NEW GOLD INC.
RAINY RIIVER MINE

AMBIENT AIR QUALITY MONITORING PROGRAM
FIRST QUARTER 2019 REPORT

MAY 2019

ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
AAQO	Alberta Ambient Air Quality Objectives
ACFM	Cubic Feet Per Minute at Actual Conditions
AEP	Alberta Environment and Parks
ASTM	American Society for Testing and Materials
BCMOE	British Columbia Ministry of the Environment
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma / Atomic Emission Spectroscopy
LPM	Litres Per Minute
MECP	Ministry of the Environment, Conservation and Parks
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
US EPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per Cubic Metre

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1.0 INTRODUCTION

The following is a summary of the First Quarter (Q1) 2019 results for the ambient air quality monitoring program undertaken at New Gold Inc.'s Rainy River Mine located northwest of Emo, Ontario.

In Q1 of 2019, New Gold Inc. (New Gold) staff operated and maintained the ambient air quality monitoring sampling stations, communicated with the laboratory staff as required, and prepared the data summary reports. Wood staff performed a Q1 calibration on March 6, 2019.

This Quarterly Ambient Air Quality Report addresses the required elements of a Quarterly Report defined in the *Operations Manual for Air Quality Monitoring in Ontario* (MECP, 2018), hereafter referred to as the Operations Manual. Specifically, the following information is provided:

- Summary statistics;
- Sampling dates (start and end where applicable); and
- A summary of exceedances of an Ontario Standard, Ambient Air Quality Criterion (AAQC), or Canadian Ambient Air Quality Standard (CAAQS).

The purpose of the air monitoring program is to quantify potential air quality effects associated with mine activities. The monitoring program consists of two sampling stations established in May 2015; one located to the southwest of the site near McMillan Road along the realigned Highway 600 and one located to the northeast of the site along Gallinger Road (Figures 2-1, 2-2, and 2-3). Each sampling station consists of the following:

- One High Volume (Hi-Vol) samplers for discrete sampling of Total Suspended Particulate (TSP) and metals;
- One PQ200 samplers for discrete sampling of respirable particulate matter ($PM_{2.5}$);
- One standard passive dustfall collection unit; and
- One passive sampling enclosure measuring NO_2 and SO_2.

The Tait Road station located near McMillan Road also contains a meteorological station that provides real-time site wind speed, wind direction, temperature, relative humidity, and precipitation data. Figure 2-4 illustrates the Tait Road station sampling and meteorological equipment.

The Ambient Air Monitoring Program was carried out per ECA 0412-A2LR4V and the MECP program approval letter dated November 9, 2019.

2.0 MONITORING STATIONS

The ambient air quality monitoring stations were sited in accordance with the criteria stipulated in the Operations Manual (MECP 2018).

The general location for the two stations is shown in Figure 2-1. UTM co-ordinates for each station based upon NAD 83, are presented in Table 2-1. Imagery showing each station are presented as Figures 2-2 and 2-3.

There were no changes to the station locations in Q1 2019.

Table 2-1: Ambient Air Monitoring Stations

Station	UTM Co-ordinates			Parameters Monitored
	Easting (m)	Northing (m)	Zone	
Tait Road Station (Southwest Station)	426 072	5 406 996	15	TSP, metals, $PM_{2.5}$, NO_2, SO_2, total dustfall Meteorological data (wind speed and direction, ambient temperature, relative humidity, rainfall)
Gallinger Road Station (Northeast Station)	431 133	5 410 534	15	TSP, metals, $PM_{2.5}$, NO_2, SO_2, total dustfall

