AGNICO EAGLE

MELIADINE GOLD MINE

Groundwater Management Plan

APRIL 2020
VERSION 5

EXECUTIVE SUMMARY

This document presents the Groundwater Management Plan (GWMP) for the collection, treatment, storage and discharge of saline groundwater in accordance with Agnico Eagle's Type A Water Licence 2AM-MEL1631, Part E, Item 14.

The Groundwater Management Strategy is composed of short-, medium- and long-term management strategies. Presently most of the short-term management strategies have been implemented on site and Agnico Eagle is currently working on increasing the trucking discharge to sea flow rate to 1,600 m^3/day in collaboration with NIRB and NWB. The next step will be to evaluate the construction of the waterline from the site to the Melvin Bay in order to increase the discharge rate, recover storage capacity on site and improve the robustness of the groundwater water management.

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Mine (the Mine), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut.

The Mine Plan proposes mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one Underground Mine. Based on the current Mine Plan, the Mine will produce approximately 15.4 million tonnes (Mt) of ore, 31.4 Mt of waste rock, 7.0 Mt of overburden waste, and 15.4 Mt of tailings. There are four phases to the development of the Mine; just over 3.5 years of construction (2015 to 2019), 8.5 years of Mine operation (Q2 of 2019 to 2027) , 3 years of closure (2028 to 2030), and post-closure (2030 and forwards).

Tiriganiaq Underground Mine is planned to extend to approximately 625 m below the ground surface; therefore, part of the Underground Mine will operate below the base of the continuous permafrost. The underground excavations will act as a sink for groundwater flow during operation, with water induced to flow through the bedrock to the Underground Mine workings once the Mine has advanced below the base of the permafrost. Currently, groundwater inflow mitigations are being carried out, including grouting efforts and avoiding mining areas expected to produce high inflow rates. The range of mitigated groundwater inflow rates to the Underground Mine over 2019 was reported to be up to 394 m^3/day. Non-contact groundwater quality data from samples taken over 2017 - 2019 from diamond drillholes (DDHs) show a mean TDS concentration of 56,000 mg/L.

Saline water generated from the Underground Mine is currently stored in underground sumps and in non-active development, as well as on surface in the saline ponds. A second containment pond, Saline Pond 2 (SP2), was commissioned in Q2 2019, however will be decommissioned and replaced by Saline Pond 4 (SP4) in March 2020. Saline groundwater stored on site is currently pumped to the Saline Water Treatment Plan (SWTP) for desalination treatment, or treated at the Saline Effluent Treatment Plant (SETP) for discharge to sea at Melvin Bay as per the Nunavut Impact Review Board (NIRB) Project Certification 006 Amendment 001, issued in February 2019. Over 2019, SWTP performance did not

achieve design criteria and availability was less than expected. Thus, resulting in a greater than predicted accumulation of saline water inventory on site.

ᓇᐃᓈᖅᓯᒪᔪᖅ

ᑖᓐᓇ ᑎᑎᖅᑲᖅ ᐱᔾᔪᑎᖃᖅᑐᖅ ᓄᓇᒥᑦ ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᒥᒃ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ, ᐱᓕᕆᐊᕆᓗᒍ, ᑐᖅᑯᕐᓗᒍ ᐊᒻᒪᓗ ᑯᕕᑎᓪᓗᒍ ᑕᕆᐅᓕᒃ ᓄᓇᒥᑦ ᐃᒪᖅ ᒪᓕᒡᓗᒋᑦ ᐊᒡᓃᑯᒃᑯᑦ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᖓᑦ 2AM-MEL1631, ᐊᕙᒃᓯᒪᓂᖓ E, ᑎᑎᕋᖅᓯᒪᔪᖅ 14.

ᓄᓇᒥᑦ ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᖃᓄᖅᑑᕆᓂᖅ ᓇᐃᑦᑑᔪᒃᑯᑦ, ᕿᑎᐊᑰᖓᔪᒃᑯᑦ ᐊᒻᒪᓗ ᐊᑯᓂᐅᔪᒥᑦ ᐊᐅᓚᑦᑎᓂᕐᓄᑦ ᖃᓄᖅᑑᕈᑎᐅᔪᑦ. ᒫᓐᓇᐅᔪᖅ ᑕᒪᓂᒃᑖᖅᑲᔭᖅ ᓇᐃᑦᑑᔪᒃᑯᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᖃᓄᖅᑑᕈᑏᑦ ᐊᑐᓕᖅᑕᐅᓯᒪᓕᖅᑐᑦ ᐅᔭᕋᒃᑕᕆᐊᕐᒥᑦ ᐊᒻᒪᓗ ᐊᒡᓃᑯᒃᑯᑦ ᐊᒥᓲᖑᕆᐊᖅᐸᓪᓕᐊᔭᖕᒋᑦ ᓄᓇᒃᑰᕈᑎᒃᑯᑦ ᐊᒃᔭᖅᑕᐅᓂᖓ ᑯᕕᑎᑕᐅᓂᐊᖅᑐᑦ ᑕᕆᐅᕐᒧᑦ 1,600 m^3 ᐊᖏᑎᒋᔪᒥᑦ ᐅᐸᓗᑖᖅ ᐱᓕᕆᖃᑎᒋᐸᓗᒋᑦ ᐊᕙᑎᓕᕆᔾᔪᒃᑯᑦ ᐊᒻᒪᓗ ᓄᓇᕗᒻᒥ ᐃᒪᓕᕆᔾᔪᒃᑯᑦ. ᐱᓕᕆᐊᖑᕆᐊᕐᓂᐊᖅᑐᑦ ᕿᒥᕐᕈᔭᐅᓗᓂ ᐃᒪᕐᒧᑦ ᓱᐸᓗᓕᓕᐅᖅᐸᓪᓕᐊᓂᖅ ᐅᔭᕋᒃᑕᕆᐊᕐᒦᓪᖅᑐᖅ ᐃᑎᕙᐊᓄᑦ ᐊᖏᓂᖅᓴᒥᒃ ᑯᕕᑦᑎᓂᐊᕐᓗᓂ, ᑐᖅᑯᖅᓯᓯᒪᔪᙳᖅᓯᑎᒃᑲᓂᕐᓗᒍ ᐅᔭᕋᒃᑕᕆᐊᕐᒥᑦ ᐊᒻᒪᓗ ᐱᐅᓯᕆᐊᕐᓗᑎᑦ ᐱᓗᕆᓐᓂᖓ ᓄᓇᒥᑦ ᐃᒪᕐᒥᑦ ᐊᐅᓚᑦᑎᓂᐅᔪᖅ.

ᐊᒡᓃᑯ ᐃᒍ ᐅᔭᕋᒃᑕᕆᐊᒃᑯᑦ (ᐊᒡᓃᑯᒃᑯᑦ) ᑕᓯᕐᔪᐊᕐᒥᑦ ᐅᔭᕋᒃᑕᕆᐊᓕᐅᖅᐸᓪᓕᐊᔪᑦ (ᐅᔭᕋᒃᑕᕆᐊᖅ), 25 ᑭᓛᒥᑕᓂᒃ ᐅᖓᓯᒃᑎᒋᔪᖅ ᐅᐊᖕᓇᖓᓂᑦ ᑲᖏᖅᖠᓂᐅᑉ, ᐊᒻᒪᓗ 80 ᑭᓛᒥᑕᓂᒃ ᐅᖓᓯᒃᑎᒋᐸᓗᓂ ᓂᒋᐊᓂᑦ ᐱᖓᓐᓇᖅᐸᓯᐊᓂᑦ ᐃᒡᓗᓕᓛᕐᔫᑉ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᕗᒻᒥᑦ.

ᐅᔭᕋᒃᑕᕆᐊᕐᒧᑦ ᐸᕐᓇᐅᑎ ᐅᔭᕋᒃᑕᕆᐊᓕᕆᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᔪᒪᔪᓂᒃ ᐱᑕᖃᖅᑐᖅ ᐱᕙᓪᓕᐊᔭᐅᓂᖓᓄᑦ ᑎᕆᖓᓂᐊᖅ ᒎᑕᓕᒃ, ᒪᕐᕉᓐᓂᒃ ᓄᓇᒥᑦ ᐅᒃᑯᐃᖓᔪᖃᖅᓗᓂ (ᑎᕆᖓᓂᐊᖅ ᓄᓇᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ 1 ᐊᒻᒪᓗ ᑎᕆᖓᓂᐊᖅ ᓄᓇᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ 2) ᐊᒻᒪᓗ ᐊᑕᐅᓯᖅ ᓄᓇᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐅᔭᕋᒃᑕᕆᐊᖅ. ᐊᑐᖅᓲᑦ ᒫᓐᓇᐅᔪᖅ ᐅᔭᕋᒃᑕᕆᐊᕐᒧᑦ ᐸᕐᓇᐅᑎ, ᐅᔭᕋᒃᑕᕆᐊᖅ 15.4 ᒥᓕᔭᓐ ᑕᓐᓗᐊᓂᒃ (Mt) ᐅᔭᕋᒃᑕᖅᑕᐅᓂᐊᖅᑐᖅ, 31.4 Mt-ᓂᒃ ᐊᒃᑕᑰᖅᑕᐅᔪᓂᒃ ᐅᔭᖅᑲᓂᒃ, 7.0 Mt-ᓂᒃ ᐅᖓᑕᐅᑦᑎᔪᑦ ᐊᒃᑕᑯᓂᒃ, ᐊᒻᒪᓗ 15.4 Mt-ᓂᒃ ᕿᒪᒃᑎᑦᑐᓂᑦ. ᓯᑕᒪᐅᓕᖕᓯᔪᖅ ᐱᕙᓪᓕᐊᔭᐅᓂᖓ ᐅᔭᕋᒃᑕᕆᐊᖅ; ᐅᖓᑎᐊᕐᔪᐊᓄᑦ 3.5 ᐅᑭᐅᓄᑦ ᓴᓇᔭᐅᓗᓂ (2015-ᒥᑦ 2019-ᒧᑦ), 8.5 ᐅᑭᐅᓂᑦ ᐅᔭᕋᒃᑕᕆᐊᖅ ᐊᐅᓪᓛᕐᓗᓂ (Q2 2019-ᒥᑦ ᐊᒻᒪᓗ 2020-ᒧᑦ), ᐱᖓᓱᓄᑦ ᐅᑭᐅᓂᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓗᓂ (2028-ᒥᑦ 2030-ᒧᑦ), ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ (2030-ᒥᑦ ᑕᐅᕗᖓ ᐅᖓᑖᓄᑦ).

