standard of 50 µg/m³. The first exceedance occurred at the NDL station on April 29, 2014 (58.6 µg/m³), while the second exceedance occurred at the NAPS on station on May 1, 2014 (57.4 µg/m³). Winds on April 29, 2014 were moderate (2.5 m/s) and were blowing from the south placing the NDL station upwind of the Giant Mine site. Additionally, the maximum 15 minute average PM₁₀ concentration measured at the fenceline monitoring sites on April 29, 2014 was 11.0 µg/m³, as such, activities at the Giant Mine site were likely not contributing to the PM₁₀ 24-hour average concentration measured on this day.

On May 1, 2014, winds were strong (8.3 m/s) and blowing from the northwest placing the NAPS station crosswind of the Giant Mine site. The maximum 15 minute average PM₁₀ concentration measured at the fenceline monitoring sites on May 1, 2014 was 14.0 µg/m³, indicating activities at the Giant Mine site were likely not a significant contributor, if any, to the PM₁₀ 24-hour average concentration on this day.

PM₁₀ maximum hourly and 24-hour average concentrations at each of the three community stations are summarized in Table 5. The 24-hour concentrations are shown in Figure 4.

Table 5. Community Stations Maximum Hourly and 24-hour Average PM₁₀ Concentrations (µg/m³) – April 27 – May 3, 2014

Sampling Location	NDL Station		NAPS Station		YCC Station	
Date	Maximum hourly average PM ₁₀ concentration	24-hour average PM ₁₀ concentration	Maximum hourly average PM ₁₀ concentration	24-hour average PM ₁₀ concentration	Maximum hourly average PM ₁₀ concentration	24-hour average PM ₁₀ concentration
April 27, 2014	66.0	22.3	23.0	10.5	8.0	3.9
April 28, 2014	94.0	34.2	44.0	12.0	20.0	3.4
April 29, 2014	133.0	58.6	35.0	16.5	33.0	6.0
April 30, 2014	89.0	32.2	97.0	24.4	26.0	7.2
May 1, 2014	93.0	27.2	126.0	57.4	23.0	10.2
May 2, 2014	104.0	31.0	52.0	25.6	35.0	10.8
May 3, 2014	28.0	7.7	24.0	10.7	26.0	6.5

