MEADOWBANK COMPLEX

2023 Annual Report
61-000-100-REP-006

Prepared for:
Nunavut Water Board
Nunavut Impact Review Board
Fisheries and Oceans Canada
Crown-Indigenous Relations and Northern Affairs Canada
Kivalliq Inuit Association

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Complex

Sections identified by § are reported under NWB Mandate

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ABBREVIATION

ABA	Acid base accounting
AANDC	Aboriginal Affairs and Northern Development Canada (now CIRNAC)
AEMP	Aquatic Ecosystem Monitoring Program
ARD	Acid Rock Drainage
AWAR	All Weather Access Road
BACI	Before/after control/impact
BBS	Breeding Bird Survey
BL	Baker Lake
BLDAG	Baker Lake Dust Advisory Group
BV	Bureau Veritas
CAAQS	Canadian Ambient Air Quality Standards
CCBE	Cover with capillary barrier effects
CCME	Canadian Council of Ministers of the Environment
CD	Central Dike
CESCC	Canadian Endangered Species Conservation Council
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CLO	Community Liaison Officers
COQ	Certificate of Qualification
COSEWIC	Committee on Status of Endangered Wildlife in Canada
CREMP	Core Receiving Environmental Monitoring Program
CRF	Cemented Rock Fill
CSM	Conceptual Site Model
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
D/S	Downstream
ECC	Employment and Culture Committee
ECCC	Environment and Climate Changes Canada
EEM	Environmental Effect Monitoring
El.	Elevation
ENT	Ear, Nose, and Throat
ERP/CMP	Emergency Response Plan / Crisis Management Plan
ERT	Emergency Response Team
FCRP	Final Closure and Reclamation Plan
FDP	Final Discharge Point
FEIS	Final Environmental Impact Statement
FMEA	Failure Mode & Effect Analysis
FTE	Full-time equivalent
F/T	Freeze/Thaw
GHG	Greenhouse gas
GHGRP	Greenhouse Gas Reduction Plan
GN	Government of Nunavut
GN-DOE	Government of Nunavut Department of Environment
HCMP	Habitat Compensation Monitoring Plan

HHRA	Human Health Risk Assessment
HHS	Hunter Harvest Study
HR	Human Resources
HTO	Hunter Trapping Organization
IC	Implementation Committee
ICMC	International Cyanide Management Code
ICRP	Interim Closure and Reclamation Plan
ICS	Incident command system
IIBA	Inuit Impact and Benefit Agreement
INUG	Innuguguayalik Lake
IPC	Instantaneous pressure change
IPD	In-pit tailings deposition
IQ	Inuit Qaujimajatuqangit
ISV	Inuit Societal Values
IWBS	Inuit Work Barrier Study
KAN	Kangislulik Lake ([KAN]; formerly Mammoth Lake [MAM]; referred to as KAN or MAM)
KETAP	Kivalliq Employment and Training Action Plan
KIA / KivIA	Kivalliq Inuit Association
KLMA	Kivalliq Labour Market Analysis
KPI	Key Performance Indicator
KvSEMC	Kivalliq Socio-economic monitoring committee
LDL	Lower Detection Limit
LDMP	Landfarm Design and Management Plan
LMA	Labour market analysis
LSA	Local Study Area
LMS	Learning Management System
LOM	Life of Mine
MAM	Mammoth Lake; referred to as Kangislulik Lake
Masl.	Meters above sea level
MBK	Meadowbank
MDL	Method Detection Limit
MDRB	Meadowbank Dike Review Board
MFRAG	Meadowbank Fisheries Research Advisory Group
MIHR	Mining Industry Human Resources
ML	Metal Leaching
MMP	Mercury monitoring plan
MOU	Memorandum of Understanding
MDMER	Metal and Diamond Mining Effluent Regulations
NAC	Nunavut Arctic College
NC	North Cell
NCIS	North Cell Internal Structure
NEM	Nemo Lake
NIRB	Nunavut Impact Review Board
NF	Near-Field
NML	Non metal leaching
NNLP	No Net Loss Plan
NP	Neutralization Potential

NPAG	Non-Potentially Acid Generating
NPC	Nunavut Planning Commission
NRCan	Natural Resources Canada
NSERC-UQAT	National Science and Engineering Research Council – University of Quebec in Abitibi-Temiscamingue
NWB	Nunavut Water Board
OHF	Oil Handling Facility
OMS	Operation, Maintenance and Surveillance
PAG	Potentially Acid Generating
PEAMP	Post-Environmental Assessment Monitoring Program
PDL	Pipe Dream Lake
PHC	Petroleum Hydrocarbon
PPE	Protective personnel equipment
PPL	Peak Pressure Level
PRISM	Program for Regional and International Shorebird Monitoring
PPV	Peak particle velocity
QAQC	Quality Assurance Quality Control
RCMP	Royal Canadian Mounted Police
RDP	Relative Percent Difference
RIME	Research Institute in Mine and Environment
RSA	Regional Study Area
SC	South Cell
SD	Saddle Dam
SEMP	Socio-Economic Monitoring Program
SMP	Stormwater Management Pond
SEMR	Socio-economic monitoring report
SEMWG	Socio-economic monitoring working group
SNC	SNC-Lavalin
SPL, SP	Second Portage Lake
SPLE	Second Portage Lake Exposure
Sta.	Station
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infection
STP	Sewage Treatment Plan
SWTC	South Whale Tail Channel
TAG	Terrestrial Advisory Group
TARP	Trigger Action Response Plan
TASK	Trades, Awareness, Skills, Knowledge
TDS	Total Dissolved Solids
TEE	Trade Entrance Exam
TEMP	Terrestrial Ecosystem Management Plan
TK	Traditional Knowledge
TKN	Total Kjeldahl Nitrogen
TMS	Training Management System
TOC	Total Organic Carbon
TPL, TPN, TPE	Third Portage Lake

TSM	Towards Sustainable Mining
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
VECs	Valued Ecosystem Components
VSEC	Valued Socio-Economic Component
WAL	Wally Lake
WBS	Work Barrier Study
WEP	Waste Extension Pool
WRSF	Waste rock storage facility
WSLRA	Wildlife Screening Level Risk Assessment
WT	Whale Tail
WTD	Whale Tail Dike
WTHR	Whale Tail haul road
WTN	Whale Tail North
WTP	Water Treatment Plan
WTS	Whale Tail South
W/D	Wet/Dry

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Comment
1	2024/03/30	All	All	This has been reviewed by Environmental Staff and will be incorporated into training for all mine staff on behalf of the Mine Manager and Senior Management

Prepared By: Meadowbank Environment Department

Approved By: 

Eric Haley
Environmental and Critical Infrastructures Superintendent

SECTION 1. INTRODUCTION§

The 100% owned Meadowbank Complex is located approximately 110 kilometres by road north of Baker Lake in the Kivalliq District of Nunavut, Canada. The complex consists of the Meadowbank mine and mill, and the Whale Tail mine, which is located 50 kilometres northwest of the Meadowbank mine.

Meadowbank Project was first licensed by the NWB in 2008. The project involved the construction, operation, maintenance, reclamation, closure and monitoring of an open pit gold mine and milling facility at the Meadowbank mine site, and the processing plant achieved commercial production in March 2010. The original Water License was subsequently renewed by the Board in August 2015 and was amended in July 2018 to reflect changes to the Project associated with additional tailings deposition and ore processing at the Meadowbank mine site from Agnico Eagle's new mining undertaking at the Whale Tail mine site. In March 2019, the Water License was amended for the third time to allow for tailings disposal in the mined-out Goose and Portage pits. In May 2020, the fourth amendment was granted to allow the activities for the Whale Tail Mine Expansion, i.e. the term of the Water License was extended by 4 years, now expiring in March 2030. The Meadowbank Mine is governed by current Water License 2AM-MEA1530.

At present, the project components included in the scope of the Water License consist of the Meadowbank mine site and the Vault mine site, a Marshalling Facility in Baker Lake, and a 110-kilometre All-Weather Access Road between Baker Lake and the Meadowbank mine site. There are also water retention dikes constructed from mined waste rock to allow for the mining of ore beneath shallow dewatered lakes and a tailings storage facility (Second Portage Lake's northwest dewatered arm), where tailings have been deposited sub-aerially as slurry and water from the ponds reclaimed during operation. No mining at Meadowbank occurred in 2022 since the mineral reserves were exhausted in 2019. Whale Tail ore continued to be processed at Meadowbank mill in 2022. As approved by the Water License, in-pit tailings disposal began in Goose Pit on July 5th, 2019, and in Portage Pit E on August 20th, 2020.

The Meadowbank mine is also governed by the NIRB Project Certificate No. 004 first issued in December 2006. The Project Certificate was then amendment in November 2009 to reflect modification associated with the all-weather access road and Proponent Project name change, and in August 2016 to allow expansion of Vault Pit operations into Phaser Lake and to allow for the development of two additional pits, Phaser Pit and BB Phaser Pit. A final third amendment was approved in December 2018 to reflect modification of in-pit tailings disposal.

In 2016, Agnico Eagle proposed to develop the Whale Tail Project to continue mine operations and milling at the Meadowbank Mine and extend the Meadowbank Mine to include development of resources from Whale Tail. The Whale Tail mining operation uses the existing infrastructure at the Meadowbank mine (mining equipment, mill, tailings, camp, and airstrip). Additional infrastructure has been built at the Whale Tail site (truck shop/warehouse, fuel storage and an additional camp facility). The deposit was mined as an open pit in 2019 and the commercial production was achieved on September 30th, 2019. Whale Tail ore is transported using long haul off-road type trucks to the mill at the Meadowbank site for processing.

In 2018, Agnico Eagle proposed to increase gold production from the original Whale Tail Project by expanding mining activities at the Whale Tail mine site as proposed in the Expansion Proposal. The Expansion Proposal proposes further developing the Whale Tail Pit open mine in addition to the

development of the IVR open pit and Underground operations. The Whale Tail expansion started in October 2018 with the application to NPC. The permitting process to amend the Whale Tail Project Certificate and Type A Water License to include the Whale Tail expansion was completed in early 2020. In a decision issued on October 18th, the NIRB concluded that if conducted in accordance with the NIRB's recommendations, this proposed amendment to the Whale Tail mine could proceed to the Type A Water License amendment phase with the NWB. The Minister of Northern Affairs approved the amended Project Certificate Report from the NIRB on January 20th, 2020, completing the NIRB process. The Project Certificate 008 amendment No. 1 was received on February 19th, 2020. The NWB Water License amendment process was completed on May 12th, 2020, and the Water License Amendment 2AM-WTP1830 was issued.

All ore at the Meadowbank Complex is now sourced from the Whale Tail mine. Mining at Whale Tail is by open pit and underground methods. The ore is extracted conventionally using drilling and blasting, then hauled by a long-haul off-road truck fleet to the mill at the Meadowbank facilities for processing. Commercial production was achieved on September 30th, 2019, at the Whale Tail pit. The IVR pit began pre-stripping activities in the third quarter of 2020 and achieved commercial production on December 31st, 2020. Commercial production from the underground activities was achieved on August 1st, 2022.

These various components and activities associated with the project require a number of different authorizations, leases and permits from regulatory agencies including the Nunavut Water Board (NWB), Environment and Climate Changes Canada (ECCC) Metal and Diamond Mining Effluent Regulations (MDMER); Fisheries and Oceans Canada (DFO), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC); the Kivalliq Inuit Association (KivIA) and the Nunavut Impact Review Board (NIRB).

This report is written to address all of the 2023 annual reporting requirements of the project under these authorizations:

Meadowbank

- NWB Type A Water License 2AM-MEA1530;
- NIRB Project Certificate No. 004;
- DFO HADD Authorization NU-03-190 AWAR;
- DFO HADD Authorization NU-03-191.3 and NU-03-191.4 Mine Site;
- DFO Authorization NU-14-1046 Phaser Lake;
- CIRNAC Land Leases 66A/8-71-3 (AWAR) and 66A/8-72-6 (AWAR Quarries);
- KivIA Production Lease KVPL08D280;
- KivIA Quarry Lease KVCA06Q11; and
- KivIA Right of Way KVRW06F04.

Whale Tail

- NWB Type A Water License 2AM-WTP1830;
- NIRB Project Certificate N0. 008;
- DFO HADD Authorization 16HCAA-00370;
- DFO HADD Authorization 20HCAA-00275;
- CIRNAC Land Leases 66H/8-02-1 (Whale Tail Haul Road) and 66H/8-01-5 (Whale Tail Haul Road Quarries);
- KivIA Production Lease KVPL17D01;
- KivIA Quarry Lease KVCA15Q01, KVCA15Q02, KVCA18Q01; and
- KivIA Right of Way KVRW15F01.

Reporting requirements for the MDMER have been submitted directly to Environment and Climate Changes Canada; results are presented herein to comply with the NWB Type A Water License.

Table 1-1 to Table 1-6 outlines each requirement by authorization and report section. Table 1-7 and Table 1-8 presents the status of each sampling stations stipulated in Part I, Schedule I of Water License 2AM-MEA15230 and 2AM-WTP1830. Appendices 3 and 4 provide a list of commitments completed by Agnico Eagle, following review by regulators of the 2022 Annual Report, to be incorporated in the 2023 Annual Report.

Note for the Reader: Kangislulik Lake (KAN) was previously referred to as Mammoth Lake (MAM). The acronym MAM will still be used in some tables and figures in the document for consistency with previous reports.

Table 1-1 Meadowbank List of Reporting Requirements for NWB§

Meadowbank Site - NWB		
Authorization Reference	**Reporting Requirement**	**Report Section**
NWB 2AM-MEA1530 Schedule B-1	Construction Details for dikes and dams.	3.1.1.1
NWB 2AM-MEA1530 Schedule B-2	Monthly and annual volume of fresh Water obtained from Third Portage Lake.	4.1.1.1
NWB 2AM-MEA1530 Schedule B-3	Monthly and annual volume of fresh Water obtained from Wally Lake.	4.1.1.2
NWB 2AM-MEA1530 Schedule B-4	Results of lake level monitoring conducted under the protocol developed as per Part D Item 5.	4.2.1
NWB 2AM-MEA1530 Schedule B-5	Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 7-9.	4.4.2.1
NWB 2AM-MEA1530 Schedule B-6	The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility.	4.3
NWB 2AM-MEA1530 Schedule B-7	Geochemical monitoring results.	5.1.1
NWB 2AM-MEA1530 Schedule B-8	Volumes of waste rock used in construction and placed in the Rock Storage Facilities.	5.2.1
NWB 2AM-MEA1530 Schedule B-9	An update on the remaining capacity of the Tailings Storage Facility.	5.3.1
NWB 2AM-MEA1530 Schedule B-10	Summary of quantities and analysis of seepage and runoff monitoring from the Landfills, Waste Rock Storage facility and Central Dike.	8.5.8.1
NWB 2AM-MEA1530 Schedule B-11	A summary report of all general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.	6.1.1
NWB 2AM-MEA1530 Schedule B-12	Report of Incinerator test results including the materials burned and the efficiency of the Incinerator as they relate to water and the deposit of waste into water.	6.2.1
NWB 2AM-MEA1530 Schedule B-13	A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.	7.1.1
NWB 2AM-MEA1530 Schedule B-14	A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.	11.1.1
NWB 2AM-MEA1530 Schedule B-15	The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.	8.5
NWB 2AM-MEA1530 Schedule B-16	The results of monitoring under the AEMP including Core Receiving Monitoring Program (CREMP), Metal Mining Effluent Regulation (MMER) Monitoring, Mine Site Water Quality and Flow Monitoring (and evaluation of NP-2), visual AWAR water quality monitoring, Blast Monitoring and Groundwater Monitoring.	SECTION 8
NWB 2AM-MEA1530 Schedule B-17	A summary of any progressive closure and reclamation work undertaken including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.	9.1.1.1
NWB 2AM-MEA1530	A summary of on-going field trials to determine effective capping thickness for the Tailings	5.4.1

Meadowbank Site - NWB		
Authorization	**Reporting Requirement**	**Report**
Schedule B-18	Storage Facility and Waste Rock Storage Facilities for the purpose of long-term environmental protection.	
NWB 2AM-MEA1530 Schedule B-19	An updated estimate of the current restoration liability based on project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.	9.2.1.1
NWB 2AM-MEA1530 Schedule B-20	A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.	10.1.1
NWB 2AM-MEA1530 Schedule B-21	Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.	10.2.1
NWB 2AM-MEA1530 Schedule B-22	An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this License.	10.3.1
NWB 2AM-MEA1530 Schedule B-23	A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.	11.5.1
NWB 2AM-MEA1530 Schedule B-24	A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.	11.9
NWB 2AM-MEA1530 Schedule B-25	Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.	4.6.1/6.3.1
NWB 2AM-MEA1530 Part B, Item 16	The Licensee shall review the Plans or Manuals referred to in this License as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made.	10.2.1
NWB 2AM-MEA1530 Part E, Item 8	The Licensee shall submit a Water Quality Model for pit re-flooding as part of the Water Management Plan which shall be re-calibrated as necessary and updated at a minimum of once every two (2) years following commencement of Operations. The results and implications of the predictive model shall be reported to the Board.	4.4.2.1
NWB 2AM-MEA1530 Part E Item 9	The Licensee shall, on an annual basis during Operations, compare the predicted water quantity and quality within the pits, to the measured water quantity and quality. Should the difference between the predicted and measured values be 20% or greater, then the cause(s) of the difference(s) shall be identified and the implications of the difference shall be assessed and reported to the Board	4.4.3.1
NWB 2AM-MEA1530 Part E, Item 10	The Licensee shall carry out weekly inspections of all water management structures during periods of flow and the records be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector. This information is to be included in the annual Water Management Plan.	4.4.1.1
NWB 2AM-MEA1530 Part I, Item 11	The Licensee shall submit to the Board as part of the Annual Report, the Geotechnical Engineer's Inspection Report. The Report shall include a cover letter from the Licensee outlining an implementation plan to address the recommendations of the Geotechnical Engineer.	3.3.1
NWB 2AM-MEA1530 Part I Item 12	The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 2, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.	3.2.1
NWB 2AM-MEA1530 Part I Item 14	The Licensee shall submit the results and interpretation of the Seepage Monitoring program required in Part I, Item 13 in the Annual Report required under Part B, Item 2.	8.5.8.1
NWB 2AM-MEA1530 Part I, Item 17	The Licensee shall annually review the approved QA/QC Plan and modify the Plan as necessary. Proposed changes shall be submitted to an Accredited Laboratory for approval.	8.5.7

Table 1-2 Whale Tail List of Reporting Requirements for NWB[§]

Whale Tail Site - NWB		
Authorization Reference	**Reporting Requirement**	**Report Section**
NWB 2AM-WTP18230, Schedule B, Item 1	For the dikes, dams and structures constructed to withhold water or waste: a. An overview of methods and frequency used to monitor deformations, Seepage and geothermal responses;	3.1.2.1
	b. A comparison of measured versus predicted performance;	
	c. A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk;	
	d. As-built drawings of all mitigation works undertaken;	
	e. Any changes in the design and/or as-built condition and respective consequences of any changes to safety, water balance and water quality;	
	f. Data collected from instrumentation used to monitor earthworks and an interpretation of that data;	
	g. A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams; and	
	h. The monthly and annual quantities of Seepage from dikes and dams in cubic metres.	
NWB 2AM-WTP1830 Schedule B, Item 2	Monthly and annual volume of fresh Water obtained from Nemo Lake.	4.1.2.1
NWB 2AM-WTP1830 Schedule B, Item 3	Monthly and annual volume of fresh Water obtained from Mammoth Lake.	4.1.2.4
NWB 2AM-WTP1830 Schedule B, Item 4	Monthly and annual volume of fresh Water obtained from Whale Tail Lake.	4.1.2.2
NWB 2AM-WTP1830 Schedule B, Item 5	Monthly and annual volume of fresh Water obtained from Lakes A-P38, A46, A47, A49, A50, A51, A52, A53, A-P21, A-P10, A-P67, and A-P68.	4.1.2.5
NWB 2AM-WTP1830 Schedule B, Item 6	Monthly and annual volume of fresh Water obtained for drilling from sources proximal to drilling sites.	4.1.2.6
NWB 2AM-WTP1830 Schedule B, Item 7	Monthly and annual volume of fresh Water obtained from unnamed water bodies for Whale Tail Haul Road dust suppressant and for the Emulsion plant.	4.1.2.3
NWB 2AM-WTP1830 Schedule B, Item 8	Monthly and annual volume of fresh Water obtained from Lake D1.	4.1.2.7
NWB 2AM-WTP1830 Schedule B, Item 9	Summary of reporting results for the Water Balance and Water Quality model and any calibrations as required in Part E Items 5, 6, and 8.	4.1.2.2
NWB 2AM-WTP1830 Schedule B, Item 10	Geochemical monitoring results	5.1.2
NWB 2AM-WTP1830 Schedule B, Item 11	Volumes of Waste Rock used in construction and placed in the Waste Rock Storage Facility.	5.2.2.1
NWB 2AM-WTP1830 Schedule B, Item 12	Volumes of ore stockpiled, and overburden stored at Whale Tail Pit site.	5.2.2.1
NWB 2AM-WTP1830 Schedule B, Item 13	Summary of quantities and analysis of Seepage and runoff monitoring from the Landfill, Waste Rock Storage Facility and associated dikes/berms	8.5.8.2
NWB 2AM-WTP1830 Schedule B, Item 14	A summary report of all general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal	6.1.2
NWB 2AM-WTP1830 Schedule	Reporting of Incinerator test results including the materials burned and the efficiency of the Incinerator in relation to effects on Water and the potential Deposit of Waste into Water	6.2.2

Whale Tail Site - NWB		
Authorization	**Reporting Requirement**	**Report**
B, Item 15		
NWB 2AM-WTP1830 Schedule B, Item 16	A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.	7.1.2
NWB 2AM-WTP1830 Schedule B, Item 17	A summary of Modifications and/or major maintenance work carried out on all Water and Waste-related structures and facilities.	11.1.2
NWB 2AM-WTP1830 Schedule B, Item 18	The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.	8.5
NWB 2AM-WTP1830 Schedule B, Item 19	The results of monitoring related to the Aquatic Effects Monitoring Program (AEMP) including Core Receiving Environment Monitoring Program (CREMP); Metal Mining Effluent Regulation (MMER) Monitoring; Water Quality and Flow Monitoring; Visual Whale Tail Haul Road water quality monitoring; Blast Monitoring; and Groundwater Monitoring.	SECTION 8
NWB 2AM-WTP1830 Schedule B, Item 20	A summary of any progressive Closure and Reclamation work undertaken, including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.	9.1.2.1
NWB 2AM-WTP1830 Schedule B, Item 21	A summary of on-going field trials to determine effective capping thickness for the Waste Rock Storage Facility for the purpose of long-term environmental protection.	5.4.2
NWB 2AM-WTP1830 Schedule B, Item 22	An updated estimate of the current restoration liability based on Project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.	9.2.2.1
NWB 2AM-WTP1830 Schedule B, Item 23	A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.	10.1.2
NWB 2AM-WTP1830 Schedule B, Item 24	Where applicable, revisions as Addenda, with an indication of where changes have been made, for Plans, Reports, and Manuals.	10.2.2
NWB 2AM-WTP1830 Schedule B, Item 25	An executive summary in English, French and Inuktitut of all plans, reports, or studies conducted under this License.	10.3.2
NWB 2AM-WTP1830 Schedule B, Item 26	A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.	11.5.1
NWB 2AM-WTP1830 Schedule B, Item 28	Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.	4.6.2/6.3.2
NWB 2AM-WTP1830 Part B, Item 17	The Licensee shall review the Plans or Manuals referred to in this License as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made.	10.2.2
NWB 2AM-WTP1830 Part C, Item 7	The Licensee shall, within twelve (12) months following the commencement of Operations and when the Licensee files a Final Reclamation and Closure Plan as required under the License, submit to the Board for review an updated reclamation cost estimate, using the INAC RECLAIM Reclamation Cost Estimating Model (Version 7.0 or the most current version in use at the time the updated reclamation cost estimate is submitted to the Board).	9.2.2.1
NWB 2AM-WTP1830 Part D, Item 1	The Licensee shall submit to the Board for review, at least sixty (60) days prior to Construction, final design and Construction drawings accompanied, with a detailed report, for the following: a. Water works, including: Water Intake and causeway, Water control structures (dikes, berms, jetties, channels) and Water crossings (culverts, bridges); b. Waste disposal facilities including: Wastewater Treatment Plant, Sewage Treatment Plant, Discharge Diffuser, Waste Rock Storage Facility, Overburden stockpiles, and Landfill; and c. Whale Tail Bulk Fuel Storage Facility	3.5.2.1
NWB 2AM-WTP1830 Part D,	The Licensee shall submit to the Board for review, within ninety (90) days of completion of each facility designed to contain, withhold, divert or retain Waters or Wastes during the	3.5.2.2

Whale Tail Site - NWB		
Authorization	**Reporting Requirement**	**Report**
Item 16	construction phase, a Construction Summary Report prepared by a qualified Engineer(s) in accordance with Schedule D, Item 1.	
NWB 2AM-WTP1830 Part E, Item 5	The Licensee shall submit an updated Water Management Plan on an annual basis to the Board for review following the commencement of Operations. The Plan must include an updated Water Balance. The Water Management Plan shall include an action plan to be implemented if predicted re-flooded pit water quality indicates that treatment is necessary	3.5.2.2
NWB 2AM-WTP1830 Part E, Item 6	The Licensee shall submit a Water Quality Model for pit re-flooding and for WRSF contact water mixing into Mammoth Lake post-Closure as part of the Water Management Plan which shall be re-calibrated as necessary and updated annually following commencement of Operations. The results and implications of the predictive model shall be reported to the Board.	4.4.2.2
NWB 2AM-WTP1830 Part E, Item 8	The Licensee shall, on an annual basis during Closure, compare the predicted water quantity and quality within the pit and lake, to the measured water quantity and quality. Should the difference between the predicted base case values and measured values be 20% or greater, then the cause(s) of the difference(s) shall be identified, and the implications of the difference shall be assessed and reported to the Board.	4.4.3.2
NWB 2AM-WTP1830 Part E, Item 10	The Licensee shall carry out weekly inspections of all water management structures during periods of flow and the records of inspections shall be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector. This information is to be included in the annual updated Water Management Plan.	4.4.1.2
NWB 2AM-WTP1830 Part I, Item 11	The Licensee shall submit to the Board as part of the Annual Report, the Geotechnical Engineer's Inspection Report. The Report shall include a cover letter from the Licensee outlining an implementation plan to address the recommendations of the Geotechnical Engineer.	3.3.2
NWB 2AM-WTP1830 Part I, Item 12	The Licensee shall submit to the Board as part of the Annual Report required under Part B, Item 2, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.	3.2.2
NWB 2AM-WTP1830 Part I, Item 14	The Licensee shall submit the results and interpretation of the Seepage monitoring required in Part I Item 15 in the Annual Report required under Part B, Item 2	3.1.2.1
NWB 2AM-WTP1830 Part I, Item 20	The Licensee shall annually review the approved QA/QC Plan and modify the Plan as necessary. Proposed changes shall be submitted to an Accredited Laboratory for approval.	8.5.7.2
NWB 2AM-WTP1830 Part J, Item 2	The Licensee shall submit to the Board for approval within twelve (12) months of Operations, an updated Interim Whale Tail Pit Closure and Reclamation Plan prepared in accordance with the "Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories", issued by the Mackenzie Valley Land and Water Board (MVLWB) and Aboriginal Affairs and Northern Development Canada (AANDC) in 2013 (MVLWB/AANDC 2013) and consistent with the INAC Mine Site Reclamation Policy for Nunavut, 2002. The Plan shall include all mine related facilities and Whale Tail Pit Haul Road.	9.1.2.1

Table 1-3 Meadowbank List of Reporting Requirements for NIRB

Meadowbank Site - NIRB		
Authorization Reference	**Reporting Requirement**	**Report Section**
NIRB Project Certificate No.004 Condition 1	The commitments in this Final Hearing Report as Appendix A: Cumberland's Commitments from the Final Hearing, are incorporated herein and must be met. In the event of a conflict between Appendix A and the Terms and Conditions of the Project Certificate, the Terms and Conditions of the Project Certificate prevail.	11.12.1
NIRB Project Certificate No.004 Condition 3	Cumberland must obtain all required federal and territorial permits and other approvals, and shall comply with the requirements of such regulatory instruments.	SECTION 1
NIRB Project Certificate No.004 Condition 4	Take prompt and appropriate action to remedy any noncompliance with environmental laws and regulations and/or regulatory instruments, and shall report any non compliance as required by law immediately and report the same to NIRB annually.	11.6.1
NIRB Project Certificate No.004 Condition 5	Cumberland shall meet with respective licensing authorities prior to the commencement of construction to discuss the posting of adequate performance bonding. Licensing authorities are encouraged to take every measure to require that sufficient security is posted before construction begins. This bonding should not duplicate other amounts of security required (e.g. the NWB).	9.2.1.1
NIRB Project Certificate No.004 Condition 6	All monitoring information collected pursuant to regulatory requirements for the Meadowbank Project shall contain the following information: a. The person(s) who performed the sampling or took the measurements including any accreditations; b. The date, time and place of sampling or measurement, and weather conditions; c. Date of analysis; d. Name of the person(s) who performed the analysis including accreditations; e. Analytical methods or techniques used; and f. Results of any analysis.	SECTION 8
NIRB Project Certificate No.004 Condition 7	Cumberland shall keep and maintain the records, including results, of any monitoring, data, or analysis, for a minimum of the life of the Project, including closure and post-closure monitoring. This time period shall be extended if requested by NIRB, GN, INAC, DFO, EC or the NWB.	SECTION 8
NIRB Project Certificate No.004 Condition 8	Continue to undertake semi-annual groundwater samples and re-evaluate the groundwater quality after each sample collection; report the results of each re-evaluation to NIRB's Monitoring Officer, INAC and EC	8.7.1
NIRB Project Certificate No.004 Condition 9	Cumberland shall provide detailed plans for water treatment for the tailings (reclaim pond) discharge, and on a contingency basis for the attenuation pond discharge(s) and for the pits, including estimates of treatment efficiency for each parameter of concern and the description of pH adjustments in the water license application to the NWB.	4.4.2.1
NIRB Project Certificate No.004 Condition 13	Cumberland shall not permit the water discharged into Wally Lake and Third Portage Lake to exceed receiving environment discharge criteria established by the NWB or as otherwise required by law.	8.5.3.1.5, 8.5.3.1.6
NIRB Project Certificate No.004 Condition 15	Within two (2) years of commencing operations re-evaluate the characterization of mine waste materials, including the Vault area, for acid generating potential, metal leaching and non-metal constituents to confirm FEIS predictions, and re-evaluate rock disposal practices by conducting systematic sampling of the waste rock and tailings in order to incorporate preventive and control measures into the Waste Management Plan to enhance tailing management during operations and closure; results of the re-evaluations shall be provided to the NWB and NIRB's Monitoring Officer	5.1.1
NIRB Project Certificate No.004, Condition 18	Commit to a pro-active tailings management strategy through active monitoring, inspection, and mitigation. The tailings management strategy will include the review and evaluation of any future changes to the rate of global warming, compliance with regulatory changes, and the ongoing review and evaluation of relevant technology developments, and will respond to studies conducted during the mine operation	5.3.1
NIRB Project Certificate No.004, Condition 19	Provide for a minimum of two (2) metres cover of tailings at closure, and shall install thermistor cables, temperature loggers, and core sampling technology as required to monitor tailing freezeback efficiency. Report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.	5.4.1
NIRB Project Certificate No.004,	Prior to construction, Cumberland shall identify mitigation measures that can be taken if groundwater monitoring around the tailings facility demonstrates that contamination from	5.3.2

Meadowbank Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
Condition 20	tailings has occurred through the fault. Upon drawdown of the North arm of Second Portage Lake, Cumberland shall conduct further tests to assess the permeability of any faults and provide the results to regulators. If doubt remains Cumberland shall seal the fault and conduct further permeability testing and monitoring. Following completion of the permitting process for the In-Pit Tailings Modification Proposal, the Proponent shall provide an update to the NIRB on any fault identified related to either Portage Pit A, Portage Pit E, and Goose Pit, any plans to address groundwater movement considering any fault, and how potential monitoring of tailings and groundwater movement would be undertaken to inform management plans.	
NIRB Project Certificate No.004 Condition 21	Shall fund and install a weather station at the mine site to collect atmospheric data, including air temperature and precipitation.	8.21.1
NIRB Project Certificate No.004 Condition 23	Ensure that water quality monitoring performed at locations within receiving waters that allow for an assimilative capacity assessment of concern to regulators, be carried out by an independent contractor and submitted to an independent accredited lab for analysis, on a type and frequency basis as determined by the NWB; results of analysis shall be provided to the NWB and NIRB's Monitoring Officer	8.5.7
NIRB Project Certificate No.004 Condition 24	Cumberland shall identify an area and design for a landfill for disposal of operational and closure non-salvageable materials, including a list of any nonsalvageable materials, and a procedural manual for preparation of location and placements of these materials, and incorporate the design into the final Waste Management Plan as instructed by the NWB.	6.1.1
NIRB Project Certificate No.004 Condition 25	Cumberland shall manage and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. Cumberland shall employ legal deterrents to carnivores and/or raptors at all landfill and waste storage areas. The deterrents are to be developed taking into consideration Traditional Knowledge and in consultation with the HTO, EC and INAC and incorporated into the final Waste Management Plan prior to filing the Plan with the NWB.	8.18.1.11
NIRB Project Certificate No.004 Condition 26	Cumberland shall ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris.	7.1.1
NIRB Project Certificate No.004 Condition 27	Cumberland shall ensure that the areas used to store fuel or hazardous materials are contained using safe, environmentally protective methods based on practical, best engineering practices.	7.3
NIRB Project Certificate No.004, Condition 28	Cumberland shall become a signatory to the International Cyanide Management Code, communicate this to shippers, and do so prior to Cumberland storing or handling cyanide for the Project.	11.4
NIRB Project Certificate No.004 Condition 29	Report to NIRB if and when [Cumberland] develops plans for an expansion of the Meadowbank Gold Mine, and if those plans affect the selection of Second Portage Lake as the preferred alternative for tailings management	11.2
NIRB Project Certificate No.004 Condition 31	Cumberland shall provide detailed stream crossing design criteria, including consideration of the DFO Operational Statement for Clear-span bridges for all water crossings identified to have fish presence, final crossing designs, site specific mitigation procedures, an effects monitoring program, and a maintenance and closure plan for all water course crossings, to the DFO and the NWB for review and approval.	8.5.6.1
NIRB Project Certificate No.004 Condition 32e	Prior to opening of the road, and annually thereafter, advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is a private road with non-mine use of the road limited to approved, safe and controlled use by all-terrain vehicles for the purpose of carrying out traditional Inuit activities.	11.7.2.1
NIRB Project Certificate No.004 Condition 32f	Place notices at least quarterly on the radio and television to explain to the community that the road is a private road with non-mine use of road limited to authorized, safe and controlled use by all-terrain vehicles for the purpose of carrying out traditional Inuit activities.	11.7.2.1
NIRB Project Certificate No.004 Condition 32g	Record all authorized non-mine use of the road and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter.	11.7.1.1
NIRB Project Certificate No.004 Condition 32h	Report all accidents or other safety incidents on the road, to the GN, KivIA [KIA], and the Hamlet immediately, and to NIRB annually.	11.7.2.1
NIRB Project	Cumberland shall update the Access and Air Traffic Management Plan to:1. include an All-	11.7.1.1

Meadowbank Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
Certificate No.004 Condition 33	weather Private Access Road Management Plan, including a right-of-way policy developed in consultation with the KivIA, GN, INAC and the Hamlet of Baker Lake, for the safe operation of the all-weather private access road; and to facilitate monitoring of the environmental and socio-economic impacts of the private road and undertake adaptive management practices as required,including responding to any concerns regarding the locked gates.	
NIRB Project Certificate No.004 Condition 34	Cumberland shall, in consultation with the Hamlet of Baker Lake, KivIA, and the Royal Canadian Mounted Police, facilitate the hiring of a full-time road safety, search and rescue position to respond to safety matters arising from mine and unauthorized non-mine use of the all-weather private access road, including consulting with Baker Lake and Chesterfield Inlet Elders to incorporate Traditional Knowledge into search and rescue operations.	11.7.1.1
NIRB Project Certificate No.004 Condition 36	Shall ensure the placement of local area marine mammal monitors onboard all vessels transporting fuel or materials for the Project through Chesterfield Inlet.	11.8.2
NIRB Project Certificate No.004 Condition 37	Cumberland will contract only Transport Canada certified shippers to carry cargo for the Project and will require shippers transporting cargo through Chesterfield Inlet to carry the most up-to date emergency response/spill handling equipment as recommended and accepted by the Government of Canada with the crew trained to deploy the equipment, including practice drills deploying spill equipment in remote locations within the Inlet.	11.8.4
NIRB Project Certificate No.004 Condition 38	Cumberland shall make every reasonable effort to minimize the number of ships and barges transporting cargo for the Project and require shippers transporting cargo for the Project through Chesterfield Inlet to be operated in accordance with safe shipping management policies, including using Canadian Hydrographic Service published detailed marine charts and nautical instructions, and be fitted with modern state-of-the-art navigation equipment.	11.8.4
NIRB Project Certificate No.004 Condition 39	Cumberland shall advertise and hold a community information meeting in Chesterfield Inlet to fully discuss the shipping program for the Project. Thereafter, Cumberland shall annually advertise and hold a community information meeting in Chesterfield Inlet to report on the Project and to hear from Chesterfield Inlet residents and respond to concerns. A consultation report shall be submitted to NIRB's Monitoring Officer within one month of the meeting.	11.9.1
NIRB Project Certificate No.004 Condition 40	Cumberland shall gather Traditional Knowledge from the local HTOs and conduct a minimum of a one-day workshop with residents of Chesterfield Inlet to more fully gather Traditional Knowledge about the marine mammals, cabins, hunting, and other local activities in the Inlet. Cumberland shall report to KivIA and NIRB's Monitoring Officer annually on the Traditional Knowledge gathered including any operational changes that resulted from concerns shared at the workshop.	11.9.1 11.9.2
NIRB Project Certificate No.004 Condition 41	Subject to vessel and human safety considerations, Cumberland shall require shippers carrying cargo to the Project through Chesterfield Inlet to follow the following mitigation procedures in the event that marine mammals are in the vicinity of the shipping activities: a. Wildlife will be given right of way; b. Ships will maintain a straight course, constant speed, and will avoid erratic behaviour; and c. When marine mammals appear to be trapped or disturbed by vessel movements, the vessel will stop until the mammals have moved away from the area.	11.8.1
NIRB Project Certificate No.004 Condition 42	Cumberland shall ensure all fuel transfer operations take place in accordance with the Arctic Waters Pollution Prevention Act and relevant oil transfer guidelines.	11.8.4
NIRB Project Certificate No.004 Condition 43	Lightering activities at Helicopter Island are not approved, except in case of emergency only, and in such case Cumberland shall explain why all other methods were not practical, meaning technically, logistically, and financially not feasible.	11.8.4
NIRB Project Certificate No.004 Condition 44	Within one (1) month of contracting with a shipper, Cumberland shall submit a comprehensive Spill Contingency and Emergency Response Plan to regulatory authorities.	7.3
NIRB Project Certificate No.004 Condition 45	[Cumberland] shall carry, and require contracted shippers to carry adequate insurance to fully compensate losses arising from a spill or accident, including but not limited to the loss of resources arising from the spill or accident; any claims are to be reported to proper officials with a copy to NIRB's Monitoring Officer	11.8.5
NIRB Project Certificate No.004	Cumberland shall apply for Fisheries Act approval for the freshwater intake pipe for the Project and submit for DFO approval a detailed plan of the proposed intake, including siting,	4.1.1.1, 4.1.1.3

Meadowbank Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
Condition 46	design of intake screens in accordance with the DFO Freshwater End-of-Pipe Fish Screen Guidelines, construction and operation considerations, fish and fish habitat impacts, and mitigation and monitoring plans.	
NIRB Project Certificate No.004 Condition 51	Engage the HTOs in the development, implementation and reporting of creel surveys within waterbodies affected by the Project to the GN, DFO and local HTO	8.16
NIRB Project Certificate No.004, Condition 52	Cumberland shall enforce a no-fishing policy for employees while working on the job site.	8.17
NIRB Project Certificate No 004 Condition 53	Agnico Eagle Mines Ltd. shall, in consultation with the HTOs and DFO, develop a Fish Habitat Monitoring Plan, including augmenting baseline fisheries data in the period prior to operation, with the clear objective of demonstrating the success of the No Net Loss Plan approved by the DFO. The Fish Habitat Monitoring Plan should include Phaser Lake. The updated plan should be provided to the NIRB for review at least 30 days prior to commencement of construction activities. Results from the fisheries baseline data to be provided in the annual report to the NIRB	8.8.1
NIRB Project Certificate No.004 Condition 54	a. Updated terrestrial ecosystem baseline data; e. Details of a comprehensive hunter harvest survey to determine the effect on ungulate populations resulting from increased human access caused by the all-weather private access road, including establishing preconstruction baseline harvesting data, to be developed in consultation with local HTOs, the GN-DOE and the Nunavut Wildlife Management Board; f. Details of annual aerial surveys to be conducted to assess waterfowl densities in the regional study area during the construction phase and for at least the first three (3) years of operation, with the data analyzed and compared to baseline data to determine if significant effects are occurring and require mitigation. g. Details of an annual breeding bird plot surveys and transects along the all-weather road to be conducted during the construction phase and for at least the first three (3) years of operation. h. Details of a monitoring program, including recording the locations and frequency of observing caribou and carnivores and any actions taken to avoid contact with or disturbance, and a specific mitigation plan for Shortearred owls and any other species of special concern pursuant to Schedule 3 of the Species at Risk Act located in the local study area or along the all-weather private access road.	8.18.1.2
NIRB Project Certificate No.004 Condition 55	Annual Wildlife Summary Monitoring Report	8.18.1.1
NIRB Project Certificate No.004 Condition 56	Maps of caribou migration corridors shall be developed in consultation with Elders and local HTOs, including Chesterfield Inlet and placed in site offices and upgraded as new information on corridors becomes available. Information on caribou migration corridors shall be reported to the GN, KIA and NIRB's Monitoring Officer annually.	8.18.1.3
NIRB Project Certificate No.004 Condition 57	Participate in a caribou collaring program as directed by the GN-DOE.	8.18.1.4
NIRB Project Certificate No.004 Condition 58	In consultation with Elders and the HTOs and subject to safety requirements, design the lighting and use of lights at the mine site to minimize the disturbance of lights on sensitive wildlife and birds	11.9.2
NIRB Project Certificate No.004 Condition 59	In consultation with Elders and the HTOs, design and implement means of deterring caribou from the tailing ponds, such as temporary ribbon placement or Inukshuks, with such designs not to include the use of fencing	8.18.1.11
NIRB Project Certificate No.004 Condition 60	Whenever practical, Cumberland shall implement a stop work policy when wildlife in the area may be endangered by the work being carried out.	8.18.1.9
NIRB Project Certificate No.004 Condition 61	In consultation with EC, Cumberland shall incorporate into the Terrestrial Ecosystem Management Plan and the Air Traffic Management Plan a commitment for aircraft to maintain (whenever possible) a cruising altitude of at least 610 metres during point to point travel when in areas likely to have migratory birds, and 1000 metres vertical and 1500 metres horizontal distance from observed concentrations of migratory birds, and use flight corridors to avoid areas of significant wildlife importance.	8.18

Meadowbank Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
NIRB Project Certificate No.004 Condition 62	Cumberland shall develop and implement a noise abatement plan to protect people and wildlife from significant mine activity noise, including blasting, drilling, equipment, vehicles and aircraft. The noise abatement plan will be developed in consultation with Elders, GN, HC, and EC	8.13.1
NIRB Project Certificate No.004 Condition 63	GN and INAC shall form a Meadowbank Gold Mine Socio-Economic Monitoring Committee ("Meadowbank SEMC") to monitor the socio-economic impacts of the Project and the effectiveness of the Project's mitigation strategies; the monitoring shall supplement, not duplicate, the monitoring required pursuant to the IIBA negotiated for the Project, and on the request of Government or NPC, could assist in the coordination of data collection and tracking data trends in a comparable form to facilitate the analysis of cumulative effects; the terms of reference shall focus on the Project, include a plan for ongoing consultation with KivIA and affected local governments and a funding formula jointly submitted by GN, INAC and [Cumberland]; the terms of reference shall be submitted to NIRB for review and subsequent direction within six (6) months of the issuance of a Project Certificate; [Cumberland] is entitled to be included in the Meadowbank SEMC	11.10.1
NIRB Project Certificate No.004 Condition 64	[Cumberland] shall work with the GN and INAC to develop the terms of reference for a socio-economic monitoring program for the Meadowbank Project, including the carrying out of monitoring and research activities in a manner which will provide project specific data which will be useful in cumulative effects monitoring (upon request of Government or NPC) and consulting and cooperating with agencies undertaking such programs; [Cumberland] shall submit draft terms of reference for the socio-economic monitoring program to the Meadowbank SEMC for review and comment within six (6) months of the issuance of a Project Certificate, with a copy to NIRB's Monitoring Officer	11.10.1
NIRB Project Certificate No.004 Condition 65	Cumberland shall include in its socio-economic monitoring program for the Meadowbank Project the collection and reporting of data of community of origin of hired Nunavummiut	11.10.3
NIRB Project Certificate No.004 Condition 66	Cumberland shall establish a nursing station and hire a registered on-site nurse.	10.2.2.1
NIRB Project Certificate No.004 Condition 67	Develop and implement a program to monitor contaminant levels in country foods in consultation with HC; a copy of the plan shall be submitted to NIRB's Monitoring Officer	8.19
NIRB Project Certificate No.004, Condition 68	Cumberland shall, in consultation with Elders, local HTOs and the Meadowbank Gold Mine SEMC, demonstrate that they are working toward incorporating Inuit societal values into mine operation policies."	11.9.2
NIRB Project Certificate No.004 Condition 69	Carry out the Project to minimize the impacts on archeological sites, including conducting proper archeological surveys of the Project area (including the all-weather road and all quarry sites); [Cumberland] shall provide to the GN an updated baseline report for archeological sites in the Project area"	8.20.1
NIRB Project Certificate No.004 Condition 70	Shall report any archeological site discovered during the course of construction, including a burial site, immediately and concurrently to the GN and KivIA. Upon discovering an archeological site, Cumberland shall take all reasonable precautions necessary to protect the site until further direction is received from the GN. In the event that it becomes necessary to disturb an archaeological site, Cumberland shall consult with Elders, GN and KivIA to establish a site-specific mitigation plan, and obtain all necessary authorizations and comply with all applicable laws.	8.20.1
NIRB Project Certificate No.004 Condition 71	In consultation with EC, install and fund an atmospheric monitoring station to focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported annually to NIRB.	8.14.1
NIRB Project Certificate No.004 Condition 72	Conduct annual stack testing to demonstrate that the on-site incinerators are operating in compliance with these standards. The results of stack testing shall be contained in an annual monitoring report submitted to GN, EC and NIRB's Monitoring Officer.	6.2.1
NIRB Project Certificate No.004 Condition 73	Cumberland shall undertake to conserve the Project's use of energy, monitor the Project's greenhouse gas emissions, and continuously review and, if possible, consider for adoption new technologies to ensure greenhouse gases meet the latest Canadian standards or criteria.	8.15
NIRB Project Certificate No.004 Condition 74	Shall employ environmentally protective method to suppress any surface road dust.	8.14.1

Meadowbank Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
NIRB Project Certificate No.004 Condition 75	Provide a complete list of possible accidents and malfunctions for the Project; it must consider the all-weather road, shipping spills, cyanide and other hazardous material spills, and pitwall/dikes /dam failure, and include an assessment of the accident risk and mitigation developed in consultation with Elders and potentially affected communities	7.3
NIRB Project Certificate No.004 Condition 76	Cumberland shall develop an "Early Warning Monitoring Program" along the east boundary of the Project's local study area (mine and road) including the location where Third Portage Lake flows into Tehek Lake. The "Early Warning Monitoring Program" shall discuss how the communities of Baker Lake and Chesterfield Inlet will be actively involved and shall be submitted to NIRB's Monitoring Officer for review prior to Project construction. If adverse effects from the project to any VEC are detected along this boundary, then Cumberland shall notify the NIRB's Monitoring Officer for determination as to whether and to what extent additional monitoring is required.	8.1.1
NIRB Project Certificate No.004 Condition 78	Cumberland shall file a complete Closure and Reclamation Plan developed to comply with INAC's policy of full cost of restoration and any related NWB requirements such that the Inuit and taxpayers are not liable for any cost associated with the cleanup, modification, decommission, or abandonment.	9.2.1.1
NIRB Project Certificate No.004 Condition 80	File annually with NIRB's Monitoring Officer an updated report on progressive reclamation and the amount of security posted, as required by KivIA, INAC, and/or the NWB.	9.2.1.1
NIRB Project Certificate No.004 Condition 81	Beginning with mobilization, and for the life of the Project, Cumberland shall provide full 24 hour security, including surveillance cameras and a security office at the Baker Lake storage facility/marshalling area, and take all necessary steps to ensure the safe and secure storage of any hazardous or explosive components within the Hamlet of Baker Lake boundaries.	11.7.1.1
NIRB Project Certificate No.004 Condition 82	Monitor the ingress/egress of ship cargo at Baker Lake and report any accidents or spills immediately to the regulatory agencies as required by law and to NIRB's Monitoring Officer annually.	11.8.4
NIRB Project Certificate No.004 Condition 83	Cumberland shall ensure that the explosive mix-truck is only used to mix diesel and ammonia nitrate to form an explosive only at the blast site, and that when the explosive mix-truck is not in use it is stored with the strictest setback requirements as required or recommended by NRCan.	
NIRB Project Certificate No.004 Condition 85	Develop a detailed blasting program to minimize the effects of blasting on fish and fish habitat, water quality, and wildlife and terrestrial VECs	8.6.1
NIRB Project Certificate No.004 Condition 87	The Proponent shall, prior to the deposition of tailings into the Portage or Goose Pits, file with the Nunavut Water Board (NWB) a report containing updated hydrogeological modelling addressing information gaps as per the NIRB recommendation in the Reconsideration Report and Recommendations to the satisfaction of the NWB. The Proponent shall not deposit tailings into the Portage or Goose pits until the Water Board is satisfied that the modelling addresses the specific information gaps, and that the proponent can manage any identified risks with existing designs and feasible management strategies. The Proponent shall file a report with the Nunavut Water Board, containing updated hydrogeological modelling addressing information gaps, prior to the deposition of tailings into the Portage or Goose pits. Confirmation of the report's filing, conclusions of this report, and any further updates to reporting requirements as determined under the water license, shall be provided to the NIRB in Agnico Eagle's Annual Report for the project.	5.3.2

Table 1-4 Whale Tail List of Reporting Requirements for NIRB

Whale Tail Site - NIRB		
Authorization Reference	**Reporting Requirement**	**Report Section**
NIRB Project Certificate No.008 Condition 1	The Proponent shall: a) Develop and implement an Air Quality Monitoring and Management Plan that includes clear objectives and that specifies air quality monitoring thresholds that will trigger adaptive management responses and actions; b) In the implementation of the Plan, the Proponent shall demonstrate through active and passive monitoring of dustfall, for criteria air contaminant concentrations, incinerator stack testing, and vegetation, soil and snow chemistry sampling that dustfall and emissions of carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulphur dioxide (SO_2), suspended particulate matter, mercury, dioxins and furans, and other chemicals remain within predicted levels and, where applicable, within levels or limits established by all applicable guidelines and regulations; c) The Proponent shall ensure continuous NO_2 monitoring is undertaken downwind of mining activities to allow for comparison to relevant standards including the Canadian Ambient Air Quality Standards; d) If exceedances occur, the Proponent shall provide an explanation for the exceedance, a description of planned mitigation, and shall conduct additional monitoring to evaluate the effectiveness of mitigative measures; and e) The Proponent shall also develop, implement, and report on the quality assurance and quality control protocols used to ensure data reliability and proper functioning of equipment.	8.14.2
NIRB Project Certificate No.008 Condition 2	Prior to commencing construction activities, the Proponent shall update the existing Dust Management and Monitoring Plan for the Meadowbank Mine site to address and/or include the following additional items: - Align plan requirements with commitments made in the Final Environmental Impact Statement and during the Final Hearing to monitor dust along the existing all-weather access road, the Amaruq haul road and any other roads and trails associated with the Project. - Verify commitments to the utilization of dust suppressants along the all-weather access road, the Amaruq haul road and any other roads and trails associated with the Project, including a description of the type of suppressant to be utilized and the frequency and timing of applications to be made throughout the various seasons of road use. - Outline the specific triggers, thresholds, and adaptive management measures that will apply if monitoring indicates that dust deposition is higher than predicted.	8.14.2
NIRB Project Certificate No.008 Condition 3	The Proponent shall maintain a Greenhouse Gas Emissions (GHG) Reduction Plan which includes: - An estimate of the Project's GHG baseline emissions; - A description of monitoring measures to be undertaken, including the methods, frequency, parameters, and a description the analysis that will be carried out on the monitoring data generated; and - A description of mitigative and adaptive strategies planned, and taken, to reduce project-related greenhouse gas emissions over the Project lifecycle.	8.15
NIRB Project Certificate No.008 Condition 5	Result of all noise monitoring undertaken by the Proponent shall be provided to the Nunavut Impact Review Board on an annual basis. The Proponent shall: a) Conduct noise monitoring at least once during each phase of the Project at four (4) locations in the vicinity of the Whale Tail Pit Project and at two (2) locations along the haul road to demonstrate that noise levels remain within predicted levels for all Project areas; and b) If monitoring identifies an exceedance, the Proponent shall provide an explanation for the exceedance, a description of planned mitigation, and shall conduct additional monitoring to evaluate the effectiveness of mitigative measures.	8.13.2
NIRB Project Certificate No.008 Condition 6	The Proponent shall provide a summary of activities undertaken to address the requirements of this term and condition in annual report(s) to the NIRB. The Proponent shall: a) Conduct detailed hydrodynamic modelling during operations and closure to evaluate the mixing of the Waste Rock Storage Facility seepage into Mammoth Lake post-closure; and b) Based on the results of the modelling implement monitoring programs and adaptive management strategies that minimize the need for active intervention, including long-term treatment of mine contact water.	4.4.4
NIRB Project Certificate No.008	Prior to commencement of mining of the Whale Tail deposit, and in consultation with applicable regulatory agencies, including Natural Resources Canada, the Proponent shall as part of a	5.2.2.2

Whale Tail Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
Condition 7	Mine Waste Rock and Tailings Management Plan that reflects site-specific geological and geochemical conditions. The Plan should be submitted to the NIRB at least 60 days prior to the start of construction of the Waste Rock Storage Facility, with subsequent updates or revisions to the Plan submitted annually thereafter or as may otherwise be required by the NIRB for the life of the Project.	
	a) Develop and implement monitoring programs for the Tailings Storage Facility and the Waste Rock Storage Facility at the Whale Tail Pit;	
	b) Establish thresholds that will trigger the requirement for the Proponent to implement adaptive management strategies to minimize the potential for impacts from these Facilities; and	
	c) Identify the adaptive management strategies that will be used by the Proponent to minimize the potential for impacts from these Facilities.	
NIRB Project Certificate No.008, Condition 8	The Plan should be submitted to the NIRB at least 30 days prior to the start of construction, with subsequent updates or revisions to the Plan submitted annually thereafter or as may otherwise be required by the NIRB for the life of the Project. The Proponent shall submit a detailed Acid Rock Drainage and Metal Leaching Management Plan that includes the following items:	5.1.2
	- Waste rock segregation and testing;	
	- Thermal monitoring of waste rock;	
	- Seepage management and monitoring;	
	- A schedule for reporting of results and periodic updating of predictions for the WRSF pond quality;	
	- Planning for optimal cover conditions;	
	- Contingency measures that may be implemented if required;	
	- Plans for comparing monitoring results from receiving waters to model predictions; and	
	- The identification of thresholds that will trigger management actions if trends analysis indicates water quality objectives may be exceeded.	
NIRB Project Certificate No.008 Condition 9	The Proponent shall undertake the additional site-specific geotechnical investigations required to identify sensitive land features and to inform final engineering design prior to the construction of project components such as the waste rock storage facility and quarries. Results from these studies should be submitted to the NIRB at least 30 days prior to the start of construction of these facilities, with results or updates submitted annually thereafter as applicable.	5.2.2.3
NIRB Project Certificate No.008 Condition 10	Results of these studies should be submitted to the NIRB at least 30 days prior to the start of construction of these facilities, with subsequent updates submitted annually thereafter. In consultation with applicable regulatory agencies such as Indigenous and Northern Affairs Canada and Natural Resources Canada, the Proponent shall undertake additional site-specific permafrost monitoring, mapping and thermal analysis to: ▪ Document permafrost conditions, including seasonal thaw and amount of ground ice; ▪ Inform the detailed design of project infrastructure such as the Whale Tail pit, water management structures, mine site and haul roads, waste rock storage facility, tailings storage facility; and ▪ Ensure the integrity of such infrastructure is maintained after construction	5.4.2
NIRB Project Certificate No.008 Condition 11	The Proponent shall develop and implement an Erosion Management Plan to prevent or minimize erosion and its resulting effects from project-related land disturbance. The Plan should be submitted to the Nunavut Impact Review Board (NIRB) at least 30 days prior to the start of construction, with updates submitted annually thereafter or as may otherwise be required by the NIRB.	8.5.3.2.17
NIRB Project Certificate 008 Condition 12	The Proponent shall provide a summary of its progressive reclamation efforts and associated feedback received from communities with respect to aesthetic values solicited by the Proponent as part of its public engagement processes in its annual reporting to the NIRB. As part of the Closure and Reclamation Plan, the Proponent shall develop and implement a program to:	9.1.2.1
	a) Progressively reclaim disturbed areas within the project footprint, with an emphasis on restoring the natural aesthetics of the area through re-contouring to the extent practicable; and	
	b) In a manner that demonstrates that the Proponent has considered the aesthetic values of local communities (e.g. information regarding the acceptability of the topography and landscape of the project areas following progressive reclamation efforts).	

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NIRB Project Certificate 008 Condition 13	The Proponent shall explore the feasibility of topsoil/organic matter salvage as part of project development and provide updates to the Closure and Reclamation Plan based on this investigation. The Proponent shall provide a summary of its management of topsoil in annual reports to the NIRB.	8.7.2
NIRB Project Certificate No.008 Condition 14	The Proponent shall develop and implement a Thermal Monitoring Plan to identify potential changes in talik distribution and flow paths that may result from the development of project infrastructure, including the Whale Tail pit, dikes, and water impoundments. The Plan should be submitted to the NIRB at least 60 days prior to the start of construction of these facilities, with subsequent updates submitted annually thereafter or as may otherwise be required by the NIRB	5.4.2
NIRB Project Certificate No.008 Condition 15	The required Groundwater Monitoring Plan should be submitted to the NIRB at least 30 days prior to the start of construction, with subsequent plan revisions or updates submitted annually thereafter. Subject to the additional direction and requirements of the Nunavut Water Board, the Proponent shall prepare and implement a Groundwater Monitoring Plan that, at a minimum includes: ▪ The collection of additional site-specific hydraulic data (e.g., from new monitoring wells) in key areas during the pre-development, construction and operation phases; ▪ Definition of vertical and horizontal groundwater flows in the project development areas; ▪ Delineates monitoring plans for both vertical and horizontal ground water; and ▪ Thresholds that will trigger the implementation of adaptive management strategies that reflect site specific conditions encountered at the project site.	8.7.2
NIRB Project Certificate No.008 Condition 16	An updated Groundwater Monitoring Plan that outlines the Proponent's plans to fulfill this term and condition should be submitted to the NIRB at least 30 days prior to the start of construction, with subsequent plan revisions or updates submitted annually thereafter. Within two years of commencing operations, the Proponent shall: a) Conduct additional analyses to determine the approximate fill time for the Whale Tail Pit at closure; b) Undertake a hydrogeological characterization study to assess the potential for arsenic and phosphorous diffusion from submerged Whale Tail pit walls; c) If the results of the characterization study indicate a moderate to high potential for arsenic and/or phosphorous diffusion, perform detailed hydrodynamic modelling of the flooded pit lake prior to closure to evaluate meromictic conditions and flooded pit water quality; and d) Add these required activities to the site Groundwater Monitoring Plan.	8.7.2
NIRB Project Certificate No.008 Condition 17	The plan should be submitted to the NIRB at least 30 days prior to the start of construction, with results submitted annually thereafter. The Proponent shall: a) Monitor the effects of project activities and infrastructure on surface water quality conditions; b) Ensure the monitoring data is sufficient to compare the impact predictions in the Environmental Impact Statement (EIS) for the Project with actual monitoring results; c) Ensure that the sampling locations and frequency of monitoring is consistent with and reflects the requirements of the Water Quality and Flow Plan and the Core Receiving Environmental Monitoring Program; and d) On an annual basis, the Proponent will compare monitoring results with the impact assessment predictions in the EIS and will identify any significant discrepancies between impact predictions and monitoring results	8.1.2
NIRB Project Certificate No 008 Condition 18	The Proponent shall, reflecting any direction from the Nunavut Water Board, maintain a Site Water Monitoring and Management Plan designed to: Minimize the amount of water that contacts mine ore and wastes; Appropriately manage all contact water and discharges to protect local aquatic resources; and Implement water conservation and recycling to maximize water reuse and minimize the use of natural waters. The Plan should include monitoring that demonstrates contact water (runoff and shallow groundwater) from the ore storage and waste rock storage areas is captured and managed, as per the Waste Rock Facility Management Plan. The plan should be submitted to the NIRB at least 60 days prior to the start of construction, with results submitted annually thereafter.	SECTION 8
NIRB Project Certificate No.008, Condition 19	The Proponent shall, reflecting any direction from responsible authorities such as the Nunavut Water Board, Fisheries and Oceans Canada and Environment and Climate Change Canada, maintain a Core Receiving Environment Monitoring Program (CREMP) designed to: - Determine the short and long-term effects in the aquatic environment resulting from the Project; - Evaluate the accuracy of Project effect predictions;	8.1.2

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	- Assess the effectiveness of mitigation and management measures on Project effects;	
	- Identify additional mitigation measures to avert or reduce environmental effects due to Project activities;	
	- Comply with Metal Mining Effluent Regulations requirements, should an Environmental Effects Monitoring program be triggered;	
	- Reflect site-specific water quality conditions;	
	- Include details comparing the watershed features in the Whale Tail watershed to those watersheds used as reference lakes; and	
	- Evaluate the mixing and non-mixing portion of the pit.	
	The CREMP should include sufficient sampling and monitoring programs to appropriately characterize the receiving environment to ensure that adequate data is available to assess impact predictions made within the Environmental Impact Statement for the Whale Tail Pit Project. The updated plan should be submitted to the Nunavut Impact Review Board at least 60 days prior to the start of construction, with results submitted annually thereafter.	
NIRB Project Certificate No.008, Condition 20	Unless otherwise authorized, the Proponent shall maintain an appropriate setback distance between project quarries and borrow pits from fish-bearing or permanent waterbodies as required to prevent acid rock drainage or metal leaching into such waterbodies. Throughout quarry development and operation, the Proponent shall, on an annual basis, provide information regarding quarry setback distances maintained and/or mitigation measures implemented by the Proponent in fulfillment of this term and condition in the Proponent's annual report to the NIRB.	3.4.2.2
NIRB Project Certificate No.008, Condition 21	The Proponent shall ensure that all project infrastructures in watercourses are designed and constructed in such a manner that they do not unduly prevent or limit the movement of water or fish species in fish bearing streams and rivers, unless otherwise authorized by Fisheries and Oceans Canada. Throughout the life of the Project, the Proponent shall report on how the Proponent has maintained and/or implemented mitigation measures in fulfillment of this term and condition in the Proponent's annual report to the Nunavut Impact Review Board.	8.5.6.2
NIRB Project Certificate No.008 Condition 22	The Proponent shall engage with Fisheries and Oceans Canada to develop project specific thresholds, mitigation and monitoring for any blasting activities that would exceed the requirements of Fisheries and Oceans Canada's Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters. If project-specific thresholds, mitigation and monitoring requirements are developed, the Proponent shall identify these requirements in the annual report provided to the NIRB.	8.6.2
NIRB Project Certificate No.008 Condition 23	The Proponent shall, reflecting any direction from Environment and Climate Change Canada and Fisheries and Oceans Canada:	8.10
	a) Conduct additional analysis to support the conclusions that a change in trophic status in Mammoth Lake would not impact fish productivity;	
	b) Undertake additional site-specific studies to assess the predicted trophic change on lake ecosystem productivity to monitor potential changes to downstream environments; and	
	c) Monitor actual loadings/concentrations in the receiving environment, identify trends in downstream chemistry and productivity, and track trophic status of Mammoth Lake	
NIRB Project Certificate No.008 Condition 24	The Proponent shall engage Fisheries and Oceans Canada, and other interested parties to further assess: Whether the increased surface area of Whale Tail Lake is a viable offset to habitat losses resulting from development of the Project; and Whether Whale Tail end pit would support fish in the post closure scenario.	8.8.2.1
NIRB Project Certificate No.008 Condition 25	At least 30 days prior to first shipment of equipment and supplies to the site, the Proponent's mitigation plans, protocols, monitoring and inspection program required in fulfillment of this term and condition shall be provided to the NIRB for review. Subsequently, information regarding inspections, monitoring results, and any reports as referenced above shall be included in the Proponent's annual report to the NIRB. The Proponent shall:	8.18.7
	a) Ensure that equipment and supplies brought to the project sites are clean and free of soils that could contain plant seeds or organic matter not naturally occurring in the area	
	b) Ensure that vehicle tires and treads are inspected prior to initial use in project areas;	
	c) Incorporate protocols for monitoring for the potential introduction of invasive vegetation	

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	species (e.g. surveys of plant populations in previously disturbed areas) into relevant monitoring and management plans for the terrestrial environment; and d) Ensure any introductions of non-indigenous plant species must be promptly reported to the Government of Nunavut Department of Environment.	
NIRB Project Certificate No.008 Condition 26	The Proponent shall include revegetation strategies within its Mine Closure and Reclamation Plan that support progressive reclamation, and promote natural revegetation and recovery of disturbed areas compatible with the surrounding natural environment. These strategies should include exploration of the feasibility and practicality of topsoil/organic matter salvage through Project development. Consideration for the results of similar reclamation efforts at other northern projects, including the Meadowbank Gold Mine Project, must be demonstrated. Within three (3) years from the commencement of construction, information regarding the revegetation strategies developed and implemented by the Proponent in fulfillment of this Term and Condition shall be included in the Proponent's annual report to the NIRB. Subsequently, information regarding the Proponent's progress in fulfillment of this Term and Condition shall be provided annually in the Proponent's annual report to the NIRB.	9.3
NIRB Project Certificate No.008 Condition 27	The Proponent shall participate in a Terrestrial Advisory Group with the Government of Nunavut, the Baker Lake Hunters and Trappers Organization, the Kivalliq Inuit Association, and other parties as appropriate to continually review and refine mitigation and monitoring details within the Terrestrial Ecosystem Management Plan. Additional caribou collar data, results from associated studies, Inuit Qaujimajatuqangit shared by knowledge holders, and other monitoring data as available should be considered for incorporation as appropriate. Finalized Terms of Reference for the Terrestrial Advisory Group shall be provided to the NIRB within six (6) months of issuance of the Project Certificate. A summary of outcomes from Terrestrial Advisory Group meetings shall be provided to the NIRB on an annual basis in the Proponent's Annual Report.	8.18.2
NIRB Project Certificate No.008, Condition 28	The Proponent shall maintain a Terrestrial Ecosystem Management Plan (TEMP) throughout all phases of the Project. The Plan shall include detailed monitoring, mitigation, and adaptive management measures for wildlife, with consideration for each Project activity predicted to affect wildlife, and with inclusion of specific triggers for mitigation and adaptive management intervention. The TEMP shall demonstrate consideration for all relevant commitments made by the Proponent throughout the Nunavut Impact Review Board's review of the Project. Updates to the TEMP may be required when there are significant changes in project development plans, monitoring results indicating biologically-meaningful changes, significant updates to the scientific understanding of management methods relevant to wildlife at the project site, Inuit Qaujimajatuqangit, Traditional Knowledge, changes in climatic conditions that might subject wildlife to unexpected impacts, or as otherwise necessary. The Proponent shall submit a revised TEMP to the Nunavut Impact Review Board (NIRB) within one (1) year of issuance of the Project Certificate, with subsequent versions provided as appropriate. Results of the TEMP shall be reported to the NIRB annually, including details of how Inuit Qaujimajatuqangit contributed by knowledge holders has been considered and utilized in associated activities and updates.	8.18
NIRB Project Certificate No.008 Condition 29	The Proponent shall, in collaboration with the Government of Nunavut, collect additional caribou collar data and conduct analyses of this data to quantify the zone of influence and associated effects of project components on caribou movement for a study area that includes the Whale Tail mine site, the haul road, the Meadowbank Gold Mine and its All-Weather Access Road. A summary of the analyses and associated effects shall be provided annually in the Proponent's annual report to the Nunavut Impact Review Board.	8.18.1.4
NIRB Project Certificate No.008 Condition 30	The Proponent shall work with the Government of Nunavut, the Baker Lake Hunters and Trappers Organization and the Kivalliq Inuit Association through the Terrestrial Advisory Group to develop and update thresholds to trigger implementation of mitigation measures on both the AWAR and Whale Tail Haul Road, up to and including temporary road closures. The Proponent shall consider how these thresholds and mitigation measures reflect caribou life cycle sensitivities as well as demonstrate how Inuit Qaujimajatuqangit was incorporated throughout the development of these criteria and procedures. The Proponent shall ensure the Terrestrial Ecosystem Management Plan is updated to reflect the thresholds agreed upon in accordance with the Terrestrial Advisory Group Terms of Reference, and that this Plan along with a summary of consultation with the Terrestrial	8.18.2

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	Advisory Group are submitted on an annual basis or as thresholds are otherwise modified in the Proponent's annual report to the to the Nunavut Impact Review Board.	
NIRB Project Certificate No.008, Condition 31	The Proponent shall develop and implement a Road Access Management Plan and maintain traffic monitoring logs along the haul road between the Whale Tail Pit project and the Meadowbank mine. Where traffic exceeds levels predicted within the Environmental Impact Statement, the Proponent shall develop and implement appropriate modifications to its wildlife protection measures. The Road Access Management Plan shall be provided to the Nunavut Impact Review Board (NIRB) 90 days prior to operations commencing. An annual summary of the monthly maximum, minimum and average traffic levels shall be provided to the NIRB in the Proponent's annual report.	11.7.1.2
NIRB Project Certificate No.008 Condition 32	The Proponent shall engage with the Baker Lake Hunters and Trappers Organization and other relevant parties to ensure that safety barriers, berms, and designed crossings associated with project infrastructure, including the haul road, are constructed and operated as necessary to allow for the safe passage of caribou and other terrestrial wildlife. Summaries of engagement with the Baker Lake Hunters and Trappers Organization regarding implementation of this condition shall be provided to the Nunavut Impact Review Board along with details of the selected crossings in the Proponent's annual report to the Nunavut Impact Review Board.	8.18.3
NIRB Project Certificate No.008 Condition 33	A summary regarding all wildlife incidents reported, including a reference to whether compensation was or will be provided by the Proponent for direct mortalities, as well as a description of any other steps taken in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board. The Proponent shall provide wildlife incident reports to the appropriate authorities in a timely fashion. Wildlife incident reports should include the following information:	8.18.4
	a) Locations (i.e., latitude and longitude), species, number of animals, a description of the animal activity, and a description of the gender and age of animals if possible;	
	b) Prior to conducting project activities, the Proponent should map the location of any sensitive wildlife sites such as denning sites, calving areas, caribou crossing sites, and raptor nests in the project area, and identify the timing of critical life history events (i.e., calving, mating, denning and nesting); and	
	c) Additionally, the Proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites	
NIRB Project Certificate No.008 Condition 34	Results of implementation of the Migratory Birds Protection Plan shall be reported to the Nunavut Impact Review Board on an annual basis in the Proponent's annual report. The Proponent will maintain a Migratory Birds Protection Plan for the Project in consultation with Environment and Climate Change Canada and other interested parties. The plan should include and/or demonstrate that the Proponent give consideration to the following	8.18.5
	- Information obtained from baseline characterization of migratory bird and vegetation communities within the predicted flood area;	
	- Results of field tests and/or the thorough literature review of the effectiveness of preferred deterrence prior to actual flooding; and	
	- Details regarding monitoring the effectiveness of mitigation measures during flooding.	
NIRB Project Certificate No.008 Condition 35	The Proponent shall ensure that the mitigation and monitoring strategies developed for Species at Risk are updated as necessary to maintain consistency with any applicable status reports, recovery strategies, action plans, and management plans that may become available through the duration of the Project. Information regarding development, implementation and monitoring of the measures developed by the Proponent in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.	8.18.6
NIRB Project Certificate No.008 Condition 36	Prior to removal or deterrence of raptors, the Proponent will contact the Government of Nunavut – Department of Environment to discuss proposed mitigation options and, if required, will obtain the necessary permits. The Proponent shall include summaries of any mitigation measures implemented and permits obtained in fulfillment of this term and condition in the Proponent's annual report to the Nunavut Impact Review Board.	8.18.1.11
NIRB Project Certificate No.008, Condition 37	The Proponent shall maintain a Shipping Management Plan in coordination and consultation with applicable regulatory authorities and the Kivalliq Inuit Association, and the Hunters and Trappers Organizations of the Kivalliq communities. The updated plan should be submitted to the Nunavut Impact Review Board at least 90 days prior to the start to commencement of shipping activities, with subsequent updates submitted annually thereafter in the Proponent's	11.8

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Authorization	**Reporting Requirement**	**Report**
	annual report or as may otherwise be required by the NIRB.	
NIRB Project Certificate No.008 Condition 38	The Proponent shall ensure that marine shipping activities avoid sensitive wildlife habitat and species along the shipping route and use a routing south of Coats Island as the primary shipping route, subject to vessel and human safety considerations. Confirmation that the requirements of this term and condition are being effectively implemented by shipping companies contracted by the Proponent should be submitted as part of annual reporting to the Nunavut Impact Review Board.	11.8.1
NIRB Project Certificate No.008 Condition 39	The Proponent shall ensure that, subject to vessel safety requirements, a setback distance of at least 500 metres is maintained from colonies and aggregations of seabirds and marine mammals during Project shipping transiting through Hudson Strait, Hudson Bay, and Chesterfield Inlet. Confirmation that the requirements of this term and condition are being effectively implemented by shipping companies contracted by the Proponent should be submitted as part of annual reporting to the Nunavut Impact Review Board.	11.8.1
NIRB Project Certificate No.008 Condition 40	The Proponent shall develop and implement a ship-based marine mammal monitoring program, as part of a Marine Mammal Management and Monitoring Plan, in consultation with Fisheries and Oceans Canada, communities, and other interested parties. The Proponent shall report any accidental contact by project vessels with marine mammals or seabird colonies to applicable responsible authorities including Fisheries and Oceans Canada and Environment and Climate Change Canada. The Plan should be submitted to the Nunavut Impact Review Board at least 90 days prior to commencement of shipping activities, with subsequent updates submitted annually thereafter. Confirmation that the requirements of the Plan are being effectively implemented by shipping companies contracted by the Proponent should be provided with annual reporting.	11.8.2
NIRB Project Certificate No.008 Condition 41	The Proponent shall provide notification to communities regarding scheduled ship transits throughout the regional study area, including Hudson Bay and Chesterfield Inlet. The Proponent shall provide a summary of public consultation undertaken to address this term and condition in its annual report to the Nunavut Impact Review Board.	11.8.3
NIRB Project Certificate No.008 Condition 42	The Proponent shall design monitoring programs to ensure that local users of the marine area along the shipping route have the opportunity to provide feedback and input in relation to monitoring and evaluating potential project-induced impacts and changes in marine mammal distributions. The Proponent shall demonstrate how feedback received from community consultations has been incorporated into the most appropriate mitigation or management plans. The Proponent shall provide a summary of public consultation undertaken to address this term and condition in its annual report to the Nunavut Impact Review Board.	11.9.1
NIRB Project Certificate No.008 Condition 43	The Proponent shall contract only certified vessels to carry cargo for the Project and will ensure shippers are aware of the requirements of the Shipping Management Plan, the Risk Management and Emergency Response Plan, and the Oil Pollution Emergency Plan. Evidence of meeting the requirements of this term and condition should be submitted as part of annual reporting to the Nunavut Impact Review Board	11.8.4
NIRB Project Certificate No 008, Condition 44	The Proponent is strongly encouraged to continue to participate in the work of the Kivalliq Socio-Economic Monitoring Committee along with other agencies and the communities of the Kivalliq region, and to identify areas of mutual interest and priority for inclusion into a collaborative monitoring framework that includes socio-economic priorities related to the Project, communities, and the Kivalliq region as a whole. Information regarding the Proponent's efforts in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.	11.10.1
NIRB Project Certificate No.008, Condition 45	The Proponent shall work in collaboration with other socio-economic stakeholders including, the Government of Nunavut, Indigenous and Northern Affairs Canada, the Kivalliq Inuit Association, and communities of the Kivalliq region, to establish a socio-economic working group for the Project to develop and oversee a Kivalliq Projects AEM Socio-Economic Monitoring Program. The working group will develop a Terms of Reference, which outlines each member's roles and responsibilities with regards to, where applicable, project specific socio-economic monitoring throughout the life of the projects. The Proponent shall work with the other parties to use the updated Kivalliq Projects Socio-Economic Monitoring Program to monitor the predicted impacts outlined in the projects' respective environmental impact statements as well as regional concerns identified by the Kivalliq Socio-Economic Monitoring Committee. The Proponent shall work in collaboration with all other socio-economic stakeholders such as the Government of Nunavut, Indigenous and Northern Affairs Canada, Kivalliq Inuit Association, and the communities of the Kivalliq region in developing this program,	11.10.2

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	which should include a process for adaptive management and mitigation in the event unanticipated impacts are identified. The Terms of Reference for this multi-party, multi-project Working Group are to be provided to the Nunavut Impact Review Board (NIRB) upon completion, and within one (1) year of issuance of the Project Certificate. The Proponent shall produce annual joint "AEM Kivalliq Projects" Socio-Economic Monitoring reports throughout the life of the Projects that are submitted to the NIRB and discussed with the wider Kivalliq Socio-Economic Monitoring Committee. Details of the Kivalliq Projects Socio-Economic Monitoring Program are to be provided to the NIRB upon finalization, and within one (1) year of issuance of the Project Certificate. Information regarding the Proponent's efforts in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.	
NIRB Project Certificate No 008, Condition 46	The Proponent should develop a Project-specific Whale Tail Pit Socio-Economic Monitoring Program designed to:	11.10.2
	-·Monitor for project-induced effects, including the impacts predicted in the Environmental Impact Statement through indicators presented in the Whale Tail Pit Socio-Economic Monitoring Plan;	
	-·Reflect regional socio-economic concerns identified by the Kivalliq Socio-Economic Monitoring Committee (KivSEMC);	
	-·Work in collaboration with all other socio-economic stakeholders such as the Kivalliq Inuit Association, the Government of Nunavut, and Indigenous and Northern Affairs Canada, and the communities of the Kivalliq region to develop the program;	
	-·Include a process for adaptive management and mitigation to respond if unanticipated impacts are identifie; and.	
	- Monitor the success of existing and newly implemented gender-specific initiatives to determine their success and why they were considered successful or to identify any challenges to their implementation.	
	Details of the Whale Tail Pit Socio-Economic Monitoring Program should be submitted to the Nunavut Impact Review Board (NIRB) within one (1) year of issuance of the Project Certificate. The Proponent should produce annual Whale Tail Pit socio-economic monitoring reports throughout the life of the Project that are submitted to the NIRB and shared with the wider KivSEMC.	
NIRB Project Certificate No.008 Condition 47	The Proponent should undertake an analysis of the risk of temporary mine closure, giving particular consideration to how communities in the Kivalliq region may be affected by temporary closure of the mine, including consideration of the measures that can be taken to mitigate the potential for adverse effects (e.g. development of programs that provide transferable skills, identification of employment options that can include transfers amongst Agnico Eagle operations, etc.) This analysis is required to be updated as necessary to reflect significant changes to the Project or the socio-economic conditions in the region that may increase the risks and potential effects of temporary mine closures. These initial results of the Proponent's analysis should be provided to the Nunavut Impact Review Board (NIRB) within six (6) months of the issuance of the Project Certificate. Any updates to the analyses should be provided to the NIRB within three (3) months following completion of updated analyses by the Proponent.	9.4
NIRB Project Certificate No.008, Condition 48	The Proponent is strongly encouraged to submit staff schedule forecasts that should, at a minimum, include the following:	11.10.3 11.11.1.1
	- Title of positions required by department and division;	
	- Quantity of positions available by project phase and year;	
	- Transferable skills, both certified and uncertified which may be required for, or gained during, employment within each position;	
	- The National Occupational Classification code for each individual position.	
	The Proponent should also identify and register all trades occupations, journeypersons, and apprentices working with the Project and make this information available to the Government of Nunavut to assist in delivery of training initiatives and programs. The Staff Schedule should be submitted to the Nunavut Impact Review Board six (6) months prior to each phase of the Project (construction, operations, closure).	
NIRB Project Certificate No.008, Condition 49	The Proponent shall make best efforts to collaborate with the Government of Nunavut's Career Development Officer, Regional Manager of Career Development, and Director of Career Development. Semi-annual calls, at a minimum, should be initiated by the Proponent to	11.11.1.2

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	address:	
	- Hiring procedures and policies	
	- Issues regarding employee recruitment and retention	
	- AEM policies regarding career pathways and opportunities for advancement	
	- Internal and/or partnered training and development of employees	
	- Long-term labour market plans to facilitate training in communities	
NIRB Project Certificate No 008, Condition 50	The Terms of Reference for this multi-party, multi-project Working Group are to be provided to the Nunavut Impact Review Board (NIRB) upon completion, and within one (1) year of issuance of the Project Certificate. Details of the Kivalliq Projects Socio-Economic Monitoring Program are to be provided to the NIRB upon finalization, and within one (1) year of issuance of the Project Certificate. The Proponent shall produce annual joint "AEM Kivalliq Projects" Socio-Economic Monitoring reports throughout the life of the Projects that are to be submitted as part of the Proponent's annual report to the NIRB.	11.10.2
NIRB Project Certificate No.008, Condition 50	The Proponent will report the results of its Labour Market Analysis (LMA) and Inuit Work Barrier Study (WBS) to the Kivalliq Socio-Economic Monitoring Committee upon completion in 2018, which should integrate the findings into its ongoing work identifying gaps between the Kivalliq labour market and mining market needs, and how to activate latent labour pool in the Kivalliq region to maximize labour "capture" from mining for the region. The Proponent shall report the results and implications of the LMA and WBS within its first year's Annual Report to the Nunavut Impact Review Board (NIRB) and show how the results have been integrated into an updated Socio-Economic Monitoring Plan for the Whale Tail Pit Project.	11.11.1.4
NIRB Project Certificate 008 Condition 51	The Proponent shall develop a conceptual Socio-economic Closure Plan that:	9.5
	-·Links the socio-economic closure plans for Meadowbank and Whale Tail;	
	-·Identifies regular update and multi-party review requirements;	
	- Shows evidence of consideration of socio-economic lessons learned from other northern mine closure experiences;	
	-·Includes evidence of consultation with Kivalliq communities and governance bodies on socio-economic objectives/goals related to closure planning;	
	-·Emphasizes plans, policies, and programs to increase transferable skills of Inuit workers, including into trades and other skilled positions;	
	-·Includes all plans, policies and programs related to socioeconomic factors in a temporary closure situation; and	
	- Includes a Workforce Transition Plan between the Whale Tail Project and other production mines owned and operated by the Proponent in the Kivalliq region. The Proponent shall advance the recommendations of the Conceptual Socio-economic Closure Plan through the development of a Final Socio-economic Closure Plan that will be part of the Whale Tail Pit Project Final Closure and Reclamation Plan.	
NIRB Project Certificate No.008, Condition 52	The Proponent should develop and maintain an easily referenced listing of formal certificates and licenses that may be acquired via on-site training or training during project employment. The listing shall indicate which of these certifications and licenses would be transferable to a similar job site within Nunavut. The initial listing should be provided to the Nunavut Impact Review Board within six (6) months of the Project Certificate being issued. Updates to the list should be included in the Proponent's annual reports submitted to the Nunavut Impact Review Board and shared with the wider Kivalliq Socio-Economic Monitoring Committee throughout the life of the Project.	11.11.1.3
NIRB Project Certificate No.008, Condition 53	Provided the collection and sharing of such information is consistent with and not limited by any Inuit Impact and Benefit Agreement with the Kivalliq Inuit Association and that employees are willing to voluntarily provide this information, the Proponent should collect and provide project-specific data concerning employee community of residence and number of employees that relocated from the year prior (where available, to and from, for Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Naujaat, Rankin Inlet and Whale Cove). The details of this process will be captured in the terms of reference for the project specific Whale Tail Pit Socio-Economic Monitoring Committee. Summaries of this information should be included in the annual Whale Tail Pit socio-economic monitoring reports submitted to the Nunavut Impact Review Board and shared with the wider Kivalliq Socio-Economic Monitoring Committee throughout the life of the Project.	11.10.3
NIRB Project	Proponent should ensure that the development of all project monitoring plans and associated	11.10.1

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Authorization	**Reporting Requirement**	**Report**
Certificate No.008, Condition 54	reporting and updates are undertaken with active engagement of Kivalliq communities, land users, and harvesters. The Proponent should work with the Kivalliq Inuit Association, the local Hunters and Trappers Organizations and the Kivalliq Socio-Economic Monitoring Committee to report on the collection and integration of Inuit Qaujimaningit through its monitoring programs for the Project. To the extent that the sharing of such information is consistent with, and not limited by, any confidentiality or other agreements, summaries addressing the Proponent's fulfillment of this term and condition should be included in the Proponent's annual report to the Nunavut Impact Review Board.	
NIRB Project Certificate No.008 Condition 55	The Proponent shall conduct archaeological surveys prior to land disturbance related to the Project and report survey results to applicable parties, including the Government of Nunavut – Department of Culture and Heritage. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.	8.20.1
NIRB Project Certificate No.008 Condition 56	The Proponent shall report any archaeological site discovered during the construction, operation, and closure phases to the Government of Nunavut – Department of Culture and Heritage and the Kivalliq Inuit Association. Upon discovering an archeological site, the Proponent shall:	8.20.1
	a) Take all reasonable precautions necessary to protect the site until further direction is received from the Government of Nunavut – Department of Culture and Heritage; and	
	b) If it becomes necessary to disturb an archaeological site, the Proponent shall consult with the Government of Nunavut – Department of Culture and Heritage, the Kivalliq Inuit Association, and potential impacted communities to establish a site specific mitigation plan, and obtain all necessary authorizations and comply with all applicable laws.	
NIRB Project Certificate 008 Condition 57	The Proponent shall update its Occupational Health and Safety Plan to include sexual health and well-being information in its employee orientation programming. In addition, the Proponent shall undertake an education program to inform workers of the range of health services available onsite. The updated plan shall be provided to the Nunavut Impact Review Board (NIRB), once completed within six (6) months of issuance of the Project Certificate. Summaries of the education programs undertaken and any future updates or modifications to the Occupational Health and Safety Plan and the education program shall be included in the Proponent's annual report to the NIRB.	10.2.2.1
NIRB Project Certificate No.008, Condition 58	The Proponent is encouraged to form a subcommittee which includes Government of Nunavut representatives to reach consensus decisions on health related issues that the Proponent or the Government of Nunavut bring forward (e.g. programs and services to address sexually transmitted infections, a process for the treatment and transport of workers that may require medical services beyond that which the mine provides, monitoring and reporting on the impacts of the Project on health services within the potentially impacted communities and particularly, Baker Lake. etc.). Information regarding the Proponent's fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.	11.11.1.5
NIRB Project Certificate No.008, Condition 59	The Proponent is encouraged to work with the Kivalliq Inuit Association to establish cross-cultural training initiatives, which promote respect and consideration for the importance of Inuit Qaujimajatuqangit to the Inuit identity and to make this training available to Project employees and on-site sub-contractors. The Proponent should actively monitor the implementation of these initiatives, including the following items:	11.10.3.2.3
	-·Descriptions of the goals of each program offered;	
	-·Language of instruction;	
	-·Schedules and location(s) of when each program was offered;	
	-·Uptake by employees and/or family members where relevant, noting Inuit and non-Inuit participation rates; and	
	-·Completion rates for enrolled participants, noting Inuit and non-Inuit participation rates.	
	Summaries of the cross-cultural training initiatives implemented by the Proponent in fulfilment of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.	
NIRB Project Certificate No.008, Condition 60	The Proponent shall engage with the Government of Nunavut to develop a process to ensure that any conditions first treated at the mine site and requiring ongoing care is appropriately accommodated in a timely manner at community health centres as required. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.	11.11.1.5

Whale Tail Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
NIRB Project Certificate No.008, Condition 61	The Proponent, in collaboration with the Government of Nunavut and the Nunavut Housing Corporation, is encouraged to investigate measures and programs designed to assist Project employees with pursuing home ownership or accessing affordable housing options in the Kivalliq region. The Proponent should provide access to financial literacy, financial planning, and personal budgeting as part of the regular Life Skills Training and/or Career Path Program. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.	11.10.3
NIRB Project Certificate No.008, Condition 62	The Proponent should work with the Government of Nunavut to develop an effects monitoring program that identifies Project-related pressures to community infrastructure such as airport and transportation infrastructure, policing, health and social services, in Baker Lake and all the point-of-hire communities of the Kivalliq Region. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board	11.10.3
NIRB Project Certificate No.008, Condition 63	The Proponent shall conduct additional studies as part of its freshwater aquatic effects analyses to ensure that methylmercury concentrations anticipated to increase during operations in the aquatic environment (including in fish tissue) do not exceed regulatory requirements. In addition, the Proponent shall consider assessing potential risks from consumption of fish containing methylmercury by using Health Canada's hazard quotients as a descriptive tool. A summary of the results of these additional studies, including the assessment of the potential risk to people from consumption of fish, shall be included in the Proponent's annual report to the Nunavut Impact Review Board.	8.2
NIRB Project Certificate No.008, Condition 64	Within its annual reporting, the Proponent is encouraged to include detailed updates on the status of ongoing exploration programs associated with the Project and associated implications for future phase developments of the Amaruq property. Status updates in fulfillment of this Term and Condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.	11.3.1
NIRB Project Certificate No.008, Condition 65	The Proponent shall, in consultation with the Terrestrial Advisory Group, develop a construction plan for the widening of the Whale Tail haul road which includes	3.5.2.3
	- Design features of the Whale Tail haul road intended to facilitate caribou movement across the road;	
	- Identified sections of the roadside that will be constructed with slopes and top-dressing material appropriate for caribou crossing.	
	The plan must incorporate available Inuit Qaujimajatuqangit in the selection of caribou crossing locations. The final construction plan shall be provided to the Nunavut Impact Review Board (NIRB) prior to widening the Whale Tail haul road. Within three months of completion of construction to widen the Whale Tail haul road, the Proponent shall file an 'as-built report' with the NIRB, which includes the backfill height, slope and top-dressing material specifications of designed wildlife crossing sections.	
NIRB Project Certificate No.008, Condition 66	The Proponent shall operate the Whale Tail haul road as a private access road, implement any reasonable measures to limit public access to the road, and develop strategies that account for unauthorized use. These measures must include, but are not limited to, the following:	11.7.2.2
	a) The posting of signs in English and Inuktitut at the gate, each major bridge crossing, and each 10 kilometres of road, stating that public use of the road is prohibited;	
	b) Annually advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is restricted to mine use only:	
	c) Place local notices (e.g., radio, television, social media) at least quarterly to explain to the community that the road is restricted to mine use only;	
	d) Record all unauthorized non-mine use of the road, and require all mine personnel using the road to	
	e) Develop management strategies to ensure public and operator safety in the event of unauthorized public use.	
	Report unauthorized Whale Tail haul road use and accidents or other safety incidents on the road to the Government of Nunavut, the Kivalliq Inuit Association, Crown-Indigenous Relations and Northern Affairs Canada, the Baker Lake Hunters and Trappers Organization and the Hamlet of Baker Lake immediately, and to the Nunavut Impact Review Board annually.	

Whale Tail Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
NIRB Project Certificate No.008, Condition 67	Subject to the additional direction and requirements of the Nunavut Water Board (NWB), the Proponent shall:	4.4.4
	a) Conduct an evaluation of the potential aquatic effects to Lakes D1 and D5 and downstream that may result from the discharge of treated effluent. The evaluation will include: ▪ Additional water quality and phytoplankton baseline data in Lakes D1 and D5 ▪ Updated water balance and water quality forecast ▪ Updated near field and far field effluent discharge modelling ▪ Updated Water Management Plan, Water Quality and Flow Monitoring Plan,	
	b) Provide adequate rationale for the need to use the alternative discharge contingency, based on the thresholds established as per the Whale Tail Pit Expansion Project water management decision tree.	
	c) In the event that discharge to Lakes D1 and/or D5 is not approved to proceed by the NWB, the Proponent will develop alternative effluent management plans as part of the Water Management Plan.	
	At least 90 days prior to any decision to use the effluent discharge alternatives, the Proponent shall submit the requested evaluation, and rationale for use of the effluent discharge alternatives to the Nunavut Water Board, the Nunavut Impact Review Board (NIRB) and relevant regulatory authorities, for approval to proceed with discharge to one or both of Lakes D1 and D5. If the alternative discharge contingency is approved to proceed, the Proponent will submit the results of its monitoring annually to the NIRB.	
NIRB Project Certificate No.008, Condition 68	The Proponent shall maintain an up-to-date listing of the status of implementation for its commitments made during the Nunavut Impact Review Board's (NIRB) assessment of the Whale Tail Pit Project Proposal and the Whale Tail Pit Expansion Project Proposal through engagement of parties and active monitoring of associated implementation. The Proponent shall provide a status report on the implementation of all its commitments within three (3) months of issuance of the Project Certificate for the Whale Tail Pit Expansion Proposal and annually thereafter within its annual report to the NIRB.	11.12
NIRB Project Certificate No.008 Item 5	The Proponent must obtain all required federal and territorial permits and other approvals, and shall comply with the requirements of such regulatory instruments.	SECTION 1
NIRB Project Certificate No.008 Item 6	The Proponent shall take prompt and appropriate action to remedy any occasion of non-compliance with environmental laws and regulations and/or regulatory instruments, and shall report any non-compliance as required by law immediately. A description of all instances of non-compliance and associated follow up is to be reported annually to the NIRB.	11.6.2
NIRB Project Certificate No.008 Item 7	The Proponent shall meet with respective licensing authorities prior to the commencement of construction to discuss the posting of adequate performance bonding. Licensing authorities are encouraged to take every measure to require that sufficient security is posted before construction begins.	9.2.2
NIRB Project Certificate No.008 Item 8	All monitoring information collected pursuant to the Project Certificate and various regulatory requirements for the Project shall, if appropriate, given the type of monitoring conducted, contain the following information:	SECTION 8
	a) The name of the person(s) who performed the sampling or took the measurements including any relevant accreditations;	
	b) The date, time and place of sampling or measurement, and weather conditions;	
	c) The date of analysis;	
	d) The name of the person(s) who performed the analysis including any relevant accreditations;	
	e) A description of the analytical methods or techniques used; and	
	f) A discussion of the results of any analysis.	
NIRB Project Certificate No.008, Item 9	The Proponent shall make significant monitoring results and/or summaries of significant results available in English, Inuinnaqtun, and Inuktitut, to the extent feasible.	10.3.2
NIRB Project Certificate No.008	The Proponent shall keep and maintain the records, including results, of all Project-related monitoring data and analysis for the life of the Project, including closure and post-closure	SECTION 8

Whale Tail Site - NIRB		
Authorization	**Reporting Requirement**	**Report**
Item 10	monitoring.	
NIRB Project Certificate No.008 Item 11	The Proponent shall maintain the Environmental Impact Statement and the environmental monitoring programs developed for the Project, with predictions updated as new baseline data is collected. If the results of monitoring programs necessitate updates to effects predictions, the Proponent shall update the associated management programs and plans as required to address or reflect the updated assessment of effects.	SECTION 12
NIRB Project Certificate No.008, Item 12	The Proponent shall establish a publicly-accessible Project-specific web portal or web page to make available in a central location all significant non-confidential monitoring and reporting information submitted to regulatory authorities pursuant to the Project Certificate and other territorial or federal permits issued for the Project. For clarity, posting on the Project-specific site does not replace any reporting obligation of the Proponent pursuant to the Project Certificate or any territorial or federal permit.	11.9.7
NIRB Project Certificate No.008, Item 13	The Proponent is encouraged to provide on-going opportunities for consultation and comment on any substantive revisions to the Project-specific monitoring program, modelling, studies, management plans, management measures, and reporting under the Project Certificate.	10.2.2

Table 1-5 Meadowbank List of Reporting Requirements for DFO, CIRNAC and KivIA

Meadowbank Site – DFO, CIRNAC and KivIA		
Authorization Reference	**Reporting Requirement**	**Report Section**
DFO Authorizations NU-03-0191.3 Condition 3.1, NU-03-0191.4 Condition 3.1; NU-03-0190 Condition 5, NU-14-1046 Condition 3	Submit written report summarizing monitoring results and photographic record of works and undertakings.	8.5
DFO Authorization NU-03-0191.3 Condition 3.1	The Proponent shall undertake monitoring and report to DFO annually, by March 31st, whether works, undertakings, activities, or operations for the mitigation of potential impacts to fish and fish habitat were conducted according to the conditions of this Authorization.	8.5.1.1
DFO Authorization NU-03-0191.4 Condition 3.1	The Proponent shall undertake monitoring and report to DFO annually, by December 31st, whether works, undertakings, activities, or operations for the mitigation of potential impacts to fish and fish habitat were conducted according to the conditions of this Authorization.	8.5.1.1
DFO Authorization 14-HCAA-01046 Condition 3.1	The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in section 2 of this authorization and report to DFO, by March 31 annually and indicate whether the measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this authorization.	8.5.1.1
DFO Authorizations NU-03-0190 Condition 5.3	A photographic record of before, during and after construction, during decommissioning and after restoration, showing that all works and undertakings have been completed according to the approved Plan and conditions of this authorization […]	8.5.6.1
DFO NU-03-0190 AWPAR Condition 5.2.4	Creel survey results.	8.16
DFO Authorizations NU-03-0191.3 Condition 3 and 6 (Second and Third Portage Lakes), NU-03-0191.4 (Vault Lake) Condition 3 and 6; NU-03-0190 Condition 5 (AWPAR), NU-14-1046 (Phaser Lake) Condition 3 and 5	Submit written report summarizing monitoring results and photographic record of works and undertakings.	8.8.1

Meadowbank Site – DFO, CIRNAC and KivIA		
Authorization	**Reporting Requirement**	**Report**
CIRNAC Land Lease 66A/8-71-3 Condition 23	The Lessee shall submit to the Minister no later than November 1st, 2025, and every three (3) years thereafter, an updated Closure and Reclamation Plan and cost estimates thereof.	9.2.1.2
CIRNAC Land Lease 66A/8-71-3 Condition 35	The Lessee shall file annually a progress report for the preceding year outlining the ongoing reclamation completed in conformance with the approved Closure and Reclamation Plan.	9.1.1.2
CIRNAC Land Lease 66A/8-72-6 Condition 8	The lessee shall file a report, annually ... i. Quantity of material removed and location of removal, for the immediately preceding calendar year ii. Such other data as are reasonably required by the Minister from time to time.	3.4.1.1
CIRNAC Land Lease 66A/8-72-6 Condition 25	The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.	3.4.1.1
CIRNAC Quarry Lease 66A/8-72-6 Condition 33	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with C&R Plan, as well as any variations from the said Plan.	9.1.1.3
CIRNAC Land Lease 66A/8-72-6 Condition 37	The lessee shall submit to the Minister every 2 years after the commencement date of this lease, a report describing cumulative variations from the C&R Plan with updated cost estimates.	9.2.1.2
KivIA ROW KVRW06F04 Condition 16	Agnico Eagle shall submit to KIA on March 31, 2009, and no later than March 31st of every second year thereafter, a report describing any variations from the Closure and Reclamation Plan and updated cost estimates.	9.2.1.2
KivIA ROW KVRW06F04 Condition 28	Agnico Eagle shall file annually, no later than March 31st of each year, a progress report for the preceding year, outlining any ongoing restoration completed, in conformity with the Closure and Reclamation Plan.	9.1.1.2
KivIA Quarry Lease KVCA06Q11, Condition 14	AEM shall conduct reclamation activities during the first 12 months of the term of this Permit in accordance with the Reclamation Plan attached as Schedule 3. AEM shall annually thereafter submit to KIA a Reclamation Plan detailing the proposed reclamation activities for the upcoming year. Such Plans shall be subject to the approval of KIA and will form part of this Permit. AEM shall conduct reclamation in accordance with the approved Reclamation Plans.	9.1.1.3
KivIA KVPL08D280 Condition 6.01 (9)	Plan detailing the activities taken in the last year and to be undertaken in the next year and planned for the balance of the Term, that includes, but is not limited to the proposed methods and procedures for progressive reclamation.	9.1.1.1

Table 1-6 Whale Tail List of Reporting Requirements for DFO, CIRNAC and KivIA

Whale Tail Site - DFO, CIRNAC and KivIA		
Authorization Reference	**Reporting Requirement**	**Report Section**
DFO Authorization 16-HCAA-00370 Condition 2.3.5	As per the NIRB Project Certificate No. 008 Condition 21, the Proponent shall ensure that all project infrastructure in watercourses is designed and constructed in such a manner that it does not unduly prevent or limit the movement of water or fish species in fish streams and rivers, unless otherwise authorized by Fisheries and Oceans Canada.	3.5.2.1
DFO Authorization 16-HCAA-00370 Condition 2.3.3, 20-HCAA-00275 Condition 2.3.8	The proponent shall develop a blasting mitigation plan in consultation with DFO to ensure effects on fish and fish habitat are minimized, as per Nunavut Impact Review Board Project Certificate No. 008 Condition 22. The Blasting mitigations plan shall be submitted to DFO prior to construction for approval, and shall adhere to the guidance provided in the Monitoring Explosive-Based Winter Seismic Exploration in Waterbodies, NWT 2000-2002	8.6.2
DFO Authorization 16-HCAA-00370 Condition 2.4, 20-HCAA-00275 Clause 2.3.7	The proponent shall provide a final fish-out plan to DFO at least three weeks prior to commencing the fish-out program to allow for review and approval	8.11.2

Whale Tail Site - DFO, CIRNAC and KivIA		
Authorization	**Reporting Requirement**	**Report**
DFO Authorization 16-HCAA-00370, Condition 2.4.1	The Proponent shall provide detailed engineering plans to DFO for review and approval, for construction works that have potential to impact fish and fish habitat, at least 3 months prior to commencement of the works. This includes dikes (e.g., Northeast dike), diversion/realignment channels, and freshwater jetty.	3.5.2.1
DFO Authorization 16-HCAA-00370 and 20-HCAA-00275 Condition 3.1	The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in section 2 of this authorization, and provide a stand-alone report to DFO, by March 31, annually and indicate whether the measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this authorization	8.5.1.2
DFO Authorization 16-HCAA-00370 Condition 3.1.1	The report in addition to the above shall summarizes the monitoring results related to fish and fish habitat contained in the documents listed in section 2.3. The report shall include a description of the implementation as well as an evaluation of the effectiveness of those monitoring programs in validating the changes to fish and fish habitat predicted in the Proponent's Environmental Impact Statement	8.5.1.2
DFO Authorization 20-HCAA-00275 Condition 3.1.1	Demonstration of effective implementation and functioning: Providing dated photographs and inspection reports to demonstrate effective implementation and functioning of mitigation measures and standards described above to limit the impacts to fish and fish habitat to what is covered by this authorization.	8.5.1.2
DFO Authorization 20-HCAA-00275 Condition 3.1.2	Contingency measures: Providing details of any contingency measures that were followed, to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.	8.5.1.2
DFO Authorization 16-HCAA-00370 Condition 3.1.2, 20-HCAA-00275 Condition 3.2.1	Each year, following the submission of the annual monitoring report to DFO, the Proponent shall arrange to meet with DFO and interested parties (e.g. Kivalliq Inuit Association) to review the results of the previous year's monitoring programs. The results of the meetings and any mutually agreed upon modifications aimed at improving the effectiveness of the monitoring programs shall be incorporated into the upcoming year of the monitoring programs. The Proponent shall update the monitoring programs/plans to reflect the changes, and the programs/plans shall be approved in writing by DFO prior to implementation.	8.5.1.2
DFO Authorization 16-HCAA-00370 Condition 3.1.3	The annual monitoring report shall provide dated photographs with GPS coordinates and description of locations and inspection reports to demonstrate effective implementation and functioning of mitigation measures and standards described above to limit the serious harm to fish to what is covered by this authorization.	8.5.1.2
DFO Authorization 16-HCAA-00370 Condition 3.1.4	The annual monitoring report shall also provide details of any contingency measures that were followed to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.	8.5.1.2
DFO Authorization 16-HCAA-00370 Condition 3.2.1	All fish-out results shall be provided to DFO in a fish-out monitoring report within 2 months of the completion of a fish-out program. In addition, the Proponent shall provide DFO with photocopies of all field data/notes, copies of photographs with GPS coordinates and an electronic database of data collected and result of all sample analyses. This condition shall be followed in accordance with the General Fish-out Protocol for Lakes and Impoundments in the Northwest Territories and Nunavut.	8.11.2
DFO Authorization 16-HCAA-00370 Condition 4.2.1.2	The Proponent shall provide updated research plans with detailed methodologies for projects listed under conditions 4.2.2.1a, b, c and d. Each updated plan shall be provided to DFO for approval on or before December 31, 2018, and at least 60 days prior to commencement of research.	8.8.2.4
DFO Authorization 16-HCAA-00370 Condition 4.2.1.3 and 20-HCAA-00275 Condition 5.3.3.5	The proponent shall initiate a literature review no later than November 2018, and provide the results of this review to DFO no later that February 28, 2019. This shall include an outline of the proposed studies by February 28, 2019, and a complete detailed research plans by December 31, 2019.	8.8.2.4
DFO Authorization 16-HCAA-00370 Condition 4.2.1.4	To serve as an advisory group for the complementary measures that shall be undertaken as listed under condition 4.2.2.1, the Proponent shall establish a Meadowbank Fisheries research Advisory Group (MFRAG). The MFRAG membership shall include DFO and the Proponent, an independent third-party research advisor, any interested Inuit organizations within the Kivalliq Region, and other agencies or interested parties s considered appropriate by MFRAG members. The proponent shall develop a draft terms or reference and participant list for this advisory group which shall be provided to DFO by September 1, 2018.	8.9
DFO Authorization 16-HCAA-00370	The proponent shall make all effort to ensure that the results from the research projects conducted for the complementary measures are published in peer-reviewed scientific journals	8.8.2.4

Whale Tail Site - DFO, CIRNAC and KivIA		
Authorization	**Reporting Requirement**	**Report**
Condition 4.2.1.6		
DFO Authorization 16-HCAA-00370 Condition 5.1.1.2	The proponent shall provide an updated Whale Tail Pit Fish Habitat Offset Monitoring Plan, prepared by Agnico Eagle Mines Ltd. To DFO for review and approval on or before December 31, 2018. This update shall include, but is not limited to, details on the monitoring methods, frequency of monitoring, sampling location and criteria for success.	8.8.2.2
DFO Authorization 16-HCAA-00370 Condition 5.1.1.3	The proponent shall develop a schedule for the implementation of the offsetting measures and shall provide this schedule to DFO no later than December 31, 2019.	8.8.2.2
DFO Authorization 16-HCAA-00370 Condition 5.1.1.4:	The Proponent shall provide an annual Whale Tail Pit Fish Habitat Offset Monitoring Report to DFO (and interested parties) following the construction of the offsetting habitat by March 31. The Proponent is required to provide the Whale Tail Pit Fish Habitat Monitoring Report until DFO indicates this requirement has been met	8.8.2.2
DFO Authorization 16-HCAA-00370 Condition 5.1.1.5 and 20-HCAA-00275 Condition 5.2.2	As part of the annual Whale Tail fish Habitat Offset Monitoring Report, the Proponent shall include, but not limited to: - a digital photographic record with GPS coordinates of pre-construction, during construction and post construction conditions shall be compiled using the same vantage points and direction to show that the approved works have been completed in accordance with the offsetting plan - a summary of field observations for each respective year as well as as-built survey - a detailed analysis report summarizing the effectiveness of the offsetting measures	8.8.2.2
DFO Authorization 16-HCAA-00370 Condition 5.1.1.6	Each year, following the submission of the annual Whale Tail Pit Fish Habitat Offset Monitoring Report to DFO, the Proponent shall arrange to meet with DFO and interested parties (e.g., KIA) to review the results of the previous year of the monitoring program. The results of the meetings and any mutually agreed upon modifications aimed at improving the effectiveness of the offsetting monitoring program shall be incorporated into the upcoming year of the monitoring programs. The Proponent shall update the Whale Tail Pit Fish Habitat Offset Monitoring Plan, to reflect the changes, and the plans shall be approved in writing by DFO prior to implementation	8.8.2.3
DFO Authorization 16-HCAA-00370 Condition 5.2.1	As required by DFO Authorization 16HCAA-00370 Condition 5.2.1: The Proponent shall monitor to validate Agnico Eagle Mines Ltd.'s Habitat Suitability Index (HSI). The monitoring shall be conducted to the satisfaction of DFO. Where appropriate, the HSI will incorporate additional knowledge generated by the complementary measures research projects under section 4.2.2, in particular research project 4.2.2.1c, and adjust the Habitat Evaluation Procedure (HEP) model according to the results generated. The HSI will be used to refine, as necessary, the performance end-points in habitat units for offsetting	8.8.2.1
DFO Authorization 20-HCAA-00275 Condition 5.2.1	The Proponent shall provide a Whale Tail Expansion Fish Habitat Offset Monitoring Report to DFO including geotechnical and biological and ecological monitoring as per section 5.1.1. The Proponent is required to provide the Report by March 31 of 2027 and update annually for 10 years or until DFO indicates requirements of this Authorization have been met	8.8.2.2
DFO Authorization 20-HCAA-00275 Condition 5.2.3	The Proponent shall provide a summary report of all Whale Tail Expansion Fish Habitat Offset Monitoring Reports described in section 5.2.1 before March 31, 2036, to DFO (and interested parties) which shall analyse results from the offsetting measures of the Whale Tail Expansion Project following the construction of the offsetting habitat. DFO reserves the right to request additional Summary Report if annual reporting were to continue until requirement has been met.	8.8.2.2
DFO Authorization 20-HCAA-00275 Condition 5.3.2	The Proponent shall monitor to validate Agnico Eagle Mines Ltd.'s Habitat Suitability Index (HSI). The monitoring shall be conducted to the satisfaction of DFO. Where appropriate, the HSI will incorporate additional knowledge generated by the monitoring plans and complementary measures research projects of the Approved Project (PATH No.: 16-HCAA-00370) and adjust the Habitat Evaluation Procedure (HEP) model according to the results generated. The HSI will be used to refine, as necessary, the performance endpoints in habitat units for offsetting	8.8.2.1
CIRNAC Land Lease 66H/8-1-5, Condition 9	The lessee shall file, annually, with the Minister in the manner and format stipulated, no later than sixty (60) days following the anniversary date of the effective date of this lease. The report shall include: i. Quantity of material removed and location of removal, for the immediately preceding calendar year; and	3.4.2.1

Whale Tail Site - DFO, CIRNAC and KivIA		
Authorization	**Reporting Requirement**	**Report**
	ii. Such other data as are reasonably required by the Minister from time to time.	
CIRNAC Land Lease 66H/8-1-5, Condition 27	The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.	3.4.2.1
CIRNAC Land Lease 66H/8-1-5 Condition 66	If an archaeological site is discovered with the Land, the lessee shall immediately advise the Minister and the Territorial Archaeologist in writing.	8.20.1
CIRNAC Land Lease 66H/8-1-5, Condition 35	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.	9.1.2.3
CIRNAC Land Lease 66H/8-2-1, Condition 25	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.	11.7.1.2
CIRNAC Road lease 66H/8-2-1 Condition 60	The lease shall before the first (1st) day of September in each and every year during the term of the lease, provide to the Minister, a report of that year's road activities. The report shall include, but not limited to:	11.7.1.2
	(a) total number of loads hauled in that year	
	(b) total road operating cost for that year	
CIRNAC Road lease 66H/8-2-1 Condition 63	The lessee agrees to monitor and report unauthorized non-mine use of the road, and collect and report this data to the Minister, who shall make this report accessible to the Nunavut Impact Review board, one (1) year after the road is opened and annually thereafter.	11.7.1.2
CIRNAC Road lease 66H/8-2-1 Condition 64	The lessee agrees to report any information received, including accidents or others safety incidents on the road, including the locked gates, to the minister, who shall make this information accessible to the GN, KIA a, the Hamlet of Baker Lake immediately.	11.7.2.2
CIRNAC Road lease 66H/8-2-1 Condition 65	The lessee shall give notice of any closure of the road to the Minister and the reasons thereof and post any notice of closure at the access point and along the road.	11.7.2.2.1
KivIA Production Lease KVPL17D01 Condition 6.01 (10)	Deliver to KIA, not later than March 31, 2022, and not later than March 31st every three (3) years thereafter, a Conceptual Reclamation and Closure Plan and Reclamation Estimate, detailing the reclamation and remediation activities taken in the last three (3) years and to be undertaken in the next three (3) years and planned for the balance of the Term. That includes, but not is not limited to the proposed methods and procedure for the progressive […]	9.1.2.1
KivIA Quarry Lease KVCA15Q02, Condition 14	AEM shall conduct reclamation activities until November 22, 2018, in accordance with the Reclamation Plan attached Schedule 3. AEM shall annually thereafter submit to KIA a Reclamation Plan detailing the proposed reclamation activities for the upcoming year.	9.1.2.3
KivIA Quarry Lease KVCA18Q01, Condition 20	The permittee shall conduct reclamation activities during the first twelve months of the term of this Permit in accordance with the Reclamation Plan attached as Schedule 3. The permittee shall annually thereafter submit to the Association a Reclamation Plan detailing the proposed reclamation activities for the upcoming year.	9.1.2.3
KivIA Quarry Lease KVCA15Q01, Condition 13	The permittee shall conduct reclamation activities during the first twelve months of the term of this Permit in accordance with the Reclamation Plan attached as Schedule 3. The permittee shall annually thereafter submit to the Association a Reclamation Plan detailing the proposed reclamation activities for the upcoming year.	9.1.2.3

Table 1-7 Meadowbank Site Summary of Samples Stations[§]

Meadowbank Site			
NWB Station	**Description**	**Phase**	**2023 Reporting Status**
ST-DC-1 to TBD	Monitoring stations during Dike Construction as defined in Part D Item 5	Construction	Not applicable in 2023
ST-DD-1 to TBD	Monitoring stations during Dike Dewatering as defined in Part D Item 5	Construction	Not applicable in 2023
ST-1	Water Intake for camp, mill and re-flooding	Water Intake for camp, mill and re-flooding	Section 4.1.1
ST-1W	Water Intake for re-flooding	Water Intake for camp, mill and re-flooding	Not applicable in 2023
ST-3	Water Intake for Emulsion Plant	Late operation, closure	Section 4.1.1.3
ST-4	Water reclaimed from Tailings Storage Facility	Late operation, closure	Section 4.1.1
ST-5	Portage Area (east) diversion ditch	Late operation, closure	Section 8.5.3.1.2
ST-6	Portage Area (west) diversion ditch	Late operation, closure	Section 8.5.3.1.2
ST-8	East Dike Seepage Discharge	Late operation, closure	Section 8.5.3.1.3
ST-9	Portage Attenuation Pond prior to discharge through Third Portage Lake Outfall Diffuser	Early operation	Not applicable in 2023
ST-10	Vault Attenuation Pond prior to discharge through Wally Lake Outfall Diffuser	Late operation	Not applicable in 2023
ST-11	Tailings Storage Facility	Post closure	Not applicable in 2023
ST-12	Portage/ Goose Pit Lake	Post closure	Not applicable in 2023
ST-13	Vault Pit Lake	Post closure	Not applicable in 2023
ST-14	Discharge to the land from Landfarm sump at mine site	Late operation, closure	Section 8.5.3.1.23
ST-16	Portage Rock Storage Facility	Late operation, closure	Section 8.5.3.1.7
ST-17	North Portage Pit Sump	Operations	Not applicable in 2023
	Portage Pit Lake Reclaim Water	Late operation, closure	Section 8.5.3.1.8
ST-19	South Portage Pit Sump	Early operations	Not applicable in 2023
	Portage Pit Lake Reclaim Water	Late operations	Section 8.5.3.1.9
ST-20	Goose Island Pit Sump	Early operations	Section 8.5.3.1.10
	Goose Pit Lake Reclaim Water	Late operations, closure	Section 8.5.3.1.10
ST-21	Tailings Storage Facility	Late operations	Section 8.5.3.1.11
ST-22	Tailings Storage Facility	Closure (drainage runoff)	Not Applicable in 2023
ST-23	Vault Pit Sump	Late operations	Not Applicable in 2023
ST-24	Vault Rock Storage Facility	Late operation, closure	Section 8.5.3.1.13
ST-25	Vault Attenuation Pond	Late operation	Section 8.5.3.1.14
ST-26	Vault Pit Lake	Closure	Section 8.5.3.1.12
ST-30	WEP 1	Late operations, closure	Section 8.5.3.1.15
ST-31	WEP 2	Late operations, closure	Section 8.5.3.1.15
ST-32	Saddle Dam 3	Late operations, closure	Section 8.5.3.1.16
ST-S-1 to TBD	Seeps (to be determined)	Late operations, closure	Sections 8.5.3.1.4, 8.5.3.1.17, 8.5.3.1.18

Meadowbank Site			
NWB Station	**Description**	**Phase**	**2023 Reporting Status**
ST-GW-1 to TBD	Groundwater wells (to be determined)	Late operations, closure	Section 8.7.1
ST-AEMP-1 to TBD	Receiving AEMP	Late operations, closure	Section 8.12
ST-MMER-1 to TBD	Vault, East dike and Portage effluent outfall	Late operations	Section 8.3.1
ST-37	Secondary containment sump at the Bulk Fuel Storage Facility at Meadowbank	Late operation, closure	Sections 8.5.5.1
ST-37.1	Secondary containment sump at the Bulk Fuel Storage Facility at Meadowbank	Late operation, closure	Sections 8.5.5.1
ST-38	Secondary containment at the Bulk Fuel Storage Facility in Baker Lake - Jet-A containment	Late operation, closure	Sections 8.5.5.2
ST-40.1	Secondary containment sump at the Bulk Fuel Diesel Storage Facility in Baker Lake (Fuel tanks 5&6)	Late operation, closure	Sections 8.5.5.2
ST-40.2	Secondary containment sump at the Bulk Fuel Diesel Storage Facility in Baker Lake (Fuel tanks 1-4)	Late operation, closure	Sections 8.5.5.2
ST-40.3	Secondary containment sump at the Bulk Fuel Diesel Storage Facility in Baker Lake (Fuel tanks 7-8)	Late operation, closure	Sections 8.5.5.2
ST-41 Lake	Phaser Pit Lake	Late operations	Section 8.5.3.1.19
ST-42 Lake	BB Phaser Pit Lake	Late operations	Section 8.5.3.1.20
ST-43	Phaser Attenuation Pond	Late operations	Section 8.5.3.1.21
ST-44	AWAR KM87	Late operation, closure	Section 8.5.3.1.22

Table 1-8 Whale Tail Site Summary of Samples Stations[§]

Whale Tail Site			
NWB Station	**Description**	**Phase**	**2023 Reporting Status**
ST-WT-DC-1 to TBD	Monitoring stations during Dike Construction as defined in Part D Item 5	Construction	Section 8.12.4.1.2
ST-WT-DD-1 to TBD	Monitoring stations during Dike Dewatering as defined in Part D Item 5	Construction	Not Applicable in 2023
ST-WT-S-1 to TBD	Seeps (to be determined)	Operations	Section 8.5.3.2.10
		Closure	Not applicable in 2023
ST-WT-GW-1 to TBD	Groundwater wells (to be determined) as required under Groundwater Monitoring Plan	Operations	Section 8.7.2
		Closure	Not applicable in 2023
ST-WT-1	Attenuation Pond, pre-treatment	Operations	Section 8.5.3.2.1
ST-WT-2	Attenuation Pond, post-treatment; last point of control before discharge to Kangislulik Lake via the West Diffuser	Operations	Section 8.5.3.2.15.1
ST-WT-2a	Attenuation Pond, post-treatment; last point of control before discharge to Kangislulik Lake via the East Diffuser	Operations	Section 8.5.3.2.15.1
ST-WT-2b	Attenuation Pond, post-treatment; last point of control before discharge to Kangislulik Lake via the Winter Diffuser	Operations	Not applicable in 2023
ST-WT-3	Waste Rock Storage Facility (WRSF) Pond prior to pumping to Attenuation Pond	Operations Closure	Section 8.5.3.2.3
	Waste Rock Storage Facility (WRSF) Pond prior to discharge to Kangislulik Lake	Post-Closure	Not applicable in 2023
ST-WT-4	Whale Tail Pit or pit sump	Operations	Section 8.5.3.2.4
ST-WT-5	Water Intake from Nemo Lake	Construction Operations	Sections 4.1.2.1
ST-WT-6	Lake A47	Construction Operations Closure	Section 8.5.3.2.6

Whale Tail Site			
NWB Station	**Description**	**Phase**	**2023 Reporting Status**
ST-WT-7	East diversion channel	Operations	Not applicable in 2023
ST-WT-8	Water Intake from Whale Tail Lake	Closure	Not applicable in 2023
ST-WT-9	North Whale Tail Lake (as the basin fills and when it is connected to the south basin and prior to or when connected to the downstream environment)	Closure Post-Closure	Not applicable in 2023
ST-WT-10	Pit Lake (as the Pit fills)	Closure Post-Closure	Not applicable in 2023
ST-WT-11	Sewage Treatment Plant	Operations Closure	Section 8.5.4.2
ST-WT-12	Secondary containment at Whale Tail Bulk Fuel Storage Facility	Operations Closure	Section 8.5.5.3
ST-WT-13	Lake A45	Operations Closure	Section 8.5.3.2.7
ST-WT-14	Lake A16 outlet	Construction Operations Closure	Section 8.5.3.2.8
ST-WT-15	Lake A15	Construction Operations Closure	Section 8.5.3.2.9
ST-WT-16	Secondary containment at Whale Tail Bulk Fuel Storage Facility Power Plant	Operations Closure	Section 8.5.5.3
ST-WT-17	Whale Tail Dike Seepage	Operations Closure	Section 8.5.3.2.10
ST-WT-18	IVR Pit or IVR Pit sump	Operations	Section 8.5.3.2.5
ST-WT-19	IVR Pit Lake (as the pit fills)	Closure and post-closure	Not applicable in 2023
ST-WT-20	Groundwater Storage Pond 1 (GSP-1)	Operations	Section 8.5.3.2.16
ST-WT-21	Groundwater Storage Pond 2 (GSP-2)	Operations	Not applicable in 2023
ST-WT-22	Groundwater Storage Pond 3 (GSP-3)	Operations	Not applicable in 2023
ST-WT-23	IVR Attenuation Pond, pre-treatment	Operations Closure	Section 8.5.3.2.2
ST-WT-24	IVR Attenuation Pond, post-treatment; last point of control before discharge to Whale Tail South Basin via the Permanent Diffuser	Operations	Section 8.5.3.2.15.2
ST-WT-24a	Whale Tail Attenuation Pond, post-treatment; last point of control before discharge to Whale Tail South Basin via the Temporary Diffuser	Operations	Not applicable in 2023
ST-WT-25	Whale Tail Pit Lake (North Wall)	Closure	Not applicable in 2023
ST-WT-26	Whale Tail South Water Transfer to Kangislulik Lake Permanent Diffuser	Construction	Not applicable in 2023
ST-WT-26a	Whale Tail South Water Transfer to Kangislulik Lake Temporary Diffuser	Construction	Not applicable in 2023
ST-WT-27	Discharge from Landfarm	Operations Closure	Section 8.5.3.2.17
ST-WT-28	IVR WRSF Pond prior to pumping to Attenuation Pond	Operations Closure	Section 8.5.3.2.13
ST-WT-29	Water intake from Lake D1	Closure	Not applicable in 2023
ST-WT-30	Water Ponding around Whale Tail WRSF	Operations Closure Post-closure	Section 8.5.3.2.12
ST-WT-31	Water Ponding around Whale Tail WRSF	Operations Closure Post-closure	Section 8.5.3.2.12
ST-WT-32	Water Ponding around Whale Tail WRSF	Operations Closure Post-closure	Section 8.5.3.2.12
ST-WT-33	Water Ponding around Whale Tail WRSF	Operations Closure	Section 8.5.3.2.12

Whale Tail Site			
NWB Station	**Description**	**Phase**	**2023 Reporting Status**
		Post-closure	
ST-WT-34	Water Ponding around IVR WRSF	Operations Closure Post-closure	Section 8.5.3.2.13
ST-WT-35	Water Ponding around IVR WRSF	Operations Closure Post-closure	Section 8.5.3.2.13
ST-WT-36	Water Ponding around IVR WRSF	Operations Closure Post-closure	Section 8.5.3.2.13
ST-WT-37	IVR Diversion Channel	Operations	Section 8.5.3.2.14

SECTION 2. SUMMARY OF ACTIVITIES

2.1 2023 ACTIVITIES[§]

Agnico Eagle's ability to consistently execute its business strategy has provided a solid foundation for growth. These three pillars – performance, pipeline and people – form the basis of Agnico Eagle's success and competitive advantage. By delivering on them, the Company strives to continue to build its production base and generate increased value for shareholders, while making meaningful contributions to its employees and communities.