ᑎᕆᖓᓂᐊᖅ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᑦᕐᓂᖅ ᐊᑦᑎᒃᓯᕆᐊᖅᑕᐅᒃᑲᓂᕐᓂᐅᔭᖅᑐᖅ 625 ᒦᑕᓂᒃ ᓄᓇᐅᑉ ᖂᖓᑕ ᐊᑖᓄᑦ; ᑕᐃᒪᓐᓇᒧᑦ, ᐃᓚᖓ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᒃᑕᕆᐊᖅ ᐊᐅᑏᕐᓂᐊᖅᑐᖅ ᑭᒻᓕᕆᔭᐅᔪᖅ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑑᑉ ᐊᑖᓂᑦ. ᓄᓇᐃᔭᐃᓂᖅ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐃᒻᒥᖅᑐᕐᓂᐊᖅᑐᖅ ᑯᕙᔪᒥᒃ ᐃᒪᕐᒥᒃ ᐊᐅᓛᖅᑎᑦᑎᓂᐅᑎᓪᓗᒍ, ᐃᒪᖅ ᑯᕕᑎᑕᐅᓗᓂ ᐅᔭᕋᕐᒧᑦ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᒃᑕᕆᐊᕐᒥᑦ ᐱᓕᕆᕝᕕᐅᔪᒥᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑑᑉ ᐊᑖᓄᑦ ᐅᔭᕋᒃᑕᕆᐊᖅ ᓯᕗᓪᓘᒃᓯᒪᓕᖅᑎᓪᓗᒍ. ᒫᓐᓇᐅᔪᖅ, ᓄᓇᒥᑦ ᐃᒪᕐᒥᑦ ᑯᕙᔪᒥᒃ ᐊᖏᕐᓗᐊᖏᒋᐊᖅᑎᑦᑎᓃᑦ ᐱᓕᕆᐊᖑᔪᑦ, ᐃᓚᐅᐸᓗᓂ ᐅᒃᑯᐃᖓᓂᐅᔪᓂᒃ ᐃᓗᐊᓄᐊᖅᑎᕆᓃᑦ ᐊᒻᒪᓗ ᐅᔭᕋᑦᕙᐅᑦᑕᐃᓕᓗᑎᒃ ᑯᕙᓂᖅᑕᖃᔪᐊᕐᓂᐊᖅᑐᑦ. ᐊᖏᕐᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᐅᔪᖅ ᓄᓇᒥᑦ ᐃᒪᕐᒥᑦ ᑯᕙᔪᓂᒃ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᒃᑕᖅᑕᐅᔪᒥᑦ 2019-ᒥᑦ ᐅᖃᐅᓯᐅᓚᐅᖅᑐᖅ ᑯᕙᓂᖃᖅᓗᓂ 394 m^3-ᓂᒃ ᐅᐸᓗᑖᒃᑯᑦ. ᓄᓇᒥᑦ ᐃᒪᖅ ᐊᑐᖅᑕᐅᓯᒪᙳᕆᑦᑐᖅ ᖃᓄᐃᓐᓂᖓᓄᑦ ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ ᐆᒃᑐᕋᐅᑕᐅᓯᒪᔪᑦ 2017 – 2019-ᒥᑦ ᓯᑎᔪᓂᒃ ᐅᔭᕋᓄᑦ ᐃᑰᑕᐃᓂᕐᓂᑦ (DDH) ᑕᑯᒃᓴᐅᑎᑦᑎᔪᖅ ᒥᑭᔪᒥᒃ TDS ᑲᑎᓯᒪᔪᓂᒃ 56,000 mg/L-ᓂᒃ.

ᑕᕆᐅᕐᒥᒃ ᐃᒪᖅ ᐱᔭᐅᔪᖅ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᒃᑕᕆᐊᕐᒥᑦ ᑐᖅᑯᖅᑕᐅᒐᑦᑕᖅᑐᖅ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᑯᕙᕝᕙᐅᔪᓄᑦ ᐊᒻᒪᓗ ᐱᕙᓪᓕᐊᓂᒃᑲᕐᕕᐅᖏᑦᑐᒥᑦ, ᐊᒻᒪᓗ ᓄᓇᐅᑉ ᖂᖓᓂᑦ ᑕᕆᐅᓐᓂᑦ ᑕᓯᕋᔭᖕᓄᑦ. ᑐᓪᓕᐊ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᒃ ᑕᓯᕋᔭᒃ, ᑕᕆᐅᕐᒥᒃ ᑕᓯᕋᔭᒃ 2 (SP2), ᐊᑐᓕᖅᑎᑕᐅᓚᐅᖅᑐᖅ Q2 2019-ᒥᑦ, ᑭᓯᐊᓂ ᐊᑐᕈᓐᓃᖅᑎᑕᐅᓂᐊᖅᑐᖅ ᐊᓯᐊᓂᒡᓗ ᐱᖓᓲᓗᑎᒃ ᑕᕆᐅᕐᒥᒃ ᑕᓯᕋᔭᒃ 4-ᒥᑦ (SP4) ᓇᑦᑎᐊᑦ 2020-ᒥᑦ. ᑕᕆᐅᕐᒥᒃ ᓄᓇᒥᑦ ᐃᒪᖅ ᑐᖅᑯᖅᑕᐅᒐᑦᑕᖅᑐᖅ ᐅᔭᕋᒃᑕᕆᐊᕐᒥᑦ ᑯᕕᑎᑕᐅᒐᑦᑕᖅᑐᖅ ᑕᕆᐅᓕᖕᒥᑦ ᐃᒪᓕᕆᕝᕕᖕᒧᑦ (SWTP) ᑕᕆᐅᖏᔭᖅᑕᐅᓂᐊᕐᓗᓂ, ᐅᕝᕙᓘᓐᓃᑦ ᑕᕆᐅᕐᒥᑦ ᑯᕙᔪᓂᒃ

ᐃᒪᓕᕆᕝᕕᖕᒧᑦᑕᐅᖃᑦᑕᕐᑐᖅ ᑯᕕᑎᑕᐅᓂᐊᕐᓗᓂ ᐃᑎᕕᐊᓄᑦ ᒪᓕᒃᓗᒋᑦ ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᒃᑯᑕᕐᖓᑦ 006 ᐋᖅᑭᒋᐊᖅᓯᓂᖅ 001, ᑐᓂᔭᐅᓚᐅᖅᑐᖅ ᐊᕗᓐᓂᕕᒃ 2019-ᒥᑦ. 2019-ᒥᑦ, SWTP ᖃᔪᐃᓕᐅᕐᓂᖓ ᑎᑭᐅᑎᓚᐅᕐᒋᑦᑐᖅ ᐋᖅᑭᐅᒪᓂᖓᔪᑦ ᐊᒻᒪᓗ ᒪᓂᒪᓂᖓ ᒥᑭᓂᖅᓴᐅᑉᓗᓂ ᓂᕆᐅᒋᔭᐅᓚᐅᖅᑐᒥᑦ. ᑕᐃᒪᓐᓇᒧᑦ, ᐊᕐᒋᓂᖅᓴᐅᔪᒥᒃ ᓇᓚᐅᑦᑖᖅᑕᐅᓚᐅᖅᑐᓂᐅᕐᖓᓂᑦ ᑲᑎᑉᐸᓪᓕᐊᔪᓂᒃ ᑕᕆᐅᓕᕐᒥᑦ ᐃᒪᖃᖅᑐᖅ ᐅᔭᕋᒃᑕᕆᐊᕐᒥᑦ.

TABLE OF CONTENTS

LIST OF TABLES

DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	February 2018	All		In compliance with Agnico Eagle's Type A Water Licence 2AM-MEL1631, Part E, Item 14	Golder Associates Ltd. on behalf of Agnico Eagle Mines Limited
2	June 2018	4		In compliance with ECCC comments from 16 March 2018	Golder Associates Ltd. on behalf of Agnico Eagle Mines Limited
3.	December 2018	All		In compliance with Agnico Eagle's Type A Water Licence 2AM-MEL1631, Part E, Item 11	Agnico Eagle Mines Ltd.
		Exec Summary		Updated dates and quantities	
		2.4		Revised mine development plan bullets	
		3.3		Updated saline GW quality	
		3.4		Updated groundwater management strategies	
		4.1		Updated GW monitoring program quantity and quality data	
		4.4		Expanded table 5 monitoring to include SWTP	
4.	March 2019	All		In compliance with Agnico Eagle's amended No. 006 Project Certificate, Condition No. 25	Agnico Eagle Mines Ltd.
		Exec Summary		Updated to include discharge to sea approval	
		1	1-2	Update to include requirements of No. 006 Project Certificate Condition No. 25	
		2.4	5	Addition of SWTP and discharge to sea	
		3.1	6-7	Section revision	
		3.1.1	7-8	Addition of inflow model assumptions/uncertainties	
		3.2	8-9	Updated with discharge to sea	
		3.3	9-10	Interpretation added and table Aug-18 results corrected	
		3.4	11-15	Addition of discharge to sea and update of SWTP performance	
		3.6	16-18	Addition of mitigation measures under greater than expected inflows	
		4.2	19	Addition of second pumping line from UG	
		4.3	21-23	Addition of discharge to sea related sampling/monitoring	
5.	March 2020	All		In compliance with Agnico Eagle's amended No. 006 Project Certificate, Condition No. 25	Agnico Eagle Mines Ltd.

	Exec Summary		General update to reflect updated Plan
	2.4	15	Update high level mine plan, schedule, addition of SETP and RO
	3.1	16-17	General section update, and updated groundwater inflow rates included
	3.2	18-19	Updated saline water control structures
	3.3	19-20	General section update/revision; moved water quality table to Appendix C
	3.4	20-24	Section update to reflect changes to saline water management strategy
	3.5	24	Section revision/update to include SP4, timeline details
	3.6	-	Former Section 3.6 was updated and moved into other sections
	4.1	25-27	General section revision/update, QAQC portion moved to Water Quality and Flow Monitoring Plan and can be found in QAQC plan

ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited
ANFO	Ammonium Nitrate/Fuel Oil
CP	Collection Pond
DDH	Diamond Drillhole(s)
EMPP	Environment Management and Protection Plan
EWTP	Effluent Water Treatment Plant
FEIS	Final Environmental Impact Statement
GWMP	Groundwater Management Plan
MDMER	Metal and Diamond Mining Effluent Regulations
NIRB	Nunavut Impact Review Board
NWB	Nunavut Water Board
Mine	Meliadine Gold Mine
QA	Quality Assurance
QC	Quality Control
RO	Reverse Osmosis
SD	Support Document
SSWQO	Site Specific Water Quality Objectives
SWTP	Saltwater Treatment Plant
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
WMP	Water Management Plan

UNITS

%	percent
°C	degrees Celsius
°C/m	degrees Celsius per metre
ha	hectare(s)
mg/L	milligram(s) per litre
km	kilometer(s)
km^2	kilo square meter(s)
m	metre(s)
m/day	metre(s) per day
mm	millimetre(s)
m^3	cubic metre(s)
m^3/day	cubic metre(s) per day
m^3/s	cubic metre(s) per second
m^3/hour	cubic metre(s) per hour
m^3/year	cubic metre(s) per year
Mm^3/year	million cubic metre(s) per year
Mm^3	million cubic metre(s)
t	tonne(s)
tpd	tonne(s) per day
Mt	million tonne(s)

SECTION 1 • INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Mine (Mine), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. The Mine is subject to the terms and conditions of both the Mine Project Certificate (No. 006) issued by the Nunavut Impact Review Board in accordance with the Nunavut Agreement Article 12.5.12 on February 26, 2015 and Nunavut Water Board Type A Water Licence (No. 2AM-MEL1631, 2016) issued by the Nunavut Water Board (NWB) on April 1, 2016.