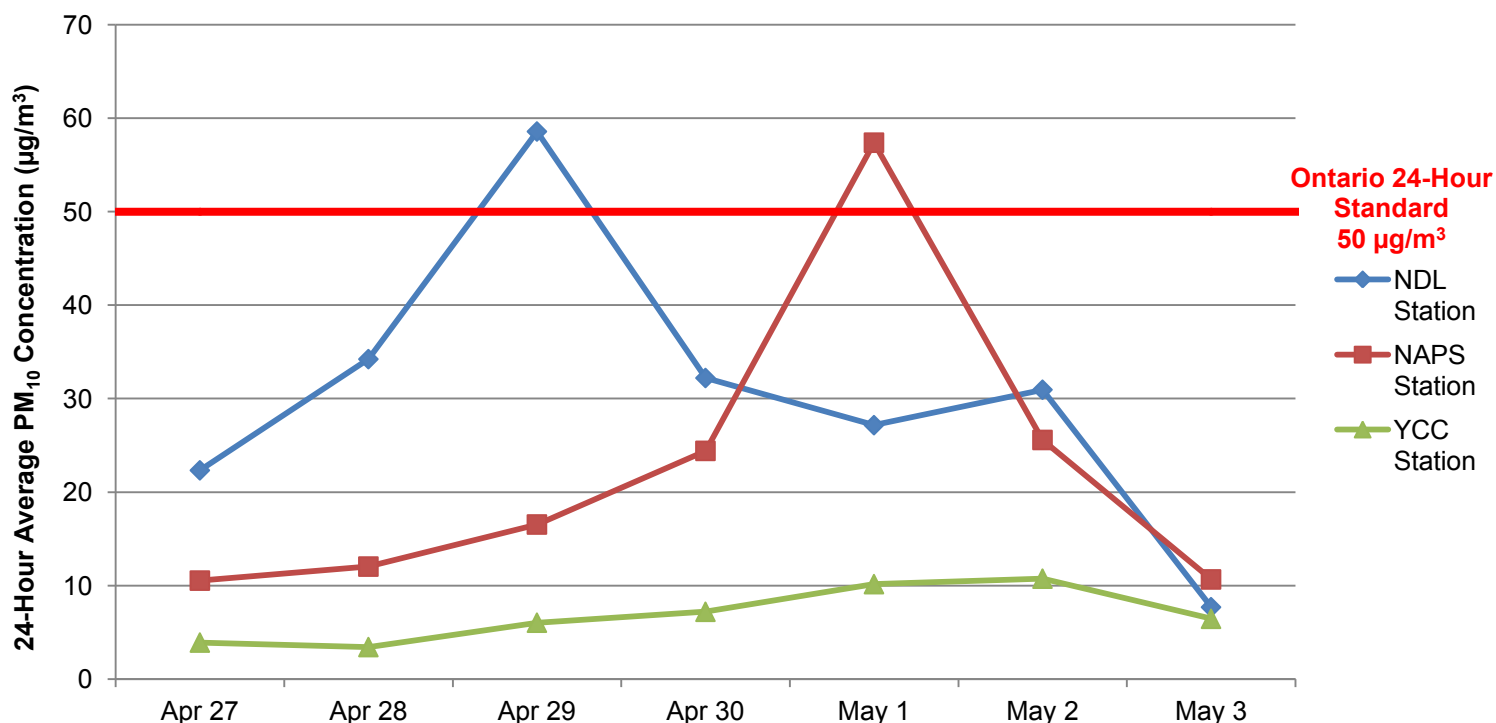


Figure 4: Community Stations 24-hour Average PM₁₀ Concentrations

3.3 Other Contaminants of Concern

Following shutdown of on-site remediation activities on December 14, 2013, integrated filter sampling at the community stations continued on a six day rotation through the winter months. The sampling schedule returned to a three day rotation as of April 29, 2014. Integrated sampling for TSP, PM₁₀, asbestos, total inorganics (trace metals), and arsenic for a 24-hour period is conducted at the community stations using Tisch Environmental high volume air flow samplers and Flite 2 sampling pumps (asbestos only). Sampling of these parameters during the weekly reporting period was conducted on April 29 and May 2, 2014. A makeup sample was conducted for PM₁₀ at YCC on April 30, 2014. Analytical results for these sample dates are pending. Analytical results from prior sampling events are presented in the following sections.

3.3.1 Particulate Matter (TSP)

There were no 24-hour average TSP concentrations exceeding the Guideline for Ambient Air Quality Standards in the Northwest Territories of 120 µg/m³ measured at any of the three community monitoring stations on April 5, 11, and 17, 2014. The TSP analytical results are summarized in Table 6. Results from TSP sampling conducted after April 17, 2014 are pending.

Table 6. Community Stations 24-hour Average TSP Concentrations (µg/m³)

Date	Sample ID	TSP
April 5, 2014	NAPS-TSP-078	33
April 5, 2014	NDL-TSP-078	8
April 5, 2014	YCC-TSP-078	12
April 11, 2014	NAPS-TSP-079	99
April 11, 2014	NDL-TSP-079	5
April 11, 2014	YCC-TSP-079	28
April 17, 2014	NAPS-TSP-080	45
April 17, 2014	NDL-TSP-080	10
April 17, 2014	YCC-TSP-080	9
Northwest Territories Ambient Air Quality Standard		120

Note: < - less than the analytical detection limit indicated

3.3.2 *Particulate Matter (PM₁₀)*

There were no 24-hour average PM₁₀ concentrations exceeding the Guideline for Ambient Air Quality Standards in the Northwest Territories of 50 µg/m³ measured at any of the three community monitoring stations on April 5, 11, and 17, 2014. The PM₁₀ analytical results are summarized in Table 7. Results from PM₁₀ sampling conducted after April 17, 2014 are pending.

Table 7. Community Stations 24-hour Average PM₁₀ Concentrations (µg/m³)

Date	Sample ID	PM ₁₀
April 5, 2014	NAPS-PM10-078	12
April 5, 2014	NDL-PM10-078	5
April 5, 2014	YCC-PM10-078	<3
April 11, 2014	NAPS-PM10-079	39
April 11, 2014	NDL-PM10-079	<3
April 11, 2014	YCC-PM10-079	10
April 17, 2014	NAPS-PM10-080	27
April 17, 2014	NDL-PM10-080	5
April 17, 2014	YCC-PM10-080	4
Ontario Ambient Air Monitoring Criteria		50

Note: < - less than the analytical detection limit indicated

3.3.3 *Total Inorganics (Trace Metals)*

Following the analyses of TSP, the post exposure filters were analyzed for trace metal concentrations that included antimony, arsenic, iron, lead, and nickel. All 24-hour average concentrations were less than the analytical detection limit and/or below the Ontario Ambient Air Quality Criteria for all parameters at the three community monitoring stations on April 5, 11, and 17, 2014. The TSP trace metals results are summarized in Table 8. Trace metal results from sampling conducted after April 17, 2014 are pending.

Table 8. Community Stations 24-hour TSP Trace Metal Concentrations ($\mu\text{g}/\text{m}^3$)

Sample Date	Sample ID	Total Antimony	Total Arsenic	Total Iron	Total Lead	Total Nickel
April 5, 2014	YCC-TSP-078	<0.0046	<0.0028	0.506	<0.0014	0.0018
April 5, 2014	NDL-TSP-078	<0.0047	<0.0028	0.223	0.0015	<0.0014
April 5, 2014	NAPS-TSP-078	<0.0045	<0.0027	0.903	<0.0013	0.0015
April 11, 2014	YCC-TSP-079	<0.0045	<0.0027	0.934	0.0017	0.002
April 11, 2014	NDL-TSP-079	<0.0046	<0.0028	0.173	<0.0014	<0.0014
April 11, 2014	NAPS-TSP-079	<0.0044	<0.0026	2.99	0.0029	0.004
April 17, 2014	YCC-TSP-080	<0.0046	<0.0028	0.336	<0.0014	0.0015
April 17, 2014	NDL-TSP-080	<0.0047	<0.0028	0.232	<0.0014	<0.0014
April 17, 2014	NAPS-TSP-080	<0.0045	<0.0027	1.28	0.0018	0.0022
Ontario Ambient Air Quality Criteria		25	0.3	4	0.5	0.2