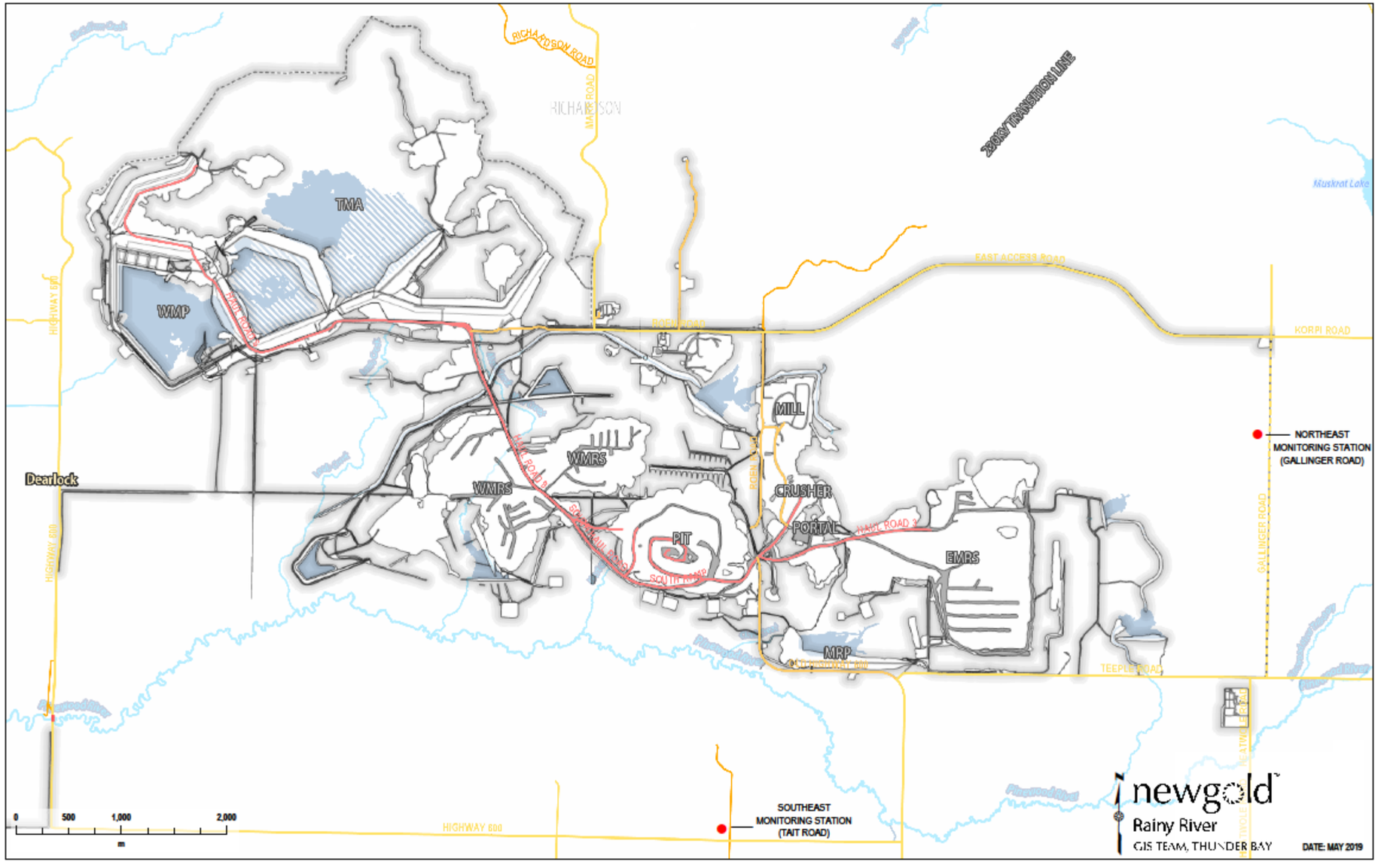

Figure 2-1: Ambient Air Monitoring Stations

Figure 2-2: Ambient Air Monitoring – Southwest Tait Road Monitoring Station

Figure 2-3: Ambient Air Monitoring – Northeast Gallinger Road Monitoring Station

Figure 2-4: Ambient Air Monitoring – Tait Road Station Air Quality And Meteorological Equipment

3.0 ANALYTICAL AND MONITORING METHODS

3.1 TSP and Metals

The TSP concentrations were determined using the standard gravimetric reference methods approved by the United States Environmental Protection Agency (US EPA) and the Ontario Ministry of the Environment, Conservation and Parks (MECP); as described in the Operations Manual (MECP 2018). Measurements of 24-hour average TSP and metal concentrations were collected as specified in the Operations Manual (MECP 2018); particulate samples were collected every sixth day as per the North American schedule (US EPA 2017). Sampling was performed with Hi-Vol samplers (brush motor and mass flow controlled). Metals and metalloids analyzed included the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn). A metalloid is an element such as As that has both metallic and non-metallic properties.

The lowest detectable limit of total particulate on the filter is 2.3 milligrams (mg). A typical 24-hour sample volume of 1,630 m³ results in a method detection limit of 1.4 micrograms per cubic metre (µg/m³).

Metal concentrations were determined using standard Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP/AES) methodology. Method detection limits are as shown on the data sheets in Appendix A-1.

3.2 $PM_{2.5}$

Sampling was performed with PQ200 samplers. $PM_{2.5}$ concentrations were determined using the standard gravimetric reference methods approved by the US EPA and the MECP; as described in the Operations Manual (MECP 2018). $PM_{2.5}$ measurements were collected over a 24-hour period to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS); particulate samples were collected every sixth day as per the North American schedule (US EPA 2017).

The lowest detectable limit of $PM_{2.5}$ on the Teflon filters is 15 µg. A typical 24-hour sample volume of 24 m³ results in a method detection limit of 0.6 µg/m³.

3.3 Total Dustfall

Water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and the British Columbia Ministry of Environment method outlined in Section G of Air Constituents – Inorganic (MECP 2018). Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m²/30 days. Bird deterrents were added in Q3 2017 with the goal of reducing contamination.

3.4 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. Testing was conducted using methodology developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Sample uptake is dependent on temperature, relative humidity and wind speed. Analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). Required meteorological data were obtained from the Environment and Climate Change Canada website. Fort Frances meteorological station (Climate ID 6022474) is downloaded by Maxxam Analytics with each sample submission. For both SO_2 and NO_2, the analytical method detection limit is in the order of 0.1 parts per billion (ppb). Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MECP guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data is only used for screening purposes. For NO_2, the monthly results were compared to the MECP 24-hour AAQC converted to an equivalent 30-day average (78 µg/m³) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MECP 2018). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objective of 30 µg/m^3 (AEP 2016).

3.5 Field Operations

3.5.1 Hi-Vol and PQ200 Samplers

To meet the requirements of 1 in 6 day sampling schedule, stations were visited once every six days. The exposed filter was recovered, and a pre-weighed filter installed for the subsequent sample run. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Wood staff performed flow, temperature, and barometric pressure calibrations using an electronic BGI flow calibrator. The flows were calibrated to 16.7 litres per minute (LPM) for each station. Q1 Calibrations were performed on:

- March 6, 2019 – All hi-vols and PQ200s calibrated.

3.5.2 Dustfall Samplers

The dustfall samplers containing algaecide were changed every month. Dustfall jars were provided by the laboratory with screw-on lids to prevent sample loss during transport.

3.5.3 Passive Samplers

The permeation filters in the passive samplers were changed every month. Filters were kept in cassettes inside Ziploc bags until deployed to prevent premature exposure. After the sample was collected, the filter was placed back in its cassette and into a Ziploc bag for shipment to the lab.

3.5.4 Performance and Site Audits

There were no MECP audits conducted in Q1 2019.

3.5.5 Equipment and Sampling Issues

During Q1 2019, four samples were invalidated, as discussed below:

- January 3: TSP samples at the Tait Road and Gallinger Road Stations were invalidated due to excessive run times. PM2.5 sample at the Gallinger Road station was invalidated due to awaiting rental unit after previous pump issues.
- January 9: TSP and PM2.5 samples at the Tait Road and Gallinger Road Stations were invalidated due to a missed run.
- January 27: PM2.5 at the Gallinger Road Station was invalidated due to excessive run time.
- March 28: PM2.5 at the Gallinger Road Station was invalidated due to insufficient run time.

4.0 RESULTS

Sampling program results for Q1 2019 are presented in Appendix A-1 for the particulate and metals data, Appendix A-2 for the dustfall data and Appendix A-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses following MECP protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparative purposes, the MOECC AAQC and CAAQS values are presented, where available, noting that the AAQCs are numerically equivalent to the Ontario Regulation 419/05 standards.

Summaries of the statistical analyses for Q1 2019 for the TSP, metals, and $PM_{2.5}$ concentrations are presented in Tables 4-1, 4-2, and 4-3, respectively. During the quarter, the 1 in 6-day sampling schedule presented a possible 15 sampling days between January 1 and March 31, 2019.

A summary of the statistical analyses for Q1 2019 for the total dustfall data is presented in Table 4-4.

A summary of the statistical analysis for the Q1 2019 passive SO_2 and NO_2 results is presented in Table 4-5.

4.1 TSP and Metals

The Tait Road and Gallinger Road stations both collected 13 valid samples, resulting in 87% valid data for Q1 2019 at each station.

