

## TRA ANNUAL REPORT (2017 Reporting Year)

This *Toxics Reduction Act* (TRA) Annual Report has been prepared in accordance with, and satisfies the requirements of Section 10 of the *Toxics Reduction Act* (TRA) and Section 27 of Ontario Regulation (O.Reg.) 455/09 for the TRA toxic substances identified in the table below.

### Basic Facility Information

Mandatory Basic Facility Information Item	Details
<b>Substance Name and Chemical Abstracts Service (CAS) Registry Number for the Substances whose Toxic Substance Reduction Plans are covered by this Report on Toxic Substance Reduction Plans</b>	This TRA Annual Report applies to the Toxic Substance Reduction Plans for the following prescribed Toxic Substance: Nitric Acid [CAS number 7647-01-0], Arsenic*, Cadmium*, Chromium*, Cobalt*, Copper*, Lead*, Manganese*, Nickel*, Selenium*, Vanadium [CAS number 7440-62-2], Zinc*, Cyanides (Ionic)*, Particulate Matter*, PM-10*, PM-2.5* *Per O.Reg.455/09, "no single CAS numbers apply to these substances"
<b>National Pollutant Release Inventory (NPRI) and O.Reg.127/01 Identification Numbers</b>	NPRI ID: 11743
<b>The legal and trade names of the owner and the operator of the facility, the street address of the facility and the mailing address of the facility, if different</b>	McEwen Mining Inc. 5300 Hwy 101 Highway East, Matheson
<b>The number of full time employee equivalents at the facility</b>	38
<b>The two- and four-digit North American Industry Classification System (NAICS) codes and the six-digit NAICS Canada code</b>	21 – Mining & Oil & Gas Extraction 2122 – Metal Ore Mining 212220 – Gold & Silver Ore Mining
<b>Public contact</b>	Harri Ollila Environmental Superintendent <a href="mailto:hollila@mcewenmining.com">hollila@mcewenmining.com</a> 705-273-1727 ext. 296
<b>The spatial coordinates of the facility expressed in Universal Transverse Mercator (UTM) within a North American Datum 83 (NAD83) datum</b>	Zone 17 540765 5353126

## **List of All Substances for which Toxic Substance Reduction Plans Have Been Prepared at the Facility**

The Facility has prepared Toxic Substance Reduction Plans for the following prescribed Toxic Substances:

Arsenic\*

Cadmium\*

Chromium\*

Cobalt\*

Copper\*

Lead\*

Manganese\*

Nickel\*

Selenium\*

Vanadium [CAS number 7440-62-2]

Zinc\*

Cyanides (Ionic)\*

Nitric Acid [CAS number 7647-01-0]

Particulate Matter\*

PM-10\*

PM-2.5\*

\*Per O.Reg.455/09, "no single CAS numbers apply to these substances"

## **Toxic Substance Accounting Information**

Refer to Appendix A: TRA Toxic Substance Quantification and Accounting Summary for the information required under s.12(1) of O.Reg.455/09. Note that Selenium did not meet its reporting threshold for 2017 and therefore no reporting information is required.

## **Comparison of Toxic Substance Accounting to the Previous Calendar Year**

Refer to Appendix B: Comparison of Toxic Substance Quantification and Accounting to the Previous Calendar Year for the information required by s.26(2) of O.Reg.455/09. Note that Selenium did not meet its reporting threshold for 2017 and therefore no reporting information is required.

### **Changes in Quantification Methods**

It is the Facility's understanding that there were no changes made to any quantification methods since the preparation of the Toxic Substance accounting information for the previous calendar year.

### **Objectives of Toxic Substance Reduction Plans**

Refer to Appendix C: Toxic Substance Reduction Plan Objectives for the objectives of the Toxic Substance Reduction Plans covered by this Report, as required by s.26(2)3 of O.Reg. 455/09.

### **Toxic Substance Reduction Options Identified in Toxic Substance Reduction Plans**

No toxic substance reduction options were identified in any of the respective Plans and therefore the information required by s.26(2)4, s.26(2)5 and s.26(2)6 is not applicable for this Report.

### **Amendments to Toxic Substance Reduction Plans**

No amendments have been made in the previous calendar year to any of the Toxic Substance Reduction Plans for the Toxic Substances covered in this Annual Report.