Note: < - less than the analytical detection limit indicated

3.3.4 Arsenic

Following the analyses of PM₁₀, the post exposure filters were analyzed for arsenic concentrations. All reported 24-hour average arsenic concentrations were less than the analytical detection limit and/or below the Ontario Ambient Air Quality Criteria (0.3 µg/m³) measured at the three community monitoring stations on April 5, 11, and 17, 2014. The analytical results are summarized in Table 9. Results from arsenic sampling conducted after April 17, 2014 are pending.

Table 9. Community Stations 24-hour PM₁₀ Arsenic Concentrations (µg/m³)

Date	Sample ID	Arsenic
April 5, 2014	YCC-PM10-078	<0.0033
April 5, 2014	NDL-PM10-078	<0.0034
April 5, 2014	NAPS-PM10-078	<0.0032
April 11, 2014	YCC-PM10-079	<0.0033
April 11, 2014	NDL-PM10-079	<0.0033
April 11, 2014	NAPS-PM10-079	<0.0031
April 17, 2014	YCC-PM10-080	<0.0033
April 17, 2014	NDL-PM10-080	<0.0034
April 17, 2014	NAPS-PM10-080	<0.0032
Ontario Ambient Air Monitoring Criteria		0.3

Note: < - less than the analytical detection limit indicated

3.3.5 Asbestos

Twenty-four hour average sampling for asbestos was conducted every six days using SKC Flite 2 sampling pumps and in accordance with NIOSH method 7400. All 24-hour average asbestos concentrations were below the Ontario Ambient Air Quality Criteria (0.04 fibres/cm³) measured at the three community monitoring stations on March 30, April 5, 11, 17, and 23, 2014. A makeup sample was collected on April 15, 2014 at NAPS due to unconfirmed Flite 2 pump operation on April 11, 2014. The analytical results are summarized in Table 10. Results from asbestos sampling conducted after April 23, 2014 are pending.

Table 10. Community Stations 24-hour Asbestos Concentrations (fibres/cm³)

Date	Sample ID	Asbestos
March 30, 2014	NAPS-ASB-077	0.0020
March 30, 2014	NDL-ASB-077	0.0007
March 30, 2014	YCC-ASB-077	0.0010
April 5, 2014	NAPS-ASB-078	0.0004
April 5, 2014	NDL-ASB-078	<0.0003
April 5, 2014	YCC-ASB-078	0.0003
April 15, 2014	NAPS-ASB-079B ⁽¹⁾	0.0020
April 11, 2014	NDL-ASB-079	<0.0003
April 11, 2014	YCC-ASB-079	0.0010
April 17, 2014	NAPS-ASB-080	0.0010
April 17, 2014	NDL-ASB-080	0.0004
April 17, 2014	YCC-ASB-080	0.0009
April 23, 2014	NAPS-ASB-081	0.0030
April 23, 2014	NDL-ASB-081	0.0007
April 23, 2014	YCC-ASB-081	<0.0003
Ontario Ambient Air Quality Criteria		0.04

Notes: < - less than the analytical detection limit indicated
 1.) Makeup sample due to pump failure on April 11, 2014.

4.0 METEOROLOGICAL CONDITIONS

Meteorological conditions during the sampling period of April 27 through May 3, 2014 are summarized in Table 11.

Table 11. Meteorological Parameters – April 27 – May 3, 2014

Date	Prevailing Wind Direction	Daily Average Wind Speed (m/s)	Daily Average Temperature (°C)
April 27, 2014	S	3.1	3.5
April 28, 2014	S	2.0	2.3
April 29, 2014	S	2.5	5.0
April 30, 2014	S	2.0	7.3
May 1, 2014	NW	8.3	-0.1
May 2, 2014	NNW	5.3	-6.0
May 3, 2014	NE	2.5	-5.4

5.0 SITE ACTIVITIES

5.1 Roaster Complex Deconstruction

Deconstruction activities at the Roaster Complex were initiated during the week ending May 3, 2014 and consisted primarily of preparation work. Specifically, preparation and stock, shrink wrapping, containment skirts and seals, scaffolding set-up and water distribution set up at the Dorcco Roaster. Other activities in the Roaster area included set-up of snow fence around water treatment area, site housekeeping, and general maintenance.

An ambient air monitoring program specific to the deconstruction of the Roaster Complex has been established adjacent to the work area to aid in dust management during the deconstruction. Air quality monitoring for the 2014 construction season started on May 2, 2014. Real time measurement of PM₁₀ was conducted at four (4) monitoring stations adjacent to the work area. No exceedances of the RBAL criteria established for 15-minute PM₁₀ concentrations (159 µg/m³), 1-hour PM₁₀ concentrations (125 µg/m³), and 4-hour PM₁₀ concentrations (85 µg/m³) were measured during the week ending May 3, 2014.