This document presents the Groundwater Management Plan (GWMP) for the collection, treatment, storage and discharge of saline groundwater in accordance with the Type A Water Licence 2AM-MEL1631 (Licence) and in accordance with Condition No. 25 of the amended Mine Project Certificate. The overall water management plan for the life of the Mine and post-closure is described in the Agnico Eagle Meliadine Gold Mine Water Management Plan (WMP).

1.1 Objectives

The objective of the GWMP is to provide consolidated information on groundwater management for the Meliadine Gold Mine. The GWMP is divided into the following components:

- Introductory section (Section 1);
- A brief summary of the physical setting at the mine site and the mine development plan (Section 2);
- A description of groundwater inflow forecasts and management strategies (Section 3); and
- A description of the groundwater monitoring program (Section 4).

The GWMP will be updated as required to reflect any changes in operations or economic feasibility that occurs, and to incorporate new information and latest technology, where appropriate.

SECTION 2 • BACKGROUND

2.1 Site Conditions

The Mine is located in an area of poorly drained lowlands near the northwest coast of Hudson Bay. The dominant terrain in the Mine area consists of glacial landforms such as drumlins (glacial till), eskers (gravel and sand), and many small lakes. The topography is gently rolling with a mean elevation of 65 metres above sea level (masl) and a maximum relief of 20 metres (m).

The local overburden consists of a thin layer of topsoil overlying silty gravelly sand glacial till. Cobbles and boulders are present throughout the region at various depths. Bedrock at the mine site area consists of a stratigraphic sequence of clastic sediments, oxide iron formation, siltstones, graphitic argillite and mafic volcanic flows (Snowden 2008; Golder 2009).

The climate is extreme in the area, with long cold winters and short cool summers, and mean air temperatures of 12 °C in July and -31 °C in January. The mean annual air temperature at the Mine site is approximately -10.4 °C (Golder 2012a). Strong winds blow from the north and north-northwest direction more than 30 percent of the time.

The mean annual precipitation in the area is approximately 412 mm and is typically equally split between rainfall and snowfall.

Late-winter ice thicknesses on freshwater lakes in the mine site area were recorded from 1998 to 2000. The measured data indicated that ice thickness ranges from 1.0 to 2.3 m with an average thickness of 1.7 m. Ice covers usually appear by the end of October and are completely formed in early November. The spring ice melt typically begins in mid-June and is complete by early July (Golder 2012b).

2.2 Local Hydrology

The Mine is located within the Meliadine Lake watershed. Meliadine Lake has a surface water area of approximately 107 square kilometres (km^2), a maximum length of 31 km, features a highly convoluted shoreline of 465 km and has over 200 islands. Unlike most lakes, it has two outflows that drain into Hudson Bay through two separate river systems. It has a drainage area of 560 km^2 from its two outflows. Most drainage occurs via the Meliadine River, which originates at the southwest end of the lake. The Meliadine River flows for a total stream distance of 39 km. The Meliadine River flows through a series of waterbodies, until it reaches Little Meliadine Lake and then continues into Hudson Bay. A second, smaller outflow from the west basin of Meliadine Lake drains into Peter Lake, which discharges into Hudson Bay through the Diana River system (a stream distance of 70 km). At its mouth, the Diana River has a drainage area of 1,460 km^2.

Watersheds in the Mine area are comprised of an extensive network of waterbodies, and interconnecting streams. The hydrology of these watersheds is dominated by lake storage and evaporation.

2.3 Hydrogeology

The Mine is located in an area of continuous permafrost. Based on thermal studies and measurements of ground temperatures, the depth of permafrost at the mine site is estimated to be in the order of 360 to 495 m. The depth of the active layer ranges from about 1 m in areas with shallow overburden, up to about 3 m adjacent to the lakes. The depth of the permafrost and active layer varies depending on proximity to the lakes, overburden thickness, vegetation, climate conditions, and slope direction (Golder 2012b). The typical permafrost ground temperatures at the depths of zero annual amplitude are in the range of -5.0 to -7.5 °C in the areas away from lakes and streams. The geothermal gradient ranges from 0.012 to 0.02 °C/m (Golder 2012c).

Groundwater characteristics at the Mine are detailed in Final Environmental Impact Statement (FEIS) Volume 7, Section 7.2 Hydrogeology and Groundwater, and in a hydrogeological assessment completed for the Mine (Golder 2016). The groundwater characteristics for the Mine are briefly summarized below.

Two groundwater flow regimes in areas of continuous permafrost are generally present:

- a deep groundwater flow regime beneath the base of the permafrost; and
- a shallow flow regime located in an active (seasonally thawed) layer near the ground surface.

From late spring to early autumn, when temperatures are above 0 ˚C, the active layer thaws. Within the active layer, the water table is expected to be a subdued replica of topography, and is expected to parallel the topographic surface. Mine area groundwater in the active layer flows to local depressions and ponds that drain to larger lakes.

Taliks exist beneath waterbodies that have sufficient depth such that they do not freeze to the bottom over the winter. Beneath small waterbodies that do not freeze to the bottom over the winter, a talik bulb that is not connected to the deep groundwater flow regime will form (a closed talik). Elongated waterbodies with terraces (where the depth is within the range of winter ice thickness), a central pool(s) (where the depth is greater than the range of winter ice thickness), and a width of 340 to 460 m or greater are expected to have open taliks extending to the deep groundwater flow regime at the Mine site. A review of bathymetric data, ice thickness data, and results of thermal modelling suggests that Meliadine Lake and Lake B7 are likely to have open taliks connected to the deep groundwater flow regime (Golder 2012a).

Tiriganiaq Underground Mine is planned to extend to approximately 625 m below the ground surface; therefore, part of the underground mine will be operated below the base of the frozen permafrost (top of the cryopeg). The underground excavations will act as a sink for groundwater flow during operation, with water induced to flow through the bedrock to the underground mine workings once the mine has advanced below the base of the frozen permafrost.

Both Tiriganiaq Pit 1 and Tiriganiaq Pit 2 will be mined within the frozen permafrost, therefore, groundwater inflows to the open pits is expected to be negligible.

2.4 Mine Development Plan

The Mine Plan proposes mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one Underground Mine. The current mine plan applies the following approach for the development of the Tiriganiaq gold deposit:

- Tiriganiaq Underground Mine will be developed and operated from Year -5 to Year 8 (2015 to 2027);
- Tiriganiaq Pit 1 will be mined from Year 2 to Year 7 (2021 to 2026); and
- Tiriganiaq Pit 2 will be mined from Year 1 to Year 3 (2020-2022).

Mine facilities on surface include a plant site and accommodation buildings, two ore stockpiles, a temporary overburden stockpile, a tailings storage facility, three waste rock storage facilities, a water management system that includes containment ponds, water diversion channels, retention dikes/berms, a final Effluent Water Treatment Plant (EWTP), a Saline Water Treatment Plant (SWTP), a Reverse Osmosis Plant (RO), and a Saline Effluent Treatment Plant (SETP). Details on each treatment plant can be found in the WMP.

SECTION 3 • GROUNDWATER MANAGEMENT STRATEGY

3.1 Groundwater Volumes

In the WMP of the water licence application (Agnico Eagle 2015a) it was stated that supplemental hydrogeological investigations were to be undertaken to provide additional information on potential volumes and quality of the saline groundwater to be managed. These investigations were undertaken in 2015 and 2016 and are summarized in Golder (2016). They included the completion of twenty-four packer tests, two pumping tests, two injection tests, eleven groundwater samples, and seven surface water samples. The work plan for the fieldwork was developed in consultation with two independent technical advisors, Dr. Shaun K. Frape and Dr. Walter A. Illman (both of the University of Waterloo).

The additional hydraulic conductivity measurements resulted in a refined interpretation on the variability of hydraulic conductivity between geological formations and data on the storage properties of the bedrock. Furthermore, piezometer data records and diamond drillhole (DDH) water intersect data was applied to re-calibrate the model in 2019. A summary of predicted groundwater inflows between 2019 and 2033, based on this refined interpretation and re-calibration, are provided in Table 1.

Table 1: Predicted Groundwater Inflow to Underground Mine (2020 to 2032)

Year	Quarter	Predicted Groundwater Inflow (m^3/day)
2019	Q1	380
2019	Q2	400
2019	Q3	430
2019	Q4	420
2020	Q1	410
2020	Q2	410
2020	Q3	420
2020	Q4	420
2021	Q1	420
2021	Q2	430
2021	Q3	440
2021	Q4	460
2022	Q12	480
2022	Q34	510
2023	-	530
2024	-	540
2025	-	580
2026	-	570

2027	-	530
2028	-	510
2029	-	490
2030	-	480
2031	-	470
2032	-	460
2033	-	450

Predicted groundwater inflow rates provided in Table 1 represent unmitigated inflow forecasts; not accounting for inflow mitigations currently being conducted to reduce groundwater inflows to the underground development. Over 2019, inflow mitigation included both grouting (pre-production and in response to inflows) and avoiding mining in areas expected to produce high groundwater inflow rates. As such, the magnitude of inflow forecasts in Table 1 were not sustained throughout 2019, but were rather periodically approached and mitigated.

Combined (mine-wide) groundwater inflow values to the Underground Mine are currently estimated by manually measuring and summating all visible inflows across the mine (Section 4). The mitigated inflows over 2019 was measured up to 394 m^3/day. It is important to note that as mining advances, inflow rates are susceptible to rapid and sustained increase if water bearing structures are intercepted within stopes, where grouting is not possible. As such, and as noted above, mining in areas known to contain highly-pressurized, large-scale water bearing structures is currently being avoided due to limited capacity to manage forecasted inflow rates. The long-term groundwater management strategy (Section 3.4.3) will aim to provide capacity to manage non-mitigated inflows over the life of mine.