### **Certification Statement**

As of June 1, 2018, I certify that I have read the Report on the toxic substance reduction plans for the substances listed below and am familiar with its content and to my knowledge the information contained in the Report is factually accurate and the Report complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under the Act.

Nitric Acid [CAS number 7647-01-0], Arsenic\*, Cadmium\*, Chromium\*, Cobalt\*, Copper\*, Lead\*, Manganese\*, Nickel\*, Selenium\*, Vanadium [CAS number 7440-62-2], Zinc\*, Particulate Matter\*, PM-10\*, PM-2.5\*, Cyanides (Ionic)\*

\*Per O.Reg.455/09, "no single CAS numbers apply to these substances"



Signature



Date

**APPENDIX A: TRA TOXIC SUBSTANCE QUANTIFICATION AND ACCOUNTING SUMMARY**

## TRA Toxic Substance Quantification and Accounting Summary

The worksheets to the right of this tab were used to determine the quantities below which are reportable to the TRA and to the public in the public report.

Toxic Substance	CAS No.*	Public Reportable Values (Report to Public)		
		Unit	Use	Creation
Arsenic	N/A-2	kg	>10,000 to 100,000	>0 to 1
Chromium	N/A-4	tonnes	>100 to 1000	>0 to 1
Cobalt	N/A-5	kg	>10,000 to 100,000	>0 to 1
Copper	N/A-6	tonnes	>10 to 100	>0 to 1
Lead	N/A-8	kg	>1000 to 10,000	>0 to 1
Manganese	N/A-9	tonnes	>100 to 1000	>0 to 1
Nickel	N/A-10	tonnes	>100 to 1000	>0 to 1
Vanadium	7440-62-2	tonnes	>10 to 100	>0 to 1
Zinc	N/A-14	tonnes	>10 to 100	>0 to 1
Cadmium	N/A-3	kg	>100 to 1000	>0 to 1
Cyanides	N/A-7	tonnes	>10 to 100	>0 to 1
Nitric Acid	7697-37-2	tonnes	>10 to 100	>0 to 1
PM	N/A - M08	tonnes	>0 to 1	>10 to 100
PM-10	N/A - M09	tonnes	>0 to 1	>10 to 100
PM-2.5	N/A - M10	tonnes	>0 to 1	>1 to 10

\* Substances with CAS Numbers starting with "N/A" do not have CAS Numbers in NPRI or TRA guidance. The CAS Numbers assigned to those substances are arbitrary CAS Numbers used for the purpose of this workbook.

Note: the substance Selenium did not trigger its reporting threshold for the Reporting Year and therefore no reporting information is required for this substance.

**APPENDIX B: COMPARISON OF TOXIC SUBSTANCE QUANTIFICATION AND ACCOUNTING TO  
THE PREVIOUS CALENDAR YEAR**

**TRA Reporting Comparison**

**Used**

Substances	CAS No.	Reporting Units	Reportable Value for 2017	Reported Value for 2016	% Change	Comment if Change +/- 10%
Arsenic	N/A-2	kg	91,329.617	124,281.214	-27%	
Chromium	N/A-4	tonnes	405.600	529.642	-23%	
Cobalt	N/A-5	kg	29,450.906	38,379.469	-23%	
Copper	N/A-6	tonnes	61,546	80,397	-23%	
Lead	N/A-8	kg	7,692.411	10,045.778	-23%	25% less ore was processed at the mill in 2017.
Manganese	N/A-9	tonnes	658,540	873,061	-23%	
Nickel	N/A-10	tonnes	365,792	477,842	-23%	
Vanadium	7440-62-2	tonnes	62,938	82,192	-23%	
Zinc	N/A-14	tonnes	30,074	39,270	-23%	
Cadmium	N/A-3	kg	111,912	148,119	-23%	
Cyanides	N/A-7	tonnes	92,374	108,708	13%	
Nitric Acid	7697-37-2	tonnes	73,500	88,300	6%	
PM	N/A - M08	tonnes	0.000	0.000	--	
PM-10	N/A - M09	tonnes	0.000	0.000	--	
PM-2.5	N/A - M10	tonnes	0.000	0.000	--	