In addition to the real time monitoring, 24-hour integrated sampling for TSP, PM₁₀, and arsenic is conducted every three (3) days adjacent to the work area downwind. Sampling for these parameters was conducted on May 2-3, 2014. Results from this sampling event are pending.

5.2 Other Activities

Regular vehicle traffic and heavy equipment movement on-site. Continuation of drilling program at locations southwest and north of the Roaster.

6.0 STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR for Public Works Government Services Canada (PWGSC). It is intended for the sole and exclusive use of PWGSC and its authorized agents for the purpose(s) set out in this report. Any use of, reliance on or decision made based on this report by any person other than PWGSC for any purpose, or by PWGSC for a purpose other than the purpose(s) set out in this report, is the sole responsibility of such other person or PWGSC. PWGSC and SLR make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

This report has been prepared for specific application to this site and is based on the interpretation of data collected from the ambient air quality monitoring network and the results of laboratory analyses, which were limited to the quantification in select samples of those substances specifically identified in the report. SLR expresses no warranty with respect to the accuracy of information provided by other parties, the laboratory analyses, methodologies used, or presentation of analytical results by the laboratory and/or instrumentation used. Actual concentrations of the substances identified in the samples submitted may vary according to the sampling and testing procedures used.

Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of or compliance with environmental laws, rules, regulations or policies established by federal, provincial or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

Other than by PWGSC and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of SLR.

7.0 CLOSURE

Yours sincerely,
SLR Consulting (Canada) Ltd.



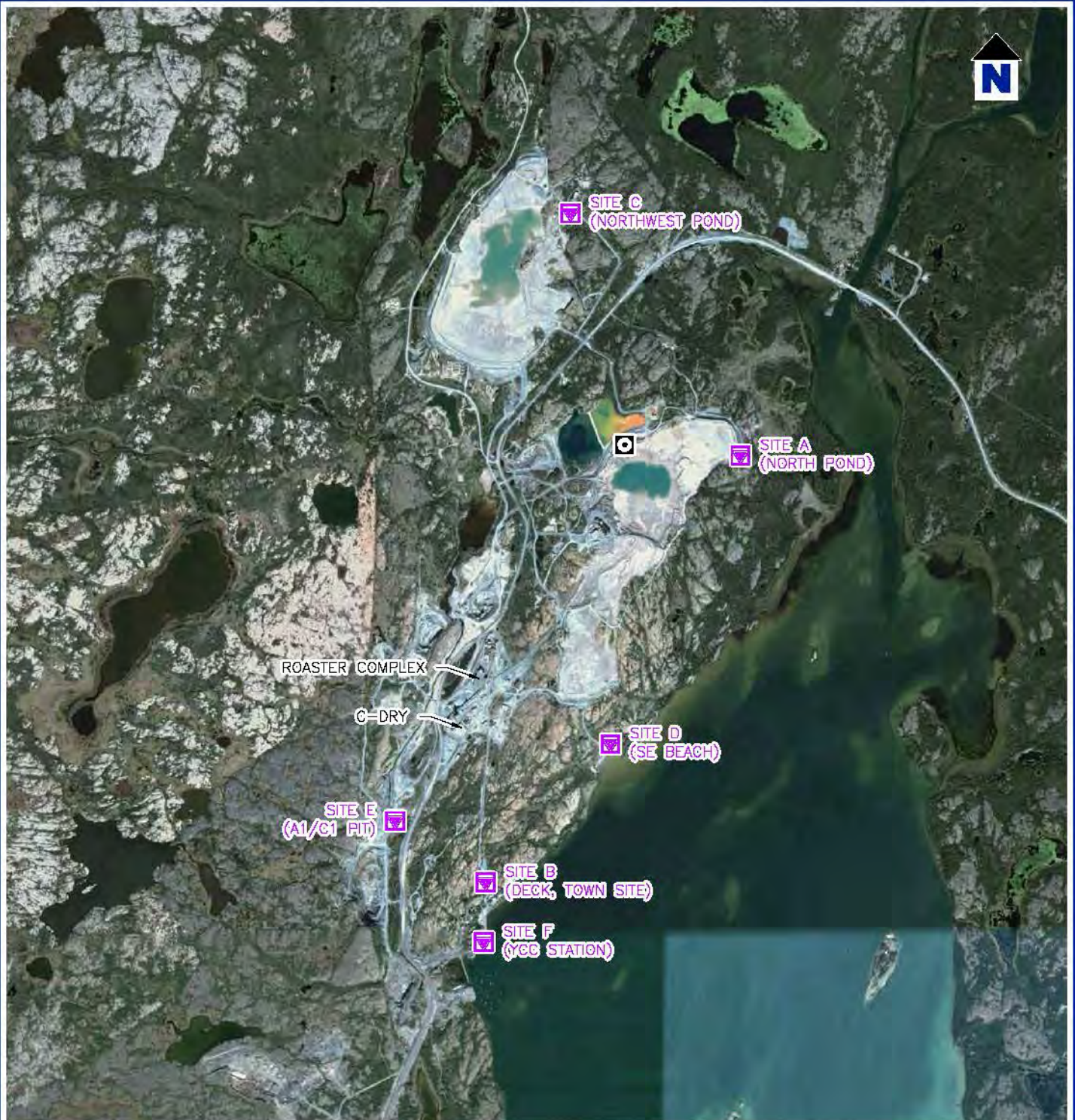
Matthew Porter, M.Sc., EIT
Associate Engineer