For the quarter, the geometric mean TSP concentrations were 9.41 µg/m³ for the Tait Road station and 13.21 µg/m³ for the Gallinger Road station. Values reported by the laboratory as below the detection limit were substituted with one-half of the detection limit. The maximum 24-hour concentration for TSP was 116.35 µg/m³ at the Tait Road station on March 16, 2019, and 79.71 µg/m³ at the Gallinger Road station on March 4, 2019.

There were no exceedances of an MECP AAQC measured for any of TSP, metals, or metalloids in Q1 2019 at either station.

Appendix A-1 and Figure 4-1 present individual sample data. The Q1 2019 TSP and metals summary statistics are summarized in Tables 4-1 and 4-2, respectively.

4.2 $PM_{2.5}$

The Tait Road station collected 14 valid samples, resulting in 93% valid data for Q1 2019. The Gallinger Road Station collected 11 valid samples, resulting in 73% valid data for Q1 2019. Delays in the delivery of the rental PQ200 unit and mechanical malfunction of the repaired unit resulted in sample invalidation.

Values reported by the laboratory as below the detection limit were substituted with one-half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 8.03 µg/m³ at the Tait Road station (March 10, 2019), and 7.54 µg/m³ at the Gallinger Road station (March 10, 2019).

There were no $PM_{2.5}$ exceedances of the MECP AAQC of 30 µg/m³ or CAAQS (ECCC 2013) of 28 µg/m³ measured in Q1 2019. Appendix A-1 and Figure 4-2 present individual sample data.

The Q1 2019 $PM_{2.5}$ summary statistics are summarized in Table 4-3.

4.3 Total Dustfall

In Q1 2019, three valid samples were collected at each station. Each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter.

Values reported by the laboratory as below the detection limit were substituted with one-half of the detection limit. The maximum 30-day concentration for dustfall was 0.84 µg/m³ at the Tait Road station (January), and 2.10 µg/m³ at the Gallinger Road station (February).

There were no dustfall exceedances of the 30-day MECP AAQC of 7 g/m² measured in Q1 2019.

A summary of the results is presented in Table 4-4 and the monthly results are presented in Appendix A-2.

4.4 Passive SO_2 and NO_2

In Q1 2019, 3 valid samples were collected at each station for each of SO_2 and NO_2.

There are no MECP standards, guidelines or AAQCs for SO_2 or NO_2 for a 30-day averaging period. The 30-day measured average SO_2 or NO_2 concentrations allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for potential comparison with dispersion modelling results.

For NO_2, the monthly results were compared to the MECP 24-hour AAQC converted to an equivalent 30-day average (78 µg/m³) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MECP 2018). For SO_2, the results were compared against the Alberta Ambient Air Quality Objective of 30 µg/m³ (AEP 2017).

A summary of the passive results is presented in Table 4-5 and the monthly results are presented in Appendix A-3.

4.5 Evaluation of Effects of Abatement Measures on Monitored Concentrations

The Rainy River Mine has a comprehensive Best Management Practices Plan (BMPP) for Fugitive Dust approved by the MECP as part of the ECA review process. This BMPP effectively controls the generation and dispersion of dust such that the particulate matter measured at the two ambient monitoring stations was below the AAQC for all Q1 2019 samples.

Table 4-1: Summary Statistics For Q1 2019 TSP Concentration Data

Statistics	Tait Road (SW)	Gallinger (NE)
Geometric mean (µg/m^3)	9.41	13.21
Arithmetic mean (µg/m^3)	16.42	18.41
January Maximum (µg/m^3)	12	26.62
February Maximum (µg/m^3)	8.9	32.26
March Maximum (µg/m^3)	116.3	79.91
Maximum 24-hr (µg/m^3)	116.3	79.91
90th percentile	14.15	31.13
95th percentile	55.35	51.24
24-hr AAQC	120	120
No. Valid Samples	13	13
Valid Data	87%	87%
No. Samples > AAQC (particulate)	0	0
No. Samples > AAQC (metals)	0	0
No. Samples > AAQC (metalloids)	0	0

Table 4-2: Summary Statistics For Q1 2019 Metals Concentration Data

Metal	24-hr AAQC (µg/m^3)	Tait Road (SW)		Gallinger Road (NE)	
		Maximum 24-hr Concentration (µg/m^3)	Fraction of 24-hr AAQC	Maximum 24-hr Concentration (µg/m^3)	Fraction of 24-hr AAQC
As	0.3	9.03E-04	0.3%	9.82E-04	0.3%
Cd	0.025	6.02E-04	2.4%	6.55E-04	2.6%
Cr	0.5	8.54E-03	1.7%	4.54E-03	0.9%
Co	0.1	2.57E-03	2.6%	6.55E-04	0.7%
Cu	50	8.59E-02	0.2%	4.16E-01	0.8%
Fe	4	3.66E+00	91.5%	4.75E-01	11.9%
Pb	0.5	2.32E-03	0.5%	8.28E-03	1.7%
Mn	0.4	7.72E-02	19.3%	4.58E-02	11.5%
Ni	0.2	4.91E-03	2.5%	9.82E-04	0.5%
Se	10	3.01E-03	0.0%	3.27E-03	0.0%
V	2	5.79E-03	0.3%	3.04E-03	0.2%
Zn	120	2.69E-02	0.0%	7.66E-02	0.1%

Table 4-3: Summary Statistics for Q1 2019 $PM_{2.5}$ Concentration Data

Statistics	Tait Road (SW)	Gallinger (NE)
Arithmetic mean (µg/m³)	2.75	—
January Maximum (µg/m³)	3.16	3.96
February Maximum (µg/m³)	6.37	4.74
March Maximum (µg/m³)	8.03	7.54
Maximum 24-hr (µg/m³)	8.03	7.54
90th percentile	6.4	4.74
95th percentile	6.98	6.19
24-hr CAAQS	28	28
No. Valid Samples	14	11
Valid Data	93%	73%
No. Samples > AAQC (particulate)	0	0

Table 4-4: Summary Statistics for Q1 2019 Total Dustfall Data

Statistics	Tait Road (SW)	Gallinger (NE)
Arithmetic mean (µg/m³/30d)	0.72	1.29
Maximum 24-hr (µg/m³/30d)	0.84	2.1
30-day AAQC	7	7
No. > AAQC	0	0
No. Valid Samples	3	3
Valid Data	100%	100%

Table 4-5: Summary Statistics for Q1 2019 Passive SO_2 and NO_2 Concentration Data