3.1.1 Groundwater Inflow Predictions – Assumptions and Uncertainties

Hydraulic conductivities of both the Hanging Wall and Footwall units are assumed to be reduced by an order of magnitude between the top of the basal cryopeg and the bottom of the cryopeg. This assumption reflects that this portion of the permafrost, which will contain unfrozen groundwater due to freezing point depression (salinity and pressure induced), is expected to have reduced hydraulic conductivity relative to the unfrozen bedrock because of the presence of isolated pockets of frozen groundwater within this zone. Linearly decreasing hydraulic conductivity with temperature is assumed within this zone, with a full order of magnitude decrease assumed at the top of the basal cryopeg, and hydraulic conductivity equivalent to the unfrozen rock at the bottom of the cryopeg.

In crystalline rocks, fault zones may act as groundwater flow conduits, barriers, or a combination of the two in different regions of the fault depending on the direction of groundwater flow and the fault zone architecture. These zones, termed Enhanced Permeability Zones (EPZs), were assigned hydraulic conductivity values based on both field measurements and testing conducted at similar faulting in various locations within the Canadian Shield. Furthermore, EPZs were assumed not to be impacted by isolated freezing in the cryopeg and were therefore assigned similar hydraulic conductivity values within and below the cryopeg. The latter assumption along with the assumption that all faults are considered EPZs is considered conservative. For instance, observations made at other gold mines in the Canadian Shield indicate not all faults are EPZs (Golder, 2016).

Based on the geometry of water bodies, it was assumed that Lake B7, Lake D7, and Meliadine Lake possess open taliks connected to the deep groundwater flow regime. It was conservatively assumed that the surface water/groundwater interaction through open taliks is not impeded by lower-permeability lakebed sediments that may exist.

Combined, the assumptions discussed above result in the following sources of uncertainty in the groundwater inflow model:

1. If there is a lack of reduction in hydraulic conductivity between the top of the basal cryopeg and the bottom of the cryopeg, it is likely that greater than expected inflows upon stoping will occur in the cryopeg (300 to 450 m below ground surface).
2. If faults within the model do not act as EPZs, then it is expected that inflows resulting from development near these structures will be less than expected. The degree of deviation from expected inflows and timing will be dependent on the location of the structure in relation to development.
3. If hydraulic conductivity of faults within the cryopeg are impacted by isolated freezing, then lower than expected inflows will be observed when development in the cryopeg progresses near the structures. The degree of deviation from expected inflows and timing will be dependent on the location of impacted EPZs in relation to development.
4. If significant thicknesses of lakebed sediments with relatively low permeability exist within in the flow path connecting surface water to groundwater through open taliks, it is likely that mine-wide inflows will be less than expected due to a reduction in expected recharge to the groundwater flow regime.

3.2 Existing Groundwater Management Control Structures

Contact water in the Underground Mine is contained within underground sumps, in non-active development underground, and in the surface saline ponds. Over 2019 this included Saline Pond 1 (SP1) and Saline Pond 2 (SP2). Saline Pond 3 (SP3) acts as a temporary final storage pond where the SETP effluent is stored prior to discharge to sea. As discussed in the WMP, SP2 will be replaced by Saline Pond 4 (SP4) in March 2020. A proportion of the underground water is recirculated as make-up water for underground drilling. The remaining underground water is stored for desalination treatment by the SWTP (Section 3.4.2), or treatment by the SETP for discharge to sea. Over 2020, excess underground contact water stored in non-active development will be transferred to SP4 to allow advancement of the current mine plan.

In previous years (2016 – 2018) saline water was directed to and stored in the P-Area containment ponds (P1, P2, and P3) for evaporation. In 2019, inputs to the P-Area were limited in an effort to begin the decommissioning process of the containment structures. In 2020, saline water inputs to the P-Area are not planned and the only planned inputs will be the result of precipitation runoff; in order to facilitate the decommissioning of the P-Area in 2020.

Calcium chloride is currently not added to the underground water but has been used in the past to prevent freezing in drill holes when drilling in permafrost with low salinity drill water.

A schematic of the underground dewatering system is provided in Appendix B. Pond capacities for storage of saline water are presented in Table 2.

Table 2: Salt Water Storage Capacity at the Mine for Groundwater and Water Primarily Influenced by Underground Workings

Surface Pond	Capacity (m^3)	Occupied storage capacity (m^3)
Saline Pond 1	32,686	27,227
Saline Pond 2*	78,862*	76,000
Saline Pond 3	7,895	Emptied for winter
Saline Pond 4	233,122**	121,689†
P1	20,781	3,158§
P2	6,828	237§
P3	2,912***	1,821§

Source: Agnico Eagle (2017).

* SP2 to be decommissioning in March 2020 (Section 3.2). Volume stored in SP2 will be transferred to SP4 (Section 3.4.1)

** Based on Design, subject to change based on As-Built

*** Adjusted for volume reduction due to Saline Pond 3 construction (Water Management Plan Section 3.4)

† Accounting for emptying of SP2 and underground storage to SP4 (Section 3.4.1)

§ No saline water additions to P-Area planned for 2020 to support potential decommissioning of P-Area (Section 3.4.1)

Based on forecasted groundwater inflow rates (Table 1) and groundwater management strategies currently in place (Sections 3.4.1 and 3.4.2), it is expected that saline pond storage shown in Table 2 (excluding P-Area ponds) will be at capacity by mid-May 2021. Further information is provided in Section 3.4.2.

3.3 Groundwater Quality

Historically, groundwater investigations suggested that total dissolved solids (TDS) concentrations are relatively consistent below the permafrost at approximately 64,000 mg/L (Golder 2016). Groundwater quality samples have been collected from 2017 through 2019 from diamond drillholes (DDHs) intersecting water bearing structures (Section 4). Results from the 146 samples collected from 2017 to 2019 indicate stable and consistent concentrations for several parameters (Appendix C) and indicate that TDS concentrations are less than predicted at a mean concentration of 56,000 mg/L. The discrepancy between expected and observed TDS levels is potentially due to the difference of sampling depth between pre-development testing and samples collected during development. Pre-development samples were collected below permafrost (>450 m below ground surface), whereas the bulk of samples collected to-date have been collected in the basal cryopeg (280 m to 450 m below ground surface). Samples and trends will continue to be assessed as development progresses below the cryopeg. It should also be noted that mining operations include drill-and-blast excavation for the development of the Underground Mine, which results in certain parameters in groundwater to be influenced by explosives (particularly ammonia and nitrate).

3.4 Groundwater Management Strategy and Associated Control Structures

Based on the groundwater inflow volume, the following options were considered and form part of the short-, medium- and long-term management of groundwater inflows to the Underground Mine:

- Short-term Strategy: Store saline contact water on site (Section 3.4.1)
- Medium-term Strategy: Treat saline groundwater for discharge to receiving environment in Meliadine Lake and Melvin Bay via trucking (Section 3.4.2)
- Long-term Strategy: Treat saline groundwater for discharge to receiving environment in Melvin Bay via waterline (Section 3.4.3).

The short-, medium- and long-term groundwater management strategies are described below.

3.4.1 Short-Term Management Strategy - Groundwater On-site Storage

This alternative was considered as part of the Type A Water Licence Application and has been implemented on site as part of the short-term management of groundwater inflow. It involves storing all excess groundwater in an underground water stope and in dedicated surface saline water ponds at the Mine. As outlined in the WMP, a total of twelve water containment ponds are planned on Site at the Mine surface. These are CP1, CP3, CP4, CP5, CP6, the P-Area (P1, P2, and P3), SP1, SP2 (to be replaced by SP4 in 2020), SP3 and SP4). Ten of these have been constructed and are in use (CP1, CP3, CP4, CP5, P-Area [P1, P2, and P3], SP1, SP2, and SP3). SP2 is scheduled for decommissioning in Q2 2020 to allow the mining of Tiriganiaq Pit 2. SP2 is to be replaced by SP4, which is scheduled to be commissioned in March of 2020. The addition of SP4 has two purposes. First, to replace SP2 and allow the mining of Tiriganiaq Pit 2, and second, to supply additional storage for saline water on site. The additional storage is required due to continued groundwater infiltration to the underground workings and finite existing surface storage capacity. In March of 2020 following the completion of SP4, water contained within SP2 and water currently stored in development underground will be transferred to SP4. SP2 will be decommissioned following this transfer of water. Further information on storage ponds is included in the WMP.

Five saltwater evaporators have been in-use on site since mid-2017 at P1 to reduce saline groundwater volumes stored in surface water ponds. While evaporators have been used with some success, realized groundwater inflows to be managed is greater than the available long-term storage at the Mine, and therefore, discharge to environment has been required and was initiated in 2019 (Section 3.4.2). No additional saline water inputs were made to the P-Area throughout 2019. All subsequent inflows to the P-Area were primarily the result of direct precipitation and surface run-off from up-gradient areas. Throughout 2020, inputs to the P-Area will continue to be kept minimal to facilitate the potential for decommissioning of the P-Area in 2020.

3.4.1.1 Short-Term Mitigation Measures – Increased Storage and Treatment Rate

Upon the occurrence of greater than expected groundwater inflows to the underground mine, Agnico Eagle will utilize contingency saline water storage ponds until inflows can be reduced or treatment/discharge is capable of managing inflows.

As of March 2020, the commissioning of SP4 (and decommissioning of SP2) will introduce an additional 155,000 m^3 of saline water storage on surface. Under the condition that SP4 reaches capacity due to higher than expected inflows, the mine plan as it relates to open pits, can be adapted to provide additional storage (for example mining Tiriganiaq Pit 2 can be stopped to accommodate saline water storage needs and SP4 water can be transferred so that mining of Tiriganiaq Pit 1 is made possible). Furthermore, additional adaptive management measures with regards to saline water at Meliadine are being explored.

It will be the goal of Agnico Eagle to reduce the amount of saline water stored in SP1, SP4 and underground as much as possible during the open water season through discharge to sea in order to maximize storage potential.

3.4.2 Medium-Term Management Strategy

3.4.2.1 Saltwater Treatment Plant (SWTP) - Desalination

Agnico Eagle has constructed and commissioned a Salt Water Treatment Plant (SWTP) consisting of two evaporator crystallizers (SaltMakers) used to treat groundwater. The SWTP removes excessive total suspended solids (TSS), calcium chloride ($CaCl_2$), sodium chloride (NaCl), metals, phosphorous (P), and nitrogen compounds from the influent saline water.

The SWTP consists of two parallel units. Each unit can be operated to produce brine or solid by-product. The SWTP will operate in solid-mode over the duration of 2020 however at a reduced capacity due to design challenges. Further specifications of the SWTP can be found within the SWTP Design Report (Agnico Eagle 2018) and the SWTP As-Built Report (Agnico Eagle 2019a).