Tracey Forbister, B.Sc.
Senior Project Manager

DRAWINGS

Weekly Ambient Air Quality Monitoring Summary
Giant Mine Site, Yellowknife, NT
SLR Project No.: 208.04600.00000



NOTES

DRAWING COMPILED FROM GOOGLE EARTH IMAGERY DATED AUGUST 4, 2007 AND SITE RECONNAISSANCE INFORMATION.

LEGEND

- FENCELINE MONITORING STATION LOCATION
- METEOROLOGICAL STATION LOCATION

**PUBLIC WORKS GOVERNMENT SERVICES
CANADA - ATLANTIC
GIANT MINE SITE
YELLOWKNIFE, NORTHWEST TERRITORIES**

Report
**WEEKLY AMBIENT AIR QUALITY
MONITORING SUMMARY**

Drawing
**FENCELINE MONITORING STATION
LOCATIONS**



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

Date	July 9, 2013	Scale	NTS	Figure No.	1
File Name	S_208-04590-00000-A1	Project No.	208.04590.00000		



NOTES

DRAWING COMPILED FROM GOOGLE EARTH IMAGERY DATED AUGUST 4, 2007 AND SITE RECONNAISSANCE INFORMATION.

LEGEND



COMMUNITY MONITORING STATION LOCATION



METEOROLOGICAL STATION LOCATION

**PUBLIC WORKS GOVERNMENT SERVICES
CANADA
GIANT MINE SITE
YELLOWKNIFE, NORTHWEST TERRITORIES**

Report
**WEEKLY AMBIENT AIR QUALITY
MONITORING SUMMARY**

Drawing
**COMMUNITY MONITORING STATION
LOCATIONS**



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

Date March 24, 2014

Scale NTS

Figure No. 1

File Name S_208-04590-00001-A3

Project No. 208.04590.00001

APPENDIX A

AECOM Memorandum – Weekly Update

Weekly Ambient Air Quality Monitoring Summary
Giant Mine Site, Yellowknife, NT
SLR Project No.: 208.04600.00000

Memorandum – Weekly Update

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CC:			
Subject:	Giant Mine: PM ₁₀ , TSP and Arsenic Monitoring		
From:	Ajeev Ramnauth, Peter Tkalec		
For Week Ending:	May 3, 2014	Project No. & Folder:	60302382 (402)
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For the purposes of this report, the air quality contractor (AQC) refers to the air quality contractor responsible for the siting and operations of the air monitoring program for the roaster deconstruction at Giant Mine.

Summary

Air quality monitoring for the 2014 construction season started on May 2, 2014. There were no recorded exceedances for the reporting period for the week ending May 3. Baseline 24 hour samples were taken on May 2-3 and analysis results are pending.

1. Real-Time Monitoring Results

The AQC was responsible for siting and operations of the air monitoring program. The Thermo MIE ADR-1500 was used for real-time monitoring.

Four real-time monitoring stations logging real-time PM₁₀ concentrations were placed adjacent to the work area by the AQC. If necessary, based on wind directions and planned work locations; these monitors are relocated once a day each morning. The approximate UTM coordinates for each day can be found in the tables appended to this report. The AQC sited these monitoring stations based on forecasted conditions, outlined by Environment Canada for Yellowknife, at the start of the work day (07:00).

15-minute averages were logged. 1-hour and 4-hour averages were calculated post monitoring.

The following figure shows the trend of PM₁₀ for the past monitoring period, relative to the action levels. The figure was developed with data as compiled from the Parsons' SharePoint site. Future reports will illustrate data from the previous monitoring period for context (i.e. the current reporting week's data and the previous week's data shall be plotted).

Figure 1-1: PM₁₀ Concentration Trends for Real-Time Monitoring: 15-minute averaging