Statistics	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean (µg/m³)	0.6	1.6	0.4	2.3
Maximum (µg/m³)	0.8	1.9	0.5	3.1
AAQC* 24-hr converted to 30 day (µg/m³)	N/A	78	N/A	78
Alberta AAQO (µg/m³)	30	N/A	30	N/A
No. valid samples (µg/m³)	3	3	3	3
Valid data (µg/m³)	100%	100%	100%	100%

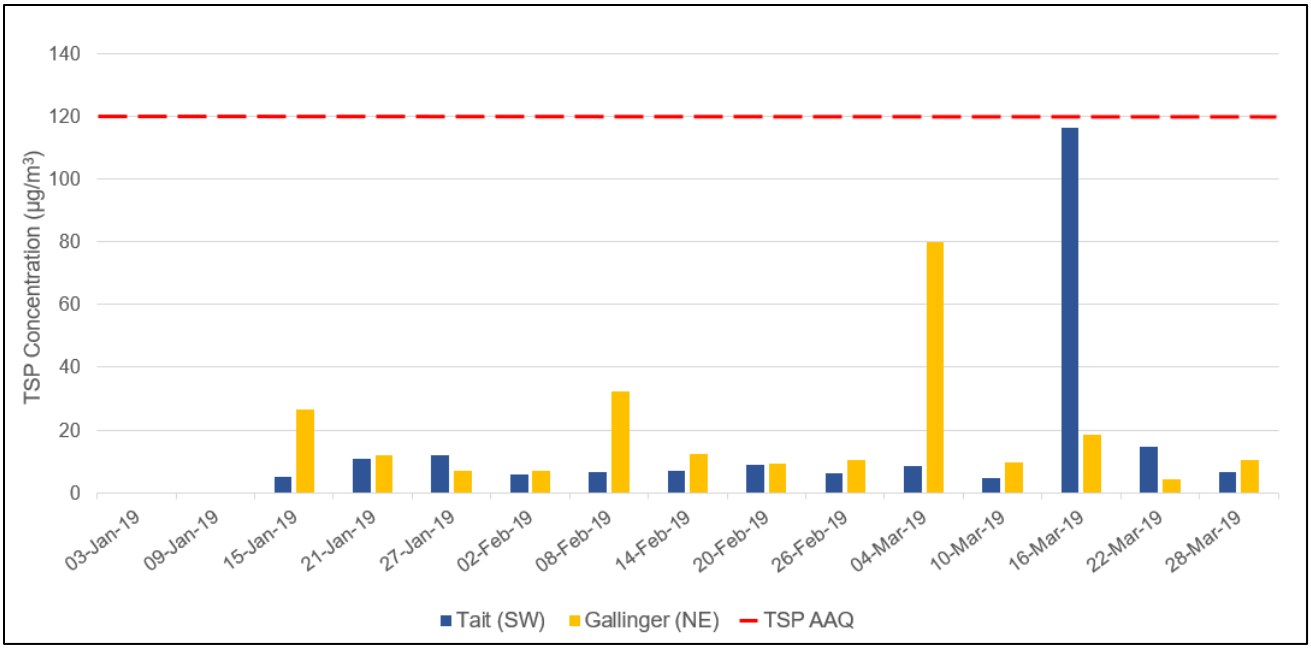

Figure 4-1: TSP Concentrations (Q1 2019)

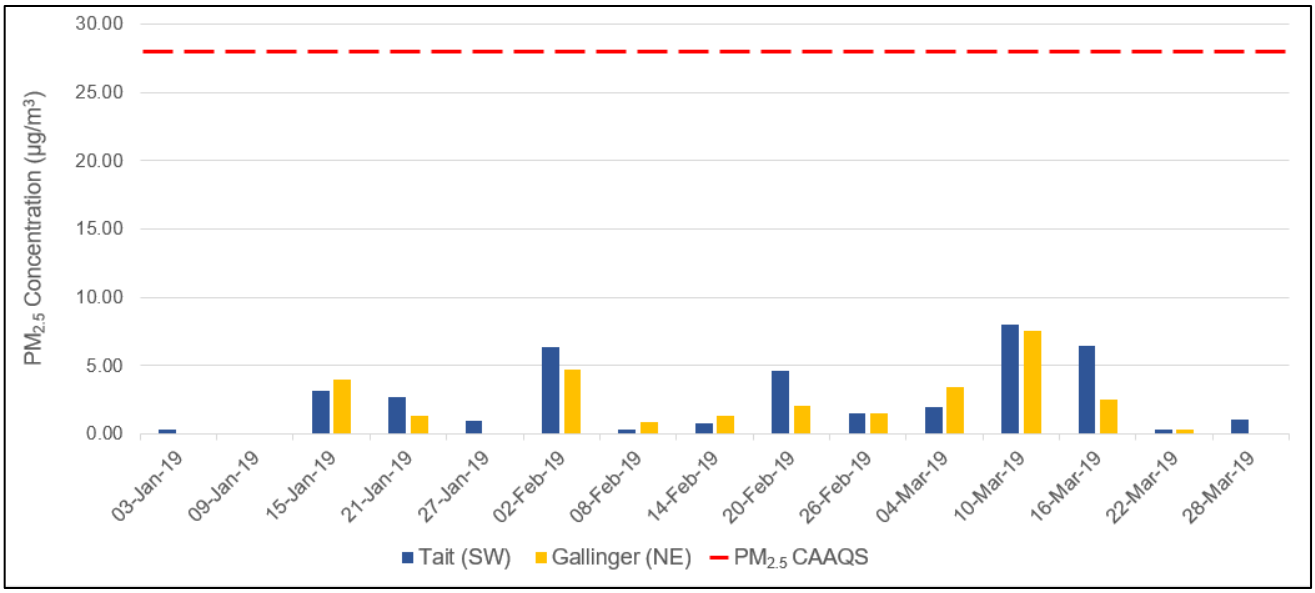

Figure 4-2: $PM_{2.5}$ Concentrations (Q1 2019)