Following the commissioning of the SWTP in solid-mode over 2019, the actual operational rate has been less than design. Over Q3 and Q4 of 2019, the combined treatment rate of the two Saltmaker units (120 m^3/day design total) was reported at 46.5 m^3/day. Furthermore, availability has been much lower than expected over this same period. As a result, over Q3 and Q4 over 2019, the SWTP treated a calculated total of 6,045 m^3 (compared to a design calculated total of 20,862 m^3).

SWTP effluent is currently discharged to CP5, which is then transferred to CP1 and subsequently discharged to the receiving environment in Meliadine Lake. EWTP effluent discharge to Meliadine Lake was performed in 2019 in accordance with the conditions outlined in Part F, Item 3 of the Water Licence. Discharge to Meliadine Lake, including the treated groundwater, will remain within the permitted discharge criteria defined in the License, be non-acutely lethal, and meet the Canadian federal end-of-pipe discharge criteria (per the amended MDMER; GC 2019). Additionally, SSWQOs for EWTP effluent (including treated groundwater) will be met at the edge of the mixing zone in Meliadine Lake. Further details regarding the EWTP are provided in Sections 3.9.4 and Section 4.3 of the WMP.

3.4.2.2 Saline Effluent Treatment, Storage and Haulage

The site will be increasing the trucking and volumes of discharge at Melvin Bay. The increased trucking was included in the Roads Management Plan (Agnico Eagle, 2019b). The increased volume for discharge to Melvin Bay will be elevated from 800 m^3/day to 1600 m^3/day.

Saline water will be pumped from underground and stored in SP1 and SP4. Saline water will then be transported to the Saline Effluent Treatment Plant (SETP) for treatment of ammonia and total suspended solids (TSS). Treated saline water will meet MDMER end-of-pipe discharge criteria and be non-acutely and non-chronically toxic as per regulated toxicity testing per the MDMER. Initial treatment will include TSS removal. Next, breakpoint chlorination treatment will be applied to remove elevated ammonia levels, which are inferred to be the result of the use of explosives. Excess free chlorine will be removed with activated carbon filters. Following the activated carbon filters, saline water will be pumped to Saline Pond 3 (SP3) for final settling and storage. The SETP will be designed to treat 1,600 m^3/day of saline water for TSS and ammonia.

Treated saline water stored in SP3 will hauled by tanker trucks to Itivia. Truck loads will be up to 36 m^3 per truck and will be unloaded using a flexible 4" HDPE suction pipe. The truck discharge pump will transfer the treated effluent into the 6'' discharge HDPE pipeline and through the diffuser. The truck discharge pump will also be used to transfer effluent into the storage tank until the next day before it is pumped into sea, when necessary. Further information on trucking can be found in the Roads Management Plan (Agnico Eagle 2019b).

Based on forecasted groundwater inflow values provided in Table 1 and the medium-term strategy described here, it is expected that saline water storage capacity (Table 2) will be at capacity by mid-May 2021. Thus, short- and medium-term strategies described in this section are not sustainable. This assessment does not incorporate SWTP application due to unreliability of the treatment plant.

3.4.2.3 Pumping and Diffusion Plan 2020

The flow rate to be discharged to Melvin Bay will not exceed 1,600 m^3/day with a TDS of 39,600 mg/L. The discharge facility includes a 778 m pipeline extending to an engineered diffuser located 20 m below surface in Melvin Bay to ensure proper mixing and prevent interference with traditional activities. Pumping will occur during the summer season (June to October) of 2020 and following years until the long-term strategy is approved and constructed. The saline effluent will be discharged in a controlled manner through the diffuser to allow for maximum diffusion and minimum environmental impact to the marine environment. Environmental monitoring is discussed in the Ocean Discharge Monitoring Plan (Agnico Eagle, 2020).

The effluent discharge system will consist of a discharge pump, a 50,000 L storage tank, as well as suction and discharge pipelines. The 50,000 L storage tank will only be used to contain the treated effluent until the next day, if the 1,600 m^3/day discharge limit is attained upon a truck's arrival. The storage tank is installed on a containment area, built on a geomembrane with underlying and overlying granular materials and surrounded by berms.

3.4.2.4 Medium-Term Mitigation Measures – Groundwater Monitoring

Hydraulic Monitoring

As a strategy to support groundwater inflow modelling and monitor groundwater responses to mining, twelve (12) vibrating wire piezometers are currently installed in the rock mass surrounding the Underground Mine. These piezometers are currently and will continue to be applied to assess response of the groundwater pressure (pressure head) to groundwater inflows, and as calibration data for the groundwater inflow model (Section 3.1).

Furthermore, a hydrogeological investigation is currently ongoing as a means to provide additional calibration data/information for the hydrogeological model. The purpose of this data collection is both to increase the understanding of local hydrogeology and to reduce uncertainty of groundwater modelling. The hydrogeological investigation is being carried out over 10 – 15 DDHs and includes: core logging of water bearing structures; hydrogeological testing to characterize aquifer and fracture hydrogeological properties; and installing up to 20 vibrating wire piezometers. The investigation is expected to be completed by end of Q2 2020.

Groundwater Quantity and Quality Monitoring

The groundwater monitoring program (Section 4) allows ongoing comparison of modelled water quantity/quality to realized trends. Details pertaining to the groundwater monitoring program are found in Section 4.

Non-contact groundwater samples as part of the groundwater monitoring program are used to identify trends and improve predictions regarding groundwater inflow chemistry. If non-contact groundwater samples collected indicate that TDS concentrations are more than 20% higher than the estimated 64,000 mg/L (Section 3.3), then water quality predictions for underground will be reviewed and updated, if required.

Similarly, observed groundwater inflow rates are compared to model predictions (Table 1) on a yearly basis. If significant variations from model predictions are observed, the assumptions/inputs behind the model will be reviewed and the model updated, if required. In addition, updates to the groundwater model may be required based on operational changes as the Underground Mine advances.

3.4.3 Long-Term Management Strategy - Treated Groundwater Discharge to Melvin Bay at Itivia Harbour via a Waterline

Based on the current inventory of saline water stored on site (Table 2), plus current and forecasted groundwater inflows (Section 3.1), the proposed long-term strategy of discharging to Melvin Bay via a waterline will be required to ensure we meet all obligations. The long term strategy will be submitted to the appropriate authorities in Q1 2020.

3.5 Discharge Schedule - 2020

The following Table summarizes the 2020 discharge schedule.

Table 3: High Level Mine Water Management Schedule - 2020

Activity	Timeline	Notes
On-site water storage	Ongoing	SP4 replacing SP2 in March 2020
Discharge saline water to the sea (Melvin Bay, Rankin Inlet)	Annually June through October	Typically open water initiates discharge to Melvin Bay
Active Discharge to Meliadine lake	Annually May through October;	—
Operation of Salt Water Treatment Plant	24 hr. a day / 7 days a week, year round	In-service as required
Inactive Discharge	Annually November through May	Water will be stored underground and in surface containment ponds during the winter until the long-term strategy is implemented

SECTION 4 • GROUNDWATER MONITORING PROGRAM

4.1 Water Quality and Quantity Monitoring

Water quantity and quality monitoring is an important part of the groundwater management strategy to verify the predicted water quantity and quality trends and conduct adaptive management should differing trends be observed.

Groundwater monitoring is carried out for operational and water management purposes by Agnico Eagle. This monitoring data will not be reported to the Regulators in the Annual Water License Report, but can be provided upon request by the Regulators.

The groundwater monitoring plan, summarized in Table 4, will be further defined as the Mine advances and will be conducted in agreement with the WMP for the Mine (Agnico Eagle 2019c).

4.1.1 Water Quantity

Combined (mine-wide) groundwater inflow rates to the Underground Mine are currently estimated by manually measuring and summating all visible inflows across the mine. Recorded measurements are logged in a database from which daily estimated inflow rates can be produced. The database is updated accordingly as flow rates at existing inflow locations change (i.e., grouted) and as new inflows are observed. Thus, the database is maintained to represent the current state of mine-wide groundwater infiltration. Groundwater inflow rates are compared to modelled rates (Table 1) on a quarterly basis (Section 3.4.2.3).

Excess underground water volumes transferred from the Underground Mine to storage ponds on surface (SP1 and SP4) are recorded at a flow meter located after the main pumping station from underground to surface. Furthermore, water volumes in SP1 and SP4 are tracked via water elevation surveys applied to volume-elevation curves. Further details pertaining to the underground water management system can be found in Appendix C.

4.1.2 Water Quality

Underground Contact Water

Underground contact water is sampled on a monthly basis at the locations identified in Table 4. All underground contact water sampling locations are analyzed for the following parameters: conventional parameters (specific conductivity, TDS, TSS, pH, hardness, alkalinity, total and dissolved organic carbon, turbidity), oil and grease, major ions, total and free cyanide, radium 226, dissolved and total metals (including mercury), nutrients (nitrate and nitrite, ammonia, Kjeldahl nitrogen, total phosphorus, orthophosphate) and volatile organic compounds (i.e., benzene, xylene, ethylene toluene, F2-F4 petroleum hydrocarbons). The Sump 125 sampling location (sampled 2016 – 2019) will be replaced by the Level 300 sampling location in 2020 due to reconfiguration of the underground water management system (Appendix C).

Non-contact Groundwater

Non-contact groundwater quality is monitored at mine seeps and/or DDH water intersects to verify the quality of formation water flowing into the mine prior to contact. Flushing and sampling techniques used to ensure samples are taken without contamination are described in Section 2.2.3 of the Quality Assurance/Quality Control Plan (Agnico Eagle, 2019d). Samples are collected quarterly at a minimum but actual sampling frequency may be greater depending on rate of progress, frequency of water intersects, and observed trends in groundwater quality with time. DDH intersect water samples are analyzed for the following parameters: conventional parameters (specific conductivity, TDS, TSS, pH, hardness, alkalinity, total and dissolved organic carbon, turbidity), major ions, nutrients (nitrate and nitrite, ammonia, Kjeldahl nitrogen, total phosphorus, orthophosphate), radium 226, dissolved and total metals (including mercury). Results from DDH water intersect sampling over 2017 – 2019 can be found in Appendix D.

Saline Water Treatment Plant (SWTP) Influent and Effluent

Water samples at the SWTP are currently collected every two weeks at both the inlet and outlet of the SWTP. The results of the sample analysis are used by SWTP operators to fine-tune the treatment process and ensure its optimal performance. Samples taken at the outlet of the SWTP are analyzed to provide the quality of treated water produced by the SWTP that is transferred to CP5.