Meadowbank Complex's solid operational performance continued in 2023 along with record annual safety performance. A review of the geology and mining sequence offers the opportunity to extend the Mine Life into 2028. Studies are ongoing to determine feasibility. In the full year 2023, Gold production increased when compared to the prior-year period primarily due to higher gold grades and the volume of ore processed.

Production costs per tonne in the full year 2023 increased when compared to the prior-year period due to the consumption of stockpiles, higher milling underground mining costs, partially offset by a higher stripping ratio at the open pit and the higher volume of ore milled in the current period. Production costs per ounce increased when compared to the prior-year period due to the same reasons outlined above for production costs per tonne, partially offset by more ounces of gold being produced in the current period and the weaker Canadian dollar relative to the U.S. dollar.

Mine site costs per tonne in the full year 2023 increased when compared to the prior-year period due to the same reasons as the higher production costs per tonne. Total cash costs per ounce decreased when compared to the prior-year period due to more gold ounces produced and the weaker Canadian dollar relative to the U.S. dollar.

Positive grade reconciliation led to adjustments in the ore zone model and mineral reserve estimation parameters, resulting in a new proven and probable mineral reserve estimate of 1.8 million ounces of gold (15.4 million tonnes grading 3.72 g/t gold). Based on these results, the Company has approved an extension to the IVR open pit, which is expected to contribute approximately 70,000 ounces of gold to the 2026 production profile and an opportunity to extend the mine life to 2028. Exploration also continued to return significant mineralization at depth, with results up to 11.3 g/t gold over 6.4 metres at 979 metres depth.

The 2023 highlights for the Meadowbank Complex include:

- The open pit operation continued to deliver solid performance during the fourth quarter of 2023 despite delays related to an extended caribou migration and poor weather conditions. Production at Whale Tail also continued to benefit from positive reconciliation on tonnes and grade.

- The underground operation continued to build on productivity gains demonstrating sustained improvement through the cycle and increased adherence and compliance to plan. The cemented rock fill and ore haulage set quarterly performance records.

- Based on continuous improvement and cost optimization efforts, positive reconciliation to the geological model and infill drilling, the Company is looking to extend the Whale Tail life of mine to 2028. The extension would consist of a push-back from the IVR pit, at a stripping ratio of 7.2, and additional stopes from the underground, which, combined, contribute approximately 500,000 additional gold ounces to the production profile.

- At the Amaruq Property, in 2023, exploration drilling totalled 29,133 metres, including conversion drilling. The main objectives of this exploration program were: to infill Whale Tail underground mineral resources; to confirm IVR open pit mineral resources for an eventual pit pushback; and to extend underground mineral resources at depth in the Whale Tail and IVR deposits.

In 2023, Meadowbank experienced its longest-lasting caribou migration since operations began. The Company continues to adjust for the caribou migration in its production plan as this migration can affect the ability to move materials on the road between Whale Tail and Meadowbank and between Meadowbank and Baker Lake. Wildlife management is an important priority, and the Company is working with Nunavut stakeholders to optimize solutions to safeguard wildlife and minimize production disruptions.

Quarterly progress reports, providing further details of activities throughout the 2023 year, were prepared for the Kivalliq Inuit Association as required by Production Lease KVPL08D280 and KVPL17D01.

Agnico Eagle infrastructure locations can be found in Figure 1, 2, 3, 4, 5 and 6.

2.2 NIRB SCREENING DECISION NO. 11EN010

As requested by NIRB in the screening decision File No.11EN010, Agnico Eagle included within this annual report (Appendix 5), a comprehensive annual report of the activities associated with the project.

Figure 1 Meadowbank Site 2023 Sampling Locations§

Figure 2 EEM Receiving Environment 2023 Sampling Locations§

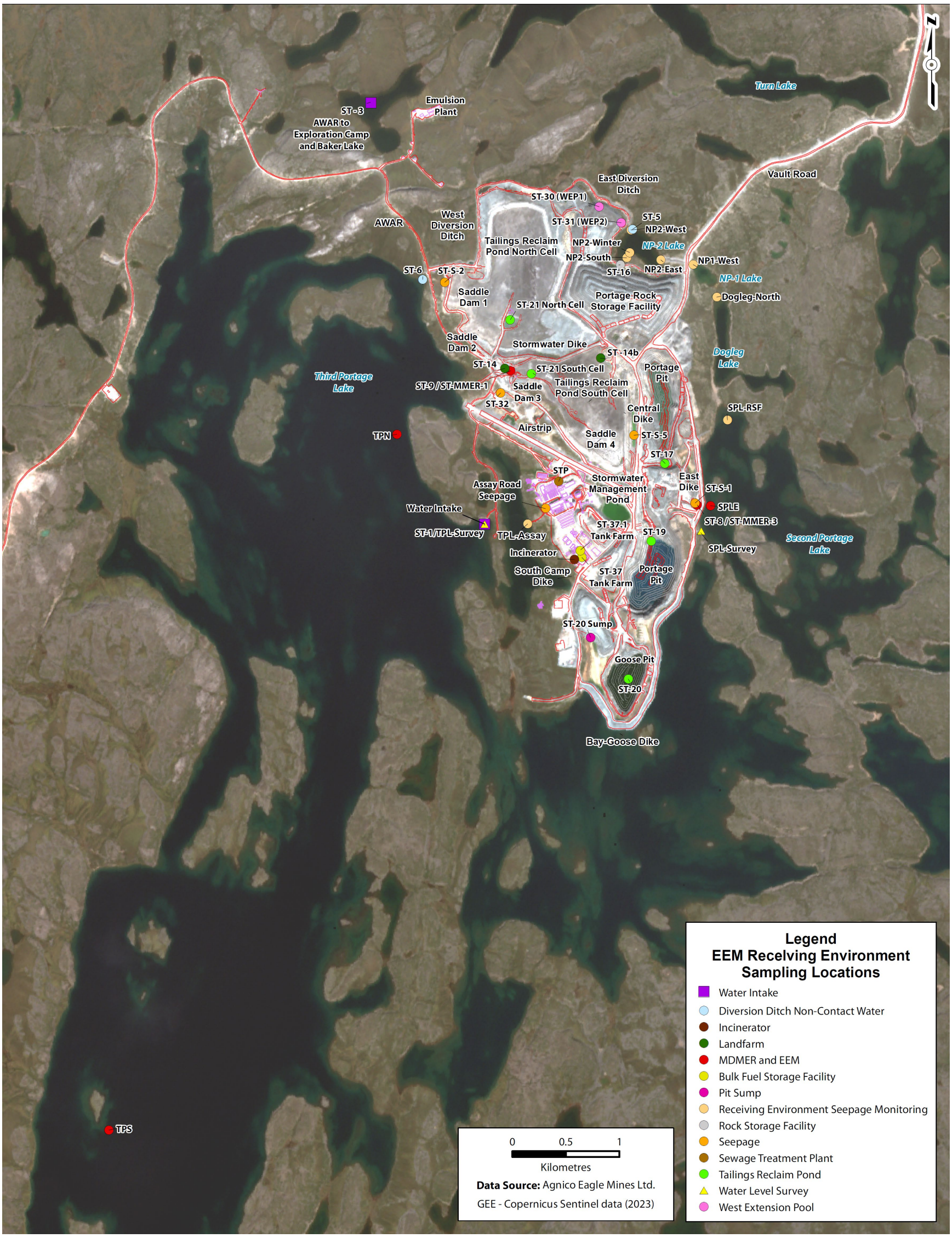


Figure 3 Vault Area 2023 Sampling Locations[§]

Figure 4 Whale Tail Site 2023 Sampling Locations§

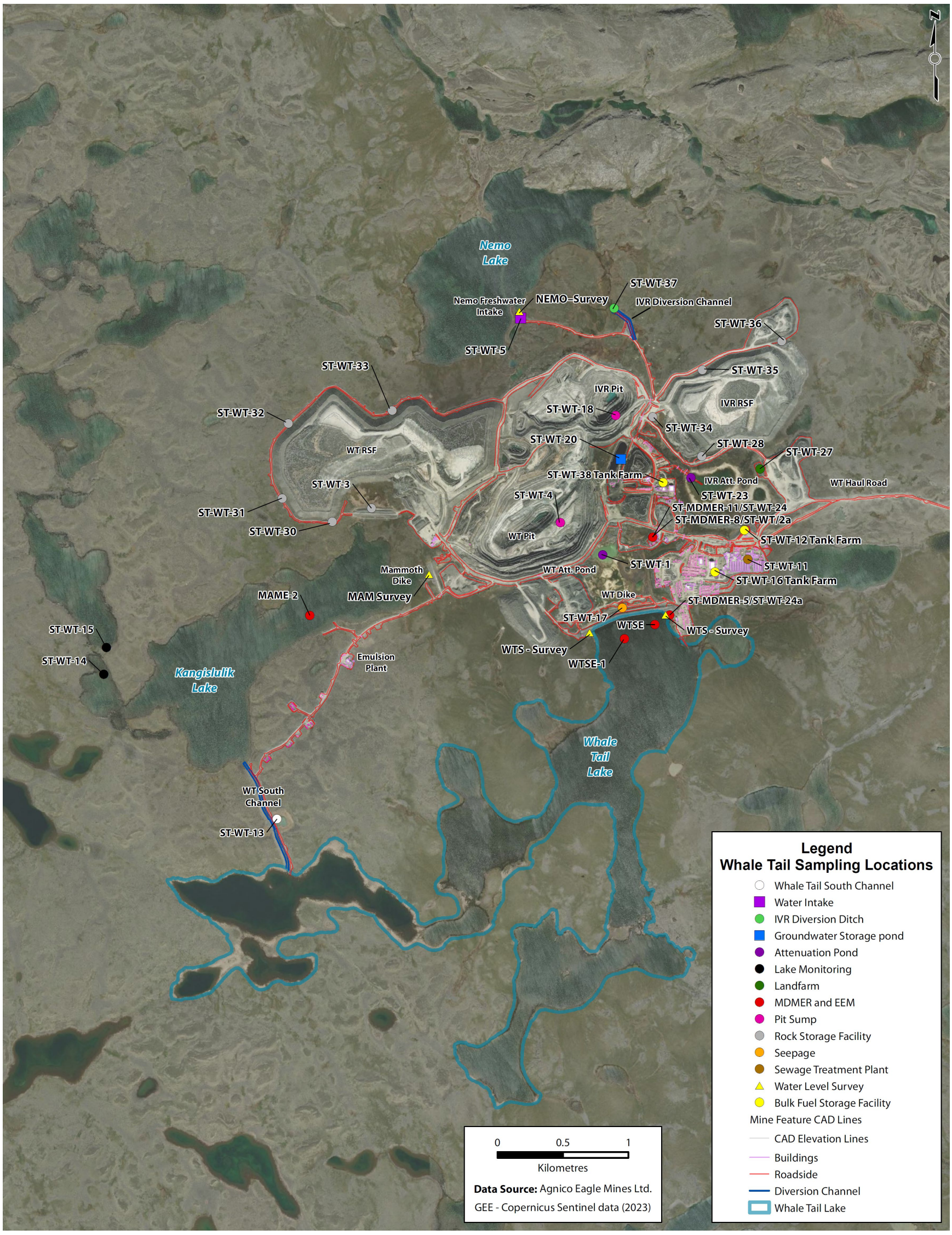


Figure 5 General View from Baker Lake to Whale Tail Mine§

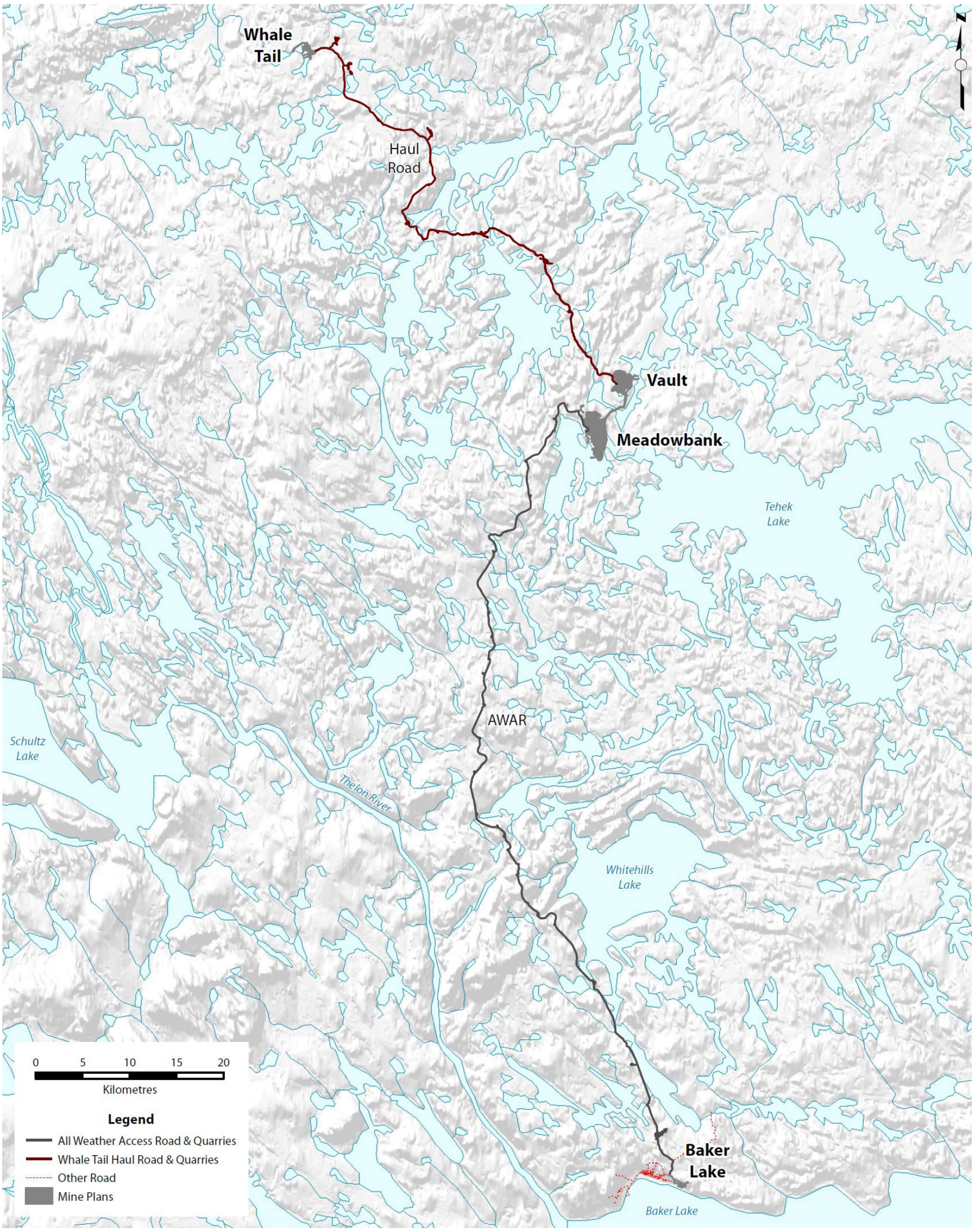


Figure 6 Baker Lake Marshalling Area 2023 Sampling Locations[§]

SECTION 3. CONSTRUCTION / EARTHWORKS

The following sections discusses reporting requirements related to site construction and earthworks activities associated with dikes, dams and quarries.

3.1 DIKES AND DAMS§

3.1.1 Meadowbank Site§

3.1.1.1 *Performance Evaluation§*

As required by NWB Water License 2AM-MEA1530, Schedule B, Item 1:

a. An overview of methods and frequency used to monitor deformations, seepage and geothermal responses;

The surveillance program for the dewatering dikes and the tailings storage facility structures includes site observation, inspection, and instrument monitoring. Details of these surveillance programs and their frequencies are presented in the surveillance section of the Tailings Storage Facility (TSF) Operation Maintenance and Surveillance (OMS) Manual (Appendix 29) and in the Dewatering Dike OMS Manual (Appendix 28).

The main surveillance activities are:

- Site observation – conducted by personnel working near or on the structure and occur as part of their daily activities
- Routine visual inspection – conducted on a pre-defined schedule and targeting specific activities
- Instruments monitoring – includes the review of instrumentation data including thermistors, piezometers, inclinometers, blast monitoring, seepage flow monitoring, and settlement monitoring. Instruments data are checked on a pre-determined frequency and reported on a pre-determined frequency based on the structure performance
- Annual geotechnical inspection – comprehensive technical inspection integrating inspections and results of monitoring instruments. Done by an external geotechnical engineer on a yearly basis. Results are presented to the Independent reviewer (Meadowbank Dike Review Board)
- Independent Review Board Meeting (MDRB) - an annual MDRB meeting is held every year. The following topics are part of the annual MDRB scope of work:
    - Site visit of all infrastructure covered by the scope of the MDRB
    - Review of tailings management strategy
    - Review water management infrastructure designs and performance
    - Review of on-going construction works and monitoring data

- Provide opinions and guidance to the operation on the physical integrity, safety, behavior, and performance of the confinement systems for tailings and water retaining infrastructures

b. A comparison of measured versus predicted performance;

A detailed comparison and analysis of the measured versus predicted performance can be found in the 2023 Annual Geotechnical Inspection Report presented in Appendix 7. This assessment is based on visual inspection and analysis of instrumentation monitoring.

Table 3-1 presents the updated Trigger Action Response Plan (TARP) level of each dike at Meadowbank which is an indicator of measured versus predicted performance. A green level means that the performance of the structure is per normal operating condition while yellow means that performance has started to deviate from the normal operating condition. Surveillance will continue to assess the performance of the structures as per OMS practice and the surveillance data are used to evaluate the TARP level of each structure and the required action.

Table 3-1 Operating Condition of Dikes at Meadowbank[§]

Structure	Type	TARP Level	Comments
East Dike	Dewatering Dike	Green (normal operating condition)	Presence of seepage but still within normal operating condition
Bay-Goose Dike	Dewatering Dike	Green (normal operating condition)	Presence of seepage but still within normal operating condition
South Camp Dike	Dewatering Dike	Green (normal operating condition)	
Vault Dike	Dewatering Dike	Green (normal operating condition)	
Saddle Dam 1	Tailings Dike North Cell Periphery	Green (normal operating condition)	
Saddle Dam 2	Tailings Dike North Cell Periphery	Green (normal operating condition)	
RF1	Tailings Dike North Cell Periphery	Green (normal operating condition)	
RF2	Tailings Dike North Cell Periphery	Green (normal operating condition)	
North Cell Internal Structure	Tailings Dike North Cell Internal Structure	Green (normal operating condition)	Presence of small erosion feature on the upstream slope. Situation is stable
Stormwater Dike	Tailings Dike Internal Structure	Green (normal operating condition)	Presence of healed tension crack. Situation is stable
Saddle Dam 3	Tailings Dike South Cell Periphery	Green (normal operating condition)	
Saddle Dam 4	Tailings Dike South Cell Periphery	Green (normal operating condition)	
Saddle Dam 5	Tailings Dike South Cell Periphery	Green (normal operating condition)	
Central Dike	Tailings Dike South Cell Periphery	Yellow (deviation from normal operating condition)	Due to historically high seepage rate through bedrock foundation

More details are available in the 2023 Annual Geotechnical Inspection available in Appendix 7 and in the 2023 Meadowbank Water Management Plan Version 12 (Appendix 13).

c. A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk;

Bay Goose Dike

Between September 23rd to October 6th and October 16th to November 7th, 2023, water was transferred into Goose Pit from Pit A, raising the water elevation in Goose Pit from around El. 115 masl to El. 118 masl. During this time, piezometric levels at piezometers at Sta. 31+815, 31+842, 31+885, 31+928, 31+990, 32+000, 32+020, 32+065 began increasing at varying rates but all in-line with the rise in water level in the downstream Goose Pit. Piezometers and thermistors in this section of Bay Goose Dike have generally remained unfrozen since construction or vary seasonally towards frozen conditions (i.e. upper beads within thermistors freeze near-surface, above El. 127.5 masl). There is a historical fault and seepage pathway in this area of the dike, known as Channel 1 and Channel 2.

During construction of the dike, this deeper channel was encountered in the foundation around Sta. 31+880. According to the Golder as-built report (2013) “soft, silt-like sediments below the cutoff wall” and “a zone of poor to very poor-quality bedrock” were encountered from 31+863.5 to 32+002.

As part of mitigations measures to reduce risks to damages to the infrastructure, the inspection frequency on the Bay Goose dike was increased from a monthly basis to weekly and instrumentation review was also increased from a weekly basis to daily review.

d. As-built drawings of all mitigation works undertaken;

No mitigation work was performed on any dikes in 2023.

e. Any changes in the design and/or as-built condition and respective consequences of any changes to safety, water balance and water quality;

No change in design or as-built condition was done on any dikes in 2023.

f. Data collected from instrumentation used to monitor earthworks and an interpretation of that data;

Sections 3.0 and 5.0 of the 2023 Annual Geotechnical Inspection by WSP Golder, provided in Appendix 7, present the instrumentation data collected in 2023 and their interpretation.

g. A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams; and

In the summer of 2023, historical depression zones within the thermal capping on the crest of Bay-Goose Dike were filled to ease visual monitoring of the crest. The thermal capping that was built in 2015 had settle in some areas between 0.1 to 0.7m from its original surveyed elevation. The settlement was located on the south-west portion of the sike between stations 31+600 and 32+150. Fine NAG rockfill 0-500 mm composed of soapstone was added to the surface of the dike in order to fill in the holes and depressions on the crest of the structure. The material was then compacted to match the specifications used during the construction of the dike.

h. The monthly and annual quantities of seepage from dikes and dams in cubic metres;

Section 8.5.8.1 and Section 8.5.3.1 below presents the monthly quantities of seepage from dikes. More information can be found in the 2023 Meadowbank Water Management Plan Version 12 (Appendix 13).

3.1.2 Whale Tail Site§

3.1.2.1 *Performance Evaluation§*

As required by NWB Water License 2AM-WTP1830 Part I, Item 14: ***The Licensee shall submit the results and interpretation of the Seepage monitoring required in Part I Item 13 in the Annual Report required under Part B, Item 2***

And

As required by Water License 2AM-WTP1830, Schedule B, Item 1*:*

a. An overview of methods and frequency used to monitor deformations, Seepage and geothermal responses;

The surveillance program for the water management infrastructure includes site observation, inspection, and instrument monitoring. Details of these surveillance programs and their frequencies are presented in the surveillance section of the Whale Tail Water Management Infrastructures Operation, Maintenance, and Surveillance (OMS) Manual (Appendix 30).

The main surveillance activities are:

- Site observation – conducted by personnel working near or on the structure and occur as part of their daily activities
- Routine visual inspection – conducted on a pre-defined schedule and targeting specific activities
- Instruments monitoring – includes the review of instrumentation data including thermistors, piezometers, inclinometers, blast monitoring, seepage flow monitoring, and settlement monitoring. Instruments data are checked on a pre-determined frequency and reported on a pre-determined frequency based on the structure performance
- Annual geotechnical inspection – comprehensive technical inspection integrating inspections and results of monitoring instruments. Done by an external geotechnical engineer on a yearly basis. Results are presented to the Independent reviewer (Meadowbank Dike Review Board).
- Independent Review Board Meeting (MDRB) - An annual MDRB meeting will be held every year. The following topics are part of the annual MDRB scope of work:
    - Site visit of all infrastructure covered by the scope of the MDRB
    - Review water management infrastructure designs and performance
    - Review of on-going construction works and monitoring data

- Provide opinions and guidance to the operation on the physical integrity, safety, behavior, and performance of the confinement systems for water retaining infrastructures.

b. A comparison of measured versus predicted performance;

A detailed comparison and analysis of the measured versus predicted performance can be found in the 2023 Annual Geotechnical Inspection report presented in Appendix 7. This assessment is based on visual inspection and analysis of instrumentation monitoring.

Table 3-2 presents the updated Trigger Action Response Plan (TARP) level of each dike at the Whale Tail Site which is an indicator of measured versus predicted performance. A green level means that the performance of the structure is per normal operating condition while yellow means that performance has started to deviate from the normal operating condition. Surveillance will continue to assess the performance of the structures as per OMS practice and the surveillance data are used to evaluate the TARP level of each structure and the required action.

Table 3-2 Operating Condition of Dikes at Whale Tail[§]

Structure	Type	TARP Level	Comments
Mammoth Dike	Dewatering Dike	Green (normal operating condition)	
Whale Tail Dike	Dewatering Dike	Yellow (deviation from normal operating condition)	Due to high seepage rate underneath the embankments in the foundation
WRSF Dike	Dewatering Dike	Green (normal operating condition)	
IVR Dike D1	Dewatering Dike	Green (normal operating condition)	

At Whale Tail Dike, the performance of the structure is deviating from normal operating condition due to a high seepage rate underneath the embankments in the foundation. This condition started in May 2019. Further discussion on the risk and mitigation measures is included in Section c) below.

More details are available in the 2023 Annual Geotechnical Inspection available in Appendix 7 and in the 2023 Whale Tail Water Management Plan Version 12 (Appendix 14).

c. A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk;

Whale Tail Dike

In August 2022 it was observed that the natural soil on the Eastern abutment had settled allowing water to ingress further into the East abutment. This led to rapid thawing of the Eastern abutment foundation and the development of cracks on the crest and sloughing of the upstream dike slope in that area. A thermal berm plan was included in the design report of the structure as a mitigation plan for this mechanism and Agnico Eagle informed the NWB in September 2022 of their intention to go forward with the implementation of this measure. Construction of the Eastern abutment thermal berm was completed

by Agnico Eagle in April 2023. In addition, to further mitigate potential sloughing, a similar thermal berm was also built for the Western abutment in April 2023. More details are presented in the answers to the MDRB Report #30 (Appendix 14 of the 2022 Meadowbank Complex Annual Report) and in Section 4.1 of the 2023 Annual Geotechnical Inspection report presented in Appendix 7.

IVR-D1 Dike

In September 2022, the TARP level of IVR-D1 Dike was increased to yellow due to the observation of a bulk settlement zone 0.2-0.3 m in magnitude from Sta. 0+100 to Sta. 0+300. The settlement zone was 6-8 m wide and located in the esker material approximately 14m upstream of the centerline (i.e. upstream side of the key trench above the hinge point).

The settlement mechanism has been examined further and seems to be related to a surficial mechanism linked to the thawing of the esker material placed above the liner. Deformation of this esker zone will not impact the liner or the keytrench. This mechanism is supported by the thermistor data indicating that the keytrench and bedrock remained frozen in 2022 while only the esker material within the active layer thawed. The settlement zone has not progressed from September to October 2022 as indicated by the end of October drone scan data. Following these observations the TARP level of the structure was decreased in November 2022. In 2023, the depression zone did not show further sign of settlement throughout the season, it will be levelled with material to prevent water ponding and ease the detection of any further deformation in the area in 2024.

d. As-built drawings of all mitigation works undertaken;

Construction of Whale Tail Dike Eastern and Western abutments thermal berm were initiated by Agnico Eagle in April 2023. As required by the license, as-built drawings were produced and presented in Section 3.5.2.2 of this report.

e. Any changes in the design and/or as-built condition and respective consequences of any changes to safety, water balance and water quality;

Please refer to Section 3.5.2.2 for the as-built construction report.

f. Data collected from instrumentation used to monitor earthworks and an interpretation of that data;

Section 4.0 of the 2023 Annual Geotechnical Inspection by WSP Golder provided in Appendix 7, presents the instrumentation data collected in 2023 and their interpretation.

g. A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams; and

The crest of Whale Tail Dike in the Eastern abutment zone was resurfaced in 2023 to fill tension cracks and compensate a localized settlement zone. This work was performed at the same time as the Eastern abutment thermal berm construction.

h. The monthly and annual quantities of Seepage from dikes and dams in cubic metres.

This information can be found in the Whale Tail Water Management Plan Version 12 (Appendix 14) and in Section 8.5.3.2 and 8.5.8.2 of this report.

3.2 MEADOWBANK DIKE REVIEW BOARD§

3.2.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Part I, Item 12: ***The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 2, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.***

The annual meeting of the Meadowbank Dike Review Board (MDRB) was held in December 2023 (MDRB 31). The MDRB No.31 report, along with Agnico Eagle's response to the recommendations are included in Appendix 15. This Appendix includes a summary table of all recommendations and the Agnico Eagle implementation plan.

3.2.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Part I, Item 12: ***The Licensee shall submit to the Board as part of the Annual Report required under Part B, Item 2, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.***

The annual meeting of the Meadowbank Dike Review Board (MDRB) was held in December 2023 (MDRB 31). The MDRB No.31 report, along with Agnico Eagle's response to the recommendations are included in Appendix 15. This Appendix includes a summary table of all recommendations and the Agnico Eagle implementation plan.

3.3 GEOTECHNICAL ENGINEER'S INSPECTION REPORT§

3.3.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Part I, Item 11: ***The Licensee shall submit to the Board as part of the Annual Report, the Geotechnical Engineer's Inspection Report. The Report shall include a cover letter from the Licensee outlining an implementation plan to address the recommendations of the Geotechnical Engineer.***

The Meadowbank 2023 annual geotechnical inspection was performed by WSP Golder in July-August 2023. The report, along with Agnico Eagle's implementation plan are included in Appendices 7 and 10. In order to keep the whole interpretation and understanding of the recommendations and responses, Agnico Eagle will refer the reader to the Appendices which contains a summary table of all recommendations and the implementation strategy.

3.3.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Part I, Item 11: ***The Licensee shall submit to the Board as part of the Annual Report, the Geotechnical Engineer's Inspection Report. The Report shall include a cover letter from the Licensee outlining an implementation plan to address the recommendations of the Geotechnical Engineer.***

The Whale Tail 2023 annual geotechnical inspection was performed by WSP Golder in July-August 2023. The report, along with Agnico Eagle's implementation plan are included in Appendices 7 and 10. In order to keep the whole interpretation and understanding of the recommendations and responses, Agnico

Eagle will refer the reader to the Appendices which contains a summary table of all recommendations and the implementation strategy.

3.4 QUARRIES

3.4.1 Meadowbank Site

3.4.1.1 *Material Usage*

The annual reporting requirements listed in the following sections apply only to quarries located along the All Weather Access Road (AWAR).

As required by CIRNAC Land Lease 66A/8 72-6, Condition 8: ***The lessee shall file a report, annually, with the Minister in the manner and format stipulated by the Minister. The report shall include:***

i. Quantity of material removed and location of removal, for the immediately preceding calendar year; and

ii. Such other data as are reasonably required by the Minister from time to time.

And

As required by CIRNAC Land Lease 66A/8 72-6, Condition 25: ***The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.***

In 2023, material was taken from the Quarry 2 (Parcel A) along the Meadowbank All-Weather Access Road on Crown Land. A total of 32,242 m^3 of bedrock was removed to complete construction and road maintenance between Baker Lake and Meadowbank Mine. The 2023 Annual Quarry Report was sent to CIRNAC on February 29th, 2024.

Regular inspections of the quarries were also performed during the year to ensure that runoff, if any, would be free of any visible sheen and would not impact the environment. No issues with runoff water inside the quarries were noted in 2023.

3.4.1.2 *Quarry 22*[§]

Quarry 22 was historically used as a temporary storage area for contaminated materials generated as a result of petroleum hydrocarbon (PHC) spill clean-up activities.

Since 2012, Agnico Eagle have submitted yearly updates by the Meadowbank Complex Annual Report, including but not limited to the results from soil sampling campaign and the decontamination further actions. Agnico Eagle intended to scarify and sample on a year basic program. Some sampling campaigns were however postponed due to peregrine falcon nesting activities in order to minimize mining disturbance on wildlife. In 2023, bird deterrent was installed in Q22 as preventive measure to falcon nesting.

A sampling campaign was planned for 2023, however the workforce and equipment were allocated to the km 87 spill remediation and monitoring, preventing the campaign from being completed.

Based on the 2022 sampling campaign, there is still presence of contamination remnants in Q22. Results were compared to the Canadian Council of Ministers of the Environment (CCME) remediation criteria for Industrial use of Coarse material, which is determined to be aligned with the definition of industrial land detailed in the Government of Nunavut Environmental Guidelines for the Management of Contaminated Sites Remediation. The results indicated a concentration exceeding the PHC Fraction 3 limit (1,700 mg/kg) with a result of 3,300 mg/kg for both sampling areas Q22-1 and Q22-2.

The last fourth sampling campaign (2018, 2020-2022) analysis results were below the CCME Remediation criteria for the PHC Fraction 1, 2 and 4 in all sections and for PHC Fraction 3 in sections Q22-3 to Q22-8 since at least 2018.

Based on the degradation history of PHC's in the Meadowbank Landfarm and upon analyzing results from the Q22 soil sampling campaigns (2014, 2016, 2018, 2020, 2021 & 2022), Agnico Eagle is confident that the natural degradation of Petroleum Hydrocarbon (PHC) related products is an effective remediation method for Q22.

A sampling campaign is planned in 2024. Agnico Eagle is planning to sample two (2) parcels (Q22-1 and Q22-2) and to stop the annual monitoring for parcel Q22-3 to Q22-8 as the results are below the contamination guideline since the last four (4) sampling campaigns.

Similar to previous years falcon deterrence activities will take place in 2024 to prevent peregrine falcon nesting in the quarry to accelerate the remediation process. If recurrent peregrine falcon activities are not observed, Agnico Eagle proposes to continue scarifying the surface areas in Q22 (Q22-1 and Q22-2) during the summer of 2024. However, if any falcon activities are observed during the weekly quarry inspections, deterrence devices will be removed. Agnico Eagle will evaluate and if needed, the area could be limited to any activity to ensure adequate bird protection management. Agnico Eagle will then postpone the scarification until late fall before the freeze up season in order to minimize mining disturbance on wildlife. Following the 2024 soil sampling results, Agnico Eagle will review the next steps to be taken.

3.4.2 Whale Tail Site

3.4.2.1 *Material Usage*

The annual reporting requirements listed in the following sections apply only to quarries located along the Whale Tail Haul Road.

As required by CIRNAC Land Lease 66H/8-1-5, Condition 9: ***The lessee shall file, annually, with the Minister in the manner and format stipulated, no later than sixty (60) days following the anniversary date of the effective date of this lease. The report shall include:***

i. Quantity of material removed and location of removal, for the immediately preceding calendar year; and

ii. Such other data as are reasonably required by the Minister from time to time.

And

As required by CIRNAC Land Lease 66H/8-1-5, Condition 27: ***The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.***

In 2023, material was taken from the Esker 1/Quarry 17 (Parcel E) along the Whale Tail Haul Road on Crown Land. A total of 353 m^3 of bedrock was removed to perform road maintenance. The 2023 Annual Quarry Report was sent to CIRNAC on February 29th, 2024. No material was removed from eskers or quarries on KivIA leased land.

Pre-freshet and freshet inspections were conducted at crossings along the Whale Tail Haul Road, eskers and quarries in 2023. These inspections are performed to document the presence/absence of flow, erosional concerns, and turbidity plumes and to ensure that runoff, if any, would be free of any contaminant and would not impact the environment. No issues with runoff water inside the eskers/quarries to any waterbodies were noted in 2023 and no contingency mitigation measures were required to be installed.

3.4.2.2 *Setback Distance*

As required by NIRB Project Certificate 008, Condition 20: ***Unless otherwise authorized, the Proponent shall maintain an appropriate setback distance between project quarries and borrow pits from fish-bearing or permanent waterbodies as required to prevent acid rock drainage or metal leaching into such waterbodies. Throughout quarry development and operation, the Proponent shall, on an annual basis, provide information regarding quarry setback distances maintained and/or mitigation measures implemented by the Proponent in fulfillment of this term and condition in the Proponent's annual report to the NIRB.***

The setback distance chosen was 31 metres from any waterbody high water mark. All quarries along the Whale Tail Haul Road were designed and excavated respecting this 31 metres setback distance.

3.5 CONSTRUCTION

3.5.1 Meadowbank Site§

In 2023, construction projects at Meadowbank site included:

- Construction of infrastructures related to the site progressive closure were completed. South Cell and North Cell reclaim water berms earthworks were improved for future tailings deposition. Additionally, berms were built in the North cell to optimize the tailings cell volume for future deposition.

- The eastern portion of the Stormwater Dike liner was capped with engineered fill. A portion of the tailings in the upstream vicinity of the dike liner capping was also capped. The upstream toe of the eastern portion of NCIS was backfilled for preventive erosion control and NCIS. The western portion of NCIS was extended towards Saddle Dam 1. The tailings surface by RF1 & RF2 structures has been capped.

- Repairs to Bridge 1 and Bridge 6 along the AWAR were completed in April and July 2023. This involved lifting of existing bridge and replacement of the abutments. All DFO authorizations were received prior to works behind executed.

- Water management ditch was built at the marshalling area in Baker Lake to improve water management of the section. Refer to Section 11.2.1 for more information.

3.5.2 Whale Tail Site§

In 2023, construction projects at the Whale Tail site included:

- Construction of thermal encapsulation berms took place at the East and West abutments upstream of Whale Tail Dike.

- The CRF Plant area improvement to provide more room for the mobile equipment in front of the CRF plant .

- The construction of the Millwright Building Pad near the underground truck shop was built to provide a foundation base to support the new Millwright Maintenance Building which will provide additional space for equipment maintenance.

- Construction of the Composter Building Pad included the installation of the prefab concrete pad which will be used to install a Honco building with composter system inside in 2024.

3.5.2.1 *Design Report and Construction Drawings*§

As required by NWB Water License 2AM-WTP1830 Part D, Item 1: ***The Licensee shall submit to the Board for review, at least sixty (60) days prior to Construction, final design and Construction drawings accompanied, with a detailed report, for the following:***

- ***Water works, including: Water Intake and causeway, Water control structures (dikes, berms, jetties, channels) and Water crossings (culverts, bridges);***

- ***Waste disposal facilities including: Wastewater Treatment Plant, Sewage Treatment Plant, Discharge Diffuser, Waste Rock Storage Facility, Overburden stockpiles, and Landfill; and***

- ***Whale Tail Bulk Fuel Storage Facility***

And

As required by NWB Water License 2AM-WTP1830 Part D, Item 2: ***The Licensee shall submit to the Board for review, at least thirty (30) days prior to Construction, final design and for-Construction drawings accompanied by a detailed report as described in Part D, Item 3 and stamped and signed by an Engineer for infrastructure (such as access roads, jetties, and conveyance systems) used for dewatering the following lakes, as authorized under the License: Lakes A47; A49; A-50; A-51; A-52; A53; and A-P21***

And

As required by DFO Authorization 16-HCAA-00370 Condition 2.3.5 and 20-HCAA-00275 Condition 2.3.9: ***As per the NIRB Project Certificate No. 008 Condition 21, the Proponent shall ensure that all project infrastructure in watercourses is designed and constructed in such a manner that it does not unduly prevent or limit the***

movement of water or fish species in fish streams and rivers, unless otherwise authorized by Fisheries and Oceans Canada.

And

As required by DFO Authorization 16-HCAA-00370, Condition 2.4.1 and 20-HCAA-00275 Condition 2.3.5: ***The Proponent shall provide detailed engineering plans to DFO for review and approval, for construction works that have potential to impact fish and fish habitat, at least 3 months prior to commencement of the works. This includes dikes (e.g., Northeast dike), diversion/realignment channels, and freshwater jetty.***

Table 3-3 below provides a list of Design Reports submitted to NWB for approval before the construction began. All of the Design Reports along with regulator's comment and Agnico Eagle's response can be found on the NWB FTP site (ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1830%20Agnico/3%20TECH/D%20CONSTRUCTION/D1,%20D2/).

To address DFO Authorization 16-HCAA-00370 Condition 2.3.5 and 2.4.1 and 20-HCAA-00275 Condition 2.3.5 and 2.3.9, the designs were submitted to NWB and were available for DFO review. These reports, with the potential to impact waters frequented by fish, are also provided directly to DFO for review. In 2023, no design report with the potential to impact waters frequented by fish were submitted. However, the construction activities per design submitted to DFO on December 19th, 2022 were performed. Overall, December 2022 report presents the design specifications for a thermal berm to be constructed on the downstream side of the west abutment of the Whale Tail Dike, similar to the east abutment which was partially constructed in 2022. A portion of the west abutment thermal berm overprints a portion of the dike foundation that has become recently flooded for water management purposes. This area will be drawn down post-closure and returned to terrestrial habitat.

Construction summary reports, including photographs, continue to be provided to NWB 90 days after the construction completion, as required according to the Water License 2AM-WTP1830 Part D Item 16. Agnico Eagle will continue to construct infrastructures in such a manner that it does not unduly prevent or limit the movement of water or fish species in fish streams and rivers.

Table 3-3 Whale Tail 2023 List of Design Report Submitted

Design Report	60 days notice Submission to NWB	NWB Design Report Approval
Whale Tail Millwright Building Pad	June 19, 2021	July 26, 2023
Whale Tail Composter	June 21, 2023	July 28, 2023

3.5.2.2 *Construction Summary Report*[§]

As required by NWB Water License 2AM-WTP1830 Part D, Item 16: ***The Licensee shall submit to the Board for review, within ninety (90) days of completion of each facility designed to contain, withhold, divert or retain Waters or Wastes during the construction phase, a Construction Summary Report prepared by a qualified Engineer(s) in accordance with Schedule D, Item 1.***

Table 3-4 below provided a list of the 2023 Construction Summary Report submitted to NWB following the completion of the facilities/infrastructures construction. All of the reports can be found on the NWB FTP

site:(ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1830%20Agnico/3%20TECH/D%20CONSTRUCTION/D16/).

Table 3-4 Whale Tail 2023 List of Construction Summary Report Submitted

Construction Summary Report	Submission Date to NWB
Whale Tail Landfarm	January 20, 2023
Whale Tail Dike Abutment Thermal Capping	July 18, 2023

3.5.2.3 *Whale Tail Haul Road Construction Plan*

As required by Project Certificate No. 008 Condition 65: ***The Proponent shall, in consultation with the Terrestrial Advisory Group, develop a construction plan for the widening of the Whale Tail Haul Road which includes:***

- ***Design Features of the Whale Tail haul road intended to facilitate caribou movement across the road;***
- ***Identified sections of the roadside that will be constructed with slopes and top-dressing material appropriate for caribou crossing.***

The plan must incorporate available Inuit Quajimajatuqangit in the selection of caribou crossing locations.

The final construction plan shall be provided to the Nunavut Impact Review Board (NIRB) prior to widening the Whale Tail haul road. Within three months of completion of construction to widen the Whale Tail haul road, the Proponent shall file an 'as-built report' with the NIRB, which includes the backfill height, slope and top-dressing material specifications of designed wildlife crossing sections.

There was no widening to the permitted limit of the Whale Tail Haul Road in 2023.

SECTION 4. WATER MANAGEMENT ACTIVITIES

The following section addresses reporting requirements related to water management activities.

4.1 FRESH WATER USAGE§

4.1.1 Meadowbank Site§

As per Type A Water License 2AM-MEA1530 Part E Item 4: "*The total volume of fresh water for all uses and from all sources, shall not exceed 2,350,000 m³ per year from the License approval data to December 21, 2017 followed by 9,120,000 m³ per year in 2018 through to the expiry of the License.*"

Section 4.1.1.1 to 4.1.1.3 and Table 4-1 below details the freshwater consumption per sources. The total volume of freshwater pumped from the surrounding lakes and used for the Meadowbank Mine in 2023 was 886,803 m³.

Table 4-1 Meadowbank 2023 Freshwater Usage§

Water Location	Source Lake	Jan	Feb	March	April	May	June
Camp	Third Portage Lake	3,288	2,944	2,980	3,131	3,024	3,003
Mill (freshwater tank)	Third Portage Lake	50,174	55,874	62,407	60,918	48,147	85,133
Emulsion plant	Unnamed Lake	0	0	0	0	0	0
Total Freshwater Usage (m³)		**53,462**	**58,818**	**65,387**	**64,049**	**51,171**	**88,136**

Water Location	Source Lake	July	Aug	Sept	Oct	Nov	Dec	Total
Camp	Third Portage Lake	3,066	2,983	2,902	2,856	2,849	2,977	**36,003**
Mill (freshwater tank)	Third Portage Lake	91,305	115,116	81,899	65,214	68,130	66,483	**850,800**
Emulsion plant	Unnamed Lake	0	0	0	0	0	0	**0**
Total Freshwater Usage (m³)		**94,371**	**118,099**	**84,801**	**68,070**	**70,979**	**69,460**	**886,803**

4.1.1.1 *Third Portage Lake*§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 2: ***Monthly and annual volume of fresh Water obtained from Third Portage Lake.***

And

As required by NIRB Project Certificate No.004 Condition 46: ***Cumberland shall apply for Fisheries Act approval for the freshwater intake pipe for the Project, and submit for DFO approval a detailed plan of the proposed intake, including siting, design of intake screens in accordance with the DFO Freshwater End-of-Pipe Fish Screen Guidelines, construction and operation considerations, fish and fish habitat impacts, and mitigation and monitoring plans.***

A total volume of 886,803 m³ of freshwater was used from Third Portage Lake for the site in 2023, which was in compliance with the Water License Freshwater maximum usage volume of 4,935,000 m³ (Water License 2AM-MEA1530 Part E, Item 1). The monthly breakdown usage is provided in Table 4-1 above. There have been no changes to the freshwater intake in 2023.

4.1.1.2 *Wally Lake*§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 3: ***Monthly and annual volume of fresh Water obtained from Wally Lake.***

As per Type A Water License 2AM-MEA1530 Part E Item 2, Agnico Eagle is authorized to withdraw from Wally Lake a total of 4,185,000 m^3 per year starting in 2018.

There was no freshwater obtained from Wally Lake for re-flooding activities and associated use in 2023.

4.1.1.3 *Unnamed Lake*§

As required by NIRB Project Certificate No.004 Condition 46: ***Cumberland shall apply for Fisheries Act approval for the freshwater intake pipe for the Project, and submit for DFO approval a detailed plan of the proposed intake, including siting, design of intake screens in accordance with the DFO Freshwater End-of-Pipe Fish Screen Guidelines, construction and operation considerations, fish and fish habitat impacts, and mitigation and monitoring plans.***

Agnico Eagle is authorized as per Part E Item 3 of the Water License 2AM-MEA1530 for a maximum usage of 2,400 m^3 per year.

There was no freshwater obtained from unnamed lake for explosive mixing and associated use in 2023. The freshwater intake has been removed from the unnamed lake.

4.1.2 Whale Tail Site§

Section 4.1.2.1 to 4.1.2.8 and Table 4-2 below details the freshwater consumption per source. The total volume of freshwater pumped from the surrounding lakes and used for the Whale Tail Mine in 2023, under Water License 2AM-WTP1830, was 89,417 m^3.

Table 4-2 Whale Tail 2023 Freshwater Usage§

Water Location	Source Lake	Jan	Feb	March	April	May	June
Camp	Nemo	3,615	3,547	3,749	3,453	3,381	3,173
Construction/Operation	Nemo	3,754	3,618	3,264	3,007	2,521	1,786
Dust Suppression	WTHR Pond	0	0	0	0	1,150	155
Explosive	Kangislulik Lake	0	0	0	0	0	0
Drilling	Proximal Sources	0	0	0	0	0	0
Total Freshwater Usage (m^3)		**7,369**	**7,165**	**7,013**	**6,460**	**7,052**	**5,114**

Water Location	Source Lake	July	Aug	Sept	Oct	Nov	Dec	Total
Camp	Nemo	3,243	3,285	3,133	3,590	3,401	3,655	**41,225**
Construction/Operation	Nemo	2,588	1,809	2,534	4,877	5,429	5,575	**40,761**
Dust Suppression	WTHR Pond	4,745	1,381	0	0	0	0	**7,431**
Explosive	Kangislulik Lake	0	0	0	0	0	0	**0**
Drilling	Proximal Sources	0	0	0	0	0	0	**0**
Total Freshwater Usage (m^3)		**10,576**	**6,475**	**5,667**	**8,467**	**8,830**	**9,230**	**89,417**

4.1.2.1 *Nemo Lake*[§]

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 2: ***Monthly and annual volume of fresh Water obtained from Nemo Lake.***

Agnico Eagle is authorized as per Part E Item 1 of the Water License 2AM-WTP1830 to take 209,544 m^3 of water per year from Nemo Lake during operations. Total freshwater consumption in 2023 from Nemo Lake was 81,986 m^3. The monthly breakdown usage is provided in Table 4-2 above.

4.1.2.2 *Whale Tail Lake*[§]

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 4: ***Monthly and annual volume of fresh Water obtained from Whale Tail Lake.***

No freshwater obtained from Whale Tail Lake in 2023.

4.1.2.3 *Unnamed Lake*[§]

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 7: ***Monthly and annual volume of fresh Water obtained from unnamed water bodies for Whale Tail Haul Road dust suppressant.***

Agnico Eagle is authorized as per Part E Item 1 of the Water License 2AM-WTP1830 to take 109,135 m^3 of water per year from sources proximal to the Whale Tail Haul Road for dust suppression.

In 2023, 7,431 m^3 of water was taken from ponds along the Whale Tail Haul Road for dust suppression. The monthly breakdown usage is provided in Table 4-2 above.

4.1.2.4 *Kangislulik Lake*[§]

As required by NWB Water License 2AM-WTP1830 Schedule, B Item 3: Monthly and annual volume of fresh Water obtained from Mammoth Lake.

Agnico Eagle is authorized as per Part E Item 1 of the Water License 2AM-WTP1830 Item 1 to take 2,500 m^3 from Kangislulik Lake for explosives mixing and associated uses. In 2023 no water was taken from Kangislulik Lake.

4.1.2.5 *Lakes in the IVR Footprint*[§]

As required by NWB Water License 2AM-WTP1830 Schedule, B Item 5: ***Monthly and annual volume of fresh Water obtained from Lakes A-P38, A46, A47, A49, A50, A51, A52, A53, A-P21, A-P10, A-P67, and A-P68.***

Dewatering of the IVR area waterbodies was completed in September 2020. Please refer to the Meadowbank Complex 2020 Annual Report Section 8.5.2.2.2 for more information.

4.1.2.6 *Fresh Water For Drilling*[§]

As required by NWB Water License 2AM-WTP1830 Schedule, B Item 6: ***Monthly and annual volume of fresh Water obtained for drilling from sources proximal to drilling sites.***

Agnico Eagle is authorized as per Part E Item 1 of the Water License 2AM-WTP1830 to use 109,135 m^3 from proximal sources for drilling activities. No water was taken from proximal sources in 2023 for drilling activities.

4.1.2.7 *Lake D1*[§]

As required by NWB Water License 2AM-WTP1830 Schedule, B Item 8: ***Monthly and annual volume of fresh Water obtained from Lake D1.***

In 2023, no water was withdrawn from Lake D1.

4.1.2.8 *Underground Activities*[§]

In 2023, a total volume of 4,760 m^3 was discharged from the underground to the GSP-1 Pond.

4.2 LAKE LEVEL MONITORING[§]

4.2.1 Meadowbank Site[§]

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 4: ***Results of lake level monitoring conducted under the protocol developed as per Part D Item 5 (Water Quality Monitoring and Management Plan for Dike Construction and Dewatering).***

In 2023, as in previous years (2015 to 2022), water levels were similar to when monitoring began for Third Portage, Second Portage and Wally lakes. Refer to PEAMP Section 12.4.1.1 and Table 12-3 for a complete discussion of the impacts of discharge on water level in the receiving environment. Figure 42 - 45 in Section 12 presents historical trending up to 2023.

Overall, modeling predicted the natural range of water levels in Third Portage Lake to be 133.82 – 134.19 masl and the impact assessment indicated that this range would not be exceeded (Physical Environment Impact Assessment Report, 2005). Although these values accounted for 1-in-100-year precipitation or drought events, prior to operation, water levels were already below this range when monitoring began (prior to any significant freshwater consumption) in 2009 and continue to be as of now. Thus, in 2023, measured value ranged from 133.54 – 133.70 masl. Pumping rates of freshwater from Third Portage Lake have remained well within license limits, and water levels do not appear to have changed significantly since monitoring began (2009). No water was discharged in Third Portage Lake in 2023. The elevation, in metres above sea level (masl), of Third Portage Lake continued to be monitored in 2023. The location of the lake level survey monitoring is identified as TPL-survey on Figure 1. The lake level monitoring results are presented in Table 4-3 and Figure 7.

Water from the East Dike Seepage was discharged into Second Portage Lake in 2023. The elevation, in metres above sea level, of Second Portage Lake continued to be monitored in 2023. The location of the lake level survey monitoring is identified as SPL-survey on Figure 1. The lake level monitoring results are presented in Table 4-3 and Figure 7. In 2023, the water level ranged from 132.87 – 133.13 masl, similar to the baseline of 133.1 masl.

No water was discharged from the Vault Attenuation Pond in 2023. The elevation measurement, in metres above sea level, of Wally Lake was ongoing in 2023. The location of the lake level survey monitoring station is identified as WL-survey on Figure 3. The lake level monitoring results are presented

in Table 4-3 and Figure 7; the lake level remained within the range of naturally occurring levels, with a water level range from 139.27 - 139.71 masl.

Following recommendation from CIRNAC regarding the 2018 Annual Report, starting 2019, Turn Lake water level monitoring during open water season was completed. The lake level monitoring results are presented in Table 4-3 and Figure 7. For Turn Lake, no baseline water levels were provided in the 2005 FEIS or 2015 FEIS Addendum for Turn Lake so 2019 was the first year for which measurements are available. Similar water levels were observed since 2019.

Following this analysis, Agnico Eagle concluded the water level in Third Portage, Second Portage and Wally Lakes still remain within the range of naturally occurring levels. Natural seasonal variation comparison is not completed, as water elevation surveys are only taken during open water periods. Table 4-4 below provide the 2013 -2023 water level monitoring average.

Table 4-3 Meadowbank 2023 Lake Water Level Monitoring[§]

Date	Third Portage Lake	Second Portage Lake	Turn Lake	Wally Lake
6/1/2023	133.61	133.05	N/A	N/A
6/9/2023	133.67	133.13	139.46	139.71
7/7/2023	133.70	133.01	N/A	N/A
7/15/2023	N/A	N/A	139.15	139.43
7/20/2023	N/A	N/A	N/A	139.41
7/24/2023	133.68	132.93	N/A	N/A
8/8/2023	133.58	132.87	138.88	139.28
8/31/2023	133.60	132.87	138.90	139.27
9/11/2023	N/A	132.93	N/A	N/A
9/26/2023	133.54	132.90	N/A	N/A
10/8/2023	133.69	132.99	139.09	139.44
10/22/2023	N/A	N/A	N/A	139.34

Figure 7 Meadowbank 2023 Lake Water Level Monitoring§

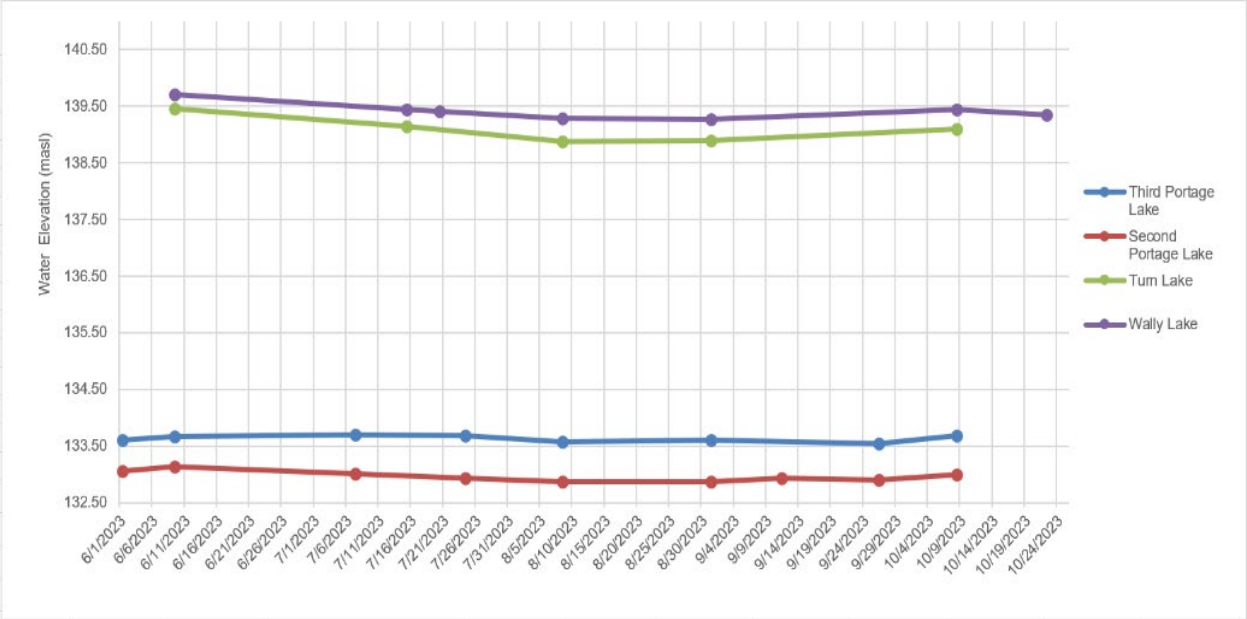


Table 4-4 Meadowbank 2013-2023 Lake Water Level Monitoring Average§

Date	Third Portage Lake	Second Portage Lake	Turn Lake	Wally Lake
2013	133.57	132.94	N/A	139.38
2014	133.53	133.26	N/A	139.42
2015	133.65	133.12	N/A	139.47
2016	133.64	132.95	N/A	139.47
2017	133.58	132.92	N/A	139.52
2018	133.67	132.96	N/A	139.41
2019	133.61	132.94	139.17	139.50
2020	133.68	132.97	139.13	139.48
2021	133.74	133.12	139.59	139.55
2022	133.69	132.99	139.20	139.48
2023	133.63	132.97	139.10	139.41

4.2.2 Whale Tail Site§

In 2023, the elevation, in metres above sea level, of Whale Tail Lake South Basin (range from 154.84 – 155.53 masl), Kangislulik Lake (range from 152.21 – 152.83) were monitored daily and Nemo Lake (range from 155.77 – 156.03) was mainly monitored on a monthly basis during open water season and, weather permitting, except for the month of January, April, September, November and December. Results are presented in Table 4-5 and Figure 8. The locations of the lake level survey monitoring are provided on Figure 4. The lake level average results 2018-2023 are presented in Table 4-6. For a complete discussion and comparison to FEIS, please refer to Section 12.5.1.1.

Table 4-5 Whale Tail 2023 Lake Water Level Monitoring[§]

Date	Whale Tail South (masl)	Kangislulik Lake (masl)	Nemo Lake (masl)	Date	Whale Tail South (masl)	Kangislulik Lake (masl)	Nemo Lake (masl)	Date	Whale Tail South (masl)	Kangislulik Lake (masl)	Nemo Lake (masl)	Date	Whale Tail South (masl)	Kangislulik Lake (masl)	Nemo Lake (masl)
1/1/2023	154.99	152.47		4/2/2023	154.87	152.48		7/2/2023	155.20	152.61		10/1/2023	155.19	152.41	
1/2/2023	154.99	152.48		4/3/2023	154.87	152.48		7/3/2023	155.20	152.59		10/2/2023	155.19	152.41	
1/3/2023	154.98	152.47		4/4/2023	154.86	152.48		7/4/2023	155.19	152.57		10/3/2023	155.19	152.41	
1/4/2023	154.97	152.47		4/5/2023	154.86	152.48		7/5/2023	155.20	152.56		10/4/2023	155.18	152.41	
1/5/2023	154.97	152.47		4/6/2023	154.85	152.48		7/6/2023	155.19	152.55	155.97	10/5/2023	155.18	152.42	
1/6/2023	154.97	152.47		4/7/2023	154.85	152.48		7/7/2023	155.18	152.54		10/6/2023	155.18	152.42	
1/7/2023	154.97	152.47		4/8/2023	154.85	152.49		7/8/2023	155.18	152.52		10/7/2023	155.18	152.41	
1/8/2023	154.97	152.47		4/9/2023	154.84	152.49		7/9/2023	155.18	152.50		10/8/2023	155.15	152.42	
1/9/2023	154.97	152.47		4/10/2023	154.85	152.49		7/10/2023	155.17	152.49		10/9/2023	155.18	152.42	
1/10/2023	154.98	152.48		4/11/2023	154.86	152.48		7/11/2023	155.16	152.47		10/10/2023	155.18	152.41	
1/11/2023	155.00	152.48		4/12/2023	154.87	152.48		7/12/2023	155.17	152.46		10/11/2023	155.16	152.41	
1/12/2023	155.00	152.48		4/13/2023	154.88	152.48		7/13/2023	155.17	152.46		10/12/2023	155.18	152.41	
1/13/2023	155.01	152.48		4/14/2023	154.89	152.48		7/14/2023	155.16	152.45		10/13/2023	155.17	152.41	
1/14/2023	155.02	152.47		4/15/2023	154.89	152.48		7/15/2023	155.16	152.43		10/14/2023	155.16	152.40	
1/15/2023	155.03	152.47		4/16/2023	154.89	152.48		7/16/2023	155.15	152.42		10/15/2023	155.16	152.40	
1/16/2023	155.04	152.48		4/17/2023	154.88	152.48		7/17/2023	155.15	152.42		10/16/2023	155.17	152.40	
1/17/2023	155.04	152.48		4/18/2023	154.87	152.48		7/18/2023	155.14	152.41		10/17/2023	155.17	152.40	
1/18/2023	155.03	152.48		4/19/2023	154.87	152.48		7/19/2023	155.14	152.39		10/18/2023	155.16	152.40	
1/19/2023	155.03	152.48		4/20/2023	154.86	152.48		7/20/2023	155.12	152.38		10/19/2023	155.16	152.40	
1/20/2023	155.03	152.49		4/21/2023	154.86	152.48		7/21/2023	155.11	152.36		10/20/2023	155.09	152.40	
1/21/2023	155.02	152.49		4/22/2023	154.85	152.48		7/22/2023	155.12	152.36		10/21/2023	155.19	152.40	
1/22/2023	155.01	152.49		4/23/2023	154.85	152.48		7/23/2023	155.11	152.35		10/22/2023	155.16	152.41	
1/23/2023	155.00	152.49		4/24/2023	154.85	152.48		7/24/2023	155.10	152.34		10/23/2023	155.16	152.39	
1/24/2023	155.00	152.49		4/25/2023	154.85	152.48		7/25/2023	155.10	152.32		10/24/2023	155.17	152.38	
1/25/2023	154.99	152.49		4/26/2023	154.84	152.48		7/26/2023	155.09	152.31		10/25/2023	155.17	152.38	
1/26/2023	154.99	152.49		4/27/2023	154.86	152.48		7/27/2023	155.09	152.30		10/26/2023	155.17	152.37	
1/27/2023	154.99	152.49		4/28/2023	154.87	152.48		7/28/2023	155.08	152.29		10/27/2023	155.16	152.36	
1/28/2023	154.98	152.49		4/29/2023	154.88	152.48		7/29/2023	155.08	152.28	155.88	10/28/2023	155.16	152.36	
1/29/2023	154.98	152.49		4/30/2023	154.88	152.48		7/30/2023	155.07	152.27		10/29/2023	155.16	152.35	
1/30/2023	154.97	152.49		5/1/2023	154.88	152.48		7/31/2023	155.07	152.26		10/30/2023	155.16	152.35	155.77
1/31/2023	154.97	152.48		5/2/2023	154.88	152.48		8/1/2023	155.06	152.25		10/31/2023	155.16	152.34	
2/1/2023	154.96	152.48		5/3/2023	154.87	152.48	155.79	8/2/2023	155.05	152.24		11/1/2023	155.15	152.34	
2/2/2023	154.96	152.48		5/4/2023	154.87	152.48		8/3/2023	155.05	152.23		11/2/2023	155.16	152.34	
2/3/2023	154.95	152.48	155.86	5/5/2023	154.86	152.47		8/4/2023	155.04	152.22		11/3/2023	155.15	152.34	
2/4/2023	154.95	152.48		5/6/2023	154.87	152.47		8/5/2023	155.05	152.22		11/4/2023	155.15	152.33	
2/5/2023	154.94	152.48		5/7/2023	154.88	152.48		8/6/2023	155.04	152.21		11/5/2023	155.15	152.33	
2/6/2023	154.94	152.48		5/8/2023	154.94	152.50		8/7/2023	155.04	152.21		11/6/2023	155.14	152.32	
2/7/2023	154.94	152.48		5/9/2023	155.03	152.52		8/8/2023	155.05	152.22	155.84	11/7/2023	155.14	152.32	
2/8/2023	154.93	152.48		5/10/2023	155.12	152.56		8/9/2023	155.04	152.22		11/8/2023	155.14	152.32	
2/9/2023	154.93	152.48		5/11/2023	155.19	152.58		8/10/2023	155.03	152.22		11/9/2023	155.13	152.32	
2/10/2023	154.93	152.48		5/12/2023	155.24	152.59		8/11/2023	155.03	152.23		11/10/2023	155.13	152.32	
2/11/2023	154.92	152.48		5/13/2023	155.29	152.60		8/12/2023	155.03	152.23		11/11/2023	155.13	152.32	
2/12/2023	154.91	152.48		5/14/2023	155.35	152.63		8/13/2023	155.03	152.23		11/12/2023	155.14	152.33	
2/13/2023	154.91	152.49		5/15/2023	155.38	152.63		8/14/2023	155.04	152.24		11/13/2023	155.14	152.33	
2/14/2023	154.91	152.49		5/16/2023	155.39	152.64		8/15/2023	155.04	152.24		11/14/2023	155.14	152.33	
2/15/2023	154.90	152.49		5/17/2023	155.41	152.64		8/16/2023	155.04	152.25		11/15/2023	155.13	152.33	
2/16/2023	154.90	152.48		5/18/2023	155.42	152.65		8/17/2023	155.03	152.25		11/16/2023	155.13	152.33	
2/17/2023	154.89	152.48		5/19/2023	155.44	152.64		8/18/2023	155.03	152.25		11/17/2023	155.13	152.33	
2/18/2023	154.88	152.48		5/20/2023	155.45	152.63		8/19/2023	155.04	152.26		11/18/2023	155.12	152.33	
2/19/2023	154.88	152.48		5/21/2023	155.46	152.62		8/20/2023	155.05	152.26		11/19/2023	155.12	152.33	
2/20/2023	154.87	152.48		5/22/2023	155.47	152.62		8/21/2023	155.05	152.26		11/20/2023	155.12	152.33	
2/21/2023	154.87	152.48		5/23/2023	155.48	152.61		8/22/2023	155.05	152.25		11/21/2023	155.13	152.35	
2/22/2023	154.88	152.48		5/24/2023	155.49	152.61		8/23/2023	155.05	152.25		11/22/2023	155.11	152.34	
2/23/2023	154.90	152.49		5/25/2023	155.51	152.62		8/24/2023	155.06	152.25		11/23/2023	155.10	152.33	
2/24/2023	154.91	152.49		5/26/2023	155.53	152.62		8/25/2023	155.06	152.25		11/24/2023	155.10	152.33	
2/25/2023	154.93	152.48		5/27/2023	155.52	152.66		8/26/2023	155.07	152.26	155.85	11/25/2023	155.10	152.33	
2/26/2023	154.95	152.48		5/28/2023	155.51	152.74		8/27/2023	155.08	152.27		11/26/2023	155.09	152.33	
2/27/2023	154.96	152.48		5/29/2023	155.50	152.80		8/28/2023	155.08	152.27		11/27/2023	155.08	152.33	
2/28/2023	154.95	152.48		5/30/2023	155.47	152.83		8/29/2023	155.09	152.28		11/28/2023	155.08	152.33	
3/1/2023	154.94	152.48		5/31/2023	155.45	152.83		8/30/2023	155.09	152.28		11/29/2023	155.08	152.33	
3/2/2023	154.94	152.48		6/1/2023	155.43	152.82		8/31/2023	155.09	152.28		11/30/2023	155.08	152.34	
3/3/2023	154.94	152.48	155.88	6/2/2023	155.42	152.81		9/1/2023	155.08	152.29		12/1/2023	155.08	152.34	
3/4/2023	154.93	152.48		6/3/2023	155.40	152.81		9/2/2023	155.06	152.30		12/2/2023	155.08	152.34	
3/5/2023	154.93	152.48		6/4/2023	155.39	152.80		9/3/2023	155.12	152.32		12/3/2023	155.08	152.34	
3/6/2023	154.92	152.48		6/5/2023	155.37	152.80		9/4/2023	155.14	152.34		12/4/2023	155.07	152.35	
3/7/2023	154.92	152.48		6/6/2023	155.37	152.79		9/5/2023	155.15	152.36		12/5/2023	155.07	152.35	
3/8/2023	154.91	152.49		6/7/2023	155.37	152.79		9/6/2023	155.15	152.39		12/6/2023	155.07	152.35	
3/9/2023	154.91	152.48		6/8/2023	155.37	152.80		9/7/2023	155.15	152.41		12/7/2023	155.07	152.35	
3/10/2023	154.90	152.48		6/9/2023	155.36	152.80		9/8/2023	155.15	152.42		12/8/2023	155.06	152.35	
3/11/2023	154.90	152.48		6/10/2023	155.35	152.79		9/9/2023	155.16	152.44		12/9/2023	155.06	152.36	
3/12/2023	154.89	152.48		6/11/2023	155.34	152.79	156.03	9/10/2023	155.16	152.45		12/10/2023	155.06	152.36	
3/13/2023	154.89	152.49		6/12/2023	155.34	152.78		9/11/2023	155.16	152.46		12/11/2023	155.05	152.35	
3/14/2023	154.89	152.49		6/13/2023	155.33	152.77		9/12/2023	155.16	152.46		12/12/2023	155.05	152.35	
3/15/2023	154.88	152.49		6/14/2023	155.31	152.76		9/13/2023	155.16	152.47		12/13/2023	155.05	152.36	
3/16/2023	154.88	152.48		6/15/2023	155.31	152.76		9/14/2023	155.16	152.47		12/14/2023	155.06	152.37	
3/17/2023	154.87	152.48		6/16/2023	155.32	152.77		9/15/2023	155.16	152.46		12/15/2023	155.05	152.37	
3/18/2023	154.87	152.48		6/17/2023	155.32	152.78		9/16/2023	155.17	152.45		12/16/2023	155.05	152.37	
3/19/2023	154.86	152.48		6/18/2023	155.32	152.77		9/17/2023	155.14	152.45		12/17/2023	155.04	152.37	
3/20/2023	154.87	152.48		6/19/2023	155.32	152.77		9/18/2023	155.16	152.44		12/18/2023	155.04	152.37	
3/21/2023	154.88	152.48		6/20/2023	155.31	152.75		9/19/2023	155.13	152.44		12/19/2023	155.03	152.37	
3/22/2023	154.89	152.48		6/21/2023	155.29	152.73		9/20/2023	155.16	152.43		12/20/2023	155.03	152.37	
3/23/2023	154.90	152.48		6/22/2023	155.28	152.72		9/21/2023	155.17	152.42		12/21/2023	155.03	152.37	
3/24/2023	154.92	152.48		6/23/2023	155.26	152.71		9/22/2023	155.17	152.42		12/22/2023	155.03	152.38	
3/25/2023	154.91	152.49		6/24/2023	155.28	152.71		9/23/2023	155.17	152.41		12/23/2023	155.03	152.38	
3/26/2023	154.91	152.49		6/25/2023	155.27	152.71		9/24/2023	155.16	152.40		12/24/2023	155.03	152.38	
3/27/2023	154.90	152.49		6/26/2023	155.27	152.70		9/25/2023	155.15	152.40		12/25/2023	155.03	152.39	
3/28/2023	154.90	152.49		6/27/2023	155.26	152.68		9/26/2023	155.16	152.40		12/26/2023	155.03	152.39	
3/29/2023	154.89	152.48		6/28/2023	155.25	152.67		9/27/2023	155.17	152.39		12/27/2023	155.03	152.39	
3/30/2023	154.89	152.48		6/29/2023	155.24	152.65		9/28/2023	155.18	152.40		12/28/2023	155.02	152.38	
3/31/2023	154.88	152.48		6/30/2023	155.23	152.64		9/29/2023	155.18	152.41		12/29/2023	155.02	152.39	
4/1/2023	154.88	152.48		7/1/2023	155.22	152.62		9/30/2023	155.18	152.41		12/30/2023	155.01	152.38	
												12/31/2023	155.01	152.38	

Figure 8 Whale Tail 2023 Lake Water Level Monitoring§

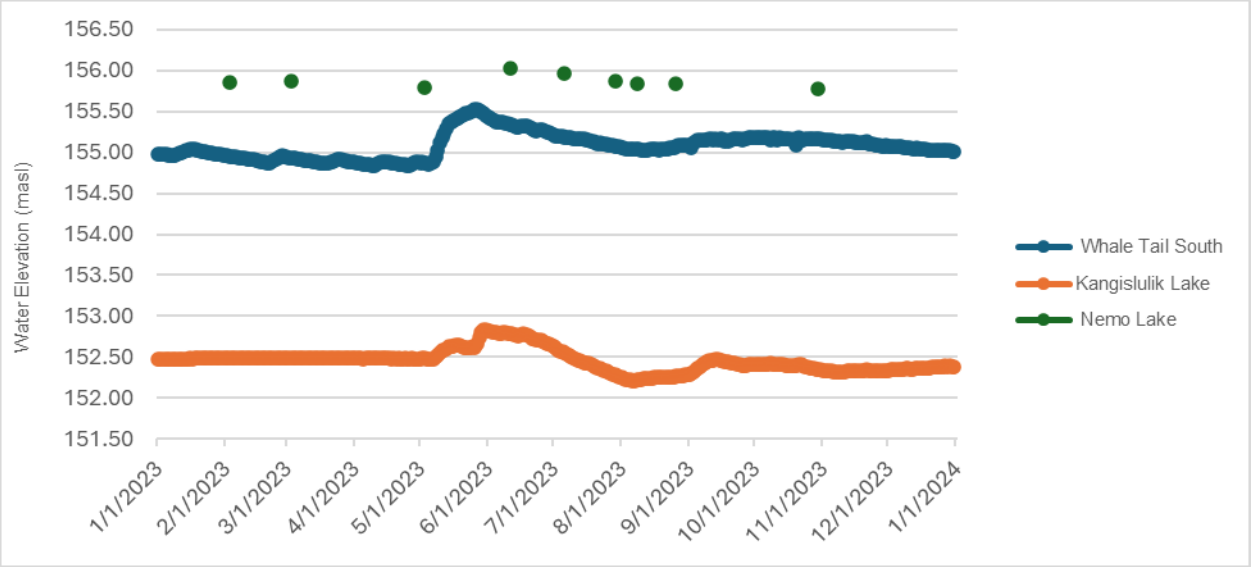


Table 4-6 Whale Tail 2018-2023 Lake Water Level Average§

Date	Whale Tail Lake South Basin (masl)	Kangislulik Lake (masl)	Nemo Lake (masl)
2018	152.71	152.53	-
2019	154.85	152.49	156.16
2020	155.26	152.57	156.04
2021	155.21	152.33	155.74
2022	155.05	152.31	155.94
2023	155.08	152.45	155.87

4.3 BATHYMETRIC SURVEYS BAKER LAKE MARSHALLING FACILITY§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 6: ***The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility.***

The bathymetric survey in Baker Lake was completed on July 11th, 2023 and is included in Appendix 6. The survey was done before the shipping season.

4.4 WATER MANAGEMENT PLAN§

4.4.1 Water Management Structure Inspection§

4.4.1.1 *Meadowbank Site*§

As required by NWB Water License 2AM-MEA1530 Part E, Item 10: ***The Licensee shall carry out weekly inspections of all water management structures during periods of flow and the records be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector. This information is to be included in the annual Water Management Plan.***

Agnico Eagle has an inspection program in place to inspect water management infrastructures. Site inspections on the dewatering dikes and tailings facility are performed every week and are documented during periods of flow or if changing conditions are observed as detailed in the Freshet Action Plan (Appendix D of the Meadowbank 2023 Water Management Plan Version 12 (Appendix 13)). Detailed visual inspections are performed and documented as per the Dewatering Dike OMS frequency (Appendix 28).

4.4.1.2 *Whale Tail Site*§

As required by NWB Water License 2AM-WTP1830 Part E, Item 10: ***The Licensee shall carry out weekly inspections of all water management structures during periods of flow and the records of inspections shall be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector. This information is to be included in the annual updated Water Management Plan.***

Agnico Eagle has an inspection program in place to inspect water management infrastructures. Site inspections on the dewatering dikes are performed every week and are documented during periods of flow or if changing conditions are observed as detailed in the Freshet Action Plan (Appendix E of the Whale Tail 2023 Water Management Plan Version 12 (Appendix 14). Detailed visual inspections are performed and documented as per the Water Management Infrastructure OMS frequency (Appendix 29).

4.4.2 Water Balance Water Quality Model Reporting Summary§

4.4.2.1 *Meadowbank Site*§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 5: ***Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 7-9.***

And

As required by NWB Water License 2AM-MEA1530 Part E, Item 7: ***The Licensee shall submit a Water Management Plan on an annual basis to the Board for review following the commencement of Operations. The Plan must include an updated Water Balance. The Water Management Plan shall include an action plan to be implemented if predicted re-flooded pit water quality indicates that treatment is necessary. The Licensee shall not breach dikes until the water quality in the re-flooded area meets CCME Water Quality Guidelines for the Protection of Aquatic Life, baseline concentrations, or appropriate site specific water quality objectives. Subject to the Board approval, if water quality parameters are above CCME Guidelines, a site specific risk assessment must be conducted to identify water quality objectives that are protective of the aquatic environment.***

And

As required by NWB Water License 2AM-MEA1530 Part E, Item 8: ***The Licensee shall submit a Water Quality Model for pit re-flooding as part of the Water Management Plan which shall be re-calibrated as necessary and updated at a minimum of once every two (2) years following commencement of Operations. The results and implications of the predictive model shall be reported to the Board.***

And

As required by NIRB Project Certificate No.004 Condition 9: ***Cumberland shall provide detailed plans for water treatment for the tailings (reclaim pond) discharge, and on a contingency basis for the attenuation pond discharge(s) and for the pits, including estimates of treatment efficiency for each parameter of concern and the description of pH adjustments in the water license application to the NWB.***

A water balance, water quality forecast, and water management plan update for 2023 was completed. This information is included in Appendix 13.

The water management objectives for the Meadowbank Site are:

- Keep the different water types (i.e. contact, non-contact, and freshwater) separated to the extent practical
- Control and minimize contact water through diversion and containment
- Minimize freshwater usage by reclaiming the contact water to the extent practical
- Meet discharge criteria before any site contact water is released to the downstream environment
- Reduction in freshwater intake per tonne mined
- No events of non-compliance
    - Regulatory/Water License water quality criteria (effluent loading limits)
    - Regulatory/Water License freshwater withdrawal criteria.

The water management targets and achieved data for 2023 are summarized in Table 4-7. Slightly more freshwater was used than targeted mainly due to the testing of an alternate reclaim system during the summer period. However, the performance and reliability of the main reclaim system in operated in pit E has been successful throughout the year. In 2023 less water was reclaimed than planned.

Targets for 2024 are also presented in Table 4-7. These targets are aligned with the water objectives of the Meadowbank Complex and go beyond the License limit. These targets strive to minimize risks and to optimize water recirculation and freshwater water usage. They assume continued improvements of the amount of reclaim water withdrawn from the pits to reuse in the Mill which will also decrease the amount of freshwater used per tonne processed and increase the amount of water in recirculation. Targets are set to ensure continuous effort is made to improve water management and to encourage all groups to find and pursue opportunities to reduce freshwater consumption. Higher production rates are expected to require slightly more fresh water withdrawn from Third Portage Lake.

Table 4-7 Meadowbank Water Management Targets§

Water Objective	Target 2023	Achieved 2023	Target 2024
Fresh Water Withdrawn from Third Portage Lake (Mill and Camp)	865,000 m^3	886,603 m^3	900,000 m^3
Contact Water Withdrawn from Pit (reclaim water to Mill)	3,465,000 m^3	3,415,175 m^3	3,300,000 m^3
Freshwater per tonne processed	0.20 m^3/t	0.24 m^3/t	0.20 m^3/t
Water discharge (treated)	0 m^3	0 m^3	0 m^3
Water discharge (fresh)	61,000 m^3 (East Dike to Second Portage Lake)	28,516 m^3 (East Dike to Second Portage Lake)	35,000 m^3 (East Dike to Second Portage Lake)
Water in recirculation (water recycled / total water use)	80.00%	79.4%	80.0%

To avoid and minimize water related impacts and risks and to help achieve the water management targets above Agnico Eagle implemented several initiatives in 2023. These initiatives are summarized in Table 4-8. Additionally, alternative water quality modelling methodologies are actively being assessed to further refine the understanding and forecasting of water quality on site. Review of optimal water management strategies are ongoing to improve water quality on site for closure.

Table 4-8 Initiatives Taken to Decrease Water Management Risks§

Initiative	Description
Continuous Reclaim System Improvement	Modification of reclaim pumping system in 2023 to increase reclaim flow to process plant (i.e. decrease freshwater usage)
Process Plant Freshwater Reduction	Continuation of the Implementation of the 2022 action plan to understand and decrease freshwater consumption at process plant

The life-of-mine (LOM) considered for the water balance reflects the mining plan summarized in the 2023 Water Management Plan, as it pertains to the activities within the current approved license for the Meadowbank mine. Revisions and modifications to the Water Balance and Water Quality Forecast are discussed in detail in the Meadowbank 2023 Water Management Plan Version 12 (Appendix 13).

In 2023 water transfers continued throughout the site to meet the water management objectives outlined above. Table 4-9 below outlines the various water transfer volumes in 2023.

Table 4-9 2023 Meadowbank Water Transfers§

Water Transfer Name	2023 Transfer Volume (m^3)
North Cell to South Cell	328,206
SMP to South Cell	0
SMP to Pit A	188,661
South Cell to Pit A	467,662
South Cell to Goose	0
Pit A to Goose	514,428
Goose to Pit E	0
Pit A to Pit E	0
SD 3, 4 & 5 to South Cell	143,980
SD 1, 2, NCA-D, NCIS to North Cell	148,700
Interception sump to South Cell	185,828
ST-16 & WEP to Pit A	103,130
CD D/S pond to Pit A	633,386
CD D/S pond to SC	0
CD D/S pond to Pit E	0
Goose Pit Inflow	389,350

4.4.2.2 *Whale Tail Site*[§]

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 9: ***Summary of reporting results for the Water Balance and Water Quality model and any calibrations as required in Part E Items 5, 6, and 8.***

And

As required by NWB Water License 2AM-WTP1830 Part E, Item 5: ***The Licensee shall submit an updated Water Management Plan on an annual basis to the Board for review following the commencement of Operations. The Plan must include an updated Water Balance. The Water Management Plan shall include an action plan to be implemented if predicted re-flooded pit water quality indicates that treatment is necessary.***

And

As required by NWB Water License 2AM-WTP1830 Part E, Item 6: ***The Licensee shall submit a Water Quality Model for pit re-flooding and for WRSF contact water mixing into Mammoth Lake post-Closure as part of the Water Management Plan which shall be re-calibrated as necessary and updated annually following commencement of Operations. The results and implications of the predictive model shall be reported to the Board.***

A water balance, water quality forecast, and water management plan update for 2023 was completed. These can be found in Appendix 14.

The water management targets and achieved data for 2023 are summarized in Table 4-10. In 2023 all targets were achieved for freshwater and contact water. Much less water was discharged from site than planned.

Targets for 2023 are also presented in Table 4-10. These targets are aligned with the water objectives of the Meadowbank Complex (see the section above) and go beyond the License limit. These targets strive to minimize risk, conserve freshwater, and minimize water usage. The 2023 targets assume continued improvements in the amount of contact water withdrawn from the Pit. Higher underground production rates in 2023 had require slightly more fresh water withdrawn from Nemo Lake, more contact water withdrawn from underground as the works expand, but altogether less water discharged from site due to lesser rain quantity for the year. Striving to continuously improve, alternative water quality modelling methodologies are actively being assessed to further refine the understanding and forecasting of water quality on site. Review of optimal water management strategies are ongoing to improve water quality on site for closure.

Table 4-10 Whale Tail Water Management Targets[§]

Water Objective	Target 2023	Achieved 2023	Target 2024
Fresh Water Withdrawn from Nemo Lake (Mining and Camp)	80,000 m^3	81,896 m^3	88,000 m^3
Contact Water Withdrawn from Pit (pit inflow)	915,000 m^3	863,765 m^3	1,320,000 m^3
Contact Water Withdrawn from Underground (inflow)	16,000 m^3	4,760 m^3	19,600 m^3

Water discharge from site (WTS / Kangislulik Lake)	2,500,000 m^3	1,964,874 m^3	2,500,000 m^3
Water in recirculation (water recycled / total water use)	0%	0%	0%

The life-of-mine (LOM) considered for the water balance reflects the mining plan summarized in the 2023 Water Management Plan Version 12, as it pertains to the activities within the current approved license for the Whale Tail mine.

Revisions and modifications to the Water Balance and Water Quality Forecast are discussed in detail in the 2023 Water Management Plan Version 12 (Appendix 14).

As per comments received on the 2020 Annual Report, Agnico Eagle is providing the quantification use of explosive relative FEIS. In 2023, approximately 12.1k tonnes of explosives were used at the Whale Tail mine for open pit and underground. Water quality predictions outlined in the Appendix 6H of the FEIS Addendum for the Whale Tail Pit – Expansion Project (Agnico Eagle, 2018) related to explosive usage are specified for residual explosives in WRSF's, pit sumps, and underground sumps. Applied concentrations for nitrate and ammonia in operations for WRSF and pit sump runoff flows are 12 mg/L-N (NO_3) and 0.3 mg/L-N (NH_4) while applied concentrations for nitrate and ammonia in underground sumps are 321 mg/L-N (NO_3) and 321 mg/L-N (NH_4). The concentration of explosives by-products (ammonia and nitrate) in site contact water is sensitive to the management of blasting agents during their use. Given the proximity and similarity both in setting and operation of the Whale Tail Mine to the Meadowbank Mine (similar mining rate, explosives type and explosives usage rate), it was assumed that similar nitrogen and ammonia contents would occur in the waste rock, and open pit drainages. Similarly, average ammonia and nitrate concentrations observed in the underground sumps at the Meliadine Mine were used as input chemistry to the model for underground sump concentrations.

Analysis of 2023 water chemistry results for the WT WRSF Pond (ST-WT-3), WT WRSF Pond (ST-WT-30, 31, 32, and 33), IVR WRSF Sump (ST-WT-28) and IVR WRSF Pond (ST-WT-34, 35, and 36) all exhibit annual average of nitrate less than the predicted 12 mg/L-N outlined in the FEIS with combined average nitrate values of 3.35 mg/L-N in 2023 Analysis of total ammonia-N results for these stations results in an average of 0.181 mg/L-N which is lower than the concentrations outlined in the FEIS predictions, however the more toxic un-ionized ammonia concentration averages out to a result of 0.00063 mg/L-N.

Analysis of 2023 water chemistry results for both the Whale Tail Pit (ST-WT-4) and IVR Pit (ST-WT-18) Sumps exhibit annual average of nitrate of 5.01 mg/L-N and 5.64 mg/L-N respectively, with a combined average nitrate results of 5.32 mg/L-N which are less than the predicted 12 mg/L-N as outlined in the FEIS. Analysis of total ammonia-N results for these stations results in an average of 4.01 mg/L-N, which is higher than the FEIS predictions, however the more toxic un-ionized ammonia concentration averages out to a result 0.04 mg/L-N.

Analysis of 2023 water chemistry results for the Whale Tail Groundwater Storage Pond (GSP-1) (ST-WT-20) exhibit average nitrate results of 86.98 mg/L-N and average total ammonia-N results 27.7 mg/L-N, both of which are well below the average of 321 mg/L-N for both nitrate and ammonia concentrations outlined in the predictions.

All results for the aforementioned monitoring stations can be found in Section 8.5.3.2 of this report. It is important to note that none of the monitoring stations, except two results for ST-WT-4 and ST-WT-20 results, exhibited results for total ammonia-N exceeded the maximum authorized monthly mean or grab concentrations of 15 mg/L-N and 30 mg/L-N respectively, as included in the effluent quality limits found in the Whale Tail Water License (2AM-WTP1830).

Additionally, as mentioned in the FEIS predictions, if explosives waste management differs from that which is practiced at Meliadine, the sump concentrations at the Whale Tail mine may differ from the model predictions. Ammonia is expected to be attenuated through the FWTP. Agnico Eagle will continue to monitor the residual explosive concentrations and how they correlate to FEIS predictions in future annual reports.

4.4.3 Predicted Vs Measured Water Quality§

4.4.3.1 *Meadowbank Site*§

As required by NWB Water License 2AM-MEA1530 Part E, Item 9: ***The Licensee shall, on an annual basis during Operations, compare the predicted water quantity and quality within the pits, to the measured water quantity and quality. Should the difference between the predicted and measured values be 20% or greater, then the cause(s) of the difference(s) shall be identified and the implications of the difference shall be assessed and reported to the Board. The comparison of predicted water quality in reflooded pits also addresses Water License 2AM-MEA1530 Part E, Item 7.***

As per NIRB Comments to 2014 Annual Report: "*[…] provides comparisons between originally predicted and measured water quantity and quality in 2014. This comparison only uses the current year, but a year over year comparison would help identify trends*." In the 2015 and 2016 Annual Report, the predicted water quantity and quality within the pits was compared to the measured water quantity and quality. This comparison used a year over year comparison. Since 2017, the predicted water quantity and quality within the pits will be compared to the measured water quantity and quality values that were sampled in the same year.

The comparison between the predicted water quantity and quality within the pits will be compared to the measured water quantity and quality done from 2012 to 2023. Because the Portage Pit was not deep enough to collect sufficient data from the sumps in 2011, this comparison used 2012 as a start point.

Appendix 16 provides a comparison between predicted (originally predicted in support of the NWB license) and measured water quantity and quality within Portage, Goose and Vault Pits from 2012 to 2023. The Life of Mine (LOM) at Meadowbank has been updated since the 2007 application for the NWB license and includes the Whale Tail extension project (past 2018). Consequently, the prediction model year originally presented in 2007 are no longer in sync with the current LOM. In order to account for this discrepancy, Table 4-11 presents the predicted model year used for comparison of the measured data collected in the current LOM calendar year.

Percent difference between the predicted and measured values for water quantity and quality was calculated using the following formula:

*% difference = ((A-B) / B)*100;*
where: A = measured value and B = predicted

Table 4-11 Predicted Model Year used for Comparison against Current Life of Mine Calendar Year§

Calendar Year	Current Life of Mine Year	Predicted Model Year Used for Comparison				
		Third Portage Open Pit (Pit E)	North Portage Pit Sump (Pit A)	Goose Island Pit	Vault Pit Sump	Phaser Pit Sump
2012	**3**	3	not in operation	3	not in operation	not in operation
2013	**4**	4		3		
2014	**5**	4	4	3	5	
2015	**6**	4	4	3	6	
2016	**7**	4	4	3	7	
2017	**8**	4	4	3	7	
2018	**9**	4	4	3	7	7
2019	**10**	4**	4**	3**	8	8
2020	**11**	4**	4**	3**	9	9
2021	**12**	4**	4**	3**	10	10
2022	**13**	4**	4**	3**	11	11
2023	**14**	4**	4**	3**	12	12
2024	**15**	4**	4**	3**	13	13
2025	**16**	4**	4**	3**	13	13
2026	**17**	4**	4**	3**	13	13
2027-2041	**Closure**	5 to 13	5 to 13	5 to 13	13	13

Note:
** As of 2019, measured data are compared against the predicted model year presented in 2007 and the predicted values presented in the Meadowbank Interim Closure and Reclamation Plan, updated in 2019 which include in-pit deposition.

Water Quantity

The tables presented in Appendix 16 provides a comparison between predicted (originally predicted in support of the NWB license) and measured water quantity within Portage, Goose and Vault Pit from 2012 to 2023.

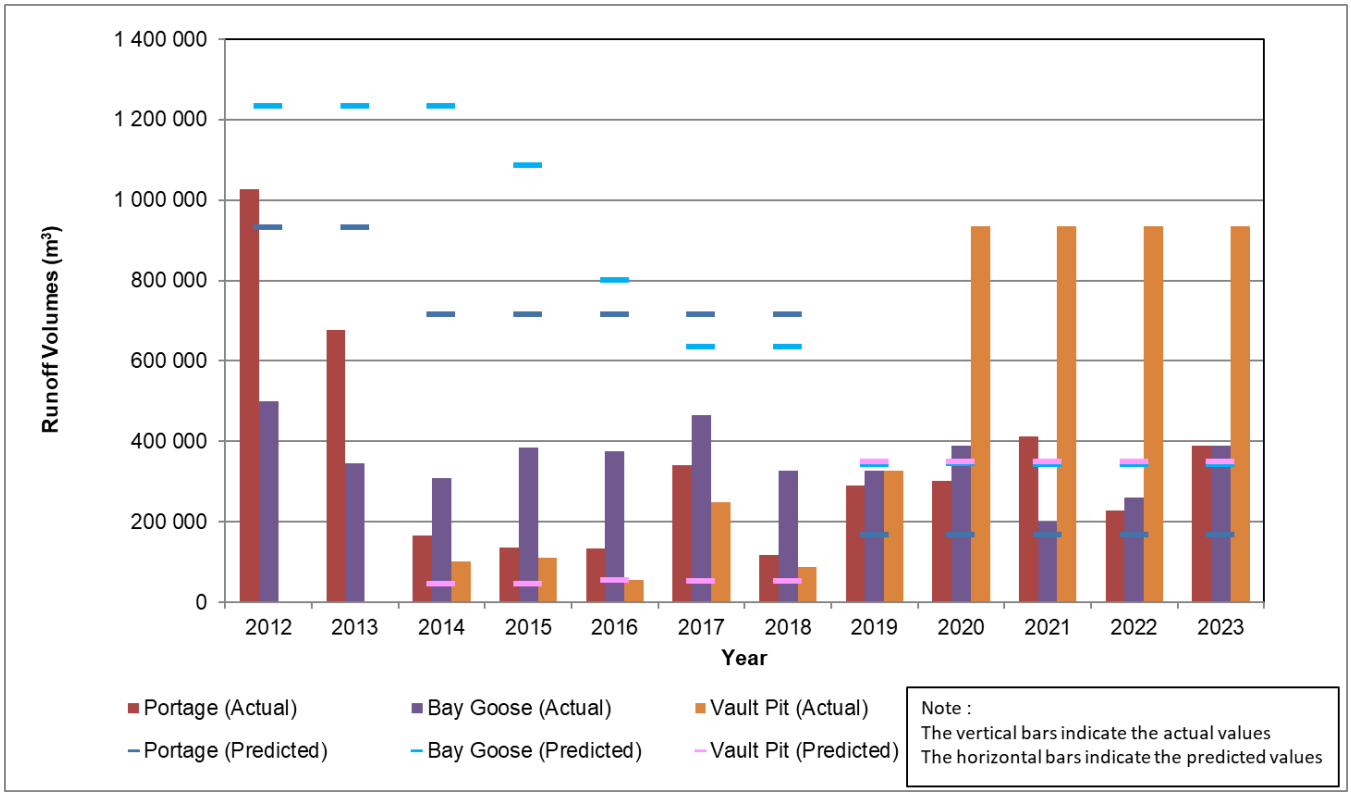
Table 4-12 summarizes the key differences between the predicted water quantity in Golder (2007) against the measured estimated volumes in Portage Pit, Goose Pit and Vault Pit and provides also general comments and explanations for these discrepancies. Figure 9 summarizes the runoff to the different pits measured from 2012 to 2023 and compares them against the forecasted values. It should be noted that, the volume of precipitations accumulating directly in the Vault Pit and that infiltrating from the Vault Attenuation Pond have been adjusted to attain a projected pit level close to the level measured in 2023.

Table 4-12 Summary of Key Differences Between Predicted and Measured Water Quantity[§]

Pits	Difference between Predicted Water Quantity and Measured Water Quantity	Comments/Explanation
Portage	• In 2012, the measured water quantity was higher than the predicted water quantity by only 10%. • From 2013 to 2018, the measured water quantity was lower than the predicted water quantity by more than 20%. • From 2019 to 2023, the measured water quantity was higher than the predicted water quantity by more than 20% (between 30 to 60%).	• From 2013 to 2018, the quantities of seepage and groundwater sources and volumes that collectively make up the water in the pit, were less than what was originally predicted. • Furthermore, between 2014 and 2018, water from the East Dike Seepage was pumped back to Second Portage Lake which contributes to significantly decrease the water quantity in Portage Pit • As of 2019, operations continued in Portage Pit with in-pit deposition activities. The site did not go into closure as originally planned and thus any clean water diversion structure required at closure were not put in place.
Goose	• The % difference between the predicted water quantity and the measured quantity were lower by more than 20% from 2012 to 2018, 2021 and 2022. • In 2019, the % difference between the predicted water quantity and the measured quantity was not significant (i.e. -5%). • In 2020, the % difference between the predicted water quantity and the measured quantity was higher by 13%. • In 2022, the % difference between the predicted water quantity and the measured quantity was lower by 24%. • However, in 2023, the % difference between the predicted water quantity and the measured quantity was higher by 13%.	• Since 2012, the quantities of seepage and groundwater sources and volumes that collectively report to Goose Pit were less than what was originally predicted. • Differences in measured quantities can also be attributed to either lower or higher runoff and infiltration rates reporting to this area.
Vault	• The % differences were significantly higher than 20% in 2014 (commencement of mining operations), 2015, 2017 and 2018 between the predicted water quantity and the measured quantity. • In 2016, and 2019 to 2022, there was no significant difference between the predicted and measured volume (i.e. less than -10%). • In 2018, the estimated runoff volume reporting to Vault and Phaser Pits was 64% above the predicted value.	• The higher differences in measured quantities can be attributed to higher freshet and rainfall volumes reporting to this specific area. • In 2018, a large ice wall was formed in the Vault pit over the winter months. This phenomenon indicates a higher seepage flow rate entering the pit that was not accounted for in the original water balance. The main implication of the higher volumes of water to manage at the Vault Pit area is the requirement for longer pumping period than anticipated. • Since 2019, no activity is occurring at the Vault

	• As of 2019, Vault Pit is undergoing natural reflooding. It also receives infiltration water from the Vault Attenuation Pond. The % difference between 2019 to 2023 is more than 20%.	site. The Vault Pit is allowed to naturally reflood over time. Furthermore, the Vault Attenuation Pond is also allowed to naturally reflood. Based on field observation, the Vault Attenuation Pond water level is more or less constant at 136.7 masl since 2019. Water exfiltrate out of the Vault Attenuation Pond toward Vault Pit.

Figure 9 Meadowbank Summary of Runoff Volumes to the Pits[§]



Water Quality

According to the original NWB application documents (Golder, 2007- Water Quality Predictions), a Probable scenario and a Possible Poor End scenario for predicted water quality results were evaluated. These models were developed to anticipate a representative range of water quality that would be used for management and mitigative decisions. The Probable scenario used input values that simulate predicted observed field conditions and added realistic scaling factors related to explosives management and pit operations. The Possible Poor End scenario input values simulated probable variance on observed field characteristics and selected input parameters to capture possible, conservative variance. The predicted values in the Probable scenario and the Possible Poor End scenario represented the summer averages.

The measured values for 2012 to 2023 (LOM year 3 to 14) are summarized in tables presented in Appendix 16. Each table includes the following information:

- The yearly mean and lower 25th percentile of all the data available throughout the year at Portage Pit (ST-17 and ST-19), Goose Pit (ST-20), Vault Pit (ST-23) and Phaser Pits (ST-41) were compared to the predicted values where data were available.
- The lower 25th percentile values were calculated and compared to the predicted values when 3 or more samples were taken during the year.
- For year 2012 to 2018, the predicted values were evaluated in the water quality prediction model developed in 2007 (refer to Table 1 for predicted model year used for comparison).
- As of 2019, the predicted values for Portage and Goose pits were based on the water quality forecast considered in the Meadowbank Interim Closure and Reclamation Plan, updated in 2019 since in-pit deposition has started in Goose Pit.
- In addition, as of 2019, the measured values were also compared to the predicted values obtained in the water quality prediction model developed in 2007 to ensure continuity with previous years analysis (refer to Table 1 for predicted model year used for comparison).
- The measured data was also compared to the Water License discharge criteria to Third Portage Lake and Wally Lake, the Metal and Diamond Mining Effluent Regulations (MDMER) and the CCME water quality guidelines for the protection of aquatic life.
    - With regard to the MDMER, the discharge criteria were updated as of June 2021 and thus, the measured data was compared to these updated values.
    - Sulphate concentrations were compared to a guideline value based on a threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).
    - It is understood that the Water License, MDMER and CCME criteria apply to mining effluents discharged to the environment and are as such not applicable to the pit water since it is managed within the site and undergoes a treatment step if required prior to discharge to the environment. These criteria are used as a guide to identify potential parameters of concern.

The laboratory services selected by Agnico are conducted by accredited facilities and reach the analysis lower detection limits (LDL) where the results can be compared to the CCME guidelines. Agnico Eagle will continue to ensure that the accredited laboratory can reach the required detection limits.

Table 4-13 summarizes the key differences between the predicted and the measured water quality data at the Third Portage Open Pit Sump (i.e. Portage Pit E), Goose Island Open Pit Sump (i.e. Goose Pit), North Portage Pit Sumps, Vault Pit Sumps and Phaser Pit Sumps presented in Appendix 16. Comparison to the guidelines (CCME Guidelines, MDMER and Water License criteria) to be used as a guide only to identify potential parameters of concern.

Figures 10 to 13 on the following pages illustrate the measured annual mean concentrations (represented by the vertical bars) and the probable and possible poor scenario, for the last five years (2019 to 2023), or annual average and lower 25th percentile scenarios for year 2023 (represented by horizontal lines).

Graphics for the 25th percentile data were not plotted since there are years where not enough samples were taken to statistically evaluate this value.

Table 4-13 Summary of Key Differences Between Predicted and Measured Water Quality§

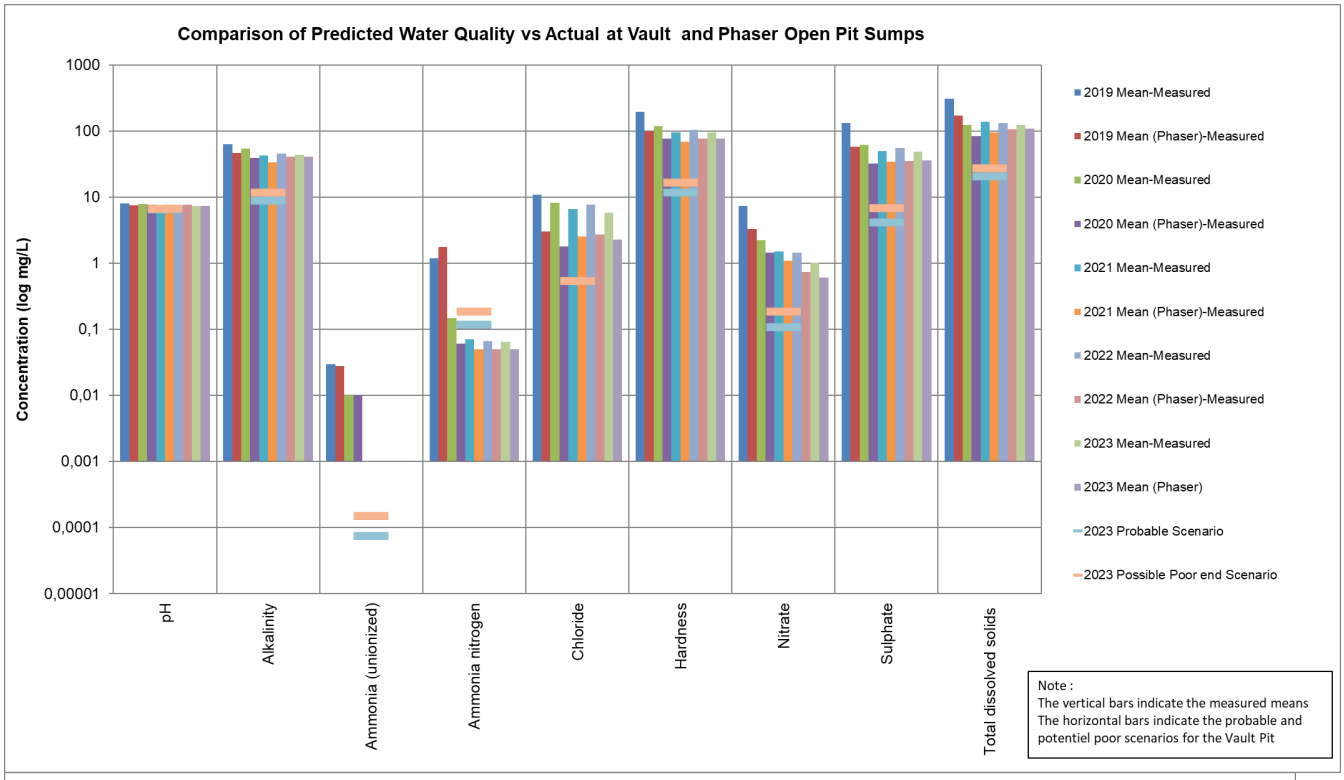
Pits	Difference between Predicted Water Quantity and Measured Water Quantity	Comparison to CCME Guidelines, MDMER and Water License
Third Portage Pit Sump (Pit E)	• From 2012 to 2018 the difference between the measured and predicted values were generally greater than +/- 20% for many parameters, for both probable and possible poor scenarios assessed in 2007. • The parameters with difference much greater than 20% vary from year to year. Notable parameters include unionized ammonia, copper, arsenic cadmium, selenium, and thallium. • From 2019, the difference between the measured and predicted values continues to be generally greater than +/- 20% for many parameters, for both probable and possible poor scenarios assessed in 2007. • However, when comparing the measured data to the 2019 annual average water quality forecasted values, the % difference are generally lower when comparing to the 2007 predicated values. This is expected since the 2007 predicated values did not consider in-pit deposition. • In 2022, for many parameters the measured values were higher by 9% than the same values in 2021. • In 2023, for many parameters, the measured values were higher by +/- 30% than the predicted values.	• From 2012 to 2022, the following recurring parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, fluoride and nitrate. • Sulphate was found to be higher than the threshold value as of 2015. • From 2020 (i.e. start of in-pit deposition), most of the metals were found to be higher than the CCME guidelines, except for lead, barium, iron, manganese, and thallium. • Generally, no parameters exceeded the Water License and MDMER criteria prior to the start of in -pit deposition. • From 2020, certain parameters exceeded the Water License criteria: ammonia nitrogen (as of 2021) arsenic (only in 2020), copper and nickel (as of 2021). • From 2020, the following parameters exceeded the MDMER criteria: copper and nickel. • In 2022: certain parameters exceeded the Water License criteria: ammonia nitrogen, copper, and nickel (as of 2021). • In 2023: certain parameters exceeded the Water License criteria: ammonia nitrogen, copper, nickel (as of 2021 and 2022) and nitrate.
North Portage Pit Sump (Pit A)	• The difference between the measured and predicted values were generally greater than 20% for all parameters, for both probable and possible poor scenarios assessed in 2007. • The parameters with difference much greater than 20% vary from year to year. Notable parameters include unionized ammonia, chloride, fluoride, molybdenum, and sulphate. • When comparing the measured data to the 2019 annual average water quality forecasted values, the % difference are generally lower when comparing to the 2007 predicated	• From 2015 to 2022, the following recurring parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, fluoride, and nickel. • Sulphate was found to be higher than the threshold value as of 2015. • From 2020 (i.e. start of in-pit deposition in Pit E), the following additional parameters were found to be higher than CCME guidelines: copper, manganese, molybdenum and selenium.

Pits	Difference between Predicted Water Quantity and Measured Water Quantity	Comparison to CCME Guidelines, MDMER and Water License
	values. This is expected since the 2007 predicated values did not consider in-pit deposition. • Note that no tailings were deposited in Pit A. Pit A was used since 2019/2020 as a storage basin for Reclaim Water. • In general, measured values in 2022 were higher by +/-30% than the measured values in 2021. Moreover, in 2022, measured values exceeded the predicted values by more than 30%. • In 2023, the measured values were higher by more 20% than the predicted values.	• Generally, no parameters exceeded the Water License and MDMER criteria prior to the start of in -pit deposition. • From 2020, certain parameters exceeded the Water License criteria: ammonia (as of 2021) arsenic (only in 2020), copper and nickel (only of 2021). • From 2020, the following parameters exceeded the MDMER criteria: copper (2020 and 2021). • In 2022, no parameters exceeded the MDMER criteria. However, ammonia nitrogen and copper exceeded the Water License criteria. • In 2023: certain parameters exceeded the Water License criteria: ammonia nitrogen, copper and nickel. However, no parameters exceeded the MDMER criteria.
Goose Island Pit Lake (Goose Pit)	• From 2012 to 2018 the difference between the measured and predicted values were generally greater than +/- 20% for many parameters, for both probable and possible poor scenarios assessed in 2007. • From 2019, the difference between the measured and predicted values continues to be generally greater than +/- 20% for many parameters, for both probable and possible poor scenarios assessed in 2007. This is to be expected since in-pit deposition took place in Goose Pit in 2019. • However, when comparing the measured data to the 2019 annual average water quality forecasted values, the % difference are generally lower when comparing to the 2007 predicated values. This is to be expected since the 2019 model considered in-pit deposition. • Note that no tailings were deposited in Goose Pit other than in 2019. As of 2020, only natural runoff is reporting to the pit, with occasional transfer to Pit A • For 2022, predicted values were lower than the measured values by +/- 30%. • In 2023, measured values were higher by +/- 30 than the predicted values.	• From 2015 to 2022, the following recurring parameters were found to be higher than the CCME guidelines: fluoride and nitrate (up to 2020). • Sulphate was found to be higher than the threshold value as of 2015. • In 2019, tailings were deposited in Goose Pit. From that moment, the following additional parameters were found to be higher than CCME guidelines: unionized ammonia, ammonia, arsenic, copper, nickel and selenium. • Generally, no parameters exceeded the Water License and MDMER criteria prior to the start of in -pit deposition in 2019, except for cadmium and mercury in 2012 and nitrate in 2013. • From 2019, certain parameters exceeded the Water License criteria: ammonia (as of 2020), arsenic (as of 2020) and copper (2019 to 2020). • From 2020, the following parameters exceeded the MDMER criteria: copper (2019 to 2020) and arsenic (as of 2020). • In 2022, ammonia nitrogen and arsenic exceeded the Water License criteria (as 2020).

Pits	Difference between Predicted Water Quantity and Measured Water Quantity	Comparison to CCME Guidelines, MDMER and Water License
		Compared to 2020, only arsenic exceeded the MDMER criteria. • Similarly to 2022, in 2023, ammonia nitrogen and arsenic exceeded the Water License criteria and only arsenic exceeded the MDMER criteria.
Vault Pit	• From 2014 to 2018, the difference between the measured and predicted values where generally greater than +/- 20% for many parameters, for both probable and possible poor scenarios assessed in 2007. • The parameters with difference much greater than 20% vary from year to year. Notable parameters include alkalinity, fluoride, iron, manganese and sulphate. • From 2019, once the mining activity has stopped in the area, the difference between the measured and predicted values continued to be generally greater than +/- 20% for many parameters for both probable and possible poor scenarios assessed in 2007, but to a lesser extent. • For 2022, the difference between the measured and predicted values continued to be generally greater than +/- 20% for many parameters (except ammonia nitrogen and nitrate) for both probable and possible poor scenarios assessed between 2016-2022. • In 2023, for many parameters, measured values were higher by +/- 20 % than the predicted values.	• From 2014 to 2019 the following recurring parameters were found to be higher than the CCME guidelines: unionized ammonia, ammonia, fluoride and nitrate. • Sulphate was found to be higher than the threshold value from 2014 to 2019. • Once operation ceased in 2019 and the pit was allowed to naturally reflood, most parameters were below the CCME guidelines as of 2020, except for selenium in 2020 that was slightly higher than the guideline. • No parameters exceeded the Water License, except for ammonia in 2015. • No parameters exceeded the MDMER criteria. • In 2022, no parameters exceeded all criteria guidelines. • From 2021 to 2023, no parameters exceeded any of the criteria guidelines.
Phaser Pit	• In 2018, the difference between the measured and predicted values were generally greater than +/- 20% for many parameters, for both probable and possible poor scenarios assessed in 2007. • The parameters with difference much greater than 20% vary from year to year. Notable parameters include fluoride, manganese and sulphate. • From 2019, once the mining activity has stopped in the area, the difference between the measured and predicted values continued to be generally greater than +/- 20% for many parameters for both probable and possible poor scenarios assessed in 2007, but to a	• From 2018 to 2019 the following recurring parameters were found to be higher than the CCME guidelines: unionized ammonia, ammonia, copper, fluoride and nitrate. • Sulphate was found to be higher than the threshold value from 2018 to 2019. • Once operation ceased in 2019 and the pit was allowed to naturally reflood, most parameters were below the CCME guidelines as of 2020, except for copper in 2021 and 2022 that was slightly higher than the guideline. • In 2022, no parameters exceeded the Water License and MDMER criteria.

Pits	Difference between Predicted Water Quantity and Measured Water Quantity	Comparison to CCME Guidelines, MDMER and Water License
	lesser extent. The difference between the measured and predicted values continued to be generally greater than +/- 20% for many parameters (except ammonia nitrogen and nitrate) for both probable and possible poor scenarios assessed between 2016-2022. • In 2023, for many parameters, the measured values were higher by +/- 30% than the predicted values.	• In 2023, no parameters exceeded the Water License and MDMER criteria. Moreover, most of the parameters were below the CCME guidelines, except for copper and cadmium, that were slightly higher than the guidelines.