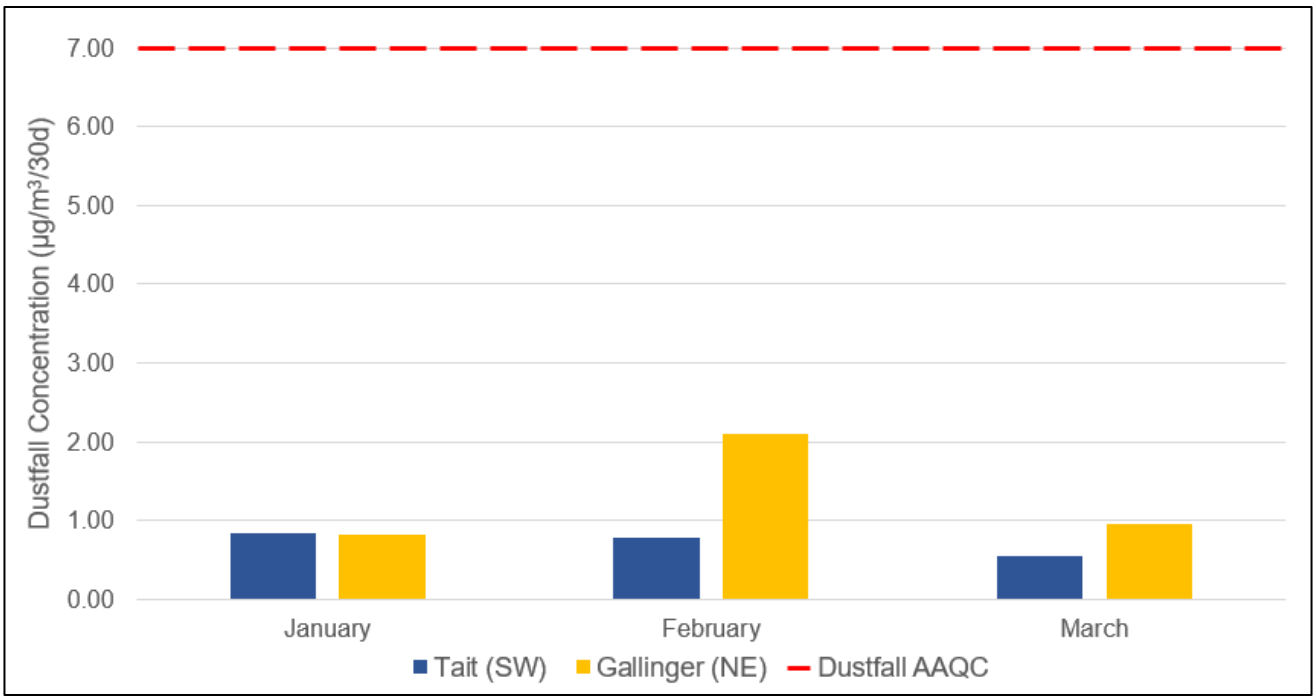

Figure 4-3: Dustfall Concentrations (Q1 2019)

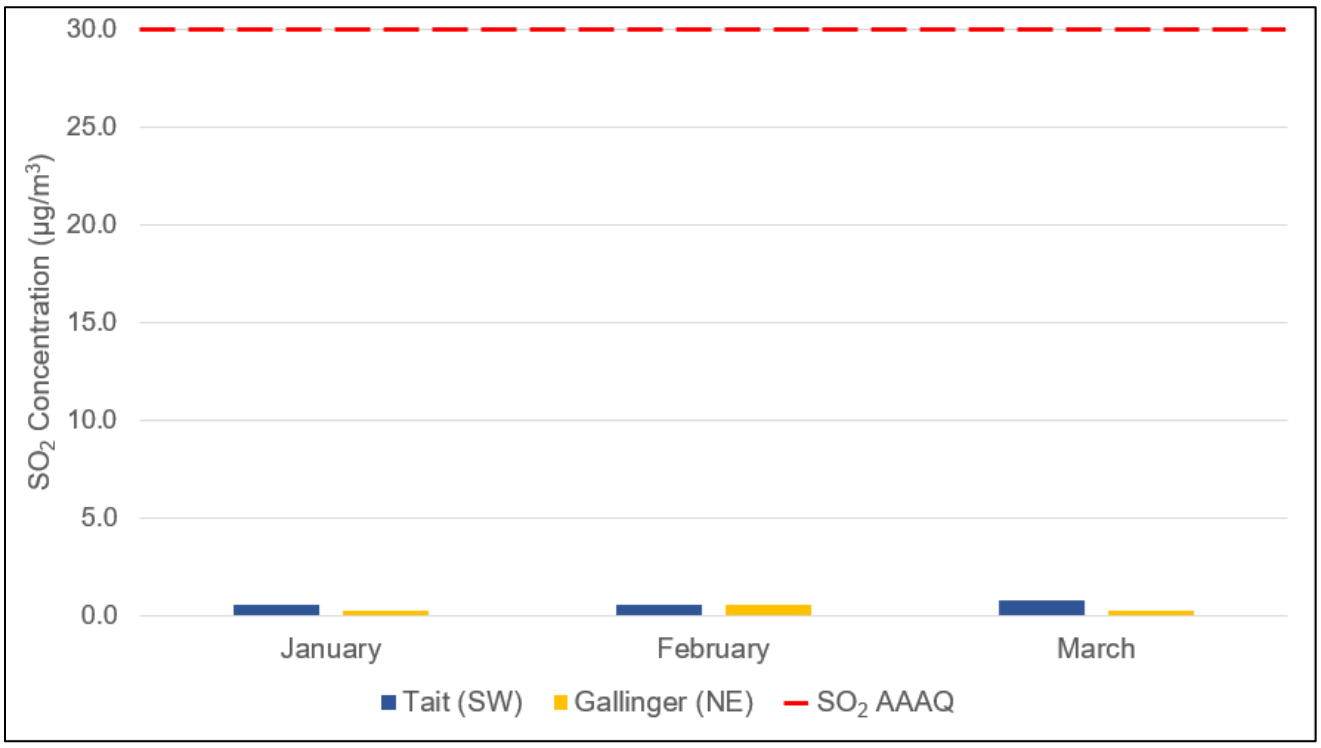

Figure 4-4: SO_2 Concentrations (Q1 2019)