Water samples are analyzed for the following parameters: conventional parameters (pH, hardness, TDS, TSS), chloride, sulphate, nutrients (nitrite and nitrate, ammonia, total phosphorus), total metals (including mercury), total and free cyanide, oil and grease and volatile organic compounds (F2-F4 petroleum hydrocarbons)..

Table 4 presents a summary of the groundwater monitoring plan presented in Section 4.1.

Table 4: Groundwater Monitoring Plan

Monitoring Type	Monitoring Location	Purpose	Frequency
Verification	Underground Seeps	Quantity - Seepage survey to verify underground inflow rates	Updated daily
Verification	SP1 and SP4	Quality – Monitor quality of surface saline storage ponds	Monthly

Monitoring Type	Monitoring Location	Purpose	Frequency
Verification	Level 300 pre-clarification	Quality – Monitor quality of collective saline contact water underground prior to clarification	Monthly
Verification	Underground seeps/DDHs	Quality – Verify quality of groundwater flowing into underground mine	Quarterly
Verification	SWTP Inlet and Outlet	Quality – Monitor quality of saline contact water being pumped from underground and monitor final treated effluent prior to continued transfer to CP5	Every two weeks

Source: Agnico Eagle (2018).

REFERENCES

Agnico Eagle. 2014. Final Environmental Impact Statement (FEIS) - Meliadine Gold Project, Nunavut from: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/11MN034-Agnico Eagle%20MELIADINE/2-REVIEW/09-FINAL%20EIS/FEIS Accessed on November, 2014.

Agnico Eagle. 2015a. Meliadine Gold Project, Type A Water Licence. Water Management Plan. Version 1. Submitted to the Nunavut Water Board. April 2015.

Agnico Eagle. 2015b. Meliadine Gold Project: Environmental Management and Protection Plan (EMPP). Version 4. 6513-MPS-07. April 2015.

Agnico Eagle. 2018. Meliadine Gold Project: Design Report Saline Water Treatment Plant. 6515-E-132-013-105-REP-035. August 2018.

Agnico Eagle. 2019a. Meliadine Gold Project: As Built Report Saline Water Treatment Plant. July 2019.

Agnico Eagle. 2019b. Meliadine Gold Project Roads Management Plan. Version 8. 6513-MPS-03. December 2019.

Agnico Eagle. 2019c. Meliadine Gold Project Water Management Plan. Version 8. 6513-MPS-11. November 2019.

Agnico Eagle. 2019d. Meliadine Gold Project Quality Assurance / Quality Control Plan. Version 3. 6513-QQY-01. March 2019.

Agnico Eagle. 2020. Ocean Discharge Monitoring Plan. Version 3 - NIRB. April 2020.

CCME (Canadian Council of Ministers of the Environment). 2003. Canadian Environmental Quality Guidelines – Water Quality Guidelines for the Protection of Aquatic Life.

Environment Canada. 1992. Biological test method: fertilization assay with echinoids (sea urchins and sand dollars). Ottawa (ON): Environmental Technology Centre. Report EPS 1/RM/27, December 1992, Amended in November 1997.

ECCC (Environment Canada and Climate Change). 2018. Biological test method: reference method for determining acute lethality using threespine stickleback. Method Development and Applications Unit, Science and Technology Branch, Environment and Climate Change Canada. EPS 1/RM/10. 2018.

Golder (Golder Associated Ltd.). 2009. Assess of completeness of geotechnical data for feasibility design Tiriganiaq open pit. Submitted to Comaplex Minerals Corp., 26 May 2009, Doc. 008 Rev. 0

Golder. 2012a. SD 7-2 Aquatic Baseline Studies- Meliadine Gold Project, Nunavut, Canada. A Technical Report Submitted to Agnico Eagle Mines Ltd. by Golder Associates, September 19, 2012.

Golder. 2012b. SD 6-1 Permafrost Thermal Regime Baseline Studies- Meliadine Gold Project, Nunavut, Canada. A Technical Report Submitted to Agnico Eagle Mines Ltd. by Golder Associates, September 25, 2012.

Golder. 2012c. Tailings Storage Facility Preliminary Design – Meliadine Gold Project, Nunavut. A Draft Report Submitted to Agnico Eagle Mines Ltd. by Golder, August 16, 2012.INAC, 1992. Guidelines for ARD Prediction in the North. Department of Indian Affairs and Northern Development, Northern Mine Environment Neutral Drainage Studies No.1, Prepared by Steffen, Robertson and Kirsten (B.C.) Inc.

Golder. 2016. Hydrogeological Assessment in Support of the Underground Mine Development at Tiriganiaq, March 21, 2016.

Golder. 2017. Updated Predictions of groundwater Inflow to Tiriganiaq Underground Mine – V5 Mine Plan, December 18, 2017.

Golder. 2019. Modelling Assessment of Groundwater Discharge into the Melvin Bay Marine Environment, Rev B. February 1, 2019.

Hatch. 2013. Agnico Eagle Mines Ltd. - Meliadine Desalination Study - Salt Water Treatment Plant Report. Report No. H350003-000-05-124-002/6505-SSR-01_R82, Rev 2. September 30, 2013.

NWB (Nunavut Water Board). 2016. Type A Water Licence No. 2AM-MEL1631.

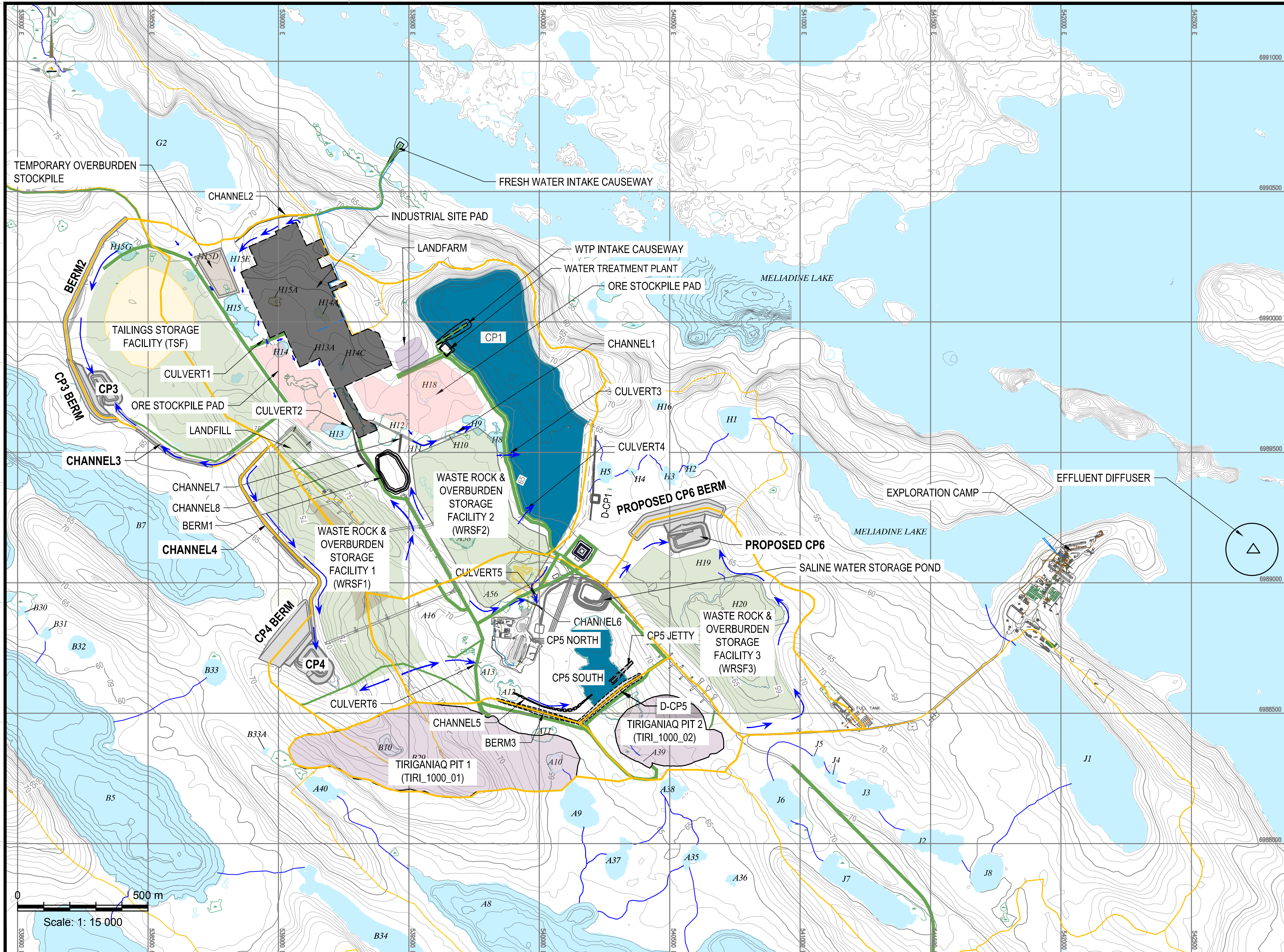
Snowden. 2008. Tiriganiaq gold deposit, Nunavut – resource update. Submitted to Comaplex Minerals Corp. January 2008.

US EPA (United Stated Environmental Protection Agency). 2002. Short-term methods for estimating chronic toxicity of effluent and receiving waters to marine and estuarine organisms. Third edition. Cincinnati (OH): Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency. EPA/821/R-02/014. October, 2002

APPENDIX A • SITE LOCATION AND MINE SITE LAYOUT

NO. DESSIN
DRAWING NO.