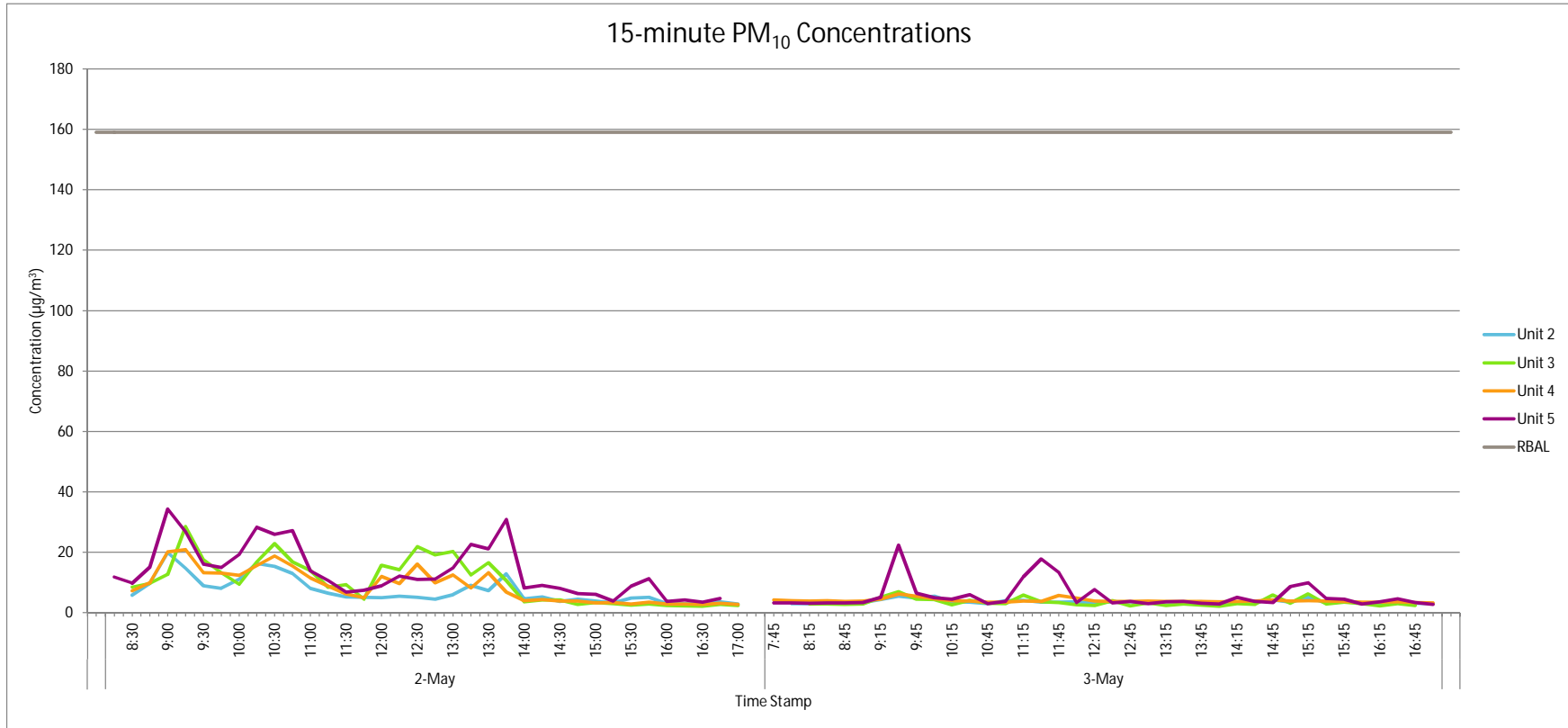


Figure 1-2: PM₁₀ Concentration Trends for Real-Time Monitoring: 1-hour averaging

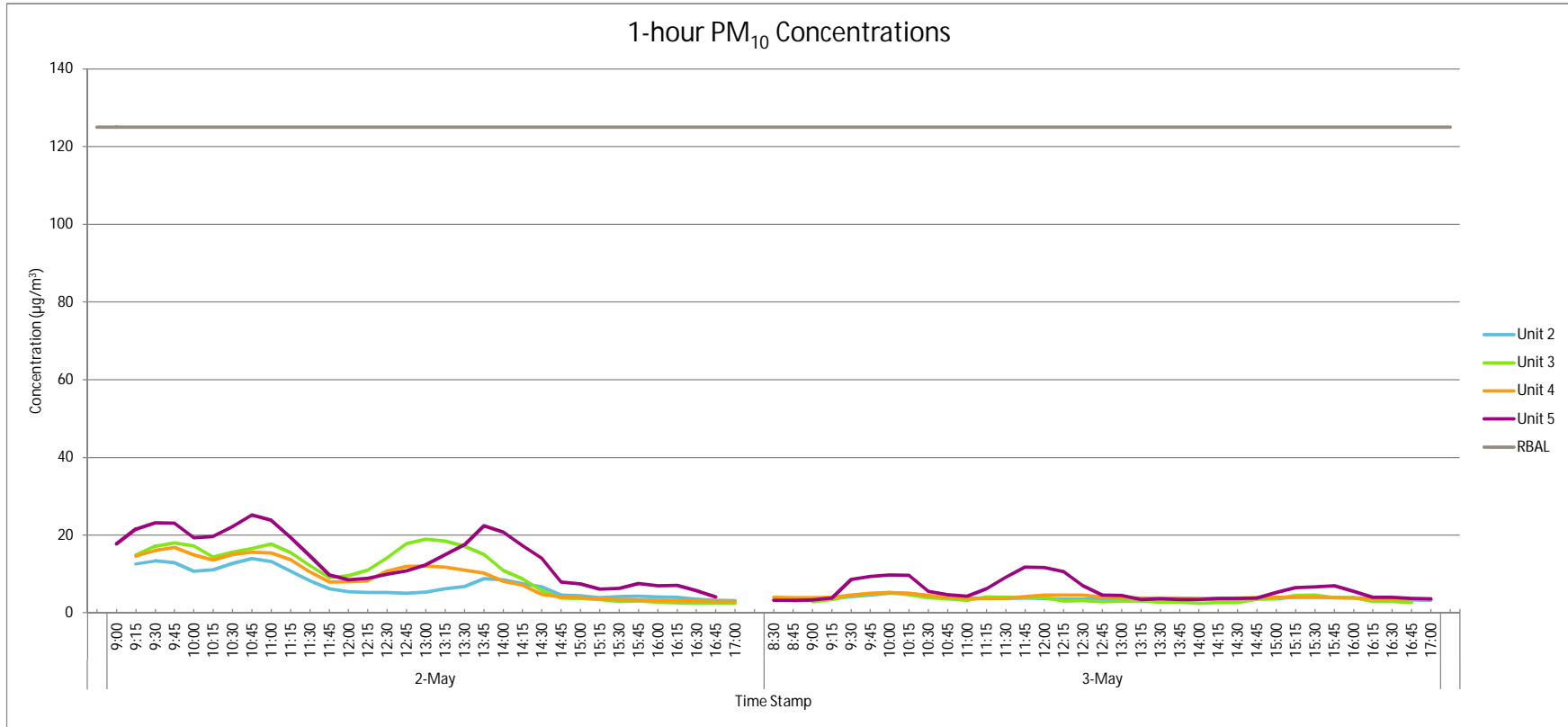