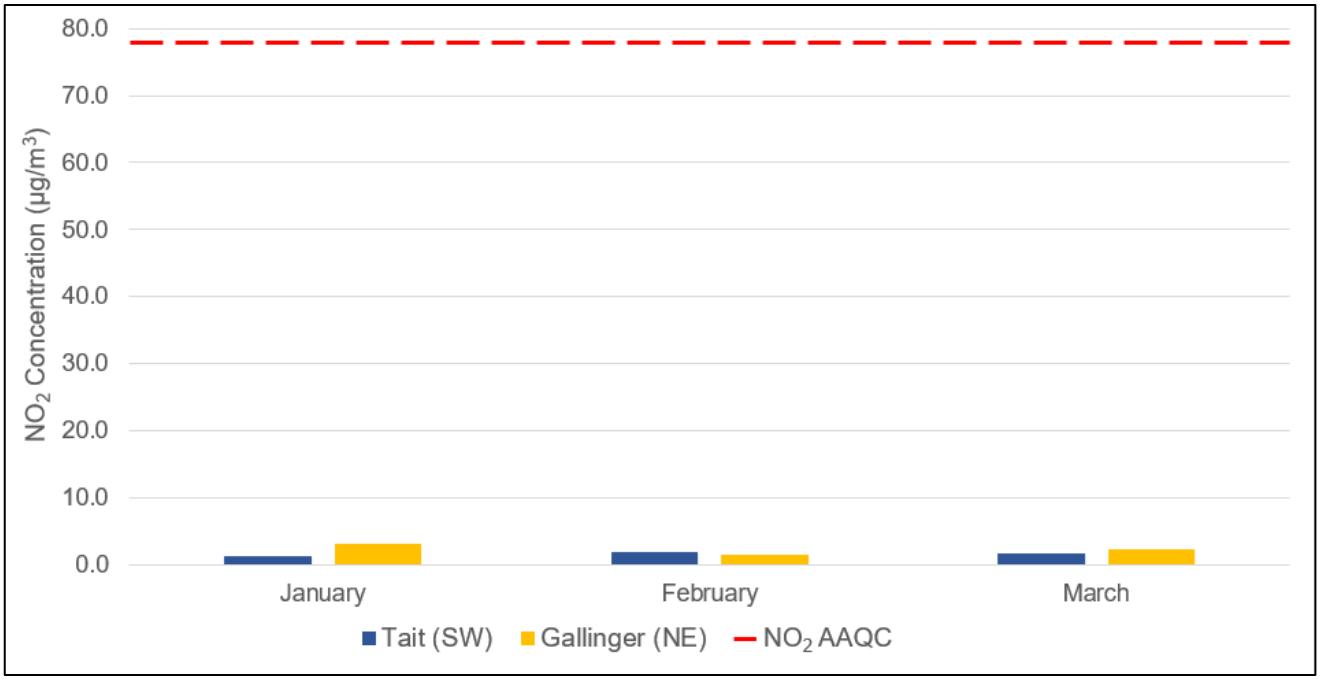

Figure 4-5: NO_2 Concentrations (Q1 2019)

5.0 CONCLUSIONS

A summary of the Q1 2019 ambient air quality monitoring program results is provided below:

- 13 valid TSP samples were collected at both stations resulting in 87% sample validity. Metal and metalloid concentrations were measured on each of the valid TSP filters.
- There were no measured exceedances of an MECP AAQC for TSP, metals, or metalloids in Q1 2019. Invalidated samples were due to excessive run times.
- 14 and 11 valid $PM_{2.5}$ samples were collected at the Tait and Gallinger Road stations, resulting in 93% and 73% valid data, respectively. There were no exceedances of the 24-hour $PM_{2.5}$ CAAQS in Q1 2019. Sample invalidation was attributed to mechanical malfunction of Northeast and Rented PQ200 samplers.
- 3 valid dustfall samples were collected at each station (100% sample validity). There were no exceedances of the 30-day dustfall AAQC in Q1 2019.
- 3 valid passive SO_2 and NO_2 samples were collected at each of the two stations (100% sample validity). There were no exceedances of AEP Criterion for SO_2 or the 30-day equivalent AAQC for NO_2 in Q1 2019.

6.0 REFERENCES

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7.0 CLOSING

This *Rainy River Mine Ambient Air Quality Monitoring Program First Quarter 2019 Report* was prepared by New Gold Inc. The quality of information, conclusions and estimates contained herein are based on:

i) information available at the time of preparation;

ii) data supplied by outside sources; and

iii) the assumptions, conditions and qualifications set forth in this document.

If you require further information regarding the above or the mine in general, please contact the undersigned at (807) 482-0900 ext. 8328.

Sincerely,

New Gold Inc.
Rainy River Mine

Prepared by:

<original signed by>

Kelsea Hunsperger, BSc.
Environmental Specialist

APPENDIX A

SAMPLING RESULTS

Appendix A-1	TSP, Metals and $PM_{2.5}$ Sampling Results
Appendix A-2	Total Dustfall Sampling Results
Appendix A-3	SO_2 and NO_2 Passive Sampling Results

APPENDIX A-1

TSP, METALS AND $PM_{2.5}$ SAMPLING RESULTS

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Southwest Tait Road Monitoring Results for TSP and Metals (First Quarter 2019)
(results expressed in µg/m^3)