FORMAT ANSI B–11x17



LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- CONTACT WATER FLOW DIRECTION

AGNICO EAGLE

TETRA TECH

TITRE / TITLE	# DWG
–	–
–	–
–	–
–	–
–	–

DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY
0	ISSUED FOR USE	01–22–2020	GZ
A	ISSUED FOR REVIEW	01–17–2020	GZ

REVISIONS

DESSINÉ PAR DRAWN BY	EL	DATE	01–22–2020
VÉRIFIÉ PAR CHECKED BY	GZ		01–22–2020
APPROUVÉ PAR APPROVED BY			
No. PROJET PROJECT NO.	6526		
DATE			

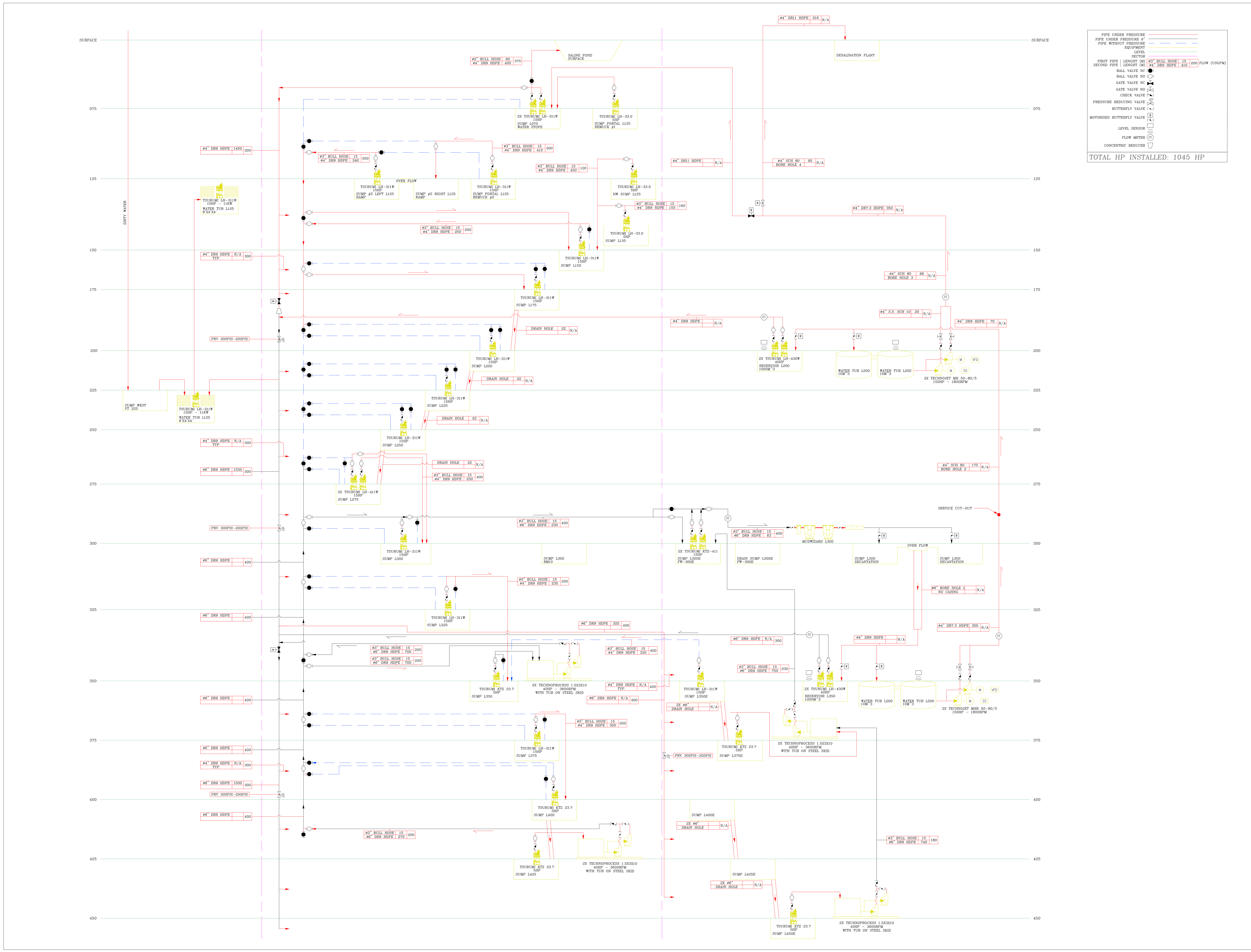
TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 2 LOCATION PLAN FOR CP6 AND CP6 BERM AS SHOWN ON GENERAL SITE LAYOUT PLAN FOR PROPOSED INFRASTRUCTURE DURING MINE OPERATION (YEAR 7)

ÉCHELLE/ SCALE	1:15000	FICHIER FILE	.DWG		
No. DESSIN/ DRAWING NO.				REVISION 0	FEUILLE/SHT 1 / 1

AE–CART–ANSI B

Q:\Edmonton\Engineering\E141\Projects_MELIADINE\ENG.EARC03140–06 (CP6)\Figure for Design Report\Figure 2 IFU.dwg

APPENDIX B • UNDERGROUND WATER MANAGEMENT FLOW SHEET DIAGRAM



NOTE:

– ESTIMATED LENGTH OF PIPING, TO BE CONFIRMED BY COSTUMER.

NE PAS UTILISER POUR CONSTRUCTION (NOT FOR CONSTRUCTION)

POUR APPROBATION (FOR APPROVAL) DATE : 2018-08-02

REV	DATE	DESCRIPTION	INIT.	INIT.
D	2018-11-15	ISSUED FOR COMMENTS	A.L.	A.L.
C	2018-09-26	ISSUED FOR COMMENTS	P.B.	M.B.
B	2018-09-18	ISSUED FOR COMMENTS	P.B.	M.B.
A	2018-08-08	ISSUED FOR COMMENTS	P.B.	A.L.

ÉMISSION/ISSUED FOR

Technosub

CLIENT:

AGNICO EAGLE

MELIADINE

PROJET/PROJECT:

WATER MANAGEMENT AUDIT

P1806201

TITRE/TITLE:

FLOWSHEET DIAGRAM
MID TERME
NOVEMBER 2018

CONÇU PAR/DESIGNED BY: A. Labbe, P. Eng. INIT.

DESSIN PAR/DRAWN BY: P. Bellerose INIT.

VERIFIÉ PAR/CHECKED BY: A. Labbe, P. Eng. INIT.

APPROUVÉ PAR/APPROVED BY: A. Labbe, P. Eng. INIT.

ÉCHELLE/SCALE: N/A

DATE DE CRÉATION/CREATION DATE: 2018-08-08

DE PROJET/PROJECT #: P1806201

DE DESSIN/DRAWING #: P1806201-0002

REVISION: D

GABARIT/TEMPLATE: TECH_1 FORMAT: ARCHD (24X36)

ÉCHELLE DE TRACÉ/PLOT SCALE: 0.037902

APPENDIX C • GROUNDWATER QUALITY SAMPLING RESULTS 2017 - 2019

Table 1 DDH water intersect data collected at the Meliadine underground mine from 2017 – 2019. Monthly values are mean concentrations from water samples collected over the given month.

Representative Months (average per month)		17-Jan	17-Feb	17-Mar	17-Apr	17-May	17-Jun	17-Jul	17-Aug	17-Sep	17-Oct	17-Nov	17-Dec	Mean for 2017	18-Jan	18-Feb	18-Mar	18-Apr	18-May	18-Jun	18-Jul	18-Aug	18-Sep	18-Oct	18-Nov	Mean for 2018	19-Jan	19-Feb	19-Mar	19-Apr	19-May	19-Jun	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec	Mean for 2019
Parameters (total metal)	**Units**																																					
pH	pH	7.08	6.87	7.11	7.32	7.38	7.27	8.27	7.45	7.33	7.41	7.26	7.18	7.33	7.35	7.49	7.80	7.26	7.26	7.79	7.08	7.72	6.99	7.02	7.28	7.37	7.03	7.15	7.31	7.62	7.16	7.13	6.93	7.71	7.37	7.08	7.52	7.27
Alkalinity	mg/L	57	57.5	51	64.5	68	68	75	68.2	64	64	69	66	64	73	73	78	70	62	67	65	85	71	67	57	70	67	74	74	62	64	65	44	93	88	52	74	69
Conductivity	µmhos/cm	77000	76500	77000	79000	79000	76308	74385	72200	72667	78667	85000	80667	77366	81083	82667	81200	83000	69500	83125	83333	83000	78000	69571	81000	79589	85500	77667	84750	79800	81500	79833	80000	65000	66000	69000	81500	77323
Total Hardness (as $CaCO_3$)	mg/L	13200	13050	12700	18400	12433	12623	12500	12583	11700	12600	14100	12733	13219	13164	14367	12680	13550	13100	13538	13450	13925	13500	11131	16500	13537	13750	11683	11925	12540	13650	13333	17700	10745	11000	11200	15150	12971
Turbidity	NTU	123.8	62	88.0	90.0	51.0	75.0	61.0	47.0	104.3	55.0	30.0	53.0	70.0	74.8	72.9	27.2	49.3	75.5	27.5	52.0	27.5	84.0	69.4	52.0	55.6	115.0	77.7	84.3	61.4	93.0	86.8	75.0	12.5	47.0	62.0	37.0	68.3
Total Dissolved Solids (TDS)	mg/L	54350	54600	54900	57500	57300	55123	57815	57520	54567	57867	62000	55133	56556	53975	52233	55460	51367	56900	58325	55917	60975	56900	49229	57600	55353	63150	53800	60575	57620	61300	61833	60000	46300	48500	49300	58900	56480
Total Suspended Solids (TSS)	mg/L	45.0	43.5	63.0	248.5	102.7	102.2	156.0	86.0	102.0	316.7	30.0	56.0	112.6	181.8	108.1	31.0	38.7	37.5	85.4	58.5	50.0	216.0	42.4	46.0	81.4	82.5	47.0	53.0	45.4	52.0	61.2	45.0	72.5	30.0	110.0	52.5	59.2
Aluminum (Al)	mg/L	0.210	0.06	6.020	1.290	0.510	1.450	0.730	0.970	1.750	2.063	0.150	0.250	1.288	2.979	1.466	0.270	0.290	0.128	0.798	0.245	0.261	4.145	0.353	0.150	1.008	0.556	0.379	0.194	0.246	0.202	0.409	0.755	0.409	0.150	1.490	0.277	0.460
Ammonia Nitrogen (NH_3-NH_4)	mg/L	4.13	7.9	4.50	4.95	5.20	5.51	11.08	4.87	4.70	6.10	4.80	4.70	5.70	5.83	4.71	5.18	4.80	4.30	5.25	4.23	6.93	4.55	5.71	6.55	5.28	4.45	4.17	4.35	4.43	4.75	4.12	4.10	11.85	7.80	3.60	4.20	5.26
Arsenic (As)	mg/L	0.003	0.006	0.010	0.008	0.004	0.016	0.016	0.102	0.013	0.047	0.006	0.009	0.020	0.027	0.057	0.009	0.010	0.004	0.024	0.006	0.005	0.011	0.009	0.014	0.016	0.008	0.007	0.006	0.005	0.005	0.009	0.010	0.013	0.005	0.012	0.014	0.008
Barium (Ba)	mg/L	0.060	0.05	0.100	0.270	0.070	0.090	0.250	0.100	0.070	0.113	0.082	0.094	0.112	0.109	0.109	0.098	0.072	0.073	0.100	0.058	0.073	0.170	0.110	0.163	0.103	0.078	0.070	0.063	0.060	0.057	0.068	0.112	0.075	0.053	0.050	0.067	0.068
Beryllium (Be)	mg/L	0.003	0.002	0.010	0.002	0.002	0.005	0.008	0.010	0.010	0.008	0.005	0.008	0.006	0.010	0.009	0.009	0.007	0.004	0.004	0.006	0.004	0.005	0.009	0.005	0.007	0.008	0.007	0.005	0.005	0.005	0.007	0.010	0.005	0.005	0.005	0.005	0.006
Boron (B)	mg/L	1.60	1.6	5.00	4.90	1.50	2.70	3.97	5.00	2.50	4.17	2.50	4.17	3.30	4.79	4.72	4.50	3.33	2.10	2.28	2.92	2.35	2.80	4.64	3.00	3.40	3.75	3.39	2.50	2.50	2.50	3.33	5.00	2.50	2.50	2.50	2.50	3.00
Total Organic Carbon (TOC)	mg/L	2.23	2.5	2.10	2.95	2.63	3.20	5.30	2.57	2.50	16.27	3.00	2.67	3.99	2.50	2.42	2.36	2.47	2.20	3.00	1.97	2.40	2.95	2.73	5.30	2.75	2.15	3.00	2.28	1.87	2.40	2.07	3.00	4.85	4.30	1.70	2.25	2.71
Dissolved Organic Carbon	mg/L	1.90	2.3	1.70	2.30	2.37	2.70	4.90	2.32	2.10	13.70	2.80	2.33	3.45	2.38	2.27	2.36	2.27	1.90	2.55	1.90	2.40	2.55	2.53	5.00	2.56	2.10	2.93	2.08	1.90	1.85	1.82	2.70	4.50	4.20	1.20	1.95	2.48
Calcium (Ca)	mg/L	1710	1740	1650	3737	1593	1608	1771	1610	1565	1720	1770	1587	1838	1646	1777	1656	1737	1690	1748	1653	1715	2165	1487	2960	1839	1620	1557	1440	1640	1695	1630	3580	1363	1420	1490	1875	1755
Cadmium (Cd)	mg/L	0.000	0.0002	0.001	0.000	0.000	0.001	0.001	0.001	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Chloride (Cl - dissolved)	mg/L	31250	38000	31000	31500	32000	31385	31538	32800	29333	32333	34000	33000	32345	33833	34444	34800	34333	32500	33875	33333	36250	33500	27143	35000	33546	34500	30667	33750	32200	32500	34000	34000	26000	27000	26000	34500	31374
Chromium (Cr)	mg/L	0.025	0.015	0.010	0.020	0.017	0.050	0.075	0.100	0.880	0.083	0.050	0.083	0.117	0.096	0.094	0.090	0.067	0.035	0.043	0.058	0.043	0.052	0.093	0.050	0.066	0.075	0.079	0.050	0.050	0.050	0.067	0.100	0.050	0.050	0.050	0.050	0.061
Copper (Cu)	mg/L	0.010	0.008	0.050	0.010	0.010	0.020	0.040	0.050	0.030	0.042	0.025	0.032	0.027	0.048	0.048	0.045	0.028	0.018	0.021	0.029	0.021	0.040	0.046	0.025	0.034	0.038	0.033	0.025	0.025	0.025	0.033	0.050	0.025	0.025	0.025	0.025	0.030
Cyanide (Cn)	mg/L	0.005	0.015	0.005	0.028	0.005	0.006	0.010	0.005	0.008	0.005	0.025	0.015	0.011	0.017	0.033	0.021	0.012	0.025	0.005	0.005	0.005	0.005	0.005	–	0.013	--	--	--	--	--	--	--	--	--	--	--	-
Iron (Fe)	mg/L	4.76	6.74	3.60	8.78	6.19	9.81	6.33	8.24	4.10	10.67	6.46	6.50	6.85	14.84	12.79	5.50	5.37	6.36	5.94	7.96	5.36	18.80	5.64	6.81	8.67	8.87	6.61	6.94	5.47	6.54	6.66	8.27	2.90	3.11	8.55	5.77	6.33
Lead (Pb)	mg/L	0.005	0.006	0.020	0.004	0.003	0.009	0.015	0.020	0.018	0.017	0.010	0.017	0.012	0.020	0.019	0.018	0.013	0.007	0.009	0.012	0.009	0.010	0.019	0.010	0.013	0.015	0.013	0.010	0.010	0.010	0.013	0.020	0.010	0.010	0.010	0.010	0.012