Figure 10 Meadowbank Mean Annual Water Quality - Vault and Phaser Open Pit Sumps§



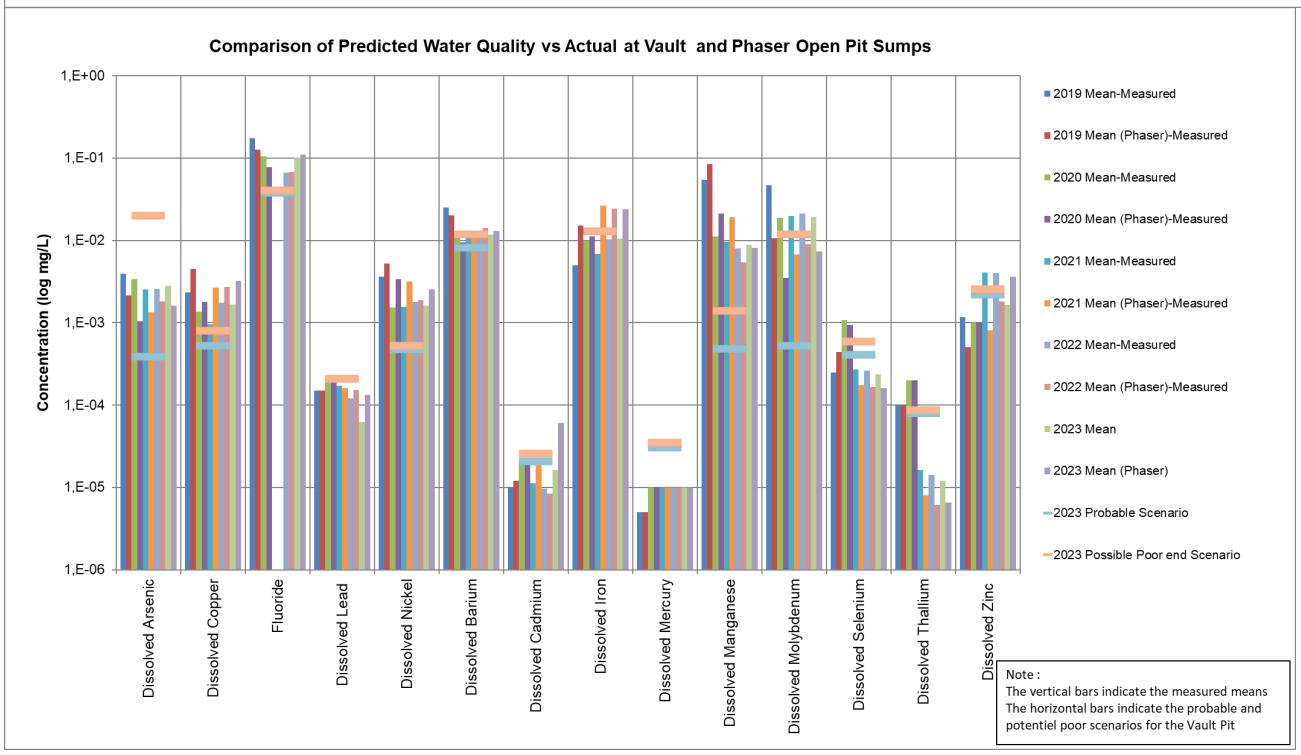
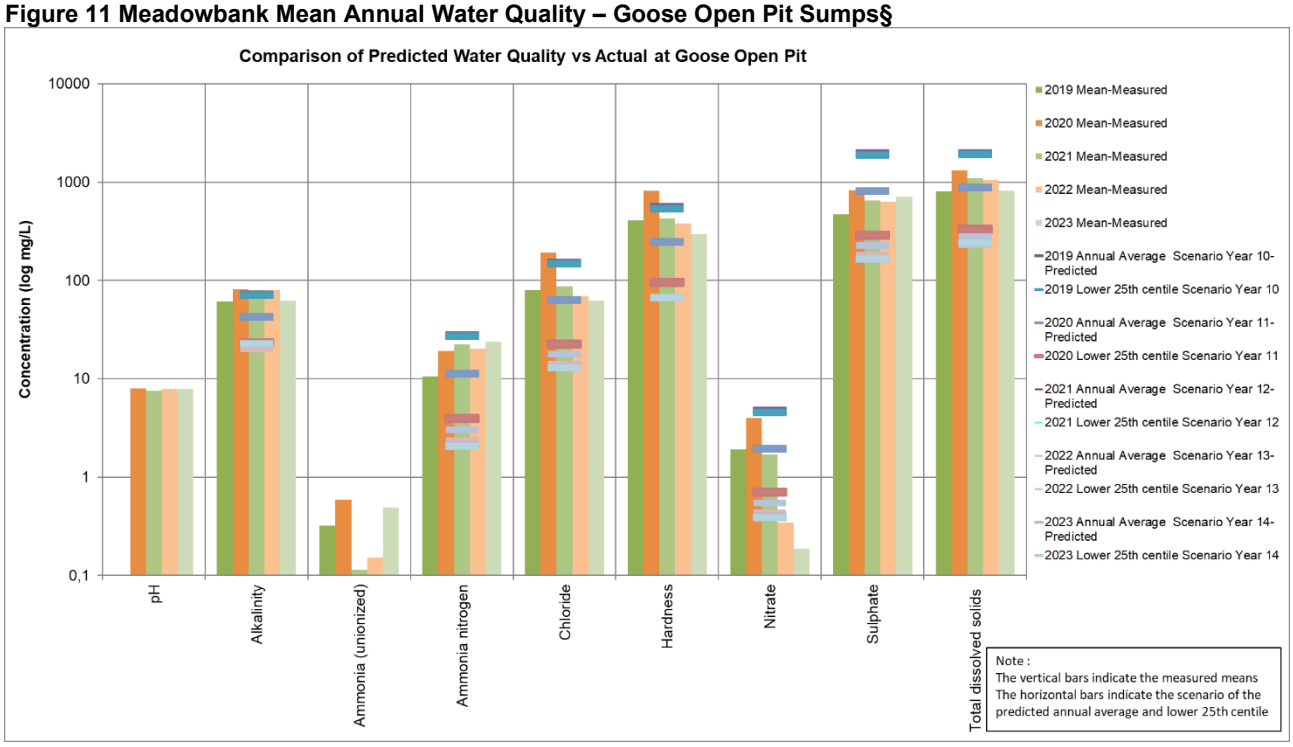


Figure 11 Meadowbank Mean Annual Water Quality – Goose Open Pit Sumps§



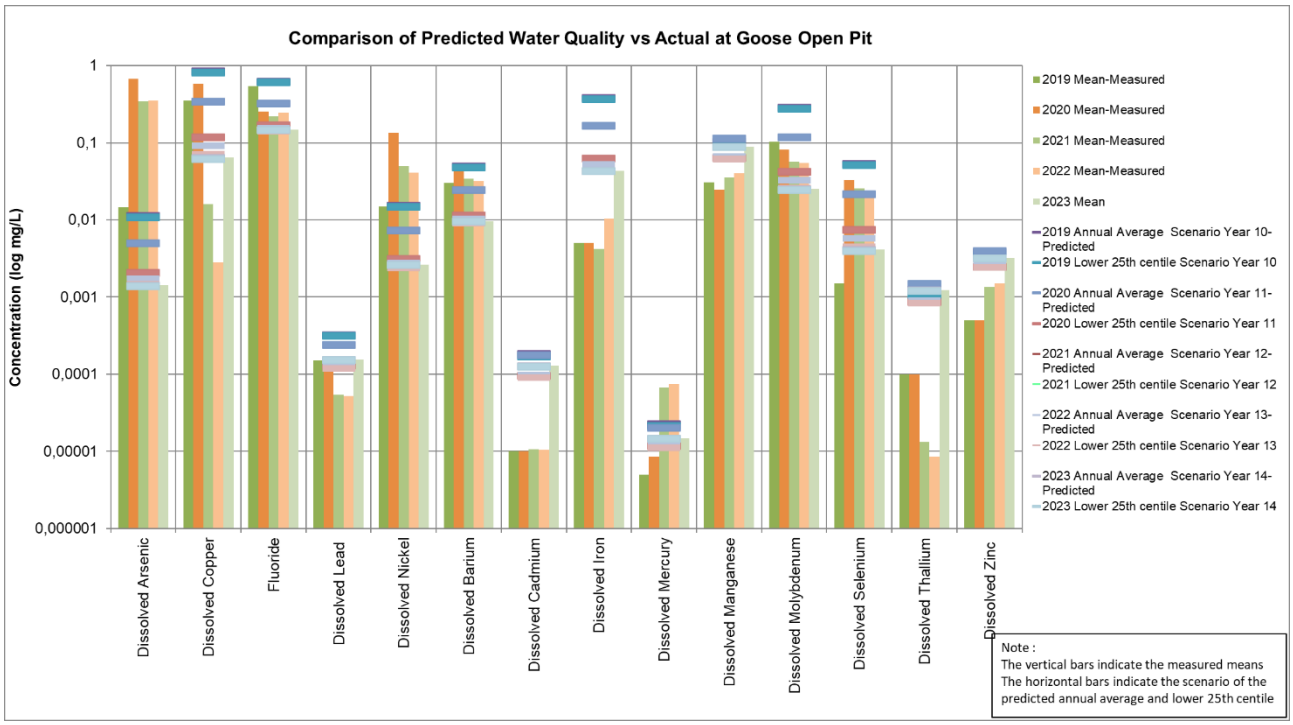
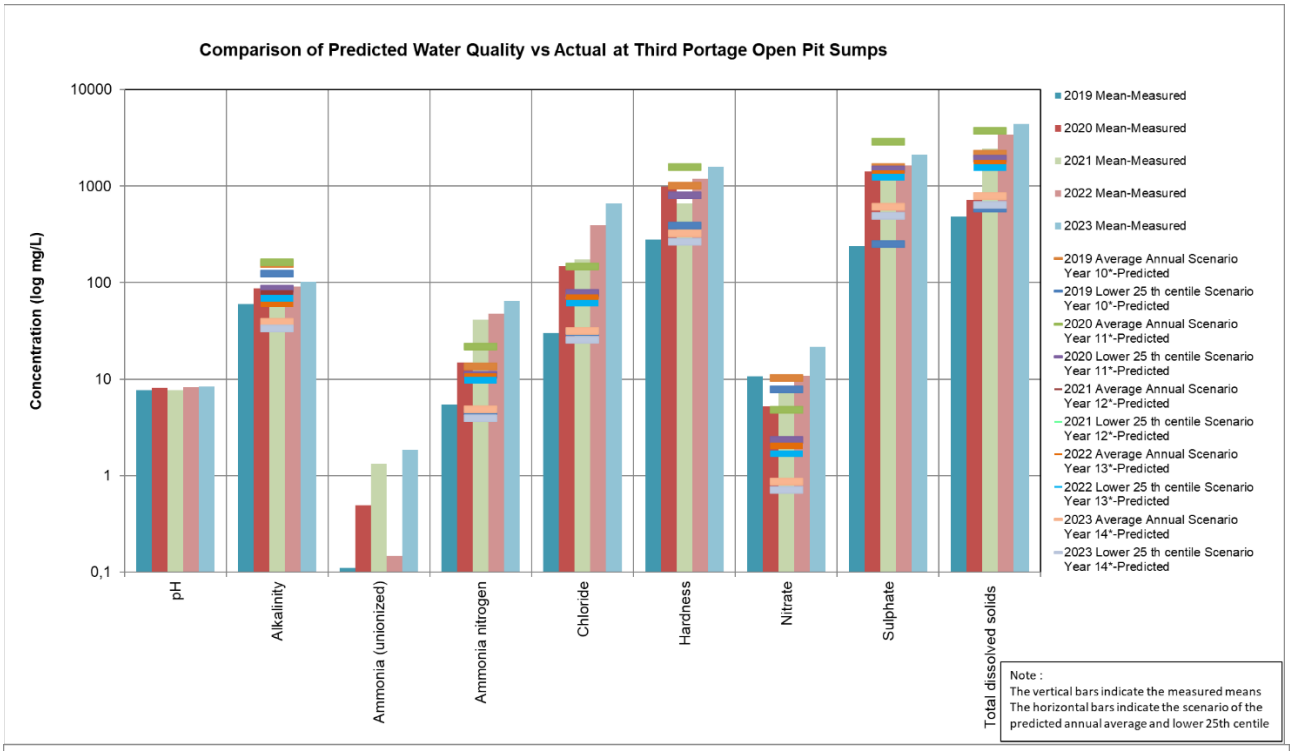


Figure 12 Meadowbank Mean Annual Water Quality – Third Portage Pit (Pit E) Sumps§



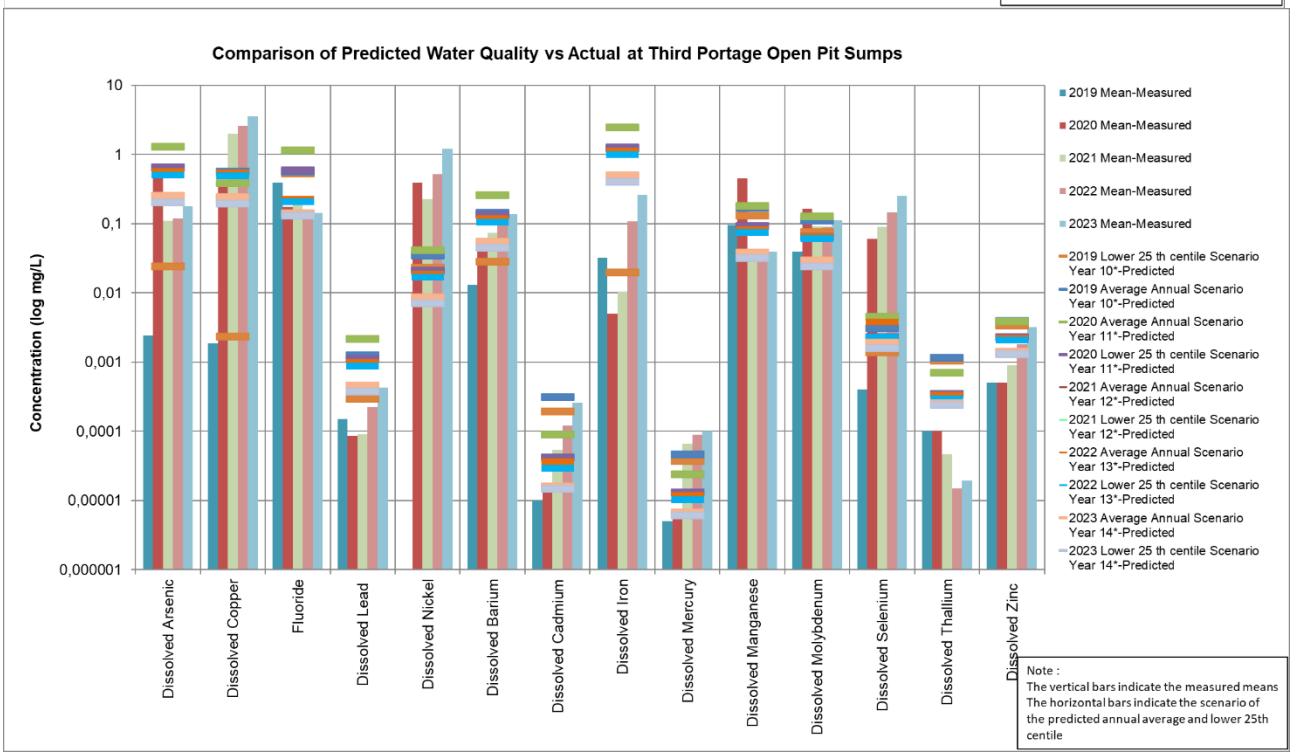
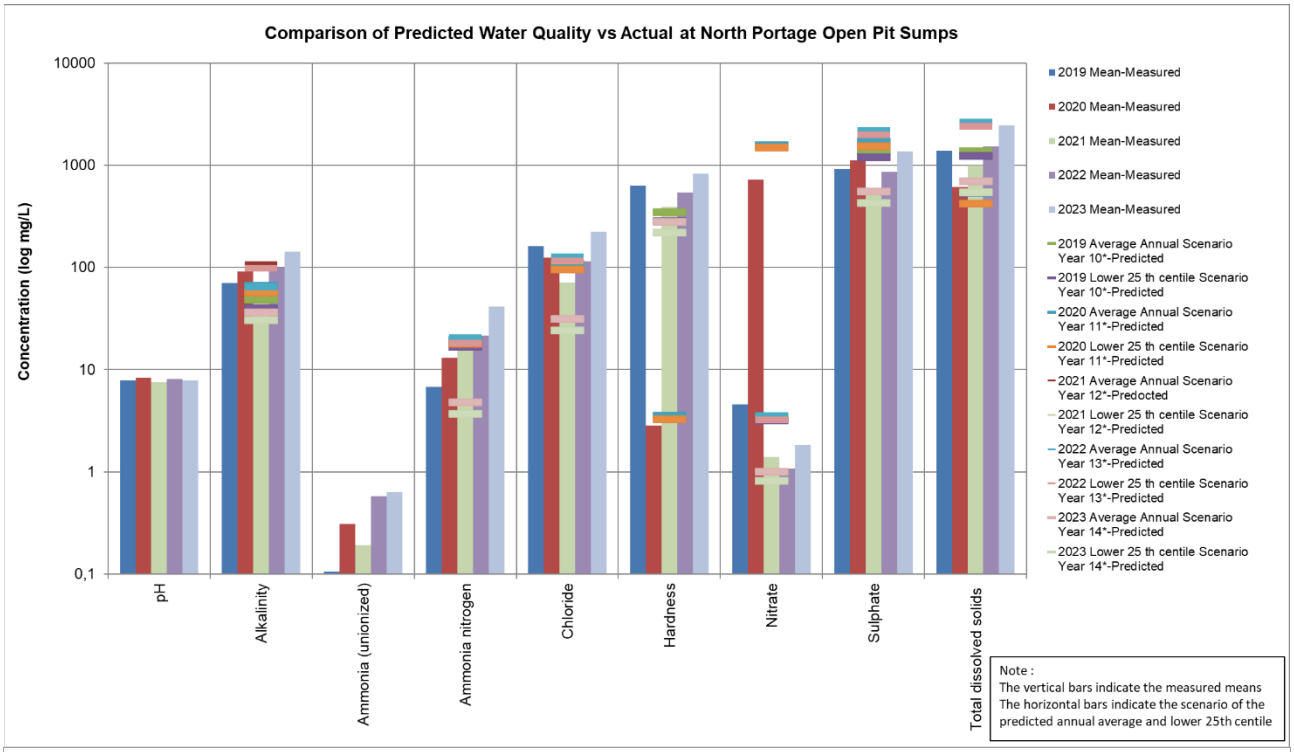
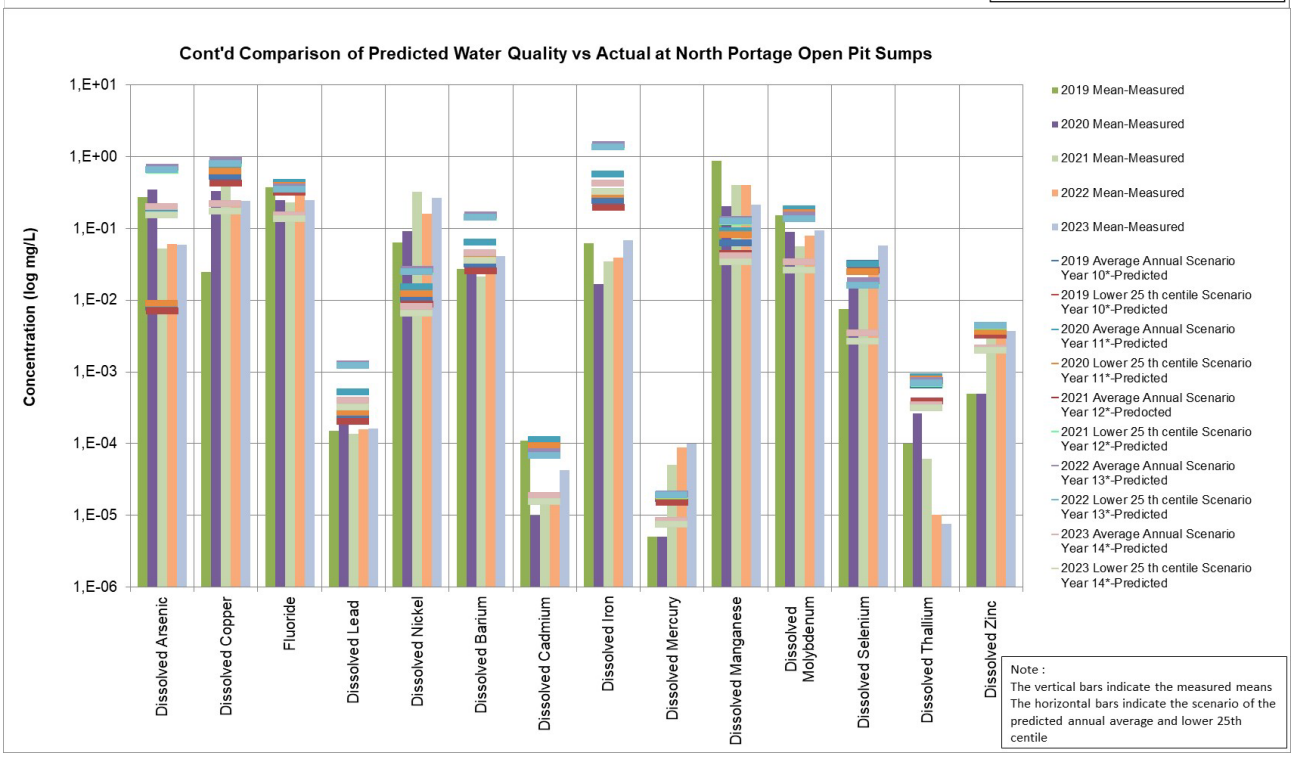


Figure 13 Meadowbank Mean Annual Water Quality – North Portage Pit (Pit A) Sumps§





Based on this analysis, many of the predicted values for water quality and quantity for the Probable and Probable Poor End scenarios and Annual Average and 25% Percentile Water Quality Forecast have differences greater than +/- 20% when compared to the measured values. There are several potential causes that could contribute to these differences:

- For Portage and Goose Pits, the measured water volumes were significantly less than what was originally predicted, specifically from 2012 to 2018. This reflects the fact that seepage, ground water and local runoff volumes were being managed and less water than what was originally predicted was reporting to the pit sumps. Consequently, there was less volume of water to attenuate any contaminant loads that may accumulate in the pit sump water body.
- For Portage Pit, the measured water volumes from 2019 to 2023 were higher than what was originally predicted. This can be explained by the higher observed precipitation at the site and more runoff being directed toward Portage Pit and possibly a higher infiltration rate. Consequently, there was more volume of water to attenuate contaminant loads that may accumulate in the pit sump water body.
- For Goose Pit, the predicted water volumes from 2019 to 2023 remained stable and were close to the measured values.
- For Vault Pit, the measured water volumes from 2014 to 2018 exceeded the original predictions. From 2019 to 2023, during the period of natural pit reflooding, the estimated measured water volumes continued to be higher than the predicted values. The estimated measured values include direct runoff into Vault Pit and the infiltration of water from Vault Attenuation Pond.
- Higher contaminant loads observed in Portage Pit could be the result from additional transfer of reclaim water from the Central Dike Downstream Pond.
- Higher contaminant loads of arsenic and nickel could also be the results of processing ore from Whale Tail Pit. This ore was shown to leach out higher concentration for certain metals, such as arsenic.
- Since 2019, in-pit deposition activities in Goose and Portage Pit contribute the main contaminant loading to the pit water.
- For North Portage Pit, the higher load could originate from water transfer from South Cell TSF, Downstream Pond and Goose Pit and transfer from Third Portage Pit.
- Higher observed load in the seepages flowing into the pits also contribute in part to the contaminant loads observed in Goose and Portage Pits.
- The contaminant loads measured in Vault and Phaser Pits water were generally higher than the prediction. However, there has been a continued improvement in pit water quality year after year since the end of mining at Vault and natural re-flooding was allowed to take place in the pits.
- Some accredited laboratory water quality measurements have detection limits that are higher than the predicted values. This is particularly true for dissolved metal analysis, such as cadmium, iron, lead, nickel, molybdenum, selenium, thallium, and zinc.
- The pH measured in Portage and Goose Pits is generally higher than the predicted values. A possible cause for this phenomenon is that the groundwater infiltrating into the pits have a higher

alkalinity concentration and pH when compared against the background water quality of the surrounding Third Portage Lake.

- Un-ionized ammonia concentration in water is greatly influenced by the pH. The higher the pH, the higher the fraction of un-ionized ammonia in the water. The predicted pH of the Portage and Goose pit water is between 6.1 and 6.3, while the measured values are generally between 7.7 and 8.4.

Furthermore, there are many parameters in the pit water from Goose Pit, Third Portage Pit and North Portage Pit that are slightly higher or higher than the CCME water quality guidelines for the protection of aquatic life. Some parameters, such as ammonia and nitrate, are present in the pit water from the use of explosive during the pit development and from natural degradation of cyanate, the by-product produced from the cyanide destruction process. Other parameters found in the pit water could originate from the natural groundwater seepage into the pit (i.e. fluoride, sulphates, etc.), from contact of runoff water and seepage water with potentially acid generating rock surfaces of the pit wall and/or from loads coming from the reclaim water that is deposited with the tailings in the pits.

However, it is important to note that the water from all the pits is extensively monitored and is not discharged directly into the environment:

- For Portage and Goose Pit sump water, no water was discharged to the environment from these pits. Up until November 2014, the pit water was transferred to the former Attenuation Pond. The water accumulated in the Attenuation Pond was sent to the Tailings Storage Facility or treated by the Water Treatment Plant (WTP) before being discharged in the Third Portage Lake. No discharge limits were exceeded in 2012, 2013 and 2014 as all the results are below the maximum value required by NWB (Water License 2AM-MEA1526) and Environment and Climate Changes Canada (MDMER). It should also be noted that since the South Cell Tailings Storage Facility was put into operation (November 2014), no additional water from the former Portage Attenuation Pond has been discharged into the receiving environment during mining operations. Since mining activities are completed in Goose, all water inflows will remain in Goose Pit and form part of the natural re-flooding volume (since July 2015). In-pit tailings deposition in Goose Pit was started in July 2019 and finished in August 2020. It continued in Third Portage Pit as of August 2020 and will project to finish in June 2026. Reclaim water from the South Cell TSF Reclaim Pond and Central Downstream Pond was also transferred to North Portage Pit in 2020, 2021, 2022 and 2023.
- For Vault and Phaser Pits sump water, the pit water reports to the Vault Attenuation Pond. The water accumulated in the Vault Attenuation Pond could be treated by the WTP, if required, until the end of 2017 for Total Suspended Solids (TSS) removal before discharge into the receiving environment (Wally Lake). No discharge limits were exceeded in 2014, 2015, 2016 and 2017, as all the results are below the maximum average concentration value required by NWB (Water License 2AM-MEA1526) and Environment and Climate Changes Canada (MDMER). From 2019 to 2023, there was no discharge to the environment.

The sample results from Portage, Goose, Vault and Phaser Pits will continue to be monitored in the future and the results will be considered in the water quality modelling, revised yearly, to assist in informing management of water quality in the pits during closure. All factors including the proportional volume of pit water and reclaim water in the TSF, as well as possible implementation of mitigative measures during operation and closure, will be considered when deciding if water treatment will be required at closure. All

of this information including the applicable parameters are integrated into the water quality model and is discussed in the subsequent section.

Water Quality Forecast model - Pit Water Quality

Based on the updated Interim Closure and Reclamation Plan 2020, reclaim Water stored in Goose Pit, Third Portage Pit and North Portage Pit shall be treated and discharged to Third Portage Lake following the end of in-pit deposition. Once treatment is completed, aggregate cover construction over the tailings in the pits will begin, if feasible, followed by re-flooding of the pits with natural runoff and water transfer from Third Portage Lake. For this study, parameters of concern were identified using the current Water License limits, however, final site-specific treated effluent discharge limits for closure will be developed through review of the final closure plan by regulatory agencies.

The Water Quality Forecast model is completed yearly with the updated, measured data from site, as well as the water balance used on site. Review of the water quality predictions at the end of in-pit deposition is in this forecast. Table 4.1 of the Meadowbank Water Quality Forecasting Update for the 2023 Water Management Plan found in Appendix C of the 2023 Water Management Plan Version 12 (Appendix 13) summarizes the forecasted concentrations of applicable parameters in Portage and Goose Pits (based on measured water quality from the TSF) predicted in the pits at the end of in-pit deposition.

Based on the results of the water quality mass balance presented in Section 4.2 of the Meadowbank Water Quality Forecasting Update for the 2023 Water Management Plan, treatment of the reclaim water at the end of in-pit tailings deposition will be required for some metals removal (such as for aluminum, arsenic, cadmium, copper, nickel and lead). Ammonia and nitrate removal may also be needed, as well as chloride and total dissolved solids reduction.

For the Vault pit, no treatment would likely be required after the pit has been re-flooded prior to dike reconnection. This is largely due to the fact that there is no interaction of contact water with a tailings disposal facility at the Vault site and all parameters are expected to meet the CCME guidelines or other site-specific criteria developed during the closure process and/or baseline criteria per the Water License. Table 5.1 of the Meadowbank Water Quality Forecasting Update for the 2023 Water Management Plan Report presents the average concentrations of water quality from samples taken in the Vault area in 2023.

Potential treatment options for the removal of the metals in Reclaim Water prior to discharge to Third Portage Lake is caustic or lime precipitation, while aeration, biological treatment or zeolite exchange are recommended for total nitrogen reduction. Coagulation with ferric sulfate could be used to co-precipitate the arsenic as a ferric arsenate precipitate. Additional treatment steps could be considered once the actual nature of the water to treat is known, such as the addition of an oxidation step to help oxidize metal complexes, additional polishing steps, like filtration or membrane treatment.

For the Vault area, ammonia and nitrate are the parameters of concern identified by Environment Canada, but no actual or forecasted concentration exceeds the Type A Water License discharge requirements for this area. Current concentrations for these two parameters are also below the CCME guidelines.

It is important to note that the water quality in the pits will be subject to CCME guidelines or site-specific criteria and/or baseline criteria per the Water License at closure once the water level in the Goose and Portage Pits are equal to the water level in the Third Portage Lake, following reclaim water treatment and natural and active pit reflooding. The dikes will only be breached once the water quality in the pits meets

CCME guidelines or site-specific criteria and/or baseline criteria per the Water License developed during the closure plan approval process. This applies also for the Vault area.

4.4.3.2 *Whale Tail Site*[§]

As required by NWB Water License 2AM-WTP1830 Part E, Item 8: ***The Licensee shall, on an annual basis during Closure, compare the predicted water quantity and quality within the pit and lake, to the measured water quantity and quality. Should the difference between the predicted base case values and measured values be 20% or greater, then the cause(s) of the difference(s) shall be identified and the implications of the difference shall be assessed and reported to the Board.***

As per the NWB requirement, this comparison will be provided once in closure.

4.4.4 Alternative Effluent Discharge Locations

As required by Project Certificate No. 008 Condition 67: ***Subject to the additional direction and requirements of the Nunavut Water Board (NWB), the Proponent shall:***

> ***a) Conduct an evaluation of the potential aquatic effects to Lakes D1 and D5 and downstream that may result from the discharge of treated effluent. The evaluation will include:***
>
> - ***Additional water quality and phytoplankton baseline data in Lakes D1 and D5***
> - ***Updated water balance and water quality forecast***
> - ***Updated near field and far field effluent discharge modelling***
> - ***Updated Water management Plan, Water Quality and Flow Monitoring, and Core-receiving Environment Monitoring Plan***
>
> ***b) Provide adequate rationale for the need to use the alternative discharge contingency, based on the thresholds established as per the Whale Tail Pit Expansion Project water management decision tree.***
>
> ***c) In the event that discharge to Lakes D1 and/or D5 is not approved to proceed by the NWB, the Proponent will develop alternative effluent management plans as part of the Water Management Plan.***

Discharge to Lakes D1 and D5 are not planned at this point; therefore, no information is required to be provided under this Term and Condition.

4.5 HYDRODYMANIC STUDIES WHALE TAIL SITE

As required by NIRB Project Certificate No.008 Condition 6: ***The Proponent shall provide a summary of activities undertaken to address the requirements of this term and condition in annual report(s) to the NIRB. The Proponent shall:***

> ***a) Conduct detailed hydrodynamic modelling during operations and closure to evaluate the mixing of the Waste Rock Storage Facility seepage into Mammoth Lake post-closure; and***
>
> ***b) Based on the results of the modelling implement monitoring programs and adaptive management strategies that minimize the need for active intervention, including long-term treatment of mine contact water.***

This condition was fulfilled with the submission of the Hydrodynamic Modelling of Kangislulik Lake report found in Appendix 16 of the 2018 Annual Report. Agnico Eagle will review the hydrodynamic model during operation, if needed, and during closure.

4.6 ADDITIONAL INFORMATION§

4.6.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 25: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

No additional information was requested in 2023.

4.6.2 Whale Tail Site§

As required by Water License 2AM-WTP1830 Schedule B, Item 28: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

No additional information was requested in 2023.

SECTION 5. WASTE ROCK AND TAILINGS MANAGEMENT ACTIVITIES

5.1 GEOCHEMICAL MONITORING§

5.1.1 Meadowbank Site§

As required by NIRB Project Certificate No.004 Condition 15: ***Within two (2) years of commencing operations re-evaluate the characterization of mine waste materials, including the Vault area, for acid generating potential, metal leaching and non-metal constituents to confirm FEIS predictions, and re-evaluate rock disposal practices by conducting systematic sampling of the waste rock and tailings in order to incorporate preventive and control measures into the Waste Management Plan to enhance tailing management during operations and closure; results of the re-evaluations shall be provided to the NWB and NIRB's Monitoring Officer.***

And

In accordance with NWB Water License 2AM-MEA1530 Schedule B, Item 7: ***Geochemical monitoring results including:***

a. Operational acid/base accounting and paste pH test work used for waste rock designation (PAG and NPAG rock);

As no mining occurred at Meadowbank mine in 2023, no blast holes were analyzed for sulphur and carbon. Agnico Eagle will refer to previous annual reports for historical information.

b. As-built volumes of waste rock used in construction and sent to the Waste Rock Storage Facilities with estimated balance of acid generation to acid neutralization capacity in a given sample as well as metal toxicity;

Refer to the Section 5.2.1 of this report.

c. All monitoring data with respect to geochemical analyses on site and related to roads, quarries, and the All Weather Access Road;

Surface water quality in quarries monitoring has not been completed since 2012. Previous water sampling results showed no evidence of geochemical issues in the quarries. Agnico Eagle will refer to the 2012 and previous Annual Reports. The water chemistry in quarries remains consistent between years and due to the isolated nature of the pool, the water collected in the quarry does not likely pose a risk to the aquatic environment. It was recommended that unless turbidity issues are visually observed, surface water quality sampling is not deemed necessary at non-HADD crossings or contact pools. In 2023, no turbidity issues were visually observed so surface water quality sampling was not deemed necessary at quarry contact water pool. Similar to previous years, Quarries 4, 13 and 14 were flooded, as noted in the 2023 Annual Geotechnical Inspection (Appendix 7). The water ponding at freshet or during the summer period in the quarries does not drain to any nearby watercourse. The quarry reclamation along the AWAR will form part of the Meadowbank Final Closure and Reclamation Plan. Reclamation activities for some quarries may occur during operations. The remaining reclamation activities for the quarries will occur during the closure period.

Pre-freshet and freshet inspections were conducted at crossings along the AWAR and quarries in 2023. These inspections are conducted to document the presence/absence of flow, erosional concerns and

turbidity plumes and to ensure that runoff, if any, would be free of any contaminant and would not impact the environment. No turbidity issues were visually observed so surface water quality sampling was not deemed necessary at non-HADD crossings or quarry contact water pools. Agnico Eagle considers the planned monitoring approach sufficient. As described in the 2012 Annual Report: *'HADD crossings R02, R06, R09 and R15 water quality monitoring results continue to suggest an improvement from post AWAR construction (complete March 2008) as mine related road activity did not cause any observable effects on the receiving environment from the field observations and water chemistry data collected in 2012. Consistent with 2011, the AWAR surface water quality results did not present concerns to the receiving environment as none of the parameters exceeded CCME (2007) in 2012. Based on the monitoring results, the road construction material appears to be stable; therefore, Agnico did not conduct any surface water chemistry sampling in 2013 unless visual turbidity observed. If in the future, an erosion issue occurs, detailed monitoring will be conducted in response to the event.'*

d. Leaching observations and tests on pit slope and dike exposure;

No recorded observation of leaching was observed on the pit slope or dike faces in 2023.

e. Any geochemical outcomes or observations that could imply or lead to environmental impact;

In 2023, Agnico Eagle continued to conduct inspections around the Waste Rock Storage Facilities (WRSF) to determine if there is seepage at the base of the WRSF. In 2023, as in previous years, surface runoff has been observed. Samples are taken in accordance with the NWB Water License 2AM-MEA1530 and reported in the annual report. Refer to Section 8.5.3.1.7 regarding the seepage event; mitigation and monitoring that occurred in NP-2 Lake and other downstream lakes (i.e. NP-1, Dogleg, and SPL).

The waste rock storage facility at Portage includes a sector with only NPAG material, and a sector for PAG material, capped with NPAG material during operations. Inspection and monitoring around the Portage waste rock storage facility report minimal water accumulation around the facility, mostly related to melt and runoff water in the spring. Thermistors installed in the Portage WRSF also indicate that freeze back is occurring within the rock pile; freeze back of the pile and the 4.0 m layer of NPAG rock will provide geochemical stability and to act as a thermal barrier to control acid rock drainage potential.

The waste rock mined at Vault is largely NPAG. As a mitigative measure any PAG or uncertain waste rock material were placed in the middle of the Vault Waste Rock Storage Facility while NPAG material is placed on the perimeter to encapsulate the PAG material. Runoff or seepage water monitoring analysis confirms the effectiveness of this abatement measure. To date water monitoring analysis from runoff indicates no concerns related to ARD. The water seepage from the Vault WRSF area is expected to be of suitable quality to allow discharge to the environment without treatment and capping of this facility is therefore not proposed. Agnico Eagle initiated water quality monitoring at Vault in 2014 and results confirm the prediction. An adaptive management plan will include continued monitoring of water quality during operations to confirm modelling predictions, and to allow adjustments to the closure plan as required. As discussed in Section 8.5.3.1.13, in 2023, ponded water was observed at the base of the WRSF (sampling station ST-24) and was sampled in May, June, July, August, September and October. As per NWB Water License, samples were collected to assess water quality and the results are presented in Table 8-25. No water was pumped from this location as it is mainly a ponding area without flow.

f. Geochemical data associated with tailings solids, tailings supernatant, cyanide leach residue, and bleed from the cyanide destruction process including an interpretation of the data;

Agnico Eagle takes throughout the year monthly samples of tailings (as per the Pore Water Quality Monitoring Program – Section 5.1.1.1 below) that are sent to an accredited laboratory to analyse for ABA and Metal Leaching. Table 5-1 below presents the results of tailings solids. These sample results are also integrated in the Water Quality Forecast updated yearly.

Table 5-1 Meadowbank 2023 Tailings Solids Monitoring§

Analysis	Date	2023											
	Units	2-Jan	19-Feb	13-Mar	9-Apr	24-May	6-Jun	3-Jul	6-Aug	3-Sep	3-Oct	4-Nov	3-Dec
NP	t $CaCO_3$ /1000t	73.6	93.1	82.8	24.6	81.2	77.2	83.6	97.5	68.6	76.5	79.4	82.2
AP	t $CaCO_3$ /1000t	55.3	67.5	64.1	71.6	55	1.25	69.1	47.5	54.7	46.2	59.7	51.9
Net NP	t $CaCO_3$ /1000t	18.3	25.6	18.7	-46.96	26.2	76	14.5	50	13.9	30.2	19.7	30.3
NP/AP	ratio	1.33	1.38	1.29	0.34	1.48	61.8	1.21	2.05	1.25	1.65	1.33	1.58
Sulphur	%	2.02	2.1	2.18	2.22	2.12	< 0.005	2.52	1.76	2.08	1.99	2	1.87
Acid Leachable SO_4-S	%	0.25	< 0.04	0.13	< 0.04	0.36	< 0.04	0.31	0.24	0.33	0.51	0.09	0.21
Sulphide	%	1.77	2.16	2.05	2.29	1.76	< 0.04	2.21	1.52	1.75	1.48	1.91	1.66
C	%	0.958	1.11	0.982	0.934	0.939	0.368	1.12	1.19	1.09	1.07	1.09	1.15
CO_3	%	4.01	4.82	4.04	0.76	3.76	0.96	4.5	4.96	3.88	4.6	4.53	4.69
Final pH	pH units	1.91	1.50	1.85	1.56	1.67	1.86	1.73	1.78	1.80	1.86	1.86	1.63
As	µg/g	1,600	1,800	1,400	2,000	1,200	1,300	2,500	1,300	2,000	1,200	1,400	1,500
Cu	µg/g	89	130	140	79	120	120	110	120	120	87	102	130
Ni	µg/g	440	570	520	630	470	420	570	640	310	520	350	590
Zn	µg/g	94	93	99	86	96	88	90	94	86	94	104	100

g. Results related to the road quarries and the All Weather Private Access Road.

As mentioned in Section 5.1.1c, no quarries geochemical water analysis was performed in 2023.

5.1.1.1 *Pore Water Quality§*

Agnico Eagle received on May 24th, 2019 from NWB the Ministers Approval regarding the Amendment No.3 to Water License 2AM-MEA1526 to authorize Water Uses and Waste Deposits associated with the In-Pit Tailings Disposal Proposal. As part of their decisions, Agnico Eagle was required to submit a Tailings Pore Water Quality Monitoring Program for the Board review and approval (Section IV, Part B:

General Conditions). The approved Pore Water Quality Monitoring Program is attached in Appendix 23 of the 2019 Annual Report.

The chemical composition of the mill effluent process water has significant influence on the quality of supernatant water above the tailings surface (i.e. reclaim water) as well as the exfiltration from the tailings. The chemical composition of the tailings pore water is expected to be controlled by the chemical composition of the mill effluent and the reclaim water, which is a mixture of mill effluent process water and any other direct inputs to the pit (i.e. precipitation, runoff, etc.). Geochemical reactions within the tailings solids themselves are not expected to influence pore water chemistry.

In-Pit disposal in Goose Pits started on July 5th, 2019, and stopped on August 19th, 2020. In-pit disposal in Portage Pit E started on August 20th, 2020, and is ongoing. As part of this program, Agnico Eagle collected on a monthly basis, one sample of plant effluent slurry representative of the end of pipe prior to tailings disposal in Goose/Portage pits (collected in the mill). Tailings samples were taken each month in 2023. Samples of reclaim water from the Pits where tailings are actively being deposited were also taken, if possible, to be done safely, and the results are provided in Section 8.5.3.1 below.

Agnico Eagle completed sampling for in-pit tailings and porewater for two (2) subsequent years. A sampling program was conducted in August 2022 to characterize the tailings and porewater in Goose Pit. Additional sampling was completed in 2023. Monitoring pore water quality from Goose Pit will provide insights on the behavior of the pore water quality over time as the tailings self-consolidate. The data collected from Goose Pit should be representative of the behavior within Portage Pits since similar tailings are deposited in these pits. Upon data review and analysis, subsequent sampling of tailings pore water may be completed if deemed required to provide additional information on the chemistry of the pore water and to support the closure and post-closure monitoring plan for Meadowbank. The pore water data will be included in the closure studies to be presented in the Final Closure and Reclamation Plan.

5.1.2 Whale Tail Site§

As required by NIRB Project Certificate No.008, Condition 8: ***The Plan should be submitted to the NIRB at least 30 days prior to the start of construction, with subsequent updates or revisions to the Plan submitted annually thereafter or as may otherwise be required by the NIRB for the life of the Project. The Proponent shall submit a detailed Acid Rock Drainage and Metal Leaching Management Plan that includes the following items:***

- ***Waste rock segregation and testing;***
- ***Thermal monitoring of waste rock;***
- ***Seepage management and monitoring;***
- ***A schedule for reporting of results and periodic updating of predictions for the WRSF pond quality;***
- ***Planning for optimal cover conditions;***
- ***Contingency measures that may be implemented if required;***
- ***Plans for comparing monitoring results from receiving waters to model predictions; and***
- ***The identification of thresholds that will trigger management actions if trends analysis indicates water quality objectives may be exceeded.***

And

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 10: ***Geochemical monitoring results including:***

After one year of mining activity in Whale Tail Pit and after accumulating substantial information and knowledge of the Whale Tail deposit, in 2020 Agnico Eagle reviewed the waste sampling default ratios defined by the Operational ARD-ML Sampling and Testing. An updated Operational ARD-ML Sampling Testing and Plan (Appendix 21 of the 2020 Annual Report) which included new sampling frequency in Whale Tail Pit was provided to and approved by the NWB on January 22nd, 2021. A subsequent update to the plan which included new sampling frequency in IVR Phase 1 Pit was provided to and approved by the NWB on March 8th, 2023 (Appendix 31 of the 2022 Annual Report).

The objectives of the Plan are to define the sampling, analysis, and testing procedures that are to be implemented to define the acid generating and metal leaching potential of waste rock for the Mine. This characterization is to be used by mine staff to ensure that waste rock, overburden (till), and lake sediments are identified, managed, segregated and disposed of in an environmentally appropriate manner, as designated in the Plan. The Plan also defines if waste rock, overburden, and lake sediment can be used as construction/closure material. This Plan does not discuss thermal monitoring of waste rock, which is covered in the Thermal Monitoring Plan (Appendix 25 of the 2021 Annual Report).

A. Operational acid/base accounting and paste pH test work used for Waste Rock designation (PAG and NPAG rock);

In 2023, Agnico Eagle sampled approximately 25% of the blast holes and analyzed the percentages of sulphur and carbon. The results from these analyses are used to differentiate Non-Potentially Acid Generating (NPAG) from Potentially Acid Generating (PAG) materials. For detailed process regarding the ARD-ML for Whale Tail waste rock and overburden classification, please refer to the Operational ARD-ML Sampling and Testing Plan Section 3.2 (Appendix 31 of the 2022 Meadowbank Complex Annual Report). See Table 5-2 below for a summary of Acid Rock Drainage (ARD) Guidelines used to classify Whale Tail waste rock. The plan also described the frequency of sampling. Once characterized by the geology team, the waste rock material is segregated and placed in an appropriate location.

Table 5-2 Summary of ARD Guidelines used to classify waste§

Initial Screening Criteria	ARD Potential
NPR< 1	Potentially Acid Generating (PAG)
1 < NPR < 2	Uncertain or low acid generating
2 < NPR, As < 75 ppm	Non-Potentially Acid Generating (NPAG)
2 < NPR, As > 75 ppm	Potentially Acid Generating (PAG)

The mine geology staff uses the derived NPR and arsenic (As) values to characterize the rock in the blast pattern. Mine surveyors and grade control technicians use this information to delineate and place the dig limits within the blasted rock to guide the shovel and loader operators in directing where the rock is to be mined. See Section 5.2.2 and Table 5-4 for a discussion of the use and location of waste rock.

Segregation of ore, waste rock as potentially acid generating (PAG) or non-potentially acid generating (NPAG) material based on operational testing during mining activity to differentiate waste rock type is part of the Whale Tail Waste Rock Management Plan. Sampling and testing of waste materials for acid rock drainage (ARD) is conducted during mine operations in order to segregate PAG waste from NPAG waste rock material, so that waste material can be assigned to specific locations or use. This practice has been ongoing since the beginning of the mining operations at Meadowbank and continues to be applied at the

Whale Tail Mine. Operational sampling and analysis are completed on site during mining activities in order to identify and delineate the material type in the pits during mining.

The geochemical properties of all mining wastes have been confirmed with duplicates samples sent to a certified laboratory, through both static and kinetic testing on numerous representative samples, by various test methods and through multiple project development stages. In 2023, to validate the method used by Agnico Eagle, 305 samples from Whale Tail and IVR Pits were sent to an accredited commercial lab (external lab) for acid base accounting (ABA) analysis using the Modified Sobek Method for determination of NP/AP, metal leaching using the Shake Flask Method, bulk metals analysis and for whole rock analysis. The results from the external laboratory confirmed Agnico Eagle's methodology and results to differentiate PAG/NPAG rock. In 2023, on the basis of NAG/PAG determination using ABA based on sulphur and NPR content, 91% of samples analyzed at the Meadowbank and SGS laboratories were classified as the same material (NPAG or PAG). Of the 9% that did not result in the same classification, the Meadowbank lab provides a more conservative result and classifies the sample as PAG, where SGS classifies the sample as NPAG in 86% of the analyses.

The results of the NPAG-PAG classification confirmation are logged in the Meadowbank LIMS database and also stored as models in MineTrust. Due to the large volume of data, the results are not included in this annual report. These results can be provided upon request.

Information regarding the waste rock characterization is also managed and recorded by the mine dispatch in Wenco system, tracking in real time load of material, including waste rock, and their respective destination. The system and the dispatcher in charge guides the operators and ensures the ore and waste rock material is transported to the appropriate destination. The system displays in real time information about equipment location and destination, as well as pit development information. All production data, including all waste rock haulage to the PAG and NPAG waste rock storage facilities, as well as construction use are recorded into a database.

In 2023, Agnico Eagle analyzed 19,616 samples from blast holes at Whale Tail Pit and 11,120 samples from IVR Pit at its on-site laboratory. Refer to Table 5-3 below for the percentage of PAG, uncertain and NPAG per pits.

Table 5-3 Whale Tail Site Geochemical ARD determination 2018-2023 (including all waste types) §

Year	Whale Tail Pit			IVR Pit		
	PAG (%)	Uncertain (%)	NPAG (%)	PAG (%)	Uncertain (%)	NPAG (%)
2018	28	11	61	NA	NA	NA
2019	42	11	47	NA	NA	NA
2020	30	11	58	2	1	93
2021	30	13	57	2	2	96
2022	20	13	66	9	8	82
2023	18	7	74	13	12	75

The Whale Tail and IVR WRSF's will be constructed to encapsulate potentially acid generating (PAG) and metal leaching (ML) waste rock inside a layer of NPAG material as a control measure for ARD and ML. The NPAG rock that is placed on the top and sides of the storage pile is needed in the long term to host the thawed layer and prevent liquids from contacting the centre of the pile that contains PAG and ML waste rock. Presently, it is anticipated that the cover design will be similar to the Meadowbank Portage

WRSF. The cover will consist of a 4.7 m thick NPAG/NML waste rock layer on the top and edges of the facility. The cover is expected to maintain freezing conditions in the pile in the long-term. This rationale is based on results to date on thermal modelling that considers thermistor readings at the Portage WRSF. Rock oxidation can still occur in frozen material but will proceed at a slower rate than predicted by laboratory testing because of the cold temperatures prevalent for much of the year. Permafrost will retain water as ice, so it was predicted that contaminants will not be transported away from the core of the WRSF in the long-term. Further information of the Whale Tail and IVR WRSF are provided in the Whale Tail Pit – Waste Rock Management Plan (Appendix 18).

Sampling and testing of waste materials for ARD and ML are conducted during mine operation in order to segregate suitable waste for use in construction and for closure from that which will report directly to the Whale Tail and IVR WRSF.

If ponding water is found at the base of the Whale Tail WRSF (ST-WT-30, ST-WT-31, ST-WT-32, and ST-WT-33) this water reports to the WRSF Pond (ST-WT-3), and ponding water at the base of the IVR WRSF (ST-WT-28, ST-WT-34, ST-WT-35, and ST-WT-36) reports to the IVR Attenuation Pond. As per NWB Water License, samples are to be collected to assess water quality. Refer to Sections 8.5.3.2.12 and 8.5.3.2.13 for a complete discussion of the results. An adaptive management plan will include continued monitoring of water quality during operations to confirm modelling predictions, and to allow adjustments to the closure plan as required.

b. As-built volumes of Waste Rock used in construction and sent to the Waste Rock Storage Facility with estimated balance of acid generation to acid neutralization capacity in a given sample as well as metal toxicity;

Refer to the Section 5.2.2 of this report.

c. All monitoring data with respect to geochemical analyses on site and related to roads, quarries, and the Whale Tail Haul Road;

There are no issues to report for 2023.

Pre-freshet and freshet inspections were conducted at crossings along the Whale Tail Haul Road, eskers and quarries in 2023. These inspections are conducted to document the presence/absence of flow, erosional concerns and turbidity plumes and to ensure that runoff, if any, would be free of any contaminant and would not impact the environment. Refer to Section 8.5.3.2.19 for more information.

d. Leaching observations and tests on pit slope and dike exposure; and

No recorded observation of leaching was observed on the pit slope or dike faces in 2023.

e. Any geochemical outcomes or observations that could imply or lead to environmental impact.

There are no geochemical outcomes or observations that could lead to an environmental impact in 2023.

5.2 WASTE ROCK AND ORE VOLUME

5.2.1 Meadowbank Site§

In accordance with NWB Water License 2AM-MEA1530 Schedule B, Item 8: ***Volumes of waste rock used in construction and placed in the Rock Storage Facilities.***

There is no more mining at Meadowbank therefore no waste rock was generated in 2023.

The Mine Waste Rock and Tailings Management Plan (Version 14) was revised in February 2024 and can be found in Appendix 17. Details of all waste rock deposition and tailings management are contained in the revised plan.

5.2.2 Whale Tail Site§

5.2.2.1 *Waste and Ore Stockpile Volume*§

In accordance with NWB Water License 2AM-WTP1830 Schedule B, Item 11 ***Volumes of Waste Rock used in construction and placed in the Waste Rock Storage Facility.***

And

In accordance with NWB Water License 2AM-WTP1830 Schedule B, Item 12: ***Volumes of ore stockpiled and overburden stored at Whale Tail Pit site.***

The total volume of waste rock generated by Whale Tail, IVR Pits and Underground in 2023 was 32,517,312 tonnes. The use and location of all of the rock, by volume, is presented in Table 5-4 and is identified by the following categories:

- Dike – use for thermal berm abutment construction;
- Roads – used for road construction and maintenance;
- WRSF – stored in the Waste Rock Storage Facilities;
- Stockpiles – stored in stockpile for later usage for construction purposes;
- Construction;
    - Crushers – taken to the mobile crusher and used for construction or maintenance purposes;
    - Miscellaneous uses;
    - Pads construction.

The Whale Tail Waste Rock Management Plan (Version 12) was revised in February 2024 and can be found in Appendix 18. Details of all waste rock deposition and tailings management are contained in the plan.

Table 5-4 Whale Tail 2023 Rock Volume§

Month	Whale Tail and IVR Pits								Ore Processed in Mill (tonnes)[5]
	Ore[1] (tonnes)	Waste Rock (tonnes)						Overburden (tonnes)	
		Dikes	Roads[2]	WRSF[3]	Stockpiles	Construction[4]	Total		
January	251,308	-	4,362	2,361,258	373,956	241,109	2,980,685	287	348,343
February	296,557	-	1,524	1,975,691	147,247	95,431	2,219,893	0	288,996
March	313,550	-	22,814	3,394,442	141,416	0	3,558,673	0	345,469
April	340,681	15,920	11,811	2,944,216	0	0	2,971,947	115	298,713
May	146,832	-	52,264	2,311,005	171,633	0	2,534,902	1,081	182,698
June	310,938	-	41,331	2,181,112	554,843	0	2,777,286	704	363,441
July	319,141	-	26,093	2,507,889	767,627	0	3,301,609	0	358,560
August	255,230	-	6,280	2,027,048	837,803	0	2,871,131	0	364,730
September	295,673	-	3,455	2,340,974	493,184	9,882	2,847,494	0	353,573
October	422,774	-	80,051	2,013,684	704,824	45,148	2,843,707	0	313,279
November	238,368	-	9,581	1,739,890	205,339	2,424	1,957,234	0	323,782
December	341,393	-	301	1,647,359	0	5,091	1,652,751	0	301,066
TOTAL	**3,532,445**	**15,920**	**259,868**	**27,444,566**	**4,397,873**	**399,085**	**32,517,312**	**2,187**	**3,842,648**

1 All ore mined is stockpiled before it's long hauled to the Mill;
2 Includes road construction and maintenance; excludes Whale Tail Haul Road
3 Includes the waste rock that is stored in temporary locations
4 Earthworks excluding road and Dike construction
5 Includes underground ore processed

5.2.2.2 *Monitoring Program*

In accordance with NIRB Project Certificate No.008 Condition 7: ***Prior to commencement of mining of the Whale Tail deposit, and in consultation with applicable regulatory agencies, including Natural Resources Canada, the Proponent shall as part of a Mine Waste Rock and Tailings Management Plan that reflects site-specific geological and geochemical conditions. The Plan should be submitted to the NIRB at least 60 days prior to the start of construction of the Waste Rock Storage Facility, with subsequent updates or revisions to the Plan submitted annually thereafter or as may otherwise be required by the NIRB for the life of the Project.***

> ***a) Develop and implement monitoring programs for the Tailings Storage Facility and the Waste Rock Storage Facility at the Whale Tail Pit;***
>
> ***b) Establish thresholds that will trigger the requirement for the Proponent to implement adaptive management strategies to minimize the potential for impacts from these Facilities; and***
>
> ***c) Identify the adaptive management strategies that will be used by the Proponent to minimize the potential for impacts from these Facilities.***

The Whale Tail Mine Waste Rock Management Plan was initially submitted in January 2017 (Version 1) with subsequent updates. Version 12 (February 2024) (Appendix 18) was updated to align with the current operation. Agnico Eagle will continue to update the plan on an annual basis during the operation phase of the Whale Tail Mine.

5.2.2.3 *Site-specific geotechnical investigations*

In accordance with NIRB Project Certificate No.008 Condition 9: ***The Proponent shall undertake the additional site-specific geotechnical investigations required to identify sensitive land features and to inform final engineering design prior to the construction of project components such as the waste rock storage facility and quarries. Results from these studies should be submitted to the NIRB at least 30 days prior to the start of construction of these facilities, with results or updates submitted annually thereafter as applicable.***

Agnico Eagle have submitted to NIRB on June 4th, 2018, the memorandum Site Specific Geotechnical Studies (Appendix 18 of the 2018 Annual Report) as required by Condition 9. Please refer to this document in for a complete overview of the investigations completed.

Geotechnical investigations (test pits and boreholes) were conducted in 2019 and 2020 in the area of the projected IVR D-1 Dike, which will form part of the IVR attenuation pond. The information available indicates that the bedrock depth varies between 2.1 m and 6.7 m below ground surface, hence no major sensitive land features have been identified at these locations. The design report of the IVR D-1 Dike contains all the required information on the field investigations carried out at the IVR D-1 Dike and should be referred to for all the implications of geotechnical investigations for construction (SNC, 2020).

5.3 TAILINGS STORAGE FACILITY MEADOWBANK SITE

5.3.1 Tailings Storage Facility Capacity§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 9: ***An update on the remaining capacity of the Tailings Storage Facility.***

And

As required by NIRB Project Certificate No.004, Condition 18: ***commit to a pro-active tailings management strategy through active monitoring, inspection, and mitigation. The tailings management strategy will include the review and evaluation of any future changes to the rate of global warming, compliance with regulatory changes, and the ongoing review and evaluation of relevant technology developments, and will respond to studies conducted during the mine operation.***

From 2010 to 2023 a total of 47.9 Mt of dry tailings slurry from the mill had been deposited in the Tailings Storage Facilities (TSF) and the In-Pit Tailings Deposition sites as indicated in Table 5-5. In 2023, a total of 3.6 Mt of dry tailings slurry was deposited in the In-Pit Tailings Deposition sites. A monthly summary of the tailings produced in 2023 is provided in Table 5-6.

Agnico Eagle revised the tailings deposition plan (available in the 2023 Mine Waste Rock and Tailing Management Plan Version 14 presented in Appendix 17. The deposition model completed is valid until the end of milling operations in 2026. The model is based on the data collected during previous years of operation. The filling scheme for the two cells of the tailings storage facility and the In-Pit Tailings Deposition sites is designed for end of pipe discharge.

Table 5-7 presents the summary of the tailings management strategy for 2024-2026. More information on the tailings deposition modeling is presented in the Waste Rock and Tailings Management Plan.

The main conclusions from the modeling results are:

- The total maximum capacity of the In-Pit Tailings Deposition sites up to 124.7 masl is estimated at 34.8 Mm^3;

- All tailings deposition for the remainder of the LOM is to be done in Portage Pit E, with minimal placement of tailings in the North Cell and South Cell.

Table 5-5 Meadowbank Deposition location (realized)§

Date	Deposition location	Tailings deposited (dried tonnes)
February 2010 to November 2014	North Cell	16.0M tonnes
November 2014 to July 2015	South Cell	2.7M tonnes
July 2015 to October 2015	North Cell	1.0M tonnes
October 2015 to August 2018	South Cell	10.8M tonnes
August 2018 to October 2018	North Cell	0.5M tonnes
October 2018 to April 2019	South Cell	1.4M tonnes
April 2019 to July 2019	North Cell	0.6M tonnes
July 2019 to December 2019	Goose Pit	1.4M tonnes
January 2020 to August 2020	Goose Pit	1.4M tonnes
August 2020 to July 2021	Pit E	3.1M tonnes
July 2021 to August 2021	North Cell	0.4M tonnes
August 2021 to December 2022	Pit E	5.0M tonnes
January to August 2023	Pit E	2.5M tonnes
August 2023 to September 2023	South Cell	0.3M tonnes
September 2023 to December 2023	Pit E	0.8M tonnes

Table 5-5 Meadowbank 2023 Processed Tailings Volume§

Month	Total Dry Tailings (tonnes)
January	348,343
February	325,867
March	345,469
April	298,713
May	182,698
June	363,441
July	358,560
August	364,730
September	353,573
October	345,361
November	185,695
December	177,100
TOTAL	**3,649,550**

Table 5-6 Meadowbank Deposition plan and infrastructure construction – summary§

Date	Discharge location	Dry tonnes deposited	Comments
January 2024 to July 2024	Pit E	3.9 Mt	• Reclaim water from Pit E and Pit A • Transfer water from Pit E to Pit A • No Goose Pit transfers planned
August 2024	NC	0.35 Mt	
September 2024 to July 2025	Pit E	3.8 Mt	
August 2025	SC	0.36 Mt	
September 2025 to June 2026	Pit E	2.1 Mt	

5.3.2 Tailings In-Pit Disposal Meadowbank Site

As required by NIRB Project Certificate No.004, Condition 87: ***The Proponent shall, prior to the deposition of tailings into the Portage or Goose Pits, file with the Nunavut Water Board (NWB) a report containing updated hydrogeological modelling addressing information gaps as per the NIRB recommendation in the Reconsideration Report and Recommendations to the satisfaction of the NWB. The Proponent shall not deposit tailings into the Portage or Goose pits until the Water Board is satisfied that the modelling addresses the specific information gaps, and that the proponent can manage any identified risks with existing designs and feasible management strategies. The Proponent shall file a report with the Nunavut Water Board, containing updated hydrogeological modelling addressing information gaps, prior to the deposition of tailings into the Portage or Goose pits. Confirmation of the report's filing, conclusions of this report, and any further updates to reporting requirements as determined under the water license, shall be provided to the NIRB in Agnico Eagle's Annual Report for the project.***

And

As required by NIRB Project Certificate No.004, Condition 20: ***Prior to construction, Cumberland shall identify mitigation measures that can be taken if groundwater monitoring around the tailings facility demonstrates that contamination from tailings has occurred through the fault. Upon drawdown of the North arm of Second Portage Lake, Cumberland shall conduct further tests to assess the permeability of any faults and provide the results to regulators. If doubt remains Cumberland shall seal the fault and conduct further permeability testing and monitoring. Following completion of the permitting process for the In-Pit Tailings Modification Proposal, the Proponent shall provide an update to the NIRB on any fault identified related to either Portage Pit A, Portage Pit E, and Goose Pit, any plans to address groundwater movement considering any fault, and how potential monitoring of tailings and groundwater movement would be undertaken to inform management plans.***

As per Condition 87 (Project Certificate 008), Agnico Eagle has submitted the requested study in advance of the Meadowbank In-pit disposal. Thermal modeling was carried out in early 2018 for the in-pit tailings deposition detailed engineering study at the Goose Pit, Portage Pit A and Portage Pit E up to a 100-year period after closure. The modeling details and results were presented in the "In Pit Tailings Deposition Thermal Modeling Report", dated April 16th, 2018 (Appendix 19 of the 2018 Annual Report). To address NRCan's outstanding comments from the meeting on September 25th, 2018, additional long term thermal modeling beyond 100 years and up to 20,000 years after closure was carried out to evaluate the long-term thermal regime/permafrost conditions for the three pits. Modeling summary of this work is presented in the report 'Meadowbank In-Pit Tailings Disposal - Thermal and Hydrogeological Modeling Update to Address NRCan's Comments' and can be found in Appendix 20 of the 2018 Annual Report. Agnico Eagle have received the Minister approval for the NWB Water License 2AM-MEA1526 Amendment no.3 on May 24th, 2019.

To ensure the environment protection and evaluate potential risks for tailing migration into groundwater, a feasibility study was conducted by SNC-Lavalin professionals in 2016-2017. The feasibility study included a complementary characterization of the geological structures and permafrost extent on site and the development of a detailed hydrogeological numerical 3D model. Main geological structures (Bay Fault, Second Portage Lake Fault, and geological contact with quartzite formation) were identified and implemented in the 3D model with defined hydraulic conductivity and porosity to simulate potential reclaim water seepages out from in-pit tailings pore water. The numerical simulations were designed to represent the worst-case scenarios in terms of contaminant transport within the aquifers. Therefore, a groundwater monitoring program was designed in relation to the groundwater flow and contaminant transport simulation results. The hydrogeological model and solute transport simulations were updated to version 4 during the detailed engineering study completed by SNC-Lavalin and following Natural Resources Canada (NRCan) recommendations addressed during In-Pit Tailings Deposition Project approval process.

In 2018, the latest version of the groundwater numerical model was used to forecast the post closure evolution of chloride concentrations at existing wells, including the four new wells installed in 2018. Breakthrough chloride concentration curves (predicted concentrations of chloride over time at a specific point of the 3D model) were extracted from the model at each monitoring well. Concentration increases over time showed that monitoring wells could intercept the contaminant plume from Pit A, Pit E and Goose Pit after closure over different period and at different concentrations.

As the in-pit deposition project will continue, updates of the hydrogeological model will be performed at closure period using the gathered site data such as ground temperature, hydraulics heads, in-pit tailings pore water quality, etc. Breakthrough curves will be reviewed at this time to adapt the Groundwater Monitoring Plan. As mentioned in the Interim Closure and Reclamation Plan (Update 2019, March 2020), the hydrogeological model will be updated at the end of in-pit deposition operations, unless significant change in thermal regime is observed by existing instrumentation. The thermal and hydrogeological modelling during operation will be used as a predictive tool, along with field observations, to adapt the closure and post-closure groundwater monitoring program. The details of the thermal and hydrogeological modelling, as well as the closure and post-closure groundwater monitoring program, will be presented in the Final Closure and Reclamation Plan, to be submitted twelve (12) months prior to the expected end of planned mining (Water License No: 2AM-MEA1530, Part J, condition 1).

It should be noted that hydrogeology and groundwater are monitored on site during operation as per the Groundwater Monitoring Plan (Version 11, March 2020), and that in-pit tailings pore water is also monitored as per the Pore Water Monitoring Plan (Version 2, March 2020). Data collected during operation will support the in-pit hydrogeological modelling post-deposition and the groundwater monitoring program for closure and post-closure.

The Groundwater Management Plan (Version 11, March 2020 – Appendix 60 of the 2019 Annual Report) is considered to be compliant with the above term and condition.

Geotechnical and geomechanical data for the Portage and Goose pits have been collected during the mining period, prior to in-pit tailings deposition. Relevant data from rock mechanics inspections, pit wall stability analysis, geotechnical drilling for instrumentation or groundwater wells, as well as the geology rock core database gathered prior to in-pit deposition will be integrated to the revised hydrogeological modelling, to be presented in the Final Closure and Reclamation Plan.

5.4 FREEZEBACK, PERMAFROST, THERMAL MONITORING AND CAPPING THICKNESS§

5.4.1 Meadowbank Site§

As required by NIRB Project Certificate No.004, Condition 19: ***Provide for a minimum of two (2) metres cover of tailings at closure, and shall install thermistor cables, temperature loggers, and core sampling technology as required to monitor tailing freezeback efficiency. Report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.***

And

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 18: ***A summary of on-going field trials to determine effective capping thickness for the Tailings Storage Facility and Waste Rock Storage Facilities for the purpose of long term environmental protection.***

The current concept as presented in the 2019 Meadowbank Interim and Closure Plan (ICRP) (Annual Report 2019, Appendix 55) for the TSF landform at closure includes a cover system comprised of a minimum 2 m thick layer of NAG rockfill. Since 2015, progressive capping has been ongoing in the TSF North Cell. Progressive closure for the TSF cover continued in 2023 as presented in Section 9 of the Annual Report.

A study is ongoing to advance the engineering level of the TSF cover landform with the objective of reviewing alternatives concepts applicable for the closure of the TSF, reaffirming the applicability of the technology and the control mechanisms retained for the cover design. The study will also clarify the geometry of the landform with the NPAG quantities associated and define the details of the water management system required. The progress on the TSF cover design will be presented in the next version of the Meadowbank ICRP, as well as the next steps for progressive closure. Final cover configuration and details for the TSF will be subject to modification depending on the results obtained from tailings and water geochemistry, site trials as well as from data provided from the Monitoring Program. The final TSF cover design will be presented in the Final Closure and Reclamation Plan (FCR).

To monitor the long-term environmental effects of the TSF on the aquatic receiving environment, thermal monitoring and water quality monitoring are ongoing and will continue throughout closure, based on the TSF monitoring plan for the final TSF cover design. Late in the operations period, thermal monitoring will continue to take place at the TSF using the current thermistors as well as using additional thermistors and possibly other geotechnical instrumentation installed in future years. Thermal monitoring results are and will be used to monitor how the tailings are freezing. The Meadowbank Thermal Monitoring Report contains detailed information about the thermal monitoring at the TSF and is available in Appendix 19.

The current concept for the WRSF landform is to place 4 m of NAG cover to maintain geochemical stability of the facility. Agnico Eagle completed a study to confirm the design of the Portage WRSF landform and the cover performance. The scope of this study included: reviewing the closure concept, updating the concept design based on information gathered through operation, updating the landform water balance and updating the monitoring plan. This report can be found in Appendix 21 of the 2022 Annual Report and the information contained within will be integrated in the next update of the ICRP and the FCRP. The conclusions from this study reinforce the confidence in the current design of the Portage WRSF landform. The report puts in context the available monitoring data and models the predicted behaviour of the landform while explaining the mechanisms that will ensure that the closure objectives are met. The updated adaptive monitoring plan included in this report provides additional tools to measure the performance of the current cover and feed the final design report of the landform that will be submitted as part of the FCRP.

Thermal monitoring will continue to take place at the WRSFs using the current thermistors installed at the Portage WRSF as well as using additional thermistors installed in future years if required. Thermal monitoring results are and will be used to monitor the WRSFs temperature as freezing progresses. The Meadowbank Thermal Monitoring Report is available in Appendix 19 and contains detailed information about the thermal monitoring at the Portage WRSF.

Update on Field Trials

A research project in collaboration with the Research Institute of Mines and Environment (RIME) was initiated in 2014 at Meadowbank. The Research Institute on Mines and Environment, through the NSERC-UQAT Chair on Mine Site Reclamation, is mandated to evaluate the performance of three field experimental cells constructed in 2014 and 2015 on Meadowbank's North Cell TSF. The three experimental cells that were built on Meadowbank's TSF are two insulation covers and one thermal cover with capillary barrier effects (CCBE).

The tested experimental cells are a 2m and a 4m thick insulation cover as well as a 2m thick cover with capillary barrier effects. The cells were built with coarse and fine non-potentially acid generating (NAG) ultramafic waste rock (soapstone) and are instrumented in order to follow their thermal and hydrogeological behaviors.

Also, in collaboration with the RIME, in 2016 a laboratory testing program was developed to obtain a good overview of the effects of freeze/thaw (F/T) and wet/dry (W/D) cycles on the soapstone. The developed experimental program is primarily focused towards the evaluation of the resistance to F/T and W/D of the soapstone to be used as cover materials for the TSF and WRSF. Testing was completed to evaluate the effects of F/T and W/D on rock cores and rock slabs, the effects of F/T on various soapstone grain size fractions, and the effects of F/T on the permeability of a compacted soapstone layer.

In 2019 the RIME finished collecting and analysing the data on the cover field trial and on the long-term performance of ultramafic rockfill as a cover material. Research papers on this subject were published in 2020 and 2021.

The memorandum made by O'Kane on the Meadowbank Portage WRSF landform closure strategy (948-228-002) attached to the 2022 Meadowbank Thermal Monitoring Report (Appendix 24 of the 2022 Annual Report) has a section that summarizes the study made by the RIME and how the information will be useful to re-affirm or update the design of the WRSF landform. A similar literature review exercise is ongoing as part of the project to update the TSF cover concept.

The full list of all publications produced by the RIME related to the TSF and WRSF covers is listed below.

RIME Publication List

Conference papers and abstracts

Awoh, A.S., Bruno, B., Batzenschlager, C., Boulanger-Martel, V., Lépine, T. & Voyer, É. 2016. Design, construction and preliminary results of two insulation covers at the Meadowbank mine. Geo-Chicago 2016: Sustainability, Energy, and the Geoenvironment. American Society of Civil Engineers, Chicago, IL, 12. (TSF)

Boulanger-Martel, V., Bussière, B., Côté, J. & Gagnon, P. 2017. Design, construction, and preliminary performance of an insulation cover with capillary barrier effects at Meadowbank mine, Nunavut. 70th Canadian Geotechnical Conference, Ottawa, Ontario, Canada. (TSF)

Boulanger-Martel, V., Bussière, B. & Côte, J. 2018. Évaluation de modes de restauration pour le parc à résidus miniers de la mine Meadowbank. Rouyn-Noranda 2018 Symposium on mines and the environment. Canadian Institut of Mining, Metallurgy and Petroleum, Rouyn-Noranda, Québec, Canada. (TSF)

Boulanger-Martel, V., Poirier, A., Côté, J. & Bussière, B. 2018. Thermal conductivity of Meadowbank's mine waste rocks and tailings. 71th Canadian Geotechnical Conference, Edmonton, Alberta, Canada. (TSF + WRSF)

Boulanger-Martel, V., Bussière, B. & Rossit, M. 2020. Determination of the water retention curve of large particle sizes–high water retention capacities materials. 73th Canadian Geotechnical Conference, Calgary, Alberta, Canada. Abstract no. 300 (TSF)

Special presentations

Boulanger-Martel, V. 2019. Thermal performance of two insulation covers to control sulfide oxidation at Meadowbank mine, Nunavut. Canadian Geotechnical Society graduate presentation award, 72th Canadian Geotechnical Conference, St- John's, Newfoundland and Labrador, Canada. October 1st, 2019. (TSF)

Journal papers

Poirier, A., Bussière, B., Côte, J., & Boulanger-Martel, V. 2019. Thermal behaviour of a waste rock pile located in the Arctic: case study of Meadowbank mine, Nunavut. Paper to be resubmitted to the Canadian Geotechnical Journal in 2021. (WRSF)

Boulanger-Martel, V., Bussière, B. & Côte, J. 2021. Resistance of a waste rock unit to freeze-thaw and wet-dry cycles: implications for use in a reclamation cover in the Canadian Arctic. Bulletin of Engineering Geology and the Environment, 80: 41-54. (TSF + WRSF)

Boulanger-Martel, V., Bussière, B. & Côte, J. 2021. Thermal behaviour and performance of two field experimental insulation covers to control sulfide oxidation at Meadowbank mine, Nunavut. Canadian Geotechnical Journal. 58(3): 427–440. doi:10.1139/cgj-2019-0616. (TSF)

Boulanger-Martel, V., Bussière, B. & Côte, J. 2021. Insulation covers with capillary barrier effects to control sulfide oxidation in the Arctic. Canadian Geotechnical Journal. doi:10.1139/cgj-2019-0684. (TSF)

Thesis

Boulanger-Martel, V. 2019. Évaluation de la performance de recouvrements miniers pour contrôler le drainage minier acide en climat nordique. Ph. D. thesis, Département des génies civil, géologique et des mines, Polytechnique Montréal. 446 pp. (TSF)

Poirier, A. 2019. Étude du comportement thermique d'une halde à stérile située en conditions nordiques. M.S.A. thesis, Département des génies civil, géologique et des mines, Polytechnique Montréal. 196 pp. (WRSF)

Published dataset

Boulanger-Martel, V. 2019. Evolution of the physical and mechanical properties of NPAG waste rock cores with respect to freeze-thaw and wet-dry cycles. Mendeley data, v1, http://dx.doi.org/10.17632/2kzf6grgvb.1 (TSF and WRSF)

5.4.2 Whale Tail Site§

As required by Water License 2AM-WTP1830 Schedule B, Item 21: ***A summary of on-going field trials to determine effective capping thickness for the Waste Rock Storage Facility for the purpose of long term environmental protection.***

And

As required by NIRB Project Certificate No.008 Condition 10: ***Results of these studies should be submitted to the NIRB at least 30 days prior to the start of construction of these facilities, with subsequent updates submitted annually thereafter. In consultation with applicable regulatory agencies such as Indigenous and Northern Affairs Canada and Natural Resources Canada, the Proponent shall undertake additional site-specific permafrost monitoring, mapping and thermal analysis to:***

- ***Document permafrost conditions, including seasonal thaw and amount of ground ice;***
- ***Inform the detailed design of project infrastructure such as the Whale Tail pit, water management structures, mine site and haul roads, waste rock storage facility, tailings storage facility; and***
- ***Ensure the integrity of such infrastructure is maintained after construction.***

And

As required by NIRB Project Certificate No.008 Condition 14: ***The Proponent shall develop and implement a Thermal Monitoring Plan to identify potential changes in talik distribution and flow paths that may result from the development of project infrastructure, including the Whale Tail pit, dikes, and water impoundments. The Plan should be submitted to the NIRB at least 60 days prior to the start of construction of these facilities, with subsequent updates submitted annually thereafter or as may otherwise be required by the NIRB.***

In 2018, studies were initiated with a consultant (O'Kane) to develop the detailed engineering design for the capping of the Whale Tail WRSF. This mandate included thermal modelling to re-assess the capping thickness. This information was also used to inform the instrumentation program to ensure that the WRSF cover performs according to its design intent. These studies were completed in 2019 and provided to the regulators (Landform Water Balance Modelling of Whale Tail and IVR WRSF under RCP8.5., O'Kane Reference No. 948-011-015 rev4 and Amaruq Waste Rock Storage Facility Thermal Cover System Design Basis. O'Kane Reference No. 948-011-M-007 Rev3).

The study "Landform Water Balance Modelling of Whale Tail and IVR WRSF under RCP8.5" completed a landform water balance including estimates of runoff, interflow, and basal seepage rates for different slopes and aspects of the WRSF under the Representative Concentration Pathway 8.5 (RCP8.5) climate change condition. The results of the study provided effective precipitation for the 150-year climate database, provided a surface water balance, concluded that basal seepage will be negligible, determined the interflow distribution by month, and forecasted trends in pore space temperature. Results of the surface water balance support the conceptual model that the hydraulic regimes are expected to be different based on the North and South aspect. Generally, higher net radiation results in greater evaporation and soil heating. With more evaporation, less water is available to runoff and/or infiltrate. Higher net radiation will also result in more sublimation, as more energy is available to convert snow into water vapour.

The study “Amaruq Waste Rock Storage Facility Thermal Cover System Design Basis” goes over the cover system design, the surface water management design, design drawings, construction specifications, and the Operations, Maintenance and Surveillance Manual for the WRSF cover systems.

Agnico Eagle has documented permafrost conditions on site with thermistors placed at strategic locations recommended by the different designers and consultants involved in the project. The Whale Tail Thermal Monitoring Report (Appendix 20) presents a summary of the thermal monitoring program at Whale Tail Mine from the period of 2016 to 2023 along with interpretation of the thermistor results.

Agnico Eagle updated the Whale Tail Thermal Monitoring Plan (Version 4) in March 2022, and it is presented in Appendix 39 of the 2021 Annual Report.

The data presented in Appendix A of the Whale Tail Thermal Monitoring Report informed and will continue to inform the detailed design of the project infrastructure such as the Whale Tail and IVR pits, water management structures, mine site and haul roads, and the waste rock storage facility.

At the WRSFs, thermistors are showing thermal behaviour along the expected trend (permafrost aggradation) and the instruments are now covered by waste rock. The analysis of this data against adaptive monitoring triggers indicates that the current thermal performance of the WRSF is as expected.

Refer to the 2023 Whale Tail Thermal Monitoring Report (Appendix 20) for a complete discussion and interpretation of the thermal data for the dike and pit areas.

The detailed analysis of the thermal monitoring of the dikes is presented in the 2023 Annual Geotechnical Inspection Report (Appendix 7). Table 5-7 below presents the sections of this report associated with each structure. Agnico Eagle will refer the reader to the 2023 Annual Geotechnical Inspection Report for a complete review of the results.

Table 5-7 Whale Tail Thermal Data Interpretation Sections in the 2023 Annual Geotechnical Inspection[§]

Structure	Section in the 2023 Annual Geotechnical inspection
Whale Tail Dike	4.1.2.2
WRSF Dike	4.2.2
Mammoth Dike	4.4.2
IVR Dike D1	4.3.2

SECTION 6. WASTE MANAGEMENT ACTIVITIES§

6.1 GENERAL WASTE DISPOSAL ACTIVITY§

6.1.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 11: ***A summary report of general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.***

And

NIRB Project Certificate No.004 Condition 24*: Cumberland shall identify an area and design for a landfill for disposal of operational and closure non-salvageable materials, including a list of any nonsalvageable materials, and a procedural manual for preparation of location and placements of these materials, and incorporate the design into the final Waste Management Plan as instructed by the NWB.*

6.1.1.1 Incinerator§

Operation of the incinerator ceased on November 27th, 2022, and thus, no waste was burned into the incinerator in 2023.

6.1.1.2 Landfill§

Agnico Eagle estimated from the engineering surveys that approximately 2,363 m^3 of waste was landfilled at Meadowbank in 2023. Landfill #11b is currently in use. Table 6-1 below indicates the volume of waste in cubic meter (m^3) disposed of in each sub-landfill from 2012 to 2023 and Figure 14 indicates the location of each sub-landfill used to date. The volume of waste landfilled from the start of the project is approximately 125,544 m^3. This is based on the engineering surveys done at each sub-landfill. It should be noted that this amount is overestimated as some of the surveys were completed once the sub-landfills capping were done. The waste was not always compacted in the landfill when surveyed causing volumes to be overestimated.

In December 2021, the Meadowbank landfill burned from an undetermined cause. The volume of waste from landfill #11a at the end of 2020 (1,691 m^3) and 2021 (4,905 m^3) were added to the table below as indicative purpose to obtain the total volume disposed over the years, as those volumes no longer exist due to the fire event. In 2023, all waste from landfill #11a was compacted and relocated to Landfill #11b.

Table 6-1 Meadowbank volume of waste disposed in each sub-landfill (from survey)§

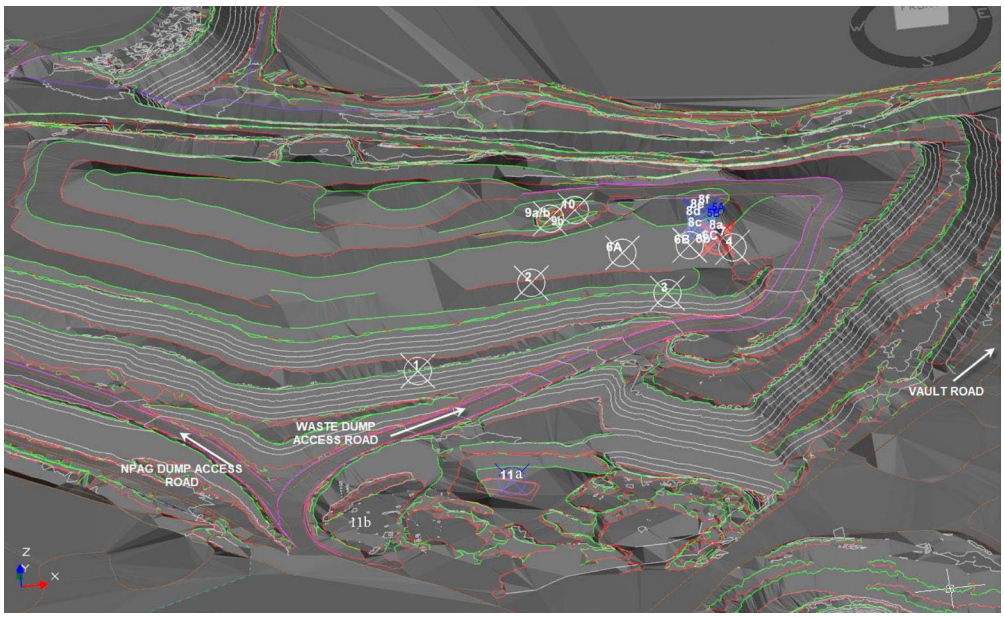
Landfill	Coordinates (UTM)			Volume (m^3)	Date covered
	Northing	Easting	Elevation		
#1	7215715.6	638601.6	160	3,650	December 12, 2012
#2	7215795.8	638711.4	186	840	February 27, 2013
#3	7215743.1	638827.8	195	1,656	May 14, 2013
#4	7215796.5	638890.9	200	9,507	January 19, 2014

#5A	7206586.1	643115.9	210	3,870	November 30, 2014
#5B	7206586.1	643115.9	210	2,768	March 13, 2015
#6A	7215788.8	638793.3	212	278	March 21, 2015
#6B	7215789.3	638853.1	212	3,260	September 5, 2015
#6C	7215790.8	638878.1	212	9,290	May 20, 2016
#7	7215790.8	638878.1	214	4,560	December 20, 2016
#8a	7215790.1	638878.1	217	17,864	November 30, 2017
#8b	7215790.1	638878.4	217	2,709	January 27, 2018
#8b	7215790.1	638878.4	217	13,019	June 1, 2018
#8c	7215800.7	638865.4	221	2,800	October 1,2018
#8d	7215800.7	638865.4	227	9,377	April 4, 2019
#8e	7215800.7	638865.4	232	8,482	August 1, 2019
#8f	7215800.7	638865.4	235	12,175	September 2, 2019
#9a	7215823.5	638733.9	233	350	March 28, 2020
#9b	7215823.5	638733.9	235	4,079	March 28, 2020
#10	7215829.7	638756.6	235	1,350	November 17, 2020
#11	*7215539.9*	*638667.8*	*150*	*1,691**	*Burned in 2021*
#11	*7215539.9*	*638667.8*	*150*	*4,905**	*Burned in 2021*
#11a	*7215539.9*	*638667.8*	*150*	*7,440***	*NA – Relocated to Landfill 11b*
#11b	7215498.1	638540.6	150	7,064**	Active
			Total	**125,544**	

**Volume added to the volume of waste disposed to the landfill. See text above for more information.*

***All waste from landfill #11a was compacted and relocated to Landfill #11b.*

Figure 14 Meadowbank sub-landfill location[§]



6.1.1.3 *Hazardous and non-hazardous waste*[§]

In 2023, approximately 443 sea cans comprising hazardous waste, used tires, scrap metal, domestic waste, and construction debris were transported to registered companies or disposal facilities located in the Province of Quebec.

The sea cans were shipped from the spud barge at Agnico Eagle's Baker Lake marshalling facilities to Bécancour (Quebec) by sealift. These materials were transported under Waste Manifest #'s UW01069-3 (Appendix 21), in accordance with the GN Guidelines for the shipment of such waste.

A description of the types of waste, packaging and volume is provided in Table 6-2. Table 6-3 provided a summary of waste generated per type along with their disposal/recycling location. The volume of hazardous and non-hazardous waste disposed by sealift in 2023 are for the Meadowbank and Whale Tail sites. The waste to be disposed off-site from Whale Tail site is transported to Meadowbank during the year, there is no possibility to make a distinction between the two sites.

In 2023, Agnico Eagle generated approximately 13,821 tonnes of waste for Meadowbank and Whale Tail sites. This represents 75.7% of general waste disposed in the landfill, 3.8% of domestic waste disposed in the composter or off-site, 3.4 % of industrial/hazardous waste sent to an approval facility off-site, 4.8 % of waste (waste oil, batteries and tires) recycled on site and off-site and 12.3% of steel recycled off site. Table 6-3 below provided the quantity of waste recycled, disposed on site or off-site.

Table 6-2 Meadowbank and Whale Tail 2023 waste shipped to licensed hazardous waste companies[§]

Description	UN Number	TDGA Class	P.G.	Quantity	Unit/Container Capacity	Disposal weight (Kg)	Disposal method
Waste oil				148	Tote - 1,000L	131,720	Energy recovery
Waste oil				14	Drum - 205L	2,562	Energy recovery
Hydrocarbon contaminated water				67	Tote - 1,000L	67,000	Treatment, energy recovery and elimination
Waste oily water				46	Drum -205L	9,200	Treatment, energy recovery and elimination
Waste oil filter				60	Tote -1,000L	12,000	Energy recovery and recycling
Waste Oily sludge and debris				3	Tote -1,000L	3,900	Elimination
Waste Antifreeze - concentration less than 30%				14	Tote - 1,000L	14,000	Treatment, recycling
Waste Diesel Fuel	UN1202	3	III	1	Tote - 1,000L	1,000	Energy recovery
Waste Batteries Wet - Lead Batteries	UN2794	8		10	Quatrex	5,200	Recycling
Environmentally Hazardous Substances, solid (LEAD) - Lab sample	UN3077	9	III	10	Quatrex	8,000	Elimination and recovery
Contaminated plastic				1	Tote – 1,000L	50	Recycling
Empty contaminated drum- last residues oil				18	Drum - 205L	198	Recycling
Empty contaminated tote				41	Tote - 1,000L	2,255	Recycling
Empty plastic pails				3,510	Pail - 20L	3,510	Recycling
Waste, contaminated empty pails, cans and plastics				21	Quatrex	630	Recycling
Empty tote-tank, Residue last contained Acid and alkaline residues	UN1759	8	III	5	Tote - 1,000L	275	Neutralization, recycling
Waste hydraulic hoses				75	Quatrex	22,500	Elimination
Waste oily solids				503	Quatrex	100,600	Elimination
Waste oily solids				1	Tote – 1,000L	200	Elimination
Waste oily solids				11	Drum - 205L	825	Elimination
					Total	**385,625**	

Table 6-3 Percentage of waste disposed from 2015-2023[§]

Waste	2015 Weight (Tonnes)	2016 Weight (Tonnes)	2017 Weight (Tonnes)	2018 Weight (Tonnes)	2019 Weight (Tonnes)[4]	2020 Weight (Tonnes)	2021 Weight (Tonnes)	2022 Weight (Tonnes)	2023 Weight (Tonnes)	2015 Total waste (%)	2016 Total waste (%)	2017 Total waste (%)	2018 Total waste (%)	2019 Total waste (%)	2020 Total waste (%)	2021 Total waste (%)	2022 Total waste (%)	2023 Total waste (%)	Disposal Recycling location
General[1]	8,561	8,672	8,403	11,073	24,339	7,505	6,325	7,960	10,469	74.9	76.5	78.7	75.7	87.8	69.4	67.5	58.8	75.7	Landfill On-site disposal
Domestic[2]	545	541	557	924	810	700	796	1,367	522	4.8	4.8	5.2	6.3	2.9	6.5	8.5	10.1	3.8	Incinerator[5]/Composter on-site or off-site disposal
Industrial/ Hazardous[3]	289	161	243	483	470	622	600	856	471	2.5	1.4	2.3	3.3	1.7	5.8	6.4	6.3	3.4	Off-site disposal and recycling
Waste oil	358	280	280	337	210	162	263	152	303	3.1	2.5	2.6	2.3	0.8	1.5	2.8	1.1	2.2	On-site recycling
Steel	1,449	1,550	1,097	1,690	1,813	1,657	1,132	2,858	1,696	12.7	13.6	10.3	11.5	6.5	15.3	12.1	21.1	12.3	Off-site recycling
Wood	88	55	0	0	0	0	0	0	0	0.8	0.5	0	0	0	0	0	0	0	Baker Lake recycling
Batteries	38	17	17	19	19	31	11	29	5	0.3	0.1	0.2	0.1	0.1	0.3	0.1	0.2	0.04	Off-site recycling
Tire	97	67	81	110	63	136	243	309	355	0.9	0.6	0.8	0.8	0.2	1.3	2.6	2.3	2.6	Off-site recycling
TOTAL	**11,425**	**11,343**	**10,678**	**14,636**	**27,724**	**10,813**	**9,370**	**13,530**	**13,821**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	

1. *2023 - Volume of general waste sent to Meadowbank Landfill is 1,654 tonnes and to Whale Tail Landfill is 8,814 tonnes.*
2. *2023 - Volume of domestic waste sent to the Meadowbank composter (162 tonnes) and to a registered down south company (361 tonnes).*
3. *Industrial/ Hazardous waste does not include batteries weight. Including waste oil sent off-site.*
4. *Higher volume of general waste disposed of in 2019 compared to previous are mainly due to the construction and development of the Whale Tail Mine and to the fact the that volume reported is from October 2018 to January 2020.*
5. *No more incineration on site starting in 2023.*

Several projects for waste reduction/recycling were undertaken or were ongoing in 2023 at the Meadowbank Complex:

- Recycling of used protective personnel equipment (PPE)
    - The objective of the Used PPE Project is to provide a second life to reusable PPE. With the collaboration of all departments, Agnico Eagle collected used PPE around the Meadowbank Complex to create a used PPE inventory. This used PPE is now reused instead of ordering new equipment and disposing of reusable materials in the landfill. This initiative has been successful in reducing waste sent to landfill and as an overall cost saving measure.
- Waste oil recycling plan
    - Agnico Eagle has an existing waste oil reuse plan. In 2023, Agnico Eagle reused approximately 303 m^3 of waste oil as a fuel source in waste oil heaters. Table 6-6 provides a breakdown of the volume of waste oil incinerated by month. Agnico Eagle is planning on continuing to reuse waste oil produced in 2024.
- Steel Recycling
    - A total of 1,696 tonnes of steel was packaged and transported south for recycling. This material was removed from our solid waste stream and not landfilled on site.
- Battery recycling
    - In 2023, 5.2 tonnes of batteries were shipped south and recycled in an accredited facility.
- Tire recycling
    - In 2023, 355 tonnes of scrap tires were shipped south and recycled in an accredited facility.

6.1.1.4 *Composter*[§]

The Meadowbank composter was in operation in 2023 and continues to contribute to optimizing waste management by reducing the amount of waste to be managed off site.

In 2023, 51,791 kg of cardboard and 109,860 kg of food waste were loaded into the composter. A total of 163 totes of compost (Table 6-4) were produced and transferred to the Meadowbank landfill as per the approved Incinerator Waste Management Plan.

Table 6-4 2023 Compost totes produced§

Month	Quantity of totes produced
January	15
February	15
March	17
April	18
May	15
June	15
July	15
August	12
September	14
October	10
November	8
December	9
Total	**163**

6.1.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 14: ***A summary report of all general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal***

As detailed in Section 6.1.1 above, all hazardous and non-hazardous waste that required an off-site disposal to an accredited facilities for recycling or disposal according to regulations are sent to Meadowbank site by the Whale Tail Haul Road. From there, the hazardous and non-hazardous waste are segregated along with the waste generated by the Meadowbank site. There is no distinction possible between the site provenance of the waste. A description of the types of waste, packaging and volume is provided in Table 6-2.

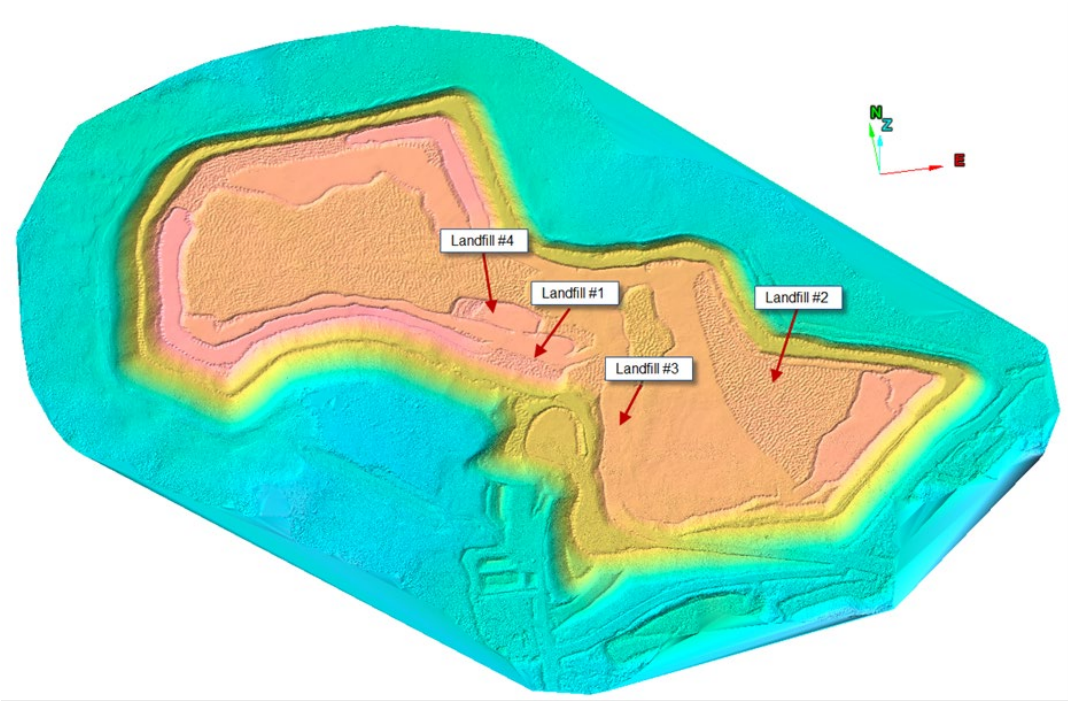
All inert waste that can be landfilled consists primarily of plastics, fiberglass, wood, cardboard, rubber, clothing, and some metal that was not recycled. Landfillable waste was transported via the Whale Tail Haul Road to the Meadowbank Landfill up to October 2019. After October 2019 and following the approval from the NWB to operate a landfill at Whale Tail, waste was no longer sent to Meadowbank but was disposed of directly on site.

Table 6-5 below indicates the volume of waste in cubic meter disposed in the Whale Tail Landfill starting in October 2019 and Figure 15 indicates the location used to date. The volume of waste landfilled since 2019 is 30,551 m^3. This is based on the engineering survey done at each landfill. It should be noted that this amount could be overestimated as some of the surveys were completed once the sub-landfills capping were done. The waste was not always compacted in the landfill when surveyed causing volumes to be overestimated. From that amount, Agnico Eagle landfilled approximately 12,592 m^3 in 2023. Landfill #4 is currently in use.

Table 6-5 Whale Tail Volume of waste disposed in landfill (from survey)§

Landfill	Coordinates (UTM)			Volume (m^3)	Date Covered
	Northing	Easting	Elevation		
#1	7256069.069	605637.584	168	6,151	December 6, 2020
#2	7256087.459	606021.081	171	8,553	October 2, 2022
#3	7255858.089	605863.835	197	11,552	September 19, 2023
#4	7255980.884	605525.441	216	4,295	Active
			Total	**30,551**	

Figure 15 Whale Tail landfill location§



There was no incinerator at Whale Tail in 2023 and thus all domestic wastes were sent to the Meadowbank composter or shipped down south, as previously described. There is no distinction possible between the volume site provenance of domestic waste in 2023.

NWB's approval for the construction of a Composter at Whale Tail site was received in 2023. Construction started in 2023 but was not completed. Composter infrastructure should be commissioned in 2024.

6.2 INCINERATOR§

6.2.1 Meadowbank Site§

As per NWB Water License 2AM-MEA1530 Schedule B, Item 12: ***Report of Incinerator test results including the materials burned and the efficiency of the Incinerator as they relate to water and the deposit of waste into water.***

And

NIRB Project Certificate No.004 Condition 72: ***On-site incinerators shall comply with Canadian Council of Ministers of Environment and Canada-Wide Standards for dioxins and furan emissions, and Canada-wide Standards for mercury emissions, and AEM shall conduct annual stack testing to demonstrate that the on-site incinerators are operating in compliance with these standards. The results of stack testing shall be contained in an annual monitoring report submitted to GN, EC and NIRB's Monitoring Officer.***

Operation of the incinerator ceased on November 27th, 2022. No waste was burned at the Meadowbank Complex in 2023, thus no stack testing was required.

6.2.1.1 *Ash Monitoring*§

Incinerator was not operational in 2023, and thus, no ash monitoring was required.

6.2.1.2 *Waste Oil Monitoring*§

In 2023, a total of approximately 303 m^3 of waste oil was burned in furnaces. Volumes of waste oil reused as fuel in 2023 are presented in Table 6-6.

Table 6-6 Meadowbank 2023 volume of waste oil consumed§

Month	In the furnace at Cat Dome, Blue coverall and SS Coverall) (m^3)
January	20
February	34
March	64
April	34
May	10
June	0
July	0
August	5
September	11
October	34
November	35
December	56
Total	**303**

There is no sampling frequency for waste oil specified in the GN Environmental Guideline for Used Oil and Waste Fuel (2012). To ensure compliance with the Guideline parameters, Agnico Eagle will sample the waste oil feedstock twice a year. This data is presented in Table 6-7.

In 2023, Agnico Eagle collected one waste oil sample per month. All metals and PCB parameters have meet the GN Environmental Guideline.

Table 6-7 Meadowbank 2023 Waste Oil monitoring§

Parameters	Maximum Allowable Concentration*	Unit	1/15/2023	2/10/2023	3/7/2023	4/8/2023	5/21/2023	6/22/2023
Flash Point	≥ 37.7	°C	67	>80	>80	>80	>80	>80
Total Halogen	1,000	mg/kg	209	85	95	143	182	180
Cadmium	2	mg/kg	< 1	< 1	< 1	< 1	< 1	< 1
Chromium	10	mg/kg	< 1	< 1	< 1	1	< 1	< 1
Lead	100	mg/kg	< 5	< 5	< 5	< 5	< 5	< 5
Polychlorinated Biphenyls	2	mg/kg	< 1	< 1	< 1	< 1	< 1	< 1

Parameters	Maximum Allowable Concentration*	Unit	7/16/2023	8/12/2023	9/3/2023	10/15/2023	11/2/2023	12/3/2023
Flash Point	≥ 37.7	°C	>80	>80	>80	>80	>80	>80
Total Halogen	1,000	mg/kg	358	159	<50	602	155	60
Cadmium	2	mg/kg	< 1	< 1	<1	< 1	< 1	< 1
Chromium	10	mg/kg	< 1	1	<1	3	< 1	< 1
Lead	100	mg/kg	< 5	< 5	<5	6	< 5	< 5
Polychlorinated Biphenyls	2	mg/kg	< 1	< 1	<1	< 1	< 1	< 1

** GN Environmental Guideline for Used Oil and Waste Fuel (GN, 2012)*

6.2.2 Whale Tail Site§

As per Water License 2AM-WTP1830 Schedule B, Item 15: ***Reporting of Incinerator test results including the materials burned and the efficiency of the Incinerator in relation to effects on Water and the potential Deposit of Waste into Water***

There is currently no incinerator constructed at Whale Tail site.

6.3 ADDITIONAL INFORMATION§

6.3.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 25: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

The Board did not request any additional details on waste disposal in 2023.

6.3.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 28: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

The Board did not request any additional details on waste disposal in 2023.

SECTION 7. SPILL MANAGEMENT

7.1 SPILL SUMMARY[§]

The number of spills in 2023 for both Meadowbank and Whale Tail sites are summarized in Table 7-1 below. The construction of the Whale Tail Mine started in 2016 with the construction of the Amaruq Exploration Access Road (Whale Tail Haul Road). For this reason, there are no spills to report from the Whale Tail site prior to 2016. Spills that occurred along the Amaruq Exploration Access Road were reported in 2016 and 2017 in the report submitted as part of the NWB Water License 8BC-AEA1525, which was cancelled as of November 2018 and are reported in the Table 7-1 below.

To be consistent with previous years, Agnico Eagle will continue to present spills for the Meadowbank Mine site, AWAR and Bake Laker infrastructures (Section 7.1.1) and the ones for Whale Tail Mine site and Whale Tail Haul Road (Section 7.1.2) separately.

Table 7-1 Total reportable and non-reportable spills for the Meadowbank and Whale Tail Sites from 2011 to 2023[§]

Year	Meadowbank Site			Whale Tail Site			Total both site
	Number Reportable Spills	Number Non-Reportable Spills	Total	Number Reportable Spills	Number Non-Reportable Spills	Total	
2011	12	68	**80**	NA	NA	**NA**	**80**
2012	16	82	**98**	NA	NA	**NA**	**98**
2013	7	85	**92**	NA	NA	**NA**	**92**
2014	9	63	**72**	NA	NA	**NA**	**72**
2015	18	148	**166**	NA	NA	**NA**	**166**
2016	34	374	**408**	0	14	**14**	**422**
2017	28	383	**411**	0	34	**34**	**445**
2018	26	217	**243**	15	114	**129**	**372**
2019	22	97	**119**	43	177	**220**	**339**
2020	11	38	**49**	21	204	**225**	**274**
2021	20	48	**68**	14	148	**162**	**230**
2022	14	45	**59**	20	134	**154**	**213**
2023	15	46	**61**	22	105	**127**	**188**

With the main mining operations shifted from Meadowbank to Whale Tail mine in 2019, it was expected to observe a significant decrease in spills internally and externally reported at Meadowbank and an increase at the Whale Tail site.

In 2022 as part of the Spill reduction action plan, a thorough review of the spills which occurred in 2021 and 2022 was performed to identify common causes. The maintenance department launched an equipment spill root cause analysis, which included a failure mode & effect analysis (FMEA) on the equipment models with the highest spill frequency. The findings of the FMEA identified hoses, fittings, and clamps as the main parts of concern to address as well as ensuring proper warm-up procedures of

equipment is followed. To address these concerns, presentations with all maintenance mechanics on replacement of hoses, hardware and fittings was completed along with an inventory adjustment to ensure better parts availability. The warm-up procedure on heavy equipment was revised with the training department to align with the manufacturers standard operating procedure. Since the inception of the spill reduction plan, the number of non-negligible events has decreased annually.

Agnico Eagle continued to address environmental incidents by conducting spill investigations on reportable spills or any non-reportable spill when deemed necessary. The investigation process aids in identifying and addressing root causes of spills. Corrective measures are tracked for completeness, with the help of the Intelex database. Examples of corrective measures are: update to procedures, review of work methods, implementation of engineered controls, fixing mechanical issues, etc. Additionally, the environmental awareness training program that was developed in 2022 was launched at the beginning of 2023. The training is mandatory for all supervisors on site, and open to all site personnel. The training includes a refresher of spill management, and reporting requirements, in addition to many other environmental topics. A dashboard was also created for employees/departments to view environmental incidents (reportable and non-reportable spill events), as well as review corrective and preventive actions tracking.

An analysis of non-reportable spills in 2023 for both Meadowbank and Whale Tail sites continues to highlight that the majority of spills (75%) are caused by equipment failure / malfunction and that they occur primarily in high production areas: Pits and WRSF (32%), Pads, Parking Areas, Laydowns (31%), and Mine Haul Roads (11%).

Agnico Eagle operates Meadowbank and Whale Tail under extreme cold conditions during winter, and thus creates extra pressure on equipment that can lead to more frequent equipment failure even if good inspections and maintenance are conducted. In 2023, as per previous years, particular attention was paid to operating practices on sites. The stand down of equipment during extreme cold temperatures was fully integrated within mining operations and reduced overall pressures on hydraulic systems.

Mandatory spill training is included in the Meadowbank and Whale Tail sites induction and the Environmental Department is working in a collaborative approach to ensure field personnel are reminded consistently on best practices in spill management. Refresher training was developed to be specifically focused on key departments, operators and supervisors. By continuing education and awareness within our sites, Agnico Eagle is confident that the overall environmental impacts are limited. Measures put in place were found to be effective as a decrease in spill overall was observed in 2023.

All internal reported spills and spills reported to regulators are managed according to the Spill Contingency Plan provided in Appendix 22. Spills are contained and cleaned, contaminated material is disposed to the appropriate area and the clean-up actions are monitored by the Environment team.

In addition to the spill reduction plan, spill investigations, environmental awareness and spill training mentioned above, Agnico completed the following spill response and training activities in 2023:

- Sixty-six (66) members of the Emergency Response Team (ERT) completed two (2) spill response training scenarios in 2023.

- A mock spill exercise was completed on July 14th, 2023 at the Baker Lake Marshalling Facility. The scenario was: while inspecting the diesel line pipe from Baker Lake Marshalling facility, an

Intertek employee noticed a leak coming from the main connection flange. Moments later the Intertek employee is informed an equipment has reported making contact with the fuel line near the lake resulting in another leak. This scenario simulates a spill with a high potential environmental impact to a water body, as well as a fire hazard. As the two spills will be discovered at the same time, the team will have to manage their resources and workforce to contain both leaks. Overall, the reaction of participants was satisfactory, and lessons learned from the event will ensure a more efficient future response, if needed. The mock spill exercise report can be found in Appendix K of the Spill Contingency Plan, Version 21 (Appendix 22).

- An Environmental Emergency (E2) table-top exercise for the Baker Lake Oil Handling Facility (OHF) was performed on October 19th, 2023. The table-top exercise examined the alternate worst case scenario (most probable scenario) for Baker Lake involving E2 regulated substance Diesel fuel, which has been identified as a failure between the ship and the flange of the OHF resulting in a spill of fuel into Baker Lake. Referencing an incident that occurred August 27th, 2023, at the Baker Lake OHF – during the fuel transfer from ship to shore, a sheen of fuel was observed on the marine hose fuel transfer line. The marine hose had been worn from rocks and moved along the shoreline/beach, creating a small hole and releasing diesel fuel into Baker Lake. The exercise allowed for review of the spill management procedure, develop experience on spill intervention and awareness of spill management gear.

- An E2 table-top exercise for the Meadowbank Complex was performed on August 16th, 2023. The Alternate Scenario (most probable scenario) for Meadowbank involving E2 regulated substance diesel fuel has been identified as a spill during the refueling of a tanker truck at the Meadowbank tank farm and releasing diesel fuel to a localized area. Referencing incident that occurred March 28th, 2022, at the Meadowbank tankfarm – A tanker was refueling, and fuel overflowed out of the top fuel compartment. The exercise allowed for a review of the spill management procedure, to develop experience on spill intervention and raise awareness of spill management gear. The simulation exercise report can be found in Appendix K of the Spill Contingency Plan, Version 21 (Appendix 22).

In 2023, Agnico Eagle continued to raise worker awareness to the importance of including full details in spill report regarding contaminated material disposal. In 2024, Agnico Eagle will continue the spill investigation process as well as continue to apply learnings from equipment spill root cause analysis. Review of the spill reporting procedure as well as individual toolbox meetings with all departments will continue in 2024.

7.1.1 Meadowbank Site§

As per NWB Water License 2AM-MEA1530 Schedule B, Item 13 ***A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.***

And

As required by NIRB Project Certificate No.004 Condition 26: ***Cumberland shall ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris.***

A summary of all unauthorized discharges that were reported to the GN Spill hotline in 2023 are presented in Table 7-2. A summary of all non-reportable spills can be found in Table 7-3. This data was

also included in monthly monitoring reports submitted to the NWB 2AM-MEA1530 and quarterly via the KivIA Production Lease Report. GN Spill Reporting Forms and the follow up reports as requested by the Water License 2AM-MEA1530 Part H, Item 8 for reported spills are included in Appendix 23. The spills presented in Table 7-2 and Table 7-3 below include spill events related to the Meadowbank Site, AWAR and Baker Lake infrastructures.

In 2023, fifteen (15) spills were reported to the GN Spill hotline and 46 non-reportable spills occurred on site Table 7-1 above provides a summary of the reportable and non-reportable spills from 2011 -2023.

In 2023, zero (0) non-compliance related to the MDMER and Meadowbank Water License 2AM-MEA1530 occurred.

Table 7-2 Meadowbank 2023 spills reported to the GN 24Hr spill HotLine[§]

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken	Spill Number
1/5/2023	Diesel Fuel	400	L	AWAR KM 97	Tanker off road	Spill pads and spill booms were immediately placed on the ground. A tarp was used to create a secondary containment at the fuel leak and immediately pumped back into the vacuum truck. The fuel in the tanker on its side was transferred into an empty tanker. Fuel collected in the secondary containment was pumped into the vacuum truck. The fuel tanker contained 36,075L and 35,675L was recovered, accounting for a loss of 400L of Diesel fuel. The area was scraped clean and approximately 21m^3 of contaminated snow and material was collected and brought to the Meadowbank landfarm.	2023-004
1/7/2023	Transmission Oil	250	L	Winter Parking	Equipment failure	Secondary containment was placed under the leak and spill pads were immediately placed on the ground over the spill area. The area was scraped clean with a loader and approximately 10m^3 of contaminated snow and material was collected and brought to the Meadowbank landfarm.	2023-008
1/26/2023	Windshield Washer Fluid	250	L	Site Services Yard	Procedure Not Followed	Upon discovery of the spill, a loader was mobilized to scrape clean the area. Approximately 4m^3 of contaminated snow and material was collected and brought to the South cell tailings area.	2023-036
2/6/2023	Tailings	9	m^3	Pushback Parking	Failure of descaling pump	An excavator was mobilized to excavate the contaminated material. Approximately 92 m^3 of contaminated material was brought to the South cell tailings area.	2023-042
2/10/2023	Diesel Fuel	150	L	Fuel Farm	Equipment failure	Absorbent material was placed down, and a loader was called to clean the area. Approximately 4m^3 of contaminated snow/soil material was brought to the Meadowbank Landfarm. Absorbent material was collected brought to the Hazmat area for processing.	2023-046
3/22/2023	Sewage Water	300	L	Main Camp	Broken joint on piping	Heating equipment was utilized to thaw the frozen sewage in the contaminated area, enabling the vacuuming of the liquid using a sewage truck. About 0.3m^3 of contaminated material was transported to the Tailing Storage Facility. Additional remediation efforts will be undertaken during warmer temperatures when the ground has thawed to facilitate the recovery of the contaminated material, considering the spill's location, timing, and nature.	2023-115
4/28/2023	Sewage Water	20	L	PEL Garage	Broken pipe from building movement	Heating equipment was utilized to thaw the frozen sewage in the contaminated area, enabling the vacuuming of the liquid using a sewage truck. About 1 m^3 of contaminated material was transported to the Tailing Storage Facility. Additional remediation efforts will be undertaken during warmer temperatures when the ground has thawed to facilitate the recovery of the contaminated material, considering the spill's location, timing, and nature.	2023-169
6/1/2023	Diesel Fuel	100	L	Fuel Farm	Human error	The contaminated area was scraped clean with a loader and approximately 7m^3 of contaminated soil was collected and brought to the Meadowbank landfarm. The fuel pumping system and visual indicator were repaired.	2023-236
6/3/2023	Total Suspended Solids	Unknown	Kg	Baker Lake	Natural Cause	Upon observation of the runoff, a loader was used to divert water towards the existing culvert. Maritime curtains and woodchip booms were deployed to prevent further TSS from entering the Lake. A diversion ditch structure to divert water upstream of the Marshalling facility was constructed in October, following regulatory approval.	2023-240

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken	Spill Number
6/3/2023	Waste Oil	1,500	L	Warehouse Laydown	Natural Cause/Improper Storage	Absorbent materials were immediately placed onto the ground. The vacuum truck along with a loader was used to collect and clean the area. Approximately 6.5m^3 of contaminated soil was brought to the Meadowbank Landfarm and approximately 58m^3 of contaminated water was collected and brought to the Storm Water Mgmt. Pond.	2023-239
6/20/2023	Diesel Fuel	150	L	Winter Parking	Mechanical Failure	The contaminated area was cleaned with a vacuum truck and loader. Approximately 10m^3 of contaminated soil was collected and brought to the Meadowbank Landfarm. Absorbent material was disposed at Meadowbank Hazmat area.	2023-269
7/7/2023	Reclaim Water	4	m^3	West Road	Blockage/ Mechanical/Engineering Failure	The vacuum truck was used to collect as much residue as possible. The remaining contaminated material was collected and brought to Meadowbank Tailings for disposal.	2023-295
8/17/2023	Nitric Acid	30	L	Mill Pad	Damaged Material	The shipping container was relocated from the area for the purpose of excavating and removing the contaminated soil. All of the contaminated soil collected was subsequently disposed of through the milling process. Inspections were conducted on all seacans containing the same product to confirm the incident was isolated.	2023-351
11/23/2023	Sewage/Grey Water	15	L	Lift Station 12 Gym	Mechanical Failure	A plumber was called to identify the source and repair the pipe. Approximately 1m^3 of contaminated material was collected and brought to the Meadowbank Tailings Facility	2023-503
12/15/2023	Contaminated Water	20,000	L	Assay Lab Road	Inflow of Water	Approximately 270m^3 of contaminated snow and ice was removed from the existing water management structure and brought to the Meadowbank tailings storage facility. Monitoring of the will continued on a routine basis throughout freshet.	2023-524

Table 7-3 Meadowbank 2023 non-reportable spills§

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
1/12/2023	Coolant	20	L	End of Airstrip	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/13/2023	Coolant	20	L	Road by Airport	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/21/2023	Hydraulic Oil	10	L	Crusher Pad	Equipment damage due to procedure not being followed	Contaminated soil was collected and brought to a yellow bin for disposal.
1/25/2023	Windshield washer	30	L	LHT Fuel Station	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/30/2023	Diesel Fuel	10	L	Fuel Farm	Equipment malfunction	Contaminated soil was collected and brought to a yellow bin for disposal.
2/3/2023	Windshield Washer Fluid	2	L	Sana Pad	No spill pan used	Contaminated soil was collected and brought to a yellow bin for disposal.
2/3/2023	Hydraulic Oil	10	L	Site Services Yard	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
2/7/2023	Engine oil	10	L	Baker Lake Tank Farm	Equipment malfunction	Environment informed the warehouse of the spill, warehouse then notified contractor to clean it up right away
2/8/2023	Ammonium Nitrate	2	Kg	Vault Laydown	Punctured Seacan	Contaminated material picked up and disposed of appropriately
2/8/2023	Engine Oil	5	L	AWAR KM 73	Equipment malfunction	Contaminated material picked up and disposed of appropriately

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
2/12/2023	Diesel Fuel	20	L	LHT Winter Parking	Unknown	Contaminated material picked up and disposed of appropriately. Snow was picked up and disposed of in the landfarm.
2/23/2023	Gasoline	15	L	Fuel Farm	Overfilled tank	Contaminated material picked up and disposed of appropriately
3/13/2023	Coolant	20	L	AWAR KM 93	Equipment failure	Contaminated material picked up and disposed of appropriately
3/16/2023	Diesel Fuel	30	L	Winter Parking	Equipment failure	Secondary containment was used. Contaminated material picked up and disposed of appropriately
3/22/2023	Power Steering Fluid	2	L	AWAR KM 73	Equipment failure	Contaminated material picked up and disposed of appropriately
3/26/2023	Coolant	4	L	Site Services Coverall	Equipment failure	Contaminated material picked up and disposed of appropriately
5/16/2023	Hydraulic Oil	5	L	AWAR KM 87	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
5/16/2023	Hydraulic Oil	10	L	Meadowbank Site	Equipment malfunction	Contaminated soil was collected and brought to a yellow bin for disposal.
5/24/2023	Hydraulic Oil	30	L	AWAR KM 61	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
6/5/2023	Hydraulic Oil	10	L	Winter Parking	Human error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
6/11/2023	Diesel Fuel	10	L	Fuel Farm	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/1/2023	Diesel Fuel	20	L	Vault Pad	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/1/2023	Hydraulic Oil	30	L	Sana Crusher Pad	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/2/2023	Diesel Fuel	50	L	Landfill	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/1/2023	Diesel Fuel	5	L	Baker Lake Tank Farm	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/1/2023	Hydraulic Oil	40	L	Airstrip	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/20/2023	Diesel Fuel	40	L	Fuel Farm	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/29/2023	Jet A Fuel	30	L	Airstrip	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/31/2023	Diesel Fuel	60	L	Vault Pad	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/31/2023	Diesel Fuel	50	L	PEL Maintenance Shop	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
8/2/2023	Engine Oil	40	L	AWAR KM23	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
8/7/2023	Diesel Fuel	25	L	Baker Lake Tank Farm	Equipment Malfunction	Contaminated soil was collected in pails and brought for disposal at Meadowbank Landfarm
8/17/2023	Hydraulic Oil	10	L	Baker Lake Spud Barge	Mechanical Failure	Contaminated soil was collected in pails and brought for disposal at Meadowbank Landfarm
8/19/2023	Detergent	20	L	Warehouse Transit	Work Procedure not followed	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
8/27/2023	Diesel Fuel	2	L	Baker Lake	Equipment Failure	Spill pads and absorbent boom was deployed then brought to the Meadowbank Hazmat area for disposal
8/28/2023	Gear Oil	10	L	Long Haul Parking	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
9/5/2023	Hydraulic Oil	20	L	LHT Winter Parking	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
9/6/2023	Oil	2	L	AWAR	Fire/Damaged Equipment	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
9/10/2023	Hydraulic Oil	6	L	LHT Winter Parking	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
9/18/2023	Hydraulic Oil	40	L	Primary Crusher Pad	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
9/20/2023	Coolant	15	L	AWAR	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
10/3/2023	Diesel Fuel	40	L	Meadowbank Fuel Farm	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
10/20/2023	Diesel Fuel	5	L	Baker Lake Fuel Farm	Mechanical Failure	Contaminated soil was collected and brought to the Meadowbank Landfarm
12/1/2023	Hydraulic Oil	5	L	AWAR KM83	Mechanical Failure	Contaminated snow was collected and brought to the Meadowbank Landfarm. Spill pads were brought to the Hazmat storage
12/11/2023	Diesel Fuel	10	L	AWAR KM47	Human Error	Contaminated snow was collected and brought to the Meadowbank Landfarm. Spill pads were brought to the Hazmat storage
12/19/2023	Coolant	20	L	AWAR KM56	Mechanical Failure	Contaminated snow and material were collected and brought to a yellow bin for disposal at Meadowbank Tailings

7.1.2 Whale Tail Site§

As per NWB Water License 2AM-WTP1830 Schedule B, Item 16: ***A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.***

A summary of all unauthorized discharges that were reported to the GN Spill hotline in 2023 is presented in Table 7-4. A summary of all non-reportable spills can be found in Table 7-5. This data was included in monthly monitoring reports submitted to the NWB 2AM-WTP1830 and also reported quarterly via the KivIA Production Lease Report. GN Spill Reporting Forms and the follow up report as requested by the Water License 2AM-WTP1830 Part H, Item 8 for reported spills are included in Appendix 24. The spills presented in Table 7-4 and Table 7-5 below only include spills related to the Whale Tail Site and Whale Tail Haul Road.

In 2023, twenty-two (22) spills were reported to the GN Spill hotline and 105 non-reportable spills occurred on site. Table 7-1 above provides a summary of the reportable and non-reportable spills from 2016 -2023.

In 2023, zero (0) non-compliance related to the MDMER and Whale Tail Water License 2AM-WTP1830 regulation occurred.

Table 7-4 Whale Tail 2023 spills reported to the GN 24Hr spill HotLine[§]

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken	Spill Number
1/14/2023	Windshield Washer Fluid	900	L	Warehouse near Main Shop	Punctured tote	A loader with a bucket was immediately used to scrape the area clean. Approximately 10m^3 of contaminated snow and material was collected and will be disposed at the Meadowbank tailings storage facility.	2023-015
1/25/2023	Diesel Fuel	200	L	WTHR KM 136.7	Equipment failure	A secondary containment was placed under the leak and absorbent material was deployed on the contaminated surface. The spilled diesel fuel was contained within the road footprint. Approximately 3m^3 of contaminated material was picked up and brought to the Meadowbank landfarm. The contaminated absorbent material was collected and disposed of at the Hazmat facility.	2023-024
2/24/2023	Hydraulic Oil	175	L	Warehouse Pad	Punctured drum	The sea can was immediately removed from the area and equipment was called to initiate the clean-up. Approximately 4 m^3 of contaminated snow and material will be collected and disposed of at the Whale Tail Mine landfarm.	2023-065
3/6/2023	Waste Oil	150	L	Hazmat Pad	Punctured tote	The totes were immediately removed from the area and placed into secondary containment. Absorbent material was placed on the contaminated surfaces and a loader was used to scrap the area clean. Approximately 4 m^3 of contaminated snow and material was collected and disposed of at the Whale Tail Mine landfarm.	2023-080
3/11/2023	Waste Oil	100	L	Outside GEN07 Enclosure	Human error	Spill pads were immediately placed on the ground and contaminated surfaces. The tote was placed onto the secondary containment bin at maintenance. A loader was used to scrape the area clean. Approximately 4m^3 of contaminated snow and material was collected and disposed of at the Whale Tail Mine Landfarm. Contaminated absorbent material was collected and disposed of at the Whale Tail Mine Hazmat.	2023-089
3/14/2023	Diesel Fuel	200	L	WTHR KM 152	Human error	Emergency spill pads were used to contain the spill and secondary containment was placed under the leak. A team was sent to retrieve the Long-Haul Truck. Once the equipment was removed an excavator was used to collect the contaminated material. ~48m^3 of contaminated snow and material as collected and brought to the Meadowbank landfarm. Contaminated absorbent material was collected and disposed of at the Meadowbank Hazmat.	2023-096
4/7/2023	Coolant	400	L	Underground Parking	Punctured tote	A loader equipped with a bucket was immediately used to excavate the contaminated area. Approximately 10m^3 of contaminated snow and material was collected and disposed at the Meadowbank Tailings.	2023-140
4/15/2023	Diesel Fuel	1	L	Kangislulik Lake	Defective fuel cap in combination with Human Error	The fueling process was immediately stopped and absorbent materials placed to contain the spilled fuel and a mechanic was called to replace the defective fuel cap. A 20L pail filled with contaminated snow and ice was collected and brought to the Whale Tail Landfarm. All contaminated absorbent material was collected and disposed of at the Whale Tail Hazmat area.	2023-148
4/19/2023	Hydraulic Oil	500	L	Underground Dome	Punctured tote	Absorbent booms were used to halt the spill from going further and spill response material was used to collect as much oil as possible. Approximately 15 m^3 of contaminated material was collected and disposed of at the Whale Tail Mine Landfarm.	2023-152

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken	Spill Number
4/28/2023	Diesel Fuel	2	L	Kangislulik Lake	Faulty valve and Human Error	The worker immediately deployed spill pads to capture the diesel fuel that spilled onto the ice and called to have the valve replaced. ~0.5 m^3 of contaminated snow/ice was scraped and brought to the Whale Tail Landfarm. All contaminated absorbent material was collected and disposed of at the Whale Tail Hazmat area	2023-170
6/6/2023	Waste Oil	500	L	UG Maintenance Shop	Punctured Tote	The punctured tote was flipped over to prevent additional oil from leaking and absorbent pads were placed on the floor of the seacan. The oil in the punctured tote was transferred to a new tote. The area was scraped clean and approximately 7m^3 of contaminated material was collected and brought for disposal at the Whale Tail Landfarm	2023-244
6/12/2023	Hydraulic Oil	2800	L	Whale Tail Phase 2	Mechanical Damage	The equipment was immediately shut off by the operator and a mechanic was called to repair the equipment. Approximately 12m^3 of contaminated soil was collected and brought for disposal at the Whale Tail Landfarm	2023-253
6/15/2023	Hydraulic Oil	250	L	Whale Tail Ring Road	Mechanical Failure	The equipment was immediately shut off by the operator and a mechanic was called to repair the equipment. Approximately 6m^3 of contaminated material was collected and brought for disposal at the Whale Tail Landfarm	2023-257
6/25/2023	Diesel Fuel	200	L	Fountain Tire Shop	Contact with equipment	Absorbent material was immediately placed on the ground. Approximately 8m^3 of contaminated material was collected and brought for disposal at the Whale Tail Landfarm	2023-281
7/3/2023	Diesel Fuel	150	L	Underground Fuel Farm	Human Error	The operator immediately stopped the fuel pump and deployed absorbent materials. The contaminated material was collected and brought for disposal at the Whale Tail Landfarm	2023-287
8/4/2023	Hydraulic Oil	250	L	Underground Ore Pad	Mechanical Failure	The operator immediately shut down the equipment and called a mechanic to repair the equipment. Spill pads were placed on the ground and the contaminated soil was collected and brought to for disposal at the Whale Tail Landfarm	2023-330
8/6/2023	Hydraulic Oil	600	L	Whale Tail WRSF	Damaged Equipment	The operator immediately shut down the equipment and maintenance was called to assess the damage. The Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm	2023-332
10/2/2023	Hydraulic Oil	200	L	IVR Pit Ramp	Mechanical Failure	The operator immediately shut down the equipment and called maintenance for repairs. Approximately 15m^3 of contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm	2023-420
10/5/2023	Hydraulic Oil	300	L	Pad K	Damaged Equipment	The operator immediately shut down the equipment and called maintenance for repairs. Approximately 5m^3 of contaminated soil was collected and brought to the Whale Tail Landfarm	2023-424
10/11/2023	Diesel Exhaust Fluid	1000	L	Underground Service Building	Human Error - Punctured Tote	Spill pads were placed on the ground and an excavator was used to scrape and remove the contaminated material. Contaminated soil was collected and brought for disposal at Meadowbank Tailings Storage Facility.	2023-428
11/20/2023	Diesel Fuel	300	L	UG Fueling Station	Human Error	The operator deployed the emergency spill kit. The Contaminated snow and material was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm. Absorbents were collected and brought to the WT Hazmat for disposal.	2023-502
12/31/2023	Diesel Fuel	200	L	Fountain Tire Yard	Mechanical Failure/Human Error	A loader was used to scrape up the contaminated snow. Approximately 3m^3 of contaminated snow and material was collected and brought for disposal at the Whale Tail Landfarm	2023-535

Table 7-5 Whale Tail 2023 non-reportable spills§

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
1/5/2023	Hydraulic Oil	20	L	IVR Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/6/2023	Hydraulic Oil	65	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/7/2023	Hydraulic Oil	60	L	Orbit Shop	Punctured tote	Contaminated soil was collected and brought to a yellow bin for disposal.
1/9/2023	Coolant	40	L	IVR Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/12/2023	Coolant	20	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/13/2023	Engine Oil	20	L	Generator Seacan	Valve left open	Contaminated soil was collected and brought to a yellow bin for disposal.
1/13/2023	Hydraulic Oil	20	L	Warehouse Yard	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/22/2023	Engine Coolant	12	L	WTHR KM 126	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/23/2023	Hydraulic Oil	60	L	Outside of the Underground Dome	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
1/31/2023	Hydraulic Oil	3	L	IVR Ring Road	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
2/1/2023	Hydraulic Oil	70	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
2/2/2023	Hydraulic Oil	25	L	Warehouse	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
2/3/2023	Hydraulic Oil	45	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
2/3/2023	Coolant	80	L	Whale Tail Ring Road	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
2/7/2023	Coolant	30	L	WTHR KM 171	Equipment failure	Called supervisor to notify. Spill was picked up and disposed of appropriately.
2/10/2023	Hydraulic Oil	35	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
2/12/2023	Hydraulic Oil	50	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
2/12/2023	Hydraulic Oil	90	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
2/12/2023	Hydraulic Oil	55	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
2/15/2023	Transmission Oil	10	L	WTHR KM 156	Equipment failure	Contaminated material picked up and disposed of appropriately
2/16/2023	Windshield Washer Fluid	20	L	Fuel Farm	Equipment failure	Contaminated material picked up and disposed of appropriately
2/20/2023	Windshield Washer Fluid	80	L	Fuel Farm	Valve left open	Contaminated material picked up and disposed of appropriately
2/20/2023	Compressor Oil	20	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
2/24/2023	Coolant	5	L	IVR Ring Road	Equipment failure	Secondary containment used. Contaminated material picked up and disposed of appropriately.
2/26/2023	Hydraulic Oil	40	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
2/28/2023	Hydraulic Oil	8	L	Whale Tail Pit	Punctured tank	Contaminated material picked up and disposed of appropriately
3/1/2023	Coolant	5	L	Sana Pad	Equipment failure	Contaminated material picked up and disposed of appropriately
3/2/2023	Hydraulic Oil	90	L	WT WRSF	Equipment failure	Contaminated material picked up and disposed of appropriately
3/3/2023	Hydraulic Oil	30	L	Transit Pad	Equipment failure	Contaminated material picked up and disposed of appropriately
3/4/2023	Hydraulic Oil	25	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
3/5/2023	Hydraulic Oil	25	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
3/10/2023	Hydraulic Oil	45	L	IVR Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
3/13/2023	Hydraulic Oil	35	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
3/16/2023	Hydraulic Oil	40	L	Washroom Parking	Equipment failure	Contaminated material picked up and disposed of appropriately. Absorbent pads used.
3/21/2023	Coolant	4	L	Freshwater Intake Building	Unknown	Contaminated material picked up and disposed of appropriately
3/24/2023	Hydraulic Oil	75	L	IVR Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
3/28/2023	Hydraulic Oil	2	L	Road 22 Drill Access	Equipment failure	Contaminated material picked up and disposed of appropriately
3/28/2023	Coolant	23	L	Top of phase 2 ramp right hand side	Equipment failure	Contaminated material picked up and disposed of appropriately
3/30/2023	Coolant	90	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
3/30/2023	Hydraulic Oil	55	L	Whale Tail Pit	Equipment failure	Contaminated material picked up and disposed of appropriately
4/6/2023	Hydraulic Oil	30	L	Shovel Pad	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
4/6/2023	Hydraulic Oil	85	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
4/11/2023	Transmission Oil	1	L	Road 22	Equipment damage	Contaminated soil was collected and brought to a yellow bin for disposal.
4/12/2023	Hydraulic Oil	35	L	Washroom Parking	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
4/20/2023	Hydraulic oil	30	L	Behind Underground Garage	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
4/20/2023	Hydraulic Oil	10	L	Orbit Garant	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
4/22/2023	Oil	20	L	E&I Offices	Procedure not being followed	Contaminated soil was collected and brought to a yellow bin for disposal.
4/25/2023	Engine Oil	2	L	Whale Tail WRSF	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
4/26/2023	Coolant	90	L	Maintenance Pad	Unknown	Contaminated soil was collected and brought to a yellow bin for disposal.
4/26/2023	Hydraulic Oil	80	L	Maintenance Pad	Unknown	Contaminated soil was collected and brought to a yellow bin for disposal.
5/9/2023	Hydraulic Oil	50	L	Maintenance Pad	Equipment failure	Contaminated material picked up and disposed of appropriately. Absorbent pads used.
5/10/2023	Coolant	10	L	HazMat Storage Area	Improper storage	Contaminated soil was collected and brought to a yellow bin for disposal.
5/14/2023	Diesel Fuel	20	L	Between Powerhouse and Genset Fuel Farm	Equipment malfunction	Contaminated soil was collected and brought to a yellow bin for disposal.
5/16/2023	Coolant	20	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
5/16/2023	Diesel Fuel	40	L	Underground Fuel Farm	Equipment malfunction	Contaminated soil was collected and brought to a yellow bin for disposal.