**Created**

Substances	CAS No.	Reporting Units	Reportable Value for 2017	Reported Value for 2016	% Change	Comment if Change +/- 10%
Arsenic	N/A-2	kg	0.000	0.000	--	
Chromium	N/A-4	tonnes	0.000	0.000	--	
Cobalt	N/A-5	kg	0.000	0.000	--	
Copper	N/A-6	tonnes	0.000	0.000	--	
Lead	N/A-8	kg	0.000	0.000	--	
Manganese	N/A-9	tonnes	0.000	0.000	--	
Nickel	N/A-10	tonnes	0.000	0.000	--	
Vanadium	7440-62-2	tonnes	0.000	0.000	--	
Zinc	N/A-14	tonnes	0.000	0.000	--	
Cadmium	N/A-3	kg	0.000	0.000	--	
Cyanides	N/A-7	tonnes	0.000	0.000	--	
Nitric Acid	7697-37-2	tonnes	0.000	0.000	--	
PM	N/A - M08	tonnes	29,855	35,722	-16%	
PM-10	N/A - M09	tonnes	10,660	12,587	-14%	
PM-2.5	N/A - M10	tonnes	1,687	2,041	-8%	

**Contained in Product**

Substances	CAS No.	Reporting Units	Reportable Value for 2017	Reported Value for 2016	% Change	Comment if Change +/- 10%
Arsenic	N/A-2	kg	350,298	5,518,908	-93%	Less waste rock was brought to site for onsite construction in 2017.
Chromium	N/A-4	tonnes	0.000	0.000	--	
Cobalt	N/A-5	kg	0.000	0.000	--	
Copper	N/A-6	tonnes	0.000	0.000	--	
Lead	N/A-8	kg	0.000	0.000	--	
Manganese	N/A-9	tonnes	0.000	0.000	--	
Nickel	N/A-10	tonnes	0.000	0.000	--	
Vanadium	7440-62-2	tonnes	0.000	0.000	--	
Zinc	N/A-14	tonnes	0.000	0.000	--	
Cadmium	N/A-3	kg	0.000	0.000	--	
Cyanides	N/A-7	tonnes	0.000	0.000	--	
Nitric Acid	7697-37-2	tonnes	0.000	0.000	--	
PM	N/A - M08	tonnes	0.000	0.000	--	
PM-10	N/A - M09	tonnes	0.000	0.000	--	
PM-2.5	N/A - M10	tonnes	0.000	0.000	--	

**APPENDIX C: TOXIC SUBSTANCE REDUCTION PLAN OBJECTIVES**



## **TOXIC SUBSTANCE REDUCTION PLAN OBJECTIVES**

The following are plan objectives taken from respective Toxic Substance Reduction Plans. This information is included in this Report on Plans in order to satisfy s.26(2)3 of O.Reg.455/09.

### **Arsenic, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel, Selenium, Vanadium, Zinc**

Brigus does not intend to reduce its use of arsenic, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, vanadium and zinc because these substances are by-products of production, naturally occurring in ore from which gold is extracted and reducing their use would not benefit business growth, but Brigus is committed to ensuring their processing, emission and disposal are handled in a safe and responsible manner. While Brigus does not intend to reduce the use of the aforementioned metals, technologies that may reduce the releases of these substances will be monitored and considered for implementation if proven technically and economically feasible.

### **Nitric Acid**

Brigus is committed to playing a leadership role in protecting the environment. Wherever feasible, Brigus will eliminate or reduce the use and creation of nitric acid in full compliance with all federal and provincial regulations.

### **Particulate Matter, PM-10, PM-2.5**

Brigus is committed to playing a leadership role in protecting the environment. Wherever feasible, Brigus will eliminate or reduce the use and creation of particulate matter in full compliance with all federal and provincial regulations.

### **Cyanides (Ionic)**

The objectives of this Plan are as follows:

- provide support for the Facility's position with respect to the Statement of Intent of this Plan; and
- document how, by preparing this Plan, the Facility has fulfilled the applicable requirements under the TRA and O.Reg.455/09 with respect to the Toxic Substance.

\*Note: Brigus Gold is now McEwen Mining Inc.