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Musselwhite Mine

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 whose Toxic Substance Reduction Plans are summarized by this this Plan Summary	Cyanides (Ionic) (Per O.Reg.455/09; "no single CAS numbers applies to this substance")
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 P7B 6S8
The number of full time employee equivalents at the facility	484
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

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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)

*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, as well as objectives of the Plan.

The Facility intends to reduce its use of the Toxic Substance to the extent afforded by the implementation of the toxic substance reduction options which have been identified for implementation within this Plan. It should be noted that the reduction estimates which are required to be provided as a part of this Plan are based on the best information that is currently available, and reductions that may actually be observed after these toxic substance reduction options are implemented may be more or less than those predicted within this Plan. The Toxic Substance is never created within the Facility's process and therefore no statement with respect to intent to reduce creation of the Toxic Substance is required.

The implementation of the toxic substance reduction options that have been identified for the purpose of this Plan will result in a situation in which the Facility is of the opinion that it has optimized its use of the

Toxic Substance using the best available technology and practices that are economically achievable at this time. In light of this, no further toxic substance reduction options in addition to those identified for implementation have been identified for the purposes of this Plan. This opinion is supported by the following three aspects which influence the way in which the Facility currently uses the Toxic Substance:

1) Cyanide Code Certification

The Facility has voluntarily obtained certification under The International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (the Cyanide Code). The Cyanide Code is a voluntary industry program for the gold mining industry to promote

- responsible management of cyanide used in gold mining;
- enhance the protection of human health; and
- reduce the potential for environmental impacts.

Therefore the measures adopted by the Facility under the Cyanide Code apply directly to how Facility uses the Toxic Substance. Companies that adopt the Cyanide Code must have their operations that use cyanide to recover gold audited by an independent third party to determine the status of Cyanide Code implementation. Those operations that meet the Cyanide Code requirements can be certified, then require ongoing audits to maintain certification. The Code also requires certified operations to procure and transport cyanide through a Cyanide Code certified producer and transporter. It is the Facility's opinion that the level of process and practice optimization required to maintain Cyanide Code certification is the highest level that the Facility can reasonably be expected to achieve.

2) Compliance with Environmental Legislation Pertaining to the Toxic Substance

The Facility currently complies with all environmental regulations that control the release and disposal of the Toxic Substance, and possesses all applicable environmental approvals including:

- Air and Noise Approvals under s.9 of the *Ontario Environmental Protection Act*;
- Water Discharge Permit under the *Ontario Water Resources Act*; and
- Waste Permit under s.V of the *Ontario Environmental Protection Act* (Waste Generator number ON0434407).

The MOE has stated that the TRA is not intended to focus on these "end of pipe" emissions, however, the fact that the Facility meets or exceeds the strict release limits imposed by these regulations, despite the

relatively large amount of the Toxic Substance that is required to be used in order to operate the Facility, is a further indication of optimal use of the Toxic Substance at the Facility.

3) Economic Factors Associated with the Use of the Toxic Substance

The purchase of the lone product that is used at the Facility which contains the Toxic Substance is a significant capital expenditure and therefore optimizing the use of the product which contains the Toxic Substance is in the Facility's best interest as it is directly related to cost control.

Throughout the course of achieving the current level of process and practice optimization with respect to the Toxic Substance, and considering the above noted aspects which influence the Facility's current use of the Toxic Substance, the Facility has considered many other options to reduce its use of the Toxic Substance and has already completed internal assessments of some initiatives which could constitute toxic substance reduction options that could otherwise be identified for the purposes of this Plan. Some of these initiatives are mentioned within this Plan, however, they have not been provided as toxic substance reduction options for the purposes of this Plan since they have been deemed not to be feasible at this time or implemented.

In addition, the Facility is aware that no toxic substance reduction options have been identified for the Toxic Substance by other regulated Goldcorp facilities within Ontario. The options identified within this Plan have been reviewed by personnel at the other regulated Goldcorp facilities and it has been concluded that facilities are sufficiently different for these options to not apply at other Goldcorp facilities.

Objectives of the Toxic Substance Reduction Plan

The Objectives of the Plan are as follows:

- describe the toxic substance reduction options that have been identified for implementation within this Plan;
- provide the reader with information on measures currently in place at the Facility which influence the way in which the Toxic Substance is used at the Facility;
- 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.