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
5/16/2023	Hydraulic Oil	50	L	WTHR KM 172	Equipment damage	Contaminated soil was collected and brought to a yellow bin for disposal.
5/23/2023	Hydraulic Oil	1	L	Tundra near Mammoth Dike	Unknown	Contaminated soil was collected and brought to a yellow bin for disposal.
5/25/2023	Hydraulic Oil	10	L	Pad C	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
5/27/2023	Hydraulic Oil	20	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
5/27/2023	Hydraulic Oil	10	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
5/28/2023	Hydraulic Oil	15	L	Whale Tail Pit	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
5/29/2023	Hydraulic Oil	20	L	Whale Tail WRSF	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal.
6/3/2023	Diesel Fuel	50	L	UG Genset	Equipment failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
6/3/2023	Coolant	70	L	Phase 3	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
6/4/2023	Coolant	35	L	WT Phase 3	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
6/5/2023	Coolant	80	L	IVR Phase 2	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
6/10/2023	Coolant	30	L	Whale Tail Pit	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
6/14/2023	Hydraulic Oil	2	L	Sana Pad	Unknown	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
6/17/2023	Hydraulic Oil	20	L	Whale Tail Phase 3	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
6/17/2023	Coolant	85	L	Whale Tail Phase 3	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
7/2/2023	Hydraulic Oil	10	L	Whale Tail Phase 3	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
7/2/2023	Coolant	40	L	WTHR KM158	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
7/2/2023	Hydraulic Oil	5	L	Warehouse Transit	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
7/2/2023	Hydraulic Oil	80	L	Whale Tail Phase 3	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
7/4/2023	Coolant	30	L	WTHR KM143	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
7/1/2023	Diesel Fuel	20	L	Pit Washroom Parking	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Landfarm
7/15/2023	Coolant	10	L	Pit Washroom Parking	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
7/15/2023	Coolant	3	L	Whale Tail Phase 2 Ramp	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
7/16/2023	Hydraulic Oil	10	L	Main Road	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
7/17/2023	Hydraulic Oil	30	L	Sana Shop Yard	Unknown	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
7/22/2023	Hydraulic Oil	15	L	WTHR KM167	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
8/15/2023	Hydraulic Oil	5	L	Maintenance Shop	Maintenance	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
8/18/2023	Drill Oil	10	L	Warehouse	Improper Storage	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
8/18/2023	Grease	4	Kg	Warehouse Transit	Human Error	Contaminated soil was collected and brought to the Whale Tail Hazmat area for disposal
8/26/2023	Hydraulic Oil	85	L	Whale Tail Pit	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
8/31/2023	Diesel Fuel	30	L	Underground Fuel Station	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
9/15/2023	Hydraulic Oil	85	L	Whale Tail Pit	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
9/15/2023	Coolant	2	L	Whale Tail Pit	Mechanical Failure	Contaminated soil was collected and brought to the Whale Tail Hazmat area for disposal
9/15/2023	Hydraulic Oil	10	L	Whale Tail Pit	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/1/2023	Hydraulic Oil	80	L	Pad E	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/2/2023	Washer Fluid	50	L	Whale Tail Fuel Farm Washer Fluid Station	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/7/2023	Transmission Oil	20	L	IVR Pit	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/21/2023	Coolant	20	L	Underground Service Building	Unknown	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
10/21/2023	Hydraulic Oil	60	L	Whale Tail Pit Sump	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/23/2023	Hydraulic Oil	10	L	Whale Tail Pit	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/23/2023	Coolant	30	L	WTHR KM173	Mechanical Failure	Contaminated soil was collected and brought to a yellow bin for disposal at Meadowbank Tailings
10/25/2023	Hydraulic Oil	30	L	WTHR KM166	Human Error	Contaminated soil was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
10/29/2023	Hydraulic Oil	30	L	WTHR KM123	Mechanical Failure	Contaminated soil was collected and brought to the Meadowbank Landfarm
11/9/2023	Coolant	4	L	WTHR KM110	Mechanical Failure	Contaminated snow and material were collected and brought to the HazMat storage area for disposal
11/23/2023	Hydraulic Oil	1.5	L	Orbit Garage	Mechanical Failure	Contaminated snow was collected in buckets and brought to a yellow bin for disposal at the Whale Tail Landfarm
12/16/2023	Coolant	80	L	IVR Marginal Stockpile	Mechanical Failure	Contaminated snow and material was collected and brought to a yellow bin for disposal at Meadowbank Tailings

Date of Spill	Hazardous Material	Quantity	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
12/17/2023	Hydraulic Oil	40	L	UG Ore pad	Mechanical Failure	Contaminated snow and material was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
12/18/2023	Hydraulic Oil	45	L	IVR Phase 2	Mechanical Failure	Contaminated snow and material was collected and brought to a yellow bin for disposal at the Whale Tail Landfarm
12/28/2023	Coolant	45	L	WTHR KM176	Mechanical Failure	Contaminated snow and material was collected and brought to a yellow bin for disposal at Meadowbank Tailings
12/29/2023	Coolant	20	L	WTHR KM169	Human Error	Contaminated snow and material was collected and brought to a yellow bin for disposal at Meadowbank Tailings

7.2 LANDFARM ACTIVITIES§

As per the Meadowbank Landfarm Design and Management Plan (Appendix 53), and Whale Tail Landfarm Design and Management Plan (Appendix 54) the below section presents the 2023 landfarm activities at the Meadowbank Complex.

7.2.1 Meadowbank Site§

Meadowbank's first landfarm (Landfarm 1) was constructed in 2012 and located on the north-west side of the South Tailings Cell within the Tailings Storage Facility. Since this area was planned to eventually become flooded with reclaim water, Agnico Eagle constructed a new landfarm (Landfarm 2) in 2016, in order to continue the treatment of contaminated soil. In 2019, the Landfarm 1 area became flooded with reclaim water, and it is thus no longer in operation.

Based on surveys conducted by Meadowbank's Engineering Department the volume of the landfarm 2 in December 2023 was 5,934 m^3. In 2023, it is estimated that 400 m^3 of soil was added to Landfarm 2 from spill events around the Meadowbank site. The remaining capacity of landfarm 2 is estimated at 5,511 m^3. A summary of spills which occurred in 2023, including those for which excavated material was deposited in the Meadowbank Landfarm, is provided in Section 7 above.

In 2023, no screening or course material was removed from the Meadowbank Landfarm due to workforce availability, equipment availability constraints, and timing. Following freshet, ponded water was observed within the landfarm area but there was not a sufficient volume to sample. Water was naturally flowing towards the adjacent Tailing Storage Facilities. No runoff water outside the landfarm was observed. Visual inspections (44) indicated that the landfarm berm and pad appear to be structurally intact, and no maintenance was required.

7.2.2 Whale Tail Site§

The construction of the landfarm at Whale Tail Mine was approved by the NWB on October 27th, 2021. The landfarm at Whale Tail Mine was built in fall 2022 but has not been operational for most of this year. The majority of petroleum-contaminated material was sent to the Meadowbank landfarm, except 15 m^3 that was brought to the Whale Tail Landfarm. In 2023, almost all the PHC contaminated material from Whale Tail operations was placed in the Whale Tail Landfarm, with minimal contaminated soil brought to the Meadowbank Landfarm.

Based on surveys conducted by the Whale Tail's Engineering Department the volume of the landfarm in December 2023 was 422 m^3. In 2023, it is estimated that 407 m^3 of soil were added to landfarm from material collected from spill events around Whale Tail Site. The remaining capacity of the landfarm is estimated at 5,078 m^3. A summary of spills which occurred in 2023, including those for which excavated material was deposited in the Whale Tail Landfarm, is provided in Section 7 above.

Material management occurred periodically throughout the summer at the Whale Tail Landfarm. The material was placed into a windrow following the freshet and the windrow was maintained throughout the summer.

In 2023, no screening or course material was removed from the Whale Tail Landfarm. Following freshet, ponded water was observed within the landfarm area but there was not a sufficient volume to sample. One sample was collected in September 2023 and results are provided in Section 8.5.3.2.17 below. No runoff water outside the landfarm was observed in 2023. Visual inspections (50) indicated that the landfarm berm and pad appear to be structurally intact, and no maintenance was required.

7.3 POSSIBLE ACCIDENT AND MALFUCTIONS AT MEADOWBANK SITE

NIRB Project Certificate No.004 Condition 27: ***Cumberland shall ensure that the areas used to store fuel or hazardous materials are contained using safe, environmentally protective methods based on practical, best engineering practices.***

And

As required by NIRB Project Certificate No.004 Condition 44: ***Within one (1) month of contracting with a shipper, Cumberland shall submit a comprehensive Spill Contingency and Emergency Response Plan to regulatory authorities.***

And

As required by NIRB Project Certificate No.004 Condition 75: ***Provide a complete list of possible accidents and malfunctions for the Project; it must consider the all-weather road, shipping spills, cyanide and other hazardous material spills, and pitwall/dikes /dam failure, and include an assessment of the accident risk and mitigation developed in consultation with Elders and potentially affected communities.***

A list of possible accidents and malfunctions are included in the following Meadowbank Complex management plans:

- Hazardous Materials Management Plan, Version 7, March 2022 (Appendix 55 of the 2021 Annual Report);
- Spill Contingency Plan, Version 21, February 2024 (Appendix 22);
- Emergency Response Plan, Version 18, August 2023 (Appendix 46);
- Oil Pollution Emergency Plan and Oil Pollution Prevention, Version 17, February 2024 (Appendix 25);
- Meadowbank OMS Manual for Tailings Management, Version 12, January 2024 (Appendix 29);
- Meadowbank OMS Manual for the dewatering dikes, Version 11; January 2024 (Appendix 28);
- Whale Tail OMS Manual for Water Management Infrastructure, Version 4, January 2024 (Appendix 30).

Agnico Eagle complied with this condition, including the provision of a list of possible accidents and malfunctions. These Plans were originally reviewed as part of the NIRB and NWB License application

process. As such there was extensive public review which included elders' participation at the associated hearings.

Road Spills

Table 7-2 to 7-5 show all spills related to the Meadowbank Complex, including the AWAR/WTHR, and other spills related to mine activities.

International Cyanide Management Code (ICMC)

As part of the International Cyanide Management Code (ICMC), Agnico Eagle is required to inform the community of Baker Lake and Chesterfield, details regarding the cyanide shipping and transportation along the All-Weather Access Road (AWAR), along with associated restrictions that apply to Hamlet residents regarding the usage of the AWAR.

In September 2023, Agnico Eagle held an in-person meeting in Baker Lake to share Cyanide transportation procedure and safety measures. Community members and first responders were invited to join the meeting. Feedback and comments were received during this in-person meeting from both the community members and first responders.

Agnico Eagle demonstrated its commitment to respecting Inuit culture through the modification of cyanide transportation operations at the Meadowbank Complex. After conducting an information session between Agnico Eagle representatives and members of the Baker Lake community to explain the cyanide transportation procedure under the ICMC, community members expressed their necessity to maintain access to a lake for collecting fresh water, especially for Elders, during AWAR closure. This reflects a good demonstration on how Agnico Eagle can adapt its operations to respect Inuit culture.

Upon careful evaluation of available options, Agnico Eagle personnel responsible for the transportation adjusted AWAR sections to be either closed or opened during transportation, ensuring community safety. This modification allowed the community, particularly Elders, to retain access to the land for harvesting and collecting fresh water. Throughout the transportation operations, regular communications and updates were shared with the Baker Lake Hamlet, HTO, Health Center, RCMP, and KivIA. Subsequent to these communications, Agnico Eagle received positive feedback from members of the community.

In December 2023, Agnico Eagle organized an information session in Chesterfield Inlet with support from local CLO. Due to transportation and accommodation issues, the Agnico Eagle representatives could not participate in person. The cyanide and shipping information was delivered virtually to local participants. Participants were also referred to Agnico Eagle Nunavut website where they can access the Cyanide Transportation and Management pamphlet. During the transportation, the community of Chesterfield Inlet were kept informed about the Cyanide transportation through the Meadowbank Complex Facebook page. For future years, Agnico Eagle will make sure to deliver cyanide information session earlier in the year to ensure in-person presentation.

Community information meetings

In May 2023, Agnico Eagle intended to visit every community before the barge season by organising flights and meeting logistics to go to Chesterfield Inlet, Coral Harbour, Naujaat, Rankin Inlet and Baker Lake. Unfortunately, despite multiple attempts to land in the various communities, the tour had to be

cancelled owing to unfavourable weather conditions. However, the Whale Cove presentation was delivered.

Agnico Eagle was ready to present information about:

- Proposed shipping scenario – Baker Lake
- Routing from Quebec to Nunavut
- Routing to go to Baker Lake
- Proposed scenario – Rankin Inlet
- Routing to go to Rankin Inlet
- All-weather Access Road Management
- Caribou Migration
- Process to find live information about the vessel routing
- Process to ask questions and raise concerns via Tusaajugut ‘We are Listening’

As mentioned earlier in this report, Agnico Eagle has been making repeated attempts to reach Chesterfield Inlet since summer 2023. However, accommodations were not available in the community until mid-December because of ongoing construction of public infrastructure.

In December 2023, during a virtual engagement with Chesterfield Inlet community members, took the opportunity to explain shipping routing from Quebec to Nunavut with specific explanation and mapping going next to Chesterfield Inlet all the way to Baker Lake. Agnico Eagle welcomed local participants to share any thoughts and question and made sure to provide answers to all points arose.

Moving forward to 2024, Agnico Eagle representatives are proactively strategizing a visit to the community earlier in the year, prior to the recommencement of construction activities and while accommodations remain accessible.

Accidents and malfunctions

To prevent and ensure accidents and malfunctions are dealt appropriately the following activities were held in 2023:

- Emergency Plans and crisis management training to superintendents and supervisors.
- Various training to the rescue team members combined with active scenarios: Incident command system (ICS), confine space, explosive risk spill response, hazardous material, etc.;
- Debriefing were held after each emergency calls to learn from every events;

- Cyanide awareness and scenarios were held with all our Emergency response team members;

- Environmental Incident Reduction Action Plan which includes different items such as Environmental Awareness, an Environmental Incident Investigation Process, Corrective and Preventative Measures Tracking, and a Mechanical Performance Review and Improvement Plan, as mentioned in Section 7.1.

- Additional spill training and mock exercises as mentioned in Section 7.1.

Looking ahead, Agnico Eagle will continue to explore methods to incorporate Inuit Qaujimajatuqangit into Accident and Malfunction operations in consultation with Elders and potentially affected communities, if needed.

SECTION 8. MONITORING§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 16: ***The results of monitoring under the Aquatic Effects Management Plan (AEMP) including:***

- ***Core Receiving Monitoring Program (CREMP);***
- ***Metal Mining Effluent Regulation (MMER) Monitoring;***
- ***Mine Site Water Quality and Flow Monitoring (and evaluation of NP-2);***
- ***Visual AWAR water quality monitoring;***
- ***Blast Monitoring;***
- ***Groundwater Monitoring.***

And

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 19: ***The results of monitoring related to the Aquatic Effects Monitoring Program (AEMP) including:***

- ***Core Receiving Environment Monitoring Program (CREMP);***
- ***Metal Mining Effluent Regulation (MMER) Monitoring;***
- ***Water Quality and Flow Monitoring;***
- ***Visual Whale Tail Haul Road water quality monitoring;***
- ***Blast Monitoring; and***
- ***Groundwater Monitoring.***

And

As required by NIRB Project Certificate No.004 Condition 6: ***All monitoring information collected pursuant to regulatory requirements for the Meadowbank Project shall contain the following information:***

a) The person(s) who performed the sampling or took the measurements including any accreditations;
b) The date, time and place of sampling or measurement, and weather conditions;
c) Date of analysis;
d) Name of the person(s) who performed the analysis including accreditations;
e) Analytical methods or techniques used; and
f) Results of any analysis.

And

As required by NIRB Project Certificate No.008 Item 8: ***All monitoring information collected pursuant to the Project Certificate and various regulatory requirements for the Project shall, if appropriate, given the type of monitoring conducted, contain the following information:***

a) The name of the person(s) who performed the sampling or took the measurements including any relevant accreditations;
b) The date, time and place of sampling or measurement, and weather conditions;
c) The date of analysis;
d) The name of the person(s) who performed the analysis including any relevant accreditations;
e) A description of the analytical methods or techniques used; and
f) A discussion of the results of any analysis.

And

As required by NIRB Project Certificate No.004 Condition 7: ***Cumberland shall keep and maintain the records, including results, of any monitoring, data, or analysis, for a minimum of the life of the Project, including closure and post-closure monitoring. This time period shall be extended if requested by NIRB, GN, INAC, DFO, EC or the NWB.***

And

As required by NIRB Project Certificate No.008 Item 10: ***The Proponent shall keep and maintain the records, including results, of all Project-related monitoring data and analysis for the life of the Project, including closure and post-closure monitoring.***

And

As required by NIRB Project Certificate No 008 Condition 18: ***The Proponent shall, reflecting any direction from the Nunavut Water Board, maintain a Site Water Monitoring and Management Plan designed to:***

- ***Minimize the amount of water that contacts mine ore and wastes;***
- ***Appropriately manage all contact water and discharges to protect local aquatic resources; and***
- ***Implement water conservation and recycling to maximize water reuse and minimize the use of natural waters.***
- ***The Plan should include monitoring that demonstrates contact water (runoff and shallow groundwater) from the ore storage and waste rock storage areas is captured and managed, as per the Waste Rock Facility Management Plan. The plan should be submitted to the NIRB at least 60 days prior to the start of construction, with results submitted annually thereafter.***

Following sections describe the water monitoring as required by the Meadowbank and Whale Tail Water Quality and Flow Monitoring Plan and AEMP. These plans were both approved by the NWB.

Given the elevated number of certificates of analysis related to both Meadowbank and Whale Tail sites in 2023, Agnico Eagle will provide them on request. The certificate of analysis is detailed as follow:

- name of the person(s) who performed the sampling;
- date, time and place of sampling or measurement;
- date of analysis;
- name of the person(s) who performed the analysis including any relevant accreditations;
- description of the analytical methods or techniques used; and.
- sample and QAQC results.

For all samples collected under the Meadowbank and Whale Tail Water Quality and Flow Monitoring Plan, trending is presented for 2019 up to 2023. For historical water management transfer volume, refer the Water Management Plan for Meadowbank and Whale Tail include in Appendix 13 and Appendix 14, respectively.

8.1 CORE RECEIVING ENVIRONMENT MONITORING PROGRAM (CREMP)[§]

The Core Receiving Environment Monitoring Program (CREMP) was updated and approved by NWB in 2022 and can be found in Appendix 33 of the 2022 Annual Report.

The Core Receiving Environment Monitoring Program (CREMP) for the Meadowbank Complex focuses on determining if activities at Meadowbank, Whale Tail, and Baker Lake are causing changes in water quality, sediment chemistry, phytoplankton, and benthic invertebrates. Changes within the study area lakes are identified using early warning triggers and statistical analyses. The assessment includes the use of early warning triggers and action thresholds to support management decisions within the Aquatic Effects Management Program (AEMP). The AEMP is the overarching 'umbrella' program that integrates results of individual, but related, monitoring programs for the purpose of implementing management actions before unacceptable adverse impacts occur to aquatic life.

8.1.1 Meadowbank Site[*§]

NIRB Project Certificate No.004 Condition 76*: Cumberland shall develop an "Early Warning Monitoring Program" along the east boundary of the Project's local study area (mine and road) including the location where Third Portage Lake flows into Tehek Lake. The "Early Warning Monitoring Program" shall discuss how the communities of Baker Lake and Chesterfield Inlet will be actively involved and shall be submitted to NIRB's Monitoring Officer for review prior to Project construction. If adverse effects from the project to any VEC are detected along this boundary, then Cumberland shall notify the NIRB's Monitoring Officer for determination as to whether and to what extent additional monitoring is required.*

Take note that the following is just a summary of the CREMP report and Agnico Eagle will refer the reader to the whole report in Appendix 26 for an exhaustive comprehension of the program and results for 2023. Agnico Eagle will also refer the reader to Table ES-1 of the 2023 CREMP report for a summary of key findings with temporal and spatial trend assessment and annual CREMP results compared to Final Environmental Impact Statement (FEIS) prediction.

The 2023 CREMP summarized results for the Meadowbank and Baker Lake study areas are presented below.

Meadowbank Study Area

There are nine sampling areas included in the Meadowbank CREMP. Third Portage Lake East Basin and North Basin (TPE and TPN), Second Portage Lake (SP), and Wally Lake (WAL) are the Near-Field (NF) areas monitored annually for changes related to operations at the Meadowbank mine and mill. Starting in 2023, Mid-Field (MF) areas Tehek Lake (TE), the South Basin of Third Portage Lake (TPS), and Far-Field (FF) area Tehek Lake far-field (TEFF) are monitored only if moderate changes are detected upstream at the NF locations. Two reference areas are shared for the Meadowbank and Whale Tail programs: Inuggugayualik Lake (INUG) and Tasirjuaraajuk Lake (aka Pipedream Lake [PDL]). INUG has been the core reference area since formal monitoring began in 2006. PDL was added to was added to the Meadowbank CREMP in 2009. Refer to the map provided in the 2023 CREMP Report for locations.

Water Quality (Limnology & Water Chemistry)

[*] TSM- Biodiversity Conservation

Water quality monitoring for limnology and chemistry was completed in March, July, August, and September 2023 according to the CREMP study design. The May sampling event was cancelled due to unsafe ice conditions. Limnology profiles were taken at the Near-Field areas—Third Portage Lake (TPN, TPE), Second Portage Lake (SP), and Wally Lake (WAL)—in the winter months when ice conditions were safe (January, February, April, November, and December).

The NF areas close to the mine have higher concentrations of dissolved solids and constituent major ions such as calcium and magnesium compared to baseline/reference conditions. This observation is consistent with previous findings. While these changes to water quality are mine-related, the observed concentrations are still relatively low and there is no evidence to suggest concentrations are increasing year-over-year or that the observed concentrations would result in adverse ecological effects. Consistent with previous reporting cycles, there were no trigger exceedances in 2023 for any water quality parameters with CCME water quality guidelines (WQG), including metals. In the context of the assessment framework outlined in the Final Environmental Impact Statement, the magnitude of potential effect on water quality in each of the near-field lakes in 2023 was considered low (i.e., less than the CCME WQGs) and consistent with the original predictions. Routine water quality monitoring is recommended for 2024.

Phytoplankton Community

Water samples for phytoplankton taxonomy were collected during each sampling event. From the 2023 BACI analysis, the phytoplankton community showed significant reductions relative to baseline for richness at TPE, however this reduction was less than the 20% trigger. Phytoplankton biomass increased above the 20% trigger at TPN and WAL, though this was not significant in the BACI analysis. The observed fluctuations in phytoplankton richness and biomass fall within the range of historical baseline/reference conditions and are likely due to natural variability. Ultimately, the long-term phytoplankton monitoring data demonstrates that mining operations have not contributed to pervasive changes in primary productivity among the NF areas. The trends in phytoplankton biomass and richness will be reviewed again in 2024.

Sediment Chemistry

The 2023 sediment program focused on NF and reference areas only and consisted of the routine grab sampling (particle size, total organic carbon, and organics analysis on the top 3–5 cm of sediment) and a sediment coring program (metals analysis on the top 1.5 cm of sediment).

Sediment core metals for which the 2023 mean exceeded the trigger value at the NF areas were formally assessed in the statistical BA model to assess whether concentrations are increasing over time. In 2023, mean sediment concentrations exceeded the trigger for chromium at TPE. There have been temporal changes in sediment chromium concentrations at TPE which were attributable to activities at the mine, but levels appear to have peaked in 2017 and have since declined. Current conditions do not pose risks to the benthos at TPE.

Sediment grab sampling was conducted at the NF and reference areas to support the benthic invertebrate community monitoring component of the CREMP. Sediment was analyzed for grain size and total organic carbon. The next sediment coring program will be conducted in August 2026 to review trends in chemistry. In 2024, grab samples will be collected to support the benthic invertebrate community sampling program.

Benthos Community

There were no statistically significant changes to the benthic invertebrate community at Meadowbank relative to baseline/reference conditions identified by the 2023 BACI assessment, except for an increase in richness at SP during the 2020-2023 time period. Richness at SP was within the range of reference area INUG in 2023. The trends in benthos abundance and richness will be reviewed again in 2024.

Baker Lake Study Area

CREMP monitoring at Baker Lake started in 2008. Important mine-related activities in Baker Lake include barge/shipping traffic and general land-based activities associated with the tank farm area. Water quality sampling was conducted at two NF areas (BBD, BPJ) and one reference area (BAP) in Baker Lake in July, August, and September 2023. As 2023 was a sediment coring year, sediment and benthos sampling occurred at the NF (BBD, BPJ) and reference area (BAP) mentioned above, and at an additional reference area (Baker Lake East Shore [BES]) to better characterize sediment and benthos conditions.

Water Quality

The mean concentrations for dissolved organic carbon exceeded their respective triggers in 2023 at all three areas (BBD, BPJ, and BAP). Additionally, for the first time since monitoring began, pH (field measured) dropped below the lower trigger threshold at reference location BAP. The BACI showed no statistically significant increase above baseline/reference for BBD or BPJ. There was no evidence of any barge-related impacts to water quality at impact areas in Baker Lake. Monitoring in 2024 will follow the scope and schedule of the CREMP Plan.

Phytoplankton Community

There was an apparent increase in total biomass at NF areas BPJ and BBD along with richness at BBD, however this may be attributed to the decrease observed at reference area BAP. Overall, the phytoplankton community in Baker Lake was similar to previous years and has not exhibited any changes attributable to Agnico Eagle's activities in Baker Lake. Monitoring in 2024 will follow the scope and schedule of the CREMP Plan.

Sediment Chemistry

The mean sediment core concentration of arsenic exceeded the trigger at BPJ in 2023, however this exceedance was not found to be statistically significant when compared to baseline conditions using the BA statistical model. No evidence was found to suggest that Agnico Eagle's activities are influencing sediment quality at Baker Lake. The next sediment coring program will be conducted in August 2026 to review trends in chemistry.

Benthic Community

There was an apparent increase in both abundance and richness at BBD and BPJ across all years since 2020. However, none of these results were found to be significant in the BACI analysis except for richness at BBD in 2023 and 2021-23 time periods. There has been a general decline in both abundance and richness at BAP and BES since 2020. The apparent increases at BBD and BPJ may reflect the declines occurring at the reference locations. There is no indication that Agnico Eagle's activities are influencing the benthic community at Baker Lake. The next benthic sampling program will be conducted in August 2026.

8.1.2 Whale Tail Site[*§]

As required by NIRB Project Certificate No.008, Condition 19*: The Proponent shall, reflecting any direction from responsible authorities such as the Nunavut Water Board, Fisheries and Oceans Canada and Environment and Climate Change Canada, maintain a Core Receiving Environment Monitoring Program (CREMP) designed to:*

- ***Determine the short and long-term effects in the aquatic environment resulting from the Project;***
- ***Evaluate the accuracy of Project effect predictions;***
- ***Assess the effectiveness of mitigation and management measures on Project effects;***
- ***Identify additional mitigation measures to avert or reduce environmental effects due to Project activities;***
- ***Comply with Metal Mining Effluent Regulations requirements, should an Environmental Effects***
- ***Monitoring program be triggered;***
- ***Reflect site-specific water quality conditions;***
- ***Include details comparing the watershed features in the Whale Tail watershed to those watersheds used as reference lakes; and***
- ***Evaluate the mixing and non-mixing portion of the pit.***

The CREMP should include sufficient sampling and monitoring programs to appropriately characterize the receiving environment to ensure that adequate data is available to assess impact predictions made within the Environmental Impact Statement for the Whale Tail Pit Project. The updated plan should be submitted to the NIRB at least 60 days prior to the start of construction, with results submitted annually thereafter.

And

As required by NIRB Project Certificate No.008 Condition 17: ***The plan should be submitted to the NIRB at least 30 days prior to the start of construction, with results submitted annually thereafter. The Proponent shall:***

a) Monitor the effects of project activities and infrastructure on surface water quality conditions;
b) Ensure the monitoring data is sufficient to compare the impact predictions in the Environmental Impact Statement (EIS) for the Project with actual monitoring results;
c) Ensure that the sampling locations and frequency of monitoring is consistent with and reflects the requirements of the Water Quality and Flow Plan and the Core Receiving Environmental Monitoring Program; and
d) On an annual basis, the Proponent will compare monitoring results with the impact assessment predictions in the EIS and will identify any significant discrepancies between impact predictions and monitoring results.

Take note that the following is just a summary of the CREMP report and Agnico Eagle will refer the reader to the whole report in Appendix 26 for an exhaustive comprehension of the program and results for 2023. Agnico Eagle will also refer the reader to Table ES-2 of the 2023 CREMP report for a summary of key findings with temporal and spatial trend assessment and annual CREMP results compared to FEIS prediction.

The 2023 CREMP summarized results for the Whale Tail study area are presented below.

[*] TSM- Biodiversity Conservation

Whale Tail Study Area

There are six lakes currently included in the Whale Tail CREMP study design. Whale Tail Lake South Basin (WTS) and Kangislulik Lake (KAN) are NF areas designed to detect changes related to dike construction in Whale Tail Lake and Kangislulik Lake and discharge of treated water during operations. Nemo Lake (NEM) is also considered a NF area because of its proximity to the site, even though it is situated in a different watershed. MF areas are Lake A20 (upstream from WTS but joined to WTS after flooding) and Lake A76 located downstream from KAN. Lake A76 is situated at the junction of the two flow paths leading to Lake DS1. Given its morphology and location, it represents an ideal MF exposure area for both flow paths. Lake DS1 is the FF location to provide additional context for characterizing spatial extent of effects. Refer to the map provided in the 2023 CREMP Report for locations.

Water Quality

Surface water monitoring for limnology and water chemistry were completed in March, July, August, and September according to the CREMP study design for the Whale Tail study area. Sampling planned for May was cancelled due to unsafe ice conditions, so an abbreviated sampling event took place at WTS and KAN in November 2. Supplemental limnology profiles were taken at Whale Tail South, Kangislulik Lake, Nemo Lake, and Lake A20 in select winter months to verify that water quality is broadly within the range of expected values, particularly for conductivity and dissolved oxygen.

Changes in water quality in lakes downstream from the mine were predicted to occur during construction and operations. Water quality within the Whale Tail study area lakes exhibited fairly stable conditions during the baseline period. Consequently, when interpreting time series plots to examine spatial-temporal trends in water quality, the signal of development-related inputs was expected to be easily observed relative to the low noise levels of the baseline period. The following parameters have increased relative to baseline/reference conditions:

- Ionic Compounds – total dissolved solids and constituent ions such as calcium, magnesium, potassium, and sodium were elevated in the NF lakes and downstream of KAN to Lake A76.

- Nutrients – total Kjeldahl nitrogen, total phosphorus, total organic carbon, and dissolved organic carbon were elevated at NF area WTS and at MF area A20. These same parameters were elevated at KAN, though mean annual total phosphorus level declined in 2023 and did not exceed the trigger value. The elevated parameters are likely the result of inputs from flooded terrestrial habitats following impoundment, dewatering inputs from WTN, and the joining of WTS to A20.

- Metals/metalloids – total and dissolved lithium was elevated at WTS and KAN and dissolved silicon was elevated at DS1. These parameters do not have an effects-based guideline for protection of freshwater aquatic life.

Of the parameters with trigger exceedances, FEIS predictions were exceeded for total phosphorus at WTS and total alkalinity, TDS, total lithium, and several ionic compounds at WTS and KAN in one or more sampling events. Importantly, the absolute concentrations of these parameters remain low. Total phosphorus and arsenic at WTS and KAN are within the normal operating ranges and Level 0 water management strategy is in effect in 2024 as per the Adaptive Management Plan. Routine water quality monitoring will continue in 2024 to track emerging spatial and temporal trends.

Phytoplankton Community

Phytoplankton community sampling was completed at the same time as the water chemistry sampling program in 2023. Phytoplankton communities vary naturally throughout the year in total biomass (and density) and community composition (taxa richness). The primary stressors for the phytoplankton community include nutrients and metals in surface contact water discharged to KAN and WTS. Nutrient loading can manifest as an increase in total biomass or a change in community structure, while increasing metals concentrations would be expected to cause lower biomass and taxa diversity.

Increased total biomass was reported at WTS (102%), KAN (17%), A20 (243%), and NEM (19%) relative to control/baseline conditions with statistically significant ($p < 0.1$) results at WTS and A20. Phytoplankton biomass has increased above the 20% effect size at WTS since 2022 (not significant) and at A20 (significant in 2021) since 2021. These increases have corresponded to nutrient increases (total phosphorus trigger exceedances at both WTS and A20 since 2021), suggesting that phytoplankton enrichment at WTS and A20 is occurring. Despite this, the BACI results have not consistently demonstrated significant results in previous years. Furthermore, phytoplankton communities respond to a host of natural seasonal factors such as sunlight, and water temperature. According to the FEIS, phosphorus and nitrate levels are predicted to increase at both WTS and KAN until 2026, after which concentrations are predicted to decline. With these predicted increases in nutrients, phytoplankton biomass is expected to increase over the next three years of CREMP sampling. Phytoplankton productivity, biomass and richness, as well as associated patterns in key nutrients will continue to be tracked in 2024. Phytoplankton community monitoring is scheduled for 2024 according to the CREMP Plan.

Sediment Chemistry

Sediment chemistry in the Whale Tail study area is naturally elevated in several metals. Concentrations of these metals can be highly variable as the sediment chemistry of the lakes is spatially heterogenous. In 2023, mean sediment core concentrations of arsenic and chromium exceeded triggers and were significantly higher than the baseline period at WTS, KAN, and A20 when compared using the BA statistical model. Though mean arsenic concentrations exceeded triggers, concentrations generally remain within baseline ranges at all of the study lakes. Potential increasing trends were noted for chromium at WTS and KAN. Despite this, trigger exceedances for chromium were marginal at KAN and concentrations at WTS ranged well above the trigger value during baseline sampling. Mean copper concentrations exceeded the trigger at A20, however, this is likely attributed to spatial heterogeneity rather than mining activities. These potential changes in arsenic, chromium, and copper will be monitored in 2024.

TOC proportions, while naturally differing across the study lakes, have remained stable within each lake. These findings show that mining activity has not caused an increase in TOC. The next sediment coring program will be conducted in August 2026 to review trends in chemistry. In 2024, grab samples will be collected for chemistry and to support the benthic invertebrate community sampling program.

Benthos Community

Benthic invertebrate (benthos) community structure (taxa richness) and function (abundance) in the Whale Tail study area lakes is typical of northern headwaters lakes in the region (i.e., relatively low abundance and few taxa). Significant increases in abundance occurred at KAN and NEM across all time periods, as well as WTS in 2022-23. Significant increases in richness were also found at A20 in 2022-23,

2021-23, and 2020-23 as well as DS1 in 2022-23. These increases may be occurring due to an enrichment effect; however, there are a number of factors not related to mining activities (e.g., water temperature) that could have an important influence on the Whale Tail benthos community. Further, the densities observed in 2021, under a similar nutrient and primary production regime, were among the lowest observed across the Whale Tail impact lakes since 2015. Additional monitoring data should help understand the cause of the increased densities observed in 2023. Benthos community monitoring will be conducted in 2024 according to the CREMP Plan.

8.2 METHYLMERCURY STUDIES WHALE TAIL SITE*

As required by NIRB Project Certificate No.008, Condition 63*: The Proponent shall conduct additional studies as part of its freshwater aquatic effects analyses to ensure that methylmercury concentrations anticipated to increase during operations in the aquatic environment (including in fish tissue) do not exceed regulatory requirements. In addition, the Proponent shall consider assessing potential risks from consumption of fish containing methylmercury by using Health Canada's hazard quotients as a descriptive tool. A summary of the results of these additional studies, including the assessment of the potential risk to people from consumption of fish, shall be included in the Proponent's annual report to the Nunavut Impact Review Board.*

The Mercury Monitoring Plan was updated in March 2023 and can be found in Appendix 54 of the 2022 Annual Report

The 2023 Mercury Monitoring Program (MMP) was completed according to the study design outlined in the Mercury Monitoring Plan (Version 4). The purpose of the MMP is to assess changes in mercury concentrations caused by the creation of the Whale Tail Impoundment ("Impoundment") following the construction of the Whale Tail Dike in September 2018. Construction of the dike raised the elevation of the south basin of Whale Tail Lake (WTS) and connected WTS with Lake A20, Lake A65, and other small waterbodies adjacent to WTS. One of the effects of newly formed reservoirs is an increase in the production of methylmercury. Methylmercury bioaccumulates in aquatic food webs with the highest concentrations of methylmercury typically observed in large-bodied fish species like Lake Trout. In anticipation of this situation, predictions were made for the magnitude of increase expected in Lake Trout for the Final Environmental Impact Statement. Mercury concentrations in Lake Trout are predicted to increase between 2-3 times above baseline concentrations. Total mercury concentrations in surface water are predicted to peak at 50-100 ng/L. No predictions were made for methylmercury in surface water or sediment.

The MMP was designed to monitor mercury dynamics in key components of the ecosystem to verify the FEIS predictions and manage methylmercury-related risks should those predictions be exceeded. The scope of the 2023 program included large-bodied (Lake Trout) and small-bodied fish, water, and sediment sampling at various locations within the Impoundment, downstream of the mine, and at local reference lakes. Take note that the following is just a summary of the MMP report and Agnico Eagle will refer the reader to the whole report in Appendix 27 for an exhaustive comprehension of the program and results for 2023.

<u>Water</u>

Mercury concentrations in surface water in the Impoundment were between 0.37 and 1 ng/L for total mercury and between 0.03 and 0.1 ng/L for methylmercury (filtered). Current concentrations are well

* TSM- Biodiversity Conservation

below predictions in the FEIS and below the CCME water quality guidelines for the protection of aquatic life (26 ng/L for total mercury and 4 ng/L for methylmercury). Concentrations of total mercury and methylmercury increased during the early post-flooding years, but since 2020, concentrations have been fairly stable. In 2023, for the first time since the Impoundment was created, total mercury concentrations decreased compared to previous years. Methylmercury concentrations in filtered samples were still elevated in the Impoundment in 2023. Results from an additional year of sampling will help confirm whether methylmercury concentrations are decreasing in the Impoundment. Evidence of downstream transport of methylmercury to Kangislulik Lake and beyond is weak, suggesting that any contributions from WTS are minor relative to variability in baseline/reference conditions. Mercury concentrations in surface water will continue to be monitored in 2024 as per the Mercury Monitoring Plan.

Sediment

In 2023, sediment samples were collected from the depositional areas in the MMP lakes and inundated areas within the Impoundment. Flooded terrestrial soils are known to drive increased methylmercury production in reservoirs. Therefore, methylmercury concentrations are expected to be higher within the inundation zone sediment (formerly soils) compared to the depositional areas in the Impoundment.

Total mercury concentrations were below the CCME sediment quality guidelines at all areas for depositional and inundation zone samples. In 2023, total mercury concentrations in the depositional and inundation zones of the Impoundment were similar to baseline/reference conditions. Total mercury concentrations in the deposition zones in downstream exposure areas were similar to baseline/reference conditions.

Methylmercury concentrations in deposition zone samples in the Impoundment and in downstream areas were similar to baseline/reference. As anticipated, methylmercury concentrations were highest in the inundation zone sediment samples, which is expected as these areas are the main driver of the ‘reservoir effect’ in which bacterial decomposition of organic matter in inundated soils results in the methylation of inorganic mercury to form methylmercury.

Methylmercury concentrations in depositional zone sediments in Kangislulik Lake were similar to baseline and within reference range in 2023. This suggests, the increase in Kangislulik Lake observed in 2022 was an anomaly and unlikely to be related to mining activities.

For 2024, sediment grabs will be collected from depositional zones in the MMP area lakes and analyzed for total mercury as per the CREMP 2022 Plan Update to confirm that concentrations are within baseline/reference across sampling areas and remain below the CCME guideline in the Impoundment and at downstream areas. Methylmercury will not be analyzed in the sediment grabs from depositional zones in 2024. Trends in methylmercury in depositional zones will be reviewed during the next sediment coring program planned for 2026. Sediment sampling within the inundation zone will be repeated in 2026.

Small-bodied Fish

The primary reason small-bodied fish (Slimy Sculpin [*Cottus cognatus*] and Ninespine Stickleback [*Pungitius pungitius*]) are included in the MMP is to track temporal and spatial patterns in mercury at a key step in the food chain that ultimately leads to large-bodied fish. While the MMP’s focus is on mercury concentrations in large-bodied fish, the results for small-bodied fish help to understand how this northern ecosystem is responding to the creation of the Impoundment. This is particularly important for

understanding the overall trajectory of the 'reservoir effect' (e.g., to know when to expect fish mercury concentrations to start decreasing).

Both small-bodied fish species in the Impoundment showed marked increases in tissue mercury concentrations in 2020 that persisted in 2023. The temporal patterns seen to date for Ninespine Stickleback suggest that conditions may have stabilized somewhat as tissue mercury concentrations neither continued to rise sharply nor showed clear signs of decreasing back to baseline levels. For Slimy Sculpin, concentrations have continued to increase, though at a lesser extent than what was observed in the first year post-Impoundment (i.e., from 2019 to 2020).

Downstream, in KAN, there was no strong evidence of temporal increases in mercury concentrations relative to the reference lakes. This pattern is consistent with the surface water and depositional sediment results, where increases were not seen in KAN in 2023.

For 2024, the supplemental small-bodied fish mercury study is not planned as per the Mercury Monitoring Plan.

Large-bodied fish – Lake Trout

Lake Trout (*Salvelinus namaycush*) is the target species to monitor mercury bioaccumulation in the food web because piscivorous fish such as Lake Trout typically have the highest concentrations of mercury in high-latitude lakes. Lake Trout were collected from the Impoundment in 2023 and mercury concentrations were found to be higher than baseline/reference concentrations and similar to the predicted peak mercury concentration.

Downstream, in KAN, mercury concentrations in Lake Trout were similar to baseline/reference concentrations and remained below the predicted peak mercury concentration. This indicates that downstream transport of mercury from the Impoundment is limited. These findings are consistent with the results to date for surface water, depositional sediment, and small-bodied fish.

The MMP has committed to implementing further risk-based analyses if fish tissue mercury concentrations in the Impoundment exceed the predicted peak mercury concentration for Lake Trout. However, as the 2023 mercury concentrations did not exceed the peak predicted concentration, no MMP-related risk management measures are required at this time.

The next large-bodied fish sampling event is planned for August 2026 as per the Mercury Monitoring Plan.

8.3 MDMER AND EEM SAMPLING

8.3.1 Meadowbank Site

This section includes the results of the monitoring programs conducted under the Metal and Diamond Mining Effluent Regulations (MDMER) and its Schedule 5 Environmental Effects Monitoring (EEM) Studies. Figures 1, 2, and 3 illustrate the location of sampling stations at the Meadowbank mine site, EEM receiving environment monitoring program and the Vault Site.

8.3.1.1 *Portage Attenuation Pond Discharge*

On November 19th, 2014 tailings deposition commenced in the South Cell (Portage Attenuation Pond) and this represented the end of use of the Portage Attenuation Pond. There has been no further effluent discharge to Third Portage Lake since July 5th, 2014. In 2019, Agnico Eagle have officially informed ECCC that the final discharge point Water Treatment Plant (ST-MMER-1 / ST-9) will no longer be used and is permanently dismantled. For this reason, Agnico Eagle is not reporting MDMER and EEM results since 2019.

8.3.1.2 *Vault Attenuation Pond Discharge*

The Vault final discharge point became subject to the MDMER Regulation on June 27th, 2013, at the commencement of the dewatering of Vault Lake. In 2023, no water was discharged from the final effluent Vault Discharge (ST-MMER-2) into the receiving environment Wally Lake. No discharged occurred in 2023. This discharge is however still active in the MERS system.

8.3.1.3 *East Dike Discharge*

The East Dike Seepage Discharge became subject to the MDMER on January 6th, 2014. In 2023, Agnico Eagle continued to pump water from the two collection points, South and North seepage and discharged through a common header through a diffuser into Second Portage Lake. The seepage water was released into the environment, prior to contact with mining activity, without treatment as it is compliant with Section 4 (1) of the regulation.

East Dike Seepage discharge is in reduced frequency for the testing of Ra226 since March 2016. The discharge is also in reduce frequency since September 2016 for Item 1 to 6 [arsenic, copper, cyanide, lead, nickel, zinc] of column 1 of the MDMER Schedule 4 and for Rainbow Trout acute lethality. Discharge monitoring samples are provided in Table 8-1.

East Dike Seepage (sampling station ST-8, also named ST-MMER-3) was discharged into the receiving environment, Second Portage Lake (SPL), January 1st to April 29th, 2023. Due to increased TSS levels in April, the discharge to Second Portage Lake was stopped. All water was diverted to the pits, as done in the past. The discharge to the receiving environment did not resume to Second Portage Lake for the rest of 2023. The total volume discharged to SPL in 2023 was 28,516 m^3. Table 8-2 provides a daily breakdown of volumes of water pumped. There was no (0) exceedance of the MDMER/Water License limits in 2023.

Sublethal toxicity samples are collected directly after the effluent characterization samples, from the same location (ST-MMER-3-EEM, East Dike Discharge). In 2023, there was only one discharge to the receiving environment. For this reason, the East Dike discharge (ST-MMER-3-EEM) is the mine's final discharge point that has potentially the most adverse environmental impact on the environment as per Schedule 5 Section 5. In 2023, two (2) sub-lethal toxicity samples were collected from the East Dike Discharge in compliance with Schedule 5 Section 6. The sub-lethal toxicity samples were collected on January 9th and April 10th. The water quality samples were taken from the discharge location (ST-MMER-3), the receiving environment exposure area (SPLE or ST-MMER-3-EEM-SPLE) and reference area (TPS or ST-MMER-1-EEM-TPS). These sampling locations are highlighted in Figures 1 and 2. Results of the EEM water quality monitoring program is presented in Tables 8-3. These data were previously reported to Environment Canada via the MERS electronic database reporting system.

Table 8-1 Meadowbank 2023 East Dike MDMER Monitoring

Month	As	Cu	CN	Pb	Ni	NH_3	Zn	TSS	Ra 226	pH	Results for Rainbow Trout Acute Lethality Tests (mean percentage mortality in 100% effluent test concentration)	Results for Daphnia magna Monitoring Tests (mean percentage mortality in 100% effluent test concentration)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
January												
2-Jan-23	0.00093	0.00148	< 0.00050	< 0.0002	< 0.0010	< 0.00040	< 0.0050	2	< 0.0050	7.81	0	0
9-Jan-23	NMR	NMR	NMR	NMR	NMR	< 0.00055	NMR	4	NMR	8.12	NMR	NMR
16-Jan-23	NMR	NMR	NMR	NMR	NMR	< 0.00069	NMR	6	NMR	8.22	NMR	NMR
23-Jan-23	NMR	NMR	NMR	NMR	NMR	< 0.00094	NMR	6	NMR	8.35	NMR	NMR
31-Jan-23	NMR	NMR	NMR	NMR	NMR	< 0.00040	NMR	5	NMR	7.83	NMR	NMR
February												
6-Feb-23	0.00105	0.00136	0.00065	< 0.0002	< 0.0010	< 0.00099	< 0.0050	4	< 0.0050	8.38	NMR	0
13-Feb-23	NMR	NMR	NMR	NMR	NMR	NMR	NMR	8	NMR	8.55	NMR	NMR
20-Feb-23	NMR	NMR	NMR	NMR	NMR	NMR	NMR	5	NMR	7.72	NMR	NMR
27-Feb-23	NMR	NMR	NMR	NMR	NMR	NMR	NMR	4	NMR	7.30	NMR	NMR
March												
6-Mar-23	0.00248	0.00130	< 0.0005	< 0.0002	0.0018	< 0.00043	< 0.0050	3	< 0.0050	8.02	NMR	40
13-Mar-23	NMR	NMR	NMR	NMR	NMR	< 0.00310	NMR	2	NMR	8.90	NMR	NMR
20-Mar-23	NMR	NMR	NMR	NMR	NMR	< 0.00056	NMR	4	NMR	8.13	NMR	NMR
27-Mar-23	NMR	NMR	NMR	NMR	NMR	< 0.00040	NMR	3	NMR	7.63	NMR	NMR
April												
3-Apr-23	0.00198	0.00164	< 0.00050	< 0.0002	< 0.0010	< 0.00150	< 0.0050	2	< 0.0050	8.57	NMR	NMR
10-Apr-23	0.00142	0.00097	0.00052	< 0.0002	< 0.0010	< 0.00180	< 0.0050	3	< 0.0050	8.64	0	NA
17-Apr-23	NMR	NMR	NMR	NMR	NMR	< 0.00064	NMR	2	NMR	8.19	NMR	NMR
18-Apr-23	0.00023	0.00100	< 0.0005	< 0.00020	< 0.0010	< 0.00074	< 0.0050	2	< 0.0050	8.24	0	0
24-Apr-23	NMR	NMR	NMR	NMR	NMR	< 0.00091	NMR	3	NMR	8.14	NMR	NMR
May												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
June												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
July												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
August												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
September												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
October												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
November												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
December												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

NDEP: No Deposit
NMR: No Measurement Required
NA: Invalid daphnia test due to high mortality in the blank

Table 8-2 Meadowbank 2023 East Dike MDMER Volume

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
1	284	271	245	258	0	0	0	0	0	0	0	0	
2	250	278	240	249	0	0	0	0	0	0	0	0	
3	282	278	235	232	0	0	0	0	0	0	0	0	
4	288	278	260	235	0	0	0	0	0	0	0	0	
5	281	276	280	230	0	0	0	0	0	0	0	0	
6	281	274	248	219	0	0	0	0	0	0	0	0	
7	283	268	215	218	0	0	0	0	0	0	0	0	
8	283	267	215	229	0	0	0	0	0	0	0	0	
9	282	262	218	227	0	0	0	0	0	0	0	0	
10	276	257	210	196	0	0	0	0	0	0	0	0	
11	252	259	210	148	0	0	0	0	0	0	0	0	
12	298	272	219	140	0	0	0	0	0	0	0	0	
13	280	284	203	144	0	0	0	0	0	0	0	0	
14	282	310	192	151	0	0	0	0	0	0	0	0	
15	276	274	187	145	0	0	0	0	0	0	0	0	
16	277	274	187	142	0	0	0	0	0	0	0	0	
17	307	274	185	146	0	0	0	0	0	0	0	0	
18	277	272	192	138	0	0	0	0	0	0	0	0	
19	283	264	202	136	0	0	0	0	0	0	0	0	
20	282	279	216	135	0	0	0	0	0	0	0	0	
21	237	271	228	137	0	0	0	0	0	0	0	0	
22	279	263	243	140	0	0	0	0	0	0	0	0	
23	281	256	242	140	0	0	0	0	0	0	0	0	
24	278	260	233	140	0	0	0	0	0	0	0	0	
25	277	262	282	140	0	0	0	0	0	0	0	0	
26	285	261	314	141	0	0	0	0	0	0	0	0	
27	279	253	346	139	0	0	0	0	0	0	0	0	
28	263	250	308	138	0	0	0	0	0	0	0	0	
29	288		325	51	0	0	0	0	0	0	0	0	
30	270		308	0	0	0	0	0	0	0	0	0	
31	278		276		0		0	0		0		0	
Total (m^3)	**8,619**	**7,548**	**7,466**	**4,884**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**28,516**

Table 8-3 Meadowbank 2023 East Dike EEM Monitoring (ST-MMER-3)

	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°	Sub-Lethal Toxicity			
	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C	*Ceriodaphia dubia*	*Fathead minnow*	*Lemna minor*	*Pseudokirchneriella subcapitata*
Effluent characterization (65°01'11.21"N 96°02'32.00" W) (ST-MMER-3-EEM)																							
9-Jan-23	28	0.0865	< 0.000010	1.1	< 0.0010	< 0.00020	30.3	0.120	0.0031	< 0.00001	< 0.0010	< 0.10	0.0028	< 0.00010	6.0	< 0.000010	0.00036	73.2	0.20	without SE or AL	without SE or AL	without SE	without SE
3-Apr-23	30	0.0471	< 0.00001	1.8	< 0.0010	< 0.00020	31.8	0.056	0.0014	< 0.00001	< 0.0010	< 0.10	0.0025	< 0.00010	6.8	< 0.000010	0.00033	72.7	0.30	NMR	NMR	NMR	NMR
10-Apr-23	31	0.0498	0.000032	< 1.0	< 0.0010	< 0.00020	32.3	0.057	0.0021	< 0.00001	< 0.0010	< 0.10	0.0023	< 0.00010	7.2	< 0.000010	0.00031	72.1	0.20	with SE without AL	without SE or AL	without SE	without SE
***Annual Average**										***0.000005***				***0.00005***									

**Annual average calculated using half the detection limit*
SE: Sub-Lethal effects
AL: Acute Lethality
NMR: No measure requirement

	Unionized Ammonia	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°	pH	O_2	O_2
	mg N/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C		%	mg/L
Water Quality Monitoring Exposure Area (65°01'10.81" N 96°02'22.64"W) (ST-MMER-3-EEM-SPLE)																							
13-Feb-23	< 0.00044	11	0.00351	< 0.000005	< 1.0	< 0.0001	0.0000066	15.6	0.0056	0.000502	< 0.00001	0.000136	< 0.10	< 0.0010	< 0.000040	7.5	< 0.000002	0.0000458	41.7	0.49	8.01	123.8	17.40
20-Mar-23	< 0.0044	8.2	0.0024	< 0.000005	< 1.0	0.0087	0.0000265	16.7	0.0090	0.000442	< 0.00001	0.008390	< 0.10	0.0010	< 0.000040	5.3	< 0.000002	0.0000483	42.6	0.47	7.60	118.5	17.11
Water Quality Monitoring Reference Area (64°58'10.90" N 96°09'51.37" W) (ST-MMER-1-EEM-TPS)																							
13-Feb-23	< 0.00040	7.3	0.00328	< 0.000005	< 1.0	< 0.00010	< 0.0000050	10.2	0.0021	0.000496	< 0.00001	0.000109	< 0.1	< 0.0010	< 0.000040	4.6	< 0.000002	0.0000391	30.9	0.43	6.50	133.3	18.82
20-Mar-23	< 0.00068	7.8	0.00427	< 0.000005	< 1.0	0.00094	0.0000089	10.4	0.0031	0.000488	< 0.00001	0.000922	< 0.1	< 0.0010	< 0.000040	4.3	< 0.000002	0.0000380	30.1	0.44	6.84	112.1	16.19

	Arsenic	Copper	Cyanide	Lead	Nickel	Ra226	TSS	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	Bq/L	mg/L	mg/L
Water Quality Monitoring Exposure Area (65°01'10.81" N 96°02'22.64"W) (ST-MMER-3-EEM-SPLE)								
13-Feb-23	0.000460	0.000646	< 0.0005	0.000232	0.000531	< 0.005	2	0.00038
20-Mar-23	0.000484	0.000711	< 0.0005	0.000344	0.037	< 0.005	< 1	0.00042
Water Quality Monitoring Reference Area (64°58'10.90" N 96°09'51.37" W) (ST-MMER-1-EEM-TPS)								
13-Feb-23	0.000196	0.000412	< 0.0005	0.0000787	0.000417	< 0.005	1	0.00011
20-Mar-23	0.000226	0.000574	< 0.0005	0.00114	0.00408	< 0.005	< 1	0.00263

8.3.2 Whale Tail Site

8.3.2.1 *ST-MDMER-5*

During the dewatering of the Whale Tail North Basin, a FDP was created in 2019 - ST-MDMER-5 WT North Basin Dewatering Phase 1. This FDP is still active on the MERS system. This FDP was not used in 2023.

8.3.2.2 *ST-MDMER-6*

During the Phase 2 dewatering of the Whale Tail North Basin, the ST-MDMER-6 FDP was created in 2019. This FDP became subject to MDMER on June 17th, 2019 and is inactive on the MERS system starting on July 18th, 2023. This FDP was not used from 2020 to 2023.

8.3.2.3 *ST-MDMER-7*

FDP ST-MDMER-7 is the Attenuation Ponds discharged to Kangislulik Lake via a submerged diffuser to control erosion and disturbance to bottom sediments. Water is treatment via the Water Treatment Plan before discharge to receiving environment. Prior to the merge with ST-MDMER-8, ST-MDMER-7 was in operation on June 11th to June 28th, 2023. The results are presented in Table 8-4. The total volume of water discharge from the FDP in 2023 was 200,890 m^3, the daily discharge volumes are presented in Table 8-5. No non-compliances were observed in 2023 for this FDP. Starting July 18th, 2023, this station is inactive, and reporting is no longer required.

The water quality samples were taken from the discharge location (ST-MDMER-7), the receiving environment exposure area (EEM-7-MAME-2) and reference area (TPS or ST-MMER-1-EEM-TPS). These sampling locations are highlighted in Figures 2 and 4. Results of the EEM water quality monitoring program are presented in Tables 8-6. No reference and exposure samples were collected in 2023 as the discharge was only for 18 days in June (between June 11th to 28th). Samples were both scheduled to be taken on June 25th but lakes were unsafe and presented a safety risk for the workers. This data was previously reported to Environment Canada via the MERS electronic database reporting system.

8.3.2.4 *ST-MDMER-8*

ST-MDMER-8 FDP is the Attenuation Ponds discharged to Kangislulik Lake via the submerged diffuser to control erosion and disturbance to bottom sediments. From January 1st, 2023, up to July 18th, 2023, ST-MDMER-8 FDP was from a sampling valve at the shore of Kangislulik Lake. Following notification per Section 10(2), the FDP was moved after the header of the water treatment plant (from July 19th, 2023, till end of 2023). This FDP was in operation on June 4th to 30th, July 1st to 7th, July 16th to 18th, July 21st to 22nd, August 6th to 18th, and September 3rd to 14th. The results are presented in Table 8-7. No non-compliances were observed in 2023 for this FDP. This FDP is still active. The total volume of water discharge in 2023 was 943,296 m^3. Table 8-8 presents the daily discharge volumes.

Sublethal toxicity samples are collected directly after the effluent characterization samples, from the same location (ST-MDMER-8-EEM, Kangislulik Lake Discharge). ST-MDMER-8 has been determined to be the mine's final discharge point that has potentially the most adverse environmental impact on the environment as per Schedule 5 Section 5. In 2023, three (3) sub-lethal toxicity samples were collected from the ST-MDMER-8-EEM in compliance with Schedule 5 Section 6. The sub-lethal toxicity samples were collected on June 5th, July 3rd and August 7th. The water quality samples were taken from the

discharge location (ST-MDMER-8), the receiving environment exposure area (EEM-7-MAME-2) and reference area (TPS or ST-MMER-1-EEM-TPS). These sampling locations are highlighted on Figures 2 and 4. Results of the EEM water quality monitoring program are presented in Tables 8-9. This data was previously reported to Environment Canada via the MERS electronic database reporting system.

8.3.2.5 *ST-MDMER-10*

FDP ST-MDMER-10 had no discharge to the environment since September 2019 and have been permanently dismantle as of July 18th, 2023. This discharge is inactive on MERS system.

8.3.2.6 *ST-MDMER-11*

FDP is ST-MDMER-11 represents the discharge from the Attenuation Ponds to Whale Tail South via the permanent diffuser to control erosion and disturbance to bottom sediments. The sampling point for this FDP is at the header after the WTP. Discharge from this FDP occurred from January 8th to 15th, February 20th to 27th, March 19th to 24th, April 10th to 15th, April 24th, April 26th to 29th, May 10th to 22nd, September 18th to 19th, and October 8th to 11th. The results are presented in Table 8-10. The total volume of water discharge from the FDP in 2023 was 820,688 m^3, the daily discharge volumes are presented in Table 8-11. No non-compliances were observed in 2023 for this FDP. However, in March, the field sample collected on March 20th, 2023 showed evidence of Lead contamination, therefore the applicable duplicate sample results were reported in MERS. CIRNAC and ECCC were advised of this occurrence on April 6th, and a discussion between Agnico Eagle, CIRNAC and ECCC was conducted on April 12th to discuss the event.

The water quality samples were taken from the discharge location (ST-MDMER-11), the receiving environment exposure area (WTSE-1) and reference area (TPS or ST-MMER-1-EEM-TPS). These sampling locations are highlighted in Figures 2 and 4. Results of the EEM water quality monitoring program are presented in Tables 8-12. This data was previously reported to Environment Canada via the MERS electronic database reporting system.

Table 8-4 ST-MDMER-7 2023 MDMER Monitoring

Month	As	Cu	CN	Pb	Ni	NH_3	Zn	TSS	Ra 226	pH	Results for Rainbow Trout Acute Lethality Tests (mean percentage mortality in 100% effluent test concentration)	Results for Daphnia magna Monitoring Tests (mean percentage mortality in 100% effluent test concentration)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
January												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
February												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
March												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
April												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
May												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
June												
12-Jun-23	0.00169	0.00074	0.00149	< 0.0002	0.0072	0.0006	0.005	1	< 0.005	7.12	0	0
19-Jun-23	0.00232	0.00089	0.00490	< 0.0002	0.0139	0.0010	< 0.005	1	0.009	6.92	NMR	NMR
25-Jun-23	0.00337	0.00362	0.00217	< 0.0002	0.0154	0.0047	< 0.005	1	0.006	7.45	NMR	NMR
July												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
August												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
September												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
October												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
November												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
December												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

NDEP: No Deposit

NMR: No Measurement Required

Table 8-5 ST-MDMER-7 2023 Volume

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
1	0	0	0	0	0	0	0						
2	0	0	0	0	0	0	0						
3	0	0	0	0	0	0	0						
4	0	0	0	0	0	0	0						
5	0	0	0	0	0	0	0						
6	0	0	0	0	0	0	0						
7	0	0	0	0	0	0	0						
8	0	0	0	0	0	0	0						
9	0	0	0	0	0	0	0						
10	0	0	0	0	0	0	0						
11	0	0	0	0	0	8,347	0						
12	0	0	0	0	0	7,499	0						
13	0	0	0	0	0	15,100	0						
14	0	0	0	0	0	15,074	0						
15	0	0	0	0	0	15,035	0						
16	0	0	0	0	0	15,007	0						
17	0	0	0	0	0	14,985	0						
18	0	0	0	0	0	15,014							
19	0	0	0	0	0	14,986							
20	0	0	0	0	0	1,762							
21	0	0	0	0	0	12,917							
22	0	0	0	0	0	14,424							
23	0	0	0	0	0	13,559							
24	0	0	0	0	0	10,210							
25	0	0	0	0	0	7,754							
26	0	0	0	0	0	7,745							
27	0	0	0	0	0	7,755							
28	0	0	0	0	0	3,717							
29	0		0	0	0	0							
30	0		0	0	0	0							
31	0		0		0								
Total (m^3)	**0**	**0**	**0**	**0**	**0**	**164,317**	**104,923**	**364,244**	**239,305**	**0**	**0**	**0**	**200,890**

Table 8-6 ST-MDMER-7 2023 EEM Monitoring

	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°
	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C
Effluent characterization (65°23'50.03"N 96°44'15.48"W) (ST-MDMER-7-EEM)																			
12-Jun-23	24	0.0083	< 0.00001	31	0.0127	0.001	78.3	0.157	0.218	< 0.00001	0.0164	0.85	0.0027	< 0.0001	31	< 0.00001	0.00022	239	2.60
***Annual Average**										***0.000005***				***0.00005***					

**Annual average calculated using half the detection limit*
NMR: No measure requirement

	Unionized Ammonia	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°	pH	O_2	O_2
	mg N/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C		%	mg/L
Water Quality Monitoring Exposure Area (65°23'54.4'' N 96°44'21.6''W) (EEM-7-MAME-2)																							
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Water Quality Monitoring Reference Area (64°58'10.90'' N 96°09'51.37'' W) (ST-MMER-1-EEM-TPS)																							
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

	Arsenic	Copper	Cyanide	Lead	Nickel	Ra226	TSS	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	Bq/L	mg/L	mg/L
Water Quality Monitoring Exposure Area (65°23'54.4'' N 96°44'21.6''W) (EEM-7-MAME-2)								
NA	NA	NA	NA	NA	NA	NA	NA	NA
Water Quality Monitoring Reference Area (64°58'10.90'' N 96°09'51.37'' W) (ST-MMER-1-EEM-TPS)								
NA	NA	NA	NA	NA	NA	NA	NA	NA

No reference and exposure samples were collected in 2023 as the discharge was only for 18 days in June (between June 11th to 28th). Samples were both scheduled to be taken on June 25th but lakes were unsafe and presented a safety risk for the workers

Table 8-7 ST-MDMER-8 2023 MDMER Monitoring

Month	As	Cu	CN	Pb	Ni	NH_3	Zn	TSS	Ra 226	pH	Results for Rainbow Trout Acute Lethality Tests (mean percentage mortality in 100% effluent test concentration)	Results for Daphnia magna Monitoring Tests (mean percentage mortality in 100% effluent test concentration)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
January												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
February												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
March												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
April												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
May												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
June												
5-Jun-23	0.00130	< 0.00050	0.00230	< 0.0002	0.0064	0.0079	< 0.0050	< 1	< 0.005	7.91	0	0
12-Jun-23	0.00172	0.00073	0.00133	< 0.0002	0.0076	< 0.0004	0.0097	1	< 0.005	6.91	0	0
19-Jun-23	0.00246	0.00082	0.00462	< 0.0002	0.0134	0.0014	0.0073	< 1	0.008	7.04	NMR	NMR
25-Jun-23	0.00244	0.00061	0.00239	< 0.0002	0.0139	0.0050	0.0050	1	0.012	7.48	NMR	NMR
July												
3-Jul-23	0.00333	0.00276	0.00069	< 0.0002	0.0142	0.0017	0.0073	< 1	< 0.005	7.43	0	0
16-Jul-23	0.00519	0.00131	0.00289	< 0.0002	0.0126	0.0007	0.0090	1	0.010	7.08	NMR	NMR
22-Jul-23	0.00649	0.00108	0.00234	< 0.0002	0.0110	0.0017	0.0099	< 1	0.009	7.46	0	0
August												
7-Aug-23	0.00911	0.00090	0.00051	< 0.0002	0.0074	< 0.00040	0.0082	1	< 0.005	7.29	0	0
14-Aug-23	0.00744	0.00076	0.00101	< 0.0002	0.0063	0.00095	0.0069	1	0.014	7.50	NMR	NMR
September												
4-Sep-23	0.00936	0.00102	0.01330	< 0.0002	0.0161	0.0082	0.00760	1	0.0050	7.61	0	0
11-Sep-23	0.02410	0.00097	0.00868	< 0.0002	0.0264	0.0035	0.00660	2	< 0.0050	7.27	NMR	NMR
October												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
November												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
December												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

NDEP: No Deposit
NMR: No Measurement Required

Table 8-8 ST-MDMER-8 2023 Volume

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
1	0	0	0	0	0	0	14,547	0	0	0	0	0	
2	0	0	0	0	0	0	13,549	0	0	0	0	0	
3	0	0	0	0	0	0	12,977	0	8,967	0	0	0	
4	0	0	0	0	0	11,446	13,149	0	17,665	0	0	0	
5	0	0	0	0	0	15,276	13,209	0	29,824	0	0	0	
6	0	0	0	0	0	7,820	13,223	6,550	30,625	0	0	0	
7	0	0	0	0	0	15,649	4,335	15,254	30,596	0	0	0	
8	0	0	0	0	0	15,604	0	15,427	30,616	0	0	0	
9	0	0	0	0	0	15,611	0	12,650	30,580	0	0	0	
10	0	0	0	0	0	15,538	0	15,331	30,535	0	0	0	
11	0	0	0	0	0	13,277	0	15,364	27,153	0	0	0	
12	0	0	0	0	0	7,816	0	15,183	23,192	0	0	0	
13	0	0	0	0	0	14,908	0	15,381	23,406	0	0	0	
14	0	0	0	0	0	14,862	0	15,243	10,640	0	0	0	
15	0	0	0	0	0	14,778	0	14,301	0	0	0	0	
16	0	0	0	0	0	14,711	9,180	14,485	0	0	0	0	
17	0	0	0	0	0	14,698	14,715	14,250	0	0	0	0	
18	0	0	0	0	0	14,670	5,530	9,079	0	0	0	0	
19	0	0	0	0	0	14,680	0	0	0	0	0	0	
20	0	0	0	0	0	1,754	0	0	0	0	0	0	
21	0	0	0	0	0	13,183	4,523	0	0	0	0	0	
22	0	0	0	0	0	14,753	13,600	0	0	0	0	0	
23	0	0	0	0	0	13,584	0	0	0	0	0	0	
24	0	0	0	0	0	10,391	0	0	0	0	0	0	
25	0	0	0	0	0	7,757	0	0	0	0	0	0	
26	0	0	0	0	0	7,746	0	0	0	0	0	0	
27	0	0	0	0	0	7,752	0	0	0	0	0	0	
28	0	0	0	0	0	11,151	0	0	0	0	0	0	
29	0		0	0	0	14,450	0	0	0	0	0	0	
30	0		0	0	0	14,593	0	0	0	0	0	0	
31	0		0		0		0	0		0		0	
Total (m^3)	**0**	**0**	**0**	**0**	**0**	**338,460**	**132,538**	**178,498**	**293,799**	**0**	**0**	**0**	**943,296**

Table 8-9 ST-MDMER-8 2023 EEM Monitoring

	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°	Sub-Lethal Toxicity			
	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C	*Ceriodaphia dubia*	*Fathead minnow*	*Lemna minor*	*Pseudokirchneriella subcapitata*
Effluent characterization (65°23'51.44" N 96°44'06.13" W) (ST-MDMER-8-EEM)																							
05-Jun-23	30	0.0074	< 0.000010	31	< 0.0010	0.00114	78.4	0.101	0.237	< 0.00001	0.0046	0.84	< 0.001	< 0.0001	39	< 0.00001	0.00023	235	2.2	without SE or AL	without SE or AL	without SE	without SE
03-Jul-23	36	0.0072	0.000014	59	< 0.0010	0.00081	156	0.192	0.150	< 0.00001	0.0086	3.13	< 0.001	0.00023	54	0.000021	0.00109	460	13.6	with SE without AL	without SE or AL	without SE	without SE
07-Aug-23	38	0.0078	< 0.000010	81	< 0.0010	0.00064	160	0.362	0.0838	< 0.00001	0.0087	2.61	0.0021	0.00019	60	0.000024	0.00113	506	14.3	with SE without AL	without SE or AL	without SE	without SE
***Annual Average**										***0.000005***				***0.00016***									

**Annual average calculated using half the detection limit*
SE: Sub-Lethal effects
AL: Acute Lethality

	Unionized Ammonia	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°	pH	O_2	O_2
	mg N/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C		%	mg/L
Water Quality Monitoring Exposure Area (65°23'54.4" N 96°44'21.6"W) (EEM-7-MAME-2)																							
03-Jul-23	0.0009	16	0.00699	< 0.000005	15	0.00019	0.000118	54.2	0.0326	0.0215	< 0.00001	0.0016	0.54	< 0.001	0.000069	18	0.0000027	0.000204	148.4	12.3	7.51	99.4	9.6
07-Aug-23	< 0.0012	22	0.0075	< 0.000005	16	0.0001	0.000038	44	0.0197	0.00582	< 0.00001	0.00106	0.47	0.0012	0.000069	19	0.0000034	0.000149	144.7	16.7	7.91	99.3	9.07
10-Sep-23	0.0013	23	0.00329	< 0.000005	27	< 0.0001	0.000199	75.9	0.0431	0.0264	< 0.00001	0.00216	1.09	< 0.001	0.000089	31	0.000004	0.000439	212.8	6.5	7.68	105.2	11.58
Water Quality Monitoring Reference Area (64°58'10.90" N 96°09'51.37" W) (ST-MMER-1-EEM-TPS)																							
03-Jul-23	< 0.0004	6.6	0.00638	< 0.000005	< 1	< 0.0001	0.0000091	9.01	0.0079	0.00122	< 0.00001	0.000112	< 0.1	< 0.001	< 0.00004	4.3	< 0.000002	0.000038	25.6	4.05	6.89	106.6	13.96
07-Aug-23	0.0005	6.9	0.0071	< 0.000005	< 1	0.0001	< 0.000010	7.75	0.0090	0.00121	< 0.00001	0.000090	< 0.1	0.0014	< 0.00004	3.7	< 0.000002	0.000034	NA*	14.9	7.03	104	9.81
10-Sep-23	< 0.0004	6.7	0.00698	< 0.000005	< 1	< 0.0001	0.0000134	10.5	0.0115	0.00159	< 0.00001	0.000105	< 0.1	0.0011	< 0.00004	4.2	< 0.000002	0.0000425	25.2	8.0	7.07	98.60	10.61

	Arsenic	Copper	Cyanide	Lead	Nickel	Ra226	TSS	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	Bq/L	mg/L	mg/L
Water Quality Monitoring Exposure Area (65°23'54.4" N 96°44'21.6"W) (EEM-7-MAME-2)								
03-Jul-23	0.00114	0.000503	< 0.0005	0.0000159	0.00273	< 0.005	< 1	0.00028
07-Aug-23	0.00123	0.00047	< 0.0005	0.000076	0.00111	< 0.005	< 1	< 0.001
10-Sep-23	0.00253	0.000496	0.00193	0.000005	0.00409	< 0.005	< 1	0.00062
Water Quality Monitoring Reference Area (64°58'10.90" N 96°09'51.37" W) (ST-MMER-1-EEM-TPS)								
03-Jul-23	0.000159	0.000424	< 0.0005	0.0000384	0.000463	< 0.005	< 1	0.00019
07-Aug-23	0.000154	0.00040	< 0.0005	0.000035	0.00036	< 0.005	< 1	0.0015
10-Sep-23	0.000191	0.000397	< 0.0005	0.0000328	0.000449	< 0.005	< 1	0.00067

Table 8-10 ST-MDMER-11 2023 MDMER Monitoring

Month	As	Cu	CN	Pb	Ni	NH_3	Zn	TSS	Ra 226	pH	Results for Rainbow Trout Acute Lethality Tests (mean percentage mortality in 100% effluent test concentration)	Results for Daphnia magna Monitoring Tests (mean percentage mortality in 100% effluent test concentration)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
January												
9-Jan-23	0.00309	0.00144	0.0277	< 0.0002	0.0188	0.0011	0.0065	2	0.024	6.87	0	0
15-Jan-22	0.00238	0.00180	0.0243	< 0.0002	0.0156	0.0022	0.0073	1	0.015	7.26	NMR	NMR
February												
21-Feb-23	0.00207	0.00132	0.0617	< 0.0002	0.0083	0.0026	0.0057	2	0.039	6.88	0	0
26-Feb-23	0.00183	0.00126	0.0545	< 0.0002	0.0109	0.0018	0.0057	2	0.040	6.85	NMR	NMR
March												
20-Mar-23	0.00135	0.0009	0.0335	0.192	0.0075	0.0056	0.0079	2	0.020	7.47	0	0
20-Mar-23*	0.00120	0.0008	0.0337	< 0.0002	0.0071	0.0057	0.0076	1	0.021	7.47	NMR	NMR
April												
10-Apr-23	0.00134	0.00114	0.0634	< 0.0002	0.0066	0.0110	0.0070	2	0.034	7.50	0	0
24-Apr-23	0.00111	0.00083	0.0151	< 0.0002	0.0061	0.0026	0.0076	1	0.015	7.46	NMR	NMR
May												
10-May-23	0.00112	0.00073	0.00795	< 0.0002	0.0080	< 0.0004	0.0109	< 1	0.019	6.50	NMR	NMR
15-May-23	0.00272	0.00053	0.00724	< 0.0002	0.0078	< 0.0004	0.0078	1	0.014	6.63	0	0
22-May-23	0.00208	0.00082	0.00806	< 0.0002	0.0101	0.0008	0.0083	< 1	0.009	7.09	NMR	NMR
June												
NDEP	NDEP	NDEP	NDEP	< 0.0002	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
July												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
August												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
September												
19-Sep-23	0.00850	0.00172	0.02100	< 0.0002	0.0167	0.0018	0.0089	1	0.016	6.91	0	0
October												
9-Oct-23	0.00468	0.00075	0.00891	< 0.0002	0.0115	0.0011	0.0053	2	< 0.005	6.84	0	10
November												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
December												
NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

NDEP: No Deposit
NMR: No Measurement Required
Duplicate Results

Table 8-11 ST-MDMER-11 2023 Volume

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
1	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	
8	5,560	0	0	0	0	0	0	0	0	7,504	0	0	
9	14,294	0	0	0	0	0	0	0	0	13,409	0	0	
10	16,160	0	0	14,798	12,892	0	0	0	0	12,800	0	0	
11	16,150	0	0	14,220	17,746	0	0	0	0	5,296	0	0	
12	16,503	0	0	14,224	14,461	0	0	0	0	0	0	0	
13	16,737	0	0	14,142	31,623	0	0	0	0	0	0	0	
14	16,580	0	0	13,855	35,809	0	0	0	0	0	0	0	
15	14,094	0	0	1,445	35,130	0	0	0	0	0	0	0	
16	0	0	0	0	36,008	0	0	0	0	0	0	0	
17	0	0	0	0	18,611	0	0	0	0	0	0	0	
18	0	0	0	0	31,763	0	0	0	13,058	0	0	0	
19	0	0	4,019	0	24,666	0	0	0	12,857	0	0	0	
20	0	1,808	14,279	0	28,499	0	0	0	0	0	0	0	
21	0	13,842	14,271	0	28,048	0	0	0	0	0	0	0	
22	0	15,267	14,257	0	17,846	0	0	0	0	0	0	0	
23	0	17,766	14,024	0	0	0	0	0	0	0	0	0	
24	0	18,605	8,549	6,498	0	0	0	0	0	0	0	0	
25	0	18,431	0	0	0	0	0	0	0	0	0	0	
26	0	17,389	0	6,191	0	0	0	0	0	0	0	0	
27	0	2,356	0	17,131	0	0	0	0	0	0	0	0	
28	0	0	0	15,478	0	0	0	0	0	0	0	0	
29	0		0	13,739	0	0	0	0	0	0	0	0	
30	0		0	0	0	0	0	0	0	0	0	0	
31	0		0		0		0	0		0		0	
Total (m^3)	**116,077**	**105,464**	**69,400**	**131,721**	**333,102**	**0**	**0**	**0**	**25,915**	**39,009**	**0**	**0**	**820,688**

Table 8-12 ST-MDMER-11 2023 EEM Monitoring

	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°
	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C
Effluent characterization (65°24' 9.84" N 96°41'05.32" W) (ST-MDMER-11-EEM)																			
9-Jan-23	61	0.0055	0.000012	39	< 0.0010	0.00167	157.0	0.213	0.336	< 0.00001	0.0173	3.11	< 0.0010	0.00018	65	0.000017	0.00199	424.0	0.50
10-Apr-23	60	0.0094	< 0.000010	29	< 0.0010	0.00102	118.0	0.188	0.300	< 0.00001	0.0352	4.38	0.0021	0.00011	48	< 0.000010	0.00164	356.0	-0.20
24-Apr-23	43	0.0050	0.000011	25	0.0017	0.00115	96.7	0.199	0.304	< 0.00001	0.0122	0.99	< 0.0010	< 0.00010	45	0.00001	0.00069	268.0	0.50
19-Sep-23	43	0.0057	0.000017	100	< 0.0010	0.0011	208	0.188	0.201	< 0.00001	0.0083	5.49	< 0.0010	0.00029	89	0.000027	0.00201	634.0	6.10
9-Oct-23	43	0.0087	0.000014	76	< 0.0010	0.00102	207	0.279	0.181	< 0.00001	0.0082	5.64	< 0.0010	0.00027	78	0.000016	0.00213	543.0	0.70
***Annual Average**										***0.000005***				***0.00018***					

**Annual average calculated using half the detection limit*

	Unionized Ammonia	Alkalinity	Aluminum	Cadmium	Chloride	Chromium	Cobalt	Hardness	Iron	Manganese	Mercury	Molybdenum	Nitrate	Phosphorus	Selenium	Sulphate	Thallium	Uranium	Conductivity	T°	pH	O_2	O_2
	mg N/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg P/L	mg/L	mg/L	mg/L	mg/L	µS/cm	°C		%	mg/L
Water Quality Monitoring Exposure Area (65°23'45.88" N 96°41'16.21" W) (WTSE-1)																							
9-Jan-23	< 0.0004	23	0.00878	< 0.000005	17	0.00018	0.0000782	50.5	0.0267	0.00592	< 0.00001	0.00104	0.52	0.0026	0.000051	19	< 0.0000028	0.000159	137.6	0.10	6.77	14.28	113.6
20-Mar-23	0.0006	27	0.00453	< 0.000005	18	0.01320	0.000112	59.0	0.0265	0.01260	< 0.00001	0.01440	0.72	0.0030	0.000063	19	< 0.000002	0.000197	145.4	-0.3	7.60	12.50	92.7
18-Sep-23	< 0.0004	17	0.00513	< 0.000005	12	< 0.0001	0.0000473	41	0.0379	0.00647	< 0.00001	0.000821	0.25	0.002	< 0.00004	12	0.0000029	0.0000563	106.0	6.00	7.08	11.7	105.2
Water Quality Monitoring Reference Area (64°58'10.90" N 96°09'51.37" W) (ST-MMER-1-EEM-TPS)																							
9-Jan-23	< 0.0004	7.1	0.00291	< 0.000005	1.2	0.00013	0.0000056	10.7	0.0033	0.00056	< 0.00001	0.00015	< 0.10	< 0.0010	< 0.00004	4.7	0.000002	0.0000386	34.3	0.2	7.98	15.15	114.5
20-Mar-23	< 0.0007	7.8	0.00427	< 0.000005	< 1	0.001	0.0000089	10.4	0.0031	0.000488	< 0.00001	0.000922	< 0.10	< 0.0010	< 0.00004	4.3	< 0.000002	0.0000380	30.10	0.44	6.84	16.2	112.1
18-Sep-23	< 0.0004	6.1	0.00544	< 0.000005	< 1	< 0.0001	0.0000137	9.23	0.0097	0.00131	< 0.00001	0.000091	< 0.10	< 0.0010	< 0.00004	4.9	< 0.000002	0.0000413	30.4	8.00	7.15	11.34	104.0

	Arsenic	Copper	Cyanide	Lead	Nickel	Ra226	TSS	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	Bq/L	mg/L	mg/L
Water Quality Monitoring Exposure Area (65°23'45.88" N 96°41'16.21" W) (WTSE-1)								
9-Jan-23	0.000957	0.000596	< 0.0005	0.0000194	0.00362	< 0.005	< 1	0.00075
20-Mar-23	0.000843	0.000665	< 0.0005	0.0000602	0.05920	< 0.005	< 1	0.00278
18-Sep-23	0.000717	0.000421	< 0.0005	0.0000141	0.00138	< 0.005	1	0.00022
Water Quality Monitoring Reference Area (64°58'10.90" N 96°09'51.37" W) (ST-MMER-1-EEM-TPS)								
9-Jan-23	0.000197	0.000394	< 0.0005	< 0.000005	0.000586	< 0.005	< 1	0.00038
20-Mar-23	0.000226	0.000574	< 0.0005	0.001140	0.004080	< 0.005	< 1	0.00263
18-Sep-23	0.00017	0.000383	0.00101	0.000011	0.000513	< 0.005	< 1	0.00026

8.4 ENVIRONMENTAL BIOLOGICAL STUDY

8.4.1 Meadowbank Site - EEM Study Design Cycle 5

Seepage water is collected along the East Dike and discharged to Second Portage Lake via outfall MMER-3, but during Cycles 1, 2 and 3, this Final Discharge Point (FDP) has been determined as not being the effluent with the greatest potential to have an adverse effect on the receiving environment than discharges to Third Portage or Wally Lakes, and so EEMs focused on those other discharges. Since the effluent discharge to Wally Lake and Third Portage Lake ceased, the seepage water discharged to Second Portage Lake is the only final discharge point and, therefore, the Cycle 4 EEM exposure area under the MDMER. As per the regulation, field work for the EEM Cycle 4th was to be conducted in 2020. EEM Cycle 4 Study Design was submitted to ECCC on March 2nd, 2020. Comments on the study design were received on May 5th, 2020 and Agnico Eagle's response was submitted on June 1st. ECCC's approval for this EEM Cycle 4 Study Design was received on June 15th, 2020. The Cycle 4 Interpretative Report was submitted to ECCC on June 30th, 2021. On November 29th, 2022, comments from ECCC were received. Agnico Eagle's response was submitted on February 10th, 2023 and approval was received on March 27th, 2023.

As required under the Metal and Diamond Mining Effluent Regulations, Agnico Eagle was required to conduct in 2023 the Cycle 5 study on East Dike Discharge. The Cycle 5 study design was submitted to ECCC on February 24th, 2023. Comments on the study design were received on April 13th, 2023 and Agnico Eagle's response was submitted on May 18th. ECCC's approval for this EEM Cycle 5 Study Design, consisting of an Investigation of cause, was received on June 14th, 2023. The next interpretive report and biological monitoring data are due on July 1st, 2024. Documents submitted to ECCC can be provided upon request.

8.4.2 Whale Tail Site - EEM Study Design Cycle 2

During the Whale Tail dike construction, water was pumped from the area enclosed by sediment curtains to create an inflow and thus minimize dispersal of water from within the enclosed area, with increased suspended sediment concentrations, into the rest of Whale Tail Lake. That pumping began on July 27th, 2018, at which time Whale Tail Mine was deemed by Environment and Climate Change Canada to be subject to the Metal and Diamond Mining Effluent Regulations (MDMER) under the Fisheries Act. The MDMER requires that a first study design for the biological studies be submitted to the Minister of the Environment not later than 12 months after the day on which a mine becomes subject to Section 7 of the MDMER. Final Discharge Point discharge to Kangislulik Lake has been determined as being the effluent with the greatest potential to have an adverse effect on the receiving environment per regulation. On July 26th, 2019, Agnico Eagle provided to ECCC the First EEM Biological Study Design, to be conducted on Kangislulik Lake. Comments on the study design was received on February 10th, 2020 and Agnico Eagle's response was submitted on June 19th, 2020. ECCC approval for this EEM Cycle 1 Study Design was received on July 3rd, 2020. The Cycle 1 Interpretative Report was submitted on July 26th, 2021. On November 10th, 2022, comments from ECCC were received. Agnico Eagle's response was submitted on February 10th, 2023 and approval was received on April 12th, 2023.

As required under the Metal and Diamond Mining Effluent Regulations, Agnico Eagle was required to conduct in 2023 the Cycle 2 study on discharge to Kangislulik Lake. The Cycle 2 study design was submitted to ECCC on February 24th, 2023. Comments on the study design were received on April 27th, 2023 and Agnico Eagle's response was submitted on May 18th. ECCC's approval for this EEM Cycle 2 Study Design was received on June 5th, 2023 and field work started in August 2023. The next interpretive

report and biological monitoring data are due on July 27th, 2024. Documents submitted to ECCC can be provided upon request.

8.5 MINE SITE WATER QUALITY AND FLOW MONITORING§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 15: ***The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.***

And

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 18: ***The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.***

And

As required by DFO Authorizations NU-03-0191.3 Condition 3.1 (Second and Third Portage Lakes), NU-03-0191.4 (Vault Lake) Condition 3.1; NU-03-0190 Condition 5 (AWPAR), NU-14-1046 (Phaser Lake) Condition 3; ***Submit written report summarizing monitoring results and photographic record of works and undertakings.***

This section includes the aquatic monitoring requirements as detailed under the Meadowbank Water Quality and Flow Monitoring Plan and the Whale Tail Water Quality and Flow Monitoring Plan. Summaries of associated aquatic monitoring reports are presented in the following section of this report and supporting documents are located in the listed appendices. Figures 1, 2, 3, 4 and 6 illustrate the location of sampling stations at the Meadowbank and Whale Tail mine sites, EEM receiving environment monitoring program, Vault Site, and Baker Lake marshalling facilities respectively. Certificates of Analysis will be made available on request for Meadowbank and Whale Tail. All tables from this section include historical data since 2019, if available.

8.5.1 Construction Activities§

8.5.1.1 *Meadowbank Site*§

As required by DFO Authorization NU-03-0191.3 Condition 3.1: ***The Proponent shall undertake monitoring and report to DFO annually, by March 31st, whether works, undertakings, activities or operations for the mitigation of potential impacts to fish and fish habitat were conducted according to the conditions of this Authorization.***

And

As required by DFO Authorization NU-03-0191.4 Condition 3.1: ***The Proponent shall undertake monitoring and report to DFO annually, by December 31st, whether works, undertakings, activities or operations for the mitigation of potential impacts to fish and fish habitat were conducted according to the conditions of this Authorization.***

And

As required by DFO Authorization 14-HCAA-01046 Condition 3.1: ***The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in section 2 of this authorization and report to DFO, by March 31 annually and indicate whether the measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this authorization.***

In 2023, there were no occurrences where runoff water from any work, undertaking, activity or operation would flow directly or indirectly into a water body at the Meadowbank mine site. No mitigation action was necessary.

8.5.1.2 *Whale Tail Site*[§]

As required by DFO Authorization 16-HCAA-00370 Condition 3.1: ***The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in section 2 of this authorization, and provide a stand-alone report to DFO, by March 31, annually and indicate whether the measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this authorization.***

And

As required by DFO Authorization 20-HCAA-00275 Condition 3.1: ***The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in section 2 of this authorization, and provide a stand-alone report to DFO, by March 31, annually and indicate whether the measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this authorization.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 3.1.1: ***The report in addition to the above shall summarizes the monitoring results related to fish and fish habitat contained in the documents listed in section 2.3. The report shall include a description of the implementation as well as an evaluation of the effectiveness of those monitoring programs in validating the changes to fish and fish habitat predicted in the Proponent's Environmental Impact Statement.***

And

As required by DFO Authorization 20-HCAA-00275 Condition 3.1.1: ***Demonstration of effective implementation and functioning: Providing dated photographs and inspection reports to demonstrate effective implementation and functioning of mitigation measures and standards described above to limit the impacts to fish and fish habitat to what is covered by this authorization.***

And

As required by DFO Authorization 20-HCAA-00275 Condition 3.1.2: ***Contingency measures: Providing details of any contingency measures that were followed, to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 3.1.2: ***Each year, following the submission of the annual monitoring report to DFO, the Proponent shall arrange to meet with DFO and interested parties (e.g. Kivalliq Inuit Association) to review the results of the previous year's monitoring programs. The results of the meetings and any mutually agreed upon modifications aimed at improving the effectiveness of the monitoring programs shall be incorporated into the upcoming year of the monitoring programs. The Proponent shall update the monitoring programs/plans to reflect the changes, and the programs/plans shall be approved in writing by DFO prior to implementation.***

And

As required by DFO Authorization 20-HCAA-00275 Condition 3.2.1: ***Each year, following the submission of the annual monitoring report to DFO, the Proponent shall arrange to meet with DFO and interested parties (e.g. Kivalliq Inuit Association) to review the results of the previous year's monitoring programs. The results of the meetings and any mutually agreed upon modifications aimed at improving the effectiveness of the monitoring programs shall be incorporated into the upcoming year of the monitoring programs. The Proponent shall update the monitoring programs/plans to reflect the changes, and the programs/plans shall be approved in writing by DFO prior to implementation.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 3.1.3: ***The annual monitoring report shall provide dated photographs with GPS coordinates and description of locations and inspection reports to demonstrate effective implementation and functioning of mitigation measures and standards described above to limit the serious harm to fish to what is covered by this authorization.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 3.1.4: ***The annual monitoring report shall also provided details of any contingency measures that were followed to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.***

By March 31st, 2024, Agnico Eagle will provide to DFO the 2023 Report on the Implementation of Measures to Avoid and Mitigate Serious Harm to Fish to address the above Conditions of the Whale Tail Fisheries Act Authorization 16HCAA-00370 and 20HCAA-00275. The complete report is also provided as Appendix 31.

This report was developed in fulfillment of Condition 3 of these FAAs, which relates to the monitoring and reporting of measures and standards to avoid and mitigate serious harm to fish. In fulfillment of Condition 3.1, the report summarizes the implementation of the specified measures and standards to avoid and mitigate serious harm to fish. Photos and/or figures of the mitigation measures are included, as applicable (according to Condition 3.1.3 of 16-HCAA-00370 and Condition 3.1.1 of 20-HCAA-00275), along with a commentary on effectiveness based on relevant monitoring results, and any required contingency measures in the event that the mitigation did not function successfully (according to Condition 3.1.4/3.1.2).

As required by FAA 16HCAA-00370 Condition 3.1.1, an evaluation of the effectiveness of the FAA-listed monitoring programs (and other relevant monitoring programs) in validating changes to fish and fish habitat predicted in the Project FEIS is provided in Section 12.5.1.3 below as a component of the Post-Environmental Assessment Monitoring Program. This approach was adopted beginning in 2021, in consultation with DFO, in an effort to reduce redundancy in reporting and better focus this report on the implementation and effectiveness of the avoidance and mitigation measures.

In summary, all measures, and standards to avoid and mitigate serious harm to fish identified in Condition 2 of FAA 16-HCAA-00370 and 20-HCAA-00275 were implemented as required in 2023. In all cases, monitoring results demonstrated these primary mitigation and avoidance measures to be effective. The implementation of contingency mitigation was not required. The FAA-listed and FEIS-planned mitigation measures and standards were therefore considered effective in limiting impacts of construction activities to fish and fish habitat to those authorized.

In fulfillment of 16HCAA-00370 Condition 3.1.2 and 20HCAA-00275 Condition 3.2.1, Agnico Eagle organized a conference call with DFO on November 30th, 2023, to review the results of the previous year's program (2022 Report on the Implementation of Measures to Avoid and Mitigate Serious Harm – Whale Tail Project). Minutes were recorded and circulated. No comments were received. During the meeting, one suggestion was discussed to provide a summary of Freshet Action Plan monitoring methods, and Agnico Eagle has provided that summary in the 2023 report.

8.5.2 Dike Construction and Dewatering Activities§

8.5.2.1 *Meadowbank Site*§

No dike construction or dewatering activities occurred in 2023.

8.5.2.2 *Whale Tail Site*§

Whale Tail Dike remediation work was carried out in two phases under the Whale Tail Dike Thermal Capping project. Phase 1 was completed at the East abutment from September 19th to September 29th, 2022. Refer to 2022 Meadowbank Complex Annual Report for more details. Phase 2 of the earthworks was completed at both the East and West abutments from April 10th to April 22nd, 2023. The objective of the thermal capping is to reduce heat intake into the overall structure and promote freeze-back at the abutment. Refer to design report (December 2022) and construction summary report (July 2023) sent to NWB for more details (Section 3.5.2).

The design, implementation, and monitoring of sediment and erosion control measures for the construction of the Phase 1 east abutment occurring in September 2022 was previously reported in the 2022 Meadowbank Complex Annual Report and are not re-visited here.

Phase 2 earthworks site preparation consisted of snow removal at both abutments. Some excavation of ice was also required at the West abutment to ensure a competent foundation and to prevent possible settlement post-freshet. The snow and ice removed was disposed in an approval area on the downstream side of the dike to ensure the meltwater would flow downstream towards the Whale Tail Attenuation Pond. For the west abutment construction, A berm was constructed on the downstream side of the west abutment of the Whale Tail Dike. A portion of the construction footprint was in-water but overprints the dike foundation. This is a former terrestrial area that became temporarily flooded following dike construction and will be drawn down at closure. For the east abutment work in 2023, capping material (NPAG, rockfill) was added to the above-water portion of the thermal berm previously constructed on the east side of the Whale Tail Dike.

Due to the shallow depth of water and the winter construction period, no free water was expected nor encountered during construction. As such, sediment control and water quality monitoring measures were not specifically required.

No dewatering activities occurred in 2023.

8.5.3 Mine Site Water Collection System§

8.5.3.1 *Meadowbank Site§*

A water collection system comprised of the Stormwater Management Pond, attenuation ponds, tailings storage facilities, diversion ditches and sumps has been developed to control surface and groundwater at the Meadowbank Mine. The following section reviews the water quality monitoring conducted around the mine site. Specific details regarding water transfers can be found in the 2023 Water Management Plan Version 12 (Appendix 13).

8.5.3.1.1 Stormwater Management Pond§

The Stormwater Management Pond collects runoff water as well as the STP treated effluent. A total of 188,661 m^3 of water was transferred from the Stormwater Management Pond to the Portage Pit in June, July, August, and October. No water was released into the environment.

8.5.3.1.2 East and West Diversion Ditches (ST-5 / ST-6)§

The East and West Diversion ditches were constructed in 2012 around the North Cell TSF and the Portage WRSF. The diversion ditches are designed to redirect the fresh water from the northern area watershed away from the tailings pond and WRSF and direct it to Second (via NP2) and Third Portage Lakes. Water from the East diversion ditch (sampling station ST-5) and the West diversion ditch (sampling station ST-6) were sampled monthly during open water as per the requirements in the NWB Water License. Results are presented in Table 8-13 and Table 8-14 respectively; the sampling location is illustrated on Figure 1.

Both Portage Area East (ST-5) and West (ST-6) diversion ditches water quality results did not exceed the maximum allowable grab sample concentration (30 mg/L) and the maximum monthly average concentration (15 mg/L), permitted by the Water License, Part F, Item 7.

Table 8-13 Meadowbank 2023 Non-Contact Water Diversion Ditch Water Quality Monitoring (ST-5)[§]

ST-5	Max Grab	Monthly Mean	Unit	*Annual Average*					6/5/2023	7/3/2023	8/1/2023	9/3/2023	10/2/2023
Parameter				***2019***	***2020***	***2021***	***2022***	***2023***					
Field Measured													
Temperature			°C	*10.6*	*12.0*	*5.5*	*7.6*	*8.2*	3.2	13.0	17.4	5.0	2.4
pH			pH units	*7.48*	*7.67*	*7.87*	*7.93*	*7.67*	7.47	7.73	7.97	7.61	7.58
Conductivity			uS/cm	*181.6*	*193.1*	*120.9*	*134.0*	*151.7*	70.6	146.5	173.8	183.2	184.3
Turbidity			NTU	*11.27*	*5.36*	*2.94*	*5.78*	*3.72*	8.95	1.59	0.96	4.86	2.26
Conventional Parameters													
TSS	30	15	mg/L	*8*	*6*	*2*	*4*	*1*	2	< 1	1	2	1
Major Ions													
Cyanide			mg/L	*0.001*	*0.003*	*0.005*	*0.008*	*0.001*	< 0.00050	< 0.00050	< 0.00050	0.00068	< 0.00050
Sulfate			mg/L	*19.4*	*23.6*	*20.1*	*19.0*	*20.3*	6.7	18.0	21.0	27.0	29.0
Total Metals													
Aluminum			mg/L	*0.2343*	*0.1064*	*0.0633*	*0.1084*	*0.0356*	0.0969	0.0129	0.0045	0.0475	0.0161
Arsenic			mg/L	*0.0028*	*0.0018*	*0.0023*	*0.0025*	*0.0021*	0.00344	0.00159	0.00158	0.00246	0.00143
Copper			mg/L	*0.0079*	*0.0040*	*0.0040*	*0.0034*	*0.0026*	0.00364	0.0022	0.00217	0.00297	0.00224
Lead			mg/L	*0.0003*	*0.0003*	*0.0003*	*0.0005*	*0.0002*	0.00035	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Nickel			mg/L	*0.0047*	*0.0084*	*0.0052*	*0.0073*	*0.0097*	0.0033	0.0125	0.0071	0.0129	0.0126
Zinc			mg/L	*0.008*	*0.004*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Radionuclides													
Radium-226			Bq/l	*0.003*	*0.004*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-14 Meadowbank 2023 Non-Contact Water Diversion Ditch Water Quality Monitoring (ST-6)[§]

ST-6 Parameter	Max Grab	Monthly Mean	Unit	*Annual Average*					6/5/2023	7/3/2023	8/1/2023	9/3/2023	9/19/2023	9/22/2023	9/25/2023	10/2/2023
				2019	*2020*	*2021*	*2022*	*2023*								
Field Measured																
Temperature			°C	*12.0*	*7.5*	*5.8*	*6.1*	*5.6*	0.8	4.9	11.6	3.4	7.1	7.5	7.4	2.3
pH			pH units	*7.17*	*7.47*	*7.62*	*7.05*	*7.34*	7.03	8.21	7.79	7.38	7.16	7.15	6.72	7.25
Conductivity			uS/cm	*582.1*	*33.0*	*51.1*	*49.3*	*89.6*	57.9	29.8	30.5	232.0	185.4	35.5	50.6	94.7
Turbidity			NTU	*10.42*	*8.00*	*2.50*	*1.75*	*5.44*	3.97	1.26	0.82	23.1	2.23	4.58	3.62	3.96
Conventional Parameters																
TSS	30	15	mg/L	*13*	*7*	*1*	*1*	*6*	1	< 1	< 1	18	1	13	8	2
Major Ions																
Cyanide			mg/L	*0.003*	*0.001*	*0.005*	*0.005*	*0.001*	0.00082	< 0.00050	< 0.00050	0.00222	< 0.00050	-	< 0.00050	0.00066
Sulfate			mg/L	*29.9*	*5.5*	*9.4*	*4.7*	*16.2*	7.7	3.8	4.3	50.0	18.0	-	9.6	20.0
Total Metals																
Aluminum			mg/L	*0.1374*	*0.2360*	*0.0352*	*0.0114*	*0.1056*	0.0684	0.0053	0.0062	0.523	0.0301	-	0.0522	0.054
Arsenic			mg/L	*0.0009*	*0.0009*	*0.0005*	*0.0002*	*0.0009*	0.00089	0.0002	0.00025	0.00311	0.00076	-	0.00046	0.00082
Copper			mg/L	*0.0024*	*0.0016*	*0.0011*	*0.0005*	*0.0017*	0.00164	< 0.00050	< 0.00050	0.00539	0.00116	-	0.00071	0.00221
Lead			mg/L	*0.0003*	*0.0002*	*0.0002*	*0.0002*	*0.0003*	< 0.00020	< 0.00020	< 0.00020	0.0006	< 0.00020	-	< 0.00020	< 0.00020
Nickel			mg/L	*0.0030*	*0.0025*	*0.0016*	*0.0010*	*0.0038*	0.0026	< 0.0010	< 0.0010	0.0091	0.0051	-	0.0021	0.0060
Zinc			mg/L	*0.002*	*0.004*	*0.005*	*0.005*	*0.006*	0.0072	< 0.0050	< 0.0050	0.0068	< 0.0050	-	< 0.0050	0.0056
Radionuclides																
Radium-226			Bq/l	*0.004*	*0.002*	*0.005*	*0.006*	*0.006*	< 0.0050	< 0.0050	0.013	< 0.0050	< 0.0050	-	< 0.0050	< 0.0050

8.5.3.1.3 East Dike Discharge (ST-8, ST-MMER-3) §

In 2023, water was discharged from January 1st to April 29th. A total of 28,516 m^3 of water collected from the seepage at the East dike was pumped to Second Portage Lake through the diffuser.

Results from samples collected in 2023 at the final discharge point (ST-8) can be found in Table 8-15. Effluent water is analyzed as per NWB Water License Schedule I. The sampling location is illustrated on Figure 1. In 2023, all the results were in compliance with the Water License Part F Item 7 and with MDMER regulations. Refer to previous Section 8.3.1.3 East Dike Discharge for complete information.

8.5.3.1.4 East Dike Seepage (ST-S-1) §

As mentioned in Section 8.5.3.1.3, East Dike Seepage was discharged into the receiving environment, Second Portage Lake between January 1st to April 29th. As done in the past, when the discharge was stopped, water was directed to the Portage Pits. A total of 150,131 m^3 was transferred in the Portage Pits in 2023. During that period of time, samples were taken on a monthly basis as per the requirements of the NWB Water License. The ST-S-1 location is presented on Figure 1. Results are presented in Table 8-16. There are no applicable license limits.

8.5.3.1.5 Portage Attenuation Pond (ST-9, ST-MMER-1) §

As required by NIRB Project Certificate 004 Condition 13: ***Cumberland shall not permit the water discharged into Wally Lake and Third Portage Lake to exceed receiving environment discharge criteria established by the NWB or as otherwise required by law.***

As of November 19th, 2014 when tailings deposition began in the South Cell TSF, the Portage Attenuation Pond ceased operation as an effluent discharge pond. There was no discharge from ST-9 into Third Portage Lake in 2023. The location of sampling station ST-9 is illustrated on Figure 1.

Channel crossing inspections were not undertaken in 2023 as no further discharge occurred from the Portage Attenuation Pond into Third Portage Lake.

8.5.3.1.6 Vault Discharge (ST-10, ST-MMER-2) §

As required by NIRB Project Certificate 004 Condition 13: ***Cumberland shall not permit the water discharged into Wally Lake and Third Portage Lake to exceed receiving environment discharge criteria established by the NWB or as otherwise required by law.***

There was no discharge (sampling station ST-10, also named ST-MMER-2) from the Vault Attenuation Pond to Wally Lake in 2023. The location of this sampling station is illustrated on Figure 3.

Table 8-15 Meadowbank 2023 East Dike Discharge Water Quality Monitoring (ST-8)[§]

ST-8 Parameter	Max Grab	Monthly Mean	Unit	*Annual Average*					1/2/2023	2/6/2023	3/6/2023	4/3/2023	4/10/2023	4/18/2023
				2019	*2020*	*2021*	*2022*	*2023*						
Field Measured														
Temperature			°C	*-*	*4.7*	*1.7*	*0.5*	*0.3*	0.4	0.3	0.2	0.3	0.2	0.6
pH			pH units	*7.53*	*7.82*	*7.69*	*7.93*	*8.28*	7.81	8.38	8.02	8.57	8.64	8.24
Conductivity			uS/cm	*-*	*79.9*	*82.6*	*79.6*	*71.2*	69.6	68.1	68.6	72.7	72.1	75.9
Turbidity			NTU	*2.13*	*2.24*	*3.98*	*2.80*	*2.93*	2.12	3.43	3.64	1.58	4.22	2.6
Conventional Parameters														
TSS	30	15	mg/L	*3*	*2*	*7*	*5*	*3*	2	4	3	2	3	2
Major Ions														
Cyanide			mg/L	*0.002*	*0.001*	*0.004*	*0.001*	*0.001*	< 0.00050	0.00065	< 0.00050	< 0.00050	0.00052	< 0.00050
Sulfate			mg/L	*9*	*11*	*7*	*7*	*7*	6.4	6.5	6.4	6.6	7.1	6.1
Total Metals														
Aluminum			mg/L	*0.032*	*0.031*	*0.089*	*0.067*	*0.055*	0.052	0.103	0.0501	0.0501	0.0425	0.0306
Arsenic			mg/L	*0.0010*	*0.0040*	*0.0008*	*0.0011*	*0.0013*	0.00093	0.00105	0.00248	0.00198	0.00142	0.00023
Copper			mg/L	*0.0013*	*0.0016*	*0.0010*	*0.0014*	*0.0013*	0.00148	0.00136	0.0013	0.00164	0.00097	0.001
Lead			mg/L	*0.0003*	*0.0007*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Nickel			mg/L	*0.0006*	*0.0018*	*0.0033*	*0.0009*	*0.0011*	< 0.0010	< 0.0010	0.0018	< 0.0010	< 0.0010	< 0.0010
Zinc			mg/L	*0.003*	*0.004*	*0.004*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Radionuclides														
Radium-226			Bq/l	*0.002*	*0.006*	*0.005*	*0.006*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-16 Meadowbank 2023 East Dike Seepage Water Quality Monitoring (ST-S-1)[§]

ST-S-1	Unit	*Annual Average*					5/14/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/9/2023	11/5/2023	12/3/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***								
Field Measured														
Temperature	°C	-	*7.6*	*5.8*	*2.7*	*3.6*	0.8	4.7	6.5	4.0	6.4	4.3	0.9	1.3
pH	pH units	*7.83*	*8.11*	*7.65*	*7.99*	*7.79*	7.78	7.82	7.44	7.51	7.69	7.35	8.16	8.54
Conductivity	uS/cm	-	*118.5*	*426.6*	*116.5*	*199.2*	68.4	84.7	119.6	315	145.7	638	137.8	84.2
Turbidity	NTU	*28.79*	*1.73*	*7.04*	*15.90*	*6.49*	18.2	3.94	2.15	21.8	1.93	1.49	0.91	1.48
Conventional Parameters														
Hardness, as $CaCO_3$	mg/L	*38.80*	*60.00*	*50.79*	*59.13*	*51.31*	32.6	33.9	52.7	116	62.4	52.3	28.7	31.9
Total alkalinity, as $CaCO_3$	mg/L	*42.77*	*44.00*	*31.11*	*33.25*	*33.75*	29	32	34	46	37	34	29	29
TDS	mg/L	*59.77*	*77.00*	*63.33*	*73.13*	*86.25*	65	40	85	165	110	110	40	75
TSS	mg/L	*46.85*	*2.00*	*9.38*	*6.00*	*7.75*	15	5	3	33	< 1	2	1	2
Major Ions														
Chloride	mg/L	*1.8*	*2.9*	*1.2*	*1.2*	*1.0*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0
Cyanide	mg/L	*0.001*	*0.003*	*0.005*	*0.001*	*0.001*	0.0006	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00089	0.00062	< 0.00050
Fluoride	mg/L	*0.11*	*0.11*	*0.12*	*0.12*	*0.11*	< 0.10	< 0.10	0.12	0.15	0.10	0.11	0.11	0.10
Sulfate	mg/L	*14.91*	*22.10*	*22.64*	*28.98*	*26.30*	7.5	9	25	79	41	29	8.9	11
Nutrients														
Ammonia Nitrogen	mg N/L	*0.02*	*0.01*	*0.07*	*0.06*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	0.057	< 0.050	< 0.050	< 0.050
Nitrate	mg N/L	*0.01*	*0.43*	*0.37*	*0.41*	*0.35*	0.14	<0.10	0.35	1.34	0.40	0.25	0.12	0.11
Nitrite	mg N/L	*0.319*	*0.013*	*0.010*	*0.010*	*0.010*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals														
Aluminum	mg/L	*0.4047*	*0.0300*	*0.1741*	*0.1263*	*0.1381*	0.248	0.0638	0.0678	0.583	0.0374	0.0312	0.0278	0.046
Arsenic	mg/L	*0.0026*	*0.0032*	*0.0136*	*0.0022*	*0.0027*	0.00727	0.00043	0.00455	0.00405	0.00135	0.00116	0.00131	0.00108
Barium	mg/L	*0.0112*	*0.0103*	*0.0098*	*0.0105*	*0.0098*	0.0084	0.0079	0.0100	0.0171	0.0129	0.0090	0.0061	0.0066
Cadmium	mg/L	*0.00005*	*0.00002*	*0.00001*	*0.00002*	*0.00001*	< 0.000010	< 0.000010	< 0.0000050	< 0.000010	0.0000067	< 0.000010	< 0.000010	< 0.000010
Chromium	mg/L	*0.0050*	*0.0006*	*0.0026*	*0.0015*	*0.0032*	0.0029	< 0.0010	0.0149	0.0034	0.0002	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.0020*	*0.0023*	*0.0029*	*0.0021*	*0.0020*	0.00195	0.00123	0.0019	0.00324	0.00182	0.00228	0.00143	0.00185
Iron	mg/L	*0.7942*	*0.0600*	*0.3488*	*0.2294*	*0.2463*	0.452	0.108	0.112	1.11	0.0405	0.061	0.032	0.055
Lead	mg/L	*0.0003*	*0.0002*	*0.0008*	*0.0002*	*0.0003*	0.00044	0.00069	0.0000823	0.00058	0.000128	0.00028	< 0.00020	< 0.00020
Manganese	mg/L	*0.0166*	*0.0240*	*0.0201*	*0.0368*	*0.0063*	0.0139	0.0003	0.00231	0.0235	0.00586	0.0022	< 0.0010	0.0015
Mercury	mg/L	*0.00002*	*0.00001*	*0.00001*	*0.00001*	*0.00002*	< 0.00001	< 0.00010	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0009*	*0.0015*	*0.0012*	*0.0012*	*0.0028*	< 0.0010	< 0.0010	0.0152	0.0014	0.000858	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.0039*	*0.0046*	*0.0054*	*0.0089*	*0.0103*	0.0035	0.0014	0.0659	0.0059	0.00282	< 0.0010	< 0.0010	< 0.0010
Selenium	mg/L	*0.0015*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	0.000077	0.00016	0.000098	< 0.00010	< 0.00010	< 0.00010
Silver	mg/L	*0.00024*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.0000050	< 0.000020	< 0.0000050	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00048*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.0000020	0.000012	0.0000035	< 0.000010	< 0.000010	< 0.000010
Zinc	mg/L	*0.008*	*0.001*	*0.008*	*0.008*	*0.006*	< 0.0050	< 0.0050	0.00375	0.0081	0.00654	0.0127	< 0.0050	0.0053

8.5.3.1.7 Portage Rock Storage Facility (ST-16) §

The Portage Waste Rock Storage Facility (WRSF) has been in operation since 2009. In 2013, ponded water was observed at the south-east base of the WRSF (sampling station ST-16). This was first reported in the 2013 Annual Report (as well as to regulators in July 2013) as a small volume of the seepage, with elevated levels of cyanide, nickel and copper (among other constituents) had migrated, through a rockfill perimeter road, to the near shore area of NP-2 Lake. Agnico Eagle determined, in 2013, that the seepage contained reclaim water from the North Cell TSF that had flowed under the WRSF to a sump area designated as sampling station ST-16 (refer to WRSF Seepage Golder Report in Appendix G5 of the 2013 Annual Report). Since 2014, a permanent pumping system has been operating at ST-16, to collect water and pump it to the TSF or Portage Pit. The action plan implemented by Agnico Eagle has been very successful in preventing any further seepage into NP2 Lake and into the ST-16 sump itself. All seepage water is entirely contained inside the ST-16 sump. Agnico Eagle will refer to previous years Annual Reports for more information on water quality results, management and mitigation of this seepage since 2013.

Thermistors installed in 2013 continue to indicate that freezeback is occurring along the seepage path. Previous years installation of the filters at RF-1 and RF-2, capping of tailings and ongoing decreased water volume in the North Cell contributed to be effective in controlling and stopping seepage from the North Cell. In 2023, 328,206 m^3 of North Cell water was transferred to the South Cell minimizing the water contained in this cell.

In 2023, ST-16 water accumulation was pumped into the Portage Pit. A total of 19,553 m^3 was transferred between May to October. The volume pumped also included snow melt and precipitation accumulating into this sump. Water quality results for ST-16 and NP-2 South (downstream lake) in 2023 can be found in Tables 8-17 and Table 8-18, respectively. Monitoring stations are illustrated on Figure 1. Results are presented for information purposes only as there are no applicable Water License limits at this location. Result to date confirmed no impacts to downstream lakes.

In accordance with the 2024 Freshet Action Plan (see Appendix D of the 2023 Water Management Plan Version 12 (Appendix 13), Agnico Eagle will continue in 2024 to control the ST-16 location and to monitor the water quality, as needed. This is conducted to assess and prevent any impact to the receiving environment (NP-2) and to downstream lakes (NP-1, Dogleg and Second Portage).

Table 8-17 Meadowbank 2023 WRSF Seepage Water Quality Monitoring (ST-16) §

ST-16	Unit	*Annual Average*					5/15/2023	6/12/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	*13.1*	*9.1*	*4.5*	*6.3*	*7.1*	1.0	10.7	13.5	14.0	3.0	0.5
pH	pH units	*7.75*	*7.70*	*7.67*	*7.27*	*7.45*	7.13	7.60	7.57	7.43	7.42	7.57
Conductivity	uS/cm	*406.4*	*288.9*	*281.8*	*294.7*	*294.3*	58.6	216	281	414	349	447
Turbidity	NTU	*2.90*	*22.53*	*12.91*	*23.23*	*12.85*	48	9.67	2.34	2.18	6.5	8.42
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*167*	*140*	*125*	*143*	*118*	27	88.9	110	142	157	184
Total alkalinity, as $CaCO_3$	mg/L	*61*	*75*	*63*	*86*	*75*	17	58	80	96	86	110
Carbonate, as $CaCO_3$	mg/L	*2*	*4*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*61*	*78*	*62*	*86*	*74*	17	57	79	95	86	110
TDS	mg/L	*2*	*187*	*182*	*174*	*174*	20	130	220	205	235	235
TSS	mg/L	*265*	*10*	*8*	*15*	*11*	43	10	2	5	5	1
Total organic carbon	mg/L	*3.87*	*4.10*	*2.88*	*4.15*	*3.92*	3.4	4.4	2.9	3.3	4.7	4.8
Dissolved organic carbon	mg/L	*4.77*	*2.63*	*2.64*	*3.80*	*3.73*	2.8	4.4	3	2.9	4.7	4.6
Colour	TCU	*-*	*77*	*12*	*16*	*15*	16	20	13	14	17	9
Major Ions												
Bromide	mg/L	*-*	*0.07*	*1.00*	*1.00*	*1.00*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloride	mg/L	*5.2*	*3.0*	*3.0*	*3.8*	*2.0*	< 1.0	1.1	1.9	1.3	2.2	4.4
Cyanide	mg/L	*0.002*	*0.001*	*0.005*	*0.002*	*0.002*	0.00117	0.00242	0.001	0.00139	0.00612	0.00087
Cyanide (free)	mg/L	*0.00200*	*0.00100*	*0.00306*	*0.00315*	*0.00308*	0.0029	0.0022	0.0068	0.0026	< 0.0020	< 0.0020
Cyanide (WAD)	mg/L	*0.0013*	*0.0010*	*0.0019*	*0.0013*	*0.0013*	0.00081	0.0019	< 0.00050	0.00093	0.0032	0.00052
Fluoride	mg/L	*0.20*	*0.17*	*0.20*	*0.19*	*0.18*	< 0.10	0.17	0.20	0.23	0.21	0.19
Silica	mg/L	*2.57*	*5.01*	*4.10*	*3.93*	*3.38*	0.87	2.6	3.3	3.3	5.3	4.9
Sulfate	mg/L	*102*	*67*	*64*	*70*	*62*	9	46	59	79	80	100
Thiocyanate	mg/L	*0.05*	*0.05*	*0.20*	*1.15*	*0.20*	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Thiosulphates	mg/L	*0.02*	*0.02*	*0.20*	*1.15*	*0.20*	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Nutrients and Chlorophyll a												
Ammonia Nitrogen	mg N/L	*0.07*	*0.06*	*0.05*	*0.11*	*0.09*	< 0.050	0.17	< 0.050	< 0.050	0.15	0.066
Nitrate	mg N/L	*5.44*	*2.50*	*3.28*	*1.45*	*1.41*	0.28	0.55	0.90	1.74	3.13	1.83
Nitrite	mg N/L	*0.040*	*0.035*	*0.014*	*0.015*	*0.011*	< 0.010	< 0.010	< 0.010	< 0.010	0.016	< 0.010
Total Kjeldahl nitrogen	mg P/L	*0.62*	*0.39*	*0.23*	*0.27*	*0.33*	0.21	0.62	0.19	0.23	0.39	0.34
Total phosphorus	mg P/L	*0.020*	*0.013*	*0.013*	*0.013*	*0.012*	0.024	0.014	0.0039	0.021	0.0024	0.0077

ST-16	Unit	*Annual Average*					5/15/2023	6/12/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Orthophosphate	mg P/L	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chlorophyll a	mg/L	*0.5533*	*0.0871*	*0.0002*	*0.0003*	*0.0004*	0.00054	0.0005	0.00034	0.00066	0.00037	0.000065
Total Metals												
Aluminum	mg/L	*2.3067*	*0.6415*	*0.2966*	*0.5739*	*0.2424*	1.05	0.199	0.0339	0.0346	0.106	0.031
Antimony	mg/L	*0.00027*	*0.00010*	*0.00125*	*0.00080*	*0.00080*	< 0.00050	0.00074	0.00119	0.00129	0.00059	< 0.00050
Arsenic	mg/L	*0.0186*	*0.0140*	*0.0464*	*0.0146*	*0.0140*	0.0259	0.0157	0.0182	0.0154	0.00448	0.00427
Barium	mg/L	*0.0191*	*0.0147*	*0.0150*	*0.0181*	*0.0149*	0.0078	0.0133	0.0125	0.0215	0.0176	0.0166
Beryllium	mg/L	*0.00050*	*0.00050*	*0.00010*	*0.00010*	*0.00010*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.010*	*0.010*	*0.050*	*0.050*	*0.050*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.000020*	*0.000020*	*0.000011*	*0.000013*	*0.000011*	0.000015	0.000012	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Calcium (total)	mg/L	*32.1*	*32.4*	*27.5*	*33.2*	*28.0*	5.9	20.8	23.9	33.4	39.6	44.1
Chromium	mg/L	*0.00107*	*0.00805*	*0.00566*	*0.00382*	*0.00375*	0.0158	0.0027	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cobalt	mg/L	*0.0011*	*0.0014*	*0.0009*	*0.0012*	*0.0007*	0.00159	0.00075	0.00026	0.00031	0.00117	0.00041
Copper	mg/L	*0.0105*	*0.0103*	*0.0050*	*0.0100*	*0.0049*	0.00367	0.00769	0.00441	0.00415	0.00468	0.00457
Iron	mg/L	*0.150*	*1.018*	*0.514*	*1.466*	*0.611*	1.820	0.829	0.200	0.209	0.443	0.164
Lead	mg/L	*0.0003*	*0.0007*	*0.0003*	*0.0009*	*0.0004*	0.00116	0.00024	< 0.00020	< 0.00020	0.00024	< 0.00020
Lithium	mg/L	*0.0050*	*0.0050*	*0.0020*	*0.0022*	*0.0020*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Magnesium (total)	mg/L	*18.13*	*14.48*	*13.59*	*15.57*	*11.72*	2.97	8.97	12.10	14.20	14.10	18
Manganese	mg/L	*0.0371*	*0.0620*	*0.0594*	*0.1991*	*0.0613*	0.0686	0.115	0.0165	0.0299	0.0953	0.0422
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0181*	*0.0136*	*0.0209*	*0.0123*	*0.0132*	0.0024	0.0097	0.0181	0.0337	0.0113	0.004
Nickel	mg/L	*0.0102*	*0.0143*	*0.0094*	*0.0181*	*0.0062*	0.011	0.0075	0.0043	0.0049	0.0041	0.0053
Potassium (total)	mg/L	*8.12*	*6.70*	*6.98*	*6.87*	*5.10*	1.58	4.74	5.92	7.67	5.44	5.26
Selenium	mg/L	*0.0006*	*0.0010*	*0.0008*	*0.0003*	*0.0003*	< 0.00010	0.00038	0.00043	0.00044	0.0005	0.00024
Silver	mg/L	*0.000100*	*0.000100*	*0.000021*	*0.000022*	*0.000020*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Sodium (total)	mg/L	*11.63*	*8.25*	*5.68*	*7.23*	*3.80*	0.76	2.77	3.67	4.96	4.36	6.25
Strontium	mg/L	*0.190*	*0.140*	*0.153*	*0.173*	*0.139*	0.0256	0.0973	0.135	0.213	0.162	0.199
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00002*	*0.00001*	0.000012	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.0100*	*0.0267*	*0.0100*	*0.0123*	*0.0084*	0.0242	0.0062	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0057*	*0.0040*	*0.0048*	*0.0048*	*0.0032*	0.001	0.00159	0.003	0.00355	0.0032	0.00676
Vanadium	mg/L	*0.001*	*0.002*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.001*	*0.003*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

ST-16	Unit	*Annual Average*					5/15/2023	6/12/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Dissolved Metals												
Aluminum	mg/L	*0.0005*	*0.0060*	*0.0069*	*0.0088*	*0.0103*	0.0254	0.0085	0.0086	0.0049	0.0102	0.0043
Antimony	mg/L	*0.00037*	*0.00010*	*0.00121*	*0.00078*	*0.00084*	< 0.00050	0.00076	0.00132	0.00136	0.00061	< 0.00050
Arsenic	mg/L	*0.0161*	*0.0048*	*0.0434*	*0.0111*	*0.0125*	0.0244	0.0105	0.0181	0.0139	0.00417	0.00396
Barium	mg/L	*0.0168*	*0.0064*	*0.0197*	*0.0146*	*0.0148*	0.0035	0.013	0.0134	0.0221	0.0175	0.0195
Beryllium	mg/L	*0.00050*	*0.00050*	*0.00010*	*0.00010*	*0.00010*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.0100*	*0.0100*	*0.0500*	*0.0500*	*0.0500*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00002*	*0.00011*	< 0.000010	< 0.000010	< 0.000010	0.000023	0.000599	0.00001
Chromium	mg/L	*0.00060*	*0.00060*	*0.00100*	*0.00100*	*0.00100*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cobalt	mg/L	*0.00097*	*0.00050*	*0.00046*	*0.00070*	*0.00051*	0.00027	0.00054	0.00039	0.00029	0.00107	0.00047
Copper	mg/L	*0.00807*	*0.00597*	*0.00535*	*0.00606*	*0.00419*	0.00214	0.00557	0.00431	0.00424	0.00393	0.00496
Iron	mg/L	*0.0267*	*0.0333*	*0.0492*	*0.0839*	*0.1114*	0.0476	0.241	0.112	0.0798	0.131	0.0569
Lead	mg/L	*0.00160*	*0.00021*	*0.00020*	*0.00037*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.0050*	*0.0050*	*0.0020*	*0.0020*	*0.0020*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Manganese	mg/L	*0.0263*	*0.0500*	*0.0525*	*0.1019*	*0.0586*	0.0477	0.113	0.023	0.0262	0.094	0.0478
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.01687*	*0.00993*	*0.02130*	*0.01243*	*0.01450*	0.0027	0.0098	0.0201	0.0383	0.0113	0.0048
Nickel	mg/L	*0.00847*	*0.00917*	*0.00660*	*0.01068*	*0.00507*	0.0041	0.0062	0.0046	0.005	0.0042	0.0063
Selenium	mg/L	*0.00063*	*0.00100*	*0.00072*	*0.00035*	*0.00040*	0.00011	0.00036	0.00049	0.00054	0.00058	0.0003
Silver	mg/L	*0.00010*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Strontium	mg/L	*0.0005*	*0.1220*	*0.1524*	*0.1694*	*0.1526*	0.0277	0.107	0.155	0.205	0.165	0.256
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.0010*	*0.0010*	*0.0050*	*0.0127*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0050*	*0.0033*	*0.0045*	*0.0045*	*0.0034*	0.00073	0.00159	0.00341	0.00386	0.00315	0.00758
Vanadium	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.003*	*0.001*	*0.006*	*0.007*	*0.005*	0.0067	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-18 Meadowbank 2023 NP-2 South Water Quality Monitoring[§]

NP2-South	Unit	*Annual Average*					6/12/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***					
Field Measured											
Temperature	°C	*11.0*	*10.3*	*5.3*	*7.7*	*10.0*	10.8	15.9	16.5	5.0	2.0
pH	pH units	*7.46*	*7.85*	*7.61*	*7.64*	*7.76*	7.82	7.76	7.53	7.54	8.13
Conductivity	uS/cm	*195.4*	*173.2*	*148.5*	*133.9*	*171.2*	155.6	149.2	186.3	175.9	188.9
Turbidity	NTU	*1.70*	*1.47*	*2.63*	*66.08*	*1.67*	1.74	1.11	0.92	2.15	2.44
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*71*	*90*	*64*	*65*	*71*	66.8	57.8	69.5	78.2	81.9
Total alkalinity, as $CaCO_3$	mg/L	*37*	*63*	*46*	*49*	*59*	53	53	60	62	65
Carbonate, as $CaCO_3$	mg/L	*2*	*5*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*37*	*63*	*45*	*49*	*58*	52	52	59	61	65
TDS	mg/L	*118*	*113*	*69*	*68*	*105*	75	125	85	135	105
TSS	mg/L	*1*	*2*	*2*	*2*	*1*	1	1	1	3	< 1
Total organic carbon	mg/L	*3.7*	*4.1*	*3.9*	*3.9*	*4.0*	4.1	3.9	4.1	4	3.9
Dissolved organic carbon	mg/L	*3.7*	*3.9*	*3.7*	*3.6*	*3.8*	3.8	3.9	3.7	3.8	3.7
Color	TCU	*-*	*11*	*11*	*7*	*6*	9	7	6	6	4
Major Ions											
Bromide	mg/L	*NA*	*0.05*	*1.00*	*1.00*	*1.00*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloride	mg/L	*3.1*	*2.2*	*1.9*	*1.6*	*1.5*	< 1.0	< 1.0	1.4	1.8	2.1
Cyanide	mg/L	*0.001*	*0.001*	*0.005*	*0.001*	*0.001*	0.00099	< 0.00050	0.00052	< 0.00050	< 0.00050
Cyanide (free)	mg/L	*0.0010*	*0.0013*	*0.0025*	*0.0028*	*0.0036*	< 0.0020	0.0083	0.0021	< 0.0020	0.0035
Cyanide (WAD)	mg/L	*0.0010*	*0.0010*	*0.0013*	*0.0006*	*0.0005*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Fluoride	mg/L	*0.13*	*0.12*	*0.12*	*0.12*	*0.13*	0.12	0.13	0.12	0.14	0.16
Silica	mg/L	*1.00*	*0.81*	*0.76*	*0.50*	*0.94*	0.93	0.43	0.86	1.40	1.10
Sulfate	mg/L	*31.7*	*32.6*	*22.2*	*20.7*	*25.8*	23	22	23	28	33
Thiocyanate	mg/L	*0.05*	*0.05*	*0.20*	*0.96*	*0.20*	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Thiosulphates	mg/L	*-*	*0.02*	*0.20*	*0.96*	*0.20*	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Nutrients and Chlorophyll a											
Ammonia Nitrogen	mg N/L	*0.01*	*0.02*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	0.061	< 0.050	< 0.050
Nitrate	mg N/L	*0.14*	*0.08*	*0.19*	*0.11*	*0.11*	< 0.10	< 0.10	< 0.10	0.1	0.14
Nitrite	mg N/L	*0.01*	*0.03*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*0.23*	*0.19*	*0.18*	*0.18*	*0.20*	0.19	0.20	0.16	0.22	0.22
Total phosphorus	mg P/L	*0.0100*	*0.0200*	*0.0040*	*0.0049*	*0.0026*	0.0018	0.0018	0.0023	0.0058	0.0015
Orthophosphate	mg P/L	*0.010*	*0.013*	*0.010*	*0.010*	*0.010*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chlorophyll a	mg/L	*-*	*0.0013*	*0.0015*	*0.0007*	*0.0011*	0.00084	0.0012	0.0015	0.0011	0.00063

NP2-South	Unit	*Annual Average*					6/12/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***					
Total Metals											
Aluminum	mg/L	*0.0430*	*0.0150*	*0.0699*	*0.0365*	*0.0418*	0.0255	0.013	0.0048	0.15	0.0157
Antimony	mg/L	*0.0001*	*0.0001*	*0.0005*	*0.0005*	*0.0005*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Arsenic	mg/L	*0.00080*	*0.00103*	*0.00275*	*0.00186*	*0.00155*	0.00177	0.00136	0.00164	0.00185	0.00113
Barium	mg/L	*0.0042*	*0.0038*	*0.0049*	*0.0041*	*0.0048*	0.0055	0.0037	0.0048	0.0049	0.005
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Calcium (total)	mg/L	*18.4*	*23.4*	*16.1*	*16.8*	*18.0*	17.3	14.2	17.7	20.1	20.7
Chromium	mg/L	*0.0006*	*0.0006*	*0.0010*	*0.0011*	*0.0016*	< 0.0010	< 0.0010	< 0.0010	0.004	< 0.0010
Cobalt	mg/L	*0.00050*	*0.00087*	*0.00053*	*0.00030*	*0.00027*	< 0.00020	< 0.00020	< 0.00020	0.00057	< 0.00020
Copper	mg/L	*0.0038*	*0.0040*	*0.0035*	*0.0027*	*0.0024*	0.0025	0.00235	0.00245	0.00262	0.00221
Iron	mg/L	*0.060*	*0.153*	*0.115*	*0.117*	*0.146*	0.092	0.096	0.085	0.402	0.054
Lead	mg/L	*0.00030*	*0.00021*	*0.00022*	*0.00026*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Magnesium (total)	mg/L	*6.16*	*7.72*	*5.73*	*5.86*	*6.30*	5.74	5.44	6.16	6.82	7.33
Manganese	mg/L	*0.0062*	*0.0357*	*0.0215*	*0.0189*	*0.0143*	0.0129	0.0147	0.0175	0.0214	0.0052
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0006*	*0.0007*	*0.0018*	*0.0017*	*0.0017*	0.0014	0.0014	0.0018	0.0021	0.0017
Nickel	mg/L	*0.0111*	*0.0155*	*0.0140*	*0.0094*	*0.0092*	0.0062	0.0066	0.0074	0.0153	0.0103
Potassium (total)	mg/L	*1.94*	*2.35*	*1.65*	*1.56*	*1.67*	1.60	1.37	1.75	1.78	1.87
Selenium	mg/L	*0.001*	*0.001*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Silver	mg/L	*0.0001*	*0.0001*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Sodium (total)	mg/L	*5.17*	*4.92*	*2.66*	*2.35*	*2.21*	2.07	1.96	2.26	2.30	2.44
Strontium	mg/L	*0.0735*	*0.0773*	*0.0654*	*0.0655*	*0.0712*	0.067	0.0588	0.0721	0.0773	0.0806
Thallium	mg/L	*0.0002*	*0.0002*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0013*	*0.0012*	*0.0012*	*0.0013*	0.00127	0.00087	0.00089	0.00152	0.00189
Vanadium	mg/L	*0.0005*	*0.0005*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.0010*	*0.0037*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Dissolved Metals											
Aluminum	mg/L	*0.0028*	*0.0087*	*0.0163*	*0.0088*	*0.0049*	0.0055	0.0062	0.0043	0.0044	0.004
Antimony	mg/L	*0.0001*	*0.0001*	*0.0005*	*0.0005*	*0.0005*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Arsenic	mg/L	*0.00065*	*0.00053*	*0.00234*	*0.00168*	*0.00207*	0.00192	0.00145	0.00291	0.00166	0.00243
Barium	mg/L	*0.0055*	*0.0028*	*0.0106*	*0.0042*	*0.0053*	0.0057	0.0043	0.0049	0.0051	0.0065

NP2-South	Unit	*Annual Average*					6/12/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***					
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00001*	*0.00004*	< 0.000010	0.00015	0.000025	0.000011	< 0.000010
Chromium	mg/L	*0.0006*	*0.0006*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cobalt	mg/L	*0.00050*	*0.00067*	*0.00039*	*0.00028*	*0.00069*	0.00071	< 0.00020	< 0.00020	0.00029	0.00205
Copper	mg/L	*0.0027*	*0.0019*	*0.0031*	*0.0043*	*0.0037*	0.00307	0.00238	0.00245	0.00244	0.00804
Iron	mg/L	*0.010*	*0.013*	*0.031*	*0.032*	*0.029*	0.0309	0.0344	0.0358	0.0279	0.0173
Lead	mg/L	*0.0003*	*0.0002*	*0.0002*	*0.0003*	*0.0002*	0.00023	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Manganese	mg/L	*0.0016*	*0.0233*	*0.0147*	*0.0162*	*0.0133*	0.0117	0.0063	0.0204	0.0103	0.0177
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0006*	*0.0006*	*0.0018*	*0.0017*	*0.0021*	0.0018	0.0017	0.002	0.0022	0.0027
Nickel	mg/L	*0.0089*	*0.0185*	*0.0119*	*0.0092*	*0.0102*	0.0069	0.0067	0.0073	0.0145	0.0155
Selenium	mg/L	*0.001*	*0.001*	*0.0001*	*0.0001*	*0.0002*	0.00027	< 0.00010	< 0.00010	< 0.00010	0.0006
Silver	mg/L	*0.0001*	*0.0001*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Strontium	mg/L	*0.06*	*0.06*	*0.06*	*0.07*	*0.08*	0.0739	0.0711	0.0755	0.0824	0.0981
Thallium	mg/L	*0.00030*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0011*	*0.0012*	*0.0015*	0.00141	0.00102	0.00094	0.00158	0.00249
Vanadium	mg/L	*0.00050*	*0.00050*	*0.00500*	*0.00500*	*0.00500*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.0010*	*0.0010*	*0.0062*	*0.0056*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

8.5.3.1.8 North Portage Pit (ST-17) §

Since 2019, there is no longer a sump associated with the North Portage Pit and thus, as per the Water License, Agnico Eagle has started to consider this area as the Portage Pit Lake (ST-17 Lake). The naming convention of ST-17 replaced ST-17 Lake when the in-pit tailings deposition in the Portage pits started in 2020. Refer to previous annual reports for ST-17 Lake and ST-17 Pit Sump results.