Date	PM2.5	TSP	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
03-Jan-19	*0.31*	—	—	—	—	—	—	—	—	—	—	—	—	—
09-Jan-19	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15-Jan-19	3.16	5.18	*8.44E-04*	*5.63E-04*	*1.41E-03*	*5.63E-04*	4.08E-02	1.38E-01	*8.44E-04*	4.67E-03	*8.44E-04*	*2.81E-03*	*1.41E-03*	1.14E-02
21-Jan-19	2.71	10.76	*8.92E-04*	*5.95E-04*	*1.49E-03*	*5.95E-04*	1.29E-02	1.87E-01	*8.92E-04*	8.38E-03	*8.92E-04*	*2.97E-03*	*1.49E-03*	9.28E-03
27-Jan-19	1.00	12.0	*8.70E-04*	*5.80E-04*	*1.45E-03*	*5.80E-04*	5.97E-02	1.91E-01	2.32E-03	7.54E-03	*8.70E-04*	*2.90E-03*	*1.45E-03*	2.69E-02
02-Feb-19	6.37	5.90	*9.03E-04*	*6.02E-04*	*1.50E-03*	*6.02E-04*	2.47E-02	1.31E-01	*9.03E-04*	4.69E-03	*9.03E-04*	*3.01E-03*	*1.50E-03*	1.24E-02
08-Feb-19	*0.31*	6.6	*8.37E-04*	*5.58E-04*	3.46E-03	*5.58E-04*	4.65E-02	7.98E-02	*8.37E-04*	3.79E-03	*8.37E-04*	*2.79E-03*	*1.40E-03*	1.15E-02
14-Feb-19	0.75	6.8	*8.74E-04*	*5.83E-04*	3.44E-03	*5.83E-04*	4.85E-02	9.21E-02	*8.74E-04*	3.55E-03	*8.74E-04*	*2.91E-03*	*1.46E-03*	1.57E-02
20-Feb-19	4.62	8.9	*8.58E-04*	*5.72E-04*	3.89E-03	*5.72E-04*	3.09E-02	1.42E-01	*8.58E-04*	5.89E-03	*8.58E-04*	*2.86E-03*	*1.43E-03*	1.85E-02
26-Feb-19	1.54	6.4	*8.71E-04*	*5.81E-04*	4.12E-03	*5.81E-04*	3.60E-02	1.31E-01	*8.71E-04*	3.60E-03	*8.71E-04*	*2.90E-03*	*1.45E-03*	9.46E-03
04-Mar-19	1.96	8.5	*8.59E-04*	*5.72E-04*	3.49E-03	*5.72E-04*	3.25E-02	1.99E-01	*8.59E-04*	6.18E-03	*8.59E-04*	*2.86E-03*	*1.43E-03*	1.27E-02
10-Mar-19	8.03	4.65	*8.41E-04*	*5.60E-04*	3.08E-03	*5.60E-04*	6.84E-02	7.40E-02	*8.41E-04*	2.02E-03	*8.41E-04*	*2.80E-03*	*1.40E-03*	1.08E-02
16-Mar-19	6.41	116.3	*8.77E-04*	*5.85E-04*	8.54E-03	2.57E-03	8.59E-02	3.66E+00	*8.77E-04*	7.72E-02	4.91E-03	*2.92E-03*	5.79E-03	1.82E-02
22-Mar-19	*0.31*	14.7	*8.75E-04*	*5.83E-04*	3.79E-03	*5.83E-04*	4.88E-02	2.43E-01	*8.75E-04*	8.80E-03	*8.75E-04*	*2.92E-03*	*1.46E-03*	1.33E-02
28-Mar-19	1.04	6.76	*8.44E-04*	*5.63E-04*	3.43E-03	*5.63E-04*	6.59E-02	1.60E-01	*8.44E-04*	4.00E-03	*8.44E-04*	*2.81E-03*	*1.41E-03*	5.24E-03
Geometric mean	1.63	9.41	8.65E-04	5.76E-04	2.90E-03	6.46E-04	4.18E-02	1.78E-01	9.32E-04	6.01E-03	9.87E-04	2.88E-03	1.60E-03	1.26E-02
Arithmetic mean	2.75	16.42	8.65E-04	5.77E-04	3.31E-03	7.30E-04	4.63E-02	4.18E-01	9.76E-04	1.08E-02	1.18E-03	2.88E-03	1.77E-03	1.35E-02
Max. concentration	8.03	116.35	9.03E-04	6.02E-04	8.54E-03	2.57E-03	8.59E-02	3.66E+00	2.32E-03	7.72E-02	4.91E-03	3.01E-03	5.79E-03	2.69E-02
Min. concentration	0.31	4.65	8.37E-04	5.58E-04	1.41E-03	5.58E-04	1.29E-02	7.40E-02	8.37E-04	2.02E-03	8.37E-04	2.79E-03	1.40E-03	5.24E-03
90th percentile	6.40	14.15	8.89E-04	5.93E-04	4.08E-03	6.00E-04	6.79E-02	2.34E-01	9.00E-04	8.72E-03	9.00E-04	2.96E-03	1.50E-03	1.84E-02
95th percentile	6.98	55.35	8.96E-04	5.97E-04	5.89E-03	1.39E-03	7.54E-02	1.61E+00	1.47E-03	3.62E-02	2.51E-03	2.99E-03	3.22E-03	2.19E-02
CAAQS	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	14	13	13	13	13	13	13	13	13	13	13	13	13	13
No. samples < mdl	3	0	13	13	4	12	0	0	12	0	12	13	12	0
Detection limit (µg)	15	2300	3	2	5	2	4	20	3	1	3	10	5	5
Half detection limit (µg)	7.5	1150	1.5	1	2.5	1	2	10	1.5	0.5	1.5	5	2.5	2.5
% < detection limit	21	0	100	100	31	92	0	0	92	0	92	100	92	0
% valid data	93	87	87	87	87	87	87	87	87	87	87	87	87	87

Notes:

All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

N/A: Not applicable

—: Invalid Sample

*Canadian Ambient Air Quality Standard, 24-hour standard

Northeast Gallinger Road Monitoring Results for TSP and Metals (First Quarter 2019)

(results expressed in µg/m³)