Description of Why the Toxic Substance Is Used or Created

The Toxic Substance is a component of sodium cyanide which is the key reagent used for gold recovery in the Facility's gold milling process. Currently no other reagent is known in the gold ore processing industry to be as effective as sodium cyanide for gold ore processing applications, and therefore this substance is

widely used in gold ore processing operations the world over. The Toxic Substance is never created at the Facility.

Description of Toxic Substance Reduction Options to be Implemented

After careful consideration of each of the seven categories for toxic substance reduction options, and subsequent technical and economic feasibility analyses, the Facility had identified the following two toxic substance reduction options for implementation:

- **Option 1:** Using a higher density for the Leach Tanks to reduce cyanide consumption.
- **Option 2:** Reduce gland water usage and divert this water to the Counter-Current Decantation Thickeners

Estimated Reductions Under Each Toxic Substance Reduction Option to be Implemented

The following is a summary of the estimated reductions under each toxic substance reduction option. Reduction estimates have only been provided for applicable items for which reduction estimates are required to be provided in a Plan Summary under s.4(1)7iii-v.

Option 1: Using a Higher Density for the Leach Tanks to Reduce Cyanide Consumption

Estimated reduction in use of the Toxic Substance: 10.5 tonnes (3.5%)

Estimated reduction in Release to water: 0.0001 tonne (3.5%)

Estimated reduction in on-site disposal: 0.4 tonne (3.5%)

Option 2: Reduce Gland Water Usage and Divert this Water to the Counter-Current Decantation Thickeners

Estimated reduction in use of the Toxic Substance: 10.5 tonnes (3.5%)

Estimated reduction in Release to water: 0.0001 tonne (3.5%)

Estimated reduction in on-site disposal: 0.4 tonne (3.5%)

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Estimated Timelines for Achieving Estimated Reduction

As required by s.17(3) of O.Reg.455/09, the Facility estimates that it may achieve the estimated reductions outlined in this Plan after successful implementation of Option 1 and Option 2, which is anticipated to occur in 2014.

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 18, 2012

Project No. 12-1192-0094

Shane Matson
Musselwhite Mine

LICENSED TOXIC SUBSTANCE REDUCTION PLANNER CERTIFICATION STATEMENT FOR PHASE I TOXIC SUBSTANCE REDUCTION PLANS 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 Phase I Toxic Substance Reduction Plan preparation under the *Toxics Reduction Act* (TRA), including Toxic Substance Reduction Planner (Planner) certification of Phase I 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 18, 2012), 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.

- *Cyanides(Ionic) (December 18, 2012)*
- *Hydrochloric Acid (December 18, 2012)*
- *Copper (December 18, 2012)*
- *Lead (December 18, 2012)*
- *Arsenic (December 18, 2012)*
- *Cadmium (December 18, 2012)*
- *Chromium (December 18, 2012)*
- *Cobalt (December 18, 2012)*
- *Manganese (December 18, 2012)*
- *Nickel (December 18, 2012)*
- *Phosphorus (December 18, 2012)*
- *Vanadium (December 18, 2012)*
- *Zinc (December 18, 2012)*

Russell Polack
Toxic Substance Reduction Planner
License No. TSRP0002

December 18, 2012
Date

SAG/RLP/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
Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

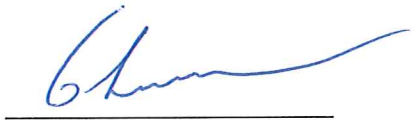
Toxic Substance Reduction Plans Certification by Highest Ranking Employee

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 (insert date) December 18, 2012, *I, (insert name)* G. LAWSON, *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.*

- *Cyanides (December 18, 2012)*
- *Hydrochloric Acid (December 18, 2012)*
- *Copper (December 18, 2012)*
- *Lead (December 18, 2012)*
- *Arsenic (December 18, 2012)*
- *Cadmium (December 18, 2012)*
- *Chromium (December 18, 2012)*
- *Cobalt (December 18, 2012)*
- *Manganese (December 18, 2012)*
- *Nickel (December 18, 2012)*
- *Phosphorus (December 18, 2012)*
- *Vanadium (December 18, 2012)*
- *Zinc (December 18, 2012)*



Gil Lawson

December 18, 2012

(December 18, 2012)