In 2023, eight (8) samples were collected in North Portage Pit (ST-17) during February then from May to November. The Pore Water Quality Monitoring Program is followed. The sampling location is illustrated on Figure 1. Results are presented in Table 8-19. There are no applicable NWB Water License limits.

8.5.3.1.9 South Portage Pit (ST-19) §

There is no longer a sump associated with the South Portage Pit since the end of 2019. Sump sampling results (ST-19 Pit Sump) can be found in previous annual reports. In 2020, samples were taken in the pit under ST-19 Lake's name. In August 2020, the in-pit tailings deposition started in the Portage pits and the station name was modified for ST-19 instead of ST-19 Lake. The location remains the same for water collection, only the use of a different station name.

In 2023, water from South Portage Pit (ST-19) was sampled monthly. Results are presented in Table 8-20. There are no applicable NWB Water License limits. The Pore Water Quality Monitoring Program is followed since 2020. The sampling location is illustrated on Figure 1.

Table 8-19 Meadowbank 2023 North Portage Pit Water Quality Monitoring (ST-17) §

ST-17	Unit	*Annual Average*				2/8/2023	5/15/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023	11/5/2023
Parameter		***2020***	***2021***	***2022***	***2023***								
Field Measured													
Temperature	°C	*8.4*	*4.8*	*4.0*	*6.6*	0.1	7.3	4.7	13.6	15.1	7.8	3.5	0.4
pH	pH units	*7.24*	*7.78*	*8.13*	*7.91*	7.96	7.88	8.07	8.16	8.28	7.64	7.81	7.46
Conductivity	uS/cm	*2391.7*	*1775.5*	*2020.3*	*2762.4*	3242	154.8	3777	3082	2607	2491	3169	3576
Turbidity	NTU	*14.25*	*7.44*	*13.25*	*21.98*	6.87	107	8.42	13.3	22.9	6.56	4.44	6.31
Conventional Parameters													
Hardness, as $CaCO_3$	mg/L	*610*	*476*	*612*	*697*	859	98	976	781	573	675	734	879
Total alkalinity, as $CaCO_3$	mg/L	*91*	*78*	*114*	*130*	150	50	140	140	120	140	150	150
Carbonate, as $CaCO_3$	mg/L	*-*	*1.00*	*1.00*	*1.09*	1	<1	1.1	1.6	<1	<1	<1	<1
Bicarbonate, as $CaCO_3$	mg/L	*92*	*78*	*113*	*129*	150	50	140	130	120	140	150	150
TDS	mg/L	*1120*	*1178*	*1632*	*1961*	2150	460	2680	2260	1540	1930	1960	2710
TSS	mg/L	*63*	*3*	*13*	*18*	3	87	2	13	21	8	6	3
Total organic carbon	mg/L	*13.8*	*10.8*	*20.4*	*21.9*	24	3	29	30	34	12	16	27
Dissolved organic carbon	mg/L	*12.5*	*9.6*	*17.2*	*19.2*	24	2.5	28	26	21	11	15	26
Sodium Adsorption Ratio (salinity in water)	-	*-*	*3.04*	*4.13*	*4.40*	5.2	2	5.6	4.6	3.5	4.5	4.6	5.2
Oxidation-Reduction Potential	mV	*-*	*277.8*	*241.8*	*283.8*	270	390	220	180	410	290	270	240
Major Ions													
Bromide	mg/L	*0.79*	*1.26*	*1.54*	*1.83*	1.7	<1	2.3	2	1.4	1.8	1.9	2.5
Chloride	mg/L	*124.5*	*99.7*	*127.8*	*184.9*	200	49	240	220	140	170	190	270
Cyanide	mg/L	*0.067*	*0.132*	*0.085*	*0.463*	0.719	0.115	1.34	0.415	0.133	0.0356	0.0325	0.916
Cyanide (free)	mg/L	*0.0265*	*0.1931*	*0.0395*	*0.2369*	0.25	0.18	0.81	0.19	0.019	0.014	0.012	0.42
Cyanide (WAD)	mg/L	*0.0550*	*0.0858*	*0.0521*	*0.2775*	0.36	0.082	0.89	0.19	0.018	0.012	0.008	0.66
Fluoride	mg/L	*0.25*	*0.24*	*0.31*	*0.23*	0.31	<0.10	0.27	0.22	0.20	0.21	0.24	0.27
Silica	mg/L	*6.17*	*3.65*	*5.96*	*5.76*	6.9	0.98	7.2	6.9	5.2	5.9	6.1	6.9
Sulfate	mg/L	*720*	*673*	*961*	*1164*	1500	100	1600	1300	810	1200	1200	1600
Nutrients													
Ammonia Nitrogen	mg N/L	*13.09*	*17.63*	*23.62*	*34.54*	41	4.3	47	30	21	41	43	49
Nitrate	mg N/L	*2.82*	*1.56*	*1.23*	*2.10*	1.72	0.82	2.71	6.56	2.63	0.37	1.15	0.84
Nitrite	mg N/L	*0.256*	*0.180*	*0.199*	*0.139*	0.276	0.04	0.2	0.174	0.215	0.046	0.067	0.094
Total Kjeldahl nitrogen	mg N/L	*25.000*	*28.000*	*38.000*	*51.825*	62	5.6	75	61	34	52	55	70
Total phosphorus	mg P/L	*0.098*	*0.028*	*0.169*	*0.069*	0.014	0.05	0.011	0.12	0.32	0.021	0.011	0.0078
Orthophosphate	mg P/L	*0.080*	*0.021*	*0.077*	*0.023*	<0.010	<0.010	<0.010	0.027	0.093	<0.010	<0.010	<0.010
Total Metals													
Aluminum	mg/L	*0.4100*	*0.0464*	*0.0876*	*0.1900*	0.014	1.24	0.0176	0.0793	0.0812	0.0283	0.0432	0.0167
Antimony	mg/L	*-*	*0.00304*	*0.00341*	*0.00430*	0.00548	0.000544	0.00627	0.00511	0.00368	0.00329	0.00417	0.00587

ST-17	Unit	*Annual Average*				2/8/2023	5/15/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023	11/5/2023
Parameter		***2020***	***2021***	***2022***	***2023***								
Arsenic	mg/L	*0.3950*	*0.0808*	*0.1021*	*0.0737*	0.106	0.0121	0.0952	0.0995	0.0725	0.0548	0.0557	0.0939
Barium	mg/L	*0.0473*	*0.0256*	*0.0329*	*0.0397*	0.0452	0.0115	0.0459	0.055	0.0375	0.0403	0.0441	0.0384
Beryllium	mg/L	*-*	*0.00009*	*0.00002*	*0.00002*	< 0.000020	0.000046	<0.000050	<0.000020	0.00001	<0.000010	<0.000020	<0.000020
Boron	mg/L	*-*	*0.0635*	*0.1498*	*0.1544*	0.242	0.02	0.197	0.138	0.127	0.14	0.167	0.204
Cadmium	mg/L	*0.00002*	*0.00005*	*0.00003*	*0.00005*	0.000017	0.0000198	< 0.000025	0.000178	0.0000843	0.0000358	< 0.000010	0.000019
Calcium (total)	mg/L	*214.6*	*157.1*	*203.3*	*241.3*	297	33.3	341	279	197	228	252	303
Chromium	mg/L	*0.00335*	*0.00070*	*0.00111*	*0.00360*	0.00033	0.0186	< 0.00050	0.00686	0.00067	0.00022	0.00052	0.00111
Copper	mg/L	*0.514*	*0.704*	*0.440*	*0.488*	0.427	0.121	0.352	1.5	0.702	0.239	0.305	0.257
Iron	mg/L	*1.298*	*0.291*	*0.628*	*0.722*	0.317	3.09	0.353	0.523	0.43	0.353	0.444	0.267
Lead	mg/L	*0.00045*	*0.00097*	*0.00070*	*0.00101*	0.000722	0.00215	0.000815	0.00158	0.000978	0.00044	0.0006	0.000755
Lithium	mg/L	*-*	*0.00366*	*0.00509*	*0.00434*	0.004	0.00235	0.0033	0.0042	0.00699	0.00466	0.005	0.0042
Magnesium (total)	mg/L	*18.60*	*20.32*	*25.26*	*23.04*	28.6	3.59	30.4	20.7	19.9	26	25.6	29.5
Manganese	mg/L	*0.2574*	*0.4986*	*0.5492*	*0.2561*	0.277	0.112	0.165	0.337	0.327	0.322	0.376	0.133
Mercury	mg/L	*0.00001*	*0.00005*	*0.00010*	*0.00009*	< 0.00010	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.0952*	*0.0702*	*0.0886*	*0.0791*	0.107	0.0135	0.118	0.0765	0.0495	0.068	0.0749	0.125
Nickel	mg/L	*0.1076*	*0.4539*	*0.1984*	*0.2415*	0.212	0.0763	0.371	0.336	0.211	0.204	0.223	0.299
Potassium (total)	mg/L	*79.22*	*49.30*	*64.17*	*84.35*	99.3	9.16	129	88.8	63	76	89.5	120
Selenium	mg/L	*0.0224*	*0.0216*	*0.0256*	*0.0523*	0.0533	0.00524	0.0799	0.0801	0.0434	0.0436	0.048	0.0646
Silver	mg/L	*0.00035*	*0.00016*	*0.00009*	*0.00016*	0.00004	0.000032	< 0.000025	0.000539	0.000216	0.000141	0.000272	0.000045
Sodium (total)	mg/L	*203.9*	*181.3*	*221.0*	*250.3*	306	22.3	374	267	178	229	267	359
Strontium	mg/L	*-*	*0.519*	*0.873*	*1.234*	1.34	0.143	1.75	1.47	1.13	1.2	1.35	1.49
Thallium	mg/L	*0.00067*	*0.00007*	*0.00001*	*0.00001*	<0.0000040	0.0000144	< 0.000010	0.0000085	0.0000067	0.0000092	0.000008	0.0000115
Tin	mg/L	*-*	*0.0002*	*0.0003*	*0.0004*	< 0.00040	< 0.00020	< 0.0010	< 0.00040	< 0.00020	< 0.00020	< 0.00040	< 0.00040
Titanium	mg/L	*-*	*0.0027*	*0.0023*	*0.0051*	< 0.0040	0.0237	< 0.0025	0.0026	0.00191	0.0006	0.001	0.0041
Uranium	mg/L	*-*	*0.0090*	*0.0162*	*0.0152*	0.0216	0.00182	0.0236	0.0118	0.00985	0.0146	0.0146	0.0235
Vanadium	mg/L	*-*	*0.0003*	*0.0004*	*0.0007*	< 0.00040	0.00258	< 0.0010	< 0.00040	0.00039	< 0.00020	< 0.00040	< 0.00040
Zinc	mg/L	*0.072*	*0.004*	*0.004*	*0.004*	< 0.0020	0.0096	0.00531	0.00177	0.00201	0.00151	0.00348	0.00825
Dissolved Metals													
Aluminum	mg/L	*0.0118*	*0.0077*	*0.0088*	*0.0099*	0.0042	0.0248	0.0061	0.0075	0.00767	0.00984	0.0057	0.0137
Antimony	mg/L	*-*	*0.00313*	*0.00335*	*0.00376*	0.00551	0.000262	0.00407	0.00547	0.0031	0.00324	0.00373	0.00472
Arsenic	mg/L	*0.34538*	*0.05523*	*0.06373*	*0.04660*	0.0843	0.0021	0.0547	0.067	0.041	0.03	0.0279	0.0658
Barium	mg/L	*0.0483*	*0.0247*	*0.0321*	*0.0375*	0.0439	0.00383	0.0439	0.0562	0.0336	0.0412	0.041	0.0366
Beryllium	mg/L	*-*	*0.00001*	*0.00002*	*0.00002*	< 0.000020	0.00002	< 0.000050	< 0.000020	< 0.000010	< 0.000010	< 0.000020	< 0.000020
Boron	mg/L	*-*	*0.081*	*0.131*	*0.141*	0.171	< 0.01	0.199	0.151	0.115	0.15	0.159	0.175
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00002*	*0.00005*	0.000027	0.0000118	0.000025	0.000176	0.0000737	0.0000274	0.000031	0.000022
Chromium	mg/L	*0.00550*	*0.00026*	*0.00019*	*0.00021*	< 0.00020	< 0.00010	< 0.00050	< 0.00020	< 0.00010	0.00016	< 0.00020	< 0.00020
Copper	mg/L	*0.327*	*0.563*	*0.255*	*0.293*	0.337	0.0196	0.265	1.22	0.101	0.131	0.166	0.103

ST-17	Unit	*Annual Average*				2/8/2023	5/15/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023	11/5/2023
Parameter		***2020***	***2021***	***2022***	***2023***								
Iron	mg/L	*0.020*	*0.034*	*0.040*	*0.041*	0.0942	0.0104	0.0176	0.0362	0.0091	0.0153	0.0147	0.129
Lead	mg/L	*0.0005*	*0.0001*	*0.0002*	*0.0002*	0.000311	0.000059	0.000072	0.000123	0.0000636	0.0000692	0.000218	0.000328
Lithium	mg/L	-	*0.00339*	*0.00515*	*0.00408*	0.0042	0.00099	0.0037	0.0043	0.00643	0.00505	0.0043	0.0037
Manganese	mg/L	*0.2039*	*0.4678*	*0.4717*	*0.2315*	0.282	0.0709	0.150	0.331	0.227	0.322	0.340	0.129
Mercury	mg/L	*0.00001*	*0.00005*	*0.00010*	*0.00009*	< 0.00010	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.0898*	*0.0655*	*0.0880*	*0.0744*	0.112	0.00415	0.108	0.0726	0.0431	0.0774	0.0712	0.107
Nickel	mg/L	*0.0919*	*0.4255*	*0.1869*	*0.2155*	0.202	0.00968	0.355	0.307	0.163	0.203	0.203	0.281
Selenium	mg/L	*0.0225*	*0.0179*	*0.0257*	*0.0494*	0.0551	0.00123	0.0737	0.0847	0.038	0.0383	0.0461	0.0579
Silver	mg/L	*0.00018*	*0.00012*	*0.00007*	*0.00009*	0.000134	0.0000564	< 0.000025	0.000388	<0.0000050	0.0000191	0.000074	0.000023
Strontium	mg/L	*0.573*	*0.546*	*0.876*	*1.181*	1.37	0.0726	1.49	1.50	0.993	1.23	1.25	1.54
Thallium	mg/L	*0.00035*	*0.00007*	*0.00001*	*0.00001*	0.0000071	0.000005	< 0.000010	0.0000061	0.0000086	0.000011	0.0000074	0.0000076
Tin	mg/L	-	*0.0002*	*0.0057*	*0.0014*	< 0.00040	< 0.00020	< 0.0010	< 0.00040	0.0002	< 0.00020	0.00869	< 0.00040
Titanium	mg/L	-	*0.0006*	*0.0008*	*0.0010*	< 0.0010	< 0.00050	< 0.0025	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.0010
Uranium	mg/L	-	*0.0082*	*0.0158*	*0.0147*	0.0224	0.000525	0.0214	0.012	0.00847	0.0161	0.0152	0.0215
Vanadium	mg/L	-	*0.0002*	*0.0003*	*0.0004*	< 0.00040	< 0.00020	< 0.0010	< 0.00040	< 0.00020	< 0.00020	< 0.00040	< 0.00040
Zinc	mg/L	*0.001*	*0.006*	*0.004*	*0.003*	0.00106	0.00501	0.00365	0.00156	0.00418	0.00319	0.00151	0.00358

Table 8-20 Meadowbank 2023 South Portage Pit Water Quality Monitoring (ST-19) §

ST-19	Unit	*Annual Average*				1/15/2023	2/8/2023	3/13/2023	4/9/2023	5/15/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023	11/5/2023	12/3/2023
Parameter		**2020**	**2021**	***2022***	***2023***												
Field Measured																	
Temperature	°C	-	*3.9*	*4.7*	*6.21*	1.2	1.3	2.5	4.2	4.3	9.7	14.5	14.4	10.9	6.8	3.2	1.5
pH	pH units	*7.75*	*8.20*	*8.29*	*8.34*	8.54	8.38	8.63	8.63	8.79	8.56	8.13	8.06	8.07	8.05	8.3	7.95
Conductivity	uS/cm	*2677*	*2971*	*4588*	*5648*	5381	5754	5856	6119	6018	5799	5642	6387	4909	5132	5197	5576
Turbidity	NTU	-	*3.99*	*24.85*	*8.82*	9.00	5.05	4.79	11	39.00	4.41	2.39	2.99	10.3	11.30	2.81	2.85
Conventional Parameters																	
Hardness, as $CaCO_3$	mg/L	*871*	*988*	*1333*	*2773*	1590	2300	16000	1660	1530	1740	1530	1540	1280	1380	1360	1360
Total alkalinity, as $CaCO_3$	mg/L	*90*	*91*	*103*	*103*	100	100	110	92	110	75	100	110	110	110	110	110
Carbonate, as $CaCO_3$	mg/L	-	*1.0*	*1.1*	*1.3*	2.1	1.6	1.6	< 1.0	1.5	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	-	*90*	*102*	*102*	100	100	100	92	110	74	100	110	110	110	110	110
TDS	mg/L	*17*	*2680*	*3719*	*4335*	3970	3830	4460	4530	4990	4510	4350	4370	4020	3860	4500	4630
TSS	mg/L	*1*	*15*	*52*	*23*	23	26	24	54	23	19	7	9	32	43	11	7
Total organic carbon	mg/L	*18.7*	*26*	*54*	*78*	81	84	86	89	96	81	72	70	64	70	71	76
Dissolved organic carbon	mg/L	*17.7*	*25.4*	*52.4*	*75.8*	73	78	82	82	92	80	72	70	63	70	69	79
Sodium Adsorption Ratio (salinity in water)	-	-	*5*	*6*	*7*	7.2	7	7	7.1	7.3	6.6	6.6	6.5	6.9	6.7	7.1	7.2
Oxidation-Reduction Potential	mV	-	*192.9*	*177.5*	*228.3*	190	170	190	200	190	180	210	290	230	270	240	380
Major Ions																	
Bromide	mg/L	-	*2.33*	*4.47*	*3.33*	1.7	1.7	2.6	5	4.6	4.3	3.6	3.5	3.3	3.5	3.1	3
Chloride	mg/L	*200.0*	*219.9*	*435.8*	*670.0*	600	660	780	810	790	660	620	660	610	590	590	670
Cyanide	mg/L	*0.049*	*0.310*	*1.733*	*4.101*	3.64	8.84	9.76	10.1	13.3	0.165	0.04	0.21	0.0349	0.742	0.541	1.84
Cyanide (free)	mg/L	*0.0180*	*0.3700*	*0.2021*	*0.7626*	-	1.2	1.6	1.6	2.2	0.074	0.0076	0.02	0.037	0.67	0.39	0.59
Cyanide (WAD)	mg/L	*0.0210*	*0.2300*	*0.8188*	*1.8038*	1.1	3.5	3.2	4.2	6.4	0.0051	0.013	0.18	0.017	0.65	0.48	1.9
Fluoride	mg/L	*0.39*	*0.25*	*0.16*	*0.15*	0.15	0.14	0.13	0.12	0.12	0.13	0.16	0.15	0.14	0.15	0.16	0.25
Silica	mg/L	-	*6.00*	*7.14*	*6.13*	6.6	5.9	5.9	5.5	5.8	3.0	5.9	6.5	7.0	6.9	8.2	6.4
Sulfate	mg/L	*1150*	*1032*	*1808*	*2150*	2200	2200	2400	2300	2300	2100	2100	2000	2000	2000	2100	2100
Nutrients																	
Ammonia Nitrogen	mg N/L	*14.72*	*40.11*	*53.08*	*63.25*	60	62	61	64	71	69	69	66	63	59	58	57
Nitrate	mg N/L	*2.04*	*8.17*	*12.11*	*21.68*	18.5	19.0	18.5	25.3	25.8	25.3	22.9	18.9	19.1	19.7	22.4	24.7
Nitrite	mg N/L	*0.080*	*0.280*	*0.347*	*0.271*	0.327	0.287	0.304	0.323	0.309	0.258	0.255	0.239	0.247	0.223	0.233	0.25
Total Kjeldahl nitrogen	mg N/L	-	*66*	*110*	*141*	130	140	140	160	140	150	140	140	140	130	140	140
Total phosphorus	mg P/L	*0.010*	*0.027*	*0.031*	*0.045*	< 0.10	0.016	< 0.10	0.034	< 0.010	0.045	0.044	0.042	0.091	0.019	0.035	0.0042
Orthophosphate	mg P/L	-	*0.039*	*0.038*	*0.032*	0.025	0.03	0.033	0.041	0.048	0.044	0.056	0.07	< 0.010	< 0.010	0.011	< 0.010
Total Metals																	
Aluminum	mg/L	*0.0190*	*0.0947*	*0.9945*	*0.4291*	0.231	0.128	2.21	1.07	0.025	0.119	0.154	0.155	0.574	0.271	0.14	0.0723
Antimony	mg/L	-	*0.01139*	*0.01543*	*0.02274*	0.0101	0.0118	0.131	0.00955	0.00928	0.0166	0.0126	0.00965	0.0133	0.0183	0.0194	0.0113
Arsenic	mg/L	*0.0108*	*0.1296*	*0.1502*	*0.2602*	0.18	0.193	1.07	0.107	0.113	0.184	0.308	0.261	0.175	0.121	0.321	0.0899
Barium	mg/L	*0.0292*	*0.0893*	*0.1329*	*0.2675*	0.159	0.214	1.65	0.17	0.133	0.128	0.148	0.143	0.119	0.122	0.11	0.114
Beryllium	mg/L	-	*0.00002*	*0.00006*	*0.00009*	< 0.000050	< 0.000050	< 0.00050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000020	< 0.000050
Boron	mg/L	-	*0.1990*	*0.2951*	*0.5493*	0.366	0.55	2.85	0.34	0.254	0.287	0.281	0.29	0.296	0.347	0.397	0.333
Cadmium	mg/L	*0.00002*	*0.00007*	*0.00019*	*0.00056*	0.000246	0.000375	0.00368	0.000344	0.000202	0.000093	0.000776	0.00048	0.000209	0.00008	0.000179	< 0.000025
Calcium (total)	mg/L	*267.0*	*358.0*	*492.8*	*1049.2*	598	868	6050	628	580	665	585	585	479	519	516	517
Chromium	mg/L	*0.00060*	*0.00190*	*0.03978*	*0.01203*	0.00699	0.00457	0.07	0.037	0.00149	0.0017	0.00349	0.00351	0.00327	0.00781	0.00282	0.00166
Copper	mg/L	*0.003*	*2.451*	*3.178*	*10.461*	5.58	9.17	74.4	7.56	8.23	8.58	4.66	2.39	1.01	1.29	0.866	1.8
Iron	mg/L	*0.070*	*0.277*	*2.785*	*2.935*	1.73	2.54	21	4.62	1.66	0.257	0.378	0.356	1.42	0.795	0.268	0.198
Lead	mg/L	*0.00017*	*0.00056*	*0.00912*	*0.00438*	0.00183	0.00363	0.0176	0.00757	0.0004	0.00337	0.00328	0.00226	0.00132	0.00615	0.00318	0.00199
Lithium	mg/L	-	*0.00337*	*0.00426*	*0.00549*	< 0.0025	< 0.0025	< 0.025	0.003	< 0.0025	< 0.0025	0.0049	0.0061	0.0057	0.0046	0.0036	0.003
Magnesium (total)	mg/L	*50.10*	*23.40*	*24.87*	*37.53*	24.1	31.4	219	23	19.6	19	18.1	19.6	20.7	19.8	18.2	17.9
Manganese	mg/L	*1.351*	*0.046*	*0.125*	*0.096*	0.0483	0.0532	0.45	0.13	0.0234	0.021	0.0874	0.0842	0.07	0.0795	0.0419	0.0572
Mercury	mg/L	*0.00001*	*0.00010*	*0.00022*	*0.00010*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.1804*	*0.1051*	*0.1097*	*0.2023*	0.128	0.152	1.12	0.126	0.112	0.111	0.11	0.108	0.103	0.12	0.126	0.111

ST-19	Unit	*Annual Average*				1/15/2023	2/8/2023	3/13/2023	4/9/2023	5/15/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023	11/5/2023	12/3/2023
Parameter		**2020**	**2021**	***2022***	***2023***												
Nickel	mg/L	*0.034*	*0.276*	*0.708*	*3.127*	1.18	2.36	23.3	3.01	3.38	2.07	0.381	0.306	0.266	0.402	0.393	0.472
Potassium (total)	mg/L	*66.60*	*138.20*	*186.83*	*399.17*	234	311	2290	232	212	234	205	211	193	220	228	220
Selenium	mg/L	*0.0010*	*0.1071*	*0.1752*	*0.4149*	0.223	0.308	2.27	0.251	0.219	0.275	0.255	0.254	0.218	0.229	0.253	0.224
Silver	mg/L	*0.00010*	*0.00040*	*0.00044*	*0.00132*	0.000063	0.000065	0.0011	0.000259	0.000351	0.000584	0.00253	0.00165	0.000314	0.00323	0.00506	0.000593
Sodium (total)	mg/L	*391.0*	*330.0*	*473.1*	*1040.8*	615	805	5930	620	566	614	563	580	515	573	551	557
Strontium	mg/L	*0.924*	*1.346*	*2.169*	*5.868*	3.12	4.75	34.2	3.74	3.59	3.9	3.22	2.95	2.57	2.85	2.68	2.85
Thallium	mg/L	*0.00020*	*0.00010*	*0.00003*	*0.00003*	0.000013	< 0.000010	0.00011	0.000041	< 0.000010	< 0.000010	0.000024	0.000025	0.000041	0.000023	0.0000242	0.000027
Tin	mg/L	-	*0.0005*	*0.0009*	*0.0019*	< 0.0010	< 0.0010	< 0.01	< 0.0010	< 0.0010	0.0034	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.00040	< 0.0010
Titanium	mg/L	-	*0.0018*	*0.0528*	*0.0212*	0.01	< 0.01	0.117	0.064	< 0.01	< 0.0025	0.0061	0.0061	0.0069	0.0138	0.0056	< 0.0025
Uranium	mg/L	-	*0.0192*	*0.0148*	*0.0202*	0.0142	0.0174	0.119	0.0129	0.0115	0.011	0.0098	0.00917	0.0111	0.00915	0.00882	0.00837
Vanadium	mg/L	-	*0.0006*	*0.0038*	*0.0019*	< 0.0010	< 0.0010	< 0.01	0.0038	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.00040	< 0.0010
Zinc	mg/L	*0.001*	*0.002*	*0.006*	*0.020*	< 0.0050	< 0.0050	< 0.05	< 0.0050	< 0.0050	0.0982	0.00127	0.00098	0.00461	0.00497	0.0525	0.00406
Dissolved Metals																	
Aluminum	mg/L	*0.0060*	*0.0085*	*0.0135*	*0.0191*	0.0135	0.0057	0.0167	0.0139	0.013	0.0243	0.0218	0.0215	0.0201	0.0152	0.0388	0.0243
Antimony	mg/L	-	*0.01046*	*0.01616*	*0.01437*	0.0165	0.015	0.0171	0.0148	0.0111	0.0125	0.0152	0.0151	0.0143	0.0141	0.0127	0.014
Arsenic	mg/L	*0.00120*	*0.12000*	*0.13282*	*0.16687*	0.184	0.133	0.114	0.102	0.136	0.167	0.269	0.274	0.185	0.0972	0.25	0.0912
Barium	mg/L	*0.0201*	*0.0797*	*0.1268*	*0.1383*	0.156	0.146	0.17	0.173	0.154	0.116	0.144	0.148	0.129	0.104	0.104	0.116
Beryllium	mg/L	-	*0.00002*	*0.00004*	*0.00005*	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.00010	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	-	*0.190*	*0.277*	*0.314*	0.33	0.264	0.312	0.32	0.277	0.291	0.308	0.29	0.338	0.318	0.354	0.363
Cadmium	mg/L	*0.00002*	*0.00006*	*0.00014*	*0.00025*	0.000147	0.000267	0.00041	0.000328	< 0.000050	0.00007	0.000675	0.000514	0.000243	0.000116	0.000185	< 0.000025
Chromium	mg/L	*0.00060*	*0.00029*	*0.00042*	*0.00055*	0.00055	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Copper	mg/L	*0.0005*	*2.0440*	*3.2285*	*3.6762*	5.49	2.52	6.41	6.27	3.17	8.65	4.49	2.36	0.823	1.14	0.931	1.86
Iron	mg/L	*0.010*	*0.011*	*0.147*	*0.302*	1.17	0.0665	0.992	1.15	0.13	0.0176	< 0.0050	< 0.0050	0.0094	0.0151	0.024	0.0398
Lead	mg/L	*0.00017*	*0.00010*	*0.00029*	*0.00046*	0.000371	0.000991	0.000306	0.000842	0.000175	0.000115	0.000534	0.000443	0.000384	0.000199	0.000225	0.000935
Lithium	mg/L	-	*0.00345*	*0.00345*	*0.00367*	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0050	< 0.0025	0.0049	0.0062	0.0058	0.0035	< 0.0025	0.0036
Manganese	mg/L	*1.2296*	*0.0445*	*0.0403*	*0.0414*	0.0321	0.0335	0.0351	0.0359	0.0146	0.0121	0.074	0.073	0.053	0.0348	0.0348	0.0633
Mercury	mg/L	*0.00001*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.1618*	*0.0992*	*0.1075*	*0.1126*	0.131	0.103	0.13	0.129	0.106	0.108	0.115	0.11	0.115	0.0946	0.101	0.109
Nickel	mg/L	-	*0.245*	*0.651*	*1.251*	1.13	1.40	2.53	2.95	2.79	2.05	0.364	0.30	0.283	0.349	0.396	0.472
Selenium	mg/L	*0.001*	*0.096*	*0.172*	*0.253*	0.249	0.241	0.268	0.3	0.289	0.279	0.242	0.249	0.227	0.225	0.228	0.24
Silver	mg/L	*0.00010*	*0.00033*	*0.00068*	*0.00121*	0.000315	0.00013	0.000223	0.000238	0.000141	0.00058	0.00286	0.00179	0.000028	0.00275	0.00487	0.000645
Strontium	mg/L	*0.995*	*1.274*	*2.186*	*3.208*	3.20	3.24	3.63	3.92	4.14	3.34	3.12	3.22	2.69	2.54	2.70	2.76
Thallium	mg/L	*0.00020*	*0.00005*	*0.00002*	*0.00002*	< 0.000010	< 0.000010	0.000014	< 0.000010	0.000025	< 0.000010	0.000016	0.000035	0.000041	0.000015	0.000023	0.000022
Tin	mg/L	-	*0.0005*	*0.0008*	*0.0011*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Titanium	mg/L	-	*0.0012*	*0.0021*	*0.0027*	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0050	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Uranium	mg/L	-	*0.019*	*0.014*	*0.011*	0.0137	0.0121	0.0138	0.0133	0.0129	0.0104	0.00984	0.00909	0.0118	0.00862	0.00798	0.00824
Vanadium	mg/L	-	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Zinc	mg/L	*0.001*	*0.001*	*0.002*	*0.004*	0.00154	0.00077	0.00208	0.00721	0.0022	0.00122	0.00211	0.00523	0.00308	0.00211	0.0067	0.0142

8.5.3.1.10 Goose Pit (ST-20) §

Mining activities have ceased in the Goose Pit in April 2015. Starting in June 2015, no additional water was pumped out of the Goose Pit sump; instead, runoff and groundwater were kept in the pit to contribute to natural re-flooding of the pit. On May 24th, 2019, Agnico Eagle received from NWB the Ministers Approval regarding the Amendment No.3 to Type A Water License 2AM-MEA1526 to authorize Water Uses and Waste Deposits associated with the In-Pit Tailings Disposal. In-Pit Deposition in Goose Pit started on July 5th, 2019.

Since the in-pit tailings deposition started in July 2019, the station name has been changed for ST-20 instead of ST-20 Lake. Nomenclature modification only, the sampling location remains the same. Refer to previous annual reports for the ST-20 Lake sampling results.

In 2023, Agnico Eagle collected six (6) monthly water quality samples at the bottom of Goose Pit (ST-20) Results of sampling conducted at station ST-20 are presented in Table 8-21. The station location is illustrated in Figure 1.

Six (6) samples were also collected monthly during open water from May to October at the sump at the top of Goose Pit (sampling station ST-20 Goose Pit Sump). The data is presented in Table 8-22, the sampling location is illustrated on Figure 1. There are no applicable license limits for ST-20 Goose Pit Sump and ST-20 as the water was not directly released into the environment; the data is presented for information purposes only.

8.5.3.1.11 Tailings Storage Facility (ST-21) §

The North Cell Tailings Storage Facility became operational in February 2010. On November 17th, 2014 the reclaim water intake was transferred from the North Cell TSF to the South Cell TSF. Tailings deposition was also stopped in the North Cell TSF and commenced in the South Cell TSF at that time. As per the NWB Water License, sampling station ST-21 changed location from the North to the South Cell. Sampling was conducted monthly during open water as per the requirements of the NWB Water License. On July 5th, 2019, tailings deposition started in Goose Pit. There are no applicable license limits for this station as the water is pumped into Portage Pit. Sample results are presented in Table 8-23. The location of sampling station ST-21 (South Cell TSF) is illustrated on Figure 1. As per the Water License, no further monitoring in the TSF North Cell is required.

8.5.3.1.12 Vault Pit Lake (ST-26) §

In 2014, a sump was constructed in Vault Pit in an area of water accumulation. Water from Vault Pit is sampled monthly during open water as per the requirements in the NWB Water License. Since 2020, water from Vault Pit sump (ST-23) is no longer sampled due to the natural reflooding of the Pit, samples are now collected from the Vault Pit Lake (ST-26) (Table 8-24). Please refer to previous annual reports for ST-23 results. The Vault Pit Lake was sampled monthly during open water as per the requirements in the NWB Water License (sampling station ST-26 on Figure 3). In 2023 no water was pumped to the Vault Attenuation Pond as per previous years. Water is rather kept in the pit and contributes to the natural reflooding. There are no applicable license limits for ST-26.

Table 8-21 Meadowbank 2023 Goose Pit Water Quality Monitoring (ST-20) §

ST-20	Unit	*Annual Average*					5/28/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	-	*7.9*	*7.8*	*8.9*	*7.8*	1.0	5.9	13.8	15.9	7.2	3.2
pH	pH units	-	*8.28*	*8.02*	*7.81*	*7.92*	7.25	8.03	8.22	8.23	7.86	7.91
Conductivity	uS/cm	-	*2362.3*	*2021.4*	*1441.4*	*1385.5*	435	970	1433	1614	1678	2183
Turbidity	NTU	-	*3.85*	*3.87*	*3.35*	*23.14*	13	15.6	7.72	6.04	4.76	91.7
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*405.00*	*817.33*	*527.20*	*359.10*	*340.83*	104	245	359	375	397	565
Total alkalinity, as $CaCO_3$	mg/L	*61.00*	*81.00*	*100.40*	*77.60*	*72.00*	28	51	72	71	90	120
Carbonate, as $CaCO_3$	mg/L	*2.00*	*7.00*	*1.10*	*1.00*	*1.00*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*61.00*	*78.00*	*98.40*	*75.00*	*70.17*	28	51	71	71	90	110
TDS	mg/L	*803*	*1493*	*1396*	*977*	*877*	260	605	940	905	1180	1370
TSS	mg/L	*20.00*	*11.00*	*2.75*	*4.00*	*64.17*	10	9	10	9	7	340
Total organic carbon	mg/L	*6.70*	-	*12.80*	*6.78*	*6.77*	3.8	4.1	7.4	8.3	7.6	9.4
Dissolved organic carbon	mg/L	*9.00*	*17.00*	*11.72*	*6.18*	*4.40*	1.9	3.8	< 0.40	6.1	6.3	7.9
Sodium Adsorption Ratio (salinity in water)	-	-	-	*3.20*	*2.43*	*2.45*	1.2	2	2.5	2.6	3	3.4
Oxidation-Reduction Potential	mV	-	-	*222.14*	*242.60*	*351.67*	460	210	370	460	340	270
Major Ions												
Bromide	mg/L	-	-	*1*	*2*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloride	mg/L	*80*	*224*	*109*	*58*	*55*	15	42	57	51	69	94
Cyanide	mg/L	*0.152*	*0.370*	*0.058*	*0.018*	*0.021*	0.00721	0.0208	0.0303	0.021	0.0126	0.0368
Cyanide (free)	mg/L	*0.1470*	-	*0.0143*	*0.0059*	*0.0112*	0.0079	0.0076	0.013	0.017	0.0069	0.015
Cyanide (WAD)	mg/L	-	*0.3812*	*0.0336*	*0.0137*	*0.0147*	0.0051	0.014	0.025	0.017	0.0082	0.019
Fluoride	mg/L	-	*0.27*	*0.25*	*0.26*	*0.25*	0.17	0.25	0.27	0.25	0.28	0.3
Silica	mg/L	*12.7*	*7.2*	*5.9*	*4.8*	*4.6*	1.3	3.6	4.7	5.3	6.2	6.6
Sulfate	mg/L	*469*	*943*	*768*	*596*	*562*	160	340	540	580	790	960
Nutrients												
Ammonia Nitrogen	mg N/L	*10.5*	*22.5*	*23.2*	*19.2*	*18.6*	5.6	13	18	18	24	33
Nitrate	mg N/L	*1.90*	*3.91*	*2.05*	*0.77*	*0.19*	0.11	0.23	0.22	0.2	0.18	0.18
Nitrite	mg N/L	*0.020*	*0.180*	*0.462*	*0.614*	*0.333*	0.136	0.317	0.422	0.416	0.434	0.272
Total Kjeldahl nitrogen	mg N/L	*18*	*43*	*36*	*24*	*22*	6	15	22	21	29	40
Total phosphorus	mg P/L	*0.060*	*0.063*	*0.023*	*0.017*	*0.075*	0.032	0.019	0.026	0.03	0.021	0.32
Orthophosphate	mg P/L	*0.05*	*1.38*	*0.15*	*0.07*	*0.049*	0.012	0.034	0.051	0.054	0.059	0.085
Total Metals												
Aluminum	mg/L	*0.5880*	*0.1693*	*0.0526*	*0.0375*	*0.6159*	0.149	0.169	0.116	0.0759	0.0252	3.16
Antimony	mg/L	*0.0040*	*0.0133*	*0.0140*	*0.0086*	*0.0067*	0.00209	0.00513	0.00748	0.00755	0.00833	0.0095
Arsenic	mg/L	*0.0191*	*0.8344*	*0.5060*	*0.3106*	*0.2443*	0.0829	0.187	0.264	0.264	0.286	0.382

ST-20	Unit	*Annual Average*					5/28/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Barium	mg/L	*0.0383*	*0.0637*	*0.0434*	*0.0308*	*0.0305*	0.0118	0.0224	0.0321	0.0315	0.0337	0.0517
Beryllium	mg/L	*0.00050*	*0.00050*	*0.00002*	*0.00001*	*0.00003*	0.000012	0.000013	0.000012	< 0.000010	< 0.000010	0.0001
Boron	mg/L	*0.030*	*0.010*	*0.137*	*0.099*	*0.090*	0.028	0.07	0.088	0.097	0.115	0.139
Cadmium	mg/L	*0.00024*	*0.00050*	*0.00001*	*0.00001*	*0.00002*	0.0000101	0.0000152	0.0000154	0.0000102	0.0000299	0.000056
Calcium (total)	mg/L	*127.00*	*309.00*	*197.84*	*132.18*	*123.05*	36.9	89.4	131	136	143	202
Chromium	mg/L	*0.00940*	*0.00162*	*0.00063*	*0.00067*	*0.00973*	0.00724	0.00203	0.0011	0.00079	0.00022	0.047
Copper	mg/L	*0.5609*	*2.5258*	*0.0245*	*0.0058*	*0.0104*	0.00565	0.00678	0.00642	0.00621	0.00318	0.0342
Iron	mg/L	*1.030*	*0.458*	*0.112*	*0.092*	*1.529*	0.325	0.381	0.242	0.17	0.0152	8.04
Lead	mg/L	*0.00030*	*0.00024*	*0.00036*	*0.00018*	*0.00087*	0.000939	0.000708	0.000382	0.000228	0.0000728	0.00288
Lithium	mg/L	*0.01300*	*0.00517*	*0.00345*	*0.00381*	*0.00337*	0.00132	0.00223	0.0032	0.00357	0.00359	0.0063
Magnesium (total)	mg/L	*21*	*13*	*9*	*7*	*8*	2.89	5.43	7.75	8.32	9.54	14.9
Manganese	mg/L	*0.0509*	*0.0474*	*0.0501*	*0.0528*	*0.0725*	0.0419	0.0608	0.0693	0.0605	0.0226	0.18
Mercury	mg/L	*0.00002*	*0.00001*	*0.00008*	*0.00008*	*0.00009*	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.1281*	*0.1025*	*0.0770*	*0.0493*	*0.0447*	0.0175	0.0314	0.0466	0.0472	0.0553	0.07
Nickel	mg/L	*0.0232*	*0.1656*	*0.0653*	*0.0410*	*0.0473*	0.0366	0.0286	0.0409	0.0388	0.0358	0.103
Potassium (total)	mg/L	*35.90*	*137.54*	*80.18*	*52.63*	*49.18*	15	35.3	51	53.4	60.4	80
Selenium	mg/L	*0.0052*	*0.0479*	*0.0329*	*0.0197*	*0.0162*	0.00489	0.0114	0.0167	0.0176	0.0189	0.0278
Silver	mg/L	*-*	*0.000900*	*0.000040*	*0.000013*	*0.000019*	0.0000164	0.0000154	0.0000126	0.0000129	0.0000103	0.000049
Sodium (total)	mg/L	*149.0*	*274.2*	*157.9*	*104.7*	*96.8*	28.5	67.5	100	102	117	166
Strontium	mg/L	*0.620*	*0.693*	*0.543*	*0.396*	*0.380*	0.11	0.275	0.403	0.425	0.45	0.619
Thallium	mg/L	*0.00020*	*0.00020*	*0.00002*	*0.00001*	*0.00002*	0.0000097	0.0000098	0.0000105	0.0000116	0.000011	0.000038
Tin	mg/L	*0.0010*	*0.0010*	*0.0003*	*0.0003*	*0.0003*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	0.00066	< 0.00040
Titanium	mg/L	*0.010*	*0.010*	*0.002*	*0.002*	*0.013*	0.00652	0.00644	0.00497	0.00273	< 0.00050	0.0596
Uranium	mg/L	*0.0130*	*0.0080*	*0.0064*	*0.0049*	*0.0055*	0.00136	0.00352	0.00642	0.00629	0.00648	0.00867
Vanadium	mg/L	*0.0020*	*0.0008*	*0.0005*	*0.0003*	*0.0014*	0.00046	0.00049	0.00048	0.00042	0.00034	0.00643
Zinc	mg/L	*0.0030*	*0.0028*	*0.0015*	*0.0014*	*0.0039*	0.00353	0.00145	0.00114	0.00095	0.00457	0.012
Dissolved Metals												
Aluminum	mg/L	*0.0240*	*0.0088*	*0.0111*	*0.0116*	*0.1143*	0.00757	0.146	0.0167	0.0171	0.487	0.0116
Antimony	mg/L	*0.00320*	*0.01277*	*0.01210*	*0.00872*	*0.00719*	0.00214	0.00496	0.00727	0.00728	0.0104	0.0111
Arsenic	mg/L	*0.0146*	*0.7832*	*0.3984*	*0.3085*	*0.2462*	0.0704	0.181	0.234	0.243	0.408	0.341
Barium	mg/L	*0.0303*	*0.0552*	*0.0430*	*0.0305*	*0.0300*	0.0114	0.0211	0.0314	0.0308	0.042	0.0433
Beryllium	mg/L	*0.00050*	*0.00050*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	0.000015	< 0.000010	< 0.000010	< 0.000010	< 0.000020
Boron	mg/L	*0.010*	*0.010*	*0.141*	*0.108*	*0.096*	0.031	0.065	0.087	0.093	0.151	0.148
Cadmium	mg/L	*0.000020*	*0.000020*	*0.000019*	*0.000011*	*0.000021*	0.0000096	0.0000172	0.0000344	0.0000282	0.0000208	0.000015
Chromium	mg/L	*0.0006*	*0.0006*	*0.0002*	*0.0002*	*0.0006*	< 0.00010	0.00177	0.00014	0.00018	0.00147	< 0.00020
Copper	mg/L	*0.3543*	*0.6846*	*0.0197*	*0.0033*	*0.0068*	0.00191	0.007	0.00348	0.00269	0.00602	0.0195
Iron	mg/L	*0.010*	*0.010*	*0.007*	*0.009*	*0.118*	0.0087	0.364	0.01	0.0118	0.304	0.0072

ST-20	Unit	*Annual Average*					5/28/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Lead	mg/L	*0.00030*	*0.00024*	*0.00012*	*0.00006*	*0.00021*	0.0000762	0.000652	0.0000364	0.0000287	0.000393	0.000045
Lithium	mg/L	*0.00500*	*0.00517*	*0.00344*	*0.00389*	*0.00286*	0.00093	0.0023	0.00296	0.00305	0.00484	0.0031
Manganese	mg/L	*0.0309*	*0.0265*	*0.0413*	*0.0427*	*0.0442*	0.0358	0.06	0.0359	0.0104	0.0528	0.0703
Mercury	mg/L	*0.00001*	*0.00001*	*0.00008*	*0.00008*	*0.00009*	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.1025*	*0.0937*	*0.0705*	*0.0511*	*0.0465*	0.0128	0.0309	0.0453	0.0463	0.0713	0.0722
Nickel	mg/L	*0.0150*	*0.1433*	*0.0622*	*0.0398*	*0.0379*	0.0124	0.0293	0.032	0.0305	0.0484	0.0749
Selenium	mg/L	*0.00200*	*0.03800*	*0.03218*	*0.02041*	*0.01674*	0.00481	0.0119	0.0163	0.0165	0.0227	0.0282
Silver	mg/L	*0.51400*	*0.00010*	*0.00002*	*0.00001*	*0.00001*	0.000018	0.0000149	0.0000194	0.0000162	0.0000106	0.00001
Strontium	mg/L	*0.0100*	*0.6288*	*0.5940*	*0.4079*	*0.3887*	0.113	0.251	0.394	0.415	0.541	0.618
Thallium	mg/L	-	-	*0.00002*	*0.00001*	*0.00001*	0.0000051	0.0000106	0.0000119	0.0000156	0.0000143	0.0000093
Tin	mg/L	*0.0010*	-	*0.0003*	*0.0003*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00040
Titanium	mg/L	*0.0002*	*0.0100*	*0.0006*	*0.0006*	*0.0019*	< 0.00050	0.00642	< 0.00050	< 0.00050	0.00268	< 0.0010
Uranium	mg/L	*0.0110*	*0.0070*	*0.0063*	*0.0048*	*0.0056*	0.00138	0.00335	0.00622	0.0059	0.00768	0.00886
Vanadium	mg/L	*0.0005*	*0.0007*	*0.0004*	*0.0003*	*0.0004*	< 0.00020	0.00045	0.00025	0.00026	0.00057	< 0.00040
Zinc	mg/L	*0.0010*	*0.0010*	*0.0029*	*0.0014*	*0.0043*	0.00275	0.00146	0.00378	0.00321	0.0127	0.00176

Table 8-22 Meadowbank 2023 Goose Pit Sump Water Quality Monitoring (ST-20 Pit Sump) §

ST-20 Pit Sump	Unit	*Annual Average*					5/28/2023	6/12/2023	7/23/2023	8/2/2023	9/10/2023	10/8/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	-	-	*10.7*	*9.1*	*7.3*	1.2	8.3	10.6	14.8	7.6	1.4
pH	pH units	*8.49*	*7.88*	*7.89*	*7.68*	*7.74*	7.37	7.74	7.77	8.05	7.97	7.56
Conductivity	uS/cm	-	-	*388.5*	*463.6*	*647.2*	390	472	502	563	1181	775
Turbidity	NTU	*12.94*	*17.99*	*10.71*	*14.30*	*18.81*	33.1	34.3	19.3	4.51	7.05	14.6
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	-	-	*193*	*210*	*213*	178	214	220	230	229	207
Total alkalinity, as $CaCO_3$	mg/L	-	-	*55*	*56*	*62*	52	60	63	63	64	69
TDS	mg/L	*225*	*228*	*306*	*307*	*332*	265	350	355	305	350	365
TSS	mg/L	*8*	*9*	*7*	*6*	*20*	15	25	13	3	2	60
Major Ions												
Chloride	mg/L	*5.0*	*5.6*	*7.4*	*13.4*	*8.4*	5.8	9.5	10	5.2	10	10
Cyanide	mg/L	*0.001*	*0.001*	*0.007*	*0.002*	*0.001*	0.00097	0.0027	0.00105	< 0.00050	< 0.00050	< 0.00050
Fluoride	mg/L	*0.17*	*0.19*	*0.26*	*0.29*	*0.33*	0.25	0.32	0.36	0.32	0.38	0.33
Sulfate	mg/L	*0*	*108*	*145*	*160*	*165*	130	160	170	170	180	180
Nutrients												
Ammonia Nitrogen	mg N/L	*0.59*	*0.05*	*0.11*	*0.05*	*0.06*	0.08	0.065	< 0.050	< 0.050	< 0.050	< 0.050
Nitrate	mg N/L	*3.79*	*3.48*	*3.58*	*2.87*	*2.02*	1.95	2.24	2.06	1.86	2.01	1.99
Nitrite	mg N/L	*0.038*	*0.025*	*0.017*	*0.019*	*0.010*	0.011	< 0.010	< 0.010	0.01	< 0.010	< 0.010
Total Metals												
Aluminum	mg/L	*0.1995*	*0.3995*	*0.1801*	*0.1773*	*0.2489*	0.188	0.467	0.368	0.0695	0.118	0.283
Arsenic	mg/L	*0.00188*	*0.00623*	*0.00373*	*0.00365*	*0.00361*	0.00795	0.00212	0.00255	0.00229	0.00391	0.00284
Barium	mg/L	*0.0201*	*0.0169*	*0.0214*	*0.0199*	*0.0221*	0.0208	0.0245	0.0227	0.0211	0.0229	0.0206
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00002*	*0.00002*	*0.00002*	0.0000283	0.0000301	0.0000231	0.0000162	0.0000306	0.000014
Chromium	mg/L	*0.00285*	*0.00395*	*0.00137*	*0.00219*	*0.00208*	0.0016	0.00248	0.00302	0.00058	0.00131	0.00349
Copper	mg/L	*0.0019*	*0.0036*	*0.0011*	*0.0012*	*0.0024*	0.00175	0.00175	0.00129	0.000682	0.00789	0.00098
Iron	mg/L	*0.355*	*0.678*	*0.317*	*0.339*	*0.465*	0.320	0.906	0.729	0.130	0.171	0.532
Lead	mg/L	*0.00030*	*0.00039*	*0.00030*	*0.00039*	*0.00054*	0.00117	0.000706	0.000493	0.000138	0.000372	0.000364
Manganese	mg/L	*0.0529*	*0.0460*	*0.0359*	*0.0316*	*0.0424*	0.0509	0.0789	0.0596	0.00799	0.0217	0.0354
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0048*	*0.0033*	*0.0044*	*0.0043*	*0.0043*	0.00272	0.00417	0.00486	0.00471	0.00554	0.00385
Nickel	mg/L	*0.0338*	*0.0840*	*0.0460*	*0.0377*	*0.0343*	0.0333	0.0392	0.0387	0.0254	0.0303	0.039
Selenium	mg/L	*0.0007*	*0.0010*	*0.0007*	*0.0006*	*0.0007*	0.000533	0.000542	0.000511	0.00052	0.00187	0.000457
Silver	mg/L	*0.00010*	*0.00010*	*0.00001*	*0.00001*	*0.00001*	<0.0000050	0.0000082	0.0000068	< 0.0000050	0.0000073	< 0.000010
Thallium	mg/L	*0.00020*	*0.00020*	*0.00004*	*0.00003*	*0.00004*	0.00003	0.000036	0.0000487	0.000043	0.0000519	0.000046
Zinc	mg/L	*0.0014*	*0.0025*	*0.0022*	*0.0035*	*0.0039*	0.00384	0.00335	0.00316	0.00062	0.0109	0.0017

Table 8-23 Meadowbank 2023 Tailings Storage Facility Water Quality Monitoring (ST-21) §

ST-21-S	Unit	*Annual Average*					5/22/2023	6/6/2023	7/23/2023	8/7/2023	9/11/2023	10/15/2023
Parameter		*2019*	*2020*	*2021*	*2022*	*2023*						
Field Measured												
Temperature	°C	*-*	*8.3*	*5.5*	*9.3*	*12.1*	4.2	11.4	12.8	13.5	7.8	23
pH	pH units	*8.03*	*7.91*	*8.12*	*7.37*	*7.83*	7.57	7.98	7.95	7.85	7.85	7.79
Conductivity	uS/cm	*-*	*1160*	*1583*	*1202*	*1741*	843	598	1143	1376	4275	2211
Turbidity	NTU	*16.22*	*19.71*	*36.36*	*23.00*	*27.41*	28.5	109	3.75	7.73	14	1.5
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*810.00*	*-*	*419.00*	*424.00*	*536.50*	231	168	461	455	1170	734
Total alkalinity, as $CaCO_3$	mg/L	*79*	*75*	*88*	*68*	*83*	42	45	84	93	93	140
TDS	mg/L	*1606*	*735*	*1186*	*835*	*1303*	525	395	840	870	3640	1550
TSS	mg/L	*15*	*35*	*42*	*21*	*19*	25	63	2	6	8	8
Major Ions												
Chloride	mg/L	*206.30*	*43.70*	*101.80*	*34.00*	*104.00*	23	11	15	15	450	110
Cyanide	mg/L	*0.952*	*0.024*	*0.055*	*0.036*	*2.275*	0.0126	0.0145	0.0115	0.00698	13	0.603
Cyanide (free)	mg/L	*3.2000*	*0.0038*	*0.0420*	*0.0076*	*0.2403*	0.0065	0.0061	0.0054	0.0035	1.1	0.32
Cyanide (WAD)	mg/L	*2.4520*	*0.0028*	*0.0138*	*0.0093*	*2.0988*	0.0028	0.004	0.0042	0.0016	12	0.58
Fluoride	mg/L	*0.42*	*0.26*	*0.23*	*0.21*	*0.23*	< 0.10	0.18	0.3	0.35	0.18	0.28
Sulfate	mg/L	*1153*	*383*	*570*	*488*	*720*	340	220	470	500	1800	990
Nutrients												
Ammonia Nitrogen	mg N/L	*22.3*	*6.0*	*15.7*	*4.7*	*11.1*	3.3	1.2	1.4	0.83	46	14
Nitrate	mg N/L	*4.35*	*4.49*	*7.42*	*3.29*	*6.81*	2.72	0.96	6.01	7.8	16.1	7.25
Nitrite	mg N/L	*0.270*	*0.353*	*0.213*	*0.201*	*0.170*	0.065	0.061	0.17	0.236	0.161	0.329
Total Metals												
Aluminum	mg/L	*0.099*	*0.453*	*0.910*	*0.629*	*0.361*	0.292	1.49	0.0694	0.0977	0.058	0.156
Arsenic	mg/L	*0.0218*	*0.0190*	*0.0923*	*0.0466*	*0.0727*	0.0206	0.108	0.0458	0.0483	0.136	0.0777
Barium	mg/L	*0.0421*	*0.0287*	*0.0381*	*0.0327*	*0.0471*	0.0148	0.0217	0.0442	0.0465	0.116	0.0392
Cadmium	mg/L	*0.00010*	*0.00003*	*0.00009*	*0.00009*	*0.00011*	0.0000519	0.000138	0.0000973	0.0000845	0.000168	0.000126
Chromium	mg/L	*0.00149*	*0.00313*	*0.02466*	*0.01242*	*0.01299*	0.014	0.0551	0.00178	0.00214	0.00116	0.00378
Copper	mg/L	*1.605*	*0.079*	*2.796*	*0.061*	*2.081*	0.0185	0.00992	0.0165	0.0171	12	0.421
Iron	mg/L	*0.469*	*1.243*	*2.614*	*1.619*	*1.137*	0.854	4.66	0.225	0.286	0.233	0.566
Lead	mg/L	*0.0021*	*0.0050*	*0.0153*	*0.0056*	*0.0043*	0.00415	0.0151	0.00135	0.00137	0.0012	0.00253
Manganese	mg/L	*0.3420*	*0.5820*	*0.3444*	*0.4976*	*0.4425*	0.249	0.249	0.507	0.36	0.373	0.917
Mercury	mg/L	*0.00002*	*0.00001*	*0.00006*	*0.00006*	*0.00004*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.2373*	*0.0590*	*0.0417*	*0.0267*	*0.0401*	0.0169	0.0197	0.0238	0.0205	0.105	0.0544
Nickel	mg/L	*0.099*	*0.030*	*1.139*	*0.129*	*0.678*	0.102	0.101	0.142	0.121	3.23	0.374
Selenium	mg/L	*0.0054*	*0.0013*	*0.0417*	*0.0076*	*0.0403*	0.00255	0.000857	0.00109	0.00105	0.199	0.0375
Silver	mg/L	*0.0004*	*0.0001*	*0.0009*	*0.0001*	*0.0009*	0.000011	0.000015	< 0.0000050	< 0.000010	0.00484	0.00077
Thallium	mg/L	*0.00062*	*0.00020*	*0.00004*	*0.00002*	*0.00002*	0.0000115	0.0000316	0.0000111	0.0000145	< 0.000010	0.0000318
Zinc	mg/L	*0.005*	*0.004*	*0.005*	*0.004*	*0.002*	0.0029	0.0051	0.00126	0.0012	0.00172	0.00276

Table 8-24 Meadowbank 2023 Vault Pit Water Quality Monitoring (ST-26) §

ST-26 Parameter	Unit	Annual Average 2020	Annual Average 2021	Annual Average 2022	Annual Average 2023	5/28/2023	6/18/2023	7/10/2023	8/1/2023	9/3/2023	10/2/2023
Field Measured											
Temperature	°C	*9.1*	*6.7*	*8.8*	*8.2*	2.5	5.5	17.2	11.8	7.0	5.0
pH	pH units	*7.99*	*7.60*	*7.63*	*7.47*	7.31	7.71	7.79	7.53	7.13	7.36
Conductivity	uS/cm	*278.9*	*219.0*	*288.0*	*221.9*	123.9	207.1	226	263.1	253	258
Turbidity	NTU	*1.61*	*4.78*	*3.10*	*2.23*	5.68	2.28	1.07	0.83	2.72	0.82
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*119*	*104*	*114*	*96*	53.7	88.6	97.1	108	109	118
Total alkalinity, as $CaCO_3$	mg/L	*55*	*46*	*49*	*44*	26	42	44	47	49	53
Carbonate, as $CaCO_3$	mg/L	*5*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*55.6*	*45.4*	*48.6*	*43.2*	25	42	44	47	49	52
TDS	mg/L	*125*	*150*	*148*	*124*	70	110	145	105	175	140
TSS	mg/L	*20*	*8*	*2*	*3*	4	1	4	< 1	4	1
Total organic carbon	mg/L	*2.3*	*1.7*	*1.6*	*1.9*	1.9	1.9	1.9	1.8	1.8	2
Dissolved organic carbon	mg/L	*2.4*	*1.6*	*1.5*	*1.7*	1.8	1.6	1.8	1.6	1.7	1.8
Major Ions											
Chloride	mg/L	*8.28*	*7.12*	*8.22*	*5.83*	2.9	4.1	5.4	6.1	8.4	8.1
Cyanide	mg/L	*0.001*	*0.005*	*0.001*	*0.001*	< 0.00050	< 0.00050	0.00051	< 0.00050	< 0.00050	< 0.00050
Cyanide (free)	mg/L	*0.0010*	*0.0025*	*0.0024*	*0.0026*	0.0029	< 0.0020	0.0045	< 0.0020	< 0.0020	< 0.0020
Silica	mg/L	*3.86*	*2.32*	*2.54*	*1.99*	0.43	2.0	2.1	2.3	2.4	2.7
Sulfate	mg/L	*61.8*	*53.0*	*59.4*	*49.0*	29	47	50	50	57	61
Nutrients											
Ammonia Nitrogen	mg N/L	*0.148*	*0.074*	*0.054*	*0.053*	< 0.050	< 0.050	< 0.050	< 0.050	0.069	< 0.050
Nitrate	mg N/L	*2.23*	*1.61*	*1.54*	*1.03*	0.39	1.05	1.04	0.98	1.26	1.47
Nitrite	mg N/L	*0.018*	*0.012*	*0.013*	*0.010*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*0.36*	*0.13*	*0.12*	*0.16*	0.19	0.16	0.27	< 0.10	0.13	< 0.10
Total phosphorus	mg P/L	*0.028*	*0.006*	*0.003*	*0.004*	0.02	0.0019	< 0.0010	< 0.0010	0.0019	< 0.0010
Orthophosphate	mg P/L	*0.016*	*0.010*	*0.010*	*0.010*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals											
Aluminum	mg/L	*0.0270*	*0.2543*	*0.0419*	*0.0566*	0.0959	0.0724	0.05	0.0233	0.0723	0.0257
Antimony	mg/L	*0.0003*	*0.0013*	*0.0013*	*0.0010*	0.000403	0.000929	0.000971	0.000997	0.00119	0.0014
Arsenic	mg/L	*0.0045*	*0.0032*	*0.0028*	*0.0027*	0.00179	0.00269	0.00279	0.00256	0.00329	0.00331
Barium	mg/L	*0.01204*	*0.01366*	*0.01484*	*0.01221*	0.00828	0.0114	0.0132	0.0136	0.0134	0.0134
Beryllium	mg/L	*0.0005*	*0.0001*	*0.0001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Boron	mg/L	*0.01*	*0.04*	*0.03*	*0.01*	< 0.01	< 0.01	< 0.01	0.011	< 0.01	0.011
Cadmium	mg/L	*0.000020*	*0.000014*	*0.000010*	*0.000013*	0.0000185	0.0000146	0.0000132	0.0000091	0.000009	0.0000106
Calcium (total)	mg/L	*34.6*	*30.2*	*33.4*	*28.5*	15.7	26.8	28.5	32.5	32.5	34.8
Chromium	mg/L	*0.0006*	*0.0010*	*0.0005*	*0.0008*	0.00349	0.00035	0.00091	< 0.00010	0.00012	< 0.00010
Copper	mg/L	*0.0017*	*0.0013*	*0.0011*	*0.0013*	0.00168	0.0015	0.00149	0.00128	0.000912	0.00115
Iron	mg/L	*0.06*	*0.46*	*0.06*	*0.10*	0.199	0.144	0.0885	0.0188	0.125	0.017
Lead	mg/L	*0.0002*	*0.0009*	*0.0002*	*0.0006*	0.000758	0.00197	0.000378	0.000108	0.000333	0.000126
Lithium	mg/L	*0.0050*	*0.0023*	*0.0022*	*0.0019*	0.00132	0.00168	0.00184	0.00205	0.00211	0.00224
Magnesium (total)	mg/L	*7.94*	*6.96*	*7.39*	*6.01*	3.5	5.27	6.28	6.51	6.85	7.67
Manganese	mg/L	*0.0212*	*0.0194*	*0.0092*	*0.0119*	0.021	0.0181	0.0171	0.00713	0.00521	0.00262
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0219*	*0.0212*	*0.0228*	*0.0201*	0.00933	0.0178	0.02	0.0201	0.0259	0.0274
Nickel	mg/L	*0.0021*	*0.0022*	*0.0016*	*0.0046*	0.0161	0.00208	0.00504	0.00144	0.00146	0.00157
Potassium (total)	mg/L	*3.26*	*2.72*	*2.67*	*2.19*	1.28	2.1	2.28	2.31	2.46	2.72
Selenium	mg/L	*0.0009*	*0.0003*	*0.0003*	*0.0002*	0.000102	0.000204	0.000218	0.000273	0.000269	0.000279
Sodium (total)	mg/L	*3.67*	*2.71*	*2.82*	*2.10*	1.27	1.94	2.18	2.28	2.28	2.65
Strontium	mg/L	*0.219*	*0.215*	*0.233*	*0.194*	0.0906	0.182	0.203	0.216	0.223	0.247
Thallium	mg/L	*0.000200*	*0.000017*	*0.000015*	*0.000012*	0.0000083	0.0000098	0.0000137	0.0000098	0.000015	0.0000159
Tin	mg/L	*0.001*	*0.004*	*0.002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Titanium	mg/L	*0.0100*	*0.0044*	*0.0027*	*0.0008*	0.00152	0.0012	0.00066	< 0.00050	0.00053	< 0.00050
Uranium	mg/L	*0.0052*	*0.0055*	*0.0056*	*0.0045*	0.0015	0.00408	0.00457	0.00476	0.00582	0.00621
Vanadium	mg/L	*0.0005*	*0.0040*	*0.0021*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Zinc	mg/L	*0.001*	*0.005*	*0.003*	*0.001*	0.00138	0.00272	0.00328	0.00078	0.0002	0.00027
Dissolved Metals											
Aluminum	mg/L	*0.0062*	*0.0190*	*0.0131*	*0.0172*	0.0112	0.0121	0.017	0.0166	0.0289	0.0175
Antimony	mg/L	*0.0003*	*0.0013*	*0.0013*	*0.0010*	0.000405	0.00088	0.000934	0.000992	0.00116	0.0014
Arsenic	mg/L	*0.0034*	*0.0027*	*0.0028*	*0.0028*	0.00144	0.00284	0.0025	0.00289	0.00313	0.00411
Barium	mg/L	*0.0110*	*0.0127*	*0.0137*	*0.0118*	0.00779	0.0108	0.013	0.014	0.0122	0.0129
Beryllium	mg/L	*0.0005*	*0.0001*	*0.0001*	*0.0000*	< 0.000010	0.000064	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Boron	mg/L	*0.01*	*0.04*	*0.03*	*0.010*	< 0.010	< 0.010	< 0.010	0.011	< 0.010	0.011
Cadmium	mg/L	*0.000020*	*0.000011*	*0.000011*	*0.000016*	0.0000183	0.0000096	0.0000101	0.0000092	0.000039	0.000012
Chromium	mg/L	*0.0006*	*0.0008*	*0.0005*	*0.0001*	< 0.00010	< 0.00010	0.00014	0.00011	0.00012	< 0.00010
Copper	mg/L	*0.0014*	*0.0010*	*0.0020*	*0.0017*	0.0013	0.00433	0.00142	0.00128	0.000697	0.000986
Iron	mg/L	*0.0100*	*0.0072*	*0.0104*	*0.0104*	0.0102	0.0056	0.0174	0.0033	0.0191	0.0068
Lead	mg/L	*0.00022*	*0.00017*	*0.00012*	*0.00006*	0.0000812	0.0000515	0.000175	0.0000324	0.000012	0.0000237
Lithium	mg/L	*0.0050*	*0.0021*	*0.0023*	*0.0017*	0.00106	0.00183	0.00147	0.00185	0.0021	0.00215
Manganese	mg/L	*0.0112*	*0.0110*	*0.0083*	*0.0089*	0.0183	0.0157	0.014	0.00244	0.00191	0.000951
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0188*	*0.0212*	*0.0224*	*0.0191*	0.00633	0.0177	0.0183	0.0193	0.0257	0.0271
Nickel	mg/L	*0.0015*	*0.0016*	*0.0021*	*0.0016*	0.00173	0.00162	0.00168	0.00147	0.00143	0.00166
Selenium	mg/L	*0.0011*	*0.0003*	*0.0003*	*0.0002*	0.000117	0.000194	0.000209	0.000338	0.000252	0.000314
Strontium	mg/L	*0.204*	*0.215*	*0.230*	*0.188*	0.0923	0.192	0.183	0.214	0.214	0.233
Thallium	mg/L	-	*0.000016*	*0.000012*	*0.000011*	0.0000064	0.0000092	0.0000107	0.0000111	0.000013	0.000015
Tin	mg/L	-	*0.004*	*0.002*	*0.0002*	< 0.00020	< 0.00020	0.00096	0.00037	< 0.00020	< 0.00020
Titanium	mg/L	*0.010*	*0.004*	*0.002*	*0.001*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Uranium	mg/L	*0.0044*	*0.0053*	*0.0056*	*0.0044*	0.00146	0.00394	0.00427	0.00461	0.00576	0.00611
Vanadium	mg/L	*0.001*	*0.004*	*0.002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Zinc	mg/L	*0.001*	*0.004*	*0.004*	*0.002*	0.00148	0.00103	0.00411	0.00263	< 0.00010	0.00045

8.5.3.1.13 Vault Rock Storage Facility (ST-24) §

The Vault Waste Rock Storage Facility (WRSF) has been in operation since 2013. As in the past years, ponded water was observed at the base of the WRSF (sampling station ST-24). In 2023, water was sampled from May to October. As per NWB Water License, samples were collected to assess water quality and the results are presented in Table 8-25. No water was pumped from this location as it is mainly a ponding area without flow and will dry-up during warmer months. There are no applicable license limits at this location as there is no discharge to the environment; the data is presented for information purposes only. The location of this sampling station (ST-24) is illustrated on Figure 3.

8.5.3.1.14 Vault Attenuation Pond (ST-25) §

Surface water was sampled monthly during open water from the Vault Attenuation Pond as per the requirements in the NWB Type A Water License (sampling station ST-25). There are no applicable license limits. The data is presented in Table 8-26 for information purposes only. The location of sampling station ST-25 is illustrated on Figure 3. There was no water pumped out from the Vault Attenuation Pond to Wally Lake in 2023.

Table 8-25 Meadowbank 2023 Vault Waste Rock Storage Facility Seepage Water Quality Monitoring (ST-24) §

ST-24	Unit	*Annual Average*					5/28/2023	6/18/2023	7/10/2023	8/1/2023	9/3/2023	10/2/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	*-*	*11.1*	*7.5*	*8.1*	*8.4*	3.0	4.8	15.3	17.3	6.1	3.7
pH	pH units	*7.65*	*7.71*	*7.63*	*7.67*	*7.32*	7.17	7.57	7.54	7.14	6.95	7.57
Conductivity	uS/cm	*-*	*265.6*	*235.0*	*331.2*	*255.1*	118.4	204.1	232.0	309.8	334.0	332.0
Turbidity	NTU	*6.47*	*2.88*	*4.13*	*1.55*	*3.34*	10.8	3.66	1.26	0.97	2.26	1.08
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*85*	*133*	*110*	*139*	*108*	48.2	83.5	94	123	141	156
Total alkalinity, as $CaCO_3$	mg/L	*39*	*53*	*43*	*52*	*48*	27	38	42	55	64	61
TDS	mg/L	*143*	*175*	*158*	*173*	*160*	100	140	130	155	220	215
TSS	mg/L	*5*	*4*	*3*	*1*	*2*	6	3	< 1	< 1	< 1	< 1
Major Ions												
Chloride	mg/L	*1.8*	*4.8*	*4.6*	*3.1*	*1.3*	1.3	< 1.0	< 1.0	< 1.0	1.5	2.1
Cyanide	mg/L	*0.001*	*0.001*	*0.005*	*0.001*	*0.001*	< 0.00050	0.00054	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Fluoride	mg/L	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	< 0.10	< 0.10	< 0.10	< 0.10	0.11	0.11
Sulfate	mg/L	*66*	*74*	*64*	*85*	*69*	31	55	61	73	95	100
Nutrients												
Ammonia Nitrogen	mg N/L	*0.19*	*0.03*	*0.61*	*0.07*	*0.06*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.12
Nitrate	mg N/L	*2.17*	*2.29*	*1.16*	*1.10*	*0.77*	0.39	0.69	0.67	0.74	1.05	1.05
Nitrite	mg N/L	*0.03*	*0.01*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals												
Aluminum	mg/L	*0.1238*	*0.0895*	*0.1059*	*0.0346*	*0.0606*	0.17	0.116	0.0256	0.0159	0.0161	0.02
Arsenic	mg/L	*0.0045*	*0.0029*	*0.0021*	*0.0018*	*0.0018*	0.00139	0.00164	0.00204	0.00228	0.00198	0.00176
Barium	mg/L	*0.0150*	*0.0141*	*0.0127*	*0.0136*	*0.0103*	0.0068	0.0094	0.0086	0.011	0.0125	0.0133
Cadmium	mg/L	*0.00006*	*0.00002*	*0.00003*	*0.00002*	*0.00002*	0.000023	0.000021	< 0.000010	0.000011	0.000022	< 0.000010
Chromium	mg/L	*0.0009*	*0.0006*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.0062*	*0.0036*	*0.0036*	*0.0034*	*0.0027*	0.00296	0.0029	0.00268	0.00262	0.00268	0.00253
Iron	mg/L	*0.25*	*0.17*	*0.17*	*0.10*	*0.11*	0.297	0.177	0.034	0.019	0.07	0.047
Lead	mg/L	*0.0003*	*0.0002*	*0.0003*	*0.0002*	*0.0002*	0.00036	0.00026	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Manganese	mg/L	*0.0513*	*0.0418*	*0.0303*	*0.0185*	*0.0124*	0.029	0.0194	0.0061	0.0062	0.009	0.0047
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0138*	*0.0156*	*0.0151*	*0.0170*	*0.0172*	0.0061	0.0116	0.0156	0.0212	0.024	0.0249
Nickel	mg/L	*0.0050*	*0.0045*	*0.0038*	*0.0026*	*0.0021*	0.0025	0.003	0.0022	0.0017	0.0017	0.0016
Selenium	mg/L	*0.0006*	*0.0010*	*0.0002*	*0.0003*	*0.0002*	0.00012	0.00016	0.0002	0.0003	0.00033	0.00037
Silver	mg/L	*0.00034*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	0.000011	0.00001
Zinc	mg/L	*0.006*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-26 Meadowbank 2023 Vault Attenuation Pond Water Quality Monitoring (ST-25) §

ST-25	Unit	*Annual Average*					6/18/2023	7/10/2023	8/1/2023	9/3/2023	10/2/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***					
Field Measured											
Temperature	°C	*-*	*9.9*	*6.7*	*8.5*	*9.8*	8.5	14.1	18.0	5.8	2.7
pH	pH units	*7.55*	*7.68*	*7.61*	*7.27*	*7.44*	7.36	7.75	7.38	7.25	7.46
Conductivity	uS/cm	*-*	*177.7*	*136.0*	*182.2*	*156.0*	149.4	151	174.4	156	149.4
Turbidity	NTU	*5.44*	*4.18*	*1.74*	*1.23*	*1.44*	1.32	1.08	0.88	2.97	0.97
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*84*	*88*	*58*	*69*	*60*	58.2	56.2	61.6	61.1	60.6
Total alkalinity, as $CaCO_3$	mg/L	*36*	*41*	*21*	*28*	*29*	27	27	29	31	31
TDS	mg/L	*140*	*114*	*86*	*93*	*91*	90	85	75	105	100
TSS	mg/L	*4*	*6*	*2*	*2*	*1*	1	1	1	1	< 1
Major Ions											
Chloride	mg/L	*6.1*	*5.4*	*5.0*	*3.5*	*1.9*	1.2	1.6	1.4	2.2	3.1
Cyanide	mg/L	*0.001*	*0.001*	*0.005*	*0.001*	*0.001*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Fluoride	mg/L	*0.14*	*0.10*	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	0.11	0.11
Sulfate	mg/L	*58.4*	*43.9*	*36.1*	*45.8*	*40.8*	40	41	41	41	41
Nutrients											
Ammonia Nitrogen	mg N/L	*0.45*	*0.15*	*0.28*	*0.05*	*0.05*	< 0.050	< 0.050	0.055	< 0.050	< 0.050
Nitrate	mg N/L	*1.20*	*0.97*	*0.59*	*0.26*	*0.12*	0.18	< 0.10	< 0.10	< 0.10	< 0.10
Nitrite	mg N/L	*0.01*	*0.05*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals											
Aluminum	mg/L	*0.158*	*0.168*	*0.041*	*0.022*	*0.017*	0.0246	0.0161	0.0142	0.0164	0.0145
Arsenic	mg/L	*0.0017*	*0.0011*	*0.0005*	*0.0005*	*0.0004*	0.00037	0.00039	0.00051	0.00051	0.00046
Barium	mg/L	*0.0169*	*0.0179*	*0.0127*	*0.0142*	*0.0115*	0.0128	0.0111	0.0112	0.0113	0.011
Cadmium	mg/L	*0.00009*	*0.00002*	*0.00002*	*0.00001*	*0.00001*	0.00001	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Chromium	mg/L	*0.0010*	*0.0011*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.0073*	*0.0039*	*0.0015*	*0.0018*	*0.0015*	0.00149	0.00146	0.00164	0.00153	0.00147
Iron	mg/L	*0.373*	*0.314*	*0.060*	*0.032*	*0.020*	0.038	0.021	0.01	0.017	0.016
Lead	mg/L	*0.0003*	*0.0002*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Manganese	mg/L	*0.101*	*6.018*	*0.011*	*0.006*	*0.005*	0.0099	0.0058	0.0024	0.0032	0.002
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0033*	*0.0045*	*0.0044*	*0.0045*	*0.0036*	0.0031	0.0034	0.0038	0.004	0.0037
Nickel	mg/L	*0.0093*	*0.0043*	*0.0019*	*0.0017*	*0.0015*	0.0019	0.0022	0.0011	0.0012	0.0011
Selenium	mg/L	*0.0011*	*0.0009*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Silver	mg/L	*0.00025*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Zinc	mg/L	*0.007*	*0.002*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

8.5.3.1.15 WRSF – Waste Extension Pool (WEP/ ST-30 and ST-31) §

In 2014, as per inspections conducted within the framework of the Freshet Action Plan, runoff was noted at the northeast side of the NPAG waste rock extension pile in a natural depression (WEP). Agnico Eagle contained this runoff and pumped it back to the North Cell TSF as a precaution and to prevent egress to the East Diversion non-contact water ditch. WEP1 and WEP2 sumps were constructed in September 2015. The sumps WEP1 and WEP2 have replaced the natural depression forming the former WEP for the water management in this area. Sampling have commenced in 2016 at sumps WEP1 and WEP2 as per NWB Water License 2AM-MEA1530. There are no applicable license limits. The sampling locations are illustrated on Figure 1 and results are presented in Table 8-27 for WEP1 (ST-30) and Table 8-28 for WEP2 (ST-31).

In 2023, 83,577 m^3 of water was pumped from the WEP collection system which includes 49,677 m^3 of water from WEP1 and 33,900 m^3 from WEP2. The water from the WEP collection system is pumped to the ST-16 sump system, and historically pumped to the North Cell TSF (from 2016 to 2022). In 2023, the water from the WEP collection system was pumped to ST-16 them pumped into Portage Pit (Pit A).

Results of samples collected in 2023 at station ST-5 (East Diversion ditch discharge point into NP2) are documented in Table 8-13. The results from summer 2023 show that no water coming from the former WEP collection system was in contact with the East Diversion ditch. Agnico Eagle will continue to monitor the area and will ensure that water collected in WEP1 and WEP2 sumps are pumped back into the North Cell TSF or in the pits.

8.5.3.1.16 Saddle Dam 3 (ST-32) §

Water accumulated at the base of Saddle Dam 3 was pumped into the South Cell TSF (19,367 m^3 in 2023). This water originates from non-contact surface runoff from the surrounding terrain. Water samples were collected during the open water season to assess water quality. There are no applicable license limits for this location as the water was not being released into the environment; the data is presented in Table 8-29 for information purposes only. The sampling location (ST-32) is illustrated on Figure 1. Water accumulation at the toe of Saddle Dam 3 does not have any consequence on the integrity of the TSF infrastructure. As stated previously, water was pumped back to the South Cell TSF as a mitigation measure. Inspections continue to be held at this location on a weekly basis to ensure conformity.

8.5.3.1.17 Saddle Dam 1 (ST-S-2) §

Water accumulated at the base of Saddle Dam 1 was pumped into the North Cell TSF (19,149 m^3 in 2023). This water originates from non-contact surface runoff from the surrounding terrain because of the topography. Water samples were collected during the open water season to assess water quality. There are no applicable license limits for this location as the water was not being released into the environment; the data is presented in Table 8-30 for information purposes only. The sampling location (ST-S-2) is illustrated on Figure 1. The water accumulation at the toe of Saddle Dam 1 does not have any major consequence on the integrity of the TSF infrastructure, as the water is pumped and properly managed. As previously mentioned, water was pumped back to the North Cell TSF as a mitigation measure. Inspections continue to be held at this location on a weekly basis to ensure conformity.

Table 8-27 Meadowbank 2023 Waste Extension Pool WEP1 Water Quality Monitoring (ST-30) §

ST-30	Unit	*Annual Average*					5/15/2023	6/5/2023	7/23/2023	8/1/2023	9/11/2023	10/2/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	-	*9.4*	*7.1*	*8.8*	*6.4*	1.8	1.6	13.5	15.5	6.0	-0.3
pH	pH units	*7.42*	*7.36*	*7.53*	*7.33*	*7.41*	7.18	7.28	7.51	7.51	7.44	7.53
Conductivity	uS/cm	-	*220.8*	*187.3*	*250.1*	*235.8*	31	76.5	256	322	328	401
Turbidity	NTU	*7.51*	*6.04*	*3.91*	*65.64*	*6.41*	10.7	3.03	2.69	2.97	12.9	6.19
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*115*	*113*	*92*	*111*	*104*	14.3	30.9	117	131	133	195
Total alkalinity, as $CaCO_3$	mg/L	*51*	*73*	*55*	*73*	*78*	9.8	26	94	120	100	120
TDS	mg/L	*169*	*150*	*145*	*151*	*149*	30	55	210	150	210	240
TSS	mg/L	*6*	*6*	*1*	*25*	*3*	8	1	1	2	4	3
Major Ions												
Chloride	mg/L	*2.5*	*2.3*	*2.1*	*3.1*	*1.8*	< 1.0	< 1.0	< 1.0	< 1.0	2.3	4.2
Cyanide	mg/L	*0.005*	*0.008*	*0.006*	*0.009*	*0.004*	0.00142	0.00526	0.00664	0.00496	0.00235	0.00557
Cyanide (free)	mg/L	*0.054*	*0.002*	*0.005*	*0.004*	*0.004*	0.0034	0.0044	0.0059	0.0028	0.0025	0.0075
Cyanide (WAD)	mg/L	*0.001*	*0.002*	*0.003*	*0.004*	*0.002*	< 0.00050	0.00094	0.0017	0.0022	0.0016	0.0028
Fluoride	mg/L	*0.13*	*0.13*	*0.14*	*0.17*	*0.15*	< 0.10	< 0.10	0.18	0.19	0.14	0.19
Sulfate	mg/L	*44.8*	*34.2*	*40.1*	*40.7*	*46.7*	3.1	12	40	37	78	110
Nutrients												
Ammonia Nitrogen	mg N/L	*0.10*	*0.26*	*0.13*	*0.28*	*0.08*	< 0.050	< 0.050	0.10	0.08	0.13	0.074
Nitrate	mg N/L	*1.79*	*1.45*	*1.56*	*1.31*	*0.89*	0.14	0.12	0.39	0.32	2.01	2.36
Nitrite	mg N/L	*0.103*	*0.040*	*0.013*	*0.021*	*0.011*	< 0.010	< 0.010	< 0.010	< 0.010	0.016	< 0.010
Total Metals												
Aluminum	mg/L	*0.072*	*0.113*	*0.055*	*1.932*	*0.115*	0.406	0.0389	0.0154	0.0127	0.117	0.102
Arsenic	mg/L	*0.0084*	*0.0032*	*0.0108*	*0.0141*	*0.0056*	0.00829	0.0129	0.00353	0.00434	0.0025	0.00218
Barium	mg/L	*0.0101*	*0.0149*	*0.0124*	*0.0266*	*0.0133*	0.0045	0.0051	0.0157	0.0178	0.017	0.0198
Cadmium	mg/L	*0.00003*	*0.00002*	*0.00001*	*0.00003*	*0.00001*	0.000014	< 0.000010	0.0000071	< 0.000010	0.000027	0.000013
Chromium	mg/L	*0.0030*	*0.0013*	*0.0014*	*0.0096*	*0.0014*	0.0043	< 0.0010	0.00024	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.0137*	*0.0123*	*0.0057*	*0.0112*	*0.0059*	0.00281	0.00381	0.00605	0.0066	0.0113	0.00507
Iron	mg/L	*0.467*	*1.108*	*0.474*	*4.110*	*0.598*	0.766	0.159	0.808	0.981	0.395	0.48
Lead	mg/L	*0.0003*	*0.0003*	*0.0002*	*0.0025*	*0.0003*	0.00061	< 0.00020	0.0000522	< 0.00020	0.00044	0.00027
Manganese	mg/L	*0.0143*	*10.9900*	*0.0392*	*0.2136*	*0.0781*	0.0263	0.039	0.090	0.0827	0.0795	0.151
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0040*	*0.0025*	*0.0035*	*0.0043*	*0.0029*	< 0.0010	0.0022	0.00463	0.0047	0.0017	0.0029
Nickel	mg/L	*0.0045*	*0.0044*	*0.0028*	*0.0089*	*0.0030*	0.0035	0.0018	0.0027	0.0028	0.0031	0.004
Selenium	mg/L	*0.0007*	*0.0010*	*0.0003*	*0.0003*	*0.0002*	< 0.00010	< 0.00010	0.000185	0.00017	0.00041	0.00027
Silver	mg/L	*0.00010*	*0.00010*	*0.00002*	*0.00003*	*0.00002*	< 0.000020	< 0.000020	< 0.0000050	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00004*	*0.00001*	< 0.000010	< 0.000010	0.0000028	< 0.000010	< 0.000010	< 0.000010
Zinc	mg/L	*0.001*	*0.002*	*0.005*	*0.010*	*0.004*	< 0.0050	< 0.0050	0.00032	< 0.0050	< 0.0050	< 0.0050

Table 8-28 Meadowbank 2023 Waste Extension Pool WEP2 Water Quality Monitoring (ST-31) §

ST-31	Unit	*Annual Average*					5/15/2023	6/5/2023	7/23/2023	8/1/2023	9/11/2023	10/2/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	-	*9.7*	*6.4*	*8.9*	*6.6*	0.2	3.0	16.2	14.4	5.5	0.5
pH	pH units	*7.34*	*7.67*	*7.34*	*7.43*	*7.39*	7.52	6.89	7.62	7.51	7.54	7.28
Conductivity	uS/cm	-	*213.2*	*190.7*	*232.2*	*225.8*	31	99.7	258	355	319	292
Turbidity	NTU	*7.94*	*4.17*	*4.06*	*7.90*	*10.39*	51.9	1.72	1.32	1.22	3.11	3.06
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*115*	*101*	*94*	*109*	*95*	19.1	42.4	114	134	130	129
Total alkalinity, as $CaCO_3$	mg/L	*50*	*75*	*60*	*79*	*78*	14	42	97	120	100	96
TDS	mg/L	*125*	*142*	*150*	*145*	*123*	30	30	155	170	190	165
TSS	mg/L	*5*	*3*	*4*	*6*	*14*	37	< 1	< 1	2	1	40
Major Ions												
Chloride	mg/L	*2.9*	*3.2*	*2.6*	*2.3*	*1.7*	< 1.0	< 1.0	< 1.0	1.9	1.6	3.6
Cyanide	mg/L	*0.001*	*0.001*	*0.005*	*0.002*	*0.001*	0.00105	0.00065	0.00108	0.00077	0.00057	0.00084
Cyanide (free)	mg/L	*0.001*	*0.001*	*0.003*	*0.002*	*0.004*	0.0026	0.0054	0.0045	< 0.0020	0.0021	0.0082
Cyanide (WAD)	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	0.00076	< 0.00050	< 0.00050	0.0007	0.00075	0.00069
Fluoride	mg/L	*0.11*	*0.13*	*0.13*	*0.19*	*0.17*	< 0.10	0.12	0.18	0.21	0.19	0.2
Sulfate	mg/L	*39.0*	*31.5*	*39.4*	*37.8*	*38.5*	1.7	11	36	47	72	63
Nutrients												
Ammonia Nitrogen	mg N/L	*0.06*	*0.05*	*0.10*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	0.07	< 0.050
Nitrate	mg N/L	*1.12*	*1.04*	*1.15*	*0.76*	*0.50*	0.11	< 0.10	< 0.10	< 0.10	1.61	0.97
Nitrite	mg N/L	*0.02*	*0.02*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals												
Aluminum	mg/L	*0.074*	*0.086*	*0.099*	*0.194*	*0.293*	1.25	0.0295	0.0174	0.0131	0.0331	0.417
Arsenic	mg/L	*0.0440*	*0.0195*	*0.0594*	*0.0071*	*0.0038*	0.0104	0.00115	0.00277	0.00379	0.00197	0.00288
Barium	mg/L	*0.0083*	*0.0112*	*0.0109*	*0.0119*	*0.0115*	0.0075	0.005	0.0115	0.0152	0.0165	0.0135
Cadmium	mg/L	*0.000020*	*0.000020*	*0.000011*	*0.000009*	*0.000011*	0.000013	< 0.000010	< 0.0000050	< 0.000010	0.000019	< 0.000010
Chromium	mg/L	*0.0023*	*0.0011*	*0.0021*	*0.0042*	*0.0052*	0.0219	< 0.0010	0.00033	< 0.0010	< 0.0010	0.0059
Copper	mg/L	*0.0018*	*0.0032*	*0.0013*	*0.0016*	*0.0014*	0.00192	0.00105	0.00122	0.00126	0.00107	0.00168
Iron	mg/L	*0.337*	*0.343*	*0.286*	*0.473*	*0.594*	2.13	0.17	0.145	0.082	0.102	0.932
Lead	mg/L	*0.0003*	*0.0003*	*0.0002*	*0.0002*	*0.0003*	0.00099	< 0.00020	0.0000228	0.00021	0.00026	0.00036
Manganese	mg/L	*0.0508*	*0.0948*	*0.0357*	*0.0583*	*0.0349*	0.0428	0.0243	0.0198	0.0254	0.0269	0.0701
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0068*	*0.0046*	*0.0103*	*0.0058*	*0.0026*	< 0.0010	0.0014	0.0032	0.0047	0.003	0.0021
Nickel	mg/L	*0.0034*	*0.0032*	*0.0042*	*0.0042*	*0.0043*	0.0124	0.0017	0.0025	0.0024	0.0019	0.0046
Selenium	mg/L	*0.0005*	*0.0010*	*0.0002*	*0.0002*	*0.0001*	< 0.00010	< 0.00010	0.000079	0.00012	0.00019	< 0.00010
Silver	mg/L	*0.00010*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.0000050	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	0.000013	< 0.000010	< 0.0000020	< 0.000010	< 0.000010	< 0.000010
Zinc	mg/L	*0.001*	*0.001*	*0.005*	*0.004*	*0.005*	0.0069	< 0.0050	0.00033	< 0.0050	< 0.0050	< 0.0050

Table 8-29 Meadowbank 2023 Saddle Dam 3 Water Quality Monitoring (ST-32) §

ST-32	Unit	*Annual Average*					5/15/2023	6/5/2023	7/3/2023	8/1/2023	9/3/2023	10/15/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	*-*	*13.6*	*6.7*	*6.0*	*5.7*	1.6	6.6	8.8	13.8	2.4	0.8
pH	pH units	*7.51*	*7.89*	*7.69*	*7.45*	*7.53*	7.65	7.37	7.66	7.98	7.37	7.16
Conductivity	uS/cm	*-*	*475.4*	*411.1*	*468.1*	*439.9*	101.1	191	575	520	626	626
Turbidity	NTU	*11.02*	*17.72*	*30.76*	*39.21*	*74.81*	362	46.7	5.55	2.72	29.9	1.98
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*262*	*209*	*202*	*208*	*170*	74.6	75.3	168	199	249	254
Total alkalinity, as $CaCO_3$	mg/L	*46*	*73*	*66*	*74*	*68*	35	37	69	83	86	97
TDS	mg/L	*19*	*301*	*339*	*305*	*263*	60	110	295	310	405	400
TSS	mg/L	*406*	*6*	*16*	*28*	*63*	340	18	2	3	13	2
Major Ions												
Chloride	mg/L	*25.6*	*13.5*	*13.8*	*11.7*	*9.8*	2.4	2.2	11	12	13	18
Cyanide	mg/L	*0.008*	*0.004*	*0.009*	*0.010*	*0.004*	0.013	0.00668	0.00102	0.00145	0.00314	0.0015
Fluoride	mg/L	*0.31*	*0.24*	*0.25*	*0.30*	*0.26*	< 0.10	0.13	0.29	0.34	0.35	0.33
Sulfate	mg/L	*136*	*110*	*115*	*113*	*101*	15	48	110	110	170	150
Nutrients												
Ammonia Nitrogen	mg N/L	*2.30*	*0.24*	*0.47*	*0.52*	*0.22*	0.077	0.056	< 0.050	< 0.050	0.88	0.18
Nitrate	mg N/L	*16.64*	*9.45*	*7.29*	*8.98*	*7.04*	0.45	0.99	4.50	6.31	13.00	17.00
Nitrite	mg N/L	*0.08*	*0.07*	*0.06*	*0.05*	*0.02*	0.011	0.016	0.013	0.029	0.046	0.028
Total Metals												
Aluminum	mg/L	*0.494*	*0.137*	*0.493*	*0.943*	*1.327*	6.72	0.741	0.0432	0.0223	0.415	0.0183
Arsenic	mg/L	*0.0392*	*0.0426*	*0.0258*	*0.0393*	*0.0265*	0.0406	0.0242	0.0331	0.0442	0.0105	0.00616
Barium	mg/L	*0.0508*	*0.0318*	*0.0350*	*0.0416*	*0.0356*	0.0354	0.0182	0.0293	0.0358	0.0479	0.0472
Cadmium	mg/L	*0.00005*	*0.00002*	*0.00003*	*0.00003*	*0.00003*	0.000082	0.000023	< 0.000010	< 0.000010	0.000029	0.000019
Chromium	mg/L	*0.00873*	*0.00193*	*0.01056*	*0.01608*	*0.03497*	0.188	0.0129	< 0.0010	< 0.0010	0.0059	< 0.0010
Copper	mg/L	*0.0058*	*0.0035*	*0.0095*	*0.0077*	*0.0076*	0.0246	0.00725	0.00282	0.0022	0.0056	0.0031
Iron	mg/L	*0.863*	*0.275*	*0.905*	*1.801*	*2.476*	12.30	1.55	0.093	0.045	0.834	0.034
Lead	mg/L	*0.0003*	*0.0002*	*0.0020*	*0.0047*	*0.0036*	0.0162	0.00379	< 0.00020	< 0.00020	0.00082	< 0.00020
Manganese	mg/L	*0.291*	*0.088*	*0.144*	*0.096*	*0.064*	0.1880	0.0544	0.0188	0.0088	0.0895	0.0232
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0108*	*0.0078*	*0.0089*	*0.0082*	*0.0056*	0.0021	0.0043	0.0094	0.0081	0.0066	0.0033
Nickel	mg/L	*0.067*	*0.031*	*0.039*	*0.044*	*0.041*	0.0942	0.0172	0.0307	0.0344	0.037	0.031
Selenium	mg/L	*0.0027*	*0.0013*	*0.0011*	*0.0008*	*0.0006*	0.00015	0.00016	0.00043	0.0006	0.00095	0.00112
Silver	mg/L	*0.00010*	*0.00010*	*0.00005*	*0.00002*	*0.00003*	0.000095	0.000023	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00020*	*0.00020*	*0.00005*	*0.00006*	*0.00005*	0.000096	0.000021	0.000022	0.000027	0.000082	0.000055
Zinc	mg/L	*0.002*	*0.036*	*0.005*	*0.006*	*0.008*	0.0241	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-30 Meadowbank 2023 Saddle Dam 1 Water Quality Monitoring (ST-S-2) §

ST-S-2	Unit	*Annual Average*					5/15/2023	6/25/2023	7/10/2023	8/1/2023	9/3/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***					
Field Measured											
Temperature	°C	-	*8.75*	*5.00*	*5.60*	*4.88*	1.0	5.0	7.8	8.3	2.3
pH	pH units	*7.04*	*7.93*	*7.64*	*7.64*	*7.29*	7.37	7.40	7.56	7.36	6.76
Conductivity	uS/cm	-	*548.7*	*490.4*	*778.2*	*822.9*	92.3	869	1008	1012	1133
Turbidity	NTU	*21.03*	*7.33*	*21.37*	*33.61*	*11.26*	19	23.3	2.95	7.25	3.78
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*483*	*311*	*238*	*361*	*327*	60.5	364	362	389	458
Total alkalinity, as $CaCO_3$	mg/L	*33*	*60*	*60*	*60*	*54*	30	47	53	68	71
TDS	mg/L	*450*	*376*	*396*	*579*	*587*	105	700	730	655	745
TSS	mg/L	*111*	*4*	*15*	*79*	*16*	10	47	2	11	8
Major Ions											
Chloride	mg/L	*11.30*	*6.20*	*6.24*	*8.66*	*6.90*	< 1.0	7.7	7.1	7.7	11
Cyanide	mg/L	*0.016*	*0.003*	*0.008*	*0.010*	*0.009*	0.0106	0.0113	0.00446	0.0135	0.00728
Cyanide (free)	mg/L	*0.006*	*0.002*	*0.004*	*0.003*	*0.004*	0.0058	0.0066	0.0057	0.0023	< 0.0020
Cyanide (WAD)	mg/L	*0.005*	*0.002*	*0.003*	*0.003*	*0.004*	0.0058	0.0062	0.0029	0.0023	0.0019
Fluoride	mg/L	*0.15*	*0.18*	*0.17*	*0.21*	*0.19*	< 0.10	0.20	0.23	0.21	0.23
Sulfate	mg/L	*299*	*217*	*186*	*322*	*337*	46	400	420	370	450
Nutrients											
Ammonia Nitrogen	mg N/L	*0.267*	*0.063*	*0.815*	*0.084*	*0.061*	0.056	< 0.050	< 0.050	0.061	0.086
Nitrate	mg N/L	*3.34*	*4.11*	*5.83*	*6.03*	*4.96*	0.28	3.70	3.55	4.47	12.80
Nitrite	mg N/L	*0.050*	*0.035*	*0.020*	*0.015*	*0.014*	< 0.010	< 0.010	< 0.010	< 0.010	0.03
Total Metals											
Aluminum	mg/L	*1.523*	*0.270*	*0.567*	*1.132*	*0.283*	0.298	0.743	0.0456	0.289	0.0376
Arsenic	mg/L	*0.0309*	*0.0317*	*0.0204*	*0.0289*	*0.0199*	0.00948	0.0235	0.0195	0.0273	0.0195
Barium	mg/L	*0.026*	*0.022*	*0.022*	*0.029*	*0.023*	0.0076	0.026	0.0231	0.0261	0.0322
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00004*	*0.00008*	*0.00005*	0.000027	0.000073	0.000032	0.000046	0.000054
Chromium	mg/L	*0.0138*	*0.0024*	*0.0054*	*0.0120*	*0.0056*	0.0041	0.0128	0.0057	0.0045	< 0.0010
Copper	mg/L	*0.0119*	*0.0032*	*0.0043*	*0.0073*	*0.0031*	0.00215	0.00639	0.00163	0.0034	0.00188
Iron	mg/L	*3.943*	*0.460*	*0.918*	*2.431*	*0.648*	0.601	1.75	0.098	0.704	0.089
Lead	mg/L	*0.0054*	*0.0003*	*0.0023*	*0.0054*	*0.0020*	0.00333	0.00459	0.00029	0.00153	< 0.00020
Manganese	mg/L	*0.296*	*0.110*	*0.110*	*0.190*	*0.110*	0.0645	0.21	0.06	0.0851	0.132
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0095*	*0.0080*	*0.0083*	*0.0110*	*0.0110*	0.0028	0.0108	0.0172	0.0115	0.0128
Nickel	mg/L	*0.0547*	*0.0291*	*0.0232*	*0.0544*	*0.0384*	0.0088	0.0456	0.0479	0.0347	0.055
Selenium	mg/L	*0.0026*	*0.0013*	*0.0009*	*0.0014*	*0.0013*	0.00019	0.00126	0.0015	0.00149	0.00212
Silver	mg/L	*0.00010*	*0.00010*	*0.00002*	*0.00003*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00020*	*0.00020*	*0.00002*	*0.00002*	*0.00001*	< 0.000010	0.000014	< 0.000010	0.000011	0.000013
Zinc	mg/L	*0.077*	*0.002*	*0.121*	*0.062*	*0.192*	< 0.0050	< 0.0050	< 0.0050	0.475	0.471

8.5.3.1.18 Central Dike Seepage (ST-S-5) §

Sampling was conducted at a minimum on a monthly as per the requirements of the NWB Water License. There are no applicable license limits for this station as the water is pumped to the Portage Pit. Sample results are presented in Table 8-31. See Figure 1 for the location of ST-S-5. A total of 633,386 m^3 of water was pumped into the Portage Pit in 2023. Refer to Section 8.5.8.1.2 for details on the Central Dike seepage regarding consequences and mitigation measures in place.

8.5.3.1.19 Phaser Pit (ST-41 Lake) §

The Phaser Pit Sump (ST-41) was constructed during 2018 operation to manage the water runoff from the pit. In 2020, due to the natural reflooding ongoing of the pit, Agnico Eagle start considering this as Phaser Pit Lake (ST-41 Lake). Refer to previous annual reports for ST-41 sump results. In 2023, ST-41 Lake monthly samples were conducted from May to October, during open water season as per the requirements of the NWB Water License. There are no applicable license limits. The data is presented in Table 8-32. Sampling station ST-41 Lake is illustrated on Figure 3. No water was transferred to Phaser Attenuation Pond and all water was kept in the pit to promote the natural reflooding.

8.5.3.1.20 BB Phaser Pit (ST-42 Lake) §

The BB Phaser Pit Sump was constructed during 2018 operation to manage the water runoff from the pit. In 2020, due to the natural reflooding of the pit, BB Phaser Pit Sump is no longer an active station and Agnico Eagle considers this station as BB Phaser Pit Lake (ST-42 Lake). Refer to previous annual reports for ST-42 sump results. In 2023, monthly samples have been conducted from May to October during open water season, as per the requirements of the NWB Water License. There are no applicable license limits. The data is presented in Table 8-33. Sampling station ST-42 Lake is illustrated on Figure 3. No water has been transferred to Phaser Attenuation Pond since 2019. All water was kept in the pit to promote the natural reflooding.

8.5.3.1.21 Phaser Attenuation Pond (ST-43) §

During 2023, no water from Phaser and BB Phaser Pits was pumped and transferred to Phaser Attenuation Pond (ST-43). Similar to previous years, in 2023, no water was transferred, and all water was kept in the pond to promote the natural reflooding. Monthly samples have been conducted during open water season as per the requirements of the NWB Water License. There are no applicable license limits. The data is presented in Table 8-34. Sampling station ST-43 is illustrated on Figure 3.

