TOXIC SUBSTANCE REDUCTION PLAN SUMMARY

This Toxic Substance Reduction Plan Summary has been prepared in accordance with Section 8(2) of the Toxics Reduction Act and satisfies the minimum Plan Summary content requirements stipulated in Section 24 of Ontario Regulation (O.Reg.) 455/09.

Basic Facility Information

Mandatory Basic Facility Information Item	Details
Substance Name and Chemical Abstracts Service (CAS) Registry Number for the Substance(s) whose Toxic Substance Reduction Plans are summarized by this this Plan Summary	This Plan Summary applies to the Toxic Substance Reduction Plans for the following prescribed Toxic Substances: Particulate Matter, PM10, PM2.5 (Per O.Reg. 455/09; "no single CAS numbers apply to these substances")
National Pollutant Release Inventory (NPRI) and O.Reg.127/01 Identification Numbers	NPRI ID: 5656 O.Reg.127/01 ID: N/A
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	Musselwhite Mine Goldcorp Canada Ltd. Kenora District, Ontario, Canada P0V 1C0
The number of full time employee equivalents at the facility	569
The two- and four-digit North American Industry Classification System (NAICS) codes and the six-digit NAICS Canada code	21 – Mining & Oil & Gas Extraction 2122 – Metal Ore Mining 212220 – Gold & Silver Ore Mining
Public contact	Shane Matson Sr. Environmental Coordinator Goldcorp Canada Ltd. Musselwhite Mine P.O. Box 7500 Thunder Bay Ontario P7B 6S8 (807) 928-2200 Extension 6243
The spatial coordinates of the facility expressed in Universal Transverse Mercator (UTM) within a North American Datum 83 (NAD83) datum	UTM Zone 15 678336 E, 5831032 N
Parent Company Information	Goldcorp Inc. Suite 3400-666 Burrard Street, Park Place Vancouver, BC V6C 2X8 (604) 696-3000

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*

Phosphorus*

Zinc*

Vanadium [CAS number 7440-62-2]

Cyanides (Ionic)*

Hydrochloric Acid [CAS number 7647-01-0]

Particulate Matter*

PM10*

PM2.5*

Nitrogen Oxides [CAS number 11104-93-1]

Carbon Monoxide [CAS number 630-08-0]

Ammonia (Total)*

Nitrate Ion*

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

Statement of Intent

As required by s.4(1) of the TRA, a Plan must include either a statement of the Facility's intent to reduce the use and/or creation of the Toxic Substance at the Facility, or the reasons for not including this statement.

A statement of the Facility's intent to reduce its "creation" of the Toxic Substance has not been included as a part of this Plan. The Toxic Substance cannot be "used" in the Facility process and therefore no statement with respect to intent to reduce use of the Toxic Substance is required.

The Toxic Substance has triggered reporting under the TRA and O. Reg. 455/09 due to two activities at the Facility which are interpreted as "creations" of the Toxic Substance under the TRA framework. The first activity that has been classified as a "creation" of the Toxic Substance for the purpose of the required TRA Quantification, Accounting and Reporting exercise for the Toxic Substances is the generation by physical means of suspended particulate matter in various size fractions commonly referred to as dust; which is subsequently released either as stack or fugitive emissions.

The second activity that has been classified as a "creation" of the Toxic Substance is the generation of suspended particulate matter as a by-product of combustion, either from fuels in stationary equipment, or from combustion of wood.

The MOE has stated that the TRA is not intended to focus on "end of pipe" emissions as they don't necessarily have any bearing on the amount of a substance that is "used" or "created," however in this case, "end of pipe" emissions of suspended particulate matter is the determining factor of the Facility's TRA reporting status with respect to the Toxic Substance.

Despite the Facility's reporting status with respect to the Toxic Substance, the Facility feels that it has previously optimized its control of the "creation" and subsequent release of the Toxic Substance to the greatest extent that can reasonably be expected. This opinion is supported by the following two aspects:

Compliance with Regulatory Requirements

It is well documented that release of suspended particulate matter is an inherent by-product of mining and mineral processing and that the activities leading to the release of suspended particulate matter are essential to the process of mining and mineral processing. In recognition of this, the MOE has imposed various regulatory requirements related to the release of suspended particulate matter, which include:

- Ontario Regulation 419/05, under which a Facility must demonstrate compliance with substance-specific ground-level concentration limits of emitted substances, including suspended particulate matter in all forms that are reportable under the NPRI and TRA reporting programs;
- The requirement for any Facility that may discharge any contaminant to the atmosphere to apply for and obtain an Environmental Compliance Approval (ECA) for air which approves the facility's emissions and provides performance limits, documentation requirements and reporting requirements which a Facility must meet in order to maintain compliance with the ECA on an ongoing basis;
- The requirement for qualifying a facility to prepare and implement a "Fugitive Dust Best Management Practices Plan." This document outlines controls in place with respect to minimizing suspended particulate matter releases in the form fugitive dust at the facility, along with the decision making process that was used to identify fugitive dust emission sources and to develop appropriate best management practices for each type of source. A qualifying facility's Fugitive Dust Best Management Practices Plan must be approved by the MOE as a part of the ECA implementation process; and

The Facility currently meets and/or exceeds all of the above regulatory requirements which are designed to control the release of the Toxic Substance and minimize potential off-site impacts resulting from the release of the Toxic Substance.