Date	PM2.5	TSP	As	Cd	Cr	Co	Cu	Fe	Pb	Mn	Ni	Se	V	Zn
03-Jan-19	—	—	—	—	—	—	—	—	—	—	—	—	—	—
09-Jan-19	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15-Jan-19	3.96	26.62	*9.08E-04*	*6.05E-04*	*1.51E-03*	*6.05E-04*	2.37E-01	3.62E-01	2.24E-03	1.48E-02	*9.08E-04*	*3.03E-03*	*1.51E-03*	2.56E-02
21-Jan-19	1.29	11.90	*9.06E-04*	*6.04E-04*	*1.51E-03*	*6.04E-04*	2.84E-01	2.91E-01	*9.06E-04*	1.08E-02	*9.06E-04*	*3.02E-03*	*1.51E-03*	1.33E-02
27-Jan-19	—	7.03	*9.17E-04*	*6.11E-04*	*1.53E-03*	*6.11E-04*	4.16E-01	1.25E-01	*9.17E-04*	4.83E-03	*9.17E-04*	*3.06E-03*	*1.53E-03*	1.21E-02
02-Feb-19	4.74	6.87	*9.20E-04*	*6.13E-04*	*1.53E-03*	*6.13E-04*	3.19E-01	9.44E-02	*9.20E-04*	3.13E-03	*9.20E-04*	*3.07E-03*	*1.53E-03*	1.05E-02
08-Feb-19	0.83	32.26	*9.11E-04*	*6.08E-04*	3.89E-03	*6.08E-04*	1.47E-01	2.87E-01	6.99E-03	2.93E-02	*9.11E-04*	*3.04E-03*	*3.04E-03*	4.24E-02
14-Feb-19	1.29	12.23	*9.36E-04*	*6.24E-04*	4.12E-03	*6.24E-04*	3.62E-01	1.57E-01	2.18E-03	7.24E-03	*9.36E-04*	*3.12E-03*	*1.56E-03*	2.56E-02
20-Feb-19	2.04	9.47	*8.99E-04*	*6.00E-04*	4.14E-03	*6.00E-04*	*1.20E-03*	1.35E-01	*8.99E-04*	5.70E-03	*8.99E-04*	*3.00E-03*	*1.50E-03*	1.15E-02
26-Feb-19	1.54	10.41	*9.46E-04*	*6.31E-04*	4.54E-03	*6.31E-04*	1.42E-01	1.56E-01	*9.46E-04*	7.19E-03	*9.46E-04*	*3.15E-03*	*1.58E-03*	1.41E-02
04-Mar-19	3.41	79.71	*9.20E-04*	*6.13E-04*	3.43E-03	*6.13E-04*	4.72E-02	4.75E-01	8.28E-03	4.58E-02	*9.20E-04*	*3.07E-03*	*1.53E-03*	7.66E-02
10-Mar-19	7.54	9.88	*9.56E-04*	*6.37E-04*	3.76E-03	*6.37E-04*	1.45E-01	1.13E-01	*9.56E-04*	5.23E-03	*9.56E-04*	*3.19E-03*	*1.59E-03*	1.18E-02
16-Mar-19	2.54	18.47	*9.82E-04*	*6.55E-04*	3.67E-03	*6.55E-04*	2.43E-01	2.12E-01	*9.82E-04*	8.38E-03	*9.82E-04*	*3.27E-03*	*1.64E-03*	1.18E-02
22-Mar-19	*0.31*	4.16	*9.76E-04*	*6.51E-04*	3.51E-03	*6.51E-04*	3.25E-01	9.76E-02	*9.76E-04*	2.47E-03	*9.76E-04*	*3.25E-03*	*1.63E-03*	4.29E-03
28-Mar-19	—	10.36	*9.66E-04*	*6.44E-04*	3.54E-03	*6.44E-04*	1.51E-01	1.77E-01	*9.66E-04*	5.73E-03	*9.66E-04*	*3.22E-03*	*1.61E-03*	8.56E-03
Geometric mean		13.21	9.34E-04	6.22E-04	2.88E-03	6.22E-04	1.38E-01	1.82E-01	1.48E-03	8.05E-03	9.34E-04	3.11E-03	1.64E-03	1.55E-02
Arithmetic mean		18.41	9.34E-04	6.23E-04	3.13E-03	6.23E-04	2.17E-01	2.06E-01	2.17E-03	1.16E-02	9.34E-04	3.11E-03	1.67E-03	2.06E-02
Max. concentration	7.54	79.71	9.82E-04	6.55E-04	4.54E-03	6.55E-04	4.16E-01	4.75E-01	8.28E-03	4.58E-02	9.82E-04	3.27E-03	3.04E-03	7.66E-02
Min. concentration	0.31	4.16	8.99E-04	6.00E-04	1.51E-03	6.00E-04	1.20E-03	9.44E-02	8.99E-04	2.47E-03	8.99E-04	3.00E-03	1.50E-03	4.29E-03
90th percentile	4.74	31.13	9.74E-04	6.49E-04	4.13E-03	6.49E-04	3.55E-01	3.48E-01	6.04E-03	2.64E-02	9.74E-04	3.25E-03	1.64E-03	3.90E-02
95th percentile	6.14	51.24	9.79E-04	6.52E-04	4.28E-03	6.52E-04	3.81E-01	4.02E-01	7.44E-03	3.51E-02	9.78E-04	3.26E-03	2.20E-03	5.61E-02
CAAQS	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	11	13	13	13	13	13	13	13	13	13	13	13	13	13
No. samples < mdl	1	0	13	13	4	13	1	0	9	0	13	13	13	0
Detection limit (µg)	15	2300	3	2	5	2	4	20	3	1	3	10	5	5
Half detection limit (µg)	7.5	1150	1.5	1	2.5	1	2	10	1.5	0.5	1.5	5	2.5	2.5
% < detection limit	9	0	100	100	31	100	8	0	69	0	100	100	100	0
% valid data	73	87	87	87	87	87	87	87	87	87	87	87	87	87

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

N/A: Not applicable

—: Invalid Sample

*Canadian Ambient Air Quality Standard, 24-hour standard

APPENDIX A-2

TOTAL DUSTFALL SAMPLING RESULTS

newgold™ Rainy River

Southwest Tait Road Monitoring Results for Dustfall (First Quarter 2019)
(results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
January	29	0.72	*0.15*	0.84
February	31	*0.15*	0.60	0.78
March	26	*0.17*	*0.17*	0.54
			Arithmetic mean	0.72
			Max. concentration	0.84
			Min. concentration	0.54
			AAQC	7
			No. > AAQC value**	0
			No. of valid samples	3
			% Valid data	100
			No. samples < mdl	0
			Detection limit*	0.33
			Half detection limit	0.17

Northeast Gallinger Road Monitoring Results for Dustfall (First Quarter 2019)
(results expressed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
January	29	0.69	*0.15*	0.81
February	31	1.83	*0.15*	2.10
March	26	0.72	*0.17*	0.96
			Arithmetic mean	1.29
			Max. concentration	2.10
			Min. concentration	0.81
			AAQC	7
			No. > AAQC value**	0
			No. of valid samples	3
			% Valid data	100
			No. samples < mdl	0
			Detection limit*	0.33
			Half detection limit	0.17

Notes:

All statistics were calculated using 1/2DL for values reported as <DL

All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

N/A: Not applicable

—: Invalid Sample

*If samples had differing detection limits, the highest is displayed here

**Ontario Ambient Air Quality Criteria, 30-day standard

APPENDIX A-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

newgold™ Rainy River

Monitoring Results for Passive SO_2 and NO_2 (First Quarter 2019)

(results expressed in µg/m³)

	Southwest Tait Road	
Month	**SO_2**	**NO_2**
January	0.5	1.3
February	0.5	1.9
March	0.8	1.7
Arithmetic mean	0.6	1.6
Max. concentration	0.8	1.9
Min. concentration	0.5	1.3
AAQC* (24-hr AAQC converted to equivalent 30 day average)	N/A	78 µg/m3
Alberta Ambient Air Quality Objectives 2013	30 µg/m3	N/A
No. of valid samples	3	3
No. samples < mdl	0	0
Detection limit	0.3	0.2
Half detection limit	0.15	0.1

Monitoring Results for Passive SO_2 and NO_2 (First Quarter 2019)

(results expressed in µg/m³)

	Northeast Gallinger Road	
Month	**SO_2**	**NO_2**
January	0.3	3.1
February	0.5	1.5
March	0.3	2.3
Arithmetic mean	0.4	2.3
Max. concentration	0.5	3.1
Min. concentration	0.3	1.5
AAQC* (24-hr AAQC converted to equivalent 30 day average)	N/A	78 µg/m3
Alberta Ambient Air Quality Objectives 2013	30 µg/m3	N/A
No. of valid samples	3	3
No. samples < mdl	0	0
Detection limit	0.3	0.2
Half detection limit	0.15	0.1

Notes:

All statistics were calculated using 1/2DL for values reported as <DL

All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C

N/A: Not applicable

—: Invalid Sample

*Ontario Ambient Air Quality Criteria