Table 8-31 Meadowbank 2023 Central Dike Seepage Water Quality Monitoring (ST-S-5) §

ST-S-5	Unit	*Annual Average*					1/8/2023	2/12/2023	3/19/2023	4/9/2023	5/21/2023	6/12/2023	7/23/2023	8/8/2023	9/10/2023	10/9/2023	11/13/2023	12/3/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***												
Field Measured																		
Temperature	°C	-	*3.8*	*1.8*	*2.1*	*3.3*	0.2	0.1	-0.4	0.0	1.7	8.8	13.0	13.9	4.7	0.3	0.4	3.5
pH	pH units	*7.60*	*7.61*	*7.49*	*7.93*	*7.67*	7.66	7.66	7.66	7.71	7.41	7.79	8.36	8.13	7.81	7.53	7.10	7.27
Conductivity	uS/cm	-	*3545*	*3335*	*2807*	*2322*	2859	2906	2970	3004	69	1114	2372	2366	2194	2539	2776	2696
Turbidity	NTU	*19.36*	*13.36*	*13.23*	*14.42*	*10.72*	15.4	8.22	1.90	2.55	17.70	7.63	33.20	18.70	1.93	10.5	4.83	6.03
Conventional Parameters																		
Hardness, as $CaCO_3$	mg/L	*1038*	*987*	*838*	*774*	*699*	848	874	804	842	569	289	688	586	661	553	807	862
Total alkalinity, as $CaCO_3$	mg/L	*89*	*118*	*122*	*138*	*145*	180	170	180	170	150	61	110	100	140	130	170	180
TDS	mg/L	*2174*	*2160*	*2438*	*1907*	*1758*	2080	1820	2120	2160	2070	705	1690	1390	1720	1250	2020	2070
TSS	mg/L	*9*	*6*	*3*	*6*	*11*	8	8	8	7	7	3	24	24	8	27	4	6
Major Ions																		
Chloride	mg/L	*334.6*	*286.3*	*222.4*	*151.0*	*126.4*	160	130	190	190	160	49	97	81	100	70	140	150
Cyanide	mg/L	*0.057*	*0.058*	*0.076*	*0.047*	*0.037*	0.0541	0.0523	0.0532	0.0618	0.0774	0.00957	0.0119	0.00555	0.0227	0.0143	0.0435	0.0425
Cyanide (free)	mg/L	*0.012*	*0.016*	*0.092*	*0.025*	*0.014*	0.019	0.015	0.017	0.018	0.032	0.011	0.0094	0.004	0.011	0.0063	0.017	0.013
Cyanide (WAD)	mg/L	*0.017*	*0.011*	*0.019*	*0.018*	*0.016*	0.019	0.019	0.021	0.024	0.039	0.0068	0.0043	0.0023	0.0095	0.0069	0.022	0.018
Fluoride	mg/L	*0.51*	*0.51*	*0.47*	*0.49*	*0.45*	0.53	0.53	0.51	0.49	0.49	0.24	0.45	0.43	0.41	0.33	0.52	0.49
Sulfate	mg/L	*1716*	*1529*	*1403*	*1203*	*1126*	1400	1300	1400	1400	1300	400	1100	940	1100	770	1200	1200
Nutrients																		
Ammonia Nitrogen	mg N/L	*25.14*	*26.28*	*28.57*	*22.02*	*19.08*	23	23	23	22	22	7.9	20	14	18	14	21	21
Nitrate	mg N/L	*0.37*	*0.14*	*0.27*	*0.28*	*0.29*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.27	< 0.50	0.68	0.36	0.97	< 0.10	< 0.10
Nitrite	mg N/L	*0.069*	*0.047*	*0.026*	*0.026*	*0.027*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.041	< 0.050	0.04	0.019	0.108	< 0.010	< 0.010
Total Metals																		
Aluminum	mg/L	*0.022*	*0.038*	*0.018*	*0.029*	*0.041*	< 0.0060	0.0155	< 0.0060	< 0.0060	< 0.015	0.0403	0.0563	0.104	0.0683	0.154	< 0.0060	0.0147
Arsenic	mg/L	*0.0587*	*0.0533*	*0.0465*	*0.0565*	*0.0880*	0.138	0.126	0.119	0.121	0.0673	0.0244	0.104	0.0794	0.0812	0.0814	0.0466	0.0682
Barium	mg/L	*0.0231*	*0.0226*	*0.0204*	*0.0191*	*0.0185*	0.0221	0.0209	0.02	0.0206	0.0137	0.0114	0.0186	0.0175	0.0203	0.0171	0.0187	0.0213
Cadmium	mg/L	*0.00015*	*0.00014*	*0.00002*	*0.00002*	*0.00003*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000050	0.000016	< 0.000010	0.000015	0.000167	< 0.000010	< 0.000020	< 0.000020
Chromium	mg/L	*0.001*	*0.001*	*0.002*	*0.002*	*0.002*	0.0028	< 0.0020	< 0.0020	< 0.0020	< 0.0050	< 0.0010	0.00045	0.0013	0.0005	0.0016	< 0.0020	< 0.0020
Copper	mg/L	*0.031*	*0.002*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0025	< 0.0005	0.00039	0.00087	0.000748	0.0007	< 0.0010	< 0.0010
Iron	mg/L	*2.1000*	*1.6000*	*1.2655*	*1.4000*	*2.0969*	2.91	2.66	2.56	2.8	2.17	0.513	2.17	1.35	2.06	1.69	1.49	2.79
Lead	mg/L	*0.0004*	*0.0005*	*0.0004*	*0.0006*	*0.0004*	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.0010	< 0.00020	0.000145	0.00028	0.000522	0.00026	< 0.00040	< 0.00040
Manganese	mg/L	*2.02*	*2.01*	*1.61*	*1.55*	*1.44*	1.94	1.81	1.66	1.83	1.35	0.564	1.17	0.879	1.30	1.09	1.75	1.97
Mercury	mg/L	*0.00002*	*0.00001*	*0.00003*	*0.00009*	*0.00007*	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00001	< 0.00001	< 0.00010	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.2300*	*0.1910*	*0.1486*	*0.1032*	*0.0706*	0.0995	0.0861	0.0853	0.0867	0.0642	0.0317	0.0785	0.0546	0.0733	0.0383	0.0766	0.0718
Nickel	mg/L	*0.0343*	*0.0108*	*0.0056*	*0.0072*	*0.0078*	0.0139	< 0.0020	< 0.0020	< 0.0020	< 0.0050	0.0083	0.00555	0.0176	0.00731	0.0167	0.008	0.0051
Selenium	mg/L	*0.0024*	*0.0012*	*0.0007*	*0.0007*	*0.0005*	0.00026	0.00026	< 0.00020	< 0.00020	< 0.00050	0.00017	0.000276	0.00042	0.00114	0.00018	0.00141	0.00112

ST-S-5	Unit	*Annual Average*					1/8/2023	2/12/2023	3/19/2023	4/9/2023	5/21/2023	6/12/2023	7/23/2023	8/8/2023	9/10/2023	10/9/2023	11/13/2023	12/3/2023
Silver	mg/L	*0.00018*	*0.00011*	*0.00004*	*0.00003*	*0.00004*	< 0.000040	< 0.000040	< 0.000040	< 0.000040	< 0.00010	< 0.000020	< 0.000010	< 0.000020	0.0000319	< 0.000020	< 0.000040	< 0.000040
Thallium	mg/L	*0.00045*	*0.00027*	*0.00003*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000050	< 0.000010	<0.0000040	< 0.000010	0.0000055	< 0.000010	< 0.000020	< 0.000020
Zinc	mg/L	*0.008*	*0.004*	*0.010*	*0.009*	*0.009*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.025	< 0.0050	0.00123	< 0.0050	0.00219	< 0.0050	< 0.010	< 0.010
Dissolved Metals																		
Aluminum	mg/L	*0.002*	*0.006*	*0.007*	*0.007*	*0.010*	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.015	0.0056	0.0063	0.0066	0.0441	0.0075	< 0.0060	< 0.0060
Arsenic	mg/L	*0.0128*	*0.0102*	*0.0187*	*0.0227*	*0.0565*	0.0916	0.122	0.113	0.104	0.0558	0.0110	0.0232	0.025	0.011	0.0342	0.0257	0.0609
Barium	mg/L	*0.0200*	*0.0210*	*0.0198*	*0.0187*	*0.0196*	0.0211	0.0235	0.0218	0.022	0.0202	0.0132	0.0193	0.0174	0.0199	0.0178	0.0191	0.0195
Cadmium	mg/L	*0.00015*	*0.00007*	*0.00002*	*0.00002*	*0.00003*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000050	0.000011	< 0.000010	0.000032	0.000113	0.000041	< 0.000020	< 0.000020
Chromium	mg/L	*0.0006*	*0.0007*	*0.0020*	*0.0017*	*0.0018*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0050	<0.0010	< 0.00020	< 0.0010	0.00031	< 0.0020	< 0.0020	< 0.0020
Copper	mg/L	*0.0209*	*0.0011*	*0.0006*	*0.0009*	*0.0032*	< 0.00040	< 0.00040	< 0.00040	0.00071	< 0.0010	0.00055	0.0274	0.00122	0.00116	0.00081	0.00293	0.00123
Iron	mg/L	*0.0600*	*0.0400*	*0.3614*	*0.3292*	*1.1418*	3.00	2.04	2.59	2.64	0.093	0.0057	0.0115	0.0181	0.0502	0.305	0.928	2.02
Lead	mg/L	*0.0003*	*0.0003*	*0.0004*	*0.0003*	*0.0004*	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.0010	<0.00020	0.000112	< 0.00020	0.000495	< 0.00040	< 0.00040	< 0.00040
Manganese	mg/L	*1.97*	*1.85*	*1.62*	*1.54*	*1.48*	1.9	1.98	1.76	1.91	1.76	0.620	1.05	0.773	1.33	1.07	1.81	1.83
Mercury	mg/L	*0.00005*	*0.00001*	*0.00003*	*0.00009*	*0.00008*	< 0.00010	< 0.00010	< 0.00010	-	< 0.00001	<0.00010	< 0.00001	< 0.00001	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Molybdenum	mg/L	*0.223*	*0.177*	*0.145*	*0.104*	*0.073*	0.0894	0.0944	0.0894	0.0879	0.0817	0.0358	0.0749	0.0551	0.0825	0.0403	0.0725	0.0669
Nickel	mg/L	*0.0332*	*0.0093*	*0.0057*	*0.0067*	*0.0070*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0050	0.0086	0.00651	0.0105	0.00725	0.0216	0.0091	0.0069
Selenium	mg/L	*0.0033*	*0.0015*	*0.0007*	*0.0009*	*0.0007*	0.00025	0.00043	0.00045	0.00036	< 0.00050	0.00027	0.00165	0.00038	0.00022	0.00042	0.00181	0.00182
Silver	mg/L	*0.00010*	*0.00009*	*0.00004*	*0.00004*	*0.00004*	< 0.000040	< 0.000040	< 0.000040	< 0.000040	< 0.00010	<0.000020	0.000016	< 0.000020	0.0000054	0.000064	< 0.000040	< 0.000040
Thallium	mg/L	*0.00036*	*0.00030*	*0.00003*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000050	< 0.000010	0.0000048	0.000011	0.0000051	< 0.000020	< 0.000020	< 0.000020
Zinc	mg/L	*0.002*	*0.004*	*0.010*	*0.009*	*0.010*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.025	<0.0050	0.00162	< 0.0050	0.00917	< 0.010	< 0.010	< 0.010

Table 8-32 Meadowbank 2023 Phaser Pit Water Quality Monitoring (ST-41 Lake) §

ST-41 Lake	Unit	*Annual Average*				5/28/2023	6/18/2023	7/10/2023	8/1/2023	9/3/2023	10/2/2023
Parameter		***2020***	***2021***	***2022***	***2023***						
Field Measured											
Temperature	°C	*16.8*	*8.9*	*7.7*	*8.6*	0.8	6.3	16.0	17.2	6.0	5.3
pH	pH units	*7.68*	*7.79*	*7.76*	*7.47*	7.32	7.67	7.73	7.68	7.19	7.24
Conductivity	uS/cm	*149.7*	*151.4*	*200.4*	*135.5*	78.1	129.5	170	215.7	219.4	0.1
Turbidity	NTU	*5.86*	*4.56*	*2.38*	*2.42*	6.51	3.41	0.83	0.94	1.97	0.85
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*83*	*75*	*82*	*78*	35.8	55.6	80.7	89.9	99.5	105
Total alkalinity, as $CaCO_3$	mg/L	*28*	*37*	*44*	*41*	23	31	39	44	52	55
Carbonate, as $CaCO_3$	mg/L	*-*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*-*	*37*	*44*	*41*	23	31	39	44	52	55
TDS	mg/L	*102*	*103*	*115*	*109*	85	75	95	105	150	145
TSS	mg/L	*4*	*4*	*2*	*2*	5	3	1	1	2	< 1
Total organic carbon	mg/L	*1.9*	*2.8*	*2.4*	*3.0*	2.8	3.1	2.9	2.9	3	3.1
Dissolved organic carbon	mg/L	*1.7*	*2.6*	*2.3*	*2.7*	2.7	2.7	2.9	2.7	2.7	2.7
Major Ions											
Chloride	mg/L	*2.00*	*2.65*	*2.82*	*2.30*	1.2	< 1.0	1.6	2.9	3.3	3.8
Cyanide	mg/L	*0.001*	*0.005*	*0.001*	*0.001*	0.00058	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cyanide (free)	mg/L	*0.001*	*0.002*	*0.002*	*0.003*	0.0027	< 0.0020	0.0059	< 0.0020	< 0.0020	< 0.0020
Silica	mg/L	*-*	*2.03*	*2.06*	*1.99*	0.54	1.8	2.1	2.2	2.5	2.8
Sulfate	mg/L	*34.4*	*37.3*	*37.2*	*36.2*	14	26	36	42	48	51
Nutrients											
Ammonia Nitrogen	mg N/L	*0.08*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrate	mg N/L	*1.89*	*1.17*	*0.79*	*0.61*	0.23	0.45	0.6	0.66	0.86	0.83
Nitrite	mg N/L	*0.02*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*-*	*0.14*	*0.10*	*0.15*	0.14	0.13	0.2	0.23	< 0.10	< 0.10
Total phosphorus	mg P/L	*-*	*0.0048*	*0.0035*	*0.0147*	0.012	0.0031	< 0.0010	0.0028	< 0.0010	0.068
Orthophosphate	mg P/L	*-*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals											
Aluminum	mg/L	*0.110*	*0.116*	*0.062*	*0.06*	0.138	0.0935	0.0303	0.0404	0.0339	0.0148
Antimony	mg/L	*-*	*0.0006*	*0.0007*	*0.0005*	0.000222	0.000378	0.000518	0.000659	0.000769	0.000739
Arsenic	mg/L	*0.0021*	*0.0017*	*0.0016*	*0.0016*	0.00183	0.00155	0.00138	0.00157	0.0017	0.00137
Barium	mg/L	*0.0117*	*0.0142*	*0.0157*	*0.0135*	0.00628	0.00954	0.0135	0.0157	0.0173	0.0186
Beryllium	mg/L	*-*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	0.00001	< 0.000010	< 0.000010	< 0.000010
Boron	mg/L	*-*	*0.01*	*0.01*	*0.010*	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00001*	0.0000172	0.0000141	0.0000084	< 0.0000050	0.000007	0.0000066
Calcium (total)	mg/L	*25.40*	*23.03*	*25.28*	*24.08*	11.0	17.3	25.0	27.9	30.8	32.5
Chromium	mg/L	*0.0006*	*0.0003*	*0.0003*	*0.0004*	0.00134	0.00034	0.00034	0.00013	< 0.00010	0.0001
Copper	mg/L	*0.0029*	*0.0034*	*0.0029*	*0.0035*	0.00259	0.003	0.00608	0.00313	0.00283	0.00346
Iron	mg/L	*0.1867*	*0.1946*	*0.0974*	*0.1012*	0.238	0.192	0.0597	0.0649	0.036	0.0163
Lead	mg/L	*0.0003*	*0.0005*	*0.0003*	*0.0003*	0.000745	0.000413	0.000166	0.000171	0.000142	0.000104
Lithium	mg/L	*-*	*0.0014*	*0.0014*	*0.0013*	0.00087	0.00106	0.00126	0.00142	0.00148	0.00156
Magnesium (total)	mg/L	*4.77*	*4.33*	*4.69*	*4.28*	2.01	3.03	4.47	4.90	5.50	5.79
Manganese	mg/L	*0.0579*	*0.0242*	*0.0060*	*0.0075*	0.0229	0.0116	0.00289	0.00225	0.00225	0.00303
Mercury	mg/L	*0.00001*	*0.00000*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0059*	*0.0074*	*0.0095*	*0.0077*	0.00395	0.0052	0.00739	0.00978	0.0105	0.00928
Nickel	mg/L	*0.0059*	*0.0039*	*0.0019*	*0.0034*	0.00704	0.00294	0.00428	0.0023	0.0017	0.00216
Potassium (total)	mg/L	*-*	*1.95*	*1.85*	*1.60*	0.891	1.28	1.63	1.81	1.95	2.02
Selenium	mg/L	*0.0010*	*0.0002*	*0.0002*	*0.0001*	0.000056	0.000093	0.000142	0.000205	0.000186	0.000185
Sodium (total)	mg/L	*-*	*1.34*	*1.30*	*1.21*	0.636	0.901	1.33	1.39	1.43	1.55
Strontium	mg/L	*-*	*0.127*	*0.130*	*0.120*	0.0532	0.085	0.121	0.134	0.162	0.167
Thallium	mg/L	*0.00020*	*0.00001*	*0.00001*	*0.00001*	0.0000052	0.0000052	0.000007	0.0000056	0.000007	0.0000084
Tin	mg/L	*-*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Titanium	mg/L	*-*	*0.0023*	*0.0012*	*0.0013*	0.00295	0.00257	< 0.00050	0.00053	< 0.00050	< 0.00050
Uranium	mg/L	*-*	*0.0039*	*0.0041*	*0.0038*	0.0014	0.00251	0.00345	0.00447	0.00532	0.00545
Vanadium	mg/L	*-*	*0.0002*	*0.0002*	*0.0002*	0.00023	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Zinc	mg/L	*0.016*	*0.003*	*0.001*	*0.001*	0.00138	0.00086	0.00169	0.00098	< 0.00010	0.00054
Dissolved Metals											
Aluminum	mg/L	*0.008*	*0.027*	*0.022*	*0.040*	0.0229	0.0157	0.0189	0.0238	0.0202	0.137
Antimony	mg/L	*-*	*0.0006*	*0.0007*	*0.0005*	0.000229	0.000352	0.000518	0.000641	0.000751	0.000724
Arsenic	mg/L	*0.0007*	*0.0015*	*0.0019*	*0.0016*	0.00156	0.00132	0.00134	0.00151	0.00243	0.00144
Barium	mg/L	*0.0072*	*0.0133*	*0.0151*	*0.0131*	0.00537	0.0105	0.013	0.0156	0.0155	0.0186
Beryllium	mg/L	*-*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Boron	mg/L	*-*	*0.01*	*0.01*	*0.010*	< 0.01	< 0.01	< 0.01	0.011	< 0.01	< 0.01
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00006*	0.0000146	0.0000107	0.0000085	0.000012	0.000009	0.000309
Chromium	mg/L	*0.0006*	*0.0001*	*0.0002*	*0.0002*	< 0.00010	0.00013	0.00017	0.00017	0.00023	< 0.00010
Copper	mg/L	*0.001*	*0.003*	*0.003*	*0.003*	0.00264	0.00436	0.00313	0.00333	0.00247	0.00341
Iron	mg/L	*0.010*	*0.031*	*0.024*	*0.024*	0.034	0.0229	0.0274	0.0138	0.0296	0.0148
Lead	mg/L	*0.0003*	*0.0002*	*0.0002*	*0.0001*	0.000116	0.000102	0.000184	0.0000964	0.000012	0.000289
Lithium	mg/L	*-*	*0.0014*	*0.0014*	*0.0012*	0.00059	0.00103	0.0011	0.00151	0.0015	0.00169
Manganese	mg/L	*0.0383*	*0.0209*	*0.0055*	*0.0080*	0.0215	0.00976	0.00431	0.00176	0.00829	0.00265
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0025*	*0.0073*	*0.0095*	*0.0074*	0.00297	0.00513	0.00702	0.00978	0.0102	0.00913
Nickel	mg/L	*0.0037*	*0.0035*	*0.0020*	*0.0026*	0.00261	0.00324	0.00271	0.00233	0.00183	0.00258
Selenium	mg/L	*0.0010*	*0.0002*	*0.0002*	*0.0002*	0.000083	0.000124	0.000133	0.000196	0.000209	0.000211
Strontium	mg/L	*-*	*0.126*	*0.129*	*0.118*	0.0531	0.0896	0.116	0.136	0.153	0.16
Thallium	mg/L	*0.00020*	*0.00001*	*0.00001*	*0.00001*	0.0000033	0.0000054	0.0000079	0.0000096	0.000006	0.000007
Tin	mg/L	*-*	*0.0002*	*0.0003*	*0.0004*	< 0.00020	0.00125	< 0.00020	0.00022	0.00033	< 0.00020
Titanium	mg/L	*-*	*0.0005*	*0.0005*	*0.0005*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00066
Uranium	mg/L	*-*	*0.0038*	*0.0042*	*0.0037*	0.00139	0.00236	0.00338	0.0045	0.00518	0.00534
Vanadium	mg/L	*-*	*0.0002*	*0.0002*	*0.0003*	< 0.00020	< 0.00020	< 0.00020	0.00023	< 0.00020	0.00063
Zinc	mg/L	*0.001*	*0.001*	*0.002*	*0.004*	0.00105	0.0013	0.00566	0.0044	0.00197	0.00713

Table 8-33 Meadowbank 2023 BB Phaser Pit Water Quality Monitoring (ST-42 Lake) §

ST-42 Lake	Unit	*Annual Average*				5/28/2023	6/18/2023	7/10/2023	8/1/2023	9/11/2023	10/2/2023
Parameter		*2020*	*2021*	*2022*	*2023*						
Field Measured											
Temperature	°C	*4.3*	*5.1*	*7.7*	*8.1*	3.4	2.6	13.8	17.4	6.4	4.9
pH	pH units	*7.99*	*7.68*	*7.29*	*7.43*	7.17	7.59	7.59	7.71	7.28	7.23
Conductivity	uS/cm	*161.5*	*127.1*	*162.5*	*275.5*	76.7	167.4	185.2	214.2	827	182.4
Turbidity	NTU	*1.78*	*4.77*	*2.00*	*1.82*	5.05	1.38	1.51	0.63	1.53	0.8
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*79.50*	*60.96*	*64.32*	*74.68*	33.4	75.9	81.9	90.4	80.4	86.1
Total alkalinity, as $CaCO_3$	mg/L	*55*	*32*	*35*	*41*	22	41	44	46	46	47
Carbonate, as $CaCO_3$	mg/L	*-*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*-*	*32*	*34*	*41*	22	41	44	46	46	47
TDS	mg/L	*46*	*88*	*80*	*108*	105	65	110	100	125	140
TSS	mg/L	*4*	*5*	*2*	*1*	1	1	2	2	< 1	< 1
Total organic carbon	mg/L	*-*	*3.5*	*3.1*	*3.4*	3	3.5	3.2	3.1	3.6	3.7
Dissolved organic carbon	mg/L	*5.6*	*3.3*	*3.1*	*3.1*	3	3	3.2	3.1	3.3	3.2
Major Ions											
Chloride	mg/L	*1.6*	*2.2*	*2.0*	*1.8*	< 1.0	< 1.0	1.4	1.8	2.6	2.8
Cyanide	mg/L	*0.001*	*0.005*	*0.002*	*0.001*	0.00056	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cyanide (free)	mg/L	*0.001*	*0.002*	*0.003*	*0.002*	0.0034	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Silica	mg/L	*-*	*2.3*	*2.4*	*2.7*	0.81	2.7	2.9	3	3.2	3.3
Sulfate	mg/L	*39*	*30*	*30*	*36*	13	36	39	40	44	44
Nutrients											
Ammonia Nitrogen	mg N/L	*0.06*	*0.05*	*0.06*	*0.07*	< 0.050	< 0.050	< 0.050	< 0.050	0.15	< 0.050
Nitrate	mg N/L	*1.18*	*0.76*	*0.67*	*0.70*	0.28	0.82	0.76	0.75	0.83	0.78
Nitrite	mg N/L	*0.01*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*-*	*0.14*	*0.12*	*0.12*	0.13	0.16	0.12	0.1	0.12	< 0.10
Total phosphorus	mg P/L	*0.0100*	*0.0044*	*0.0035*	*0.0020*	0.006	0.0018	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Orthophosphate	mg P/L	*-*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals											
Aluminum	mg/L	*0.0600*	*0.1497*	*0.0616*	*0.0411*	0.0897	0.0406	0.0348	0.0331	0.0263	0.022
Antimony	mg/L	*-*	*0.00055*	*0.00052*	*0.0006*	0.000229	0.000642	0.00067	0.000718	0.000669	0.000664
Arsenic	mg/L	*0.00180*	*0.00166*	*0.00150*	*0.0015*	0.0013	0.0015	0.00153	0.00168	0.00142	0.00148
Barium	mg/L	*0.0162*	*0.0113*	*0.0115*	*0.0135*	0.00584	0.0138	0.0154	0.0158	0.0149	0.0152
Beryllium	mg/L	*-*	*0.00002*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	0.000016	< 0.000010	< 0.000010	< 0.000010
Boron	mg/L	*-*	*0.01*	*0.01*	*0.01*	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00001*	0.0000111	0.0000124	0.0000094	0.0000064	0.000016	0.0000102
Calcium (total)	mg/L	*24.2*	*18.7*	*19.7*	*23.2*	10.2	24.0	25.3	28.5	24.7	26.6
Chromium	mg/L	*0.00060*	*0.00044*	*0.00021*	*0.00024*	0.00075	0.00016	0.00021	< 0.00010	0.00012	< 0.00010
Copper	mg/L	*0.0049*	*0.0045*	*0.0035*	*0.0036*	0.00267	0.00374	0.00374	0.00381	0.00371	0.00393
Iron	mg/L	*0.075*	*0.271*	*0.087*	*0.062*	0.168	0.0724	0.0477	0.0187	0.0466	0.0208
Lead	mg/L	*0.00017*	*0.00097*	*0.00016*	*0.00011*	0.000251	0.000106	0.0000999	0.0000716	0.000084	0.0000501
Lithium	mg/L	*-*	*0.00128*	*0.00123*	*0.00133*	0.00077	0.0013	0.0013	0.00144	0.00163	0.00152
Magnesium (total)	mg/L	*4.67*	*3.45*	*3.64*	*4.06*	1.92	3.90	4.56	4.63	4.58	4.77
Manganese	mg/L	*0.0154*	*0.0206*	*0.0093*	*0.0059*	0.0147	0.00506	0.00484	0.00316	0.00443	0.0034
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0044*	*0.0043*	*0.0044*	*0.0049*	0.00279	0.00485	0.00528	0.00592	0.00532	0.0054
Nickel	mg/L	*0.0058*	*0.0044*	*0.0031*	*0.0034*	0.00469	0.00324	0.00351	0.0027	0.00304	0.00293
Potassium (total)	mg/L	*-*	*1.50*	*1.45*	*1.51*	0.78	1.63	1.64	1.75	1.53	1.71
Selenium	mg/L	*0.00100*	*0.00014*	*0.00012*	*0.00012*	0.000058	0.000126	0.000122	0.000168	0.000127	0.000116
Sodium (total)	mg/L	*-*	*1.17*	*1.16*	*1.25*	0.603	1.30	1.38	1.47	1.32	1.45
Strontium	mg/L	*-*	*0.0902*	*0.0934*	*0.1112*	0.047	0.113	0.125	0.127	0.12	0.135
Thallium	mg/L	*0.00020*	*0.00001*	*0.00001*	*0.00001*	0.0000048	0.0000066	0.0000076	0.0000056	0.000007	0.000008
Tin	mg/L	*-*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Titanium	mg/L	*-*	*0.0034*	*0.0013*	*0.0010*	0.0026	0.00115	0.0007	< 0.00050	< 0.00050	< 0.00050
Uranium	mg/L	*-*	*0.0034*	*0.0033*	*0.0039*	0.00149	0.0041	0.00423	0.00462	0.00431	0.00454
Vanadium	mg/L	*-*	*0.0003*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Zinc	mg/L	*0.001*	*0.002*	*0.001*	*0.001*	0.00097	0.00064	0.0009	0.00233	0.00109	0.0004
Dissolved Metals											
Aluminum	mg/L	*0.0190*	*0.0384*	*0.0222*	*0.0207*	0.0202	0.0174	0.0183	0.0287	0.0229	0.0166
Antimony	mg/L	*-*	*0.00054*	*0.00053*	*0.00059*	0.000253	0.000589	0.000655	0.000714	0.000665	0.000655
Arsenic	mg/L	*0.00125*	*0.00140*	*0.00170*	*0.00188*	0.00168	0.00133	0.00202	0.0016	0.00191	0.00275
Barium	mg/L	*0.0124*	*0.0103*	*0.0112*	*0.0139*	0.00574	0.0147	0.0154	0.0158	0.0157	0.0158
Beryllium	mg/L	*-*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	0.00001	< 0.000010	0.000012
Boron	mg/L	*-*	*0.01*	*0.01*	*0.01*	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	*0.00002*	*0.00001*	*0.00001*	*0.00001*	0.0000155	0.0000094	0.0000085	0.0000119	0.0000203	0.0000205
Chromium	mg/L	*0.00060*	*0.00012*	*0.00012*	*0.00013*	< 0.00010	< 0.00010	0.00016	0.00019	0.00015	< 0.00010
Copper	mg/L	*0.0035*	*0.0037*	*0.0038*	*0.0044*	0.00746	0.00395	0.00359	0.00379	0.00404	0.00386
Iron	mg/L	*0.010*	*0.042*	*0.018*	*0.022*	0.027	0.0161	0.0314	0.022	0.0232	0.0123
Lead	mg/L	*0.00017*	*0.00020*	*0.00010*	*0.00008*	0.000118	0.0000613	0.0000851	0.0000874	0.000086	0.0000488
Lithium	mg/L	*-*	*0.00117*	*0.00137*	*0.00128*	0.00056	0.00138	0.00119	0.0015	0.00161	0.00144
Manganese	mg/L	*0.0005*	*0.0126*	*0.0078*	*0.0056*	0.014	0.0043	0.00384	0.00324	0.00485	0.00364
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0041*	*0.0042*	*0.0044*	*0.0047*	0.00238	0.00457	0.00506	0.00562	0.00555	0.00524
Nickel	mg/L	*0.0047*	*0.0040*	*0.0031*	*0.0033*	0.00499	0.00304	0.00288	0.00273	0.00325	0.00306
Selenium	mg/L	*0.00075*	*0.00013*	*0.00012*	*0.00013*	0.000099	0.000111	0.000143	0.00016	0.000133	0.000139
Strontium	mg/L	*-*	*0.0876*	*0.0935*	*0.1123*	0.0547	0.113	0.124	0.127	0.127	0.128
Thallium	mg/L	*0.000200*	*0.000008*	*0.000006*	*0.000006*	< 0.0000020	0.0000051	0.0000078	0.0000091	0.0000073	0.0000058
Tin	mg/L	*-*	*0.0003*	*0.0003*	*0.0004*	< 0.00020	0.00071	< 0.00020	0.00031	0.00048	< 0.00020
Titanium	mg/L	*-*	*0.0006*	*0.0005*	*0.0005*	< 0.00050	< 0.00050	0.00051	< 0.00050	< 0.00050	< 0.00050
Uranium	mg/L	*-*	*0.0034*	*0.0033*	*0.0038*	0.00148	0.00381	0.00418	0.00453	0.00446	0.0044
Vanadium	mg/L	*-*	*0.0003*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Zinc	mg/L	*0.001*	*0.004*	*0.003*	*0.003*	0.0008	0.00169	0.00458	0.00529	0.00415	0.001

Table 8-34 Meadowbank 2023 Phaser Attenuation Pond Water Quality Monitoring (ST-43) §

ST-43	Unit	*Annual Average*					5/28/2023	6/18/2023	7/10/2023	8/1/2023	9/3/2023	10/2/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***						
Field Measured												
Temperature	°C	*-*	*12.7*	*8.1*	*9.2*	*8.4*	1.3	8.9	14.8	18.5	4.7	1.9
pH	pH units	*7.17*	*7.55*	*7.53*	*7.66*	*7.45*	7.01	7.52	7.84	7.77	7.35	7.18
Conductivity	uS/cm	*-*	*158.5*	*126.5*	*163.9*	*144.8*	110.5	122.8	136	168.2	160	171.1
Turbidity	NTU	*19.91*	*1.98*	*1.35*	*1.39*	*2.46*	5.79	1.71	1.14	1.07	3.93	1.13
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*73.5*	*69.8*	*62.2*	*70.0*	*64.2*	49.0	53.3	59.2	67.8	73.5	82.2
Total alkalinity, as $CaCO_3$	mg/L	*35*	*28*	*23*	*31*	*32*	25	25	28	33	39	42
TDS	mg/L	*122*	*91*	*85*	*87*	*99*	120	75	90	45	135	130
TSS	mg/L	*13*	*5*	*1*	*1*	*2*	2	1	2	2	5	< 1
Major Ions												
Chloride	mg/L	*2.2*	*1.6*	*2.8*	*3.7*	*2.8*	1.9	1.9	2.7	2.2	3.6	4.4
Cyanide	mg/L	*0.004*	*0.001*	*0.005*	*0.001*	*0.001*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Fluoride	mg/L	*0.10*	*0.07*	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	0.11	0.11
Sulfate	mg/L	*65*	*45*	*39*	*41*	*34*	26	31	33	36	38	41
Nutrients												
Ammonia Nitrogen	mg N/L	*1.91*	*0.08*	*0.31*	*0.06*	*0.05*	0.053	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrate	mg N/L	*2.56*	*0.95*	*0.42*	*0.14*	*0.12*	0.14	0.15	< 0.10	< 0.10	< 0.10	0.11
Nitrite	mg N/L	*0.040*	*0.013*	*0.010*	*0.010*	*0.010*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals												
Aluminum	mg/L	*0.708*	*0.058*	*0.051*	*0.037*	*0.039*	0.0909	0.0337	0.0343	0.0271	0.0326	0.0159
Arsenic	mg/L	*0.00170*	*0.00065*	*0.00066*	*0.00068*	*0.00070*	0.000839	0.00062	0.000682	0.000798	0.00069	0.000579
Barium	mg/L	*0.020*	*0.011*	*0.011*	*0.012*	*0.011*	0.0105	0.0106	0.00986	0.0106	0.0132	0.0141
Cadmium	mg/L	*0.000198*	*0.000020*	*0.000050*	*0.000024*	*0.000018*	0.0000274	0.0000223	0.0000176	0.0000097	0.000017	0.0000123
Chromium	mg/L	*0.00100*	*0.00085*	*0.00011*	*0.00013*	*0.00023*	0.0007	0.00018	0.00019	< 0.00010	0.00012	0.0001
Copper	mg/L	*0.0159*	*0.0048*	*0.0030*	*0.0034*	*0.0028*	0.00241	0.00248	0.00294	0.00335	0.00278	0.00299
Iron	mg/L	*1.340*	*0.340*	*0.204*	*0.140*	*0.152*	0.231	0.157	0.164	0.130	0.123	0.108
Lead	mg/L	*0.00030*	*0.00024*	*0.00022*	*0.00015*	*0.00015*	0.000264	0.000135	0.000152	0.000117	0.000111	0.000135
Manganese	mg/L	*0.1745*	*0.0581*	*0.0257*	*0.0140*	*0.0137*	0.0313	0.021	0.00791	0.00815	0.00901	0.00492
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0047*	*0.0008*	*0.0014*	*0.0018*	*0.0016*	0.00115	0.00114	0.00172	0.00199	0.00189	0.00175
Nickel	mg/L	*0.0272*	*0.0107*	*0.0051*	*0.0035*	*0.0033*	0.00514	0.00389	0.00291	0.00203	0.00281	0.00283
Selenium	mg/L	*0.00440*	*0.00100*	*0.00007*	*0.00006*	*0.00007*	0.000049	0.000051	0.000069	0.000086	0.00008	0.000068
Silver	mg/L	*0.000100*	*0.000100*	*0.000012*	*0.000014*	*0.000010*	0.0000102	0.0000081	0.0000144	0.0000144	0.000007	0.0000083
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	0.0000048	0.000004	0.0000069	0.0000057	0.000008	0.000007
Zinc	mg/L	*0.026*	*0.004*	*0.003*	*0.002*	*0.002*	0.00193	0.00157	0.00413	0.00063	0.0014	0.00362

8.5.3.1.22 Monitoring Station Km 87 (ST-44) §

The monitoring station ST-44 was created in 2023 to monitor the water quality after a spill event. The new monitoring station location was determined in collaboration with the CIRNAC'S Officer.

In November 2022, a tractor trailer overturned at kilometer 87 on the AWAR resulting in a spill of diesel fuel. A downstream monitoring location, ST-44, has been sampled weekly during the open water season period and the results are presented in the Table 8-36. For further details on the event, refer to the spill report and the associated follow up report that are provided in Appendix 28 of the 2022 Meadowbank Complex Annual Report.

Due to the presence of a visible sheen, the contaminated water from the sump was pumped out and transferred to the Stormwater Water Management Pond. A volume total of 36,378 m^3 was collected downstream, of the collection sump. Monthly breakdown is presented in Table 8-35.

Table 8-35 2023 Volume of Water Pumped from ST-44§

Month	Volume pumped (m^3)
June	5,378
July	5,351
August	10,751
September	11,599
October	3,875
Total	**36,378**

Table 8-36 Meadowbank 2023 Km87 Water Quality Monitoring (ST-44) §

ST-44 Parameter	Unit	6/21/2023	6/25/2023	7/16/2023	7/30/2023	8/6/2023	8/13/2023	8/21/2023	8/27/2023	9/11/2023	9/17/2023	9/24/2023	10/2/2023	10/15/2023	10/22/2023
Field Measured															
pH	pH units	6.64	7.12	6.82	6.99	6.72	6.87	7.03	6.53	6.84	6.92	6.89	6.87	8.02	6.49
Conventional Parameters															
TSS	mg/L	1	1	1	2	2	3	5	12	28	4	24	3	2	5
General Organics															
Total oil and grease	mg/L	< 0.50	1.2	1.2	0.6	1.8	< 0.50	< 0.50	1.1	< 0.50	< 0.50	< 0.50	1	0.9	< 0.50
Volatile Organics															
Benzene	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Ethylbenzene	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Toluene	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Xylenes	mg/L	0.00046	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040
m,p-Xylenes	mg/L	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040	< 0.00040
o-Xylene	mg/L	0.00046	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
F2 (C10-C16)	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
F3 (C16-C34)	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
F4 (C34-C50)	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Petroleum Hydrocarbons F (C10-C50)	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.29	0.25	< 0.2	< 0.2

8.5.3.1.23 Meadowbank Landfarm (ST-14) §

Meadowbank's first landfarm (Landfarm 1 – ST-14) was located on the north-west side of the South Tailings Cell (Tailing Storage Facility; TSF) that is currently flooded and is now inactive. Landfarm 2 (ST-14b) was constructed in 2016, contaminated soil has been added since 2017. In 2023, following freshet, ponded water was observed within the landfarm area but there was not a sufficient volume to sample. No runoff water outside the landfarm was observed. It should be noted that if any runoff is observed from the landfarm, the water naturally flows towards the adjacent tailings. Refer to the Landfarm Section 7.2 for more information.

8.5.3.1.24 Landfill§

No water quality monitoring was completed at the landfill in 2023 as no leachate was observed.

8.5.3.2 *Whale Tail Site*§

8.5.3.2.1 Whale Tail Attenuation Pond (ST-WT-1) §

The Whale Tail Attenuation Pond has been in operation since May 20th, 2020. Water from the Whale Tail Attenuation Pond is transferred in the IVR Attenuation Pond before being treated in the WTP and then discharged in either Whale Tail South or Kangislulik Lake via the submerged diffusers. Samples from the Whale Tail Attenuation Pond (ST-WT-1) prior to treatment, are to be collected four times per year as per the Water License, however Agnico Eagle collected samples more frequently than prescribed in 2023. The results for 2023 are presented in Table 8-37 below. Sampling station is illustrated on Figure 4.

8.5.3.2.2 IVR Attenuation Pond (ST-WT-23) §

The IVR Attenuation Pond has been in operation since in 2021. Water from the IVR Attenuation Pond is treated in the WTP prior to being discharged in either Whale Tail South or Kangislulik Lake via the submerged diffusers. Samples from the IVR Attenuation Pond (ST-WT-23) prior to treatment, are to be collected four times per year as per the Water License, however Agnico Eagle collected samples more frequently than prescribed in 2023. The results for 2023 are presented in Table 8-38 below. Sampling station is illustrated on Figure 4.

8.5.3.2.3 Whale Tail Waste Rock Storage Facility Pond (ST-WT-3) §

In 2023 water was observed in the Whale Tail WRSF pond. As per the Water License, water samples are required to be taken four (4) time per calendar year. In 2023, five (5) water samples during open water were taken and the data is presented in Table 8-39. There are no applicable license limits for this station. Sampling station ST-WT-3 is illustrated on Figure 4. A total of 22,885 m^3 was pumped from this pond in 2023.

8.5.3.2.4 Whale Tail Pit (ST-WT-4) §

In 2019, with the development of the Whale Tail Pit, Agnico Eagle started water quality monitoring in the pit sump. As per the Water License, water samples need to be taken four (4) time per calendar year. In 2023, twenty-seven (27) water samples were taken, and the data is presented in Table 8-40. Agnico Eagle has taken more frequent samples, when safe to do and when water is present in the pit, starting in July 2019 to have a better understanding of the water management on site. There are no applicable

license limits. Sampling station ST-WT-4 is illustrated on Figure 4. A total of 863,765 m^3 was pumped from the Whale Tail pit sumps in 2023.

8.5.3.2.5 IVR Pit (ST-WT-18) §

In 2023, Agnico Eagle continued to collect water quality samples in the IVR Pit sump (ST-WT-18) during the development of the IVR Pit. As per the Water License, water samples need to be taken four (4) time per calendar year. In 2023, two (2) water samples were taken, and the data is presented in Table 8-41. Agnico Eagle has taken samples, when safe to do and when water was present in the pit. A total of 51,981 m^3 was pumped from the IVR Pit sump in 2023. There are no applicable license limits. Sampling station ST-WT-18 is illustrated on Figure 4.

8.5.3.2.6 Lake A47 (ST-WT-6) §

Due to dewatering of this lake in 2020, this station is no longer operational.

Table 8-37 Whale Tail Attenuation Pond 2023 Water Quality Monitoring (ST-WT-1) §

ST-WT-1	Unit	*Annual Average*				1/8/2023	3/20/2023	4/10/2023	4/29/2023	5/10/2023	5/15/2023	5/22/2023	6/5/2023	6/12/2023	6/19/2023	7/16/2023	8/12/2023	8/14/2023	9/4/2023	10/23/2023	11/7/2023	12/10/2023	12/17/2023
Parameter		***2020***	***2021***	***2022***	***2023***																		
Field Measured																							
Temperature	°C	*4.4*	*2.0*	*4.0*	*3.0*	0.1	-0.3	-0.4	0.3	0.9	-0.3	0.3	4.0	2.6	2.0	10.9	12.7	14.8	4.1	0.6	0.1	0.4	0.6
pH	pH units	*7.54*	*7.37*	*7.14*	*7.71*	7.80	7.40	7.87	7.86	7.40	7.55	7.40	7.67	7.43	7.47	7.14	8.71	8.12	7.66	6.73	8.43	8.35	7.72
Conductivity	uS/cm	*337.5*	*280.5*	*339.5*	*331.6*	254	173.9	255	280	252	180.6	250	293	298	381	456	344	307	912	369	333	369	261
Turbidity	NTU	*63.9*	*60.1*	*53.9*	*104.3*	16.3	14.0	17.5	434.0	119.0	97.5	101.0	69.0	46.9	30.8	12.0	848.0	8.3	37.0	6.4	8.1	6.2	4.5
Conventional Parameters																							
Hardness, as $CaCO_3$	mg/L	*156*	*107*	*126*	*124*	100	81.1	93	127	118	130	104	108	100	139	150	115	104	315	123	113	129	91.5
Total alkalinity, as $CaCO_3$	mg/L	*59*	*49*	*46*	*48*	51	38	48	52	49	54	46	40	38	46	58	41	40	68	50	49	55	45
TDS	mg/L	*212*	*174*	*195*	*244*	140	130	150	240	160	215	165	230	220	265	370	260	235	610	200	235	375	185
TSS	mg/L	*67*	*64*	*41*	*84*	7	9	15	920	75	180	74	68	36	39	4	5	6	53	5	4	3	2
Major Ions																							
Chloride	mg/L	*52.8*	*30.5*	*29.8*	*40.1*	28	18	26	28	39	47	29	43	36	49	50	45	34	110	28	46	40	26
Fluoride	mg/L	*0.12*	*0.14*	*0.13*	*0.14*	0.15	< 0.10	0.13	0.13	0.11	0.11	0.12	0.11	0.12	0.12	0.14	0.16	0.14	0.17	0.17	0.17	0.17	0.14
Sulfate	mg/L	*28.9*	*34.0*	*59.7*	*42.8*	32	24	32	40	26	30	28	29	34	39	59	46	39	160	41	40	41	31
Nutrients																							
Ammonia (NH_3)	mg/L	*1.35*	*1.10*	*1.11*	*1.32*	2.10	0.14	0.88	1.20	1.00	0.66	0.74	0.59	0.72	1.80	2.30	0.43	0.65	4.80	0.99	0.80	2.70	1.20
Ammonia Nitrogen	mg N/L	*0.02*	*0.90*	*0.92*	*1.08*	1.70	0.11	0.73	0.97	0.83	0.55	0.61	0.48	0.59	1.50	1.90	0.36	0.53	3.90	0.82	0.66	2.20	0.99
Nitrate	mg N/L	*2.47*	*1.80*	*2.37*	*1.67*	1.95	0.50	0.87	1.58	1.04	1.23	0.78	0.71	1.01	1.90	3.10	1.07	1.28	7.83	1.32	0.75	2.16	0.99
Nitrite	mg N/L	*0.14*	*0.12*	*0.10*	*0.08*	0.043	< 0.010	0.023	0.032	0.079	0.059	0.04	0.035	0.046	0.065	0.15	0.04	0.038	0.495	0.048	0.025	0.094	0.044
Total phosphorus	mg P/L	*0.05*	*0.06*	*0.05*	*0.07*	0.014	0.0059	0.0093	0.61	0.067	0.18	0.076	0.059	0.043	0.036	0.014	0.0099	0.0094	0.13	0.0042	0.0056	0.0022	0.0027
Total Metals																							
Aluminum	mg/L	*0.801*	*1.080*	*0.828*	*0.970*	0.113	0.108	0.146	7.01	2.18	2.80	1.82	0.957	0.606	0.50	0.137	0.113	0.14	0.563	0.0665	0.101	0.0585	0.0447
Arsenic	mg/L	*0.0304*	*0.0399*	*0.1834*	*0.0790*	0.0181	0.00582	0.0099	0.0351	0.0428	0.17	0.108	0.0405	0.0791	0.0461	0.247	0.0573	0.0437	0.475	0.00785	0.0118	0.0144	0.0104
Barium	mg/L	*0.0817*	*0.0655*	*0.0525*	*0.0555*	0.0497	0.0388	0.0457	0.112	0.0646	0.0672	0.0606	0.0466	0.0428	0.0551	0.0562	0.0482	0.0438	0.0814	0.047	0.0461	0.0541	0.0388
Cadmium	mg/L	*0.000028*	*0.000021*	*0.000030*	*0.000026*	0.000011	0.000012	0.000021	0.000094	0.000022	0.000035	0.000023	0.000029	0.000023	0.000028	0.000015	< 0.000010	< 0.000020	0.000065	0.000013	0.000011	0.000016	0.000016
Chromium	mg/L	*0.0115*	*0.0166*	*0.0082*	*0.0111*	< 0.0010	0.0012	< 0.0010	0.0495	0.0344	0.0464	0.027	0.0086	0.0073	0.0057	0.0018	0.0021	0.0021	0.0053	0.0011	0.0018	0.0022	< 0.0010
Copper	mg/L	*0.0033*	*0.0034*	*0.0034*	*0.0028*	0.00818	0.00099	0.00093	0.0155	0.00346	0.00412	0.00295	0.00201	0.0015	0.00166	0.00126	0.00077	< 0.0010	0.00272	0.00113	0.00052	0.0013	0.00077
Iron	mg/L	*1.98*	*2.69*	*1.94*	*2.57*	0.761	1.26	0.911	16.7	4.13	6.27	6.83	2.00	1.51	1.23	0.481	0.376	0.525	1.34	0.357	0.412	0.467	0.622
Lead	mg/L	*0.00065*	*0.00204*	*0.00135*	*0.00155*	0.00649	0.00023	0.00038	0.00745	0.00222	0.00249	0.00207	0.00122	0.00099	0.00091	0.00044	0.00049	0.00048	0.00098	0.00029	0.00034	0.00027	< 0.00020
Manganese	mg/L	*0.370*	*0.330*	*0.295*	*0.277*	0.238	0.342	0.282	0.8	0.246	0.255	0.278	0.286	0.262	0.283	0.205	0.116	0.127	0.468	0.221	0.186	0.185	0.209
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00002*	< 0.00001	< 0.00001	< 0.00001	< 0.00010	< 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	mg/L	*0.0055*	*0.0048*	*0.0089*	*0.0142*	0.0231	0.0022	0.0176	0.0123	0.0147	0.0096	0.0132	0.0087	0.0104	0.0154	0.0175	0.0151	0.0114	0.02	0.0098	0.0124	0.0278	0.0136
Nickel	mg/L	*0.0175*	*0.0146*	*0.0389*	*0.0172*	0.0073	0.0021	0.004	0.0358	0.0195	0.034	0.0202	0.0124	0.0178	0.0174	0.0342	0.006	0.0049	0.0761	0.004	0.0039	0.0064	0.0042
Selenium	mg/L	*0.00088*	*0.00028*	*0.00033*	*0.00018*	< 0.00010	< 0.00010	< 0.00010	0.00011	0.00017	0.00019	0.00014	0.00011	0.00013	0.0002	0.00028	0.00022	0.00022	0.00075	< 0.00010	0.00011	0.00015	0.00011
Silver	mg/L	*0.000097*	*0.000022*	*0.000020*	*0.000026*	< 0.000020	< 0.000020	< 0.000020	0.000063	< 0.000020	0.000059	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000040	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00019*	*0.00003*	*0.00003*	*0.00003*	0.000011	< 0.000010	< 0.000010	0.00012	0.000049	0.000062	0.000034	0.000025	0.00002	0.000024	0.000021	0.000014	< 0.000020	0.000029	0.000015	< 0.000010	0.000015	< 0.000010
Zinc	mg/L	*0.0041*	*0.0075*	*0.0090*	*0.0088*	0.0082	< 0.0050	< 0.0050	0.0415	0.0103	0.0123	0.0091	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.010	0.0121	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-38 IVR Attenuation Pond 2023 Water Quality Monitoring (ST-WT-23) §

ST-WT-23	Unit	*Annual Average*			1/8/2023	1/15/2023	2/21/2023	2/26/2023	3/20/2023	4/10/2023	4/24/2023	5/10/2023	5/15/2023	5/22/2023	6/5/2023	6/12/2023
Parameter		***2021***	***2022***	***2023***												
Field Measured																
Temperature	°C	*5.8*	*4.0*	*4.3*	0.1	0.9	-0.1	0.7	0.3	0.1	3.0	1.6	1.2	0.3	3.6	2.7
pH	pH units	*7.31*	*7.09*	*7.39*	7.69	7.38	6.94	6.85	7.61	7.67	7.72	7.24	7.38	7.29	7.63	7.33
Conductivity	uS/cm	*335.1*	*416.5*	*403.4*	463	405	430	452	308	353	257	266	146.3	257	197.2	229
Turbidity	NTU	*44.70*	*26.90*	*13.52*	8.67	8.5	7.87	6.44	10.7	7.63	11.4	40.6	52.1	50.1	23.6	20.2
Conventional Parameters																
Hardness, as $CaCO_3$	mg/L	*127*	*158*	*145*	168	165	150	149	124	122	94.9	109	98.3	101	67.3	79.3
Total alkalinity, as $CaCO_3$	mg/L	*44*	*54*	*51*	73	73	78	81	61	67	53	42	45	48	31	30
TDS	mg/L	*232*	*262*	*265*	225	265	180	220	160	175	115	205	180	180	135	180
TSS	mg/L	*28*	*27*	*9*	4	3	3	3	5	2	8	18	27	33	15	10
Major Ions																
Chloride	mg/L	*35*	*49*	*51*	43	46	36	40	34	30	25	48	35	30	26	29
Fluoride	mg/L	*0.12*	*0.15*	*0.13*	0.17	0.16	0.18	0.17	0.15	0.16	0.15	< 0.10	0.11	0.11	< 0.10	< 0.10
Sulfate	mg/L	*50*	*59*	*48*	63	67	49	49	36	38	32	23	22	28	19	22
Nutrients																
Ammonia (NH_3)	mg/L	*0.97*	*0.87*	*1.64*	2.5	1.9	5.2	3.9	2.7	5.1	1.1	1.1	0.91	0.87	0.62	0.57
Ammonia Nitrogen	mg N/L	*0.77*	*0.71*	*1.33*	2.0	1.5	4.2	3.2	2.2	4.2	0.9	0.9	0.75	0.72	0.51	0.47
Nitrate	mg N/L	*2.26*	*3.11*	*3.21*	3.82	3.49	5.21	5.3	2.72	4.42	0.94	1.56	1.40	1.33	0.84	0.99
Nitrite	mg N/L	*0.136*	*0.064*	*0.077*	0.088	0.056	0.139	0.121	0.085	0.125	0.027	0.043	0.058	0.042	0.023	0.022
Total phosphorus	mg P/L	*0.0220*	*0.0446*	*0.0096*	0.0051	0.01	0.004	< 0.0010	0.0035	0.0013	0.002	0.043	0.029	0.027	0.013	0.0084
Total Metals																
Aluminum	mg/L	*0.748*	*0.497*	*0.195*	0.0811	0.0536	0.0579	0.0379	0.10	0.0424	0.12	0.501	0.717	0.855	0.269	0.219
Arsenic	mg/L	*0.07119*	*0.25934*	*0.04490*	0.0644	0.0374	0.0178	0.0206	0.0152	0.0133	0.0149	0.0211	0.0441	0.056	0.021	0.0207
Barium	mg/L	*0.0554*	*0.0688*	*0.0602*	0.0738	0.073	0.0888	0.0772	0.0678	0.0659	0.0478	0.051	0.049	0.0549	0.0328	0.0372
Cadmium	mg/L	*0.00003*	*0.00003*	*0.00002*	0.000024	0.000021	< 0.000010	< 0.000010	< 0.000010	0.000012	< 0.000010	0.000015	0.000018	0.000017	0.000013	0.000013
Chromium	mg/L	*0.0125*	*0.0072*	*0.0045*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0011	0.0092	0.0134	0.0154	0.0046	0.0118
Copper	mg/L	*0.00264*	*0.00256*	*0.00173*	0.00779	0.0013	0.00143	0.00129	0.00083	0.00118	0.00074	0.00168	0.00169	0.00207	0.00092	0.00096
Iron	mg/L	*1.77*	*1.20*	*0.65*	0.657	0.633	0.673	0.580	0.725	0.540	0.628	0.977	1.42	1.970	0.606	0.661
Lead	mg/L	*0.00124*	*0.00087*	*0.00087*	0.00186	0.00032	0.00029	0.00024	0.00032	0.00026	0.00031	0.00091	0.001	0.00115	0.00049	0.00047
Manganese	mg/L	*0.266*	*0.229*	*0.212*	0.333	0.377	0.379	0.365	0.332	0.282	0.250	0.184	0.203	0.226	0.181	0.183
Mercury	mg/L	*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	mg/L	*0.0031*	*0.0072*	*0.0164*	0.0228	0.0174	0.0489	0.0365	0.0214	0.0457	0.0159	0.012	0.010	0.0127	0.0059	0.0145
Nickel	mg/L	*0.0281*	*0.0470*	*0.0145*	0.0235	0.0170	0.0082	0.0105	0.0065	0.0064	0.0059	0.0101	0.0133	0.0154	0.0079	0.0466
Selenium	mg/L	*0.00039*	*0.00028*	*0.00019*	0.00023	0.0002	0.00012	0.00014	0.00013	0.00013	< 0.00010	0.00011	0.0001	0.00014	< 0.00010	< 0.00010
Silver	mg/L	*0.00003*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000039*	*0.000028*	*0.000020*	0.000022	0.000021	0.000015	0.000019	0.000012	< 0.000010	0.00001	0.000021	0.000024	0.000027	0.000012	< 0.000010
Zinc	mg/L	*0.0072*	*0.0089*	*0.0100*	0.0308	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

ST-WT-23	Unit	Annual Average			6/19/2023	6/26/2023	7/3/2023	7/16/2023	8/7/2023	8/14/2023	9/4/2023	9/11/2023	9/19/2023	10/9/2023	10/23/2023	12/17/2023
Parameter		2021	2022	2023												
Field Measured																
Temperature	°C	*5.8*	*4.0*	*4.3*	3.5	8.2	13.3	14.1	14.4	16.0	5.0	6.8	6.3	0.6	0.5	-0.1
pH	pH units	*7.31*	*7.09*	*7.39*	7.22	7.53	7.54	7.04	7.31	7.74	7.17	7.29	7.35	7.35	7.21	7.93
Conductivity	uS/cm	*335.1*	*416.5*	*403.4*	306	400	449	408	498	532	604	675	630	560	580	276
Turbidity	NTU	*44.70*	*26.90*	*13.52*	12.70	15.3	7.14	4.63	3.01	2.56	8.90	3.70	4.82	5.18	3.54	5.08
Conventional Parameters																
Hardness, as $CaCO_3$	mg/L	*127*	*158*	*145*	116	129	157	130	166	168	219	214	246	205	194	97.4
Total alkalinity, as $CaCO_3$	mg/L	*44*	*54*	*51*	40	37	40	47	45	43	49	50	52	54	46	45
TDS	mg/L	*232*	*262*	*265*	215	305	360	370	380	430	450	410	365	305	310	230
TSS	mg/L	*28*	*27*	*9*	9	13	5	2	1	1	6	3	46	2	3	1
Major Ions																
Chloride	mg/L	*35*	*49*	*51*	37	52	60	49	75	85	85	94	84	76	83	28
Fluoride	mg/L	*0.12*	*0.15*	*0.13*	0.11	0.11	0.11	0.12	0.16	0.14	0.13	0.11	0.13	0.15	0.14	0.15
Sulfate	mg/L	*50*	*59*	*48*	36	44	46	50	52	49	72	110	85	71	66	32
Nutrients																
Ammonia (NH_3)	mg/L	*0.97*	*0.87*	*1.64*	1.40	1.10	0.35	0.32	< 0.061	0.15	1.80	1.60	2.00	2.20	0.55	1.30
Ammonia Nitrogen	mg N/L	*0.77*	*0.71*	*1.33*	1.10	0.87	0.29	0.26	< 0.050	0.12	1.50	1.30	1.60	1.80	0.45	10
Nitrate	mg N/L	*2.26*	*3.11*	*3.21*	2.27	3.41	2.7	3.34	2.65	2.18	3.89	6.01	5.95	5.59	5.79	1.19
Nitrite	mg N/L	*0.136*	*0.064*	*0.077*	0.055	0.04	0.063	0.092	0.028	0.026	0.142	0.195	0.191	0.101	0.032	0.052
Total phosphorus	mg P/L	*0.0220*	*0.0446*	*0.0096*	0.01	0.0062	0.0028	0.0052	0.0039	0.0033	0.0073	0.014	0.021	0.002	0.0046	0.0031
Total Metals																
Aluminum	mg/L	*0.748*	*0.497*	*0.195*	0.19	0.216	0.101	0.0487	0.0243	0.0285	0.114	0.0414	0.701	0.0699	0.0459	0.0464
Arsenic	mg/L	*0.07119*	*0.25934*	*0.04490*	0.0314	0.0377	0.0399	0.0617	0.0595	0.0447	0.0845	0.16	0.148	0.0261	0.0252	0.0124
Barium	mg/L	*0.0554*	*0.0688*	*0.0602*	0.0522	0.0527	0.0597	0.0521	0.0546	0.0592	0.0679	0.0671	0.0866	0.07	0.0632	0.0413
Cadmium	mg/L	*0.00003*	*0.00003*	*0.00002*	0.000026	0.000019	0.000019	0.00001	0.000014	0.000016	0.000028	0.000032	0.000037	0.00002	0.000028	0.000018
Chromium	mg/L	*0.0125*	*0.0072*	*0.0045*	0.0028	0.0027	0.0018	< 0.0010	< 0.0010	< 0.0010	0.0016	< 0.0010	0.0294	< 0.0010	< 0.0010	0.001
Copper	mg/L	*0.00264*	*0.00256*	*0.00173*	0.0011	0.00107	0.00099	0.00102	0.00082	0.00084	0.0012	0.00106	0.00203	0.00096	0.00771	0.00086
Iron	mg/L	*1.77*	*1.20*	*0.65*	0.556	0.546	0.267	0.177	0.1	0.127	0.41	0.176	2.16	0.267	0.182	0.577
Lead	mg/L	*0.00124*	*0.00087*	*0.00087*	0.00045	0.00037	0.00021	< 0.00020	< 0.00020	< 0.00020	0.00036	< 0.00020	0.00105	0.00027	0.00953	0.00024
Manganese	mg/L	*0.266*	*0.229*	*0.212*	0.263	0.211	0.138	0.0722	0.0531	0.0665	0.18	0.157	0.243	0.157	0.0615	0.201
Mercury	mg/L	*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	mg/L	*0.0031*	*0.0072*	*0.0164*	0.0112	0.0112	0.0105	0.0121	0.0106	0.0095	0.0117	0.0101	0.0118	0.0105	0.0067	0.0148
Nickel	mg/L	*0.0281*	*0.0470*	*0.0145*	0.017	0.0168	0.0161	0.0118	0.0066	0.0061	0.0179	0.0268	0.0285	0.0122	0.0113	0.0045
Selenium	mg/L	*0.00039*	*0.00028*	*0.00019*	0.00017	0.00016	0.00021	0.00021	0.00023	0.00022	0.00035	0.00039	0.00039	0.00033	0.00025	0.00011
Silver	mg/L	*0.00003*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000039*	*0.000028*	*0.000020*	0.00002	0.000021	0.000026	0.000026	0.000024	0.000024	0.000022	0.000021	0.000045	0.000022	0.000016	0.000012
Zinc	mg/L	*0.0072*	*0.0089*	*0.0100*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0993	< 0.0050

Table 8-39 Whale Tail 2023 Waste Rock Storage Facility Pond Water Quality Monitoring (ST-WT-3) §

ST-WT-3	Unit	*Annual Average*					5/28/2023	6/11/2023	7/3/2023	8/6/2023	9/4/2023
Parameter		*2019*	*2020*	*2021*	*2022*	*2023*					
Field Measured											
Temperature	°C	*8.6*	*8.6*	*5.4*	*6.8*	*6.7*	2.4	5.3	12.0	10.3	3.7
pH	pH units	*7.08*	*7.18*	*7.41*	*7.04*	*7.44*	7.06	7.47	7.59	7.70	7.39
Conductivity	uS/cm	*501.8*	*280.8*	*184.8*	*190.9*	*260.8*	79.8	143.3	242.0	472.0	367.0
Turbidity	NTU	*27.53*	*23.89*	*26.19*	*12.76*	*7.96*	19.6	6.11	4.07	4.98	5.03
Conventional Parameters											
Hardness, as $CaCO_3$	mg/L	*485*	*135*	*74*	*79*	*97*	29.5	53.5	85.5	183	132
Total alkalinity, as $CaCO_3$	mg/L	*44*	*42*	*23*	*36*	*28*	21	21	30	40	30
TDS	mg/L	*354*	*185*	*132*	*117*	*177*	60	105	145	340	235
TSS	mg/L	*14*	*16*	*31*	*10*	*6*	16	6	4	4	2
Major Ions											
Chloride	mg/L	*24.7*	*11.4*	*4.9*	*4.1*	*2.3*	1.2	1.3	2.0	3.5	3.7
Fluoride	mg/L	*0.15*	*0.05*	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*148.2*	*79.9*	*46.9*	*47.5*	*75.0*	16	40	69	130	120
Nutrients											
Ammonia (NH3)	mg/L	*-*	*-*	*0.17*	*0.07*	*0.11*	0.27	< 0.061	< 0.061	0.085	< 0.061
Ammonia Nitrogen	mg N/L	*0.90*	*0.28*	*0.14*	*0.06*	*0.09*	0.22	< 0.050	< 0.050	0.070	< 0.050
Nitrate	mg N/L	*8.90*	*2.31*	*2.05*	*1.61*	*4.00*	0.42	0.93	2.40	11.90	4.36
Nitrite	mg N/L	*0.45*	*0.03*	*0.01*	*0.02*	*0.01*	0.013	< 0.010	< 0.010	0.027	< 0.010
Total phosphorus	mg P/L	*0.044*	*0.030*	*0.030*	*0.018*	*0.013*	0.036	0.010	0.005	0.0084	0.0032
Total Metals											
Aluminum	mg/L	*0.676*	*0.627*	*0.792*	*0.361*	*0.182*	0.471	0.152	0.091	0.136	0.060
Arsenic	mg/L	*0.0079*	*0.0113*	*0.0087*	*0.0084*	*0.0049*	0.00603	0.00467	0.00453	0.00595	0.00328
Barium	mg/L	*0.0830*	*0.0563*	*0.0349*	*0.0327*	*0.0356*	0.0177	0.0257	0.0364	0.0646	0.0337
Cadmium	mg/L	*0.000042*	*0.000024*	*0.000021*	*0.000013*	*0.000011*	0.000014	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Chromium	mg/L	*0.0054*	*0.0100*	*0.0141*	*0.0074*	*0.0034*	0.0084	0.0023	0.0018	0.0032	0.0011
Copper	mg/L	*0.0030*	*0.0032*	*0.0029*	*0.0026*	*0.0017*	0.00191	0.00178	0.00152	0.00177	0.00135
Iron	mg/L	*1.29*	*4.42*	*1.58*	*0.78*	*0.35*	0.858	0.270	0.187	0.314	0.132
Lead	mg/L	*0.0004*	*0.0005*	*0.0010*	*0.0007*	*0.0003*	0.0007	0.00022	< 0.00020	0.00025	< 0.00020
Manganese	mg/L	*0.4912*	*0.3027*	*0.1069*	*0.0534*	*0.0340*	0.0693	0.0183	0.0215	0.0452	0.0156
Mercury	mg/L	*0.00002*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	0.0011	0.0018	< 0.0010
Nickel	mg/L	*0.0361*	*0.0277*	*0.0166*	*0.0091*	*0.0075*	0.0087	0.0076	0.0050	0.0082	0.0082
Selenium	mg/L	*0.00349*	*0.00122*	*0.00048*	*0.00039*	*0.00070*	0.00017	0.00022	0.00049	0.00209	0.00054
Silver	mg/L	*0.00016*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000320*	*0.000200*	*0.000030*	*0.000023*	*0.000019*	0.000017	0.000014	0.000022	0.000031	0.000011
Zinc	mg/L	*0.0049*	*0.0032*	*0.0067*	*0.0051*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Dissolved Metals											
Aluminum	mg/L	*0.0167*	*0.0060*	*0.0388*	*0.0176*	*0.0147*	0.0226	0.0235	0.0126	0.0060	0.0089
Arsenic	mg/L	*0.00411*	*0.00621*	*0.00473*	*0.00559*	*0.00387*	0.00369	0.00411	0.00387	0.00454	0.00312
Barium	mg/L	*0.0699*	*0.0457*	*0.0283*	*0.0306*	*0.0375*	0.0152	0.0265	0.0394	0.0678	0.0386
Cadmium	mg/L	*0.000116*	*0.000024*	*0.000017*	*0.000010*	*0.000011*	< 0.000010	0.000013	< 0.000010	0.000013	< 0.000010
Chromium	mg/L	*0.0009*	*0.0006*	*0.0012*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.00173*	*0.00126*	*0.00180*	*0.00221*	*0.00179*	0.00141	0.00247	0.00187	0.00173	0.00145
Iron	mg/L	*0.09*	*0.03*	*0.20*	*0.09*	*0.03*	0.0489	0.0403	0.0335	0.0151	0.0336
Lead	mg/L	*0.00035*	*0.00024*	*0.00024*	*0.00020*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Manganese	mg/L	*0.4582*	*0.2381*	*0.0844*	*0.0447*	*0.0321*	0.0625	0.0184	0.0201	0.0428	0.0168
Mercury	mg/L	*0.00002*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0017*	*0.0008*	*0.0010*	*0.0012*	*0.0011*	< 0.0010	< 0.0010	0.0012	0.0015	< 0.0010
Nickel	mg/L	*0.033*	*0.021*	*0.011*	*0.006*	*0.007*	0.0059	0.0070	0.0047	0.0073	0.0090
Selenium	mg/L	*0.00333*	*0.00117*	*0.00045*	*0.00037*	*0.00077*	0.00017	0.00023	0.00051	0.00227	0.00068
Silver	mg/L	*0.00011*	*0.00010*	*0.00002*	*0.00002*	*0.00006*	< 0.000020	0.000234	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.00021*	*0.00020*	*0.00002*	*0.00002*	*0.00002*	0.000012	0.000014	0.00002	0.000028	0.000013
Zinc	mg/L	*0.0019*	*0.0014*	*0.0050*	*0.0057*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-40 Whale Tail Pit Sump 2023 Water Quality Monitoring (ST-WT-4) §

ST-WT-4	Unit	*Annual Average*					1/8/2023	1/17/2023	1/23/2023	2/13/2023	2/19/2023	3/10/2023	3/21/2023	4/4/2023	4/11/2023	4/16/2023	5/7/2023	5/21/2023	6/5/2023	6/18/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***														
Field Measured																				
Temperature	°C	*6.1*	*4.0*	*1.9*	*2.6*	*2.3*	0.2	-0.2	-0.2	-0.2	-0.3	0.2	-0.2	0.1	-0.1	-0.3	1.1	2.2	3.8	2.1
pH	pH units	*7.49*	*7.81*	*7.48*	*7.24*	*7.74*	6.88	7.77	7.09	7.58	7.63	7.41	8.12	7.67	7.45	8.00	7.67	7.24	7.81	7.73
Conductivity	uS/cm	*952.0*	*701.0*	*417.0*	*492.0*	*483.1*	326	328	285	320	289	355	659	300	241	286	336	275	378	505
Turbidity	NTU	*42.80*	*65.80*	*77.90*	*13.10*	*17.43*	27.00	25.50	5.81	18.40	10.10	9.07	13.70	14.70	6.33	6.51	25.60	6.78	20.60	71.40
Conventional Parameters																				
Hardness, as $CaCO_3$	mg/L	*323*	*353*	*255*	*188*	*179*	136	135	138	109	114	119	151	117	106	106	125	104	123	187
Total alkalinity, as $CaCO_3$	mg/L	*71*	*118*	*67*	*69*	*65*	65	63	66	56	55	66	120	58	51	57	64	54	59	64
TDS	mg/L	*559*	*454*	*275*	*394*	*321*	155	160	160	155	160	205	325	165	175	175	230	185	335	300
TSS	mg/L	*90*	*1953*	*1813*	*12*	*24*	47	31	2	13	6	5	10	56	5	6	14	6	16	100
Major Ions																				
Chloride	mg/L	*105*	*112*	*49*	*47*	*59*	40	41	41	31	32	34	46	36	31	30	34	38	32	45
Fluoride	mg/L	*0.15*	*0.20*	*0.21*	*0.22*	*0.21*	0.22	0.22	0.22	0.21	0.20	0.21	0.27	0.22	0.18	0.22	0.20	0.19	0.20	0.22
Sulfate	mg/L	*123*	*59*	*54*	*84*	*66*	37	37	35	40	36	33	31	30	27	31	33	28	48	83
Nutrients																				
Total Ammonia (NH_3)	mg/L	*-*	*-*	*1.64*	*2.99*	*5.00*	2.00	1.50	2.10	1.30	0.57	4.60	34.0	0.77	0.31	1.70	2.00	0.65	1.90	4.70
Ammonia Nitrogen	mg N/L	*-*	*4.79*	*1.38*	*2.46*	*4.12*	1.60	1.30	1.70	1.10	0.47	3.80	28.0	0.63	0.26	1.40	1.70	0.54	1.50	3.90
Nitrate	mg N/L	*16.33*	*9.76*	*2.76*	*4.14*	*5.01*	0.44	1.08	2.66	0.45	< 0.10	3.58	27.3	0.29	< 0.10	0.64	1.36	0.11	2.10	5.18
Nitrite	mg N/L	*0.760*	*0.499*	*0.219*	*0.230*	*0.184*	0.019	0.043	0.020	0.035	< 0.010	0.093	0.751	0.012	< 0.010	0.031	0.145	0.014	< 0.10	0.12
Total phosphorus	mg P/L	*0.06*	*0.06*	*0.93*	*0.04*	*0.04*	0.049	0.071	0.0042	0.043	0.032	0.017	0.02	0.052	0.0084	0.0078	0.032	0.0079	0.034	0.15
Total Metals																				
Aluminum	mg/L	*1.500*	*4.890*	*8.252*	*0.400*	*0.680*	1.49	0.705	0.065	0.447	0.147	0.13	0.373	1.05	0.14	0.168	0.907	0.188	0.646	3.06
Arsenic	mg/L	*0.0400*	*0.0533*	*0.1453*	*0.6933*	*0.1512*	0.251	0.551	0.135	0.0373	0.035	0.0284	0.0193	0.033	0.0281	0.0325	0.0271	0.0294	0.0247	0.162
Barium	mg/L	*0.122*	*0.282*	*0.183*	*0.077*	*0.075*	0.0834	0.0733	0.0819	0.0649	0.0632	0.0714	0.081	0.0724	0.0576	0.0473	0.0666	0.0577	0.0586	0.0936
Cadmium	mg/L	*0.000032*	*0.000031*	*0.000067*	*0.000023*	*0.000036*	0.00002	0.000013	0.000013	< 0.000010	< 0.000010	< 0.000010	< 0.000010	0.000015	< 0.000010	< 0.000010	< 0.000010	< 0.000010	0.000017	0.000026
Chromium	mg/L	*0.0369*	*0.1593*	*0.2670*	*0.0136*	*0.0124*	0.0644	0.037	0.0026	0.0026	< 0.0010	0.0051	0.0013	0.0203	0.0016	0.0043	0.0128	0.0032	0.0053	0.0684
Copper	mg/L	*0.00951*	*0.02253*	*0.01390*	*0.00425*	*0.00144*	0.00198	0.00087	0.00091	< 0.00050	< 0.00050	< 0.00050	0.00229	0.00084	< 0.00050	< 0.00050	0.001	< 0.00050	0.00061	0.00659
Iron	mg/L	*2.71*	*6.43*	*15.09*	*1.02*	*1.49*	3.420	1.610	0.169	1.150	0.632	0.417	1.630	1.960	0.368	0.380	1.770	0.394	1.350	5.760
Lead	mg/L	*0.00125*	*0.00762*	*0.01095*	*0.00143*	*0.00139*	0.00131	0.00048	< 0.00020	0.00114	0.00065	0.00048	0.00129	0.00137	0.00032	0.00029	0.00154	0.00033	0.00164	0.00431
Manganese	mg/L	*0.377*	*0.442*	*0.590*	*0.244*	*0.218*	0.233	0.187	0.154	0.180	0.202	0.167	0.0877	0.230	0.20	0.138	0.157	0.171	0.160	0.282
Mercury	mg/L	*0.00004*	*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	mg/L	*0.0092*	*0.0214*	*0.0093*	*0.0231*	*0.0361*	0.0358	0.0244	0.0209	0.0446	0.0236	0.0378	0.147	0.0187	0.0118	0.0282	0.0359	0.013	0.0404	0.043
Nickel	mg/L	*0.0410*	*0.0735*	*0.1237*	*0.1138*	*0.0326*	0.0766	0.1220	0.0384	0.0073	0.0019	0.0221	0.0146	0.0097	0.0019	0.0082	0.015	0.0038	0.0095	0.0555
Selenium	mg/L	*0.00427*	*0.00282*	*0.00048*	*0.00060*	*0.00034*	0.00035	0.00026	0.00023	< 0.00010	< 0.00010	0.00015	0.00042	< 0.00010	< 0.00010	< 0.00010	0.00018	< 0.00010	0.00023	0.00048
Silver	mg/L	*0.00010*	*0.00024*	*0.00004*	*0.00004*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	0.000023
Thallium	mg/L	*0.000200*	*0.000586*	*0.000258*	*0.000027*	*0.000024*	0.000032	0.000022	0.000014	0.000011	< 0.000010	< 0.000010	0.00002	0.000022	< 0.000010	0.000012	0.000024	< 0.000010	0.000025	0.000066
Zinc	mg/L	*0.0043*	*0.0199*	*0.0226*	*0.0111*	*0.0113*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0091

ST-WT-4	Unit	*Annual Average*					7/4/2023	7/16/2023	7/30/2023	8/6/2023	8/26/2023	9/3/2023	9/17/2023	10/1/2023	10/15/2023	11/7/2023	11/27/2023	12/4/2023	12/17/2023
Parameter		*2019*	*2020*	*2021*	*2022*	*2023*													
Field Measured																			
Temperature	°C	*6.1*	*4.0*	*1.9*	*2.6*	*2.3*	12.8	7.2	7.5	7.1	5.5	7.5	2.9	1.9	2.1	0.1	0.1	0.1	-0.2
pH	pH units	*7.49*	*7.81*	*7.48*	*7.24*	*7.74*	7.79	7.43	7.62	9.67	7.41	7.77	7.67	9.42	7.73	8.46	7.27	6.83	7.87
Conductivity	uS/cm	*952.0*	*701.0*	*417.0*	*492.0*	*483.1*	716	555	334	372	449	1495	1457	743	697	410	551	4.61	376
Turbidity	NTU	*42.80*	*65.80*	*77.90*	*13.10*	*17.43*	10.60	14.50	9.71	8.71	9.90	10.70	5.19	7.13	96.70	6.97	10.10	11.1	7.81
Conventional Parameters																			
Hardness, as $CaCO_3$	mg/L	*323*	*353*	*255*	*188*	*179*	244	194	122	132	153	587	444	301	248	154	175	172	137
Total alkalinity, as $CaCO_3$	mg/L	*71*	*118*	*67*	*69*	*65*	73	72	39	16	48	90	170	35	62	47	65	77	63
TDS	mg/L	*559*	*454*	*275*	*394*	*321*	450	435	335	250	360	1020	775	430	510	340	325	270	275
TSS	mg/L	*90*	*1953*	*1813*	*12*	*24*	25	18	6	16	5	12	43	30	150	13	3	14	7
Major Ions																			
Chloride	mg/L	*105*	*112*	*49*	*47*	*59*	29	58	50	58	58	190	130	140	130	73	73	52	42
Fluoride	mg/L	*0.15*	*0.20*	*0.21*	*0.22*	*0.21*	0.25	0.19	0.20	0.22	0.20	0.26	0.21	0.16	0.19	0.25	0.20	0.20	0.21
Sulfate	mg/L	*123*	*59*	*54*	*84*	*66*	170	78	49	50	68	290	200	86	65	47	53	49	42
Nutrients																			
Total Ammonia (NH_3)	mg/L	*-*	*-*	*1.64*	*2.99*	*5.00*	7.80	3.40	0.79	0.83	1.20	3.90	41	0.33	2.10	0.67	5.70	7.00	2.20
Ammonia Nitrogen	mg N/L	*-*	*4.79*	*1.38*	*2.46*	*4.12*	6.40	2.80	0.65	0.68	0.96	3.20	34	0.27	1.70	0.55	4.70	5.70	1.80
Nitrate	mg N/L	*16.33*	*9.76*	*2.76*	*4.14*	*5.01*	10.5	4.21	0.54	0.60	0.99	14.10	43.60	0.33	1.95	0.36	5.10	5.79	1.80
Nitrite	mg N/L	*0.760*	*0.499*	*0.219*	*0.230*	*0.184*	0.286	0.201	0.027	0.061	0.055	1.19	1.05	0.025	0.102	< 0.010	0.181	0.29	0.075
Total phosphorus	mg P/L	*0.06*	*0.06*	*0.93*	*0.04*	*0.04*	0.016	0.066	0.015	0.0081	< 0.0010	0.18	0.028	0.0029	0.22	0.006	0.004	0.015	0.0057
Total Metals																			
Aluminum	mg/L	*1.500*	*4.890*	*8.252*	*0.400*	*0.680*	0.670	0.614	0.215	0.110	0.189	0.347	1.150	0.231	4.430	0.145	0.0669	0.468	0.199
Arsenic	mg/L	*0.0400*	*0.0533*	*0.1453*	*0.6933*	*0.1512*	0.0163	0.461	0.0364	0.0174	0.022	1.97	0.0427	0.0187	0.0204	0.0163	0.0242	0.0225	0.0208
Barium	mg/L	*0.122*	*0.282*	*0.183*	*0.077*	*0.075*	0.0769	0.0733	0.0422	0.064	0.076	0.0702	0.0972	0.157	0.104	0.0712	0.0847	0.0764	0.0605
Cadmium	mg/L	*0.000032*	*0.000031*	*0.000067*	*0.000023*	*0.000036*	< 0.000010	0.000024	< 0.000010	0.000011	0.000318	< 0.000050	0.000029	0.000205	0.000083	0.000016	< 0.000010	0.000015	0.000012
Chromium	mg/L	*0.0369*	*0.1593*	*0.2670*	*0.0136*	*0.0124*	0.0101	0.0063	0.0048	0.0048	0.0016	0.0117	0.0142	0.0039	0.0296	0.0057	0.0027	0.006	0.0035
Copper	mg/L	*0.00951*	*0.02253*	*0.01390*	*0.00425*	*0.00144*	0.00193	0.00124	< 0.00050	< 0.00050	< 0.00050	< 0.0025	0.0019	< 0.00050	0.00463	< 0.00050	0.0023	0.00295	0.00083
Iron	mg/L	*2.71*	*6.43*	*15.09*	*1.02*	*1.49*	1.15	1.28	0.477	0.241	0.523	0.733	2.42	0.953	9.07	0.415	0.358	1.01	0.482
Lead	mg/L	*0.00125*	*0.00762*	*0.01095*	*0.00143*	*0.00139*	0.00089	0.00147	0.00157	0.0007	0.00072	< 0.0010	0.00318	0.00108	0.00834	0.00053	0.00051	0.00143	0.00081
Manganese	mg/L	*0.377*	*0.442*	*0.590*	*0.244*	*0.218*	0.293	0.236	0.0602	0.0817	0.273	0.324	0.468	0.516	0.406	0.229	0.166	0.119	0.155
Mercury	mg/L	*0.00004*	*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	mg/L	*0.0092*	*0.0214*	*0.0093*	*0.0231*	*0.0361*	0.0804	0.0302	0.0239	0.0341	0.0134	0.0265	0.0664	0.0105	0.0229	0.0106	0.0466	0.0568	0.0285
Nickel	mg/L	*0.0410*	*0.0735*	*0.1237*	*0.1138*	*0.0326*	0.0307	0.0679	0.0037	0.0037	0.0124	0.266	0.0405	0.0072	0.0197	0.0046	0.0086	0.0164	0.0119
Selenium	mg/L	*0.00427*	*0.00282*	*0.00048*	*0.00060*	*0.00034*	0.00095	0.00042	0.00035	0.00038	0.00014	0.00174	0.00107	< 0.00010	0.00022	< 0.00010	0.00036	0.00041	0.00014
Silver	mg/L	*0.00010*	*0.00024*	*0.00004*	*0.00004*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.00010	< 0.000020	< 0.000020	0.000034	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000200*	*0.000586*	*0.000258*	*0.000027*	*0.000024*	0.000045	0.000026	< 0.000010	< 0.000010	0.000011	< 0.000050	0.000039	0.000017	0.000074	< 0.000010	0.000018	0.000026	0.000018
Zinc	mg/L	*0.0043*	*0.0199*	*0.0226*	*0.0111*	*0.0113*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0852	< 0.025	< 0.0050	0.0492	0.0264	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-41 IVR Pit Sump 2023 Water Quality Monitoring (ST-WT-18) §

ST-WT-18	Unit	*Annual Average*				6/20/2023	6/26/2023
Parameter		***2020***	***2021***	***2022***	***2023***		
Field Measured							
Temperature	°C	*2.8*	*4.3*	*5.5*	*6.5*	7.5	5.4
pH	pH units	*7.39*	*7.77*	*7.43*	*7.84*	7.79	7.89
Conductivity	uS/cm	*1009.0*	*1971.8*	*1300.3*	*445.0*	319	571
Turbidity	NTU	*36.00*	*450.00*	*108.00*	*9.59*	5.37	13.80
Conventional Parameters							
Hardness, as $CaCO_3$	mg/L	*610*	*1400*	*534*	*156*	109	202
Total alkalinity, as $CaCO_3$	mg/L	*78*	*105*	*98*	*72*	56	87
TDS	mg/L	*723*	*1173*	*750*	*290*	175	405
TSS	mg/L	*28*	*7872*	*458*	*7*	5	8
Major Ions							
Chloride	mg/L	*297*	*378*	*203*	*31*	21	40
Fluoride	mg/L	*0.12*	*0.18*	*0.17*	*0.19*	0.15	0.22
Sulfate	mg/L	*35*	*198*	*180*	*88*	56	120
Nutrients							
Ammonia (NH_3)	mg/L	*-*	*10.7*	*9.8*	*4.8*	2.9	6.6
Ammonia Nitrogen	mg N/L	*1.4*	*9.0*	*8.0*	*3.9*	2.4	5.4
Nitrate	mg N/L	*2.1*	*15.4*	*15.3*	*5.6*	3.4	7.9
Nitrite	mg N/L	*0.19*	*1.51*	*0.98*	*0.17*	0.10	0.24
Total phosphorus	mg P/L	*0.02*	*3.84*	*0.20*	*0.02*	0.02	0.03
Total Metals							
Aluminum	mg/L	*0.6*	*48.2*	*6.5*	*0.2*	0.2	0.3
Arsenic	mg/L	*0.00*	*3.42*	*4.49*	*0.41*	0.31	0.51
Barium	mg/L	*0.304*	*0.736*	*0.157*	*0.031*	0.0264	0.0362
Cadmium	mg/L	*0.00002*	*0.00036*	*0.00009*	*0.00001*	< 0.000010	0.000013
Chromium	mg/L	*0.009*	*1.903*	*0.392*	*0.005*	0.0035	0.0059
Copper	mg/L	*0.0044*	*0.0610*	*0.0063*	*0.0016*	0.00118	0.00204
Iron	mg/L	*1.1*	*81.0*	*10.5*	*0.5*	0.330	0.581
Lead	mg/L	*0.0002*	*0.0402*	*0.0026*	*0.0004*	< 0.00020	0.00064
Manganese	mg/L	*2.36*	*3.16*	*0.17*	*0.15*	0.116	0.189
Mercury	mg/L	*0.000010*	*0.000064*	*0.000010*	*0.000010*	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0019*	*0.0082*	*0.0163*	*0.0298*	0.0209	0.0386
Nickel	mg/L	*0.032*	*1.031*	*0.306*	*0.055*	0.0404	0.0704
Selenium	mg/L	*0.00075*	*0.00289*	*0.00273*	*0.00060*	0.00047	0.00073
Silver	mg/L	*0.00010*	*0.00127*	*0.00015*	*0.00002*	< 0.000020	< 0.000020
Thallium	mg/L	*0.000200*	*0.001706*	*0.000164*	*0.000020*	0.000016	0.000024
Zinc	mg/L	*0.006*	*0.110*	*0.054*	*0.005*	< 0.0050	< 0.0050

8.5.3.2.7 Whale Tail South Channel / Lake A45 (ST-WT-13) §

In 2023, water from the Whale Tail South Channel (former Lake A45) (ST-WT-13) was sampled on a monthly basis during open water as per the requirements in the NWB Water License (sampling station ST-WT-13 on Figure 4). Applicable license limits for this station include effluent water quality limits for TSS of 15 mg/L for the maximum authorized monthly mean and 30 mg/L for the maximum authorized concentration in a grab sample. Monthly results are presented in Table 8-43. The total monthly flow in the Whale Tail South Channel is presented in Table 8-42.

Table 8-42 Whale Tail South Channel Flow 2023§

Month	Total Monthly Flow (m^3)
January	-
February	-
March	-
April	-
May	1,017,458
June	951,518
July	297,296
August	11,505
September	330,053
October	405,417
November	204,560
December	-
Total	**3,217,808**

8.5.3.2.8 Lake A16 Outlet (ST-WT-14) §

In 2023, water from the Lake A16 outlet (ST-WT-14) was sampled in July, August, September and October during open water as per the monthly requirements in the NWB Water License (sampling station ST-WT-14 on Figure 4). There are no applicable license limits. Results are presented in Table 8-44.

8.5.3.2.9 Lake A15 (ST-WT-15) §

In 2023, water from the Lake A15 (ST-WT-15) was sampled in July, August, September and October during open water as per the monthly requirements in the NWB Water License (sampling station ST-WT-15 on Figure 4). There are no applicable license limits. Results are presented in Table 8-45.

Table 8-43 Whale Tail South Channel Water 2023 Quality Monitoring (ST-WT-13) §

ST-WT-13 Parameter	Max grab	Monthly mMean	Unit	Annual Average 2019*	2020	2021	2022	2023	5/28/2023	6/11/2023	7/2/2023	8/6/2023	9/3/2023	10/1/2023
Field Measured														
Temperature			°C	*6.1*	*5.8*	*5.5*	*6.5*	*6.1*	0.8	2.9	14.0	12.0	4.4	2.2
pH			pH units	*7.40*	*7.52*	*7.75*	*7.48*	*7.54*	7.13	7.35	7.34	7.97	7.61	7.81
Conductivity			uS/cm	*22.7*	*52.3*	*44.0*	*83.4*	*66.8*	44.8	54.8	64.0	81.1	86.3	69.7
Turbidity			NTU	*0.98*	*1.59*	*2.25*	*6.68*	*1.61*	2.50	1.13	0.80	1.62	2.42	1.19
Conventional Parameters														
TSS	30	15	mg/L	*2*	*3*	*2*	*3*	*1*	3	< 1	< 1	1	1	< 1
Major Ions														
Sulfate			mg/L	*1.3*	*3.5*	*2.3*	*4.5*	*5.9*	3.3	4.8	6.1	7.3	7.4	6.3
Nutrients														
Ammonia Nitrogen			mg N/L	*-*	*-*	*0.066*	*0.050*	*0.057*	< 0.050	0.058	< 0.050	< 0.050	0.085	< 0.050
Un-Ionized Ammonia, calculated			mg N/L	*-*	*-*	*0.00079*	*0.00060*	*0.00071*	< 0.00061	< 0.00061	< 0.00061	< 0.0012	< 0.00061	< 0.00061
Total Metals														
Aluminum			mg/L	*0.0098*	*0.0472*	*0.0589*	*0.0936*	*0.0356*	0.1020	0.0112	0.0115	0.0461	0.0321	0.0107
Arsenic			mg/L	*0.00050*	*0.00336*	*0.00148*	*0.00541*	*0.00229*	0.00112	0.00062	0.00144	0.00566	0.00344	0.00146
Copper			mg/L	*0.00050*	*0.00106*	*0.00055*	*0.00089*	*0.00055*	< 0.00050	< 0.00050	< 0.00050	0.00065	0.00062	< 0.00050
Lead			mg/L	*0.00030*	*0.00020*	*0.00020*	*0.00028*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Nickel			mg/L	*0.0005*	*0.0010*	*0.0018*	*0.0017*	*0.0020*	0.0018	0.0055	0.0015	< 0.0010	< 0.0010	< 0.0010
Zinc			mg/L	*0.0013*	*0.0010*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

** Prior to Whale Tail South Channel construction*

Table 8-44 Whale Tail 2023 Lake A16 Outlet Water Quality Monitoring (ST-WT-14) §

ST-WT-14 Parameter	Unit	Annual Average 2019	2020	2021	2022	2023	7/2/2023	8/29/2023	9/18/2023	10/2/2023
Field Measured										
Temperature	°C	*7.3*	*8.8*	*10.8*	*15.3*	*6.7*	13.0	7.1	6.0	0.6
pH	pH units	*6.87*	*7.28*	*7.66*	*7.06*	*6.96*	7.25	6.09	7.00	7.50
Conductivity	uS/cm	*75.0*	*203.0*	*107.1*	*113.0*	*132.8*	111.1	131.6	139.3	149.2
Turbidity	NTU	*0.50*	*0.64*	*0.75*	*0.70*	*1.02*	0.76	0.58	1.19	1.55
Conventional Parameters										
Hardness, as $CaCO_3$	mg/L	*22.3*	*86.5*	*39.6*	*41.1*	*43.6*	36.9	42.2	43.4	51.7
Total alkalinity, as $CaCO_3$	mg/L	*10*	*49*	*11*	*14*	*16*	14	16	16	17
Carbonate, as $CaCO_3$	mg/L	*2*	*4*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*10*	*49*	*11*	*14*	*16*	14	16	16	17
TDS	mg/L	*50*	*142*	*70*	*82*	*74*	80	80	70	65
TSS	mg/L	*1*	*2*	*2*	*1*	*1*	< 1	< 1	< 1	< 1
Total organic carbon	mg/L	*1.6*	*2.9*	*1.9*	*2.6*	*2.2*	2.1	2.1	2.3	2.4
Dissolved organic carbon	mg/L	*1.8*	*3.3*	*1.7*	*2.3*	*2.2*	2.1	2.1	2.2	2.3
Major Ions										
Chloride	mg/L	*12*	*37*	*16*	*14*	*14*	10	13	15	16
Silica	mg/L	*0.8*	*15.9*	*0.9*	*0.3*	*0.8*	0.6	0.7	0.9	1.0
Sulfate	mg/L	*5*	*19*	*12*	*15*	*19*	13	17	20	25
Nutrients										
Ammonia (NH_3)	mg/L	-	-	*0.061*	*0.094*	*0.067*	0.072	0.074	< 0.061	< 0.061
Ammonia Nitrogen	mg N/L	*0.03*	*0.03*	*0.05*	*0.08*	*0.06*	0.059	0.061	< 0.050	< 0.050
Nitrate	mg N/L	*0.01*	*0.56*	*0.35*	*0.22*	*0.36*	0.28	0.28	0.40	0.46
Nitrite	mg N/L	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*0.26*	*0.27*	*0.12*	*0.24*	*0.15*	0.15	0.12	0.23	< 0.10
Total phosphorus	mg P/L	*0.010*	*0.019*	*0.002*	*0.003*	*0.001*	0.0014	0.0023	< 0.0010	< 0.0010
Orthophosphate	mg P/L	*0.01*	*0.02*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals										
Aluminum	mg/L	*0.0077*	*0.0060*	*0.0109*	*0.0062*	*0.0051*	0.0064	0.0040	0.0039	0.0059
Antimony	mg/L	*0.0001*	*0.0001*	*0.0005*	*0.0008*	*0.0005*	0.00055	< 0.00050	0.00053	0.00059
Arsenic	mg/L	*0.00050*	*0.00063*	*0.00059*	*0.00090*	*0.00063*	0.00069	0.0006	0.00059	0.00062
Barium	mg/L	*0.0076*	*0.0473*	*0.0171*	*0.0165*	*0.0148*	0.0146	0.0128	0.0150	0.0168
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00003*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Calcium (total)	mg/L	*6.78*	*25.40*	*11.40*	*11.67*	*12.48*	10.6	12.0	12.6	14.7
Chromium	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.00067*	*0.00130*	*0.00061*	*0.00069*	*0.00056*	< 0.00050	0.00074	< 0.00050	< 0.00050
Iron	mg/L	*0.023*	*0.025*	*0.028*	*0.018*	*0.022*	0.018	0.030	0.019	0.021
Lead	mg/L	*0.0003*	*0.0003*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.006*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Magnesium (total)	mg/L	*1.6*	*5.7*	*2.7*	*2.9*	*3.0*	2.53	2.98	2.90	3.62
Manganese	mg/L	*0.0012*	*0.0084*	*0.0035*	*0.0017*	*0.0020*	0.0024	< 0.0010	0.0020	0.0025
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0005*	*0.0005*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.0011*	*0.0029*	*0.0014*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Potassium (total)	mg/L	*1.2*	*4.4*	*2.5*	*2.8*	*2.7*	2.46	2.60	2.72	3.01
Selenium	mg/L	*0.0005*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Sodium (total)	mg/L	*0.86*	*3.29*	*1.72*	*2.15*	*2.23*	2.07	2.27	2.16	2.43
Strontium	mg/L	-	-	*0.0732*	*0.0820*	*0.0876*	0.0738	0.0821	0.0903	0.104
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Vanadium	mg/L	*0.0005*	*0.0005*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.012*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Dissolved Metals										
Aluminum	mg/L	*0.0005*	*0.0060*	*0.0047*	*0.0069*	*0.0035*	0.0037	< 0.0030	< 0.0030	0.0044
Antimony	mg/L	*0.0001*	*0.0001*	*0.0005*	*0.0008*	*0.0006*	0.00057	0.00054	0.00062	0.00066
Arsenic	mg/L	*0.00050*	*0.00050*	*0.00099*	*0.00099*	*0.00150*	0.00091	0.00057	0.00109	0.00344
Barium	mg/L	*0.0071*	*0.0421*	*0.0173*	*0.0157*	*0.0159*	0.0153	0.0149	0.0154	0.0178
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	-	-	*0.000011*	*0.000010*	*0.000012*	< 0.000010	< 0.000010	< 0.000010	0.000019
Chromium	mg/L	*0.0006*	*0.0006*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.00057*	*0.00065*	*0.00057*	*0.00160*	*0.00078*	0.00096	0.00118	0.00048	0.00049
Iron	mg/L	*0.010*	*0.010*	*0.009*	*0.008*	*0.007*	0.0081	0.0089	0.0073	0.0053
Lead	mg/L	*0.0011*	*0.0003*	*0.0002*	*0.0003*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	0.0021
Manganese	mg/L	*0.0005*	*0.0047*	*0.0019*	*0.0010*	*0.0028*	0.0024	0.0011	0.0028	0.005
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0005*	*0.0005*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.0008*	*0.0025*	*0.0015*	*0.0011*	*0.0013*	0.0013	0.0011	0.0011	0.0016
Selenium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Strontium	mg/L	-	-	*0.0732*	*0.0786*	*0.0972*	0.0784	0.0935	0.100	0.117
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	0.00011	< 0.00010
Vanadium	mg/L	*0.0005*	*0.0005*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.002*	*0.002*	*0.005*	*0.008*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-45 Whale Tail 2023 Lake A15 Outlet Water Quality Monitoring (ST-WT-15) §

ST-WT-15	Unit	*Annual Average*					7/2/2023	8/29/2023	9/18/2023	10/2/2023
Parameter		***2019***	***2020***	***2021***	***2022***	***2023***				
Field Measured										
Temperature	°C	*7.8*	*9.1*	*11.2*	*14.5*	*6.1*	12.1	5.8	6.0	0.5
pH	pH units	*6.88*	*7.44*	*7.56*	*7.10*	*7.10*	7.21	6.75	6.90	7.52
Conductivity	uS/cm	*73.0*	*145.9*	*110.0*	*109.3*	*139.5*	112.4	155.4	142.7	147.4
Turbidity	NTU	*0.76*	*0.48*	*0.71*	*1.33*	*1.07*	0.56	0.56	1.44	1.71
Conventional Parameters										
Hardness, as $CaCO_3$	mg/L	*22*	*58*	*39*	*40*	*47*	35.9	51.7	50.1	50.9
Total alkalinity, as $CaCO_3$	mg/L	*10*	*43*	*11*	*14*	*16*	13	16	18	18
Carbonate, as $CaCO_3$	mg/L	*2*	*4*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*10*	*43*	*11*	*14*	*16*	13	16	18	18
TDS	mg/L	*48*	*100*	*58*	*88*	*84*	65	95	80	95
TSS	mg/L	*1*	*2*	*1*	*2*	*2*	< 1	< 1	< 1	3
Total organic carbon	mg/L	*1.6*	*2.4*	*2.0*	*2.4*	*2.2*	2.2	1.9	1.9	2.7
Dissolved organic carbon	mg/L	*1.6*	*2.4*	*2.0*	*2.3*	*2.0*	2.0	1.9	1.7	2.3
Major Ions										
Chloride	mg/L	*10.7*	*22.9*	*15.7*	*13.7*	*13.8*	11	12	16	16
Silica	mg/L	*0.85*	*1.71*	*0.70*	*0.34*	*0.91*	0.58	0.97	1.10	1.00
Sulfate	mg/L	*5*	*14*	*12*	*15*	*22*	13	27	23	25
Nutrients										
Ammonia (NH_3)	mg/L	*-*	*-*	*0.061*	*0.061*	*0.066*	< 0.061	0.081	< 0.061	< 0.061
Ammonia Nitrogen	mg N/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	0.067	< 0.050	< 0.050
Nitrate	mg N/L	*0.02*	*0.59*	*0.33*	*0.27*	*0.41*	0.35	0.33	0.49	0.48
Nitrite	mg N/L	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*0.28*	*0.25*	*0.13*	*0.11*	*0.16*	0.12	0.15	0.26	< 0.10
Total phosphorus	mg P/L	*0.0100*	*0.0175*	*0.0021*	*0.0040*	*0.0011*	< 0.0010	0.0013	< 0.0010	< 0.0010
Orthophosphate	mg P/L	*0.01*	*0.02*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals										
Aluminum	mg/L	*0.0050*	*0.0060*	*0.0078*	*0.0390*	*0.0062*	0.0069	0.0082	0.0043	0.0054
Antimony	mg/L	*0.00010*	*0.00010*	*0.00063*	*0.00075*	*0.00053*	0.00053	< 0.00050	< 0.00050	0.00057
Arsenic	mg/L	*0.00050*	*0.00050*	*0.00076*	*0.00131*	*0.00058*	0.00059	0.00075	0.00038	0.00058
Barium	mg/L	*0.0071*	*0.0261*	*0.0160*	*0.0182*	*0.0168*	0.0145	0.0178	0.0188	0.0161
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	0.000011	< 0.000010	< 0.000010
Calcium (total)	mg/L	*6.46*	*16.68*	*11.17*	*11.33*	*13.20*	10.2	14.2	14.0	14.4
Chromium	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.00057*	*0.00068*	*0.00052*	*0.00077*	*0.00056*	< 0.00050	0.00071	0.00054	< 0.00050
Iron	mg/L	*0.02*	*0.02*	*0.02*	*0.11*	*0.02*	0.019	0.027	0.011	0.019
Lead	mg/L	*0.0003*	*0.0003*	*0.0002*	*0.0002*	*0.0004*	< 0.00020	0.00083	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Magnesium (total)	mg/L	*1.49*	*3.85*	*2.65*	*2.81*	*3.43*	2.51	3.92	3.67	3.62
Manganese	mg/L	*0.0010*	*0.0018*	*0.0016*	*0.0546*	*0.0019*	0.0011	0.0014	< 0.0010	0.0042
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0005*	*0.0005*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.0010*	*0.0016*	*0.0011*	*0.0022*	*0.0012*	< 0.0010	0.0012	0.0015	< 0.0010
Potassium (total)	mg/L	*1.16*	*3.25*	*2.50-*	*2.73*	*2.66*	2.43	2.53	2.67	2.99
Selenium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Sodium (total)	mg/L	*0.88*	*2.29*	*1.72*	*2.10*	*2.28*	2.07	2.27	2.38	2.40
Strontium	mg/L	*-*	*-*	*0.0755*	*0.0796*	*0.0872*	0.0725	0.0893	0.0848	0.102
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.01*	*0.01*	*0.01*	*0.01*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Vanadium	mg/L	*0.0005*	*0.0005*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Dissolved Metals										
Aluminum	mg/L	*0.0005*	*0.0060*	*0.0037*	*0.0037*	*0.0030*	0.0031	< 0.0030	< 0.0030	< 0.0030
Antimony	mg/L	*0.0001*	*0.0001*	*0.0006*	*0.0007*	*0.0006*	0.00058	< 0.00050	< 0.00050	0.00063
Arsenic	mg/L	*0.00050*	*0.00063*	*0.00074*	*0.00064*	*0.00133*	0.00072	0.00067	0.00105	0.00286
Barium	mg/L	*0.0059*	*0.0246*	*0.0161*	*0.0160*	*0.0190*	0.0163	0.0203	0.0220	0.0175
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*-*	*-*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	0.000017
Chromium	mg/L	*0.0006*	*0.0006*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.00063*	*0.00050*	*0.00047*	*0.00085*	*0.00082*	0.00083	0.00132	0.00062	0.0005
Iron	mg/L	*0.0100*	*0.0100*	*0.0083*	*0.0057*	*0.0059*	0.0058	0.0079	< 0.0050	< 0.0050
Lead	mg/L	*0.0003*	*0.0003*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	0.00026
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	0.0021
Manganese	mg/L	*0.0005*	*0.0013*	*0.0012*	*0.0015*	*0.0022*	< 0.0010	< 0.0010	0.0019	0.0048
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0005*	*0.0005*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.0010*	*0.0016*	*0.0011*	*0.0010*	*0.0015*	0.0010	0.0012	0.0023	0.0016
Selenium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Strontium	mg/L	*-*	*-*	*0.0757*	*0.0753*	*0.0978*	0.0806	0.1020	0.0966	0.1120
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Vanadium	mg/L	*0.0005*	*0.0005*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050

8.5.3.2.10 Whale Tail Dike Seepage (ST-WT-17) §

As discussed in Section 8.5.8.2 below, during dewatering operations of the Whale Tail North Basin, a small inflow of water was observed out of the downstream toe of Whale Tail Dike in a low depression. Once the dewatering of the Whale Tail North Basin was complete in 2020, the seepage water was directed to the Whale Tail Attenuation Pond and managed as part of this infrastructure. The same water management strategy was used in 2023.

Water quality sampling was conducted at least on a monthly basis, in 2023, as per the seepage requirements of the NWB Water License. Sample results are presented in Table 8-46. See Figure 4 for the location of ST-WT-17. Refer to Section 8.5.8.2 for details on the Whale Tail Dike seepage regarding consequences and mitigation measures in place.

8.5.3.2.11 Whale Tail South Transfer (ST-WT-26) §

Water transfer from Whale Tail South to Kangisliluk Lake was not done in 2023 as the Whale Tail South Channel construction was operational. The channel facilitates the passive flow of water from Whale Tail South to Kangislulik Lake.

8.5.3.2.12 Water Ponding Around Whale Tail WRSF (ST-WT-30, ST-WT-31, ST-WT-32, ST-WT-33) §

There are four monitoring stations for water ponding around the Whale Tail WRSF. These locations are outlined in Figure 4. Water quality monitoring was conducted on a monthly basis, during open water season, as per the NWB Water License. ST-WT-32 was not sampled in July as the area was dry during that period. There are no applicable license limits for these monitoring stations. Sample results are presenting in Table 8-47 for ST-WT-30, Table 8-48 for ST-WT-31, Table 8-49 for ST-WT-32, and Table 8-50 for ST-WT-33.

8.5.3.2.13 Water Ponding Around IVR WRSF (ST-WT-28, ST-WT-34, ST-WT-35, ST-WT-36) §

There are four monitoring stations for water ponding around the IVR WRSF (ST-WT-34, ST-WT-35 and ST-WT-36) and one sump (ST-WT-28). These locations are outlined in Figure 4. Water quality monitoring was conducted on a monthly basis, during open water season, as per the NWB Water License. There are no applicable license limits for these monitoring stations. Sample results are presented in Table 8-51 for ST-WT-34, Table 8-52 for ST-WT-28, Table 8-53 for ST-WT-35, and Table 8-54 for ST-WT-36.

8.5.3.2.14 IVR Diversion Channel (ST-WT-37) §

The IVR Diversion Channel was constructed in Q3 2020 and was commissioned during freshet in 2021. The purpose of the channel is to direct non-contact water from the North-East watershed towards Nemo Lake. Applicable license limits for this station include effluent water quality limits for TSS of 15 mg/L for the maximum authorized monthly mean and 30 mg/L for the maximum authorized concentration in a grab sample. The location is outlined in Figure 4 and results from samples collected in 2023 are provided in Table 8-55.

Table 8-46 Whale Tail Dike Seepage 2023 Water Quality Monitoring (ST-WT-17) §

ST-WT-17	Unit	*Annual Average*					1/1/2023	2/5/2023	2/19/2023	3/5/2023	4/3/2023	5/1/2023	6/5/2023	7/3/2023	8/6/2023	9/3/2023	10/1/2023	11/5/2023	12/3/2023
Parameter		*2019*	*2020*	*2021*	*2022*	*2023*													
Field Measured																			
Temperature	°C	*6.6*	*3.5*	*3.1*	*1.7*	*2.4*	-0.4	0.1	-0.3	0.1	0.2	0.3	6.5	8.6	6.8	4.7	2.7	0.9	0.9
pH	pH units	*8.10*	*9.65*	*9.24*	*8.44*	*7.42*	7.09	7.37	7.60	6.41	6.69	7.45	7.41	7.66	8.12	8.23	7.13	6.7	8.57
Conductivity	uS/cm	*126.7*	*171.2*	*145.9*	*171.0*	*169.8*	162.3	156.5	177.8	182.0	187.1	202.5	172.2	177.7	153.9	173.9	160.4	154.2	146.4
Turbidity	NTU	*21.70*	*5.50*	*7.20*	*11.70*	*12.04*	13.50	16.80	12.50	15.50	14.30	56.90	7.73	3.89	2.39	2.94	2.43	3.84	3.82
Conventional Parameters																			
Hardness, as $CaCO_3$	mg/L	*44*	*64*	*57*	*63*	*63*	68.0	70.7	73.1	63.8	70.9	77.6	64.4	55.8	52.3	58.7	54.2	51.0	63.6
Total alkalinity, as $CaCO_3$	mg/L	*30*	*56*	*37*	*37*	*35*	36	37	37	37	38	42	37	31	33	34	32	33	34
TDS	mg/L	*87*	*87*	*93*	*101*	*115*	95	105	130	110	160	135	115	105	135	95	75	115	115
TSS	mg/L	*17*	*5*	*14*	*13*	*11*	6	16	8	27	10	41	22	1	1	3	1	3	3
Major Ions																			
Chloride	mg/L	*18*	*16*	*14*	*14*	*15*	16	18	18	19	19	17	14	12	11	12	13	13	12
Fluoride	mg/L	*0.10*	*0.11*	*0.11*	*0.11*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11	0.12	0.1	0.1	< 0.10
Sulfate	mg/L	*7.3*	*9.8*	*11.7*	*16.8*	*23.7*	24	23	25	25	26	26	23	20	22	27	23	20	24
Nutrients																			
Ammonia (NH_3)	mg/L	*-*	*-*	*0.059*	*0.062*	*0.070*	< 0.061	< 0.061	< 0.061	0.070	< 0.061	0.080	< 0.061	< 0.061	< 0.061	< 0.061	0.150	< 0.061	< 0.061
Ammonia Nitrogen	mg N/L	*0.030*	*0.021*	*0.051*	*0.051*	*0.057*	< 0.050	< 0.050	< 0.050	0.058	< 0.050	0.066	< 0.050	< 0.050	< 0.050	< 0.050	0.120	< 0.050	< 0.050
Nitrate	mg N/L	*0.12*	*0.21*	*0.34*	*0.35*	*0.39*	0.40	0.44	0.43	0.50	0.50	0.59	0.45	0.32	0.31	0.35	0.28	0.24	0.26
Nitrite	mg N/L	*0.02*	*0.02*	*0.01*	*0.01*	*0.01*	< 0.010	0.011	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total phosphorus	mg P/L	*0.023*	*0.021*	*0.013*	*0.013*	*0.008*	0.0026	0.0016	0.0070	0.0099	0.0082	0.0580	0.0059	0.0017	0.0026	< 0.0010	< 0.0010	0.0020	0.0017
Total Metals																			
Aluminum	mg/L	*0.310*	*0.110*	*0.163*	*0.317*	*0.173*	0.149	0.121	0.0889	0.114	0.145	1.330	0.105	0.0232	0.0236	0.0418	0.0248	0.0462	0.0398
Arsenic	mg/L	*0.0113*	*0.0112*	*0.0076*	*0.0079*	*0.0051*	0.00552	0.00511	0.0048	0.00439	0.00417	0.0066	0.00531	0.00432	0.0037	0.00418	0.00461	0.0068	0.00743
Barium	mg/L	*0.0262*	*0.0315*	*0.0261*	*0.0310*	*0.0327*	0.0324	0.0353	0.0365	0.034	0.0382	0.0524	0.0341	0.0283	0.0275	0.0308	0.026	0.0242	0.0258
Cadmium	mg/L	*0.000048*	*0.000022*	*0.000013*	*0.000014*	*0.000016*	0.000012	0.000012	< 0.000010	0.000013	0.000012	0.000023	0.000016	0.000018	0.000023	0.000034	0.000019	< 0.000010	< 0.000010
Chromium	mg/L	*0.003*	*0.002*	*0.003*	*0.008*	*0.003*	< 0.0010	0.0013	0.0026	0.0011	< 0.0010	0.0198	0.0011	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.009*	*0.002*	*0.002*	*0.002*	*0.001*	0.00133	0.00128	0.00118	0.00118	0.00115	0.00243	0.00103	0.00093	0.00103	0.00113	0.001	0.00106	0.00103
Iron	mg/L	*0.77*	*0.23*	*0.33*	*0.70*	*0.90*	0.974	0.985	0.976	0.969	1.10	3.14	0.70	0.446	0.392	0.391	0.44	0.606	0.643
Lead	mg/L	*0.0004*	*0.0003*	*0.0003*	*0.0004*	*0.0003*	0.00024	< 0.00020	< 0.00020	0.0003	0.00028	0.0014	< 0.00020	< 0.00020	< 0.00020	0.0002	< 0.00020	< 0.00020	< 0.00020
Manganese	mg/L	*0.078*	*0.044*	*0.091*	*0.109*	*0.157*	0.153	0.153	0.170	0.196	0.209	0.207	0.181	0.125	0.117	0.135	0.120	0.139	0.139
Mercury	mg/L	*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	mg/L	*0.0025*	*0.0019*	*0.0020*	*0.0004*	*0.0017*	0.0015	0.0018	0.0034	0.0013	0.0012	0.0014	0.0014	0.0015	0.0013	0.0015	0.0015	0.0018	0.0019
Nickel	mg/L	*0.0030*	*0.0019*	*0.0019*	*0.0004*	*0.0027*	0.0013	0.0031	0.0098	0.0014	0.0015	0.0082	0.0016	0.0011	0.0014	0.0018	0.0013	0.0011	< 0.0010
Selenium	mg/L	*0.00099*	*0.00089*	*0.00025*	*0.00012*	*0.00010*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Silver	mg/L	*0.00049*	*0.00010*	*0.00003*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*-*	*0.00020*	*0.00003*	*0.00001*	*0.00001*	0.000011	< 0.000010	< 0.000010	0.000021	< 0.000010	0.000027	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Zinc	mg/L	*0.002*	*0.004*	*0.005*	*0.006*	*0.006*	< 0.0050	< 0.0050	< 0.0050	0.0074	< 0.0050	0.0081	< 0.0050	< 0.0050	< 0.0050	0.0065	< 0.0050	< 0.0050	< 0.0050

Table 8-47 Whale Tail WRSF Ponding 2023 Water Quality Monitoring (ST-WT-30) §

ST-WT-30	Unit	*Annual Average*				5/28/2023	6/11/2023	7/2/2023	8/6/2023	9/30/2023
Parameter		***2020****	***2021***	***2022***	***2023***					
Field Measured										
Temperature	°C	*4.9*	*7.7*	*6.5*	*7.1*	3.0	5.3	13.3	12.1	1.8
pH	pH units	*7.07*	*7.35*	*7.03*	*7.17*	7.22	7.38	6.97	7.23	7.04
Conductivity	uS/cm	*209.1*	*172.5*	*163.0*	*246.8*	52.4	132.4	183	499	367
Turbidity	NTU	*4.30*	*8.70*	*8.50*	*5.71*	18.50	4.06	1.36	3.73	0.91
Conventional Parameters										
Hardness, as $CaCO_3$	mg/L	*103*	*70*	*76*	*91*	20.7	48	68	182	136
Total alkalinity, as $CaCO_3$	mg/L	*65*	*33*	*45*	*35*	17	26	32	42	57
TDS	mg/L	*-*	*113*	*121*	*157*	30	115	125	360	155
TSS	mg/L	*7*	*3*	*4*	*3*	10	1	2	2	1
Major Ions										
Chloride	mg/L	*7.4*	*4.2*	*3.8*	*2.5*	< 1.0	1.5	1	3.3	5.5
Fluoride	mg/L	*0.04*	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*31.5*	*31.9*	*34.9*	*59.9*	4.6	28	42	140	85
Nutrients										
Ammonia (NH_3)	mg/L	*-*	*0.185*	*0.093*	*0.081*	0.15	< 0.061	< 0.061	0.07	< 0.061
Ammonia Nitrogen	mg N/L	*0.240*	*0.153*	*0.075*	*0.065*	0.12	< 0.050	< 0.050	0.057	< 0.050
Nitrate	mg N/L	*1.93*	*2.71*	*1.60*	*5.03*	0.21	1.68	1.91	16.4	4.97
Nitrite	mg N/L	*0.090*	*0.029*	*0.019*	*0.019*	0.012	< 0.010	< 0.010	0.053	< 0.010
Total Metals										
Aluminum	mg/L	*0.1465*	*0.1980*	*0.2614*	*0.1247*	0.447	0.0665	0.0323	0.0647	0.0129
Arsenic	mg/L	*0.0171*	*0.0115*	*0.0113*	*0.0048*	0.00797	0.00323	0.00311	0.00793	0.00183
Barium	mg/L	*0.0626*	*0.0441*	*0.0442*	*0.0429*	0.0169	0.0311	0.0419	0.0789	0.0459
Cadmium	mg/L	*0.000020*	*0.000016*	*0.000017*	*0.000013*	0.000016	0.000011	< 0.000010	0.000015	0.000014
Chromium	mg/L	*0.0021*	*0.0057*	*0.0074*	*0.0031*	0.0101	0.0014	< 0.0010	0.0021	< 0.0010
Copper	mg/L	*0.00290*	*0.00204*	*0.00212*	*0.00137*	0.00179	0.00121	0.00117	0.00162	0.00106
Iron	mg/L	*0.705*	*0.388*	*0.548*	*0.222*	0.790	0.126	0.060	0.114	0.022
Lead	mg/L	*0.00017*	*0.00047*	*0.00049*	*0.00031*	0.00076	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Manganese	mg/L	*1.386*	*0.117*	*0.124*	*0.068*	0.0997	0.0458	0.0213	0.0566	0.117
Mercury	mg/L	*0.00003*	*0.00001*	*0.00001*	*0.00001*	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	0.0019	< 0.0010
Nickel	mg/L	*0.0169*	*0.0125*	*0.0102*	*0.0076*	0.0078	0.0072	0.0064	0.0103	0.0063
Selenium	mg/L	*0.00100*	*0.00119*	*0.00067*	*0.00119*	0.00021	0.00072	0.00073	0.00252	0.00179
Silver	mg/L	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000200*	*0.000022*	*0.000019*	*0.000015*	0.000013	0.00001	0.000014	0.000026	< 0.000010
Zinc	mg/L	*0.0025*	*0.0055*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

**2020 Annual average from Perim-0.*

Table 8-48 Whale Tail WRSF Ponding 2023 Water Quality Monitoring (ST-WT-31) §

ST-WT-31 Parameter	Unit	*Annual Average*			5/28/2023	6/11/2023	7/2/2023	8/6/2023	9/30/2023
		*2020**	*2021*	*2023*					
Field Measured									
Temperature	°C	*5.4*	*6.7*	*5.4*	2.5	3.5	9.8	9.5	1.8
pH	pH units	*7.27*	*7.33*	*7.22*	7.33	7.24	6.81	7.44	7.27
Conductivity	uS/cm	*130.5*	*163.0*	*220.3*	23.4	95.0	216.2	260	507
Turbidity	NTU	*21.30*	*11.00*	*4.28*	7.66	4.34	2.25	5.62	1.55
Conventional Parameters									
Hardness, as $CaCO_3$	mg/L	*65.0*	*63.8*	*82.2*	8.78	32.1	80.3	94.9	195
Total alkalinity, as $CaCO_3$	mg/L	*35*	*30*	*36*	7.5	24	45	50	55
TDS	mg/L	*-*	*104*	*157*	20	115	110	210	330
TSS	mg/L	*16*	*6*	*5*	20	1	1	2	< 1
Major Ions									
Chloride	mg/L	*5.7*	*3.8*	*2.0*	< 1.0	1.8	1.7	< 1.0	4.3
Fluoride	mg/L	*0.03*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*41.6*	*31.0*	*54.7*	1.5	16	48	58	150
Nutrients									
Ammonia (NH_3)	mg/L	*-*	*0.119*	*0.094*	0.220	0.069	< 0.061	< 0.061	< 0.061
Ammonia Nitrogen	mg N/L	*0.065*	*0.096*	*0.077*	0.180	0.057	< 0.050	< 0.050	< 0.050
Nitrate	mg N/L	*0.34*	*2.68*	*4.13*	0.11	0.40	1.88	4.06	14.20
Nitrite	mg N/L	*0.030*	*0.015*	*0.014*	< 0.010	< 0.010	< 0.010	0.028	0.014
Total Metals									
Aluminum	mg/L	*0.7625*	*0.2896*	*0.1021*	0.183	0.114	0.0885	0.103	0.0219
Arsenic	mg/L	*0.0622*	*0.0132*	*0.0205*	0.00704	0.00684	0.0161	0.0384	0.0341
Barium	mg/L	*0.0375*	*0.0371*	*0.0392*	0.0067	0.0202	0.0427	0.0507	0.0755
Cadmium	mg/L	*0.000020*	*0.000021*	*0.000016*	< 0.000010	0.000015	0.000031	< 0.000010	0.000013
Chromium	mg/L	*0.0183*	*0.0076*	*0.0028*	0.0043	0.0028	0.0022	0.0035	< 0.0010
Copper	mg/L	*0.00275*	*0.00221*	*0.00160*	0.0011	0.00208	0.00186	0.00161	0.00133
Iron	mg/L	*1.400*	*0.464*	*0.185*	0.327	0.213	0.171	0.181	0.034
Lead	mg/L	*0.00039*	*0.00049*	*0.00028*	0.00048	0.00022	< 0.00020	0.00031	< 0.00020
Manganese	mg/L	*0.436*	*0.035*	*0.0522*	0.0278	0.0618	0.138	0.0201	0.0131
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0010*	*0.0015*	*0.0018*	< 0.0010	< 0.0010	0.0012	0.0026	0.0032
Nickel	mg/L	*0.0441*	*0.0105*	*0.0102*	0.0038	0.0089	0.0141	0.0104	0.0138
Selenium	mg/L	*0.00100*	*0.00094*	*0.00086*	< 0.00010	0.00028	0.00064	0.00121	0.00205
Silver	mg/L	*0.00010*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000200*	*0.000020*	*0.000020*	< 0.000010	0.000012	0.000028	0.000027	0.000023
Zinc	mg/L	*0.0020*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

**2020 Annual average from Perim-1.*

Table 8-49 Whale Tail WRSF Ponding 2023 Water Quality Monitoring (ST-WT-32) §

ST-WT-32	Unit	*Annual Average*				5/28/2023	6/11/2023	8/6/2023
Parameter		***2020****	***2021***	***2022***	***2023***			
Field Measured								
Temperature	°C	*3.4*	*6.9*	*6.5*	*4.9*	4.4	4.2	6.0
pH	pH units	*7.05*	*7.16*	*7.21*	*7.09*	7.04	7.11	7.12
Conductivity	uS/cm	*177.4*	*128.9*	*113.2*	*41.1*	36.9	83.1	3.44
Turbidity	NTU	*13.10*	*14.00*	*7.50*	*5.91*	13.9	2.76	1.07
Conventional Parameters								
Hardness, as $CaCO_3$	mg/L	*80*	*51*	*42*	*60*	15.3	28.7	136
Total alkalinity, as $CaCO_3$	mg/L	*33*	*22*	*21*	*17*	15	15	22
TDS	mg/L	*-*	*86*	*50*	*120*	45	60	255
TSS	mg/L	*10*	*9*	*4*	*4*	7	2	2
Major Ions								
Chloride	mg/L	*6.0*	*4.0*	*1.8*	*1.2*	< 1.0	< 1.0	1.7
Fluoride	mg/L	*0.03*	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*49.6*	*27.2*	*29.8*	*43.5*	1.5	19	110
Nutrients								
Ammonia (NH_3)	mg/L	*-*	*0.112*	*0.063*	*0.103*	0.16	< 0.061	0.088
Ammonia Nitrogen	mg N/L	*0.575*	*0.093*	*0.052*	*0.084*	0.13	< 0.050	0.072
Nitrate	mg N/L	*3.69*	*1.45*	*1.59*	*2.85*	0.13	0.42	8.01
Nitrite	mg N/L	*0.025*	*0.018*	*0.010*	*0.010*	< 0.010	< 0.010	< 0.010
Total Metals								
Aluminum	mg/L	*0.2640*	*0.3610*	*0.1403*	*0.1647*	0.361	0.0884	0.0447
Arsenic	mg/L	*0.0151*	*0.0084*	*0.0105*	*0.0084*	0.0172	0.00533	0.00271
Barium	mg/L	*0.0571*	*0.0420*	*0.0298*	*0.0406*	0.0141	0.0252	0.0826
Cadmium	mg/L	*0.000020*	*0.000016*	*0.000010*	*0.000011*	< 0.000010	0.000014	< 0.000010
Chromium	mg/L	*0.0058*	*0.0097*	*0.0040*	*0.0032*	0.0075	0.0011	< 0.0010
Copper	mg/L	*0.00105*	*0.00145*	*0.00105*	*0.00104*	0.0013	0.00119	0.00063
Iron	mg/L	*0.575*	*0.594*	*0.236*	*0.264*	0.605	0.109	0.077
Lead	mg/L	*0.00024*	*0.00061*	*0.00039*	*0.00034*	0.00062	< 0.00020	< 0.00020
Manganese	mg/L	*0.130*	*0.066*	*0.020*	*0.025*	0.0372	0.0315	0.007
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.00100*	*0.00125*	*0.00168*	*0.00130*	< 0.0010	< 0.0010	0.0019
Nickel	mg/L	*0.0216*	*0.0107*	*0.0056*	*0.0057*	0.0055	0.0063	0.0053
Selenium	mg/L	*0.00100*	*0.00085*	*0.00105*	*0.00094*	0.0001	0.00022	0.00249
Silver	mg/L	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000200*	*0.000020*	*0.000013*	*0.000012*	0.000014	0.000012	0.00001
Zinc	mg/L	*0.003*	*0.006*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050

**2020 Annual average from Perim-2.*

Table 8-50 Whale Tail WRSF Ponding 2023 Water Quality Monitoring (ST-WT-33) §

ST-WT-33 Parameter	Unit	Annual Average 2020*	2021	2022	2023	5/28/2023	6/11/2023	7/2/2023	8/6/2023
Field Measured									
Temperature	°C	*7.9*	*5.2*	*7.0*	*8.7*	3.6	5.8	12.8	12.6
pH	pH units	*6.87*	*7.12*	*7.29*	*7.36*	7.05	7.59	7.66	7.12
Conductivity	uS/cm	*307.0*	*207.5*	*196.3*	*192.6*	71.1	131.8	217.3	350
Turbidity	NTU	*12.60*	*9.00*	*40.90*	*38.90*	93.7	34.7	11.6	15.6
Conventional Parameters									
Hardness, as $CaCO_3$	mg/L	*166*	*88*	*79*	*73*	34.8	54.5	77	124
Total alkalinity, as $CaCO_3$	mg/L	*52*	*42*	*62*	*59*	33	53	71	79
TDS	mg/L	*-*	*135*	*131*	*133*	55	125	115	235
TSS	mg/L	*10*	*6*	*47*	*18*	43	13	5	9
Major Ions									
Chloride	mg/L	*10.5*	*6.2*	*3.4*	*1.4*	< 1.0	< 1.0	< 1.0	2.4
Fluoride	mg/L	*0.06*	*0.10*	*0.10*	*0.1*	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*87.6*	*42.3*	*25.4*	*28.8*	2.2	9	28	76
Nutrients									
Ammonia (NH_3)	mg/L	*-*	*0.138*	*0.101*	*0.153*	0.16	0.14	< 0.061	0.25
Ammonia Nitrogen	mg N/L	*0.115*	*0.114*	*0.083*	*0.123*	0.13	0.11	< 0.050	0.20
Nitrate	mg N/L	*1.31*	*1.80*	*0.65*	*1.028*	0.17	0.30	0.66	2.98
Nitrite	mg N/L	*0.030*	*0.055*	*0.031*	*0.019*	0.019	0.019	< 0.010	0.029
Total Metals									
Aluminum	mg/L	*0.3570*	*0.3038*	*0.9886*	*0.7100*	1.66	0.764	0.182	0.234
Arsenic	mg/L	*0.0170*	*0.0148*	*0.0340*	*0.0358*	0.0234	0.0312	0.0338	0.0546
Barium	mg/L	*0.0770*	*0.0597*	*0.0606*	*0.0471*	0.0352	0.0402	0.0493	0.0636
Cadmium	mg/L	*0.000020*	*0.000028*	*0.000015*	*0.000014*	0.000014	0.000014	0.000012	0.000016
Chromium	mg/L	*0.0030*	*0.0086*	*0.0370*	*0.0176*	0.0406	0.0184	0.0045	0.007
Copper	mg/L	*0.00325*	*0.00189*	*0.00309*	*0.00207*	0.00285	0.00227	0.00149	0.00168
Iron	mg/L	*0.875*	*0.586*	*1.975*	*1.290*	2.92	1.30	0.355	0.584
Lead	mg/L	*0.00017*	*0.00058*	*0.00104*	*0.00161*	0.00305	0.0018	0.00079	0.0008
Manganese	mg/L	*0.860*	*0.294*	*0.326*	*0.138*	0.0984	0.139	0.119	0.197
Mercury	mg/L	*0.00002*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.00100*	*0.00135*	*0.00248*	*0.00300*	< 0.0010	0.0022	0.0037	0.0051
Nickel	mg/L	*0.0279*	*0.0149*	*0.0189*	*0.0110*	0.0168	0.0109	0.0061	0.0103
Selenium	mg/L	*0.00100*	*0.00065*	*0.00057*	*0.00050*	0.00011	0.00025	0.00046	0.00117
Silver	mg/L	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000200*	*0.000031*	*0.000036*	*0.000035*	0.000036	0.000032	0.00003	0.000041
Zinc	mg/L	*0.009*	*0.005*	*0.006*	*0.005*	0.0058	< 0.0050	< 0.0050	< 0.0050

**2020 Annual average from Perim-3.*

Table 8-51 Whale Tail IVR WRSF Ponding 2023 Water Quality Monitoring (ST-WT-34) §

ST-WT-34	Unit	*Annual Average*			5/28/2023	8/6/2023	9/30/2023
Parameter		***2021***	***2022***	***2023***			
Field Measured							
Temperature	°C	*6.5*	*5.1*	*5.3*	5.3	10.0	0.5
pH	pH units	*6.94*	*6.96*	*7.35*	7.55	7.72	6.77
Conductivity	uS/cm	*1309*	*1195*	*1020.5*	201.5	855	2005
Turbidity	NTU	*8.39*	*142.90*	*142.53*	166	222	39.6
Conventional Parameters							
Hardness, as $CaCO_3$	mg/L	*523*	*736*	*413*	93.2	334	812
Total alkalinity, as $CaCO_3$	mg/L	*51*	*74*	*89*	57	100	110
TDS	mg/L	*878*	*1156*	*647*	115	595	1230
TSS	mg/L	*4*	*106*	*86*	110	130	18
Major Ions							
Chloride	mg/L	*310*	*463*	*219*	18	130	510
Fluoride	mg/L	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*79*	*56*	*75*	15	91	120
Nutrients							
Ammonia (NH_3)	mg/L	*1.5*	*1.8*	*0.9*	0.24	0.91	1.40
Ammonia Nitrogen	mg N/L	*1.2*	*1.5*	*0.7*	0.20	0.75	1.10
Nitrate	mg N/L	*2.73*	*1.69*	*2.55*	0.47	4.59	2.59
Nitrite	mg N/L	*0.257*	*0.059*	*0.035*	0.015	0.064	0.026
Total Metals							
Aluminum	mg/L	*0.0587*	*2.4748*	*3.3060*	5.08	4.36	0.478
Arsenic	mg/L	*0.0228*	*0.0290*	*0.0653*	0.146	0.0363	0.0136
Barium	mg/L	*0.272*	*0.337*	*0.138*	0.0967	0.112	0.206
Cadmium	mg/L	*0.000051*	*0.000179*	*0.000110*	0.00002	0.000087	0.000223
Chromium	mg/L	*0.0017*	*0.0214*	*0.0654*	0.167	0.0194	0.0098
Copper	mg/L	*0.00091*	*0.00603*	*0.00797*	0.00455	0.0136	0.00576
Iron	mg/L	*1.094*	*7.362*	*6.193*	8.09	8.88	1.61
Lead	mg/L	*0.00022*	*0.00348*	*0.0028*	0.00308	0.00466	0.00074
Manganese	mg/L	*1.14*	*2.99*	*1.89*	0.228	1.33	4.10
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0021*	*0.0027*	*0.0028*	0.0029	0.0038	0.0018
Nickel	mg/L	*0.0229*	*0.0327*	*0.0401*	0.0633	0.0194	0.0375
Selenium	mg/L	*0.00053*	*0.00037*	*0.00041*	0.00014	0.00067	0.00041
Silver	mg/L	*0.00002*	*0.00005*	*0.00003*	0.000022	0.000047	< 0.000020
Thallium	mg/L	*0.000043*	*0.000062*	*0.000076*	0.000099	0.000099	0.00003
Zinc	mg/L	*0.005*	*0.016*	*0.015*	0.0136	0.0205	0.0094

Table 8-52 Whale Tail IVR WRSF Sump 2023 Water Quality Monitoring (ST-WT-28) §

ST-WT-28	Unit	*Annual Average*		5/28/2023	6/11/2023	7/9/2023	8/6/2023	9/30/2023
Parameter		***2022***	***2023***					
Field Measured								
Temperature	°C	*8.7*	*7.2*	1.7	5.7	10.0	13.6	5.1
pH	pH units	*7.05*	*7.30*	7.25	7.24	7.34	7.17	7.48
Conductivity	uS/cm	*296.0*	*962.5*	212.3	607	1014	1909	1070
Turbidity	NTU	*8.6*	*24.2*	79.00	22.80	4.97	10.80	3.18
Conventional Parameters								
Hardness, as $CaCO_3$	mg/L	*1067*	*341*	84.7	223	355	632	409
Total alkalinity, as $CaCO_3$	mg/L	*54*	*54*	37	42	44	84	64
TDS	mg/L	*1323*	*674*	170	605	785	1220	590
TSS	mg/L	*10*	*17*	53	16	4	10	2
Major Ions								
Chloride	mg/L	*712*	*246*	27	94	200	740	170
Fluoride	mg/L	*0.11*	*0.10*	< 0.10	< 0.10	< 0.10	0.11	0.11
Sulfate	mg/L	*99*	*83*	20	59	76	110	150
Nutrients								
Ammonia (NH_3)	mg/L	*0.45*	*0.28*	0.43	0.52	0.13	0.28	< 0.061
Ammonia Nitrogen	mg N/L	*0.37*	*0.23*	0.35	0.42	0.11	0.23	< 0.050
Nitrate	mg N/L	*6.76*	*5.05*	0.96	2.70	5.96	7.02	8.62
Nitrite	mg N/L	*0.063*	*0.037*	0.026	0.038	0.036	0.066	0.021
Total Metals								
Aluminum	mg/L	*0.204*	*0.480*	1.630	0.491	0.059	0.147	0.0749
Arsenic	mg/L	*0.06270*	*0.16054*	0.207	0.164	0.0957	0.1520	0.184
Barium	mg/L	*0.2194*	*0.0972*	0.0488	0.0783	0.1220	0.1130	0.124
Cadmium	mg/L	*0.00024*	*0.00012*	0.000032	0.000065	0.000118	0.000178	0.000192
Chromium	mg/L	*0.0075*	*0.0154*	0.0547	0.0146	0.0016	0.0042	0.0021
Copper	mg/L	*0.00160*	*0.00156*	0.00224	0.00123	0.00093	0.00079	0.00263
Iron	mg/L	*0.42*	*0.85*	2.810	0.897	0.112	0.282	0.141
Lead	mg/L	*0.00080*	*0.00080*	0.00184	0.00078	0.00044	0.00048	0.00044
Manganese	mg/L	*2.038*	*0.679*	0.134	0.245	0.516	1.720	0.778
Mercury	mg/L	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0037*	*0.0017*	0.0011	0.0016	0.0018	0.0017	0.0021
Nickel	mg/L	*0.0606*	*0.0470*	0.0376	0.0469	0.0506	0.0488	0.051
Selenium	mg/L	*0.00059*	*0.00053*	0.00021	0.00048	0.00049	0.00044	0.00103
Silver	mg/L	*0.00005*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000138*	*0.000084*	0.000053	0.000073	0.000106	0.000091	0.000098
Zinc	mg/L	*0.0120*	*0.0053*	0.0063	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-53 Whale Tail IVR WRSF Ponding 2023 Water Quality Monitoring (ST-WT-35) §

ST-WT-35	Unit	*Annual Average*			5/28/2023	6/11/2023	7/2/2023	8/6/2023	9/30/2023
Parameter		***2021***	***2022***	***2023***					
Field Measured									
Temperature	°C	*6.2*	*5.2*	*7.9*	3.7	10.0	12.0	12.1	1.9
pH	pH units	*7.35*	*7.22*	*7.26*	7.26	7.01	7.29	7.45	7.29
Conductivity	uS/cm	*236*	*106*	*217.8*	0.09	124.5	205.2	437	322
Turbidity	NTU	*2.80*	*24.20*	*20.58*	56.9	14.3	5.66	16.7	9.33
Conventional Parameters									
Hardness, as $CaCO_3$	mg/L	*92*	*46*	*91*	44.1	44.8	74.7	167	126
Total alkalinity, as $CaCO_3$	mg/L	*50*	*40*	*46*	39	41	59	43	47
TDS	mg/L	*138*	*65*	*163*	85	90	145	305	190
TSS	mg/L	*3*	*25*	*19*	49	12	5	24	5
Major Ions									
Chloride	mg/L	*10*	*3*	*4*	< 1.0	1.9	1.6	7.4	8.4
Fluoride	mg/L	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*51*	*8*	*46*	6.1	13	33	110	70
Nutrients									
Ammonia (NH_3)	mg/L	*0.4*	*0.1*	*0.2*	0.14	0.23	0.08	0.26	< 0.061
Ammonia Nitrogen	mg N/L	*0.3*	*0.1*	*0.1*	0.12	0.19	0.066	0.22	< 0.050
Nitrate	mg N/L	*0.54*	*0.33*	*3.82*	0.31	0.38	0.68	10.7	7.03
Nitrite	mg N/L	*0.065*	*0.014*	*0.027*	< 0.010	0.010	0.012	0.080	0.022
Total Metals									
Aluminum	mg/L	*0.08145*	*0.80080*	*0.51900*	1.63	0.411	0.182	0.258	0.114
Arsenic	mg/L	*0.1365*	*0.0357*	*0.0229*	0.0388	0.0283	0.0428	0.0026	0.00191
Barium	mg/L	*0.072*	*0.039*	*0.057*	0.0469	0.0373	0.0616	0.0805	0.0562
Cadmium	mg/L	*0.000020*	*0.000021*	*0.000036*	0.000019	0.000012	0.000013	0.000053	0.000083
Chromium	mg/L	*0.0019*	*0.0291*	*0.0142*	0.0516	0.0112	0.0045	0.002	0.0017
Copper	mg/L	*0.00099*	*0.00184*	*0.00152*	0.00248	0.00116	0.00099	0.00145	0.00152
Iron	mg/L	*0.306*	*2.107*	*0.933*	2.690	0.725	0.434	0.566	0.250
Lead	mg/L	*0.00031*	*0.00080*	*0.00060*	0.00152	0.0005	0.00032	0.00039	0.00026
Manganese	mg/L	*0.41*	*0.67*	*0.48*	0.137	0.218	0.117	1.220	0.719
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0019*	*0.0013*	*0.0017*	0.0012	0.0013	0.0032	0.0015	0.0012
Nickel	mg/L	*0.0177*	*0.0158*	*0.0128*	0.0227	0.0142	0.012	0.0089	0.0064
Selenium	mg/L	*0.00038*	*0.00016*	*0.00052*	0.00029	0.00017	0.00026	0.00111	0.00075
Silver	mg/L	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000031*	*0.000026*	*0.000030*	0.000038	0.000028	0.000035	0.000034	0.000015
Zinc	mg/L	*0.005*	*0.009*	*0.005*	0.0055	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-54 Whale Tail IVR WRSF Ponding 2023 Water Quality Monitoring (ST-WT-36) §

ST-WT-36	Unit	*Annual Average*			5/28/2023	6/11/2023	7/2/2023	8/6/2023	9/30/2023
Parameter		***2021***	***2022***	***2023***					
Field Measured									
Temperature	°C	*6.6*	*6.3*	*6.2*	3.2	6.3	10.8	8.7	2.1
pH	pH units	*7.45*	*7.21*	*7.32*	7.45	7.14	7.52	7.25	7.26
Conductivity	uS/cm	*209.0*	*176.0*	*261.5*	103.2	158.2	248	279	519
Turbidity	NTU	*6.9*	*28.0*	*9.8*	30.1	9.3	2.71	3.29	3.62
Conventional Parameters									
Hardness, as $CaCO_3$	mg/L	*82*	*74*	*98*	40.3	57.4	86.8	107	196
Total alkalinity, as $CaCO_3$	mg/L	*46*	*48*	*57*	38	43	55	73	77
TDS	mg/L	*148*	*104*	*177*	60	145	160	200	320
TSS	mg/L	*4*	*18*	*5*	18	3	2	2	1
Major Ions									
Chloride	mg/L	*7*	*5*	*5*	< 1.0	2.2	2.4	5.3	12.0
Fluoride	mg/L	*0.10*	*0.10*	*0.10*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	*27*	*28*	*61*	11	27	54	62	150
Nutrients									
Ammonia (NH_3)	mg/L	*0.6*	*0.1*	*0.2*	0.170	0.061	-	0.350	0.260
Ammonia Nitrogen	mg N/L	*0.5*	*0.1*	*0.2*	0.14	0.05	< 0.050	0.29	0.22
Nitrate	mg N/L	*4.25*	*0.93*	*1.67*	0.40	0.74	1.33	0.60	5.30
Nitrite	mg N/L	*0.070*	*0.017*	*0.017*	0.015	< 0.010	< 0.010	< 0.010	0.040
Total Metals									
Aluminum	mg/L	*0.210*	*0.750*	*0.173*	0.545	0.204	0.0401	0.0392	0.0381
Arsenic	mg/L	*0.1355*	*0.1460*	*0.2811*	0.252	0.158	0.213	0.0736	0.709
Barium	mg/L	*0.067*	*0.063*	*0.066*	0.031	0.050	0.0677	0.077	0.102
Cadmium	mg/L	*0.000010*	*0.000011*	*0.000020*	< 0.000010	0.000016	< 0.000010	0.000042	0.000024
Chromium	mg/L	*0.0059*	*0.0264*	*0.0056*	0.0177	0.0064	0.0013	0.0016	0.0011
Copper	mg/L	*0.00123*	*0.00146*	*0.00127*	0.00121	0.00097	0.00102	0.00197	0.00119
Iron	mg/L	*0.327*	*1.317*	*0.438*	0.985	0.389	0.09	0.583	0.142
Lead	mg/L	*0.00030*	*0.00081*	*0.00039*	0.00082	0.00036	< 0.00020	0.00038	< 0.00020
Manganese	mg/L	*0.0300*	*0.0679*	*0.3393*	0.0934	0.196	0.016	1.100	0.291
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.0013*	*0.0013*	*0.0020*	< 0.0010	0.0016	0.0016	0.0013	0.0046
Nickel	mg/L	*0.0112*	*0.0200*	*0.0185*	0.0169	0.0177	0.0126	0.0176	0.0275
Selenium	mg/L	*0.00058*	*0.00027*	*0.00041*	0.00019	0.00021	0.00029	0.00025	0.00111
Silver	mg/L	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*0.000021*	*0.000033*	*0.000032*	0.000026	0.000023	0.000028	0.000042	0.000043
Zinc	mg/L	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

Table 8-55 Whale Tail IVR Diversion Ditch 2023 Water Quality Monitoring (ST-WT-37) §

ST-WT-37 Parameter	Max Grab	Monthly Mean	Unit	*Annual Average*			5/21/2023	6/11/2023	7/2/2023	8/6/2023	9/3/2023	10/1/2023
				2021	*2022*	*2023*						
Field Measured												
Temperature			°C	*6.6*	*5.0*	*5.5*	0.7	5.1	10.7	12.8	3.4	0.2
pH			pH units	*7.81*	*7.36*	*7.57*	7.38	6.95	7.33	7.72	7.99	8.02
Conductivity			uS/cm	*41.9*	*53.0*	*92.3*	26.6	51.8	62.8	131.7	129.4	151.6
Turbidity			NTU	*3.79*	*7.49*	*2.15*	4.12	1.40	0.77	1.42	4.15	1.05
Conventional Parameters												
TSS	30	15	mg/L	*2*	*5*	*3*	3	< 1	< 1	7	3	< 1
Major Ions												
Sulfate			mg/L	*2.8*	*4.0*	*10.3*	1.7	3.9	5.9	10	17	23
Nutrients												
Ammonia Nitrogen			mg N/L	*0.07*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Un-Ionized Ammonia, calculated			mg N/L	*0.00102*	*0.00061*	*0.00062*	< 0.00061	< 0.00061	< 0.00061	< 0.00073	< 0.00064	< 0.00053
Total Metals												
Aluminum			mg/L	*0.111*	*0.217*	*0.052*	0.1240	0.0346	0.0188	0.0449	0.0733	0.0158
Arsenic			mg/L	*0.00231*	*0.00509*	*0.00232*	0.00302	0.00179	0.00189	0.00364	0.00219	0.00136
Copper			mg/L	*0.0010*	*0.0011*	*0.0012*	0.00073	0.00094	0.00098	0.0021	0.00182	0.00092
Lead			mg/L	*0.00020*	*0.00025*	*0.00023*	< 0.00020	< 0.00020	0.00035	0.0002	< 0.00020	< 0.00020
Nickel			mg/L	*0.0025*	*0.0043*	*0.0031*	0.0030	0.0028	0.0019	0.0054	0.0032	0.0025
Zinc			mg/L	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

8.5.3.2.15 Whale Tail / IVR Attenuation Pond Discharge§

8.5.3.2.15.1 Kangislulik Lake (ST-WT-2 and ST-WT-2a) §

There are two submerged diffusers to facilitate discharge from the Whale Tail and IVR Attenuation Ponds to Kangisliluk Lake, the East and West Diffuser. As per Water License 2AM-WTP1830, the discharge from the East and West diffusers are to be sampled weekly during discharge.