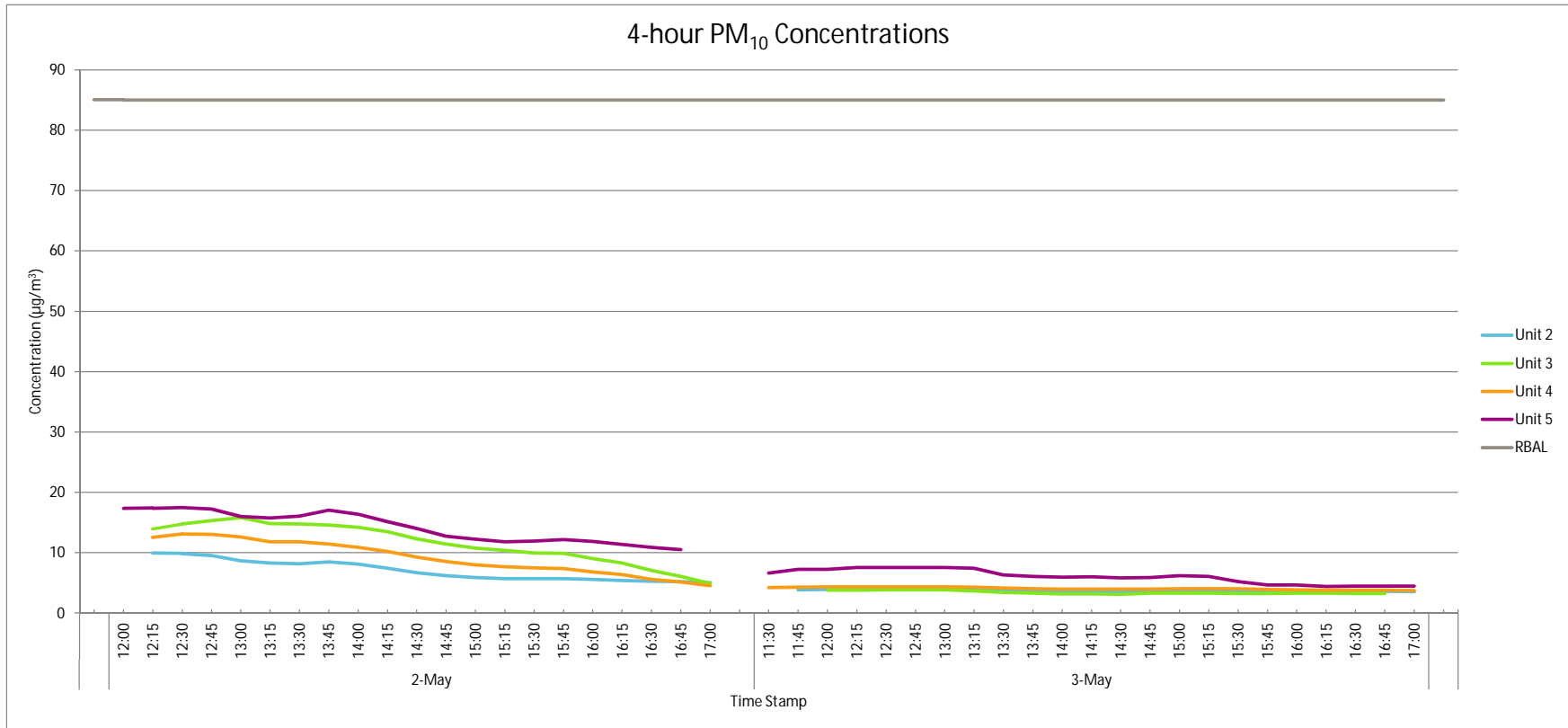


Figure 1-3: PM₁₀ Concentration Trends for Real-Time Monitoring: 4-hour averaging



There were no recorded exceedances in the week ending May 3rd.