Measures Currently in Place to Minimize Releases of Suspended Particulate Matter

As a result of satisfying all of the above noted regulatory requirements in addition to voluntary actions with respect to suspended particulate matter releases, the Facility actively implements a variety of controls to minimize suspended particulate matter releases from different parts of its process components. These controls include, but are not limited to, the following:

- Implementation of the controls outlined in the Facility's Fugitive Dust Best Management Practices Plan, which was developed in consultation with the MOE; such as:
  - Roadway watering, supplemented by application of chemical dust suppressants, enforcement of speed limits, roadway maintenance and cleanup procedures;
  - Conveyor transfer points located indoors;
  - Operation of several baghouses and/or dust collectors serving various process components to minimize suspended particulate matter. This equipment is actively, inspected and maintained in accordance with the terms and conditions of the Facility's ECA, or according to Manufacturer's specifications;
  - Training of operators to identify and promptly respond to malfunctions or abnormal operating conditions that result in excessive suspended particulate emissions;
  - Particulate matter generated in the Crusher Plant is controlled through a dust collector, and the system is maintained under negative pressure;
  - The particulate control equipment will be maintained in accordance with either the requirements set out in the Terms and Conditions of the Certificate of Approval, or according to Manufacturer's recommendations. This is accomplished through several ops and maintenance manuals specific to various pieces of equipment that are kept on file and the Facility's preventive maintenance system (Emesa) which auto-generates the maintenance requirements specified by the manufacturers;
  - Conveyors and transfer points into hoppers and other bins are located inside buildings, the dusts are contained within; discharges to atmosphere are controlled with baghouses;
  - Operators will be trained, and be held responsible, for identifying and responding promptly to equipment malfunctions or other abnormal operating conditions that result in excessive dust emissions;
  - Operators and/or plant maintenance will conduct regular inspections of control equipment, and associated components, to confirm that the equipment is functioning properly.
- Measures in place to minimize fuel consumption including:
  - Facility has established a Vehicle and Equipment Idling Policy which places limitation on engine idling.
  - Investigating the use of Diesel Particulate Filters on diesel combustion engines
  - Investigating use of B5 biodiesel which has shown reduction in DPM
- Burning of only non-treated wood waste, if and when required

Objectives of the Toxic Substance Reduction Plan

The Objectives of the Plan are as follows:

- Provide the reader with information on measures currently in place at the Facility which control the "creation" and subsequent release of the Toxic Substance;
- Provide support for the Facility's position with respect to the Statement of Intent of this Plan; and
- Document how the Facility has fulfilled the applicable requirements under the TRA and O. Reg. 455/09 with respect to the Toxic Substance.

Description of Why the Toxic Substance Is Used or Created

The Toxic Substance has triggered reporting under the TRA and O. Reg. 455/09 due to two activities at the Facility which are defined as "creations" of the Toxic Substance under the TRA framework. The first activity that has been classified as a "creation" of the Toxic Substance is the generation by physical means of suspended particulate matter in various size fractions as dust; which is subsequently released either as stack or fugitive emissions (ie. Road dust). The second activity that has been classified as a "creation" of the Toxic Substance is the generation of particulate matter as a by-product combustion, either from fuels in stationary equipment, or from combustion of wood. Due to the nature of the Toxic Substance, the substance can never be "used" in the Facility process.

For the purpose of the required TRA Quantification, Accounting and Reporting exercise for the Toxic Substance, the calculated "release" values have been assumed to be equal to the amount "created" for each emission source, despite the fact that some of these releases are controlled releases. S.12(6) of O. Reg. 455/09 provides considerations for determining the "Best Available Methods" for tracking and quantifying the Toxic Substance. MOE guidance pertaining to this section of O. Reg. 455/09 states that the importance of selecting Best Available Methods is to provide the best decision making information when determining which toxics reduction options, if any, are worthwhile to implement. It should be noted that, given the Facility's decision to not include in this Plan a statement of its intent to reduce the "creation" of the Toxic Substance (as supported by the information provided in the Statement of Intent section of the Plan), no decisions will be made with respect to toxics reduction based on the calculated "creation" values for the Toxic Substance. Taking this into consideration, the Facility used judgement based on relevance and effort required to obtain information and feels that it has gone to reasonable efforts in identifying and applying the Best Available Methods for quantifications in this case.