The East diffuser sampling station is ST-WT-2a and discharge occurred from June 4th to June 30th, July 1st to 7th, July 16th to 18th, July 21st to 22nd, August 6th to 18th September 3rd to 14th, 2023. The results for ST-WT-2a are provided in Table 8-56. A total volume of 943,296 m^3 was discharged There were no exceedances of Water License or MDMER criteria in 2023. The sampling location is outlined in Figure 4.

The West Diffuser (ST-WT-2) discharge occurred from June 11th to 28th. The results for ST-WT-2 are provided in Table 8-57. There were no exceedances of Water License or MDMER criteria in 2023. A total volume of 200,890 m^3 was discharged. The sampling location is outlined in Figure 4. Since July 18th, 2023, the west diffuser discharge is no longer active as it is has merged with MDMER-8 (ST-WT-2a).

Effluents have demonstrated to be non-acutely lethal. Refer to Section 8.3.2 (MDMER-7 and MDMER-8) above for the results.

8.5.3.2.15.2 Whale Tail South (ST-WT-24 and ST-WT-24a) §

In 2023, water from Whale Tail and IVR Attenuation Ponds was discharged to Whale Tail South in the approved submerged diffusers. As per Water License 2AM-WTP1830 the discharge is sampled on a weekly basis during discharge.

The permanent diffuser sampling station is ST-WT-24 and was discharging January 8th to January 15th, February 20th to February 27th, March 19th to 24th, April 10th to 15th, April 24th, April 26th to April 29th, May 10th to May 22nd, September 18th to 19th, October 8th to 11th. A total volume of 820,688 m^3 was discharged. The location is outlined in Figure 4 and 2023 results from ST-WT-24 are provided in Table 8-58.

There were no exceedances of Water License or MDMER criteria in 2023. However, in March, the field sample collected on March 20th, 2023 showed evidence of Lead contamination, therefore the applicable duplicate sample results for lead is MERS. CIRNAC and ECCC were advised of this occurrence on April 6th, and a discussion between Agnico Eagle, CIRNAC and ECCC was conducted on April 12th to discuss the event.

Effluents have demonstrated to be non-acutely lethal. Refer to Section 8.3.2 (MDMER-11) above for the results.

No water was discharged through Whale Tail South Lake Temporary Diffuser (ST-WT-24a) in 2023.

Table 8-56 Whale Tail / IVR Attenuation Pond 2023 Discharge to Kangislulik Lake East Diffuser (ST-WT-2a) §

ST-WT-2a	Max	Monthly	Unit	*Annual Average*				6/5/2023	6/12/2023	6/19/2023	6/25/2023	7/3/2023	7/16/2023	7/22/2023	8/7/2023	8/14/2023	9/4/2023	9/11/2023
Parameter	**Grab**	**Mean**		***2020***	***2021***	***2022***	***2023***											
Field Measured																		
Temperature			°C	*7.4*	*7.1*	*7.7*	*9.1*	2.2	2.9	3.7	8.6	13.6	14.5	13.0	14.3	16.2	4.4	6.8
pH	6.0-9.5	6.0-9.5	pH units	*6.89*	*7.11*	*6.96*	*7.38*	8.16	6.91	7.04	7.48	7.43	7.08	7.46	7.29	7.50	7.61	7.27
Conductivity			uS/cm	*437.2*	*315.8*	*379.1*	*439.5*	251	251	312	397	458	400	425	506	529	620	686
Turbidity			NTU	*7.60*	*1.10*	*1.10*	*1.32*	1.46	1.15	1.26	1.34	0.82	1.21	1.51	1.26	1.06	2.26	1.14
Conventional Parameters																		
Hardness, as $CaCO_3$			mg/L	*205*	*121*	*136*	*146*	78.9	74.1	103	121	147	158	140	184	167	215	215
Total alkalinity, as $CaCO_3$			mg/L	*47*	*36*	*39*	*36*	30	25	31	40	36	38	40	39	35	43	42
Carbonate, as $CaCO_3$			mg/L	*5*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$			mg/L	*47*	*36*	*39*	*36*	30	25	31	40	36	38	40	39	35	43	42
TDS			mg/L	*-*	*232*	*234*	*324*	230	175	220	285	320	355	305	355	445	440	435
TSS	30	15	mg/L	*6*	*1*	*2*	*1*	< 1	1	< 1	1	< 1	1	< 1	1	1	1	2
Total organic carbon			mg/L	*3.0*	*3.4*	*2.4*	*2.1*	1.6	1.8	2.2	2.0	2.1	1.9	2.1	2.0	2.2	2.8	2.4
Dissolved organic carbon			mg/L	*3.5*	*3.1*	*2.2*	*2.1*	1.6	1.8	2.0	2.0	2.1	2.0	2.1	2.1	1.9	2.7	2.4
Major Ions																		
Chloride			mg/L	*78*	*37*	*43*	*60*	31	31	37	46	61	49	48	77	86	88	110
Silica			mg/L	*5.9*	*5.5*	*4.6*	*4.3*	2.9	2.5	2.9	4.1	3.0	4.4	5.0	5.6	5.2	5.6	6.0
Sulfate			mg/L	*48*	*55*	*63*	*58*	40	31	44	52	55	55	61	60	58	77	100
Nutrients																		
Ammonia (NH3)			mg/L	*-*	*1.07*	*0.49*	*0.78*	0.68	0.54	1.40	1.20	0.31	0.27	0.31	0.066	0.12	2.10	1.60
Ammonia Nitrogen	32	16	mg N/L	*1.63*	*0.89*	*0.41*	*0.63*	0.56	0.44	1.10	1.00	0.26	0.22	0.25	0.054	0.10	1.70	1.30
Nitrate			mg N/L	*3.21*	*2.36*	*3.47*	*2.79*	0.88	1.01	2.30	2.68	2.88	3.26	3.10	2.63	2.21	3.87	5.86
Nitrite			mg N/L	*0.180*	*0.185*	*0.075*	*0.069*	0.023	0.02	0.052	0.076	0.059	0.077	0.068	0.028	0.027	0.138	0.189
Total Kjeldahl nitrogen			mg N/L	*2.13*	*1.14*	*0.61*	*0.79*	0.61	0.84	1.50	1.00	0.46	0.57	0.33	< 0.10	0.20	1.50	1.60
Total phosphorus	0.6	0.3	mg P/L	*0.0141*	*0.0025*	*0.0021*	*0.0016*	< 0.0010	< 0.0010	0.0013	< 0.0050	< 0.0010	0.0017	< 0.0010	0.0016	< 0.0010	< 0.0010	0.0023
Orthophosphate			mg P/L	*0.01*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals																		
Aluminum	1	0.5	mg/L	*0.026*	*0.011*	*0.010*	*0.008*	0.0096	0.0105	0.008	0.006	0.0071	0.0095	0.0077	0.0078	0.0047	0.0094	0.0062
Antimony			mg/L	*0.0013*	*0.0085*	*0.0072*	*0.0040*	0.00077	0.0011	0.00222	0.00277	0.00383	0.00444	0.00434	0.00525	0.00369	0.00493	0.0104
Arsenic	0.2	0.1	mg/L	*0.00456*	*0.00847*	*0.00963*	*0.00663*	0.0013	0.00172	0.00246	0.00244	0.00333	0.00519	0.00649	0.00911	0.00744	0.00936	0.0241
Barium			mg/L	*0.0902*	*0.0479*	*0.0515*	*0.0514*	0.0307	0.0331	0.0437	0.0452	0.0536	0.0588	0.0503	0.059	0.0591	0.0652	0.067
Beryllium			mg/L	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron			mg/L	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	0.004	0.002	mg/L	*0.000020*	*0.000017*	*0.000012*	*0.000014*	< 0.000010	< 0.000010	0.000017	0.000013	0.000014	< 0.000010	< 0.000010	0.000012	0.000014	0.000018	0.000022
Calcium (total)			mg/L	*61*	*34*	*39*	*45*	24.6	23.0	31.4	38.1	46.4	48.3	42.5	58.3	53.6	65.3	61.8
Chromium	0.04	0.02	mg/L	*0.0007*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	0.2	0.1	mg/L	*0.00297*	*0.00174*	*0.00099*	*0.00104*	< 0.00050	0.00073	0.00082	0.00061	0.00276	0.00131	0.00108	0.0009	0.00076	0.00102	0.00097
Iron	2	1	mg/L	*0.568*	*0.181*	*0.262*	*0.268*	0.126	0.155	0.239	0.151	0.197	0.258	0.249	0.374	0.403	0.435	0.357
Lead	0.1	0.05	mg/L	*0.00023*	*0.00021*	*0.00020*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium			mg/L	*0.0091*	*0.0062*	*0.0072*	*0.0103*	0.0057	0.005	0.0073	0.01	0.0134	0.0094	0.0089	0.0144	0.0137	0.0129	0.0128
Magnesium (total)			mg/L	*12.77*	*9.14*	*9.48*	*8.15*	4.23	4.03	5.91	6.34	7.53	8.98	8.19	9.24	7.94	12.6	14.7
Manganese			mg/L	*0.558*	*0.247*	*0.177*	*0.170*	0.244	0.210	0.254	0.238	0.139	0.107	0.0952	0.0919	0.101	0.198	0.189
Mercury	0.008	0.004	mg/L	*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			mg/L	*0.0033*	*0.0029*	*0.0059*	*0.0083*	0.0049	0.0038	0.0074	0.0089	0.0082	0.0106	0.0104	0.0096	0.0074	0.0108	0.009
Nickel	0.5	0.25	mg/L	*0.0221*	*0.0185*	*0.0213*	*0.0123*	0.0064	0.0076	0.0134	0.0139	0.0142	0.0126	0.011	0.0074	0.0063	0.0161	0.0264
Potassium (total)			mg/L	*12.14*	*8.65*	*9.47*	*8.05*	4.39	4.29	6.01	6.57	8.17	9.55	8.43	9.65	8.73	10.50	12.20
Selenium			mg/L	*0.00097*	*0.00040*	*0.00026*	*0.00020*	< 0.00010	< 0.00010	0.00014	0.00017	0.0002	0.00023	0.0002	0.00024	0.00019	0.0003	0.00035
Sodium (total)			mg/L	*7.99*	*6.72*	*11.32*	*7.59*	8.99	5.43	5.31	6.96	7.48	7.62	6.83	7.97	7.58	8.57	10.70
Strontium			mg/L	*0.384*	*0.274*	*0.341*	*0.442*	0.241	0.220	0.293	0.349	0.472	0.430	0.382	0.581	0.581	0.630	0.684
Thallium			mg/L	*0.000200*	*0.000015*	*0.000021*	*0.000019*	< 0.000010	< 0.000010	0.000016	0.000014	0.00002	0.000026	0.000023	0.000028	0.000024	0.00002	0.000019

ST-WT-2a Parameter	Max Grab	Monthly Mean	Unit	*Annual Average*				6/5/2023	6/12/2023	6/19/2023	6/25/2023	7/3/2023	7/16/2023	7/22/2023	8/7/2023	8/14/2023	9/4/2023	9/11/2023
				2020	*2021*	*2022*	*2023*											
Tin			mg/L	*0.0010*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium			mg/L	*0.0100*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium			mg/L	*0.00112*	*0.00116*	*0.00122*	*0.00117*	0.00024	0.00021	0.00073	0.00118	0.00104	0.00098	0.00108	0.00131	0.00079	0.00297	0.00234
Vanadium			mg/L	*0.0005*	*0.0050*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	0.2	0.1	mg/L	*0.0096*	*0.0081*	*0.0055*	*0.0075*	< 0.0050	0.0097	0.0073	0.0050	0.0073	0.009	0.0099	0.0082	0.0069	0.0076	0.0066
Dissolved Metals																		
Aluminum			mg/L	*0.0060*	*0.0042*	*0.0038*	*0.0038*	0.0060	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	0.0089	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Antimony			mg/L	*0.00123*	*0.00843*	*0.00749*	*0.00430*	0.0008	0.00115	0.0025	0.00326	0.00414	0.00431	0.00475	0.00541	0.00405	0.00541	0.0115
Arsenic			mg/L	*0.00214*	*0.00622*	*0.02057*	*0.00170*	0.00171	0.00117	0.00116	0.00093	0.00135	0.00127	0.00164	0.00148	0.00115	0.00436	0.00247
Barium			mg/L	*0.08053*	*0.04832*	*0.05180*	*0.05565*	0.0309	0.036	0.0479	0.0554	0.0596	0.0579	0.0545	0.0609	0.066	0.0687	0.0743
Beryllium			mg/L	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron			mg/L	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium			mg/L	*0.000020*	*0.000018*	*0.000011*	*0.000015*	< 0.000010	0.000012	0.00002	0.000014	0.000015	0.000011	< 0.000010	< 0.000010	0.000021	0.000022	0.000024
Chromium			mg/L	*0.0006*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper			mg/L	*0.00259*	*0.00169*	*0.00120*	*0.00496*	0.00088	0.00119	0.01040	0.00081	0.00080	0.00157	0.02580	0.00109	0.00104	0.00990	0.00111
Iron			mg/L	*0.019*	*0.085*	*0.017*	*0.015*	0.0099	0.0226	0.0298	0.0084	0.0097	0.0097	0.0219	0.0116	0.0105	0.0142	0.0195
Lead			mg/L	*0.00023*	*0.00021*	*0.00020*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium			mg/L	*0.0083*	*0.0059*	*0.0074*	*0.0117*	0.0067	0.0062	0.0075	0.0123	0.0150	0.0093	0.0103	0.0154	0.0153	0.0148	0.0161
Manganese			mg/L	*0.6743*	*0.2490*	*0.1758*	*0.1852*	0.246	0.229	0.286	0.287	0.150	0.104	0.105	0.0959	0.114	0.210	0.210
Mercury			mg/L	*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			mg/L	*0.0029*	*0.0029*	*0.0059*	*0.0088*	0.0051	0.0039	0.008	0.0109	0.0086	0.0102	0.0108	0.0099	0.0081	0.0113	0.0103
Nickel			mg/L	*0.0184*	*0.0186*	*0.0240*	*0.0132*	0.0062	0.0075	0.0148	0.0163	0.0138	0.0120	0.0123	0.0079	0.0072	0.0177	0.0298
Selenium			mg/L	*0.00097*	*0.00041*	*0.00025*	*0.00021*	< 0.00010	< 0.00010	0.00016	0.00019	0.0002	0.00019	0.00021	0.00024	0.00022	0.00034	0.00038
Strontium			mg/L	*0.3472*	*0.2770*	*0.3462*	*0.4824*	0.261	0.244	0.312	0.436	0.484	0.404	0.456	0.606	0.643	0.708	0.752
Thallium			mg/L	*0.000200*	*0.000016*	*0.000021*	*0.000019*	< 0.000010	0.000013	0.000014	0.000022	0.000021	0.000027	< 0.000010	0.000026	0.000027	0.000018	0.000024
Tin			mg/L	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium			mg/L	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium			mg/L	*0.0011*	*0.0011*	*0.0012*	*0.0012*	0.00022	0.00019	0.00074	0.00146	0.00095	0.00082	0.00106	0.00119	0.00072	0.00287	0.00257
Vanadium			mg/L	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc			mg/L	*0.0084*	*0.0093*	*0.0059*	*0.0092*	< 0.0050	0.0109	0.0084	0.0062	< 0.0050	0.0106	0.0127	0.0112	0.0076	0.0148	0.0089
Volatile Organics																		
Petroleum Hydrocarbons F (C10-C50)	6	3	mg/L	*0.1*	*0.5*	*0.2*	*0.2*	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

Table 8-57 Whale Tail / IVR Attenuation Pond 2023 Discharge to Kangislulik Lake West Diffuser (ST-WT-2) §

ST-WT-2 Parameter	Max Grab	Monthly Mean	Unit	*Annual Average*			6/12/2023	6/19/2023	6/25/2023
				2020	*2021*	*2023*			
Field Measured									
Temperature			°C	*4.4*	*6.5*	*4.7*	2.6	3.3	8.1
pH	6.0-9.5	6.0-9.5	pH units	*6.93*	*7.14*	*7.16*	7.12	6.92	7.45
Conductivity			uS/cm	*442.4*	*364.3*	*318.3*	239	322	394
Turbidity			NTU	*2.40*	*1.20*	*1.43*	1.35	1.32	1.62
Conventional Parameters									
Hardness, as $CaCO_3$			mg/L	*197*	*132*	*103*	72.2	103	133
Total alkalinity, as $CaCO_3$			mg/L	*44*	*38*	*33*	26	32	41
Carbonate, as $CaCO_3$			mg/L	*4*	*1*	*1*	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$			mg/L	*43*	*37*	*33*	26	32	41
TDS			mg/L	*290*	*231*	*232*	225	205	265
TSS	30	15	mg/L	*6*	*2*	*1*	1	1	1
Total organic carbon			mg/L	*3.3*	*3.3*	*1.9*	1.8	1.8	2
Dissolved organic carbon			mg/L	*4.0*	*3.1*	*1.8*	1.7	1.9	1.9
Major Ions									
Chloride			mg/L	*78*	*38*	*38*	30	37	48
Silica			mg/L	*5.8*	*5.9*	*3.2*	2.5	3.3	3.8
Sulfate			mg/L	*49*	*63*	*43*	33	44	52
Nutrients									
Ammonia (NH_3)			mg/L	*-*	*1.01*	*1.08*	0.55	1.40	1.30
Ammonia Nitrogen	32	16	mg N/L	*1.44*	*0.84*	*0.85*	0.45	1.10	1.00
Nitrate			mg N/L	*3.02*	*2.63*	*1.97*	1.03	2.24	2.63
Nitrite			mg N/L	*0.153*	*0.165*	*0.049*	0.02	0.052	0.075
Total Kjeldahl nitrogen			mg N/L	*1.9*	*1.1*	*1.0*	0.61	1.40	1.10
Total phosphorus	0.6	0.3	mg P/L	*0.0100*	*0.0020*	*0.0026*	0.0016	0.0011	< 0.0050
Orthophosphate			mg P/L	*0.011*	*0.010*	*0.011*	0.013	< 0.010	< 0.010
Total Metals									
Aluminum	1	0.5	mg/L	*0.027*	*0.015*	*0.008*	0.0072	0.0066	0.0105
Antimony			mg/L	*0.0011*	*0.0084*	*0.0021*	0.00109	0.00226	0.00307
Arsenic	0.2	0.1	mg/L	*0.00831*	*0.00809*	*0.00246*	0.00169	0.00232	0.00337
Barium			mg/L	*0.0905*	*0.0503*	*0.0422*	0.0322	0.0441	0.0503
Beryllium			mg/L	*0.00050*	*0.00010*	*0.00010*	< 0.00010	< 0.00010	< 0.00010
Boron			mg/L	*0.01*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050
Cadmium	0.004	0.002	mg/L	*0.000020*	*0.000021*	*0.000015*	< 0.000010	0.000019	0.000016
Calcium (total)			mg/L	*58.9*	*36.7*	*31.8*	22.4	31.4	41.7
Chromium	0.04	0.02	mg/L	*0.0009*	*0.0011*	*0.0010*	< 0.0010	< 0.0010	< 0.0010
Copper	0.2	0.1	mg/L	*0.00283*	*0.00171*	*0.00175*	0.00074	0.00089	0.00362
Iron	2	1	mg/L	*0.528*	*0.223*	*0.200*	0.155	0.219	0.227
Lead	0.1	0.05	mg/L	*0.00023*	*0.00021*	*0.00020*	< 0.00020	< 0.00020	< 0.00020
Lithium			mg/L	*0.0091*	*0.0065*	*0.0083*	0.0059	0.0074	0.0115
Magnesium (total)			mg/L	*12.2*	*9.9*	*5.6*	3.96	5.97	7.01
Manganese			mg/L	*0.527*	*0.267*	*0.242*	0.205	0.261	0.261
Mercury	0.008	0.004	mg/L	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001
Molybdenum			mg/L	*0.0037*	*0.0029*	*0.0071*	0.0036	0.0075	0.0102
Nickel	0.5	0.25	mg/L	*0.0207*	*0.0214*	*0.0122*	0.0072	0.0139	0.0154
Potassium (total)			mg/L	*10.6*	*9.3*	*5.8*	4.10	6.08	7.24
Selenium			mg/L	*0.00100*	*0.00041*	*0.00014*	< 0.00010	0.00013	0.00019
Sodium (total)			mg/L	*7.4*	*7.3*	*6.0*	5.01	5.35	7.71
Strontium			mg/L	*0.354*	*0.293*	*0.299*	0.220	0.288	0.388
Thallium			mg/L	*0.000200*	*0.000017*	*0.000014*	< 0.000010	0.000015	0.000018
Tin			mg/L	*0.0010*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050
Titanium			mg/L	*0.0100*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050
Uranium			mg/L	*0.00120*	*0.00134*	*0.00075*	0.00021	0.00073	0.00131
Vanadium			mg/L	*0.0005*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050
Zinc	0.2	0.1	mg/L	*0.0133*	*0.0070*	*0.0050*	0.0050	< 0.0050	< 0.0050
Dissolved Metals									
Aluminum			mg/L	*0.0060*	*0.0062*	*0.0032*	0.0036	< 0.0030	< 0.0030
Antimony			mg/L	*0.00112*	*0.00830*	*0.00230*	0.00116	0.00246	0.00329
Arsenic			mg/L	*0.00598*	*0.00591*	*0.00099*	0.00116	0.00092	0.00088
Barium			mg/L	*0.08349*	*0.05081*	*0.04627*	0.0359	0.0474	0.0555
Beryllium			mg/L	*0.00050*	*0.00010*	*0.00010*	< 0.00010	< 0.00010	< 0.00010
Boron			mg/L	*0.010*	*0.050*	*0.050*	< 0.050	< 0.050	< 0.050
Cadmium			mg/L	*0.000020*	*0.000021*	*0.000015*	0.00001	0.000017	0.000017
Chromium			mg/L	*0.0006*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010
Copper			mg/L	*0.00237*	*0.00157*	*0.00228*	0.00403	0.00114	0.00168
Iron			mg/L	*0.012*	*0.107*	*0.023*	0.0214	0.0357	0.0106
Lead			mg/L	*0.00026*	*0.00020*	*0.00020*	< 0.00020	< 0.00020	< 0.00020
Lithium			mg/L	*0.0083*	*0.0062*	*0.0085*	0.0058	0.0073	0.0123
Manganese			mg/L	*0.4042*	*0.2674*	*0.2627*	0.223	0.283	0.282
Mercury			mg/L	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001
Molybdenum			mg/L	*0.0041*	*0.0029*	*0.0075*	0.0038	0.0080	0.0108
Nickel			mg/L	*0.0179*	*0.0210*	*0.0128*	0.0075	0.0146	0.0163
Selenium			mg/L	*0.00100*	*0.00041*	*0.00015*	< 0.00010	0.00015	0.0002
Strontium			mg/L	*0.3184*	*0.2955*	*0.3230*	0.237	0.301	0.431
Thallium			mg/L	*0.000200*	*0.000017*	*0.000017*	< 0.000010	0.000019	0.000023
Tin			mg/L	*0.0010*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050
Titanium			mg/L	*0.0100*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050
Uranium			mg/L	*0.0012*	*0.0013*	*0.0008*	0.0002	0.00072	0.00139
Vanadium			mg/L	*0.0005*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050
Zinc			mg/L	*0.0121*	*0.0070*	*0.0064*	0.0055	0.006	0.0077
Volatile Organics									
Petroleum Hydrocarbons F (C10-C50)	6	3	mg/L	*0.1*	*0.5*	*0.2*	< 0.2	< 0.2	< 0.2

Table 8-58 Whale Tail / IVR Attenuation Pond 2023 Discharge to Whale Tail South Permanent Diffuser (ST-WT-24) §

ST-WT-24	Max	Monthly	Unit	*Annual Average*				1/9/2023	1/15/2023	2/21/2023	2/26/2023	3/20/2023	4/10/2023	4/24/2023	5/10/2023	5/15/2023	5/22/2023	9/19/2023	10/9/2023
Parameter	**Grab**	**Mean**		***2020***	***2021***	***2022***	***2023***												
Field Measured																			
Temperature			°C	*0.8*	*1.4*	*1.1*	*0.8*	0.5	0.0	0.0	-0.1	0.5	-0.2	0.5	0.6	0.9	0.5	6.1	0.7
pH	6.0-9.5	6.0-9.5	pH units	*7.09*	*7.01*	*7.04*	*7.02*	6.87	7.26	6.88	6.85	7.47	7.5	7.46	6.5	6.63	7.09	6.91	6.84
Conductivity			uS/cm	*239*	*308*	*430*	*372*	424	375	418	432	317	356	268	277	151.2	263	634	543
Turbidity			NTU	*1.00*	*0.80*	*1.40*	*1.30*	1.34	1.76	0.38	0.52	1.15	1.00	0.41	1.36	4.49	1.29	0.75	1.09
Conventional Parameters																			
Hardness, as $CaCO_3$			mg/L	*104*	*116*	*163*	*139*	156	159	149	156	123	115	93.2	113	88.6	95.1	223	203
Total alkalinity, as $CaCO_3$			mg/L	*52*	*41*	*57*	*50*	64	62	69	68	52	58	42	30	32	34	43	46
Carbonate, as $CaCO_3$			mg/L	*4*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$			mg/L	*51*	*40*	*56*	*50*	63	62	69	68	51	58	42	30	32	34	43	46
TDS			mg/L	*-*	*196*	*272*	*230*	195	265	210	245	190	180	130	220	170	170	375	410
TSS	30	15	mg/L	*3*	*2*	*3*	*1*	< 1	1	2	2	2	2	1	< 1	1	< 1	1	2
Total organic carbon			mg/L	*4.0*	*2.6*	*2.9*	*2.6*	2.8	3.1	2.9	2.9	2.3	2.2	2	3.1	2.5	1.8	2.7	2.4
Dissolved organic carbon			mg/L	*3.0*	*2.5*	*2.6*	*2.4*	2.6	2.9	2.9	2.8	2.2	2.4	2.1	2.7	2.1	1.7	2.5	2.4
Major Ions																			
Chloride			mg/L	*33.5*	*33.5*	*50.6*	*43.8*	39	42	37	38	31	31	26	48	35	31	87	80
Silica			mg/L	*7.8*	*7.2*	*9.4*	*6.9*	8.7	9.3	9.4	9	8	7.7	7.7	3.9	4.1	4.5	5.4	5.4
Sulfate			mg/L	*31*	*51*	*66*	*56.4*	66	69	58	59	46	48	45	38	39	40	92	77
Nutrients																			
Ammonia (NH3)			mg/L	*-*	*0.83*	*1.18*	*2.44*	2.2	1.8	5.1	3.8	2.7	5.1	1.3	1.3	0.89	0.93	2.0	2.1
Ammonia Nitrogen	32	16	mg N/L	*-*	*0.73*	*0.98*	*1.99*	1.80	1.50	4.20	3.10	2.20	4.20	1.00	1.00	0.73	0.77	1.60	1.8
Nitrate			mg N/L	*1.33*	*1.65*	*2.55*	*3.48*	3.15	3.19	5.15	5.45	2.83	4.46	0.96	1.57	1.40	1.36	5.98	6.23
Nitrite			mg N/L	*0.048*	*0.064*	*0.054*	*0.085*	0.078	0.055	0.137	0.12	0.08	0.122	0.026	0.042	0.057	0.039	0.171	0.096
Total Kjeldahl nitrogen			mg N/L	*1.54*	*0.90*	*1.19*	*2.39*	1.6	1.6	5.7	5.1	2.3	4.3	1.1	1.3	0.93	1.0	1.5	2.2
Total phosphorus	0.6	0.3	mg P/L	*0.027*	*0.009*	*0.003*	*0.002*	< 0.0010	< 0.0010	< 0.0010	0.001	< 0.0050	0.0018	< 0.0010	0.003	0.001	0.0021	< 0.0010	< 0.0010
Orthophosphate			mg P/L	*0.01*	*0.01*	*0.02*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Metals																			
Aluminum	1	0.5	mg/L	*0.0270*	*0.0149*	*0.0179*	*0.0094*	0.0062	0.0049	0.0067	0.0067	0.0093	0.0077	0.005	0.0101	0.0257	0.0105	0.0113	0.0083
Antimony			mg/L	*0.00026*	*0.00414*	*0.01579*	*0.00215*	0.00334	0.00287	0.00145	0.00165	0.0011	0.00127	0.00071	0.00073	0.00095	0.00143	0.00717	0.00314
Arsenic	0.2	0.1	mg/L	*0.00199*	*0.00373*	*0.05714*	*0.00273*	0.00362	0.0023	0.00207	0.00183	0.00135	0.00134	0.00111	0.00112	0.00272	0.00208	0.0085	0.00468
Barium			mg/L	*0.05634*	*0.04894*	*0.06541*	*0.06034*	0.0625	0.0696	0.0824	0.0781	0.0644	0.0589	0.0454	0.0471	0.0385	0.0425	0.0727	0.062
Beryllium			mg/L	*0.0006*	*0.0002*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron			mg/L	*0.028*	*0.044*	*0.050*	*0.050*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	0.004	0.002	mg/L	*0.000029*	*0.000018*	*0.000014*	*0.000013*	0.000012	0.000014	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	0.00002	0.000012	< 0.000010	0.00002	0.000015
Calcium (total)			mg/L	*29.31*	*32.38*	*46.96*	*41.92*	46.4	47.4	44.4	46.8	37.1	33.9	27.6	35.9	27.1	29.2	66.3	60.9
Chromium	0.04	0.02	mg/L	*0.0006*	*0.0010*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	0.2	0.1	mg/L	*0.0025*	*0.0014*	*0.0017*	*0.0011*	0.00149	0.00127	0.00132	0.00126	0.0009	0.00114	0.00083	0.00073	0.00053	0.00082	0.00172	0.00075
Iron	2	1	mg/L	*0.393*	*0.231*	*0.285*	*0.256*	0.228	0.277	0.240	0.328	0.385	0.192	0.181	0.218	0.312	0.218	0.219	0.276
Lead	0.1	0.05	mg/L	*0.000174*	*0.000196*	*0.000203*	*0.000200*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium			mg/L	*0.0060*	*0.0048*	*0.0079*	*0.0074*	0.0068	0.0069	0.0081	0.0077	0.0046	0.0067	0.0033	0.0109	0.0071	0.0055	0.011	0.0099
Magnesium (total)			mg/L	*7.0*	*8.1*	*11.2*	*8.5*	9.79	9.78	9.31	9.54	7.51	7.42	5.86	5.59	5.11	5.39	13.80	12.4
Manganese			mg/L	*0.249*	*0.261*	*0.294*	*0.297*	0.349	0.392	0.386	0.397	0.361	0.302	0.297	0.226	0.222	0.242	0.213	0.177
Mercury	0.008	0.004	mg/L	*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			mg/L	*0.0047*	*0.0037*	*0.0072*	*0.0170*	0.0172	0.0156	0.0413	0.0342	0.0164	0.0348	0.0105	0.0056	0.0048	0.0068	0.0089	0.0081
Nickel	0.5	0.25	mg/L	*0.0045*	*0.0157*	*0.0541*	*0.0107*	0.0191	0.0163	0.0083	0.0109	0.0075	0.0066	0.0061	0.008	0.0078	0.0101	0.0167	0.0115
Potassium (total)			mg/L	*5.79*	*6.77*	*9.61*	*7.88*	9.2	8.92	9.72	9.48	6.35	7.13	4.25	7.56	6.06	5.72	10.9	9.27
Selenium			mg/L	*0.00057*	*0.00033*	*0.00022*	*0.00015*	0.00017	0.00015	0.00011	0.00012	0.00012	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	0.00031	0.00028
Sodium (total)			mg/L	*5.80*	*6.47*	*10.95*	*7.48*	9.28	8.84	8.62	8.39	7.20	6.99	5.40	7.15	5.09	4.91	9.81	8.10
Strontium			mg/L	*0.218*	*0.254*	*0.392*	*0.353*	0.382	0.428	0.344	0.359	0.278	0.251	0.190	0.359	0.241	0.251	0.636	0.522
Thallium			mg/L	*0.000177*	*0.000038*	*0.000017*	*0.000015*	0.000019	0.000019	0.000013	0.000018	0.000011	< 0.000010	< 0.000010	0.000013	0.000012	0.000012	0.000025	0.000018

ST-WT-24 Parameter	Max Grab	Monthly Mean	Unit	*Annual Average* 2020	2021	2022	2023	1/9/2023	1/15/2023	2/21/2023	2/26/2023	3/20/2023	4/10/2023	4/24/2023	5/10/2023	5/15/2023	5/22/2023	9/19/2023	10/9/2023
Tin			mg/L	*0.002*	*0.004*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium			mg/L	*0.009*	*0.006*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium			mg/L	*0.00098*	*0.00117*	*0.00261*	*0.00144*	0.00199	0.00227	0.00207	0.00218	0.00106	0.00163	0.00066	0.00039	0.0003	0.00044	0.0021	0.00214
Vanadium			mg/L	*0.00050*	*0.00440*	*0.00500*	*0.00500*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	0.2	0.1	mg/L	*0.0058*	*0.0073*	*0.0070*	*0.0073*	0.0067	0.0059	0.0057	0.0057	0.0079	0.0070	0.0076	0.0109	0.0078	0.0083	0.0089	0.0053
Dissolved Metals																			
Aluminum			mg/L	*0.0048*	*0.0034*	*0.0030*	*0.0030*	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Antimony			mg/L	*0.00036*	*0.00405*	*0.01547*	*0.00231*	0.00355	0.00312	0.00142	0.00176	0.00109	0.00131	0.00072	0.00062	0.00103	0.00148	0.00802	0.00355
Arsenic			mg/L	*0.00092*	*0.00226*	*0.04635*	*0.00123*	0.00196	0.00071	0.00094	0.0007	0.00084	0.00088	0.00057	0.00077	0.00181	0.00117	0.00382	0.00062
Barium			mg/L	*0.0562*	*0.0486*	*0.0647*	*0.0625*	0.0634	0.0715	0.0815	0.0832	0.0629	0.0595	0.0497	0.0414	0.0404	0.0439	0.0806	0.0718
Beryllium			mg/L	*0.0004*	*0.0002*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron			mg/L	*0.0157*	*0.0436*	*0.0501*	*0.0500*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium			mg/L	*0.000024*	*0.000016*	*0.000013*	*0.000014*	< 0.000010	0.000015	< 0.000010	< 0.000010	0.000011	< 0.000010	< 0.000010	0.000021	0.000015	0.00001	0.000025	0.00002
Chromium			mg/L	*0.0007*	*0.0009*	*0.0010*	*0.0010*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper			mg/L	*0.00206*	*0.00132*	*0.00163*	*0.00114*	0.00144	0.00149	0.00135	0.00123	0.00096	0.00146	0.00067	0.00122	0.00068	0.00089	0.00138	0.00087
Iron			mg/L	*0.0298*	*0.0691*	*0.0471*	*0.0684*	0.0586	0.0762	0.0709	0.103	0.0846	0.0634	0.0587	0.0404	0.111	0.100	0.0228	0.0316
Lead			mg/L	*0.00017*	*0.00020*	*0.00020*	*0.00020*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium			mg/L	*0.0049*	*0.0047*	*0.0079*	*0.0078*	0.0071	0.0072	0.0083	0.0067	0.0046	0.0067	0.0037	0.0114	0.0073	0.0055	0.0128	0.0119
Manganese			mg/L	*0.246*	*0.241*	*0.293*	*0.303*	0.334	0.404	0.389	0.390	0.361	0.317	0.312	0.208	0.231	0.247	0.234	0.207
Mercury			mg/L	*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			mg/L	*0.0046*	*0.0036*	*0.0070*	*0.0171*	0.0165	0.0157	0.0416	0.0349	0.0161	0.0349	0.0111	0.0051	0.0052	0.0069	0.0098	0.0074
Nickel			mg/L	*0.0037*	*0.0163*	*0.0535*	*0.0111*	0.0201	0.0173	0.0083	0.0107	0.0071	0.0069	0.0061	0.0071	0.0081	0.0099	0.0189	0.0131
Selenium			mg/L	*0.00047*	*0.00031*	*0.00021*	*0.00016*	0.0002	0.00017	0.00013	0.00012	0.0001	0.00012	< 0.00010	< 0.00010	< 0.00010	< 0.00010	0.00039	0.00032
Strontium			mg/L	*0.219*	*0.251*	*0.389*	*0.367*	0.386	0.433	0.348	0.362	0.274	0.262	0.200	0.334	0.254	0.246	0.678	0.626
Thallium			mg/L	*0.000173*	*0.000038*	*0.000015*	*0.000016*	0.000019	0.00002	0.000013	0.000018	0.00001	< 0.000010	< 0.000010	< 0.000010	0.000012	0.000012	0.00003	0.000022
Tin			mg/L	*0.002*	*0.004*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium			mg/L	*0.009*	*0.006*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium			mg/L	*0.00096*	*0.00104*	*0.00251*	*0.00144*	0.00198	0.00221	0.00217	0.00200	0.00103	0.00166	0.00065	0.00030	0.00027	0.00042	0.00229	0.00225
Vanadium			mg/L	*0.0011*	*0.0044*	*0.0050*	*0.0050*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc			mg/L	*0.0059*	*0.0079*	*0.0065*	*0.0082*	0.0110	0.0074	0.0056	0.0057	0.0076	0.0082	0.0080	0.0110	0.0084	0.0091	0.0089	0.0080
Volatile Organics																			
Petroleum Hydrocarbons F (C10-C50)	6	3	mg/L	*0.4*	*0.4*	*0.2*	*0.2*	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

**Duplicate result*

8.5.3.2.16 Groundwater Storage Pond Effluent – GSP-1 (ST-WT-20) §

Groundwater Storage Pond One (GSP-1) formally A-P5 (MEA-4) is used to store water from the underground operations. A total volume of 4,760m^3 was pumped from underground to GSP-1 (ST-WT-20) in 2023 from May to September. As per the Water License, sampling is conducted four times per year minimum. Agnico Eagle collected samples on a monthly basis. Results are provided in Table 8-60 below and the sampling location outlined in Figure 4.

8.5.3.2.17 Whale Tail Landfarm (ST-WT-27) §

In the event of water accumulation or seepage within the Whale Tail landfarm, the ponded water will be analyzed for Water License prior to discharge. In 2023, prior to receiving results and freezing up, approximately 6 m^3 of water was trucked to the Meadowbank TSF. Results are provided in Table 8-59 below and the sampling location is outlined in Figure 4.

Table 8-59 Whale Tail Landfarm 2023 Water Quality Monitoring (ST-WT-27) §

ST-WT-27 Parameter	Unit	9/30/2023
Field Measured		
pH	pH units	7.57
Conventional Parameters		
TSS	mg/L	11
Total Metals		
Arsenic	mg/L	0.1330
Copper	mg/L	0.00106
Lead	mg/L	0.00187
Nickel	mg/L	0.02
Zinc	mg/L	4.14
Volatile Organics		
Benzene	mg/L	< 0.00020
Ethylbenzene	mg/L	< 0.00020
Toluene	mg/L	< 0.00020
Xylenes	mg/L	< 0.00040
F2 (C10-C16)	mg/L	< 0.1
F3 (C16-C34)	mg/L	< 0.2
F4 (C34-C50)	mg/L	< 0.2
Petroleum Hydrocarbons F (C10-C50)	mg/L	< 0.2

8.5.3.2.18 Landfill§

No water quality monitoring was completed at the landfill in 2023 as no leachate was observed.

Table 8-60 Whale Tail Groundwater Storage Pond (GSP-1) 2023 Water Quality Monitoring (ST-WT-20) §

ST-WT-20	Unit	*Annual Average*				1/8/2023	2/5/2023	2/19/2023	3/5/2023	4/9/2023	5/1/2023	6/11/2023	7/2/2023	8/6/2023	9/4/2023	10/1/2023	11/27/2023	12/10/2023
Parameter		*2020*	*2021*	*2022*	*2023*													
Field Measured																		
Temperature	°C	*9.4*	*6.9*	*3.2*	*3.1*	-0.5	-0.5	-0.5	0.1	-0.6	0.1	1.4	12.7	16.2	7.1	4.2	-0.4	0.5
pH	pH units	*7.43*	*7.25*	*6.72*	*7.40*	6.95	6.57	6.86	6.45	6.62	6.67	8.00	7.83	7.42	7.59	8.60	8.34	8.32
Conductivity	uS/cm	*2070.0*	*12673.0*	*18310.0*	*76580.5*	104300	91600	10990	102300	11670	11830	560000	5.85	6630	76600	8720	9900	1000
Turbidity	NTU	*17.40*	*5.10*	*2.80*	*2.13*	1.88	1.82	0.98	1.31	0.56	0.79	4.83	1.53	1.37	5.67	3.68	1.63	1.58
Conventional Parameters																		
Hardness, as $CaCO_3$	mg/L	*1209*	*1778*	*3633*	*3945*	4250	4950	5140	4500	5370	4810	2330	2220	2750	2750	3650	4110	4450
Total alkalinity, as $CaCO_3$	mg/L	*47*	*40*	*45*	*36*	48	49	50	51	56	53	20	22	27	26	24	22	17
TDS	mg/L	*1446*	*2643*	*4598*	*5449*	5760	5640	6170	6010	6810	7480	3290	3520	4150	4790	5630	5800	5790
TSS	mg/L	*18*	*10*	*6*	*8*	8	6	5	6	11	7	10	4	5	21	10	5	4
Major Ions																		
Chloride	mg/L	*672*	*1285*	*2369*	*2838*	3000	3000	3200	3700	3700	3900	1500	1600	2000	2200	2900	3200	3000
Fluoride	mg/L	*0.07*	*0.10*	*0.10*	*0.11*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.10	< 0.10	0.13	0.13	0.14
Sulfate	mg/L	*24*	*35*	*74*	*101*	100	110	110	110	120	120	58	67	82	97	110	120	110
Nutrients																		
Ammonia (NH_3)	mg/L	*-*	*14.5*	*32.7*	*33.8*	41	43	44	46	44	50	19	19	21	24	28	31	30
Ammonia Nitrogen	mg N/L	*7.0*	*12.0*	*26.9*	*27.7*	34	35	36	38	36	41	16	16	17	19	23	25	24
Un-Ionized Ammonia, calculated	mg N/L	*0.07*	*0.05*	*0.02*	*0.23*	0.029	0.013	0.025	0.011	0.014	0.019	< 0.00061	0.29	0.16	0.13	1.30	0.53	0.53
Nitrate	mg N/L	*17.75*	*34.37*	*76.56*	*86.98*	103	102	105	110	123	108	45.6	48.1	57.1	67.3	83.7	84.7	93.2
Nitrite	mg N/L	*0.23*	*0.52*	*2.00*	*3.14*	3.23	3.44	3.53	3.70	4.15	5.48	1.49	1.65	2.04	2.61	3.00	3.18	3.32
Total Metals																		
Aluminum	mg/L	*0.243*	*0.161*	*0.079*	*0.052*	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.185	0.047	0.032	0.112	0.066	< 0.030	< 0.030
Arsenic	mg/L	*0.0084*	*0.0402*	*0.0092*	*0.0062*	0.0063	0.0064	0.0066	0.0071	0.0072	0.0067	0.00638	0.0053	0.00482	0.00597	0.0063	0.0058	0.0057
Barium	mg/L	*0.353*	*0.379*	*0.645*	*0.618*	0.733	0.785	0.794	0.761	0.871	0.821	0.351	0.332	0.391	0.394	0.527	0.626	0.646
Cadmium	mg/L	*0.000327*	*0.000824*	*0.002032*	*0.001399*	0.00248	0.00269	0.00267	0.00273	0.00304	0.00282	0.000413	0.000237	0.000338	0.000336	0.00017	0.00013	0.00013
Chromium	mg/L	*0.0034*	*0.0058*	*0.0097*	*0.0088*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.0071	< 0.0050	0.0055	0.0067	< 0.010	< 0.010	< 0.010
Copper	mg/L	*0.0027*	*0.0021*	*0.0044*	*0.0042*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0050	< 0.0050	< 0.0050
Iron	mg/L	*0.49*	*0.26*	*0.16*	*0.11*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.274	< 0.050	< 0.050	0.172	0.10	< 0.10	< 0.10
Lead	mg/L	*0.00041*	*0.00080*	*0.00176*	*0.00169*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0020	< 0.0020	< 0.0020
Manganese	mg/L	*1.91*	*1.81*	*3.97*	*2.93*	4.88	5.04	5.25	5.01	5.73	5.35	1.45	0.958	0.896	0.901	0.882	0.863	0.922
Mercury	mg/L	*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	mg/L	*0.0035*	*0.0042*	*0.0088*	*0.0085*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0050	< 0.0050	0.0057	0.0053	< 0.010	< 0.010	0.01
Nickel	mg/L	*0.0537*	*0.0843*	*0.1652*	*0.1414*	0.208	0.217	0.220	0.219	0.238	0.238	0.0796	0.0633	0.061	0.0635	0.069	0.077	0.085
Selenium	mg/L	*0.00097*	*0.00055*	*0.00102*	*0.00091*	< 0.0010	0.0011	0.0011	0.0011	0.0012	0.0011	< 0.00050	< 0.00050	0.00053	0.00064	< 0.0010	< 0.0010	0.001
Silver	mg/L	*0.00010*	*0.00008*	*0.00018*	*0.00017*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	*0.00021*	*0.00017*	*0.00032*	*0.00031*	0.00039	0.00043	0.00038	0.00042	0.00043	0.00041	0.000167	0.000172	0.000217	0.000207	0.00024	0.00027	0.00029
Zinc	mg/L	*0.009*	*0.019*	*0.044*	*0.042*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.025	< 0.025	< 0.025	< 0.025	< 0.050	< 0.050	< 0.050

8.5.3.2.19 Erosion Management

As required by NIRB Project Certificate 008 Condition 11: ***The Proponent shall develop and implement an Erosion Management Plan to prevent or minimize erosion and its resulting effects from project-related land disturbance. The Plan should be submitted to the Nunavut Impact Review Board (NIRB) at least 30 days prior to the start of construction, with updates submitted annually thereafter or as may otherwise be required by the NIRB.***

In accordance with Condition 11 of NIRB Project Certificate No. 008, Agnico Eagle maintains an Erosion Management Plan (V2; December 2018) for the Whale Tail site. This plan presents the monitoring and mitigation actions related to three specific events which have the potential to cause erosional concerns: dike construction and dewatering, freshet, and the rise of water levels in Whale Tail South.

For each of these three events, monitoring consists of water quality analyses and/or visual inspections in erosion-prone areas, which are conducted and reported under a number of programs, as follows.

- For erosion related to dike construction and dewatering:
  - During construction of dewatering dikes and subsequent lake dewatering, water quality analysis is conducted under the *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering,* as described in Section 8.5.2.2 of this report.

- For erosion related to freshet:
  - For specified locations, water quality analysis is conducted under the *Water Quality and Flow Monitoring Plan* (according to NWB Type A Water License requirements), as described in Section 8.5 of this report.
  - In addition, visual inspections with water quality analysis as required are conducted under the *Freshet Action Plan* (results below)

- For erosion related to rise of water levels in Whale Tail South:
  - Water quality analysis is conducted under the *Core Receiving Environment Monitoring Plan (CREMP)* (Appendix 26 of this report)
  - Visual inspections are conducted under the *Erosion Management Plan* (results below)

Results of visual assessments and any required water quality monitoring for erosional concerns under the *Freshet Action Plan* and *Erosion Management Plan* are reported here (Whale Tail Site, Whale Tail Haul Road, Whale Tail South Flooding). Other results including water quality monitoring for dike construction and dewatering, water quality monitoring under the *Water Quality and Flow Monitoring Plan*, and water quality monitoring under the CREMP are reported under the various sections of this Annual Report, as described above.

8.5.3.2.19.1 Freshet Action Plan and Erosion Management Plan Monitoring Methods

Under the Freshet Action Plan, inspections of Whale Tail Site and Whale Tail Haul Road water management infrastructure (including bridges, culverts, ditches, Whale Tail South channel, IVR diversion channel) are conducted daily to weekly by trained personnel starting in May.

According to the *Erosion Management Plan*, erosional concerns are recorded, such as: bed erosion upstream and downstream of watercourse crossing structures, scour under bridge abutments and abutment foundations, erosion along cutslopes and fillslopes of embankments (rill and gully erosion), etc.

Water quality monitoring for turbidity/TSS is also conducted as required based on visual observations. TSS is analyzed by onsite assay laboratory procedures when excess turbidity is observed by visual inspection. TSS is analyzed by commercial accredited laboratory if any elevated results are received from the onsite laboratory. Laboratory-measured TSS results that exceed 30 mg/L are reported to appropriate regulators.

An inspection log is maintained, documenting general conditions at each location, observations on flow rates and clarity, turbidity sample collection (as required), and any mitigation measures that are implemented to prevent erosional concerns.

In addition, opportunistic visual assessments are conducted for erosion concerns along the flooded shoreline of Whale Tail South.

8.5.3.2.19.2 Whale Tail Haul Road Erosion Monitoring Results

In 2023, no major erosion concerns that required mitigation actions were identified during visual inspections for Whale Tail Haul Road water management infrastructure (e.g. scour, bed erosion, etc.).

Similarly, no major turbidity concerns were identified, no water quality samples were required to be collected, and no contingency mitigation measures (e.g. straw booms or woodchip booms) were required to be installed for Whale Tail Haul Road infrastructure.

8.5.3.2.19.3 Whale Tail Site Erosion Monitoring Results

As described previously, turbidity/TSS samples are required to be collected at various onsite water management infrastructure locations according to the NWB Water License (e.g. the IVR Diversion Channel, WTS Channel, WRSF Ponds), and results are provided in the relevant Water Quality and Flow Monitoring sections of this report. According to the *Water Management Plan*, pumping from various sumps occurs as required to reduce potential for erosional concerns, and volumes are provided in the relevant Water Quality and Flow Monitoring sections of this report.

During onsite visual inspections of water management infrastructure under the *Freshet Action Plan*, no major erosional concerns were observed (e.g. scour, bed erosion, gullying, etc.) requiring management action. Overland flow across the emulsion plant road, near the Mammoth Dike, continued to present potential for erosional concerns. Minor flow over the road and some signs of road erosion were observed in 2023, despite use of plywood covers at the culvert openings to prevent blockage over winter, and snow removal prior to freshet. A low level of turbidity in meltwater flowing through the culverts was visually identified, and to avoid transportation of sediment to Kangislulik Lake (located approx. 50 – 100 m downslope, to the north), mulch booms were again installed on the downstream side of the road.

8.5.3.2.19.4 Whale Tail South Flooding

Flooding of Whale Tail South (WTS) was complete in 2019. However, visual inspections of the shoreline continued in 2023 during the open water season. Since flooding has been complete for four years, these surveys were conducted opportunistically by Environment Department technicians to ensure that erosion along the new banks did not mobilize excess TSS into Whale Tail Lake. According to the Erosion Monitoring Plan, shorelines were observed for any major instability, along with signs of permafrost degradation such as ground ice melting, gully and fissuring. None of these issues were identified in 2023.

8.5.4 Sewage Treatment Plant§

8.5.4.1 *Meadowbank Site*§

The Meadowbank mine site has one Seprotech L333 (STP-SEP) sewage treatment plant (STP) and three Little John 100 units (LJ-MIX) in operation; the equipment operates together with one sewage discharge effluent stream directed to the Stormwater Management Pond (SMP). In 2023, water was pumped from the SMP to the Portage pit in June, July, August, and October. There is no discharge to any receiving waters. The SMP also collects spring runoff from the surrounding area.

Samples are taken in accordance with Operation & Maintenance Manual – Sewage Treatment Plan for the purpose of determining operating efficiency of the units. Sample results are available in Table 8-62, for influent (STP-IN), Seprotech L333 and LJ-MIX effluent. Results of the sample analysis are submitted to the NWB in the monthly monitoring reports.

The total volume of treated sewage discharged in 2023 was 26,603 m^3. In addition, 456.26 m^3 of sewage sludge was collected and disposed of in the Tailings Storage Facility. A monthly summary of the volume of STP waste is presented in Table 8-61.

Table 8-61 Meadowbank 2023 Sewage Treatment Plant Waste Volume§

Sewage volume from STP 2023			
Month	**Total flow to biodisks (m^3)**	**Total Lift station #3 out (m^3)**	**Lift #2 and Biodisks sludge out (m^3)**
	Sewage Collected at EQ tank	*All water (grey and black) discharged to SMP*	*Sewage sludge removed from STP*
January	2,407	3,342	13.60
February	2,016	2,853	23.00
March	2,052	2,899	48.50
April	2,247	3,142	40.80
May	2,075	2,965	53.60
June	2,029	2,929	27.20
July	2,149	3,062	31.96
August	2,389	3,290	20.40
September	2,289	3,108	75.82
October	2,323	3,090	61.20
November	2,290	3,067	19.38
December	2,337	3,123	40.80
Total	**26,603**	**36,870**	**456.26**

Note:
Daily the sewage truck picks up greywater from TCG and then grease from kitchen and brings it the Tailings Pond
After that the sewage truck picks up sewage from various locations around the mine and brings it the STP

Table 8-62 Meadowbank 2023 Sewage Treatment Plan (STP-IN, STP-SEP and LJ-MIX) §

STP-IN Parameter	Unit	1/3/2023	2/7/2023	3/6/2023	4/4/2023	5/10/2023	6/6/2023	7/4/2023	8/7/2023	9/4/2023	10/2/2023	11/6/2023	12/4/2023
Field Measured													
pH	pH units	7.2	7.1	7.0	6.8	7.0	7.0	7.0	7.0	6.9	7.1	7.0	7.1
Conventional Parameters													
TSS	mg/L	97	99	71	110	380	100	150	450	100	68	710	3200
Nutrients													
Ammonia Nitrogen	mg N/L	75	76	80	86	81	92	79	83	91	75	89	67
Un-Ionized Ammonia, calculated	mg N/L	0.54	0.47	0.45	0.25	0.43	0.39	0.34	0.42	0.21	0.47	0.43	0.41
Nitrate	mg N/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrite	mg N/L	0.01	0.013	< 0.010	< 0.010	0.012	< 0.010	< 0.010	< 0.010	0.016	< 0.010	0.016	< 0.010
Total Kjeldahl nitrogen	mg N/L	77	86	88	91	90	87	75	82	100	84	90	71
Biochemical Oxygen Demand	mg/L	110	130	170	190	170	130	170	110	130	170	110	180
Chemical oxygen demand	mg/L	320	330	430	400	400	360	380	330	1200	350	520	420
Total phosphorus	mg P/L	9	37	8.6	9.9	11	9.5	8.3	8.7	11	11	17	13
Coliforms													
Total Coliform	CFU/100mL	20000000	>80000000	46000000	23000000	9000000	13000000	N/D	7000000	33000000	N/D	12000000	35000000
Fecal Coliform	CFU/100mL	7000000	7000000	10000000	7000000	2400000	3800000	5000000	2100000	4500000	5400000	4800000	8000000
Atypical colonies	CFU/100mL	16000000	N/D	80000000	59000000	26000000	58000000	>200000000	106000000	56000000	>200000000	50000000	9000000

**N/D – Total coliforms cannot be determined due to the high atypical colonies count*

STP-SEP Parameter	Sample date Unit	1/3/2023	2/7/2023	3/6/2023	4/4/2023	5/10/2023	6/6/2023	7/4/2023	8/7/2023	9/4/2023	10/2/2023	11/6/2023	12/4/2023
Field Measured													
pH	pH units	7.0	6.8	6.6	6.6	6.9	7.0	7.0	7.1	7.2	6.9	7.3	7.1
Conventional Parameters													
TSS	mg/L	13	9	10	10	6	17	7	9	9	7	10	13
Nutrients													
Ammonia Nitrogen	mg N/L	27	14	20	30	42	43	46	58	57	51	26	29
Un-Ionized Ammonia, calculated	mg N/L	0.11	0.034	0.036	0.062	0.15	0.17	0.19	0.34	0.35	0.18	0.065	0.15
Nitrate	mg N/L	7.78	16.2	14.7	7.12	4.75	4.58	5.9	3.69	1.8	2.49	12.2	6.61
Nitrite	mg N/L	1.22	0.516	0.39	1.34	1.10	1.18	0.625	0.99	0.712	1.21	1.72	1.53
Total Kjeldahl nitrogen	mg N/L	29	16	23	35	45	41	41	55	60	53	29	32
Biochemical Oxygen Demand	mg/L	15	8	8	17	7	14	7	27	9	7	41	13
Chemical oxygen demand	mg/L	62	46	52	49	57	57	57	57	61	53	57	59
Coliforms													
Total Coliform	CFU/100mL	2000	1200	2500	150000	13000	2700	10000	6800	21000	2000	30000	1300
Fecal Coliform	CFU/100mL	50	< 10	10	4000	480	30	100	110	2200	80	3000	60
Atypical colonies	CFU/100mL	3100	7500	6400	140000	1000	< 100	31000	5000	18000	5200	38000	400

STP-LJ-MIX	Sample date	1/3/2023	2/7/2023	3/6/2023	4/4/2023	5/10/2023	6/6/2023	7/4/2023	8/7/2023	9/4/2023	10/2/2023	11/6/2023	12/4/2023
Parameter	**Unit**												
Field Measured													
pH	pH units	7.0	6.8	6.8	7.1	6.8	6.6	6.3	6.9	6.7	6.7	7.3	6.9
Conventional Parameters													
TSS	mg/L	7	15	18	23	8	21	16	6	9	6	9	35
Nutrients													
Ammonia Nitrogen	mg N/L	22	20	25	16	21	34	24	32	22	21	0.66	1.2
Un-Ionized Ammonia, calculated	mg N/L	0.085	0.057	0.072	0.086	0.069	0.054	0.022	0.130	0.042	0.048	0.0060	0.0052
Nitrate	mg N/L	36.9	11.7	12.8	9.18	36.5	2.87	30.4	18.0	25.0	30.7	4.04	5.97
Nitrite	mg N/L	0.027	1.02	0.260	0.701	0.025	1.40	0.166	0.799	0.230	0.040	2.19	0.488
Total Kjeldahl nitrogen	mg N/L	20	22	30	19	25	28	22	29	27	31	18	41
Biochemical Oxygen Demand	mg/L	2	9	10	18	4	23	12	6	11	4	16	33
Chemical oxygen demand	mg/L	28	53	63	59	71	54	55	55	51	38	100	120
Coliforms													
Total Coliform	CFU/100mL	< 100	13500	21000	9000	300	12000	< 1000	< 10000	< 1000	6000	30000	N/D
Fecal Coliform	CFU/100mL	3	1700	2000	1400	50	500	300	3400	2800	560	2400	>60000
Atypical colonies	CFU/100mL	< 100	6800	38000	27000	5800	28000	18000	420000	94000	700	180000	>2000000

**N/D – Total coliforms cannot be determined due to the high atypical colonies count*

8.5.4.2 *Whale Tail Site*[§]

In 2023, effluent from the Sewage Treatment Plan was discharged to the IVR Attenuation Pond on a daily basis. The total volume of treated sewage discharged in 2023 from the Newterra associated to the permanent camp was 41,364 m^3. In addition, 1,159 m^3 of sewage sludge was collected and disposed of in the Whale Tail WRSF. A monthly summary of the volume of STP waste is presented in Table 8-63.

Table 8-63 Whale Tail 2023 Sewage Treatment Plant Waste Volume[§]

Sewage volume from STP 2023		
Month	**Total outflow from Newterra Permanent Camp (m^3)**	**Sludge Removal (m^3)**
January	3,525	126
February	3,331	108
March	3,558	74
April	3,209	82
May	3,122	96
June	2,828	113
July	2,931	98
August	3,097	81
September	3,034	82
October	3,320	113
November	4,192	82
December	5,215	104
Total	**41,364**	**1,159**

As per Water License Schedule I Sampling location ST-WT-11 (Figure 4), effluent is to be sampled four times per calendar year. To assess the efficiency of the STP, a monthly sample was taken at the STP effluent. Results are provided in Table 8-65 below. There are no applicable license limits. Agnico Eagle intends to follow the operational/design parameters outlined in Table 8-64, however operational realities have made meeting the Nitrate Nitrogen and Total Phosphorus operating targets challenging. Nevertheless, it is important to highlight that no issues have occurred in the surrounding environment as a result of the deviation to the operational targets. In 2023, results were above the operational targets for nitrate, phosphorus and as well as one instance where fecal coliform were slightly above the target.

Table 8-64 Whale Tail STP Operational Parameters

Parameters	Unit	Effluent
pH	pH units	6.5 – 9.0
Oil, Grease	mg/L	<5
Biological Oxygen Demand (BOD)	mg/L	<25
Total Suspended Solids	mg/L	<25
Unionized Ammonia Nitrogen (NH3-N)	mg-N/L	<1.25
Nitrate Nitrogen (NO3-N)	mg-N/L	<5
Total Phosphorus (P)	mg-P/L	<0.5
Fecal Coliform	CFU/100 ml	<200
Total Residual Chlorine	mg/L	<0.2

In 2023, nitrate levels remained above operational targets despite increasing Micro C dosing with an average of 8.20 mg/L compared to 14.03 mg/L in 2022, 12.12 mg/L in 2021 and 16.51 mg/L in 2020. A modification to the system was completed in 2022 to allow higher Micro C dosing and in 2023 the post anox tank was improved, therefore nitrate levels are expected to continue to decrease. Agnico Eagle will continue monitor the nitrate level in 2024.

In 2022, a modification to the sewage treatment plant system allowed increased dosing of Alum for phosphorus removal. Total phosphorus average levels for 2023 remains similar to 2022 with 1.74 mg P/L and 1.77 mg P/L, respectively. Results are still lower when compared to average of 3.94 mg P/L in 2021 and 5.96 mg P/L in 2020. In 2024, Agnico Eagle will continue to evaluate areas of improvements in the overall performance of the unit.

Table 8-65 Whale Tail 2023 Sewage Treatment Plan (ST-WT-11)[§]

ST-WT-11	Unit	*Annual Average*				1/3/2023	2/20/2023	3/6/2023	4/4/2023	5/1/2023	6/6/2023	7/4/2023	8/8/2023	9/5/2023	10/2/2023	10/11/2023	11/6/2023	12/4/2023
Parameter		*2020*	*2021*	*2022*	*2023*													
Field Measured																		
pH	pH units	*7.01*	*7.10*	*6.90*	*6.86*	6.73	7.10	6.51	6.74	6.70	6.80	6.99	7.00	7.02	6.95	6.55	7.23	6.91
Total Chlorine Residual	mg/L	*-*	*0.1*	*0.2*	*0.1*	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.2
Conventional Parameters																		
Hardness, as $CaCO_3$	mg/L	*71*	*76*	*85*	*76*	76.2	98.4	99.3	90.3	108	72.0	52.9	103	50.5	54.4	55.2	55.3	72.8
Total alkalinity, as $CaCO_3$	mg/L	*112*	*55*	*35*	*34*	49	40	38	35	13	17	32	32	46	46	34	42	22
TDS	mg/L	*-*	*325*	*337*	*283*	345	275	285	305	290	285	300	270	275	205	265	310	275
TSS	mg/L	*3*	*3*	*2*	*2*	11	1	2	< 1	< 1	< 1	< 1	< 1	< 1	1	1	1	< 1
Major Ions																		
Chloride	mg/L	*81.1*	*75.2*	*75.2*	*66.1*	76	86	86	77	78	58	56	52	49	58	58	64	61
Fluoride	mg/L	*0.06*	*0.09*	*0.10*	*0.10*	< 0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.10	< 0.10	0.12	< 0.10
Sulfate	mg/L	*38.5*	*37.8*	*53.3*	*53.2*	41	19	84	97	89	60	70	37	41	37	38	33	46
Nutrients																		
Ammonia (NH_3)	mg/L	*-*	*0.10*	*0.10*	*6.65*	< 0.061	0.088	85	0.076	0.13	0.067	0.100	0.590	< 0.061	0.100	< 0.061	0.067	< 0.061
Ammonia Nitrogen	mg N/L	*0.27*	*0.12*	*0.10*	*5.48*	< 0.050	0.073	70	0.062	0.11	0.055	0.083	0.480	< 0.050	0.083	< 0.050	0.055	< 0.050
Un-Ionized Ammonia, calculated	mg/L	*-*	*-*	*0.0004*	*0.0068*	< 0.0004	< 0.0004	0.0800	< 0.0004	< 0.0004	< 0.0004	0.0005	0.0033	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Nitrate	mg N/L	*16.51*	*12.12*	*14.03*	*8.20*	11.90	6.62	0.37	2.35	4.99	5.65	5.95	19.90	8.99	5.79	6.25	14.70	13.20
Nitrite	mg N/L	*0.14*	*0.05*	*0.03*	*0.02*	< 0.010	< 0.010	0.025	0.044	< 0.010	< 0.010	0.025	0.033	0.035	< 0.010	< 0.010	< 0.010	< 0.010
Biochemical Oxygen Demand, 5 Day	mg/L	*9*	*2*	*2*	*2*	6	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Total phosphorus	mg P/L	*5.96*	*3.94*	*1.77*	*1.74*	1.0	0.6	0.049	0.037	0.19	2.0	2.2	4.2	2.5	1.5	2.7	3.3	2.3
Orthophosphate	mg P/L	*6.11*	*4.10*	*1.89*	*1.58*	0.84	0.52	0.019	0.024	0.2	1.6	1.8	4.3	2.1	1.6	2.3	3	2.2
General Organics																		
Total oil and grease	mg/L	*1.7*	*1.5*	*4.1*	*1.3*	3	< 0.50	0.8	< 0.50	< 0.50	0.8	1.7	1.1	0.8	0.7	4.7	1.3	1.1
Total Metals																		
Aluminum	mg/L	*0.0394*	*0.0381*	*0.0384*	*0.0381*	0.144	0.029	0.0288	0.0264	0.0158	0.0293	0.0175	0.078	0.0183	0.0377	0.0108	0.0213	0.0389
Arsenic	mg/L	*0.0059*	*0.0053*	*0.0061*	*0.0066*	0.00517	0.00436	0.00115	0.00112	0.00215	0.00778	0.00809	0.0124	0.00912	0.00963	0.00833	0.00968	0.00648
Barium	mg/L	*0.0037*	*0.0093*	*0.0045*	*0.0048*	0.0053	0.0091	0.0072	0.0053	0.0047	0.0026	0.0011	0.009	0.0036	0.0043	0.0039	0.0036	0.0027
Cadmium	mg/L	*0.000026*	*0.000031*	*0.000024*	*0.000020*	0.000012	0.000012	< 0.000010	0.00001	< 0.000010	0.000017	0.000012	0.0001	0.000013	0.00001	< 0.000010	0.000013	0.000034
Chromium	mg/L	*0.0011*	*0.0010*	*0.0010*	*0.0010*	0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Copper	mg/L	*0.0154*	*0.0096*	*0.0049*	*0.0050*	0.00406	0.00414	0.00239	0.00257	0.00286	0.0044	0.00372	0.0124	0.0069	0.00623	0.00389	0.00449	0.00734
Iron	mg/L	*0.05*	*0.06*	*0.05*	*0.04*	0.101	0.051	0.034	0.026	0.030	0.057	0.024	0.043	0.025	0.021	0.020	0.034	0.036
Lead	mg/L	*0.00034*	*0.00996*	*0.00056*	*0.00067*	0.00069	0.00124	0.00057	0.00047	0.00036	0.00054	0.00042	0.00055	0.00112	0.00124	0.00034	0.00045	0.00069
Manganese	mg/L	*0.0027*	*0.0149*	*0.0317*	*0.0285*	0.0104	0.0255	0.0431	0.0346	0.0548	0.0315	0.0046	0.0831	0.0101	0.007	0.0138	0.0142	0.038
Mercury	mg/L	*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	mg/L	*0.0012*	*0.0011*	*0.0013*	*0.0012*	0.0015	0.0011	0.0011	0.0012	0.0012	0.0013	0.0015	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0016	< 0.0010
Nickel	mg/L	*0.0069*	*0.0090*	*0.0090*	*0.0134*	0.005	0.0057	0.0049	0.006	0.0067	0.0114	0.0105	0.0232	0.0251	0.016	0.0133	0.0178	0.0283
Selenium	mg/L	*0.0010*	*0.0003*	*0.0001*	*0.0001*	0.00012	0.00011	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	0.00011	0.0001	< 0.00010	< 0.00010	0.0001	< 0.00010
Silver	mg/L	*0.00011*	*0.00005*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Thallium	mg/L	*-*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	0.000017	< 0.000010	< 0.000010	< 0.000010	< 0.000010	0.000015	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Zinc	mg/L	*0.057*	*0.065*	*0.086*	*0.084*	0.0518	0.0851	0.0615	0.0566	0.056	0.0942	0.0528	0.290	0.060	0.0487	0.0534	0.0625	0.122
Coliforms																		
Total Coliform	CFU/100mL	*491*	*1877*	*210*	*4569*	16000	-	< 100	30	90	700	>20000	100	N/D	-	2400	N/D	1700
Fecal Coliform	CFU/100mL	*10*	*36*	*5*	*61*	260	-	20	0	< 2	100	N/D	0	92	-	-	34	40
Atypical colonies	CFU/100mL	*10940*	*27945*	*544*	*9403*	81000	-	3100	460	540	600	31	10500	>2000	-	1600	>2000	1600

**N/D – Total coliforms cannot be determined due to the high atypical colonies count*

8.5.5 Bulk Fuel Storage Facility§

8.5.5.1 *Meadowbank Site*§

Water collected in the secondary containment area of the bulk fuel storage tanks at the Meadowbank mine was trucked or directed south of the tank farm to the Meadowbank Stormwater Management Pond and did not reach any receiving environment. Notification to the CIRNAC Inspector, made in accordance with Part F, Item 13 of NWB License 2AM-MEA1530 to empty the secondary containment area, was sent on May 19th, 2023 and August 31st, 2023. As a result, approximately 576 m^3 of water was trucked from the secondary containment area of the Meadowbank bulk fuel storage tanks in 2023 to the Stormwater Management Pond. Tank farm location (ST-37 and ST-37.1) are illustrated on Figure 1.

8.5.5.2 *Baker Lake Marshalling Facilities*§

Water in the secondary containment area of the main diesel bulk fuel storage facilities (Tanks 1-4; ST-40.2 and Tanks 7 – 8; ST-40.3) at the Baker Lake Marshalling Facility was sampled on May 14th, 2023. Notification to the CIRNAC Inspector, made in accordance with Part F, Item 13 of NWB License 2AM-MEA1530 to empty secondary containment areas, was sent on May 19th, 2023. No water quality parameters exceeded the water quality limit stipulated in Part F, Item 9 of the 2AM-MEA1530 Water License.

Water was also sampled from Tanks 1 – 4 (ST-40.2) and Tanks 7-8 (ST-40.3) on September 2nd, 2023. A second notification to the CIRNAC Inspector was sent on August 31st, 2023. No water quality parameters exceeded the water quality limit stipulated in Part F, Item 9 of the 2AM-MEA1530 Water License.

In total, approximately 2,836 m^3 from Tanks 1-4 containment area and 3,259 m^3 from Tanks 7-8 containment area was discharged to the environment. No water was discharged for station ST-38 and ST-40.1. Water in the secondary containment of Tanks 5-6 (ST-40.1) and Jet-A Tanks (ST-38) was trucked back to Meadowbank for disposal in the Stormwater Management Pond..

The locations of these sampling stations (ST-38, ST-40.1, ST-40.2, and ST-40.3) are illustrated on Figure 3 and results are presented in Table 8-66

Table 8-66 Baker Lake 2023 Bulk Fuel Storage Facility Water Quality Monitoring (ST-40.2, ST-40.3) §

Bulk Fuel	Max Grab	Max Mean	Unit	5/14/2023	9/2/2023	5/14/2023	9/2/2023
Parameter				ST-40.2	ST-40.2	ST-40.3	ST-40.3
Field Measured							
pH	6.0 - 9.5	6.0 - 9.5	pH units	7.90	7.08	7.76	7.48
Conventional Parameters							
TSS	30	15	mg/L	4	11	1	7
Nutrients							
Total Ammonia (as NH3)			mg/L	< 0.061	0.13	< 0.061	0.20
Ammonia Nitrogen (as N)	6	6	mg/L	< 0.050	0.10	< 0.050	0.17
General Organics							
Total oil and grease	5 and no visible sheen	5 and no visible sheen	mg/L	1.8	0.7	2.6	1.1
Total Metals							
Arsenic	1	0.5	mg/L	0.00041	0.00077	0.00064	0.00147
Copper	0.6	0.3	mg/L	0.00388	0.00531	0.00099	0.00334

Lead	0.1	0.1	mg/L	0.00042	0.00044	< 0.00020	0.0004
Nickel	1	0.5	mg/L	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Zinc	1	0.5	mg/L	< 0.0050	0.0052	< 0.0050	< 0.0050
Volatile Organics							
Benzene	0.37	0.37	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Ethylbenzene	0.09	0.09	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Toluene	0.002	0.002	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Xylenes			mg/L	< 0.00040	< 0.00040	< 0.00040	< 0.00040

Following the 2023 annual geotechnical inspection, minor deficiencies of exposed membrane and/or damaged membrane were observed at the Bake Lake Fuel Farm. To preserve the integrity of the secondary containment and geomembrane, deficiencies will be addressed during the summer of 2024.

Baker Lake Bulk Fuel Storage: Environmental Performance Monitoring Plan (Appendix 17 of the 2021 Annual Report) was updated and approved by the NWB in March 2022. Section 5 of this management plan details the environmental performance monitoring plan which is a tiered approach with an emphasis on visual and operational inspections; routine surface water sampling to control and monitor the quality of the contact water; and event monitoring (in the case of a spill emergency or occurrence). Management of the bulk fuel storage facility will be guided by the monitoring results. As detailed in this plan, Agnico Eagle committed to increasing visual inspections of the Baker Lake Marshalling Facilities from weekly to twice weekly during Freshet and summer months. Monthly inspections are also conducted by the Energy and Infrastructure Department. Inspection of the facility included: tank and piping condition, secondary containment berm structure and integrity, indicators of liner damage, precipitation/ run-off accumulation, evidence of tampering or misuse, any structural abnormalities and visible sheens on contact water pools and crush material inside the secondary containment. Furthermore, Agnico Eagle is following the annual recommendations from the third-party Geotechnical Inspection of the Marshalling Facility. This report and the Agnico Eagle implementation plan are provided respectively in Appendix 7 and 10.

8.5.5.3 *Whale Tail Site*[§]

In 2023, a 10-day notice was sent to CIRNAC on May 19th, 2023 and August 31st, 2023 with the advisement that water would be discharged from the secondary containment of the Whale Tail 1.5 million litre diesel tank farm (ST-WT-12). Water was discharged behind the tank which responds to the IVR Attenuation Pond and did not reach any receiving environment.

In 2023, water from the secondary containment (ST-WT-16) was brought back by tanker to the Meadowbank Stormwater management pond and did not reach any receiving environment. Water from the secondary containment (ST-WT-38) was pumped to the IVR Attenuation Pond and did not reach any receiving environment.

8.5.6 All Weather Access Road/ Whale Tail Haul Road and Quarries*§

8.5.6.1 *Meadowbank Site§*

As required by DFO Authorizations NU-03-0190 Condition 5.3 (AWPAR); ***A photographic record of before, during and after construction, during decommissioning and after restoration, showing that all works and undertakings have been completed according to the approved Plan and conditions of this authorization […]***

And

As required by NIRB Project Certificate No.004 Condition 31: ***Cumberland shall provide detailed stream crossing design criteria, including consideration of the DFO Operational Statement for Clear-span bridges for all water crossings identified to have fish presence, final crossing designs, site specific mitigation procedures, an effects monitoring program, and a maintenance and closure plan for all water course crossings, to the DFO and the NWB for review and approval.***

A geotechnical structural inspection of the AWAR, including all culverts, bridges and quarries, was conducted in 2023. This annual inspection is a requirement of the Water License. The findings are presented in the report titled 'Meadowbank Complex 2023 Annual Geotechnical Inspection', attached in Appendix 7. Agnico Eagle responses to the recommendations from the inspection are also included in Appendix 10. More specifically, Section 6 of the annual geotechnical inspection report provided the observations and descriptions of each culvert and bridges along the AWAR. Agnico Eagle provided to DFO in 2023 a list of culverts crossing fish bearing.

Pre-freshet and freshet inspections were conducted at crossings along the AWAR in 2023. These inspections are conducted to document the presence/absence of flow, erosional concerns and turbidity plumes.

Weekly inspections are also conducted along the AWAR on a year-round basis. During the freshet and open water season, any visual turbidity plumes or erosion along the AWAR, culverts or HADD crossings are documented by Environmental Technicians. In 2023, no visual turbidity plumes or erosion concerns were observed.

In relation to Fisheries and Oceans Canada Authorizations NU-03-0190, NU-03-0191.3, NU-03-0191.4, NU-08-0013 and NU-14-1046 Agnico Eagle maintains a Habitat Compensation Monitoring Plan (Version 4, 2017) to ensure that fish habitat compensation features are constructed and functioning as intended. Based on the schedule described in the Habitat Compensation Monitoring Plan, monitoring of compensation features currently occurs every 2 years. Monitoring was conducted in 2023 for the constructed spawning pad, located at stream crossing R02 along the all-weather access road. The constructed spawning pads were visually confirmed to be stable as designed. Refer to the 2023 Habitat Compensation Monitoring Report provided in Appendix 36 and Section 8.8 for more details. The next monitoring is planned for the summer of 2025.

8.5.6.2 *Whale Tail Site§*

As required by NIRB Project Certificate No.008 Condition 21: ***The Proponent shall ensure that all project infrastructures in watercourses are designed and constructed in such a manner that they do not unduly prevent***

* TSM- Biodiversity and Conservation Management

or limit the movement of water or fish species in fish bearing streams and rivers, unless otherwise authorized by Fisheries and Oceans Canada.

Throughout the life of the Project, the Proponent shall report on how the Proponent has maintained and/or implemented mitigation measures in fulfillment of this term and condition in the Proponent's annual report to the Nunavut Impact Review Board.

A geotechnical structural inspection of the Whale Tail Haul Road, including all culverts, bridges, eskers and quarries, was conducted in 2023. This annual inspection is a requirement of the Water License. The findings are presented in the report titled 'Meadowbank Complex 2023 Annual Geotechnical Inspection', attached in Appendix 9. Agnico Eagle responses to the recommendations from the inspection are also included in Appendix 10. More specifically, Section 7 of the annual geotechnical inspection report provided the observations and descriptions of each culvert and bridges along the AWAR. Agnico Eagle provided to DFO in 2023 a list of culverts crossing fish bearing.

Pre-freshet and freshet inspections were conducted weekly at crossings along the Whale Tail Haul Road, eskers and quarries in 2023. These inspections are conducted to document the presence/absence of flow, erosional concerns and turbidity plumes and to ensure that runoff, if any, would be free of any visible sheen and would not impact the environment.

In 2023, no major erosion concerns that required mitigation actions were identified during visual inspections for Whale Tail Haul Road water management infrastructure (e.g. scour, bed erosion, etc.). Refer to Section 8.5.3.2.19 for more details.

8.5.7 QAQC Sampling§

As required by NIRB Project Certificate No.004, Condition 23: ***ensure that water quality monitoring performed at locations within receiving waters that allow for an assimilative capacity assessment of concern to regulators, be carried out by an independent contractor and submitted to an independent accredited lab for analysis, on a type and frequency basis as determined by the NWB; results of analysis shall be provided to the NWB and NIRB's Monitoring Officer.***

And

As required by NWB Water License 2AM-MEA1530 Part I, Item 17: ***The Licensee shall annually review the approved QA/QC Plan and modify the Plan as necessary. Proposed changes shall be submitted to an Accredited Laboratory for approval.***

And

As required by NWB Water License 2AM-WTP1830 Part I, Item 20: ***The Licensee shall annually review the approved QA/QC Plan and modify the Plan as necessary. Proposed changes shall be submitted to an Accredited Laboratory for approval.***

The objective of quality assurance and quality control (QA/QC) program is to assure that the chemical data collected are representative of the material being sampled, are of known quality, are properly documented, and are scientifically defensible. Data quality was assured throughout the collection and analysis of samples using specified standardized procedures, by the employment of accredited laboratories, and by staffing the program with experienced technicians.

Most of the chemical analyses for Meadowbank and Whale Tail sites were performed by Bureau Veritas (BV) in Ontario, an accredited facility. All data from BV lab underwent a vigorous internal QA/QC process, including the use of spiked samples and duplicate samples. All QA/QC data passed the laboratories acceptable limits. The laboratory certificates of quality control can be provided on request for Meadowbank and Whale Tail.

Toxicity tests were performed by Bureau Veritas in Quebec and AquaTox/Nautilus in Ontario, while sublethal tests were performed by AquaTox/Nautilus. Testing was conducted as stipulated in the corresponding Environment Canada Biological Test Methods. QA/QC measures implemented by the lab, including the use of reference toxicants, met the acceptable limits. Toxicity reports for Meadowbank and Whale Tail can be provided on request.

Agnico Eagle also requires the services of laboratory as Bureau Veritas in Edmonton, Alberta, H_2Lab in Val-D'Or, Quebec and SGS in Lakefield, Ontario. Agnico Eagle also uses the services of ALS for many of the CREMP and AEMP water quality analysis.

Field blanks (FB) are laboratory bottles filled with deionized water in the field, and then treated as a normal sample (N). They are used to identify errors or contamination in sample collection and analysis. Trip blank (TB) are laboratory pre-filed bottles with DI water carried to the sampling location and are left unopened. Duplicate field water quality samples (FD) are collected simultaneously in the field and used to assess sampling variability and sample homogeneity.

The QA/QC Plan was revised in February 2024 (Version 9) and can be found in Appendix 44.

8.5.7.1 *Meadowbank Site*[§]

In 2023, 238 water samples were collected (excluding Groundwater and CREMP monitoring programs), 36 duplicates, 36 field blanks and 16 trip blanks, which represents 15% of duplicate, 15% of field blanks and 7% of trip blanks which is above the QA/QC duplicate program objective of 10% but slightly under target for the QAQC objective of 10% for trip blanks. Most sampling stations are sampled more frequently than planned earlier in the year and as set out in the Water License requirements. These additional samples contributed to achieving less than 10% objective of trip blank samples collected in 2023. Agnico Eagle will review the internal process and adjust the monitoring requirements on site to ensure the trip blank objective of 10% or more will be collected in 2024.

The following presents the percentage of duplicate and field samples collected from each of the monitoring programs:

- MDMER and EEM monitoring programs: 6 duplicate samples, 6 field blanks and 3 trip blanks were collected from a total of 25 samples, representing 24% of duplicate, 24% of field blanks and 12% of trip blanks;

- STP monitoring program: 3 duplicate samples, 3 field blanks and 3 trip blanks were collected from a total of 36 samples, representing 8.33 % of duplicate, field blanks and trip blanks. As per the QAQC Plan, one (1) field duplicate and one (1) field blank are to be collected per monitoring station. The objective of the STP monitoring program is met;

- Surface water monitoring programs: 27 duplicate samples, 27 field blanks and 10 trip blanks were collected from a total of 177 samples, representing 15 % for duplicate and field blanks and 6% for trip blanks;

- Groundwater Monitoring Program; Duplicates were collected for each station during the July and September monitoring sessions. One (1) field blank and one (1) trip blank were also collected for each groundwater monitoring session (refer to Section 4.6 of the 2023 Meadowbank Groundwater Monitoring Report – Appendix 35 of the 2023 Annual Report), which aligns with the frequency outlined in the current QAQC Management Plan (Appendix 44 of the 2023 Annual Report); and

- Core Receiving Environment Monitoring Program (CREMP); A combined total of 16 duplicates were collected between the Meadowbank Lakes, Baker Lake, and the Whale Tail Lakes. Travel blanks (TB), de-ionized (DI) blanks and Equipment Blanks were submitted for all sampling events (refer to Appendix 26 of the 2023 Annual Report for the 2023 CREMP Report), which aligns with the frequency outlined in the current QAQC Management Plan (Appendix 44 of the 2023 Annual Report).

Analytical precision is a measurement of the variability associated with duplicate analyses of the same sample in the laboratory. Duplicate results were assessed using the relative percent difference (RPD) between measurements. The equation used to calculate a RPD is:

RPD = (A-B)/ ((A+B)/2)*100; where: A = field sample; B = duplicate sample.

Large variations in RPD values are often observed between duplicate samples when the concentrations of analytes are low and approaching the detection limit. Consequently, a RPD of 20% for concentrations of field and duplicates samples that both exceed 10x the method detection limit (MDL) is considered notable. The analytical precision of one QA/QC sampling event is characterized as:

- High, when less than 10% of the parameters have variations that are notable;

- Medium, when 10 to 30% of the parameters have variations that are notable;

- Low, when more than 30% of the parameters have variations that are notable.

Meadowbank results of the QA/QC data are presented in Tables 1-1 to 1-29 of Appendix 45 for the MDMER and EEM, Surface Water, and STP monitoring programs. The following is a summary of the QA/QC results, per sampling program:

- MDMER and EEM: All the duplicate samples collected were considered as having high analytical precision.

- Surface Water: All QA/QC sampling events conducted within the surface water quality program are rated as having high analytical precision except for three (3) samples having a medium analytical precision of 10%, 14% and 17% and one (1) sample having a low analytical precision of 58%.

- STP: All the duplicate samples collected were considered as having high analytical precision.

RPD values were also calculated for field blanks (FB) and lab blanks (LB) in 2023 as the QA/QC Plan. All field blank samples are considered to have high analytical precision.

The QA/QC plan was followed, and samples were collected by qualified technicians. Given the high number of samples collected in 2023, it is common to have some RPD exceedances as a result of the discrete differences in the original and field duplicates. Given the variability of these exceedances (occurring with different parameters, on different dates for different sampling programs) and the high number of successful samples, it is evident that field QA/QC standards during water sampling were maintained during sampling in 2023. Agnico Eagle environmental technicians will continue to follow standard QA/QC procedures for surface water sampling that requires the use of sample bottles that are provided by an accredited laboratory, proper handling, and storage of bottles to prevent cross-contamination between areas and, if appropriate, thoroughly rinsing the sample containers with sample water prior to sample collection.

Each equipment used for field measurement are calibrated prior usage. Calibration datasheets are kept for future reference, if needed.

8.5.7.2 *Whale Tail Site*[§]

In 2023, 244 samples were collected (excluding Groundwater and CREMP monitoring programs), 46 duplicates, 46 field blanks and 20 trip blanks, which represents 19% of duplicate, 19% of field blanks and 8% of trip blanks which is higher than the QA/QC duplicate program objective of 10% but slightly under target for the QAQC objective of 10% for trip blanks. Most sampling stations are sampled more frequently than water license requirements, or than originally planned. These additional samples contributed to achieving less than 10% objective of trip blank samples collected in 2023. Agnico Eagle will review the internal process and adjust the monitoring requirements on site to ensure the trip blank objective of 10% or more will be collected in 2024.

The following presents the percentage of duplicate and field samples collected from each of the monitoring programs:

- MDMER and EEM monitoring programs: 14 duplicate samples, 14 field blanks and 8 trip blanks were collected from a total of 47 samples, representing 30% of duplicate and field blanks and 17% of trip blanks;

- Surface water monitoring programs: 31 duplicate samples, 31 field blanks and 11 trip blanks were collected from a total of 184 samples, representing 17% of duplicates, 17% of field blanks, 6% of trip blanks;

- STP monitoring program: 1 duplicate samples, 1 field blanks, and 1 trip blank were collected from a total of 13 samples, representing 8% of duplicate and field blanks and 8% of trip blank. As per the QAQC Plan, one (1) field duplicate and one (1) field blank are to be collected per monitoring station. The objective of the STP monitoring program is met;

- Groundwater Monitoring Program; 2 duplicates, 1 field blank and 1 trip blank were collected (refer to the 2023 Whale Tail Groundwater report – Appendix 36 of the 2023 Annual Report), which

aligns with the frequency outlined in the current QAQC Management Plan (Appendix 44 of the 2023 Annual Report); and

- Core Receiving Environment Monitoring Program (CREMP); A combined total of 16 duplicates were collected between the Meadowbank Lakes, Baker Lake, and the Whale Tail Lakes. Travel blanks (TB), de-ionized (DI) blanks and Equipment Blanks were submitted for all sampling events (refer to Appendix 26 of the 2023 Annual Report for the 2023 CREMP Report), which aligns with the frequency outlined in the current QAQC Management Plan (Appendix 44 of the 2023 Annual Report).

Analytical precision is a measurement of the variability associated with duplicate analyses of the same sample in the laboratory. Duplicate results were assessed using the relative percent difference (RPD) between measurements. The equation used to calculate a RPD is:

RPD = (A-B)/ ((A+B)/2)*100; where: A = field sample; B = duplicate sample.

Large variations in RPD values are often observed between duplicate samples when the concentrations of analytes are low and approaching the detection limit. Consequently, a RPD of 20% for concentrations of field and duplicates samples that both exceed 10x the method detection limit (MDL) is considered notable. The analytical precision of one QAQC sampling event is characterized as:

- High, when less than 10% of the parameters have variations that are notable;
- Medium, when 10 to 30% of the parameters have variations that are notable;
- Low, when more than 30% of the parameters have variations that are notable.

Results of the QA/QC data are presented in Tables 1-30 to 1-60 of Appendix 45 for the MDMER and EEM, Surface Water, STP, respectively. The following is a brief summary of the QA/QC results, per sampling program:

- MDMER and EEM: All the duplicate samples collected were considered as having high analytical precision.
- Surface Water: All QAQC sampling events conducted within the surface water quality program are rated as having high analytical precision.
- STP: Analytical precision is rated medium (10%) for duplicate sample collected.

RPD values were also calculated for field blanks (FB) and lab blanks (LB) in 2023 as per the QA/QC Plan. All field blank samples are considered to have high analytical precision.

The QA/QC plan was followed, and samples were collected by qualified technicians. It is common to have some RPD exceedances as a result of the discrete differences in the original and field duplicates. Given the variability of these exceedances (occurring with different parameters, on different dates for different sampling programs) and the high number of successful samples, it is evident that field QA/QC standards during water sampling were maintained during sampling in 2023. Agnico Eagle technicians will continue to follow standard QA/QC procedures for surface water sampling that requires the use of sample bottles that are provided by an accredited laboratory, proper handling and storage of bottles to prevent cross-

contamination between areas and, if appropriate, thoroughly rinsing the sample containers with sample water prior to sample collection.

Each equipment used for field measurement are calibrated prior each usage. Calibration datasheets are kept for future reference, if needed.

8.5.8 Seepage§

8.5.8.1 *Meadowbank Site§*

As required by NWB Water License 2AM-MEA1530 Part I, Item 14: ***The results and interpretation of the Seepage Monitoring program in accordance with Part I, Item 13***
The Seepage Monitoring program includes the following locations:

- **Lake water Seepage Through Dewatering Dikes;**
- **Seepage (of any kind) Through Central Dike;**
- **Seepage and Runoff from the Landfill(s);**
- **Subsurface Seepage and Surface Runoff from Waste Rock Piles;**
- **Seepage at Pit Wall and Pit Wall Freeze/Thaw;**
- **Permafrost Aggradation;**
- **Mill Seepage.**

And

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 10*: Summary of quantities and analysis* of seepage and runoff monitoring from the Landfills, Waste Rock Storage Facility and Central Dike.

8.5.8.1.1 Lake water seepage through dewatering dikes§

Seepage flow at East Dike is measured by the flow meters installed in the two seepage collection sumps downstream of East Dike. The average flow measured during the year 2023 was estimated to be around 489 m^3/day. The measured flow is generally decreasing compared to values from the early years of operation of the dike. Please refer to Section 8.5.3.1.3 for a discussion regarding East Dike Discharge to Second Portage Lake. This section discusses the water quality monitoring results and compliance with MDMER and Water License. Refer to Table 8-2 in Section 8.3.1.3 above for the volume of water discharged to Second Portage Lake and to in Section 8.5.3.1.4 for discharge to Portage Pit. More information can also be found in the Water Management Plan (Version 12) in Appendix 13.

Seepage channels at the toe of Bay-Goose Dike can be observed in the summer. That water naturally reports to the Bay-Goose Pit and is not managed by pumping. Agnico Eagle conducts punctual flow monitoring at predetermined locations to get an estimate of the seepage evolution. The flow in the channels is measured using a bucket and a stopwatch (averaging around 5.9 m^3/day in 2023). The reading frequency is based on the Dewatering Dikes OMS Manual (Appendix 28).

8.5.8.1.2 Seepage through Central Dike§

As mentioned in Section 3.1.1c of this report, seepage was observed at the downstream toe of Central Dike since the fall period of 2014. This water was contained between the West road and the Central Dike downstream toe. Agnico Eagle utilized piezometers, thermistors, and a groundwater well to monitor the dike integrity, the foundation temperatures, and the piezometric levels within the structure and its

foundation. The seepage is located within the mining footprint, away from the receiving environment and is confined directly downstream. The average seepage rate at Central Dike is within a similar trend than previous years, excepted during tailings deposition in South Cell. The seepage in 2023 ranged between 17 m^3/h in winter and 160 m^3/hr in June.

The Central Dike seepage situation is considered stable and well managed as Agnico Eagle has the pumping capacity to deal with the seepage flow rate, the integrity of the infrastructure has not been compromised, and no tailings were found outside the perimeter of the South Cell TSF.

The monitoring of the Central Dike seepage will continue throughout the operating life of the dike, with analysis of the instrumentation results and water quality monitoring, as required.

8.5.8.1.3 Seepage and runoff from the landfill§

Results and interpretation of this monitoring program are discussed in Section 8.5.3.1.23 above.

8.5.8.1.4 Subsurface seepage and surface runoff from waste rock piles

Sections 8.5.3.1.7 and 8.5.3.1.13 provide details regarding seepage monitoring at the Portage and Vault WRSF.

8.5.8.1.5 Seepage at pit wall and pit wall freeze/thaw and permafrost aggradation§

No mining activities occurred in Vault Pit, Phaser Pit, BB Phaser Pit, Portage Pit A, Portage Pit E, and Goose Pit. Therefore, any seepage is contributing to the re-flooding of the pits.

Seepage was observed at the toe of the D-dump in 2022. The seepage has been monitored in 2023 and has reduced significantly.

In Vault pit, no new water inflows were observed other than the ones identified in 2022. No major seepage inflows were observed in Goose, Phaser and in BB Phaser Pits in 2023.

The “2023 Annual Open Pit Geomechanical Inspection” provides more details regarding seepage at pit walls (Appendix 8).

8.5.8.1.6 Mill seepage Meadowbank Site §

On November 4th, 2013, it was observed that water was seeping through the road in front of the Assay Lab Road. Construction of an interception trench was completed in April-May 2014 and repairs and sealing of containment structures within the mill were completed during the summer of 2014. In November 2015 work was conducted to repair portions of the mill floor and ensure its watertight integrity. Additional elastomeric sealant was applied in the floor joints. Agnico Eagle also put in place an internal action plan and monitoring program for this seep in 2014. The monitoring is part of the Freshet Action Plan. Refer to Appendix D of the 2023 Water Management Report and Plan (Appendix 13) for more details regarding the monitoring and action taken by Agnico Eagle before, during and after the freshet at this seepage area.

In 2023, pumping of the mill seepage trench occurred from May to September. No flow of water has been pumped during winter months in 2023 in the interception trench because of frozen conditions.

During a site assessment on December 15th, 2023, evidence of water inflow was observed on the west side of the Assay lab road. Upon further investigation, an inflow of water was found to be contained within existing water management infrastructure previously constructed. Agnico Eagle is confident that the corrective measures implemented in previous years are still effective and prevent potential contaminated water from reaching any receiving environment. Preventively, Agnico Eagle will bring an expert consultant to inspect and repair, if needed, all foundation sealants, within the Mill sumps.

Daily visual inspections were conducted during freshet. Prior and after freshet, inspections were conducted weekly and after rain events.

Monthly water quality samples were collected when water was present at the interception trench and Third Portage Lake as well as Monitoring Wells MW-04, MW-05, MW-06, MW-07 and MW-08 (presented on Figure 16 below). Tables 8-67 and Table 8-68 contain monitoring results from the interception trench/wells and Third Portage Lake (TPL-Assay), respectively. It should be noted that all wells were dry in 2023, therefore no samples were collected in the monitoring wells.

Monitoring will be continued in 2024 as per the Freshet Action Plan to identify if trending is maintained. Impacts to the environments have been avoided by pumping collected water back to the milling process with no water being discharged to the environment. As well, concentrations at TPL are all below the CCME guideline for the Protection of Aquatic Life for CN Free, copper and iron.

In summary, monitoring in TPL indicates that there has been no impact to the near shore receiving waters. The seepage appears to be effectively contained.

Figure 16 Meadowbank General Layout of the Assay Road Seepage§

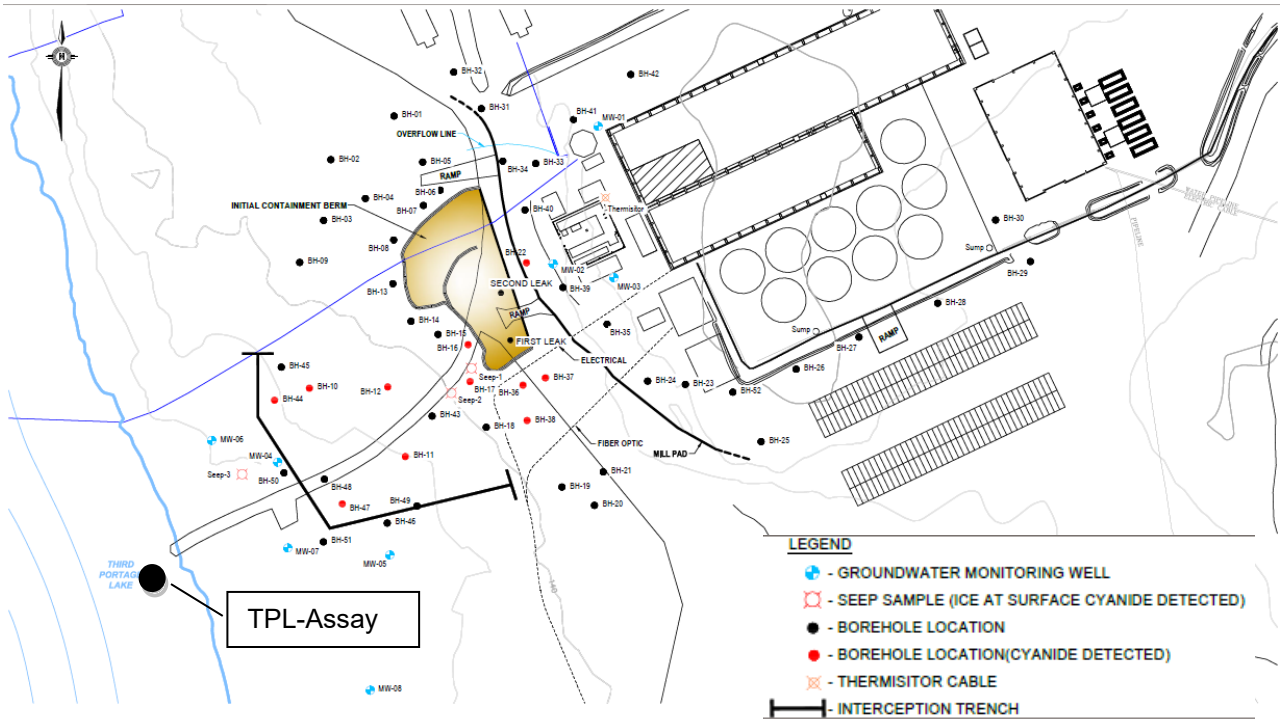


Table 8-67 Meadowbank Assay Road Seepage Trench and Well Water Quality Monitoring 2014-2023§

Date	Mill Trench				MW-04				MW-05				MW-06				MW-07				MW-08			
	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)
Regulatory guideline Water License	**1**	**NA**	**0.2**	**NA**	**1**	**NA**	**0.2**	**NA**	**1**	**NA**	**0.2**	**NA**	**1**	**NA**	**0.2**	**NA**	**1**	**NA**	**0.2**	**NA**	**1**	**NA**	**0.2**	**NA**
Regulatory guideline MDMER	**1**	**NA**	**0.6**	**NA**	**1**	**NA**	**0.6**	**NA**	**1**	**NA**	**0.6**	**NA**	**1**	**NA**	**0.6**	**NA**	**1**	**NA**	**0.6**	**NA**	**1**	**NA**	**0.6**	**NA**
Regulatory guideline CCME	**NA**	**0.005**	**0.002**	**0.3**	**NA**	**0.005**	**0.002**	**0.3**	**NA**	**0.005**	**0.002**	**0.3**	**NA**	**0.005**	**0.002**	**0.3**	**NA**	**0.005**	**0.002**	**0.3**	**NA**	**0.005**	**0.002**	**0.3**
2014																								
5/26/2014	0.087		0.01	1	Dry				Dry				Dry				Dry				Dry			
6/17/2014	0.44	0.061	0.057	1.6	Dry				Dry				Dry				0.069		0.14	2.2	0.024	<0.005	0.11	0.41
7/21/2014	0.38	0.020	0.031	1.6	Dry				Not enough water				Dry				Dry				<0.005	<0.01	0.014	0.43
8/19/2014	0.17	0.028	0.012	1.5	0.12		0.076	5.80	<0.005	<0.01	0.031	2.2	0.1		0.24	4.8	0.046	<0.02	0.1	9.4	<0.005	<0.01	0.055	6.40
9/29/2014	0.03		0.008	0.77													0.001		0.134	10.9				
11/18/2014	Frozen				Frozen				Frozen				Frozen				Frozen				Frozen			
2015																								
7/29/2015	0.024		0.005	0.72	Dry				<0.005		0.13	1.49	Dry				Dry				<0.005		0.27	2.92
8/4/2015	0.038	<0.005	0.008	0.6	Dry				Dry				Dry				Dry				<0.005	<0.005	0.17	17.2
9/17/2015	0.030		0.005	0.2	Dry				Dry				Dry				0.008	<0.005	0.047	4.53	<0.005	<0.005	0.016	8.1
2016																								
8/8/2016	0.022	0.016	0.025	0.3	Dry				Dry				Not enough water				<0.005	<0.005	0.295	39.8	<0.005	<0.005	0.371	62.8
8/16/2016	No sample taken				Dry				Dry				Not enough water				0.007		0.181	27.8	<0.005		0.114	19.8
9/6/2016		0.007			Dry				Dry				Dry					<0.005			Not enough water			
10/14/2016	Frozen				Dry				Dry				Dry					0.005			Dry			
2017																								
6/11/2017	0.057		0.005	1.33	Dry				Dry				Dry				Frozen				Dry			
7/4/2017	No sample taken				Not enough water					<0.005			Dry					<0.005				<0.005		
7/9/2017	0.024	0.017	0.004		Dry				Dry				Dry				<0.001				Dry			
7/14/2017	0.028	<0.005	0.002		Dry								Dry				No sample taken				No sample taken			
7/18/2017	0.013	<0.005	0.003	0.36	Dry				<0.01	<0.005			Dry				0.002	<0.005	0.067	23.8		<0.005	0.026	10.5
7/28/2017	0.011	<0.005	0.004		Dry				Dry				Dry				No sample taken				No sample taken			
8/22/2017	0.021	0.005	0.003	0.61	Dry				Dry				Dry				0.013	<0.005	0.354	161	Not enough water			
9/19/2017	0.005	0.005	0.005	0.05	Dry				Dry				Dry				0.011	<0.005	0.143	25.9	Dry			

Date	Mill Trench				MW-04				MW-05				MW-06				MW-07				MW-08			
	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)
2018																								
6/28/2018	Frozen				Frozen				Frozen				Frozen				Frozen				Frozen			
7/16/2018	0.016	0.014	0.005	0.18	Dry				Dry				Dry				Equipment broken				Frozen			
8/20/2018	0.014	0.015	0.005	0.08	Dry				Dry				Dry				Equipment broken				Dry			
9/17/2018	0.006	<0.005	0.004	0.08	Dry				Dry				Dry				No sample taken				Dry			
9/24/2018	No sample taken				Dry				Dry				Dry				0.004	<0.005	0.051	20.3	Dry			
2019																								
7/8/2019	0.044	0.013	0.006	-	Dry				Dry				Dry				Dry				Dry			
7/9/2019	0.047	< 0.001	0.005	0.04	Dry				Dry				Dry				Dry				Dry			
8/2/2019					Dry				< 0.001	< 0.001	0.008	1.77	0.042	< 0.001	0.014	2.76	0.002	< 0.001	0.036	17.8	Not enough water			
8/17/2019	0.048	0.01	0.004	0.03	Not enough water				Not enough water				Not enough water				Not enough water				Not enough water			
8/30/2019	0.008	0.002	0.004	-	Not enough water				Not enough water				Not enough water				Not enough water				Dry			
9/6/2019	< 0.001	0.001	0.003	-	Not enough water				Not enough water				Not enough water				Not enough water				Dry			
9/26/2019	0.025	0.011	0.006	-	Dry				Dry				Dry				Dry				Dry			
2020																								
6/8/2020	0.038	0.01	0.007	0.60	Dry				Dry				Dry				Dry				Dry			
7/7/2020	0.025	0.005	0.006	-	Dry				Dry				Dry				Dry				Dry			
7/14/2020	0.038	0.013	0.006	-	Dry				Dry				Dry				Not enough water				Not enough water			
7/27/2020	0.022	0.012	0.004	0.08	Dry				< 0.001	< 0.001	0.008	5.8	Dry				Not enough water				Not enough water			
7/30/2020	0.022	0.017	0.005	-	Dry				Dry				Dry				Not enough water				Not enough water			
8/4/2020	0.01	0.009	0.005	-	Dry				Dry				Dry				Not enough water				Not enough water			
8/10/2020	0.016	0.01	0.004	0.04	Dry				Dry				Dry				0.006	< 0.001	0.026	11	Not enough water			
8/18/2020	0.012	< 0.001	0.004	-	Dry				Dry				Dry				Not enough water				Not enough water			
8/25/2020	0.011	0.01	0.005	-	Dry				Dry				Dry				Not enough water				Not enough water			
9/1/2020	0.062	0.008	0.005	-	Dry				Dry				Dry				Dry				Dry			
9/22/2020	0.006	0.005	0.003	-	Dry				Dry				Dry				Dry				Dry			
9/29/2020	0.008	0.001	0.004	0.14	Dry				Dry				Dry				Dry				Dry			
2021																								
1/6/2021	-	-	-	-	Dry				Dry				Dry				Dry				Dry			
6/11/2021	-	-	-	-	Dry				Dry				Dry				Dry				Dry			
6/16/2021	0.040	0.0061	0.00530	1.50	Dry				Dry				Dry				Dry				Dry			
7/12/2021	0.061	0.0034	0.0142	7.33	Dry				Dry				Dry				< 0.0050	0.0018	0.0332	34.8	Dry			
8/9/2021	0.036	0.021	0.00377	0.174	Dry				Dry				Dry				0.0065	0.0027	0.0143	14.3	Dry			
9/6/2021	0.036	0.0028	0.00311	0.072	Dry				Dry				Dry				Dry				Dry			
10/10/2021	0.059	0.025	0.00304	0.103	Dry				Dry				Dry				Dry				Dry			

Date	Mill Trench				MW-04				MW-05				MW-06				MW-07				MW-08			
	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)
2022																								
6/11/2021	0.0117	0.0056	0.0118	3.79	Dry				Dry				Dry				Dry				Dry			
6/21/2022	-	-	-	-	Dry				Dry				Dry				0.00602	< 0.0020	0.0264	26.3	Dry			
7/3/2022	0.0346	0.019	0.00328	0.029	Dry				Dry				Dry				Dry				Dry			
7/5/2022	-	-	-	-	Dry				< 0.050	< 0.002	1.31	369	Dry				0.00426	< 0.0020	0.0900	75.0	Dry			
8/1/2022	0.0169	0.014	0.00305	0.110	Dry				Dry				Dry				Dry				Dry			
8/28/2022	-	-	-	-	Dry				Dry				Dry				Dry				Dry			
9/25/2022	0.0586	0.046	0.00358	0.057	Dry				Dry				Dry				Dry				Dry			
2023																								
5/30/2023	0.203	0.006	0.018	1.05	Dry				Dry				Dry				Dry				Dry			
6/18/2023	0.04	0.032	0.006	0.152	Dry				Dry				Dry				Dry				Dry			
7/16/2023	0.032	0.032	0.007	0.225	Dry				Dry				Dry				Dry				Dry			
8/8/2023	0.015	0.008	0.004	0.184	Dry				Dry				Dry				Dry				Dry			
9/3/2023	0.05	0.019	0.008	0.132	Dry				Dry				Dry				Dry				Dry			
10/3/2023	0.061	0.031	0.010	0.684	Dry				Dry				Dry				Dry				Dry			
10/15/2023	0.053	0.018	0.005	1.82	Dry				Dry				Dry				Dry				Dry			

Table 8-68 Meadowbank Assay Road Seepage 2023 TPL-Assay Water Quality Monitoring§

TPL-Assay Parameter	Unit	Annual Average 2019	2020	2021	2022	2023	6/18/2023	7/16/2023	8/8/2023	9/3/2023	10/15/2023	12/17/2023
Field Measured												
Temperature	°C	*11.00*	*11.00*	*7.2*	*12.4*	*8.7*	12.0	17.1	14.8	5.5	2.8	0.2
pH	pH units	*7.400*	*7.900*	*7.60*	*7.40*	*7.71*	7.76	7.58	7.76	7.62	7.89	7.62
Conductivity	uS/cm	*86.2*	*98.9*	*99.2*	*100.2*	*113.3*	102.8	100.4	115.2	124.3	109.8	127.5
Turbidity	NTU	*3.200*	*1.990*	*1.00*	*1.10*	*1.28*	1.37	0.69	0.84	1.03	1.5	2.27
Conventional Parameters												
Hardness, as $CaCO_3$	mg/L	*36*	*51*	*41*	*38*	*44*	37	37.7	39.2	50.2	42.2	54.9
Total alkalinity, as $CaCO_3$	mg/L	*22*	*38*	*25*	*26*	*28*	25	25	26	30	28	36
Carbonate, as $CaCO_3$	mg/L	*-*	*5*	*1*	*1*	*1*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate, as $CaCO_3$	mg/L	*-*	*38*	*25*	*26*	*28*	25	25	26	30	28	36
TDS	mg/L	*68*	*65*	*57*	*55*	*79*	55	95	55	95	40	135
TSS	mg/L	*2*	*3*	*1*	*1*	*1*	< 1	1	< 1	< 1	2	< 1
Total organic carbon	mg/L	*2*	*3*	*2*	*2*	*2*	2.4	1.7	2	2.2	2.2	2.7
Dissolved organic carbon	mg/L	*2.20*	*1.90*	*1.86*	*1.90*	*2.02*	2	1.9	1.7	2.1	2	2.4
Colour	TCU	*1.0*	*5.0*	*2.8*	*2.3*	*2.2*	3	< 2	< 2	< 2	< 2	< 2
Major Ions												
Bromide	mg/L	*0.06*	*0.07*	*1.00*	*1.00*	*1.00*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloride	mg/L	*3.6*	*5.0*	*5.7*	*5.2*	*5.6*	5.5	4.5	4.8	6.7	6.2	5.9
Cyanide	mg/L	*0.013*	*0.001*	*0.005*	*0.001*	*0.001*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cyanide (free)	mg/L	*0.001*	*0.001*	*0.002*	*0.002*	*0.003*	< 0.0020	0.0066	< 0.0020	< 0.0020	0.0023	< 0.0020
Cyanide (WAD)	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Fluoride	mg/L	*0.28*	*0.10*	*0.11*	*0.10*	*0.12*	< 0.10	< 0.10	< 0.10	0.12	0.11	0.18
Silica	mg/L	*0.49*	*0.79*	*0.46*	*0.34*	*0.74*	1.1	0.5	0.41	0.82	0.68	0.93
Sulfate	mg/L	*15.5*	*15.6*	*15.4*	*15.0*	*17.2*	16	14	14	20	17	22
Thiocyanate	mg/L	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Thiosulphates	mg/L	*-*	*0.02*	*0.20-*	*0.20*	*0.20*	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Nutrients and Chlorophyll a												
Ammonia Nitrogen	mg N/L	*0.02*	*0.02*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrate	mg N/L	*0.1*	*0.0*	*0.1*	*0.3*	*0.1*	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrite	mg N/L	*0.01*	*0.02*	*0.01*	*0.01*	*0.01*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Kjeldahl nitrogen	mg N/L	*0.30*	*0.16*	*0.12*	*0.15*	*0.15*	0.25	0.15	0.11	0.12	0.14	0.15
Total phosphorus	mg P/L	*0.010*	*0.020*	*0.001*	*0.003*	*0.002*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0024	0.0026
Orthophosphate	mg P/L	*0.01*	*0.07*	*0.01*	*0.01*	*0.0*	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chlorophyll a	mg/L	*-*	*0.001*	*0.002*	*0.001*	*0.001*	0.00053	0.0014	0.00094	-	0.0021	0.00063
Total Metals												
Aluminum	mg/L	*0.013*	*0.022*	*0.014*	*0.010*	*0.008*	0.0199	0.0076	0.0042	0.0071	0.0058	< 0.0030
Antimony	mg/L	*0.0001*	*0.0001*	*0.0005*	*0.0005*	*0.0005*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Arsenic	mg/L	*0.0005*	*0.0005*	*0.0008*	*0.0010*	*0.0008*	0.00091	0.0009	0.0008	0.00078	0.00053	0.00064
Barium	mg/L	*0.0065*	*0.0050*	*0.0060*	*0.0053*	*0.0054*	0.0061	0.0048	0.0047	0.0059	0.0047	0.0064
Beryllium	mg/L	*0.0005*	*0.0005*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Calcium (total)	mg/L	*10.27*	*14.40*	*11.56*	*10.78*	*12.35*	10.5	10.5	11.0	14.6	11.9	15.6
Chromium	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cobalt	mg/L	*0.0005*	*0.0005*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Copper	mg/L	*0.0008*	*0.0006*	*0.0008*	*0.0008*	*0.0007*	0.00074	0.00074	0.00067	0.00079	0.00062	0.00073
Iron	mg/L	*0.046*	*0.133*	*0.036*	*0.052*	*0.045*	0.076	0.04	0.024	0.073	0.036	0.018
Lead	mg/L	*0.0003*	*0.0002*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Magnesium (total)	mg/L	*2.99*	*3.73*	*2.99*	*2.77*	*3.09*	2.63	2.81	2.83	3.36	3.02	3.88
Manganese	mg/L	*0.0066*	*0.0118*	*0.0049*	*0.0055*	*0.0082*	0.0121	0.0075	0.0065	0.013	0.0071	0.003
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	0.0012	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Potassium (total)	mg/L	*1.23*	*1.75*	*1.45*	*1.38*	*1.49*	1.31	1.34	1.43	1.60	1.39	1.84
Selenium	mg/L	*0.0005*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Silver	mg/L	*0.00010*	*0.00010*	*0.00002*	*0.00002*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Sodium (total)	mg/L	*2.10*	*2.50*	*1.99*	*1.70*	*1.81*	1.66	1.64	1.68	2.04	1.70	2.15
Strontium	mg/L	*0.07*	*0.05*	*0.06*	*0.06*	*0.06*	0.0547	0.0557	0.0588	0.0771	0.058	0.0832
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0002*	*0.0002*	*0.0003*	0.00017	0.00022	0.00021	0.00062	0.00035	0.00037
Vanadium	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Dissolved Metals												
Aluminum	mg/L	*0.003*	*0.006*	*0.004*	*0.005*	*0.006*	< 0.0030	0.0056	0.0051	0.0163	0.003	0.0042
Antimony	mg/L	*0.0001*	*0.0001*	*0.0005*	*0.0005*	*0.0005*	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Arsenic	mg/L	*0.0005*	*0.0005*	*0.0007*	*0.0013*	*0.0009*	0.00083	0.0008	0.00091	0.00125	0.00066	0.00074
Barium	mg/L	*0.0052*	*0.0042*	*0.0117*	*0.0057*	*0.0059*	0.0071	0.0052	0.0046	0.0059	0.006	0.0067
Beryllium	mg/L	*0.0010*	*0.0010*	*0.0000*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Boron	mg/L	*0.01*	*0.01*	*0.05*	*0.05*	*0.05*	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cadmium	mg/L	*0.00002*	*0.00002*	*0.00001*	*0.00002*	*0.00009*	< 0.000010	< 0.000010	0.000497	0.000024	< 0.000010	< 0.000010
Chromium	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cobalt	mg/L	*0.0005*	*0.0005*	*0.0002*	*0.0002*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Copper	mg/L	*0.0005*	*0.0005*	*0.0007*	*0.0009*	*0.0019*	0.00115	0.00069	0.00086	0.00138	0.00111	0.00608
Iron	mg/L	*0.010*	*0.010*	*0.009*	*0.019*	*0.011*	0.0218	0.0069	0.0068	0.0157	0.0085	< 0.0050
Lead	mg/L	*0.0003*	*0.0002*	*0.0002*	*0.0003*	*0.0002*	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Lithium	mg/L	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Manganese	mg/L	*0.004*	*0.001*	*0.003*	*0.006*	*0.008*	0.0126	0.0030	0.0036	0.0126	0.0090	0.0043
Mercury	mg/L	*0.00001*	*0.00001*	*0.00001*	*0.00001*	*0.00001*	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Nickel	mg/L	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	0.0013	< 0.0010	< 0.0010	0.0031	< 0.0010	< 0.0010
Selenium	mg/L	*0.0006*	*0.0010*	*0.0001*	*0.0001*	*0.0001*	< 0.00010	< 0.00010	< 0.00010	0.0001	< 0.00010	< 0.00010
Silver	mg/L	*0.00010*	*0.00010*	*0.00002*	*0.00009*	*0.00002*	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Strontium	mg/L	*0.04*	*0.05*	*0.06*	*0.06*	*0.07*	0.0624	0.0585	0.0599	0.0770	0.0729	0.0847
Thallium	mg/L	*0.00020*	*0.00020*	*0.00001*	*0.00001*	*0.00001*	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Titanium	mg/L	*0.010*	*0.010*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Uranium	mg/L	*0.0010*	*0.0010*	*0.0002*	*0.0002*	*0.0004*	0.0002	0.00023	0.00028	0.00074	0.00039	0.00036
Vanadium	mg/L	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Zinc	mg/L	*0.001*	*0.001*	*0.006*	*0.006*	*0.005*	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050

8.5.8.2 *Whale Tail Site*§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 13*: Summary of quantities and analysis of Seepage and runoff monitoring from the Landfill, Waste Rock Storage Facility and associated dikes/berms*

8.5.8.2.1 Lake water seepage through dewatering dikes§

Lake water seepage continues to be observed at Whale Tail Dike and is summarized in Section 8.5.8.2.2 below. No other lake water seepage was observed at the other dewatering dikes in 2023.