Data availability was calculated. If negative concentrations were found or data is missing, these entries were removed from analysis, impacting the reportable data availability. Although AECOM removed negative concentrations (if any), data validation by the AQC cannot be confirmed for the rest of the data set.

The air quality monitors were also run from May 1st; that day was a trial run and will not be included in the reporting.

Data availability was 100% for the week ending May 3 as shown in Table 1-1. The percentage was calculated using May 2nd and 3rd as the monitoring days.

Table 1-1: Data Availability for Week of April 28 to May 3

Unit	Data Availability	Days Active
1	100%	May 2-3
2	100%	May 2-3
3	100%	May 2-3
4	100%	May 2-3
5	100%	May 2-3

Note: The availability percentages are calculated based on May 2nd and May 3rd values only.

2. 24-hour Air Sampling Results

The AQC was responsible for siting and operation of the 24-hour ambient air sampling program.

The BGI PQ100 portable sampler was used for integrated ambient air sampling.

Two monitors were used per location, one sampling PM₁₀, and one sampling TSP. Arsenic concentrations are obtained from the TSP samples.

There is currently no on-site meteorological data available in real-time, therefore the AQC used Environment Canada data to confirm that the monitors were approximately downwind during the 24-hour sampling periods.

Samples are scheduled to be taken for 24-hour periods once every 3 days, from 7 a.m. to 7 a.m. the next day. The baseline sample for 2014 was taken on May 2-3. Results are pending.

Table 2-1: Integrated Air Sampling Results

Date	Sample ID	Location	Contaminant	Result	Criteria*	Exceedance?
				(µg/m ³)	(µg/m ³)	
May 2 – May 3	Pending	SE Gate	TSP	Pending	120	Pending
			Arsenic	Pending	0.3	Pending
	Pending		PM10	Pending	50	Pending
	Pending	SW of the Calcine Plant	TSP	Pending	120	Pending
			Arsenic	Pending	0.3	Pending
			PM10	Pending	50	Pending

Note: *The air quality criteria presented is meant for air quality monitoring outside the property lease boundary. It is considered conservative criteria for comparing results that occur to provide context for the concentrations within the property lease boundary.

Data Source: Parsons, 2014

Table 2-2: Data Availability

Date	Data Availability
May 2 – May 3	Pending

3. Summary of Remediation Activities

Table 3-1 below summarizes the work done for this week.

Table 3-1: Work Summary April 28 to May 3

Type of Work	Description
Abatement	None
Non-abatement	Monthly safety inspection
	Dorrco Roaster supports were reviewed by a Parsons engineer
	Barricade fencing was replaced between the decontamination units and the AC Roaster
	Shrink wrapping Dorrcro Roaster, set up snow fence around water treatment
	Wildlife inspections
	Containment skirts and seals ongoing in the Dorrcro, water distribution setup, containment pressure check

Work specific to May 2 - 3 that coincides with the 24 hour air sampling results is:

- **Dorrco Roaster:** Preparation and stock, continue shrink wrapping, containment skirts and seals ongoing, water distribution set up
- Set up snow fence around water treatment, site housekeeping and maintenance

4. Meteorological Conditions

The following table summarizes the meteorological data for the week.

Table 4-1: Meteorological Data for the Weekly Monitoring Period

Date	Predominant Wind Direction	Average Wind Speed (m/s)	Average Relative Humidity (%)	Average Temperature (°C)	Total Precipitation (mm)
28-Apr	S	2.52	91.47	2.70	0.00
29-Apr	S	3.75	68.61	7.11	0.00
30-Apr	SSE / variable	2.53	68.61	7.65	0.20
1-May	WNW	9.02	71.34	0.41	0.00
2-May	N	6.28	50.46	-5.23	0.00
3-May	N / NNE	2.49	42.70	-3.00	0.00

Note: Winds are determined to be predominant for the day if winds were from a particular direction or two adjacent wind directions for more than 70% of the work day. Meteorological averages are during work hours only (7:00-17:00); individual readings are included in the appendices.

Data source: Weekly Ambient Air Quality Monitoring Summary Fenceline/Community Monitoring Stations Giant Mine Site. Yellowknife, Northwest Territories” SLR Consulting (Canada) Ltd.

5. Data Quality

Quality Control

The AQC has stated the following:

- A weekly zero of all real-time air monitors was completed and daily zeroing has occurred in the field prior to starting.
- At the beginning of each integrated sampling period, the sampler flow rate was set and the location was selected taking into account the meteorological conditions for the day.
- Data was downloaded nightly, and reviewed by the AQC. Log sheets are used to record the physical inspections done throughout the day are maintained on Parsons’ SharePoint site.

Quality Assurance

The real-time and 24-hour monitoring data available on the Parsons SharePoint site was extracted and compiled by AECOM. AECOM calculated block averages for the 1 hour and 4 hour time periods.

APPENDIX B

Detailed Data Sheets Available Upon Request:

Contact: Belinda.Campbell@pwgsc.gc.ca

Weekly Ambient Air Quality Monitoring Summary
Giant Mine Site, Yellowknife, NT
SLR Project No.: 208.04600.0000