Magnesium (Mg)	mg/L	2168	2120	2080	2200	2050	2092	1962	2105	1975	2017	2350	2150	2106	2208	2411	2078	2220	2150	2229	2267	2335	1970	1800	2200	2170	2355	1893	2030	2048	2290	2234	2130	1775	1800	1820	2550	2084
Mercury (Hg)	mg/L	0.00001	0.00001	0.00001	0.000001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Molybdenum (Mo)	mg/L	0.025	0.015	0.010	0.250	0.026	0.047	0.075	0.100	0.170	0.083	0.050	0.083	0.078	0.096	0.094	0.090	0.067	0.035	0.043	0.058	0.043	0.050	0.093	0.061	0.066	0.075	0.067	0.050	0.050	0.050	0.067	0.100	0.050	0.050	0.050	0.050	0.060
Nickel (Ni)	mg/L	0.025	0.015	0.100	0.070	0.017	0.050	0.080	0.100	0.350	0.083	0.050	0.083	0.085	0.096	0.094	0.090	0.067	0.035	0.043	0.058	0.043	0.050	0.093	0.050	0.065	0.075	0.067	0.050	0.050	0.050	0.067	0.100	0.050	0.050	0.050	0.050	0.060
Nitrate (NO_3) as N	mg/L	0.50	2.6	0.10	2.58	0.23	0.89	4.35	0.17	0.34	0.29	0.10	0.21	1.03	2.02	0.38	0.24	0.30	0.30	0.42	0.52	0.61	0.46	2.93	0.10	0.75	0.50	0.37	0.40	0.23	0.50	0.35	0.10	8.68	4.66	0.10	0.10	1.45
Nitrite (NO_2) as N	mg/L	0.05	0.266	0.10	0.13	0.09	0.14	0.39	0.04	0.03	0.03	0.02	0.02	0.11	0.12	0.04	0.04	0.03	0.03	0.04	0.05	0.07	0.04	0.11	0.06	0.06	0.05	0.04	0.04	0.02	0.02	0.03	0.01	0.13	0.17	0.01	0.01	0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	3.78	8.7	4.60	5.20	7.83	7.40	12.00	72.02	4.50	9.00	5.60	4.87	12.13	6.12	4.97	5.90	5.27	4.95	5.54	4.18	7.50	4.60	6.77	6.50	5.66	4.40	4.80	5.08	4.27	6.55	4.33	4.00	14.00	9.60	4.30	3.85	5.93
Phosphorous (P)	mg/L	0.070	0.04	0.040	0.130	0.120	0.080	0.090	0.100	—	0.390	0.080	0.080	0.111	0.075	0.083	0.162	0.073	0.200	0.173	0.118	0.175	0.420	0.154	0.100	0.158	0.150	0.120	0.175	0.100	0.105	0.122	0.210	0.094	0.093	0.110	0.115	0.127
Potassium (K)	mg/L	496	446	407	609	433	463	518	488	763	502	528	465	510	490	532	512	479	474	500	491	539	444	391	680	503	477	429	430	438	482	467	400	427	395	371	530	440
Radium-226 (Ra 226)	mg/L	0.49	0.29	0.30	1.20	1.95	1.80	1.90	2.20	0.29	2.20	2.40	1.67	1.39	1.85	3.68	3.88	2.63	2.05	1.94	1.83	2.45	0.67	0.91	1.80	2.15	2.15	1.26	2.90	2.37	2.00	1.58	2.90	1.13	0.40	0.89	2.05	1.78
Selenium (Se)	mg/L	0.003	0.002	0.010	0.002	0.002	0.005	0.008	0.010	0.007	0.008	0.005	0.008	0.006	0.010	0.009	0.009	0.007	0.004	0.004	0.006	0.016	0.005	0.009	0.005	0.008	0.008	0.008	0.007	0.005	0.005	0.005	0.007	0.010	0.005	0.005	0.005	0.005
Silver (Ag)	mg/L	0.001	0.0003	0.002	0.001	0.000	0.001	0.002	0.000	0.018	0.003	0.001	0.002	0.003	0.002	0.004	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Sodium (Na)	mg/L	14625	14250	13400	15400	13900	14369	14654	14417	9433	14900	17000	15300	14304	15183	16389	14860	14967	14750	15725	15333	16450	13550	12629	16600	15131	15950	14200	15925	14500	15950	15800	15600	12965	13000	14100	16300	14935
Strontium (Sr)	mg/L	43.1	45.5	38.4	136.0	40.0	39.0	43.5	36.5	23.6	40.0	35.1	35.7	46.4	37.2	37.3	37.1	40.1	47.7	43.9	40.0	41.3	61.9	47.4	83.4	47.0	39.5	42.7	37.5	43.5	38.2	38.4	113.0	33.6	39.1	45.7	40.0	46.5
Sulphate (SO_4 – dissolved)	mg/L	3125	3150	3100	3100	3233	3169	2969	3120	3067	3200	3500	3433	3181	3367	3500	3320	3367	3350	3250	3467	3625	3200	2829	3200	3316	3450	3000	3400	3200	3500	3467	2600	2850	3100	2600	3400	3142
Thallium (Tl)	mg/L	0.001	0.0002	0.001	0.000	0.000	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Uranium (U)	mg/L	0.003	0.002	0.010	0.006	0.002	0.005	0.008	0.010	0.090	0.008	0.005	0.008	0.013	0.010	0.009	0.009	0.007	0.004	0.004	0.006	0.006	0.005	0.009	0.005	0.007	0.008	0.007	0.005	0.005	0.005	0.007	0.010	0.005	0.005	0.005	0.005	0.006
Vanadium (V)	mg/L	0.130	0.08	0.500	0.100	0.080	0.230	0.380	0.500	0.330	0.417	0.250	0.417	0.285	0.479	0.472	0.450	0.333	0.175	0.213	0.292	0.213	0.250	0.464	0.250	0.326	0.375	0.333	0.250	0.250	0.250	0.333	0.500	0.250	0.250	0.250	0.250	0.299
Zinc (Zn)	mg/L	0.125	0.06	0.500	0.120	0.080	0.230	0.380	0.500	0.340	0.417	0.250	0.417	0.285	0.479	0.472	0.450	0.333	0.175	0.259	0.292	0.213	0.250	0.464	0.250	0.331	0.375	0.333	0.250	0.250	0.250	0.333	0.911	0.250	0.250	0.250	0.250	0.337

* One sample result from February 24, 2017 removed from average calculations due to contamination of sample with drill water and resultant unrepresentative results of non-contact groundwater.