Rationale for Not Implementing Toxic Substance Reduction Options

As required by s.18(4) of O.Reg.455/09 (as amended by s.9(3) of O.Reg.214/11), a Plan must contain an explanation of why no toxic substance reduction options will be implemented.

Facility personnel have considered each of the seven categories for toxic substance reduction options, and, in light of the information provided in the Statement of Intent section of this Plan, the Facility feels that no toxic substance reduction options can be identified in any of the seven toxic substance reduction categories.

Therefore the rationale for not implementing toxic substance reduction options is that no toxic substance reduction options could be identified.

Statement that the Plan Summary Accurately Reflects the Current Version of the Plan

As required by s.24(1)8 of O.Reg.455/09 this Plan Summary accurately reflects the current version of the Plan.

Planner License Number

As required by s.18(2) of O.Reg.455/09 (as amended by s. 9(2) of O.Reg.214/11), the Licensed Toxic Substance Reduction Planner responsible for providing Planner Recommendations on and certification of this Plan is as follows:

Russell Polack
Air Quality Specialist
Golder Associates Ltd.
Toxic Substance Reduction Planner License Number TSRP0002

Copies of the Certification

Certification statements are provided in the following page.

December 6, 2013

Project No. 13-1192-0040

Shane Matson
Musselwhite Mine

LICENSED TOXIC SUBSTANCE REDUCTION PLANNER CERTIFICATION STATEMENT TOXIC SUBSTANCE REDUCTION PLANS FOR TRA PHASE II SUBSTANCES FOR GOLDCORP CANADA LTD. MUSSELWHITE MINE

Dear Mr. Matson:

Golder Associates Ltd. (Golder) was retained by Goldcorp Canada Ltd. Musselwhite Mine (the Facility) to provide various services pertaining to Toxic Substance Reduction Plan for Phase II Substances preparation under the *Toxics Reduction Act* (TRA), including Toxic Substance Reduction Planner (Planner) certification of Phase II Toxic Substance Reduction Plans (the Plans).

The following Planner Certification Statement which is made under s.19.1(4) of Ontario Regulation (O.Reg.) 455/09 (as amended by s.11 of O.Reg.214/11) satisfies the Planner Certification requirements for the Plans that are assembled as a single document as of the date of this Certification Statement. Furthermore, the following Certification Statement is limited to the respective versions of the Plans which are dated as indicated in the Certification Statement:

> *As of December 6, 2013, I, Russell Polack certify that I am familiar with the processes at the Goldcorp Canada Ltd. Musselwhite Mine facility that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in the toxic substance reduction plans referred to below for the toxic substances and that the plans comply with that Act and Ontario Regulation 455/09 (General) made under that Act.*

- *Particulate Matter* (December 6, 2013)
- *PM10* (December 6, 2013)
- *PM2.5* (December 6, 2013)
- *Nitrogen Oxides* (December 6, 2013)
- *Carbon Monoxide* (December 6, 2013)
- *Nitrate Ion* (December 6, 2013)
- *Ammonia* (December 6, 2013)

Russell Polack
Toxic Substance Reduction Planner
License No. TSRP0002

December 6, 2013
Date

DCC/RLP/FSC/ms

Golder Associates Ltd.
1010 Lorne Street, Sudbury, Ontario, Canada P3C 4R9
Tel: +1 (705) 524 6861 Fax: +1 (705) 524 1984 www.golder.com

Toxic Substance Reduction Plans Certification by Highest Ranking Employee

As required by s.4(2) of the *Toxics Reduction Act* (TRA), Toxic Substance Reduction Plans must contain a certification, signed by the highest ranking employee at the Facility who has management responsibilities relating to the Facility.

The following Certification Statement is being made under s.19(2) of Ontario Regulation (O.Reg.) 455/09 (as amended by s.11 of O.Reg.214/11) and satisfies the requirements of s.4(2) of the TRA for the Toxic Substance Plans that are assembled within this single document as of the date of this Certification Statement. Furthermore, the following Certification Statement is limited to the respective versions of the Plans which are dated as indicated in the Certification Statement:

As of December 11/13, *I, (insert name)* Bill GASCON, *certify that I have read the toxic substance reduction plans for the toxic substances referred to below and am familiar with their contents, and to my knowledge the plans are factually accurate and comply with the Toxics Reduction Act,2009 and Ontario Regulation 455/09 (General) made under that Act.*

- *Particulate Matter* *(dated December 6, 2013)*
- *PM10* *(dated December 6, 2013)*
- *PM2.5* *(dated December 6, 2013)*
- *Nitrogen Oxides* *(dated December 6, 2013)*
- *Carbon Monoxide* *(dated December 6, 2013)*
- *Nitrate Ion* *(dated December 6, 2013)*
- *Ammonia* *(dated December 6, 2013)*

Signature

Dec. 11/13.

Date

Bill GASCON

Print Name