No seepage occurred from WRSF Dike in 2023. The mitigation measures implemented in 2020 were successful in ensuring the proper performance of this infrastructure.

8.5.8.2.2 Seepage through Whale Tail Dike§

The Whale Tail Dike was commissioned on March 5th, 2019 with the beginning of the dewatering activity of the North Basin.

In July 2019, seepage streams were observed on the downstream toe of Whale Tail Dike. The flow was measured using v-notch weirs at approximately 300 m^3/h which is higher than what was anticipated in the water balance. A detailed investigation including additional instrumentation and geophysics was conducted for a better understanding of the seepage phenomenon at the Whale Tail Dike.

A pumping system was installed to collect and manage the non-contact seepage water but has not yet been commissioned. The collected seepage water will be discharged to Whale Tail South Basin via a diffuser without treatment if the water quality meets the discharge criteria of the Water License 2AM-WTP1830. Until the system is commissioned and discharge criteria are met, water will overflow from the pump stations to the Whale Tail Attenuation Pond and be managed as part of this infrastructure.

An intensive grouting campaign was conducted between Q4 2019 and Q1 2020 to further reduce the seepage flow. The campaign was successful in reducing the seepage by more than 50 %. In 2023, the seepage rate was stable compared to that of 2022 and ranged from 100 to 150 m^3/h.

8.5.8.2.3 Seepage and runoff from the landfill§

The Whale Tail Landfill was commissioned in October 2019. No seepage from this structure has been observed.

8.5.8.2.4 Subsurface seepage and surface runoff from waste rock piles§

No subsurface seepage was observed from the WRSF in 2023. Surface runoff is collected and managed as per the strategy detailed in the water management plan.

8.5.8.2.5 Seepage at pit wall and pit wall freeze/thaw and permafrost aggradation§

Seepage was observed in Whale Tail Pit along the south and west walls exposed bench faces. In 2023, 863,765 m^3 of water was pumped out of Whale Tail Pit. That number included groundwater inflow as well

as snowmelt and runoff. The groundwater inflow comes from Whale Tail South as well as some infiltration from the Whale Tail Attenuation Pond. A permanent sump within the pit has been implemented in 2023 to intercept the water from the south wall groundwater seepage.

Refer to the "20232 Annual Open Pit Geomechanical Inspection" for more details regarding seepage at pit walls (Appendix 12).

8.6 BLAST MONITORING [4]

In accordance with NIRB Project Certificate No.008, Condition 22, DFO 16-HCAA-00370 Condition 2.3.3 and DFO 20-HCAA-00275 Condition 2.3.8, Agnico Eagle had developed a blasting program which complies with *The Guidelines for the Use of Explosives In or Near Canadian Fisheries Water* as modified by the DFO for use in the North and adhere to guidance provided in *Monitoring Explosive-Based Winter Seismic Exploration in Waterbodies*. As a result, Agnico Eagle conducts monitoring to evaluate blast related peak particle velocity and overpressure to protect nearby fish bearing waters.

Agnico Eagle has updated the Blast Monitoring Program (Version 9, March 2024 – Appendix 33) to reflect the actual blast monitoring locations on site. This Version 9 is submitted as part of the 2023 Annual Report.

8.6.1 Meadowbank Site

As required by NIRB Project Certificate No.004, Condition 83*: Cumberland shall ensure that the explosive mix-truck is only used to mix diesel and ammonia nitrate to form an explosive only at the blast site, and that when the explosive mix-truck is not in use it is stored with the strictest setback requirements as required or recommended by NRCan.*

And

As required by NIRB Project Certificate No.004, Condition 85*: Develop a detailed blasting program to minimize the effects of blasting on fish and fish habitat, water quality, and wildlife and terrestrial VECs.*

No blast monitoring was conducted at the Meadowbank mine site in 2023 as mining operations ceased in 2019.

Refer to the 2024 Ammonia Management Plan for more details regarding storage and handling of explosives (Appendix E of the Water Management Plan in Appendix 13).

8.6.2 Whale Tail Site

As required by DFO Authorization 16-HCAA-00370 Condition 2.3.3*: The proponent shall develop a blasting mitigation plan in consultation with DFO to ensure effects on fish and fish habitat are minimized, as per Nunavut Impact Review Board Project Certificate No. 008 Condition 22. The Blasting mitigations plan shall be*

[4] TSM – Biodiversity and Conservation Management

submitted to DFO prior to construction for approval, and shall adhere to the guidance provided in the Monitoring Explosive-Based Winter Seismic Exploration in Waterbodies, NWT 2000-2002.

And

As required by DFO Authorization 20-HCAA-00275 Condition 2.3.8*: The proponent shall develop a blasting mitigation plan in consultation with DFO to ensure effects on fish and fish habitat are minimized, as per Nunavut Impact Review Board Project Certificate No. 008 Condition 22. The Blasting mitigations plan shall be submitted to DFO prior to construction for approval, and shall adhere to the guidance provided in the Monitoring Explosive-Based Winter Seismic Exploration in Waterbodies, NWT 2000-2002.*

And

As required by NIRB Project Certificate No.008 Condition 22: ***The Proponent shall engage with Fisheries and Oceans Canada to develop project specific thresholds, mitigation and monitoring for any blasting activities that would exceed the requirements of Fisheries and Oceans Canada's Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters. If project-specific thresholds, mitigation and monitoring requirements are developed, the Proponent shall identify these requirements in the annual report provided to the NIRB.***

The results of the 2023 blast monitoring program are available in the report titled "2023 Meadowbank and Whale Tail Blast Monitoring Report for the Protection of Nearby Fish Habitat" attached as Appendix 34.

Peak particle velocity (PPV) and overpressure monitoring data was recorded throughout 2023 during blasting activities at Whale Tail and IVR Pits for the protection of fish. The locations of the blast monitoring stations on surface in 2023 at Whale Tail Mine are highlighted in Figure 1 of the report: Blast Monitoring Report found in Appendix 34.

In 2023, 147 blasts were monitored at IVR pits. There were no blasts (0) exceeding the PPV concentration DFO limit of 13 mm/s and no blast (0) exceeding the IPC measurement DFO limit of 50kPa.

For Whale Tail Pit, 357 blasts were monitored. There were no (0) PPV readings exceeding 13 mm/s and no blast (0) exceeding the IPC measurements DFO limit of 50 kPa.

Table 8-69 presents a summary of PPV and IPC exceedance and Table 8-70 Maximum and Average PPV and IPC from 2018 - 2023.

Table 8-69 Whale Tail Mine PPV and IPC exceedance from 2018-2023

Year	PPV exceedance	IPC exceedance
2018	2	0
2019	8	0
2020	4	0
2021	0	0
2022	2	0
2023	0	0
Total	**16**	**0**

Table 8-70 Whale Tail Mine Maximum and Average PPV and IPC from 2018 – 2023

Location	Parameters	2018	2019	2020	2021	2022	2023
Whale Tail Pit	Max PPV (mm/s)	26.1	20.9	14.6	12.7	11.05	6.24
	Average PPV (mm/s)	4.5	2.16	0.98	1.6	3.36	2.42
	Max IPC (kPa)	30.54	24.46	17.09	14.90	12.93	7.30
	Average IPC (kPa)	5.01	2.23	1.19	1.40	3.93	2.90
IVR Pit	Max PPV (mm/s)	N/A	N/A	6.5	8.6	17.37	7.37
	Average PPV (mm/s)	N/A	N/A	0.67	1.22	3.98	3.01
	Max IPC (kPa)	N/A	N/A	7.59	10.10	20.33	8.62
	Average IPC (kPa)	N/A	N/A	0.81	1.20	4.66	3.52

Agnico Eagle has overall successfully managed to keep the vibrations below the limit authorized. Agnico Eagle is committed to monitoring all blasts in order to fully comply with the regulations.

8.7 GROUNDWATER MONITORING§

8.7.1 Meadowbank Site§

As required by NIRB Project Certificate No.004 Condition 8: ***Continue to undertake semi-annual groundwater samples and re-evaluate the groundwater quality after each sample collection; report the results of each re-evaluation to NIRB's Monitoring Officer, INAC and EC.***

The full results of the 2023 groundwater monitoring program are available in Appendix 35. Below highlights key points from the report only; for complete information, maps and findings, the reader should read the complete report presented in Appendix.

The objective of the 2023 groundwater monitoring program was to document groundwater and surface water quality for effects related to mining operations associated with the deposition of tailings in the tailings storage facility (TSF) and in-pit tailings deposition (IPD). Monitoring activities completed in 2023 include water level measurement and sampling of groundwater and surface water at monitoring locations for the analysis of chemical parameters listed in Group 2 of Table 2 Schedule I of the Meadowbank Water License. Monitoring well MW-16-01 serves to investigate potential groundwater quality effects from the TSF, while monitoring wells MW-IPD-01(s), MW-IPD-01(d), MW-IPD-07, and MW-IPD-09 serve to investigate potential effects to groundwater from the IPD. Seepage at Pit A and Pit E could not be sampled due to the unsafe ground conditions and the flooded conditions in the pit at the seepage inflow point.

Regional groundwater is interpreted to flow east towards the Third Portage Lake and Second Portage Lake. On a local scale, surface and groundwater flow is influenced by local topography and mining operations at previously mined pits and from tailings storage operations (IPD and TSF).

In 2023, water levels indicate that IPD monitoring wells identified as MW-IPD-01(s) and MW-IPD-01(d) are still hydraulically downgradient to the Second Portage Lake (SPL); similarly, the monitoring wells MW-IPD-07 and MW-IPD-09 are downgradient to the Third Portage Lake (TPL). Water quality at these

monitors is likely influenced by Lake water seepage rather than the TSF or IPD operations, currently. The groundwater quality at monitoring wells MW-IPD-01(d), MW-IPD-01(s), MW-IPD-07, and MW-IPD-09 continues to display a natural water signature and can be used as background values against which to monitor groundwater quality.

Monitoring well MW-16-01 is located hydraulically downgradient of the TSF and Central Dike. The groundwater quality at monitoring well MW-16-01 is interpreted to be affected by reclaim water from the South Cell TSF based on similar chemical signatures to reclaim water monitoring stations ST-21-North, ST-21-South (South Cell TSF surface water) and ST-S-5 (Central Dike seepage). So far, contaminant transport from the tailings cells has locally affected groundwater quality to the west side of the central dump and mined-out pits. The gradient between the surrounding lakes (SPL and TPL) and the mined-out pits is preventing advection from carrying contaminants further eastwards. Subsequent groundwater monitoring programs will be important to help mitigate the effect of mining on local hydrogeology and ensure these contaminants do not alter regional groundwater quality in the future.

The groundwater monitoring program was initiated in 2003. A total of 14 groundwater monitoring wells were installed between 2003 to 2018 to characterize the groundwater within the five site areas: South and Central Dike, East Flat (East Dike area), Goose Pit, Portage Pit-A and Portage Pit-E. The available historical groundwater monitoring program analytical results from 2003 to 2023 are discussed in Section 4.4 of the 2023 Groundwater Monitoring Report (Appendix 35).

8.7.2 Whale Tail Site[§]

As required by NIRB Project Certificate No.008 Condition 15: ***The required Groundwater Monitoring Plan should be submitted to the NIRB at least 30 days prior to the start of construction, with subsequent plan revisions or updates submitted annually thereafter. Subject to the additional direction and requirements of the Nunavut Water Board, the Proponent shall prepare and implement a Groundwater Monitoring Plan that, at a minimum includes:***

- ***The collection of additional site-specific hydraulic data (e.g., from new monitoring wells) in key areas during the pre-development, construction and operation phases;***
- ***Definition of vertical and horizontal groundwater flows in the project development areas;***
- ***Delineates monitoring plans for both vertical and horizontal ground water; and***
- ***Thresholds that will trigger the implementation of adaptive management strategies that reflect site specific conditions encountered at the project site.***

And

As required by NIRB Project Certificate No.008 Condition 16: ***An updated Groundwater Monitoring Plan that outlines the Proponent's plans to fulfill this term and condition should be submitted to the NIRB at least 30 days prior to the start of construction, with subsequent plan revisions or updates submitted annually thereafter. Within two years of commencing operations, the Proponent shall:***

a) Conduct additional analyses to determine the approximate fill time for the Whale Tail Pit at closure;

b) Undertake a hydrogeological characterization study to assess the potential for arsenic and phosphorous diffusion from submerged Whale Tail pit walls;

c) If the results of the characterization study indicate a moderate to high potential for arsenic and/or phosphorous diffusion, perform detailed hydrodynamic modelling of the flooded pit lake prior to closure to evaluate meromictic conditions and flooded pit water quality; and

d) Add these required activities to the site Groundwater Monitoring Plan.

In Appendix 36, the 2023 Groundwater Management Monitoring Report presented a compilation of the site-specific data collection in 2023 and the review of 2023 monitoring data undertaken by Agnico Eagle to meet the requirements established in the Groundwater Monitoring Plan (Version 3_NWB, May 2019). The following is a summary of the report and Agnico Eagle will refer the reader to the whole report in Appendix 36 for an exhaustive comprehension of the program and results for 2023.

In 2023, only Whale Tail Pit intercepted groundwater. IVR Pit and Whale Tail Underground are both located in permafrost and no interception of groundwater occurred.

Westbay Well Sampling

Hydrostatic pressures were measured in September 2023 at Westbay Well AMQ16-626 to monitor hydraulic heads and changes in groundwater flow conditions. Following the pressure measurements, groundwater samples were collected to monitor the TDS and groundwater quality. A technical memorandum documenting this work, sampling results and historical monitoring from AMQ16-626 is included in Attachment A of the complete report (Appendix 36).

Water samples were collected from Ports 3 and 4 of AMQ16-626 in September 2023 to assess groundwater quality.

Based on 2023 data from Ports 3 and 4, the calculated TDS content of Formation water is estimated to range between 1,887 and 2,414 mg/L near these ports. The TDS in samples from Ports 3 and 4 is slightly less saline than historical sampling results in 2016, which may reflect the lower residual drilling fluid content in the collected samples and therefore inferred higher accuracy is the calculated Formation water quality. Overall, although slightly less saline than the Whale Tail TDS profile adopted for the FEIS, the results do not deviate significantly from FEIS assumptions.

Arsenic, which is a constituent of interest in the ore and waste rock to be mined, occurs in groundwater at concentrations that are low and consistent with previous reliable data collected from the well. Radium-226 in groundwater measured in 2023 at Ports 3 and 4 were below the Federal MDMER Effluent criteria.

The assumptions for the conceptual model for the site are considered unchanged by 2023 groundwater quality monitoring at AMQ16-626.

Thermal Monitoring

Nine thermistors were installed in 2020 to monitor the talik zone near the south wall of the Whale Tail Pit. In August 2021 these thermistors were dismantled due to mining activity in the sector and data is no longer available. While active, these thermistors were used to evaluate if during open pit mining and with

the dewatering of the North Basin, the closed talik zone progressively freezes back. Through the year 2021 until their dismantling in August 2021, some freeze-back was observed in the upper bedrock in thermistors PSW-DH2 TH, PSW-DH3 TH, PSW-DH7 TH and PSW-DH10 TH, resulting in minor changes to the talik zone. The available 2023 data collected from thermistor PSW3-DDH1 TH indicates a slow decrease in temperature progression within the talik zone near the south wall of Whale Tail Pit.

As part of the Whale Tail Dike Operation Maintenance and Surveillance manual, performance of the Whale Tail Dike (WTD) was monitored with thermistors located downstream and/or upstream (U/S) of the WTD. Similar to observations last year in 2022, the trend of permafrost degradation noted at the abutments in 2021 did not progress laterally based on the 2023 thermistor readings, however, they did note field observations indicative of further degradation (observed settlement upstream and downstream of the east and west abutments). The thermal regime in this area is interpreted to have not yet reached an equilibrium.

Hydraulic Head Monitoring

The 2023 calculated freshwater hydraulic heads are lower than those measured prior to mine development (2018 and 2019) and have continued to decrease each year as the pit has been developed, which reflects the dewatering of the North Basin and the mining of Whale Tail Pit.

Seepage Surveys

Seepage has consistently been observed in the southeast wall in 2023 (herein referred to as south wall), and the seepage forms ice in the pit walls during the winter. The seepage is attributed to a highly weathered zone near surface as opposed to faults, which is consistent with the original conceptual model for the Whale Tail Mine and the prediction of a seepage face in the south wall. All of the groundwater seepage observed in the south wall is intercepted by Whale Tail Pit sumps. The seepage area observed in the south wall continues to increase with the pit operations, where the lateral extent varies per bench.

Comparison of Model Predicted Values to Measured Values

In 2021, inflow measurements were trending 50% higher than predicted for based on the groundwater model developed for the FEIS, triggering a review and update of the groundwater model. On this basis, Lorax completed a model update and recalibrated the model to operational data (2021 average winter pumping rates from the Whale Tail Sump and hydraulic heads measured at Westbay AMQ16-626). Documentation of the model update is provided in Attachment F of the complete report (Appendix 36), and a summary of the updated groundwater inflow predictions based on the recalibrated model are provided in Table 4 of the 2023 Groundwater Management Monitoring Report (Appendix 36).

The flow observed in the months of January, February, March, October, November, and December ranged between 1,024 m^3/day to 2,757 m^3/day, with an average flow rate of 2,060 m^3/day. As previously discussed, flow measurements during the winter months are the best estimate of groundwater inflow rates to the Whale Tail Pit since surface water inflows should be minimal. The inflow in the winter will reflect saline groundwater inflow and seepage from the Whale Tail Attenuation Pond and South Basin of Whale Tail Lake, with input from the Whale Tail Attenuation Pond expected to be most significant. Overall, inflow measurements are trending 45% lower than the updated predictions for 2023, and no revision of the model based on the triggers is required.

As part of the updated groundwater modelling, groundwater inflow to the open pit was predicted to be composed of 35% inflow from the Whale Tail Attenuation Pond and 65% inflow from Whale Tail South Basin. Overall, TDS measured in pit wall seepage was similar to the TDS measured in the Whale Tail Attenuation Pond (within 50 mg/L). The TDS in the Whale Tail Pit sump tended to be slightly higher than both the pit wall seepage and the Whale Tail Attenuation Pond, which in turn was generally higher than the Whale Tail Dike Seepage. In the winter months the TDS in the Whale Tail Pit sump was generally similar and within 100 mg/L of the TDS in the Whale Tail Attenuation Pond. These observations suggests that the source water proportions may be overpredicting the contribution of water from the Whale Tail Dike Seepage. Overall, measured groundwater inflow to the open pit in the winter was 45% lower than predicted values using the updated model for 2023, and its possible that the model is overpredicting inflow from the Whale Tail South Basin.

8.8 HABITAT COMPENSATION MONITORING PROGRAM

8.8.1 Meadowbank Site

8.8.1.1 *No Net Loss Plan*

As required by Fisheries and Oceans Canada (DFO) *Fisheries Act* Authorization NU-03-0191.3, Condition 4; *111.08 Habitat Units (HUs) of compensatory fish habitat shall be created by re-flooding Second Portage, Third Portage, and Vault Lakes; creating access to Wally Lake; and, creating shoals and boulder gardens in Second Portage Lake.*

And

As required by Fisheries and Oceans Canada (DFO) *Fisheries Act* Authorization NU-03-0191.3, Condition 5: *All fish habitat compensatory works shall be completed and functioning according to the Meadowbank Gold Project No Net Loss Plan (NNLP), prepared by Agnico-Eagle Mines Ltd. Dated October 15, 2012.*

Since in-pit deposition of tailings material was permitted within the Portage area beginning in 2019, Agnico Eagle is working with DFO to adapt the above-referenced *Meadowbank Gold Project No Net Loss Plan (NNLP)* associated with NU-03-0191.3, as necessary. An addendum to the NNLP which describes proposed changes in habitat compensation related to in-pit deposition of tailings material was submitted to DFO in December 2020. DFO's review was received in May 2022. Agnico Eagle submitted a response to these comments directly to DFO in July 2022, with a follow-up call in August, 2022.

According to this discussion, the following activities occurred in 2023:

- June 2023: Agnico Eagle provided to DFO a *2023 Study Plan for Siting of Stream Spawning Habitat Enhancements at the Meadowbank Complex* (dated June 12, 2023).
- June – September 2023: Site selection field studies were conducted, according to the plan.
- August 28, 2023: Consultation on the proposed offsetting project and field visit to discuss potential locations with the Baker Lake HTO.
- Fall 2023: Preparation of the 2023 site selection field report.

Agnico Eagle continues to work with DFO in consultation with local stakeholders (BLHTO, KivIA) on final site selection and baseline monitoring requirements for this offsetting plan amendment. Agnico Eagle anticipates providing a final site selection recommendation report to stakeholders in early 2024, with follow-up discussion ahead of the first season of baseline data collection for the selected site in 2024.

8.8.1.2 *Habitat Compensation Monitoring Plan*

As required by DFO Authorizations NU-03-0191.3 Condition 3 and 6 (Second and Third Portage Lakes), NU-03-0191.4 (Vault Lake) Condition 3 and 6; NU-03-0190 Condition 5 (AWPAR), NU-14-1046 (Phaser Lake) Condition 3 and 5; ***Submit written report summarizing monitoring results and photographic record of works and undertakings.***

And

As required by NIRB Project Certificate No 004 Condition 53: ***Agnico Eagle Mines Ltd. shall, in consultation with the HTOs and DFO, develop a Fish Habitat Monitoring Plan, including augmenting baseline fisheries data in the period prior to operation, with the clear objective of demonstrating the success of the No Net Loss Plan approved by the DFO. The Fish Habitat Monitoring Plan should include Phaser Lake. The updated plan should be provided to the NIRB for review at least 30 days prior to commencement of construction activities. Results from the fisheries baseline data to be provided in the annual report to the NIRB***

The complete 2023 *Habitat Compensation Monitoring Report* is provided as Appendix 38 and summarized below.

According to Fisheries and Oceans Canada (DFO) *Fisheries Act* Authorizations (FAAs) NU-0190, NU-03-0191.3, NU-03-0191.4 and 14-HCAA-01046, Agnico Eagle maintains a *Habitat Compensation Monitoring Plan* (HCMP; Version 4, February, 2017) to demonstrate whether fish habitat compensation features at the Meadowbank Mine are constructed and functioning as intended. Offsetting features constructed to date include:

1. AWAR Spawning Pads - located at stream crossing R02 along the all-weather access road (AWAR) to Baker Lake (NU-0190),
    - Monitoring was scheduled in 2023 and is further described below.
2. Dewatering Dike Faces (Exterior) – exterior faces of dewatering dikes in the Portage Pit area (East Dike and Bay-Goose Dike) (NU-03-0191.3)
    - Monitoring was complete in 2021 (see the 2021 *Habitat Compensation Monitoring Report*, Appendix 45 of the 2021 Annual Report).
3. Dogleg Ponds – flooding and access enhancements for a series of ponds adjacent to the Portage area (NU-03-0191.3)
    - Monitoring is next scheduled for 2025.

4. Vault and Phaser Lakes – re-flooding and access enhancements for Vault and Phaser Lakes following pit development, along with creation of in-water habitat features through substrate alterations (NU-03-0191.4, 14-HCAA-01046)

    - Re-flooding is ongoing in Vault and Phaser Lakes, and this is estimated to continue until 2026. As scheduled, monitoring under the HCMP will resume at that time.

2023 AWAR Spawning Pads Monitoring

In 2009, four sets of gravel spawning pads were constructed at AWAR crossing R02 to enhance Arctic Grayling (*Thymallus arcticus*) productivity, as required under *Fisheries Act* Authorization NU-0190.

Figure 17 Arctic Grayling spawning pads constructed at Meadowbank all weather road crossing R02.

In 2023, monitoring according to the HCMP was required for this compensation feature, including a visual assessment of spawning pad stability, as well biological monitoring to confirm adult fish presence and reproduction.

In June and July, 2023, detailed visual surveys were conducted and the constructed spawning pads were generally confirmed to be stable as designed. Some movement of the gravel spawning bed material has occurred within each pad, but on average surveyed plots still consist of 90% gravel and small cobble. A very early freshet inhibited biological monitoring efforts and impacted available results. Hoopnets were not set, since the migratory run appeared to have concluded by the time the Animal Use Protocol was received. However historically (e.g. Agnico Eagle, 2022), continued use of the R02 reach by Arctic grayling without major changes in population structure has been well demonstrated. Ahead of the field season, Agnico Eagle had proposed to DFO to pause this component of the HCMP program and will confirm this change ahead of the next monitoring event (2025).

Adult fish presence within the spawning berms was demonstrated in 2023 through underwater camera methods, but the majority of observations were identified as lake trout rather than the target species, Arctic grayling. This is consistent with larval drift trapping results (none captured throughout the study period of June 17th – July 7th), which suggested that the Arctic grayling spawning period had ended well before study initiation.

Currently, monitoring of this compensation feature is scheduled to continue every other year until decommissioning of the AWAR (est. 2031), but Agnico Eagle anticipates discussions with DFO ahead of the next monitoring event (2025) to revise this approach.

8.8.2 Whale Tail Site

8.8.2.1 *Fish Habitat Offsetting Plan*

As required by NIRB Project Certificate No.008 Condition 24: ***The Proponent shall engage Fisheries and Oceans Canada, and other interested parties to further assess:***

- ***Whether the increased surface area of Whale Tail Lake is a viable offset to habitat losses resulting from development of the Project; and***

- ***Whether Whale Tail end pit would support fish in the post closure scenario.***

Results of this assessment should be incorporated into the Habitat Compensation Plan and/or the Conceptual Fisheries Offsetting Plan as appropriate. The updated information should be submitted to the NIRB at within 60 days of the issuance of the Project Certificate

And

As required by DFO Authorization 20-HCAA-00275 Condition 5.3.2: ***The Proponent shall monitor to validate Agnico Eagle Mines Ltd.'s Habitat Suitability Index (HSI). The monitoring shall be conducted to the satisfaction of DFO. Where appropriate, the HSI will incorporate additional knowledge generated by the monitoring plans and complementary measures research projects of the Approved Project (PATH No.: 16-HCAA-00370) and adjust the Habitat Evaluation Procedure (HEP) model according to the results generated. The HSI will be used to refine, as necessary, the performance end-points in habitat units for offsetting***

And

As required by DFO Authorization 16-HCAA-00370 Condition 5.2.1: ***The Proponent shall monitor to validate Agnico Eagle Mines Ltd.'s Habitat Suitability Index (HSI). The monitoring shall be conducted to the satisfaction of DFO. Where appropriate, the HSI will incorporate additional knowledge generated by the complementary measures research projects under section 4.2.2, in particular research project 4.2.2.1c, and adjust the Habitat Evaluation Procedure (HEP) model according to the results generated. The HSI will be use to refine, as necessary, the performance end-points in habitat units for offsetting***

As required by NIRB Project Certificate No.008 Condition 24, Agnico Eagle has submitted the Fish Habitat Offsetting Plan (Appendix 51 of the 2018 Annual Report) in March 2018 (accepted by DFO through Fisheries Act Authorization 16-HCAA-00370 on July 23rd, 2018). This document incorporates the

requested analysis of fish habitat gains from increased surface area in Whale Tail Lake and water quality modelling for Whale Tail Mine.

As described in FAA 16-HCAA-00370 Condition 5.2.1 and 20-HCAA-00275 Condition 5.3.2, Agnico Eagle will work with DFO to develop a plan for monitoring to validate HSIs used in offsetting plans for the Whale Tail Mine. This plan will incorporate (where appropriate) additional knowledge from the complementary measures research projects.

8.8.2.2 *Fish Habitat Offset Monitoring Plan*

As required by DFO Authorization 16-HCAA-00370 Condition 5.1.1.2: ***The proponent shall provided an updated Whale Tail Pit Fish Habitat Offset Monitoring Plan, prepared by Agnico Eagle Mines Ltd. To DFO for review and approval on or before December 31, 2018. This update shall include, but is not limited to, details on the monitoring methods, frequency of monitoring, sampling location and criteria for success.***

And

As required by DFO Authorization 20-HCAA-00275 Condition 5.2.1: ***The Proponent shall provide a Whale Tail Expansion Fish Habitat Offset Monitoring Report to DFO including geotechnical and biological and ecological monitoring as per section 5.1.1. The Proponent is required to provide the Report by March 31 of 2027 and update annually for 10 years or until DFO indicates requirements of this Authorization have been met.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 5.1.1.3: ***The proponent shall develop a schedule for the implementation of the offsetting measures, and shall provide this schedule to DFO no later than December 31, 2019.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 5.1.1.4: ***The Proponent shall provide an annual Whale Tail Pit Fish Habitat Offset monitoring Report to DFO (and interested parties) following the construction of the offsetting habitat by March 31. The Proponent is required to provide the Whale Tail Pit Fish Habitat Monitoring Report until DFO indicates this requirement has been met.***

And

As required by DFO Authorization 20-HCAA-00275 Condition 5.2.3: ***The Proponent shall provide a summary report of all Whale Tail Expansion Fish Habitat Offset Monitoring Reports described in section 5.2.1 before March 31, 2036 to DFO (and interested parties) which shall analyse results from the offsetting measures of the Whale Tail Expansion Project following the construction of the offsetting habitat. DFO reserves the right to request additional Summary Report if annual reporting were to continue until requirement has been met.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 5.1.1.5 and DFO Authorization 20-HCAA-00275 Condition 5.2.2: ***As part of the annual Whale Tail fish Habitat Offset Monitoring Report, the Proponent shall include, but not limited to:***

- ***a digital photographic record with GPS coordinates of pre-construction, during construction and post construction conditions shall be compiled using the same vantage points and direction to show that the approved works have been completed in accordance with the offsetting plan***

- ***a summary of field observations for each respective year as well as as-built survey***

- ***a detailed analysis report summarizing the effectiveness of the offsetting measures***

The schedule for the implementation of the offsetting measures as per DFO Authorization 16HCAA-00370 Condition 5.1.1.3 was submitted to DFO on January 7th, 2020 (Appendix 48 of the 2019 Annual Report).

According to DFO Authorization 16HCAA-00370 Condition 5.1.1.2, Agnico Eagle submitted Version 1 of the Whale Tail Fish Habitat Offsets Monitoring Plan on March 2018 (Appendix 51 of the 2018 Annual Report) and having received no comment, resubmitted this plan to DFO on March 15th, 2019. This Plan was again referenced in the DFO-approved Fish Habitat Offsetting Plan for the Whale Tail Expansion Project (March 2020) and no modifications were received from DFO.

Agnico Eagle submitted Version 2 of the Whale Tail Fish Habitat Offsets Monitoring Plan (developed to include requirements of both Whale Tail site FAAs 16-HCAA00370 and 20-HCAA-00275) to DFO in July, 2021, and has not received any comment. According to Conditions 4.3.3, 5.1.1.2, and 5.3.1 of 20-HCAA-00275, this Plan includes a pre-offsetting ecological monitoring program to assess the suitability of flooded areas in Whale Tail South as fish habitat, prior to construction of the A18 sill. This program is based on the monitoring methods described in the approved Whale Tail Pit Expansion Project Fish Habitat Offsetting Plan (March, 2020), and was formally initiated in 2021. Data reports are provided annually for the 2021, 2022, and 2023 seasons. The complete 2023 data report is provided in Appendix 37, and summarized below. A final analysis report to address 20HCAA-00275 Condition 5.3.1 (Impact Analysis of Fish Habitat from Flooding) will be provided to DFO under separate cover in 2024.

In addition, according to 16HCAA-00370 Condition 5.1.1.4, 5.1.1.5, and 20HCAA-00275 Condition 5.2.1 and 5.2.3, this plan describes the schedule for monitoring of offsetting following construction of permanent offsetting features, which includes annual reporting to DFO and a final summary report (2036).

2023 FHOMP Report Summary

The current Fish Habitat Offsets Monitoring Plan (FHOMP; Version 2, July, 2021) for the Whale Tail was developed to determine whether fish habitat offsetting described in the Whale Tail Pit - Fish Habitat Offsetting Plan (C. Portt and Associates, 2018) and the Whale Tail Pit Expansion Project Fish Habitat Offsetting Plan (ERM, 2020) is ultimately constructed and functioning as intended.

According to this Plan, monitoring is conducted under the pre-offsetting ecological monitoring program from 2021 through 2023. Along with data collected between 2018 and 2020 through other existing research and compliance monitoring studies, this program is intended to demonstrate whether terrestrial flooding that was temporarily required for operational purposes will provide suitable habitat for fish long-term. Permanently raised water levels are accepted offsets under both the 2018 and 2020 offsetting plans

for the Whale Tail Mine, and flood zone assessment prior to permanent sill construction is required under conditions of the associated Fisheries Act Authorization 20-HCAA-00275.

In 2023, FHOMP field assessments included: flood zone water level monitoring, water quality data collected through the Core Receiving Environment Monitoring Plan plus supplemental stations, analysis of periphyton growth using artificial substrate samplers, periphyton visual surveys, small-bodied fish population assessments by shoreline electrofishing, underwater camera surveys in high-potential lake trout spawning areas, and gillnet surveys for evaluation of large-bodied fish populations. A summary of FHOMP methods and results to date is presented in the FHOMP Report (Appendix 37), with further analysis in the Impact Analysis of Fish Habitat from Flooding, to be provided to DFO under separate cover in 2024 in fulfillment of Condition 5.3.1 of FAA 20-HCAA-00275.

Briefly, CREMP results through 2023 continue to indicate increased concentrations of some water quality parameters (especially nutrients) in the Whale Tail flood zone compared to baseline and reference conditions, as predicted in the 2018 FEIS Addendum, but no potential for adverse effects to aquatic life. Though some periphyton sampler loss occurred in 2022, modifications eliminated this problem in 2023, and it is evident that seasonal periphyton growth on this artificial substrate is greater in flood zone lakes compared to reference lakes. These observations are in line with 2018 FEIS Addendum predictions for increased nutrient concentrations and primary productivity in flood zone lakes, as well as trends in phytoplankton biomass measured to date through the CREMP program. Periphyton visual surveys identified a wide range of periphyton cover conditions across both flood zone and reference lakes, from no coverage to >75% coverage, without a clear relationship to flood status. Where present, periphyton thickness, evenness, and texture was visually estimated to be similar to or approaching that of reference areas. Electrofishing studies have identified the presence of small-bodied fish populations in newly created shoreline habitat at catch rates and size ranges that appear similar to reference areas. Finally, underwater video and gillnet surveys confirmed continued use of deeper water habitat by large-bodied fish at rates no lower than reference areas.

In addition to flooding and other constructed habitat offsetting features, a portion of offsetting for Whale Tail Mine is provided through a suite of complementary measures (research projects). No physical monitoring is conducted in relation to research projects. However, progress monitoring is conducted to document annual activities, and results are summarized here to determine when criteria for success have been met.

Six research studies form the complementary measures for Whale Tail Mine offsetting. Due to delays that were largely as a result of the COVID-19 pandemic, some study periods have been extended, as indicated in Table 8-71 below. In 2021, Study 4: Arctic Grayling Occupancy Modelling was completed and criteria for success were met with publication of a peer-reviewed manuscript, as described in the 2021 Fish Habitat Offsets Monitoring Report.

Table 8-71 Whale Tail Mine complementary measures (research projects). *Extended due to COVID or other delays (estimated termination dates as of December 2023 shown).

Study	Lead Researcher	Study Period
Study 1: Assessment of changes in aquatic productivity and fish populations due to flooding of Whale Tail South and downstream lakes during operations	H. Swanson	2018 – 2023/2024*
Study 2: Assessment of impacts of the Baker Lake wastewater outflow on aquatic systems including fish and fish habitat	H. Swanson	2019 – 2025/2026*
Study 3: Literature review and field validation of northern lake fish habitat preferences	S. Doka	2018 – 2024*
Study 4: Arctic Grayling occupancy modelling (COMPLETE)	H. Swanson	2018 – 2021
Study 5: End pit lake habitat use	TBD	2027 – 2035 (est.)
Study 6: eDNA methods development	J. Stetefeld	2018 – 2023/2024

8.8.2.3 *Consultation*

As required by DFO Authorization 16-HCAA-00370 Condition 5.1.1.6: ***Each year, following the submission of the annual Whale Tail Pit Fish Habitat Offset Monitoring Report to DFO, the Proponent shall arrange to meet with DFO and interested parties (e.g., KIA) to review the results of the previous year of the monitoring program. The results of the meetings and any mutually agreed upon modifications aimed at improving the effectiveness of the offsetting monitoring program shall be incorporated into the upcoming year of the monitoring programs. The Proponent shall update the Whale Tail Pit Fish Habitat Offset Monitoring Plan, to reflect the changes, and the plans shall be approved in writing by DFO prior to implementation.***

Annual meetings to review results of the previous year's Whale Tail Mine Fish Habitat Offset Monitoring Report will be implemented following the first year of constructed habitat offset monitoring.

8.8.2.4 *Complementary Measures Research - Fish Habitat Offsetting Plan Whale Tail Mine*

As required by DFO Authorization 16-HCAA-00370 Condition 4.2.1.2: ***The Proponent shall provide updated research plans with detailed methodologies for projects listed under conditions 4.2.2.1a, b, c and d. Each updated plan shall be provided to DFO for approval on or before December 31, 2018 and at least 60 days prior to commencement of research.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 4.2.1.6: ***The proponent shall make all effort to ensure that the results from the research projects conducted for the complementary measures are published in peer-reviewed scientific journals.***

And

As required by DFO Authorization 16-HCAA-00370 Condition 4.2.1.3: ***The proponent shall initiate a literature review no later than November 2018, and provide the results of this review to DDO no later that February 28, 2019. This shall include an outline of the proposed studies by February 28, 2019, and a complete detailed research plans by December 31, 2019.***

In compliance with DFO Authorization 16-HCAA-00370 Condition 4.2.1.2, updated research plans for these studies are provided in Annual Progress Reports on Complementary Measures, which are submitted to DFO by May 30 annually, in compliance with Condition 4.2.1.5 of the Authorization.

A summary of the research plans and details on the progress of each study listed under Condition 4.2.2.1a-e is also provided in the 2023 Fish Habitat Offset Monitoring Report (Appendix 37), including progress towards publication in peer-reviewed scientific journals.

As per Condition 4.2.1.3, the requested literature review and preliminary study outline for the end pit lake study were provided to DFO by email on March 15th, 2019 (Appendix 42 of the 2018 Annual Report). As communicated to DFO, the complete detailed research plan will be provided once a research partner is identified, which will be approximately 1 – 2 years prior to study initiation (est. 2027).

8.9 MEADOWBANK FISHERIES RESEARCH ADVISORY GROUP (MFRAG)

As required by DFO Authorization 16HCAA-00370 Condition 4.2.1.4: ***To serve as an advisory group for the complementary measures that shall be undertaken as listed under condition 4.2.2.1, the Proponent shall establish a Meadowbank Fisheries research Advisory Group (MFRAG). The MFRAG membership shall include DFO and the Proponent, an independent third party research advisor, any interested Inuit organizations within the Kivalliq Region, and other agencies or interested parties s considered appropriate by MFRAG members. The proponent shall develop a draft terms or reference and participant list for this advisory group which shall be provided to DFO by September 1, 2018.***

As part of the Fish Habitat Offsetting Plan for Whale Tail Pit (C. Portt and Associates, 2018a), the MFRAG was conceptualized to provide a forum for input from key stakeholders. Terms of Reference were signed by the parties of the MFRAG (Agnico Eagle, DFO, Baker Lake Hunters' and Trappers' Organization, Kivalliq Inuit Association, and a designated external advisor) in 2020. The MFRAG has met annually since 2019 to review project progress reports, propose and approve or reject new projects or project components, and assess whether criteria for success have been met.

In 2023, the fifth MFRAG meeting was held by video conference on December 12th, with all member groups participating. As required every three years, the MFRAG Terms of Reference were reviewed, with no comment from any party. In advance of the meeting, all member groups received the previous year's Annual Progress Report, along with a non-technical summary in English and Inuktitut. Progress of each research study was presented by the lead researcher, and MFRAG parties had the opportunity for questions, comments, and open discussion with the research teams. Each MFRAG member group agreed to provide written comments, if any, by January 26th, 2024. Written comments will be distributed to all member groups and the research study leads for consideration.

Further details of the research studies (complementary measures) and progress towards criteria for success are provided in the 2023 Fish Habitat Offsets Monitoring Report (Appendix 37).

8.10 KANGISLULIK LAKE TROPHIC CHANGES

As required by NIRB Project Certificate No.008 Condition 23: ***The Plan for undertaking these additional studies and associated monitoring should be submitted to the NIRB at least 30 days prior to operations, with updates submitted annually thereafter or as may otherwise be required by the NIRB. A report on the results of these studies and associated monitoring should be provided at least 30 days prior to closure. The Proponent shall, reflecting any direction from Environment and Climate Change Canada and Fisheries and Oceans Canada:***

a) Conduct additional analysis to support the conclusions that a change in trophic status in Mammoth Lake would not impact fish productivity;

As part of the FEIS Addendum for the Whale Tail Expansion Project (Agnico Eagle, 2018; Section 6.5), supplemental analyses were conducted to understand impacts of Project-related changes to water quality in Kangislulik Lake (and downstream lakes). It was determined that anticipated increases in phosphorus would increase the lower trophic food base for fish, potentially resulting in numerical increases in forage fish such as Slimy Sculpin, and a minor but not measurable increase in growth and reproduction rates for large-bodied fish such as Lake Trout and Arctic Char. However, any observed effects are expected to be reversible during late closure or post-closure, and the stability of the fish population is not expected to be compromised. Agnico Eagle is committed to verifying phosphorus predictions through ongoing testing conducted as part of the Water Quality and Flow Monitoring Plan and the CREMP

b) Undertake additional site-specific studies to assess the predicted trophic change on lake ecosystem productivity to monitor potential changes to downstream environments; and

Changes in ecosystem productivity for Kangislulik Lake and downstream lakes (A76) are being investigated through annual compliance monitoring programs (Water Quality and Flow Monitoring Plan and the CREMP). Water quality sampling and analyses of lower trophic levels (phytoplankton biomass and diversity; benthic invertebrate population metrics) occurs yearly under these programs, and results are reported in Section 8.5 (Water Quality and Flow Monitoring) and Appendix 26 (CREMP Report). In addition, growth rates and abundance of small-bodied fishes were examined in a study conducted by University of Waterloo (UW) researchers from 2018 - 2021. Results to date were provided in the 2023 MFRAG meeting, and final reporting from this research study is expected in 2024. Details of this research study are also provided in the Fish Habitat Offset Monitoring Report (Appendix 37).

c) Monitor actual loadings/concentrations in the receiving environment, identify trends in downstream chemistry and productivity, and track trophic status of Mammoth Lake

Changes in actual loadings/concentrations of parameters indicative of nutrient enrichment are monitored in the receiving environment (Kangislulik Lake, A76, DS1) through the UW study described above (2018 – 2021), as well as through the CREMP (at this time, annually through closure). Water quality sampling is conducted monthly during April/May, June, July, August, and November/December, and results are reported annually. Trends in downstream chemistry are identified on an annual basis as part of this program, as described in Appendix 26 (CREMP Report).

8.11 FISH-OUT PROGRAM SUMMARY

8.11.1 Meadowbank Site

No fish-out program occurred in 2023.

8.11.2 Whale Tail Site

As required by DFO Authorization 16HCAA-00370 Condition 2.4 and 20HCAA-00275 Clause 2.3.7: ***The proponent shall provided a final fish-out plan to DFO at least three weeks prior to commencing the fish-out program to allow for review and approval***

And

As required by DFO Authorization 16HCAA-00370 Condition 3.2.1: ***All fish-out results shall be provided to DFO in a fish-out monitoring report within 2 months of the completion of a fish-out program. In addition, the Proponent shall provide DFO with photocopies of all field data/notes, copies of photographs with GPS coordinates and an electronic database of data collected and result of all sample analyses. This condition shall be followed in accordance with the General Fish-out Protocol for Lakes and Impoundments in the Northwest Territories and Nunavut***

No fish-out program occurred in 2023.

8.12 AEMP§

8.12.1 Introduction§

The Aquatic Effects Management Program (AEMP) for the Meadowbank Mine was developed in 2005 as part of the project's Final Environmental Impact Statement (FEIS; Cumberland, 2005), and has been formally implemented since 2006. In December 2012, the AEMP was restructured to serve as an overarching "umbrella" program to integrate results of individual, but related, monitoring programs in accordance with the current NWB Type A Water License 2AM-MEA1530 (Meadowbank Mine) and NWB Water License 2AM-WTP1830 (Whale Tail Mine) requirements. The scope of the original 2005 AEMP was renamed the Core Receiving Environment Monitoring Program (CREMP; 2023 report provided in Appendix 26). The AEMP Plan was last updated in April, 2022 (Version 5).

According to the Plan, this 2023 AEMP synthesis report aims to summarize and evaluate findings across all relevant aquatic monitoring programs to understand linkages between sources of stressors and potential effects. Specifically, for each of the Meadowbank and Whale Tail Mines, this AEMP report will:

- Summarize the results of each of the underlying monitoring programs, and identify exceedances of triggers and thresholds;
- For variables with trigger or threshold exceedances, provide an integrated evaluation (across programs) of magnitude, spatial scale, temporal trends, causation, and uncertainty using a categorical rating system and an issue-specific conceptual site model; and
- Based on this evaluation, recommend additional management actions.

8.12.2 Meadowbank Site AEMP§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 16: ***The results of monitoring under the AEMP.***

8.12.2.1 *Summary of Results of AEMP Monitoring Programs§*

In 2023, AEMP-related monitoring programs for the Meadowbank Mine (excluding the Whale Tail Mine, which is assessed in Section 8.12.3) consisted of the:

- Core Receiving Environment Monitoring Program (CREMP) (and targeted effects-assessment studies, when required);
- Minesite Water Quality and Flow Monitoring;

- Effluent-related Monitoring (Metal and Diamond Mining Effluent Regulation (MDMER) Monitoring);
- Habitat Compensation Monitoring;
- Groundwater Monitoring;
- Visual AWAR and Quarries Water Quality Monitoring;
- Tailings Pore Water Monitoring; and
- Air Quality and Dustfall Monitoring.

The results of these monitoring programs are integrated in the AEMP, and assist in the evaluation of potential effects of mining activities on the aquatic environment.

Programs that are part of the AEMP model but were not required to be conducted in 2023 for the Meadowbank Mine include:

- Fish-out programs;
- Dike Construction and Dewatering Monitoring; and
- Blast Monitoring.

For each AEMP monitoring program conducted in 2023, a summary of trigger/threshold or guideline exceedances is provided in Table 8-72. Similar to previous years, triggers or guidelines were exceeded in the receiving aquatic environment for two groups of stressor variables, both identified through the CREMP. These results indicate an increase in the measured parameters compared to baseline/reference values only, and do not indicate an exceedance of thresholds for impacts to aquatic life.

1. Water-borne toxicants - Conventional Parameters, Major Ions, and TDS: Mine-related changes in a number of inter-related water quality parameters without effects-based thresholds (e.g., CCME water quality criteria) continue to be observed for all near-field lakes (alkalinity, conductivity, hardness, major cations, and total dissolved solids).

2. Sediment toxicants - Chromium: Elevated concentrations of chromium continue to be observed in TPE sediment.

In addition to these two issues, CREMP trigger exceedances for stressor variables and statistically significant increases from baseline/reference conditions also occurred for the following single lake/parameter combinations: total silicon (WAL location), and reactive silica (WAL location). Based on temporal/spatial trends (a component of the CREMP analysis; Appendix 26, Sections 4.3.2 and 4.6.3), these isolated instances were considered attributable to natural variability, and are not explored further here.

Results of the AEMP monitoring programs in 2023 are further summarized in text below, and the integrated evaluation of these two issues is provided in Section 8.12.2.2.

Table 8-72 Summary of trigger/guideline exceedances for AEMP programs at the Meadowbank Mine in 2023. Results for air quality are reviewed to inform trends assessments, but do not have triggers sent in the context of effects on the aquatic environment, so are not included in this table. §

	AEMP Program									
	Core Receiving Environment Monitoring Program	Dike & Construction & Dewatering Monitoring	Habitat Compensation Monitoring [4]	Effluent-Related Monitoring	Minesite Water Quality and Flow Monitoring	Fish-Out Studies	Visual AWAR Water Quality Monitoring	Blast Monitoring	Tailings Pore Water Monitoring [3]	Groundwater Monitoring [1]
Stressor Variables										
Suspended solids	O		NA	O	O		O		NA	O
Sediment deposition	NA		NA	NA	NA		O		NA	NA
Water-borne toxicants	●		NA	O	NA		NA		NA	O
Sediment toxicants	●		NA	NA	NA		NA		NA	NA
Nutrients	O		NA	O	NA		NA		NA	O
Other physical stressors	NA		NA	NA	NA		NA		NA	NA
Effects Variables										
Phytoplankton	O		NA	NA	NA		NA		NA	NA
Zooplankton	NA		NA	O	NA		NA		NA	NA
Fish	NA		O	O	NA		NA		NA	NA
Benthic invertebrates	(●)[2]		NA	NA	NA		NA		NA	NA
Periphyton	NA		NA	NA	NA		NA		NA	NA
Fish habitat	NA		O	NA	NA		O		NA	NA

Notes:

1 - Results are compared to NWB Water License effluent criteria for reference only - no release to surface water in 2023.

2 - Increase in richness at one location, not mine-related.

3 - Results pending. No release to receiving environment in 2023.

4 - Qualitative analysis described in text. No quantitative triggers apply.

O No observed effects

● Trigger or guideline exceedance (and significant difference from baseline/reference in CREMP analysis)

● Observed effects explained in report (applies to effects variables)

8.12.2.1.1 Meadowbank CREMP§

The Core Receiving Environment Monitoring Program (CREMP) report for 2023 is provided in Appendix 26, and additionally summarized in Section 8.1. Highlights in the AEMP context are provided below.

Briefly, no new mine-related changes were recorded in 2023. Similar to previous years, the before-after-control-impact evaluation and trend analyses identified mine-related increases in concentrations of dissolved solids and related parameters (hardness, conductivity, constituent major ions such as calcium and magnesium) at one or more near-field areas compared to baseline/reference. While the changes are considered to be mine-related, there is no evidence to suggest concentrations are continuing to increase, or that they would result in adverse ecological effects. Consistent with previous reporting cycles, there were no trigger exceedances in 2023 for any water quality parameters with effects-based thresholds (e.g. CCME Water Quality Guidelines for the Protection of Aquatic Life).

Results of sediment analyses indicated that previously-observed mine-related increases in concentrations of chromium in Third Portage Lake – East Basin have stabilized and do not pose a risk to benthic invertebrates. No other statistically significant differences from baseline/reference conditions occurred for sediment.

The phytoplankton community at Meadowbank showed no statistically significant changes relative to baseline for biomass or richness in excess of trigger values (20% effect size) in 2023.

No statistically significant changes to the benthic invertebrate community relative to baseline/reference conditions occurred in the 2023 analysis, except for an increase in taxa richness at SP for the 2020 - 2023 time period, but this was determined unlikely to be mine-related. Overall, measured abundance and taxa richness were within the ranges observed across all sampling years.

8.12.2.1.2 Meadowbank Water Quality and Flow Monitoring§

Results of water quality analyses for managed non-contact water and seepage to the receiving environment are discussed here. Complete results of the Water Quality and Flow Monitoring program are provided in Section 8.5.

East and West Diversion Ditches (ST-5/ST-6)

Meadowbank Mine non-contact water collection locations with discharge to the receiving environment consist of the East and West diversion ditches. These ditches were constructed on the north side of the mine site to intercept overland flow and direct it to NP-2 Lake and Third Portage Lake, respectively. For these locations, single samples are collected monthly during open water (generally open water lasts from June – October) for analysis by an accredited laboratory and compared to NWB Water License TSS criteria for individual grab samples and the monthly mean. For both locations, all results for 2023 were in compliance with these criteria.

Waste Rock Storage Facility Seepage (NP-2)

In 2013, seepage from the North Cell TSF through the Meadowbank WRSF was identified and sampled as sump ST-16, and based on results Agnico Eagle initiated a targeted monitoring program for the

potential receiving environment in that area (2013 – 2018), with the closest receptor being NP-2 Lake. In 2019, Agnico Eagle committed to monitoring water quality in NP-2 on a yearly basis. There are no applicable NWB Water License limits for this location. Results are used as applicable to inform AEMP integrated analyses (Section 8.12.2.2).

Mill Seepage (TPL-Assay)

Monitoring in Third Portage Lake in response to historic mill seepage (identified in 2013) continues to indicate that there has been no impacts to the near shore receiving waters of Third Portage Lake. The seepage appears to be effectively contained through construction of an interception trench (2014), a pumping system and repairs within the mill that has contained the source area (repaired in 2015). Pumping is conducted from the interception trench, as required, and sampling is completed for adjacent monitoring wells and a designated near-shore monitoring station in Third Portage Lake. There are no applicable license limits. Results are used as applicable to inform AEMP integrated analyses (Section 8.12.2.2).

8.12.2.1.3 Meadowbank Site Effluent-Related Monitoring§

MDMER monitoring requirements include monitoring effluent (weekly/quarterly chemistry analysis, discharge estimates, toxicity testing), receiving environment water quality (quarterly monitoring at discharge and reference areas), and receiving environment biological monitoring studies (fish and/or benthic invertebrate monitoring on a three-year cycle). Results for 2023 in relation to regulatory criteria are summarized here and full results (Section 8.5) are used as applicable to inform the integrated analysis (Section 8.12.2.2).

In 2023, only East Dike seepage water was discharged to the receiving environment at the Meadowbank Mine (Second Portage Lake), and all effluent water quality analyses were in compliance with MDMER/NWB Water License criteria. Acute lethality effluent testing (Rainbow trout and *Daphnia magna*) was also performed as part of the MDMER effluent characterization, as required. In all three tests with rainbow trout, and three of four tests with *Daphnia magna,* 0% mortality was reported at 100% effluent concentration. In one *Daphnia magna* test, 40% mortality in 100% effluent was reported (March 6).

Results for EEM sub-lethal and acute lethality tests with four test species (*Ceriodaphnia dubia*, fathead minnow, Lemna minor, *Pseudokirchneriella subcapitata*), will be analyzed in context as part of the Cycle 5 EEM Biological Monitoring Interpretive Report (due in July, 2024), along with receiving environment biological monitoring studies conducted in 2023, so are not included in this evaluation. Results of the last EEM Biological Monitoring Interpretive Report (2021) are considered, as indicated, for reference.

8.12.2.1.4 Habitat Compensation Monitoring§

The complete 2023 Habitat Compensation Monitoring Report is provided in Appendix 38 with a summary below in the context of the AEMP. A more detailed summary of the 2023 program is provided in Section 8.8.

In 2023, monitoring for the AWAR Spawning Pads compensation feature was scheduled, constructed in 2009 at AWAR crossing R02 to enhance Arctic Grayling (*Thymallus arcticus*) productivity. In June and July, 2023, detailed visual surveys were conducted and the constructed spawning pads were generally

confirmed to be stable as designed. On average surveyed plots still consist of 90% gravel and small cobble. A very early freshet inhibited biological monitoring efforts and impacted available results. Hoopnets were not set, since the migratory run appeared to have concluded by the time the Animal Use Protocol was received. However historically, continued use of the R02 reach by Arctic grayling without major changes in population structure has been well demonstrated (see 2023 HCMP).

Adult fish presence within the spawning berms was demonstrated in 2023 through underwater camera methods, but the majority of observations were identified as lake trout rather than the target species, Arctic grayling. This is consistent with larval drift trapping results (none captured throughout the study period of June 17th – July 7th), which suggested that the Arctic grayling spawning period had ended well before study initiation.

8.12.2.1.5 Meadowbank Groundwater Monitoring§

The complete 2023 Groundwater Monitoring Report is provided in Appendix 35, with a summary below in the context of the AEMP. A more detailed summary of the 2023 program for the Meadowbank site is provided in Section 8.7.1.

While not directly applicable to groundwater, water quality results of this program are compared to the maximum average concentration of the NWB Water License Third Portage Lake Effluent Discharge Limits, for comparative purposes only. In 2023, all parameters concentrations met these criteria, except one duplicate sample for TSS.

Overall, the 2023 program results indicate that while contaminant transport from the tailings cells has locally affected groundwater quality to the west of the central dump and mined-out pits, the current hydraulic gradient associated with the mined-out pits is preventing movements of contaminants further eastwards (towards the lakes). Groundwater contamination is therefore not likely to be a potential exposure pathway into the receiving aquatic environment and is not considered further in the AEMP assessment at this time.

8.12.2.1.6 AWAR and Quarries Water Quality Monitoring

Under the Freshet Action Plan, pre-freshet and freshet inspections were conducted at crossings along the AWAR in 2023 daily to weekly from May through August. These inspections are conducted to document the presence/absence of flow, erosional concerns, and turbidity plumes. No turbidity plumes or erosional concerns were observed, and no samples were required to be collected.

8.12.2.1.7 Meadowbank Tailings Pore Water Monitoring

The Tailings Pore Water Monitoring program is discussed in Section 5.1.1.1. Briefly, in 2023 Agnico Eagle collected tailings effluent slurry samples prior to disposal in Goose/Portage Pits. Reclaim water from the pits is also sampled, when safely feasible. There are no applicable license limits. In-pit porewater sampling was conducted in 2022 and 2023. Results, when available, will inform closure and post-closure monitoring plans for the Meadowbank Minek and will be presented in the Final Closure and Reclamation Plan. As a result, pore water monitoring is not considered further in the AEMP assessment at this time.

8.12.2.1.8 Meadowbank Air Quality and Dustfall Monitoring§

The complete 2023 Air Quality and Dustfall Monitoring Report is provided in Appendix 42 and results are summarized in Section 8.14.1. Across the parameters evaluated (suspended particulates, NO_2, dustfall), dustfall is considered the parameter most relevant to the AEMP analysis. Dustfall (30-d average) is measured year-round at four onsite locations, and during the summer season for two transects along the AWAR, in areas without chemical dust suppression. In 2023, all onsite and AWAR monitoring results for dustfall met management thresholds, which are equivalent to Alberta Environment guidelines for recreational or industrial areas. It is noted that these guidelines relate to nuisance/aesthetic concerns, not environmental quality. For the purposes of the AEMP evaluation, trends in dustfall are reviewed to help understand potential linkages to observed exceedances of aquatic triggers/guideline values. Visual assessment of trends to date (since 2011) indicates that in general, rates of dustfall appear to have been stable over time and across monitoring locations.

8.12.2.2 *Integration of Monitoring Results§*

According to the AEMP, the results of the monitoring programs were integrated in a mechanistic fashion with a thorough review of results to identify any patterns among the relevant receiving environment monitoring programs. For groups of stressor variables where triggers or guidelines were exceeded in 2023 (Table 8-73), a summary of results across AEMP programs is provided here to explore spatial scale, temporal trends, causation, and uncertainty. Patterns among the programs are then characterized using an issue-specific conceptual site model, which assists in the evaluation of the transport pathways, provides information on specific media (identifies stressors) and evaluates receptors of concern (effects variables).

8.12.2.2.1 Changes in Conventional Parameters/Major Ions/TDS§

In 2023 and similar to previous years, CREMP analyses identified trigger exceedances and statistically significant changes relative to baseline/reference conditions at one or more near-field areas including TPE, TPN, SP and WAL for: conductivity, hardness, total dissolved solids, alkalinity and major ions (calcium, magnesium). These trends have been observed for many years, and as further explored below, while they are considered to be mine-related, the measured concentrations in 2023 are still relatively low and there is no evidence to suggest concentrations are continuing to increase, or that they would result in adverse ecological effects.

Notwithstanding, consideration was again given here to evaluate and classify results for these parameters across AEMP programs. No triggers are applicable to this variable group outside the CREMP, so Table 8-73 is restricted to that program, but relevant monitoring results across programs are reviewed further below as they relate to the source evaluation (Section 8.12.2.2.1.1) or effects evaluation (Section 8.12.2.2.1.3).

Table 8-73 Summary of monitoring results across AEMP programs related to conventional parameters and major ions in surface water. No triggers are applicable to this variable group outside the CREMP. §

Stressor Variable Group: Conventional Parameters and Major Ions					
Program	**Magnitude**	**Spatial Scale**	**Temporal Trend**	**Causation**	**Uncertainty**
CREMP	1	Large	Stable	High	?

Magnitude:
n/a – not evaluated/no applicable trigger
0 – no exceedance
1 – early warning trigger exceeded, or change from baseline
2 – management threshold exceedance (or change from baseline exceeding magnitude of concern)

Spatial Scale:
n/a – no magnitude of effect, therefore not evaluated
small – localized scale
moderate – sub-basin to basin scale
large – basin to whole lake scale

Temporal Trend Indicators:
n/a – no magnitude of effect, therefore not evaluated
Stable – no changes year-over-year
Increasing – year-over-year increases
Decreasing – year-over-year decreases

Causation Ratings:
n/a – no magnitude of effect, therefore not evaluated
Low – no evidence for a mine-related source
Moderate – some likelihood of a mine-related source
High – the source of the problem is very likely to be mine-related

Uncertainty Ratings (confidence in all other findings):
? – low uncertainty
?? – moderate uncertainty
??? – high uncertainty

The conceptual site model presented in Table 8-74 assists in understanding the possible linkages (i.e., effect to receptors from the source). All available monitoring results for 2023 related to the identified potential sources/transport pathways, stressors, and receptors are reviewed in text format below.

Table 8-74 . Integrated conceptual site model for AEMP assessment of observed changes in conductivity, hardness, TDS, alkalinity, and major ions (related parameters) at the Meadowbank Mine (2023 results unless indicated). §

Source	Transport Pathways	Exposure Media					Effects Measures				
		Medium / Stressor	Narrative	Magnitude	Spatial Scale	Link to Source	Receptor	Narrative	Magnitude	Spatial Scale	Link to Stressor
		Surface Water					Pelagic				
Effluent, Managed Non-Contact Water, Seepage? →	Discharge, run-off to surface water →	Conductivity, hardness, major ions, TDS	CREMP lakes close to the mine (Third Portage, Second Portage, Wally) have higher concentrations of dissolved solids and constituent major ions such as calcium and magnesium compared to baseline/reference conditions. While these changes are mine-related, there is no evidence to suggest concentrations are continuing to increase, or that they would result in adverse ecological effects.	T, SD	2+	Strong (see text) →	Primary Production [a]Chlorophyll a [a]Phytoplankton biomass [a]Phytoplankton taxa richness [c]Sub-lethal toxicity (growth inhibition)	Biomass/Richness: No consistent (year-over-year), statistically significant changes above trigger effect sizes (20%). Toxicity: No growth inhibition in the last EEM reporting cycle (2021).	0	N/A	N/A
							Secondary Production [c]Zooplankton sub-lethal toxicity (*Ceriodaphnia dubia*) [c]Zooplankton acute lethality (*Ceriodaphnia dubia, Daphnia magna*)	Targets for sublethal toxicity and acute lethality were met in the last EEM reporting cycle (2021).	0	N/A	N/A
							Fish [c]Sublethal toxicity (Fathead minnow) [c]Acute lethality (Fathead minnow, Rainbow trout) [d]Presence/absence	Toxicity: Targets for sublethal toxicity and acute lethality were met in the last EEM reporting cycle (2021). Presence: Fish presence around dike faces was confirmed in the last Habitat Compensation Monitoring (2021)	0	N/A	N/A

Associated monitoring program:

a	Core Receiving Environment Monitoring Program
b	Water Quality and Flow Monitoring
c	Effluent-Related Monitoring
d	Habitat Compensation Monitoring
e	Groundwater Monitoring
f	AWAR and Quarries Water Quality Montoring
g	Tailings Pore Water Monitoring

Magnitude

0	No trigger exceedance
T	Exceeds early-warning trigger.
TT	Exceeds effects-based threshold.
SD	Statistically significant difference from baseline/reference
Qual	Qualitative assessment

Spatial Extent

1 - Occurs at one near-field sampling area only
2+ - Multiple near-field areas
All - Extends to far-field areas

8.12.2.2.1.1 Source Evaluation§

Since the impacted parameters (conductivity, hardness, total dissolved solids, alkalinity and major ions) are largely inter-related, conductivity was used as an indicator parameter for source evaluations in this review, because it is commonly measured across all monitoring locations and programs. While CREMP conductivity triggers (27 µS/cm for Second and Third Portage Lakes and 37 µS/cm for Wally Lake; set at the 95th centile of baseline data), do not specifically apply to effluent or managed surface water results, they are used here to further understand the potential for a source to be contributing to observations of water quality changes in the receiving environment programs.

Effluent Monitoring - In 2023 and recent years, the only source of effluent discharge for the Meadowbank Mine was East Dike seepage, which was released to Second Portage Lake. Conductivity results (field measured) for the East Dike seepage effluent in 2023 (68 - 76 µS/cm; Section 8.5.3.1) exceeded the CREMP water quality trigger of 27 µS/cm. These results suggest that effluent discharge may be contributing to the observed water quality changes in the CREMP near-field lakes, as determined in previous years and noted in the CREMP report.

Managed Surface Water Monitoring - The East and West diversion ditches are designed to redirect runoff from the northern area watershed away from mine facilities, to Second Portage Lake via NP-2 (East diversion ditch) and to Third Portage Lake (West diversion ditch). Monthly field-measured conductivity in both diversion ditchs (East, ST-5: 71 - 184 µS/cm; West, ST-6: 30 - 232 µS/cm; Section 8.5.3.1) commonly exceeded the CREMP trigger (27 µS/cm). Although the trigger does not apply directly to these locations, it provides a benchmark and suggests these are potential sources of the elevated conductivity and related parameters (compared to baseline conditions) observed in CREMP results in Second and Third Portage Lakes.

Water quality monitoring also continues in two near-field lake locations (NP-2, Third Portage Lake) in response to historical seepage events (Section 8.12.2.1.2), to confirm that mitigation measures to eliminate seepage pathways remain effective. Conductivity in 2023 in NP-2, which receives East Diversion Ditch run-off and ultimately reports to Second Portage Lake, was field-measured at 149 - 189 µS/cm. Conductivity at the near-shore Third Portage Lake location TPL-Assay was field-measured at 100 – 128 µS/cm. Since conductivity results for these surface water locations receiving managed non-contact water or runoff exceed the CREMP trigger (95th centile of baseline), they may also be potential sources of the elevated conductivity and related parameters observed in the CREMP results for Second and Third Portage Lakes.

Summary - Based on these results, the most likely source of the changes to conductivity and related parameters identified through the CREMP continues to be effluent discharge and potentially, managed non-contact water runoff (likely current and historical).

8.12.2.2.1.2 Exposure Evaluation§

Conductivity (tracked here as an indicator variable) measured in near-field CREMP lakes in 2023 was in the range of 27 - 45 µS/cm (Second and Third Portage) and 36 – 53 µS/cm (Wally Lake). These results for the near-field receiving environment just exceed CREMP trigger values set at the 95th centile of baseline concentrations (27 µS/cm for Second and Third Portage Lakes and 37 µS/cm for Wally Lake),

but are statistically greater than baseline/reference in the BACI analysis. Long-term trend analysis completed for data through 2021 indicated that conductivity and the other parameters of interest here (hardness, calcium, magnesium, total alkalinity, and TDS) have generally been stable from 2014 to 2021. A full description of the long-term trend analysis and results was included in the 2021 CREMP report.

8.12.2.2.1.3 Effects Evaluation§

Although ongoing CREMP analyses indicate that the observed changes in water chemistry are likely mine-related, a thorough literature review in the 2019 CREMP report indicated that concentrations of these parameters at Meadowbank (which were similar 2023) remain well below concentrations associated with adverse effects to aquatic life.

This conclusion is further corroborated by results of associated monitoring programs for the identified receptors of interest in Table 8-74 (primarily, pelagic-zone receptors: phytoplankton, zooplankton, fish) in 2023 or the last available year:

- As reported in the CREMP, no pervasive mine-related changes in phytoplankton biomass or communities have been observed to date.

- The most recent complete review of effluent toxicity assessments presented in the 2021 EEM Interpretive Report (seven complete tests from 2018 – 2020, with an alga (*Pseudokirchneriella subcapitata*), a macrophyte (*Lemna minor*), a zooplankton (*Ceriodaphnia dubia*), and a fish, Fathead minnow) indicated that 48 of 49 measurement endpoints met thresholds[5] (in one 2020 test an IC25 was less than 30% effluent concentration (growth for fathead minnow), but these test results were identified as anomalous based widely ranging mortality across replicates).

-Finally, while the last HCMP program results in 2021 indicate that periphyton growth on dike faces continues to be slow (as expected in Arctic ultraoligotrophic lakes), interstitial water quality meets CCME criteria, and fish presence around the dike faces has been confirmed.

8.12.2.2.1.4 Management Actions§

As a result of this review, any mine-related impacts to receptors of concern will continue to be assessed through the scheduled monitoring programs and no adaptive management is planned in relation to the observed changes in conventional parameters and major ions for near-field lakes.

8.12.2.2.2 Changes in Chromium in TPE Sediment§

As in previous years, CREMP analysis in 2023 also identified statistically significant increases compared to baseline/reference conditions for chromium in sediment at location TPE. This issue was first identified in 2013. Targeted studies occurred in 2015, 2018, and 2019, and the changes in chromium were attributed to construction of the Meadowbank dewatering dikes (2009 - 2012). Chromium concentrations have been stable since 2017, and current conditions do not pose risks to the benthos at TPE (see full

[5] In one 2020 test an IC25 was less than the 30% effluent concentration threshold (growth for Fathead Minnow), but these test results were identified as anomalous based widely ranging mortality across replicates.

details in the 2023 CREMP Report – Appendix 26). A brief summary of this issue in the AEMP format is provided here since it has previously been thoroughly explored, and CREMP-measured exposure concentrations declined in 2023 compared to the last sediment study (2021).

Table 8-75 Summary of monitoring results across AEMP programs related to chromium in sediment. No sediment chemistry analysis occurs outside the CREMP. §

Stressor Variable Group: Chromium in sediment					
Program	**Magnitude**	**Spatial Scale**	**Temporal Trend**	**Causation**	**Uncertainty**
CREMP	1	Small	Stable	High	?

Magnitude:
n/a – not evaluated/no applicable trigger
0 – no exceedance
1 – early warning trigger exceeded, or change from baseline
2 – management threshold exceedance (or change from baseline exceeding magnitude of concern)

Spatial Scale:
n/a – no magnitude of effect, therefore not evaluated
small – localized scale
moderate – sub-basin to basin scale
large – basin to whole lake scale

Temporal Trend Indicators:
n/a – no magnitude of effect, therefore not evaluated
Stable – no changes year-over-year
Increasing – year-over-year increases
Decreasing – year-over-year decreases

Causation Ratings:
n/a – no magnitude of effect, therefore not evaluated
Low – no evidence for a mine-related source
Moderate – some likelihood of a mine-related source
High – the source of the problem is very likely to be mine-related

Uncertainty Ratings (confidence in all other findings):
? – low uncertainty
?? – moderate uncertainty
??? – high uncertainty

The conceptual site model presented in Table 8-76 assists in understanding the possible linkages (i.e., effect to receptors from the source). All available monitoring results for 2023 related to the identified potential sources/transport pathways, stressors, and receptors are reviewed in text format below

Table 8-76 Integrated conceptual site model for AEMP assessment of observed changes in chromium in sediment at the Meadowbank Mine (2023 results unless indicated). §

Source	Transport Pathways	Exposure Media					Effects Measures				
		Medium Stressor	Narrative	Magnitude	Spatial Scale	Link to Source	Receptor	Narrative	Magnitude	Spatial Scale	Link to Stressor
Dike Construction using NPAG ultramafic material (2009 - 2012) →	Historical Settlement of TSS →	Sediments: Metals	Chromium trigger exceeded with statistically significant change from baseline/reference at TPE in 2023, but current conditions do not pose risks to the benthos.	T/SD	1	Strong (see text)	Benthic: Primary Production [d]Periphyton biomass & community structure	Continued growth on dike faces. Biomass remains below reference areas but community structure is similar (2021).	Qual	N/A	N/A
							Secondary Production [a]Benthic invertebrate abundance & richness	No statistically signficant changes relative to baseline/reference at TPE.	0	N/A	N/A
							Fish [d]Presence/absence	Fish presence around dike faces was confirmed in the last Habitat Compensation Monitoring (2021).	Qual	N/A	N/A

Associated monitoring program:

a	Core Receiving Environment Monitoring Program
b	Water Quality and Flow Monitoring
c	Effluent-Related Monitoring
d	Habitat Compensation Monitoring
e	Groundwater Monitoring
f	AWAR and Quarries Water Quality Montoring
g	Tailings Pore Water Monitoring

Magnitude

0	No trigger exceedance
T	Exceeds early-warning trigger.
TT	Exceeds effects-based threshold.
SD	Statistically significant difference from baseline/reference
Qual	Qualitative assessment

Spatial Extent

1 - Occurs at one near-field sampling area only
2+ - Multiple near-field areas
All - Extends to far-field areas

8.12.2.2.2.1 Source Evaluation§

As discussed above, targeted studies occurred in 2015, 2018, and 2019, and the changes in chromium were attributed to the construction and subsequent capping of the Meadowbank dewatering dikes (2009 - 2012).

8.12.2.2.2.2 Exposure Evaluation§

The mean sediment chromium concentration at TPE exceeded the trigger value in 2023 (mean value = 136 mg/kg dw; trigger value = 135 mg/kg dw). This is lower than the 2017–2020 means of 193 mg/kg dw (range of 150 to 205 mg/kg dw).

8.12.2.2.2.3 Effects Evaluation§

As shown in Table 8-76, measurements of effects to sediment-associated receptors in 2023 for the TPE location consisted of benthic invertebrate community sampling conducted through the CREMP. This program continues to show no statistically significant changes to benthic invertebrate abundance or richness compared to baseline/reference conditions. Targeted studies conducted in 2018 and 2019 also concluded that chromium exposure at TPE does not pose risks to benthos. Measured concentrations have declined since that time.

8.12.2.2.2.4 Management Actions§

Based on this review, no further adaptive management is planned at this time in relation to the observed changes in chromium concentrations in sediment at TPE. Sediment chemistry and benthic invertebrate communities will continue to be assessed through the CREMP program.

8.12.3 Whale Tail Site AEMP§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 19: ***The results of monitoring under the AEMP.***

8.12.3.1 *Summary of Results of AEMP- Related Monitoring Programs§*

In 2023, AEMP-related monitoring programs for the Whale Tail Mine included:

- Core Receiving Environment Monitoring Program (and targeted effects-assessment studies, when required);
- Mercury Monitoring Program;
- Minesite Water Quality and Flow Monitoring;
- Effluent-Related Monitoring (MDMER Monitoring);
- Fish Habitat Offsets Monitoring;
- Groundwater Monitoring;
- Visual WTHR and Quarries Water Quality Monitoring;
- Blast Monitoring; and
- Air Quality Monitoring.

The results of these monitoring programs are integrated in the AEMP, and assist in the evaluation of potential effects of mining activities on the aquatic environment.

Programs that are part of the AEMP model but were not required to be conducted in 2023 for the Whale Tail site include:

- Dike Construction and Dewatering Monitoring[6]; and
- Fish-Out Studies.

For each AEMP monitoring program conducted in 2023, a summary of trigger/threshold or guideline exceedances is provided in Table 8-77. Across all programs, trigger or guidelines exceedances for stressor variables were only identified through the CREMP. In all cases, these results only indicate an increase in the measured parameter compared to baseline/reference concentrations, and do not indicate an exceedance of thresholds for impacts to aquatic life and/or unpredicted changes (e.g. all water quality results were within CCME Water Quality Guidelines for the Protection of Aquatic Life and/or FEIS-predicted ranges, where available).

1. **Nutrients**: CREMP triggers were exceeded for TKN, TP, TOC, and DOC, along with a statistically significant increase above baseline/reference values in one or more near field lakes (WTS, MAM/KAN, and/or A20) in 2023.

2. **Water-borne toxicants - Conventional parameters, major ions, and TDS**: CREMP triggers were exceeded along with statistically significant increases above baseline/reference concentrations at near and mid-field areas (WTS, A20, MAM/KAN, A76 and NEM) for conventional parameters (alkalinity, conductivity, hardness), major ions (calcium, potassium, magnesium, sodium) and TDS.

3. **Water-borne toxicants - Metals**: Yearly mean concentrations for lithium exceeded CREMP trigger values and statistically significant increases above baseline/reference values were observed at WTS and MAM/KAN.

4. **Sediment toxicants – Metals**: CREMP triggers were exceeded along with statistically significant increases above baseline/reference concentrations for arsenic, chromium, and copper at one or more near-field lakes (WTS, MAM/KAN, A20).

Results of the AEMP monitoring programs are further summarized in text below, and the integrated evaluation of these four issues is provided in Section 8.12.3.2.

[6] Remediation work was carried out for the Whale Tail Dike, but it occurred in winter conditions, so no free water was encountered and water quality monitoring was not required (see Section 8.5.2.2).

Table 8-77 Summary of trigger/guideline exceedances for AEMP programs at the Whale Tail Mine in 2023. Results for air quality are reviewed to inform trends assessments, but do not have triggers sent in the context of effects on the aquatic environment, so are not included in this table§

	AEMP Program									
	Core Receiving Environment Monitoring Program	Mercury Monitoring Program	Dike Construction & Dewatering Monitoring	Fish Habitat Offsets Monitoring	Effluent-Related Monitoring	Minesite Water Quality and Flow Monitoring	Fish-Out Studies	WTHR Water Quality Monitoring	Blast Monitoring	Groundwater Monitoring [1]
Stressor Variables										
Suspended solids	○	NA		NA	○	○		○	NA	NA
Sediment deposition	NA	NA		NA	NA	NA		○	NA	NA
Water-borne toxicants	●	○		NA	○	NA		NA	NA	○
Sediment toxicants	●	○		NA	NA	NA		NA	NA	NA
Nutrients	●	NA		NA	○	NA		NA	NA	NA
Other physical stressors	NA	NA		NA	NA	NA		NA	○	NA
Effects Variables										
Phytoplankton	●[3]	NA		NA	NA	NA		NA	NA	NA
Zooplankton	NA	NA		NA	○	NA		NA	NA	NA
Fish	NA	○		○	○	NA		NA	NA	NA
Benthic invertebrates	(●)[2]	NA		NA	NA	NA		NA	NA	NA
Periphyton	NA	NA		○	NA	NA		NA	NA	NA
Fish habitat	NA	NA		NA	NA	NA		○	NA	NA

Notes:

1- No guidelines apply. Certain parameters are compared to FEIS assumptions and effluent criteria for reference.

2 - Increased abundance and/or richness in WTS/KAN and/or NEM, but not mine-related.

3 - FEIS-predicted increase in phytoplankton biomass. Likely mine-related.

○ No observed effects

● Trigger or guideline exceedance (and significant difference from baseline/reference in CREMP analysis).

● Observed effects explained in report (applies to effects variables)

8.12.3.1.1 Whale Tail CREMP§

The Core Receiving Environment Monitoring Program report for 2023 is provided in Appendix 265, and additionally summarized in Section 8.1. Highlights in the AEMP context are provided below.

Briefly, some statistical increases from baseline/reference conditions were observed in some near-field and mid-field areas for: TDS and constituent ionic (calcium, magnesium, potassium, and sodium); some nutrients (TKN, TP, TOC, DOC), and lithium. Similar to results seen over the years at the Meadowbank study lakes, these trends mainly represent increases above baseline/reference conditions only; except for total phosphorus, none of these analytes have effects-based guidelines for the protection of aquatic life. Total phosphorus is one of the main constituents of concern for the Whale Tail Mine, with increases above CREMP triggers predicted and quantified in the FEIS.

As in previous years, phytoplankton biomass generally increased in 2023 compared to baseline conditions, with statistically significant increases for WTS and A20. As discussed in the CREMP, changes in primary productivity were predicted in the FEIS and some portion of the observed increase in 2023 may be a result of natural variation. No significant changes in taxa richness were observed.

Sediment chemistry analysis was conducted on core samples in 2023. Measured concentrations of arsenic, chromium, and copper were statistically greater than baseline/reference values in one or more of WTS, A20, and MAM/KAN. Changes in MAM/KAN (arsenic, chromium) and A20 (copper, chromium) were attributable to natural variability. Concentrations of chromium at WTS were broadly within the range of baseline, but an increasing trend was observed suggesting changes may be mine-related. This would be similar to observations for the Meadowbank Mine following construction of the Bay Goose Dike using chromium-rich ultramafic rock (Section 8.12.2.2.1). Follow-up studies concluded that those changes did not pose unacceptable risk to aquatic receptors (benthic invertebrates).

Among benthic invertebrate samples, statistically significant increases in abundance and richness were observed for some near-field lakes (WTS, MAM/KAN, and/or NEM) in 2023, but changes were attributed to natural variability (climate trends) rather than mine activities.

8.12.3.1.2 Mercury Monitoring Program§

Complete results of the Mercury Monitoring Program (MMP) are provided in Appendix 27. Results are summarized here, and additionally in Section 8.2.

The purpose of the MMP is to assess changes in mercury concentrations caused by the creation of the Whale Tail Impoundment (“Impoundment”) following the construction of the Whale Tail Dike in September 2018. The MMP was designed to monitor mercury dynamics in key components of the ecosystem to verify FEIS predictions for mercury concentrations in water and lake trout tissue. The scope of the 2023 program included large-bodied (Lake Trout) and small-bodied fish, water, and sediment sampling at various locations within the Impoundment, downstream of the mine, and at local reference lakes. Both total mercury and methylmercury concentrations in water were below FEIS predictions and CCME Water Quality Guidelines for the Protection of Aquatic Life. Total mercury concentrations in sediment were also below the CCME sediment quality guideline. There is no CCME sediment quality guideline for methylmercury.

Both small-bodied fish species in the Impoundment showed increases in tissue mercury concentrations in 2020 that persisted in 2023. Concentrations may have stabilized for Ninespine Stickleback but continued to increase for Slimy Sculpin.

Lake Trout were collected from the Impoundment in 2023 and mercury concentrations were found to be higher than baseline/reference concentrations and similar to the FEIS-predicted peak mercury concentration.

Results for all components indicate downstream transport of flood-related mercury beyond the Impoundment is limited (sediment and fish tissue concentrations in Kangislulik Lake are similar to baseline/reference).

8.12.3.1.3 Whale Tail Water Quality and Flow Monitoring§

Results of water quality analyses for managed non-contact water and seepage to the receiving environment are discussed here in relation to regulatory limits. Complete results of the Water Quality and Flow Monitoring program are provided in Section 8.5 and used as necessary below (Section 8.12.3.2) to inform the integration of monitoring results.

Whale Tail South Channel (ST-WT-13)

Water flowing through the Whale Tail South Channel was sampled on a monthly basis during open water season. Applicable NWB Water License limits for this station include effluent water quality limits for TSS of 15 mg/L for the maximum monthly mean and 30 mg/L for the maximum concentration in a grab sample. No results exceeded these limits in 2023.

IVR Diversion Channel (ST-WT-37)

Commissioned during freshet 2021, the purpose is to direct non-contact water from the North-East watershed towards Nemo Lake. Applicable NWB Water License limits for this station include effluent water quality limits for TSS of 15 mg/L for the maximum monthly mean and 30 mg/L for the maximum concentration in a grab sample. No results exceeded these limits in 2023.

8.12.3.1.4 Whale Tail Effluent-Related Monitoring§

MDMER monitoring requirements include monitoring effluent (weekly/quarterly chemistry analysis, discharge estimates, toxicity testing), receiving environment water quality (quarterly monitoring at discharge and reference areas), and receiving environment biological monitoring studies (fish and/or benthic invertebrate monitoring on a three-year cycle). Effluent quality results for 2023 in relation to regulatory criteria (MDMER/NWB Water License) are summarized here and full results (Sections 8.3 and 8.5) are used as necessary to inform the integration of AEMP monitoring results in Section 8.12.3.2.

Kangislulik Lake Diffusers (ST-MDMER-7/ST-WT-2 and ST-MDMER-8/WT-WT-2a)

There are two submerged diffusers to facilitate discharge from the Whale Tail and IVR Attenuation Ponds to Kangisliluk Lake. Discharge through the East Diffuser (ST-WT-2a) occurred in June, July, August, and September, 2023. Discharge through the West Diffuser (ST-WT-2) occurred in June. For both diffusers,

all results were in compliance with MDMER/NWB Water License criteria for water quality, including acute lethality toxicity tests for rainbow trout and *Daphnia magna*.

Results for EEM sub-lethal and acute lethality tests with four test species (*Ceriodaphnia dubia*, fathead minnow, Lemna minor, *Pseudokirchneriella subcapitata*), will be analyzed in context as part of the Cycle 2 EEM Biological Monitoring Interpretive Report (due in July, 2024), along with receiving environment biological monitoring studies conducted in 2023, so are not included in this evaluation. Results of the last EEM Biological Monitoring Interpretive Report (2021) are considered, as indicated, for reference.

Whale Tail South Diffusers (ST-MDMER-11/ST-WT-24 and ST-MDMER-12/ST-WT-24a)

Discharge from the Whale Tail and IVR Attenuation Ponds occurred through the Whale Tail South permanent diffuser (ST-WT-24) periodically in January, February, March, April, May, September, and October, 2023. All results were in compliance with MDMER/NWB Water License criteria for water quality, including acute lethality toxicity tests for Rainbow Trout and Daphnia magna.

Under EEM requirements, water samples were taken from the effluent, the receiving environment exposure area and reference area for water chemistry. This data will be evaluated as part of the next complete interpretive report (due in 2024).

8.12.3.1.5 Whale Tail Fish Habitat Offset Monitoring§

The complete 2023 Fish Habitat Offsets Monitoring Report for the Whale Tail Mine is provided as Appendix 37 and summarized in Section 8.8.2.

Briefly, monitoring of constructed fish habitat offsets (flood zone habitat) was conducted in 2023 under the pre-offsetting ecological monitoring program of the Fish Habitat Offsets Monitoring Plan (FHOMP; June, 2021). The intent of this program is to determine whether flooded terrestrial zones of Whale Tail Lake and Lake A18 will provide suitable fish habitat as assumed in the Project's fish habitat offsetting plans, prior to construction of the permanent water retentions sills (est. 2026). Pre-offsetting monitoring includes assessments of open-lake water quality, periphyton growth, and fish use of the flood zone habitat. In 2023, FHOMP field assessments included: flood zone and reference lake water quality data collected through the Core Receiving Environment Monitoring Plan (not revisited here); analysis of periphyton growth using artificial substrate samplers and periphyton visual surveys; small-bodied fish population assessments by shoreline electrofishing, and large-bodied fish populations assessments by gillnetting and underwater video.

For this study, no trigger or guideline values apply, and trends are generally interpreted here visually for use in the AEMP integrated assessment. Final analyses are expected as part of supplemental reporting requirements due later in 2024. To date, it is evident that seasonal periphyton growth on artificial substrate is greater in flood zone lakes compared to reference lakes. Periphyton visual surveys identified a wide range of periphyton cover conditions across both flood zone and reference lakes, from no coverage to >75% coverage, without a clear relationship to flood status. Where present, periphyton thickness, evenness, and texture was visually estimated to be similar to or approaching that of reference areas. Electrofishing studies have identified the presence of small-bodied fish populations in newly created shoreline habitat at catch rates and size ranges that appear similar to reference areas. Finally, underwater video and gillnet surveys confirmed continued use of deeper water habitat by large-bodied fish at rates no lower than reference areas.

8.12.3.1.6 Whale Tail Groundwater Monitoring§

A complete summary of groundwater monitoring is provided in Section 8.7.2, and technical memorandums for groundwater monitoring are provided in Appendix 36.

For the Whale Tail Mine, groundwater monitoring was conducted in 2023 according to the Groundwater Monitoring Plan. This monitoring program exists primarily to update site water quality and water balance models, and support water management activities and water quality planning for pit reflooding. Currently, groundwater inflow quantity and quality to the Whale Tail Pit are assessed through the Westbay System monitoring well installation, and analysis of sump and seepage samples.

Westbay well water quality results for TDS are compared to FEIS assumptions, and do not deviate significantly. Arsenic, which is a constituent of interest at Whale Tail, continues to occur at low concentrations consistent with previous reliable data from this well, and natural arsenic in groundwater is still not expected to have a significant effect on surface water quality or pit lake water quality. Radium-226 is below MDMER effluent criteria.

Currently, since pit inflows are the inferred direction of groundwater movement at the Whale Tail Mine, groundwater quality is not likely to have a significant direct effect on receiving environment surface water quality, and is not considered further in the AEMP analysis at this time.

8.12.3.1.7 Whale Tail Haul Road and Quarries Water Quality Monitoring§

Visual inspections for freshet monitoring under the Freshet Action Plan occur daily or weekly for onsite and Whale Tail Haul road water management infrastructure including culverts, ditches, bridges, the Whale Tail South Channel, and the IVR Diversion Channel.

Briefly, in 2023, no major erosion concerns that required mitigation actions were identified during visual inspections for Whale Tail Haul Road water management infrastructure (e.g. scour, bed erosion, etc.). Based on visual assessments for turbidity, no water quality samples were required to be collected for measurement of TSS and no turbidity management measures were required to be installed (e.g. straw booms or woodchip booms).

8.12.3.1.8 Whale Tail Blast Monitoring§

A Blast Monitoring Report is produced annually, and complete results are provided in that document (Appendix 34). In 2023, 147 blasts occurred and were monitored at the IVR pits. No blasts exceeded the peak particle velocity limit of 13 mm/s or the instantaneous pressure change limit of 50kPa. For the Whale Tail Pit, 357 blasts were monitored, and none exceeded PPV or IPC limits.

8.12.3.1.9 Whale Tail Air Quality Monitoring§

The complete 2023 Air Quality and Dustfall Monitoring Report is provided in Appendix 42 and results are summarized in Section 8.14.1. Across the parameters evaluated (suspended particulates, NO_2, dustfall), dustfall is considered most relevant to the AEMP analysis. At the Whale Tail Mine, dustfall (30-d average) is measured year-round at one onsite location, and during the summer season for three transects along the Whale Tail Haul Road. Dust suppressant is applied along the entire length of this road. In 2023, all onsite and WTHR monitoring results for dustfall met management thresholds, which are equivalent to Alberta Environment guidelines for recreational or industrial areas. It is noted that these guidelines relate to

nuisance/aesthetic concerns, not environmental quality. For the purposes of the AEMP evaluation, trends in dustfall are reviewed to help understand potential linkages to observed exceedances of aquatic triggers/guideline values. Visual assessment of trends to date (since 2018) indicates that while occasional peaks occur, rates of dustfall appear to have been stable over time and across monitoring locations.

8.12.3.2 *Integration of Monitoring Results*[§]

According to the AEMP, the results of the monitoring programs were integrated in a mechanistic fashion with a thorough review of results to identify any patterns among the relevant receiving environment monitoring programs. For groups of variables where triggers or guidelines were exceeded in 2023 (Table 8-78), a summary of results across AEMP programs is provided here to explore spatial scale, temporal trends, causation, and uncertainty. Patterns among the programs are then characterized using an issue-specific conceptual site model, which assists in the evaluation of the transport pathways, provides information on specific media (identifies stressors) and evaluates receptors of concern (effects variables).

8.12.3.2.1 Changes in Nutrients (TKN, TP, TOC, DOC) [§]

In 2023, trigger exceedances and statistically significant increases compared to baseline/reference values were observed for TKN, TP, TOC, and/or DOC at CREMP monitoring stations WTS, MAM/KAN, and/or A20. Increases in phytoplankton biomass were observed for these same lakes (statistically significant for WTS and A20), and were considered related to nutrient changes.

These trends are generally consistent with findings in previous impact years and FEIS Addendum predictions for increased nutrient concentrations in WTS and MAM/KAN. Comparison to FEIS predictions is further explored in the PEAMP – Section 12.5.1.

Notwithstanding, consideration was again given here to evaluate and classify results for these parameters across AEMP programs. No triggers are applicable to this variable group outside the CREMP, so Table 8-78 is restricted to that program.

Table 8-78 Summary of monitoring results across AEMP programs related to nutrients. No triggers are applicable to this variable group outside the CREMP and effluent-related monitoring. §

Stressor Variable Group: Nutrients					
Program	**Magnitude**	**Spatial Scale**	**Temporal Trend**	**Causation**	**Uncertainty**
CREMP	1	Large	Stable/Increasing	Moderate	?
Effluent-Related Monitoring	0	n/a	n/a	n/a	n/a

Magnitude:
n/a – not evaluated/no applicable trigger
0 – no exceedance
1 – early warning trigger exceeded, or change from baseline
2 – management threshold exceedance (or change from baseline exceeding magnitude of concern)

Spatial Scale:
n/a – no magnitude of effect, therefore not evaluated
small – localized scale
moderate – sub-basin to basin scale
large – basin to whole lake scale

Temporal Trend Indicators:
n/a – no magnitude of effect, therefore not evaluated
Stable – no changes year-over-year
Increasing – year-over-year increases
Decreasing – year-over-year decreases

Causation Ratings:
n/a – no magnitude of effect, therefore not evaluated
Low – no evidence for a mine-related source
Moderate – some likelihood of a mine-related source
High – the source of the problem is very likely to be mine-related

Uncertainty Ratings (confidence in all other findings):
? – low uncertainty
?? – moderate uncertainty
??? – high uncertainty

The conceptual site model presented in Table 8-79 assists in understanding the possible linkages (i.e., effect to receptors from the source). All available monitoring results for 2023 related to the identified potential sources/transport pathways, stressors, and receptors are reviewed in text format below.

Table 8-79 Integrated conceptual site model for AEMP assessment of observed changes in nutrients at the Whale Tail Mine (2023 results unless indicated). §

Source	Transport Pathways	Exposure Media					Effects Measures				
		Medium / Stressor	Narrative	Magnitude	Spatial Scale	Link to Source	Receptor	Narrative	Magnitude	Spatial Scale	Link to Stressor
		Surface Water					Pelagic				
Effluent, Terrestrial Inputs? →	Effluent discharge, Flooding →	TP, TKN, TOC, DOC	CREMP triggers were exceeded along with statistically significant increases compared to baseline/reference for nutrient parameters in WTS, A20, and/or MAM. Changes do not exceed FEIS predictions.	T, SD	2+	Moderate (see text) →	**Primary Production** [a]Phytoplankton biomass	Statistically significant increases in biomass above threshold effect sizes (50%) in flood zone lakes WTS and A20.	SD	2+	Strong
							[a]Phytoplankton taxa richness	No changes in richness.	0	N/A	N/A
							[d]Periphyton biomass	Seasonal growth on floating artificial substrate appears greater in WTS and A20 compared to reference lakes.	Qual	N/A	N/A
							[c]Effluent sub-lethal toxicity (algal growth inhibition)	No growth inhibition in the last EEM reporting cycle (2021).	0	N/A	N/A
							Secondary Production [c]Zooplankton sub-lethal toxicity (*Ceriodaphnia dubia*) [c]Zooplankton acute lethality (*Ceriodaphnia dubia, Daphnia magna*)	Targets for sublethal toxicity and acute lethality were met in the last EEM reporting cycle (*C. dubia*, 2021) and no mortality in annual acute lethality testing (*D. magna*, 2023).	0	N/A	N/A
							Fish [c]Sublethal toxicity (Fathead minnow) [c]Acute lethality (Fathead minnow, Rainbow trout)	Targets for sublethal toxicity and acute lethality were met in the last EEM reporting cycle (fathead minnow, 2021) and no mortality in annual acute lethality testing (rainbow trout, 2023).	0	N/A	N/A
							[d]Population metrics (e.g. relative abundance (CPUE), length frequency)	Small-bodied species appear present in WTS, A20, and MAM at rates (CPUE) and length-frequencies no lower than reference. CPUE for large-bodied species was greater in flood zone lakes compared to reference.	Qual	N/A	N/A

Associated monitoring program:

a	Core Receiving Environment Monitoring Program
b	Water Quality and Flow Monitoring
c	Effluent-Related Monitoring
d	Fish Habitat Offsets Monitoring
e	Groundwater Monitoring
f	WTHR and Quarries Water Quality Montoring
g	Mercury Monitoring Program
h	Blast Monitoring

Magnitude

0	No trigger exceedance
T	Exceeds early-warning trigger.
TT	Exceeds effects-based threshold.
SD	Statistically significant difference from baseline/reference
Qual	Qualitative assessment

Spatial Extent

1 - Occurs at one near-field sampling area only
2+ - Multiple near-field areas and/or mid-field areas
All - Extends to far-field areas

8.12.3.2.1.1 Source Evaluation[§]

As suggested in CREMP reports, the observed changes in nutrients are considered likely to be a result primarily of terrestrial inundation and to a lesser extent, effluent discharge. For WTS and Kangislulik Lake these activities may be summarized as:

- WTS:
    - Flooding occurred mainly in 2019. Water levels have been maintained in WTS with regular freshet-based fluctuations, until the present.
    - Effluent discharge to WTS has occurred as required since 2019 via the Whale Tail South diffusers.
- MAM/KAN:
    - Effluent discharge via the Kangislulik Lake diffusers has been ongoing as required since 2019.
    - WTS flooded waters, with allochthonous inputs due to inundation have flowed through the Whale Tail South Channel into MAM/KAN since 2020 (though pumping also occurred in fall 2019 prior to channel construction).

Changes in TOC and DOC are considered related to increased primary productivity and/or allochthonous carbon inputs (these parameters are often largely affected by flooding regimes (Youngil Kim, Sami Ullah, Tim R. Moore, Nigel T Roulet. 2014) and causality is not explored further here. While increases in N and TP were predicted in the FEIS (and results in 2023 did not exceed predictions), results for N and TP from other AEMP monitoring programs are reviewed here in comparison to the CREMP trigger to help confirm potential sources of nutrients to the receiving environment in 2023. While the CREMP triggers do not specifically apply to effluent, managed surface water, or seepage, available nutrient monitoring results for those sources are compared to CREMP triggers to determine the potential for a source to be contributing to the observed water quality changes in the receiving environment programs.

Managed Surface Water and Seepage

No monitored sources of managed non-contact water (e.g. diversion ditches) or seepage report directly to the receiving environment of WTS or Kangislulik Lake.

Effluent Monitoring

Effluent monitoring results (Section 8.3.2 and Section 8.5.3.2) indicate that all measured concentrations of TP were less than the CREMP trigger (0.0045 mg/L). While TKN is not measured in effluent, measured concentrations of nitrate (up to 5.64 m/L) in effluent exceeded the CREMP trigger (1.5 mg/L) in six of nine monitoring events, with discharge to both Kangislulik and WTS.

In all cases, EEM exposure area results in Kangislulik and Whale Tail Lakes were less than CREMP nutrient triggers.

These results suggest that effluent discharge may have had an impact on increasing concentrations of nutrients, primarily nitrogen-containing compounds, in the Whale Tail near-field lakes, as was predicted in the FEIS.

8.12.3.2.1.2 Exposure Evaluation§

Nitrogen compounds - TKN is one of four nitrogen-containing compounds measured through the CREMP. It is a composite parameter that includes both organic and inorganic forms including ammonia, nitrate, nitrite, and organic nitrogen compounds. While annual mean TKN exceeded its CREMP trigger (0.17 mg/L) in near-field lakes in 2023 (0.31 mg/L in WTS, 0.22 mg/L in A20, and 0.26 mg/L in KAN/MAM) , it does not have an effects-based threshold, so the changes are significant only in that they represent an increase compared to baseline/reference values. All three of the other nitrogen-containing compounds assessed through the CREMP have effects-based thresholds, and were measured below trigger values in 2023.

Total Phosphorus – Annual average total phosphorus was measured above the CREMP trigger (0.0045 mg/L) in WTS (0.0067 mg/L) and A20 (0.0051 mg/L) in 2023. This trigger represents the 95th centile of baseline concentrations, and FEIS water quality modeling indicated exceedances were predicted to occur. Concentrations remain below the CREMP adaptive management threshold of 0.01 mg/L, which is equivalent to the CCME upper limit of oligotrophic status. Changes to total phosphorus in 2023 also remained within FEIS impact predictions.

8.12.3.2.1.3 Effects Evaluation§

The potential for increased nutrient concentrations in downstream lakes to further impact primary productivity (and higher trophic levels) was predicted in the FEIS Addendum, though predicted changes were not quantified. Observed changes are summarized briefly here, incorporating results across all applicable AEMP programs.

Primary Production

Phytoplankton production is monitored annually through the CREMP. Though changes have only been statistically different from baseline/reference in some years and lakes, in general, an increase in phytoplankton biomass has been observed at the Whale Tail study lakes since mine-related influence began in 2019. In 2023, biomass was elevated compared to baseline at WTS, MAM/KAN, A20, and NEM, but changes were significant only for WTS and A20.

Periphyton growth in WTS was monitored through the Fish Habitat Offsets Monitoring Plan (Section 8.12.3.1.5) in 2022 and 2023. In both years, seasonal growth on artificial substrate samplers appeared greater in flood zone lakes compared to reference, with potentially greater growth in WTS compared to A20. This is in line with measured concentrations of total phosphorus, which were slightly higher in WTS than A20.

Potential inhibitory effects of effluent on algal growth are evaluated through the EEM program. While the last interpretive report was provided in 2021, no inhibition of algal growth was reported at that time. The next interpretive report will be available in 2024 and incorporated into the next AEMP evaluation.

As described in the 2023 CREMP Report (Appendix 26), since mining activity began, there has been a general correspondence between increases in nutrient levels at WTS, KAN/MAM, and A20 and increased phytoplankton biomass. According to the FEIS, phosphorus and nitrate levels are predicted to increase at both WTS and KAN/MAM until 2026, after which concentrations are predicted to decline. With these predicted increases in nutrients, phytoplankton biomass is expected to increase over the next three years of CREMP sampling.

Secondary Production

Mine-related impacts to zooplankton are only evaluated through EEM toxicity testing, since low statistical power has historically prohibited analysis through the CREMP. In the last EEM interpretive report (2021), all toxicity thresholds were met for zooplankton.

Fish

In the last EEM interpretive report (2021), all effluent toxicity thresholds were met for fish. Since no unanticipated exceedances of CREMP water quality triggers with effects-based thresholds have occurred, toxicity-related impacts are not anticipated to be negatively impacting higher trophic levels.

Changes in forage fish populations (primarily slimy sculpin) in WTS and Kangislulik Lake are monitored through a study under the Fish Habitat Offsetting Plan (2018 – 2021; C. Portt & Associates, 2018) and through the Fish Habitat Offsets Monitoring Plan (FHOMP; 2022 & 2023). Study results to date have confirmed the presence of small bodied fishes in newly created shoreline habitat at catch rates and size ranges that appear no lower than reference areas. The research study is expected to be completed in 2024, at which time full results will be available.

Changes in large-bodied fish (lake trout) in flood zone lakes are also monitored through the FHOMP. A gillnetting program in 2023 indicated potentially greater abundance of this species in flood zone lakes compared to reference lakes. The complete report is due to DFO in 2024, and full results will be available at that time.

8.12.3.2.1.4 Management Actions§

Based on results of CREMP sampling in 2023, the Level 0 (routine sampling) water management strategy is in effect for 2024 according to the Whale Tail Adaptive Management Plan. This is indicated since total phosphorus (and arsenic) at WTS and Kangislulik Lake are within normal operating ranges. Based on results of this AEMP analysis, no changes to adaptive management actions are planned at this time and trends in nutrients will continue to be tracked in 2024

8.12.3.2.2 Changes in Conventional Parameters, Major Ions, and TDS§

Similar to previous years and similar to the Meadowbank impact-area lakes, CREMP trigger values were exceeded along with statistically significant increases from baseline/reference values at near and mid-field areas WTS, A20, MAM/KAN, A76 and NEM for conventional parameters (alkalinity, conductivity, hardness), major ions (calcium, potassium, magnesium, sodium) and TDS. Importantly, none have effects-based thresholds, so changes are not expected to result in adverse effects to aquatic life. Nevertheless, causation is explored here through a review of other AEMP monitoring results.

No triggers are applicable to this variable group outside the CREMP, so Table 8-80 is restricted to that program.

Table 8-80 Summary of monitoring results across AEMP programs related to nutrients. No triggers are applicable to this variable group outside the CREMP. §

Stressor Variable Group: Conventional Parameters and Major Ions					
Program	**Magnitude**	**Spatial Scale**	**Temporal Trend**	**Causation**	**Uncertainty**
CREMP	1	Large	Stable/Increasing	High	?

Magnitude: n/a – not evaluated/no applicable trigger 0 – no exceedance 1 – early warning trigger exceeded, or change from baseline 2 – management threshold exceedance (or change from baseline exceeding magnitude of concern) Spatial Scale: n/a – no magnitude of effect, therefore not evaluated small – localized scale moderate – sub-basin to basin scale large – basin to whole lake scale	Temporal Trend Indicators: n/a – no magnitude of effect, therefore not evaluated Stable – no changes year-over-year Increasing – year-over-year increases Decreasing – year-over-year decreases Causation Ratings: n/a – no magnitude of effect, therefore not evaluated Low – no evidence for a mine-related source Moderate – some likelihood of a mine-related source High – the source of the problem is very likely to be mine-related Uncertainty Ratings (confidence in all other findings): ? – low uncertainty ?? – moderate uncertainty ??? – high uncertainty

The conceptual site model presented in Table 8-81 assists in understanding the possible linkages (i.e., effect to receptors from the source). As described in previous years, similar changes have been observed at the Meadowbank Mine, and it is likely that they are related to a combination of direct impacts of construction activities and inputs from dewatering and effluent discharge. All available monitoring results related to the identified potential sources/transport pathways, stressors, and receptors for 2023 are reviewed in text format below.

Table 8-81 Integrated conceptual site model for AEMP assessment of observed changes in conventional parameters, TDS and related ions at the Whale Tail Mine (2023 results unless indicated). §

Source	Transport Pathways	Exposure Media				Effects Measures				
		Medium Stressor	Narrative	Magnitude	Spatial Scale	Link to Source	Receptor	Narrative	Magnitude	Spatial Scale	Link to Stressor
		Surface Water					Pelagic				
Effluent, Managed Non-Contact Water/Runoff? →	Effluent discharge, runoff to surface water →	Conductivity, hardness, major ions, TDS	Near- and mid-field lakes WTS, A20, MAM, A76 and NEM have higher concentrations of dissolved solids and constituent major ions such as calcium and magnesium compared to baseline/reference conditions. While these changes are mine-related, they are not expected to result in adverse ecological effects.	T, SD	2+	Moderate (see text) →	**Primary Production** [a]Phytoplankton biomass	Statistically significant increases in biomass above threshold effect sizes (50%) in flood zone lakes WTS and A20.	SD	2+	Minor (see text)
							[a]Phytoplankton taxa richness	No changes in richness.	0	N/A	N/A
							[d]Periphyton biomass	Seasonal growth on floating artificial substrate appears greater in WTS and A20 compared to reference lakes.	Qual	N/A	N/A
							[c]Effluent sub-lethal toxicity (algal growth inhibition)	No growth inhibition in the last EEM reporting cycle (2021).	0	N/A	N/A
							Secondary Production [c]Zooplankton sub-lethal toxicity (*Ceriodaphnia dubia*) [c]Zooplankton acute lethality (*Ceriodaphnia dubia, Daphnia magna*)	Targets for sublethal toxicity and acute lethality were met in the last EEM reporting cycle (*C. dubia*, 2021) and no mortality in annual acute lethality testing (*D. magna*, 2023).	0	N/A	N/A
							Fish [c]Sublethal toxicity (Fathead minnow) [c]Acute lethality (Fathead minnow, Rainbow trout)	Targets for sublethal toxicity and acute lethality were met in the last EEM reporting cycle (fathead minnow, 2021) and no mortality in annual acute lethality testing (rainbow trout, 2023).	0	N/A	N/A
							[d]Population metrics (e.g. relative abundance (CPUE), length frequency)	Small-bodied species appear present in WTS, A20, and MAM at rates (CPUE) and length-frequencies no lower than reference. CPUE for large-bodied species was greater in flood zone lakes compared to reference.	Qual	N/A	N/A

Associated monitoring program:

a	Core Receiving Environment Monitoring Program
b	Water Quality and Flow Monitoring
c	Effluent-Related Monitoring
d	Fish Habitat Offsets Monitoring
e	Groundwater Monitoring
f	WTHR and Quarries Water Quality Montoring
g	Mercury Monitoring Program
h	Blast Monitoring

Magnitude

0	No trigger exceedance
T	Exceeds early-warning trigger.
TT	Exceeds effects-based threshold.
SD	Statistically significant difference from baseline/reference
Qual	Qualitative assessment

Spatial Extent

1 - Occurs at one near-field sampling area only
2+ - Multiple near-field areas and/or mid-field areas
All - Extends to far-field areas

8.12.3.2.2.1 Source Evaluation§

Conductivity is a composite variable that responds positively when concentrations of ionic compounds increase (e.g., chlorides, sulphates, carbonates, sodium, magnesium, calcium, potassium and metallic ions), so conductivity is used here to broadly assess potential causation of changes in those parameters because it is regularly measured across monitoring programs. While the CREMP conductivity trigger (48.6 µS/cm; set at the 95th centile of baseline data), does not specifically apply to effluent, managed surface water, or seepage results, it is used here to determine the potential for a source to be contributing to observations of water quality changes in the receiving environment programs.

Effluent Monitoring

WTS: Results of water chemistry analysis for effluent discharged to WTS (Section 8.3.2) indicated that conductivity in all five monitoring events (356 – 634 µS/cm) exceeded the CREMP trigger of 49 µS/cm.

MAM/KAN: Similarly, conducted for effluent discharged to Kangislulik Lake exceeded the CREMP trigger in all four monitoring events (235 - 506 µS/cm).

NEM: No effluent is discharged to Nemo Lake.

Managed Surface Water and Seepage Monitoring

WTS and MAM/KAN: No monitored sources of managed non-contact surface water (e.g. diversion ditches) or seepage report directly to the receiving environment of WTS or Kangislulik Lake.

NEM: Managed non-contact surface water is directed towards Nemo Lake via the IVR Diversion Channel. Water quality monitoring in 2023 indicated conductivity exceeded the CREMP trigger in five of six monitoring events, with concentrations ranging from 27 - 152 µS/cm.

Summary

Overall, these results support previous general conclusions that the observed changes are likely related to a combination of ongoing effluent discharge and water management activities (including non-contact water diversions and flooding), as well as potentially historic construction and dewatering activities.

8.12.3.2.2.2 Exposure Evaluation§

Annual average conductivity (tracked here as an indicator variable) in near- and mid-field lakes was measured at 129 µS/cm (WTS), 166 µS/cm (MAM/KAN), 92.6 µS/cm (NEM), 71.1 µS/cm (A20), and 99 µS/cm (A76). These results exceeded the CREMP trigger value (48.6 µS/cm) set at the 95th centile of baseline measurements and are statistically greater than baseline/reference in the BACI analysis. Conductivity and the related parameters in this group exceeding CREMP triggers in 2023 do not have effects-based thresholds (e.g. CCME water quality guidelines).

8.12.3.2.2.3 Effects Evaluation§

As described in the CREMP report, the parameters in this group with trigger exceedances in 2023 do not have effects-based thresholds (e.g., CCME water quality guidelines), so toxicity-related impacts are not

anticipated. Major ions are essential elements, and in oligotrophic freshwater lake environments adverse effects on primary producers and secondary consumers (e.g., zooplankton) are more commonly associated with major cation deficiency than enrichment. However, the observed increases in primary production are considered much more likely to be related to the measured increases in nutrient concentrations than this group of parameters.

These conclusions are supported through other monitoring results for pelagic species (phytoplankton, zooplankton, fish; reviewed in Section 8.12.3.2.1.3), which generally indicate apparent increases in the impacted lakes (likely related to changes in nutrient regimes) and no effluent-related toxicity for these groups.

8.12.3.2.2.4 Management Actions§

Overall, these trends are similar to those observed in the Meadowbank near-field CREMP lakes. Based on results of a review in 2019 (Appendix F of the 2023 CREMP Report), there is no evidence to suggest that measured concentrations of these parameters are resulting in adverse ecological effects. No changes in management actions are therefore planned as a result of this evaluation.

8.12.3.2.3 Changes in Lithium§

In 2019, concentrations of total lithium were measured approximately weekly during Mammoth Dike construction and results suggested that slightly elevated concentrations of lithium in WTS and/or MAM/KAN early in the 2019 season may have been caused by dike construction and WTN dewatering activities. This parameter has trended lower since that time, suggesting that the systems are stabilizing. In 2022 and 2023, the yearly mean concentrations of both total and dissolved lithium marginally exceeded the trigger concentration in WTS and/or MAM/KAN (total and dissolved lithium trigger = 0.0020 mg/L). Lithium does not have an effects-based threshold (CCME water quality guideline), but as discussed in the CREMP Report (Section 5.3.2 of Appendix 26), a USEPA factsheet reports no-observed effects concentrations for sub-lethal toxicity tests with a zooplankton and a fish at two to three times the order of magnitude measured at the Whale Tail Mine. Based on this and since no apparent negative impacts to lower trophic levels are identified (as discussed in Section 8.12.3.2.2), this trigger exceedance was not investigated further. Trends will continue to be monitored through the CREMP but no adaptive management actions are planned at this time beyond routine monitoring.

8.12.3.2.4 Changes in Chromium in WTS Sediment§

Sediment chemistry analysis on core samples occurs on a three-year cycle, and was conducted in 2023. Measured concentrations of arsenic, chromium, and copper exceeded CREMP triggers and were statistically greater than baseline/reference values in WTS, A20, and/or MAM/KAN. Trend analysis in the CREMP attributes changes in A20 (chromium, copper) and MAM/KAN (chromium, arsenic) to natural variability, because the majority of sample results remained within the range of baseline values, so those results are not discussed further here.

As described in the CREMP Report, concentrations of chromium at WTS were broadly within the range of baseline, but an increasing trend was observed suggesting changes may be mine-related. This would be similar to observations for the Meadowbank Mine following construction of the Bay Goose Dike using chromium-rich ultramafic rock (Section 8.12.2.2.1). Follow-up studies concluded that those changes did

not pose unacceptable risk to aquatic receptors (benthic invertebrates). Nevertheless, a review of this issue in the AEMP format is provided.

No triggers are applicable to this variable group outside the CREMP, so Table 8-82 is restricted to that program.

Table 8-82 Summary of monitoring results across AEMP programs related to chromium in sediment at Whale Tail lakes. No sediment chemistry analysis occurs outside the CREMP. §

Stressor Variable Group: Chromium in sediment					
Program	**Magnitude**	**Spatial Scale**	**Temporal Trend**	**Causation**	**Uncertainty**
CREMP	1	Small	Increasing	Moderate	??

Magnitude:
n/a – not evaluated/no applicable trigger
0 – no exceedance
1 – early warning trigger exceeded, or change from baseline
2 – management threshold exceedance (or change from baseline exceeding magnitude of concern)

Spatial Scale:
n/a – no magnitude of effect, therefore not evaluated
small – localized scale (trigger not exceeded at all sampling locations within a lake)
moderate – sub-basin to basin scale (some evidence of spatial changes)
large – basin to whole lake scale (evidence of widespread changes)

Temporal Trend Indicators:
n/a – no magnitude of effect, therefore not evaluated
Stable – no changes year-over-year
Increasing – year-over-year increases
Decreasing – year-over-year decreases

Causation Ratings:
n/a – no magnitude of effect, therefore not evaluated
Low – no evidence for a mine-related source
Moderate – some likelihood of a mine-related source
High – the source of the problem is very likely to be mine-related

Uncertainty Ratings (confidence in all other findings):
? – low uncertainty
?? – moderate uncertainty
??? – high uncertainty

The conceptual site model presented in Table 8-83 assists in understanding the possible linkages (i.e., effect to receptors from the source). All available 2023 monitoring results related to the identified potential sources/transport pathways, stressors, and receptors are reviewed in text format below.

Table 8-83 Integrated conceptual site model for AEMP assessment of observed changes in chromium in sediment at the Whale Tail Mine (2023 results unless indicated). §

Source	Transport Pathways	Exposure Media					Effects Measures				
		Medium / Stressor	Narrative	Magnitude	Spatial Scale	Link to Source	Receptor	Narrative	Magnitude	Spatial Scale	Link to Stressor
Dike construction? →	Settlement of TSS →	Sediments: Metals	The CREMP chromium trigger was exceeded with statistical increase from baseline/reference at WTS (and A20, MAM) in 2023. Similar results were observed at Meadowbank after dike construction and did not pose unacceptable risks to benthos.	T/SD	2+	Moderate (see text)	Benthic: Primary Production [d]Periphyton biomass	Visual evidence of growth on submerged substrate with characterisics similar to reference.	Qual	N/A	N/A
							Secondary Production [a]Benthic invertebrate abundance & richness	Statistically significant increases in abundance and richness compared to baseline/reference occrred for WTS, MAM (and/or NEM), but likely not mine-related.	SD	2+	None

Associated monitoring program:

a	Core Receiving Environment Monitoring Program
b	Water Quality and Flow Monitoring
c	Effluent-Related Monitoring
d	Fish Habitat Offsets Monitoring
e	Groundwater Monitoring
f	WTHR and Quarries Water Quality Montoring
g	Mercury Monitoring Program
h	Blast Monitoring

Magnitude	
0	No trigger exceedance
T	Exceeds early-warning trigger.
TT	Exceeds effects-based threshold.
SD	Statistically significant difference from baseline/reference
Qual	Qualitative assessment

Spatial Extent
1 - Occurs at one near-field sampling area only
2+ - Multiple near-field areas and/or mid-field areas
All - Extends to far-field areas

8.12.3.2.4.1 Source Evaluation[§]

Since the CREMP interpretation indicates the source of chromium changes in WTS may be mine related, a review of potential influences (chromium results in other aquatic monitoring programs) was conducted here. However, it is expected that the strength of the association with mine activity will be better determined through ongoing sediment monitoring (e.g. grab samples to be collected in 2024), and the source evaluation will be further reviewed at that time.

Effluent Monitoring – Chromium concentrations in attenuation pond effluent discharged to WTS (and Kangislulik Lake) have never historically exceeded NWB/MDMER limits at the Whale Tail Mine (Section 8.5.3.2.15).

Managed Surface Water and Seepage - No monitored sources of managed non-contact water (e.g. diversion ditches) or seepage report directly to the receiving environment of WTS.

Dike Construction - Since neither effluent nor managed surface water are apparent sources of chromium to receiving aquatic environments, and based on the Meadowbank experience, a review of information that could help to determine whether dike construction was the source of increased chromium concentrations was initiated (examination of TSS and chromium measured during dike construction and dewatering, as reported in the 2018, 2019, and 2020 *Water Quality Monitoring for Dike Construction and Dewatering Reports*).

In-water construction of the Whale Tail Dike occurred from July 27 – August 27, 2018, and monitoring for related construction activities continued from January – February, 2019. In-water construction of Mammoth Dike began on February 15 and was completed on March 17, 2019 (in ice). Prior to Whale Tail Dike construction, three turbidity curtains were installed on the south side of the dike. As a supplementary measure to protect fish remaining in the impounded Whale Tail North Basin during the fish-out, two turbidity curtains were also deployed prior to the start of the construction on the north side of the dike. Results of water quality monitoring during dike construction are compared to NWB Type A Water License criteria for TSS/turbidity. Monitoring occurred in four general areas; north and south of turbidity curtains, as well as broad survey locations in Whale Tail Lake (South Basin) and Kangislulik Lake. All monitoring results for all stations were within NWB Water License criteria for TSS. Measured concentrations of total and dissolved chromium did exceed the CCME WQG in some portion of water quality samples in the impounded area of WTN in 2018, but not in the receiving environment of WTS or Kangislulik Lake. All results in 2019 were below detection limits for chromium.

Dewatering of Whale Tail Lake – North Basin began on March 5, 2019, and continued into 2020. Dewatering discharge monitoring results indicated four isolated incidents (all in 2019) when individual TSS or turbidity concentrations exceeded NWB Type A Water License criteria for the short-term maximum (STM). The Maximum Monthly Mean (MMM) was not exceeded for any parameter. Receiving environment samples for dewatering were all within CCME WQG for TSS. Dewatering of the IVR area waterbodies to WTS (via A53) occurred in 2020. In this dewatering discharge, no exceedances of NWB Type A Water License criteria (TSS) occurred for the STM or MMM, and all receiving environment results were within CCME WQG for TSS. Chromium was not required to be measured in dewatering discharge or in the receiving environment in relation to dewatering.

Overall these results suggest that dike construction and/or dewatering activities may have had some association with the observed changes in chromium in sediment (as discussed in the 2023 CREMP Report), but since TSS generally remained within license limits throughout these construction activities,

there is still considerable uncertainty in this source link, and results will be further reviewed after the next sampling season..

8.12.3.2.4.2 Exposure Evaluation§

As described in the CREMP Report, concentrations of chromium in sediment at WTS were measured at 71 – 184 mg/kg dw. Of the ten samples collected, six exceeded the CREMP trigger (80.6 mg/kg), which was set according to baseline data in this area.

8.12.3.2.4.3 Effects Evaluation§

As shown in Table 8-83, monitoring of sediment-associated receptors in 2023 for the WTS location consisted of benthic invertebrate community sampling conducted through the CREMP, and visual assessments of periphyton growth in shoreline areas recently (2019) submerged through flooding. Overall no changes in receptor metrics were identified that would be indicative of chromium-associated toxicity.

Visual assessments of periphyton growth in newly flooded shoreline areas as part of the FHOMP study identified a wide range of periphyton cover conditions across both WTS/A20 and reference lakes, from no coverage to >75% coverage. Where present, periphyton thickness, evenness, and texture in flood-zone lakes was visually estimated to be similar to or approaching that of reference areas, despite having only been submerged for four years.

Benthic invertebrate evaluations in 2023 showed statistically significant increases in abundance at MAM/KAN and WTS across some or all time periods (including 2023) compared to baseline/reference. Significant increases in benthic invertebrate taxa richness also occurred at MAM/KAN and A20. Based on observed regional trends and trends in nutrients (e.g. no changes in sediment TOC), it was concluded that these changes in benthic invertebrate communities are most likely due to natural variability, and are not mine-related. It is also noted that similar increases in sediment-associated chromium were observed at Meadowbank's TPE related to dike construction, but it was concluded that the changes did not pose unacceptable risks to benthic invertebrates (see Section 8.12.2.2.1).

8.12.3.2.4.4 Management Actions§

As described in the 2023 CREMP Report, the 2023 sediment chemistry results from Whale Tail area lakes do not require additional management actions as per the CREMP Plan Update. No changes to this action plan are proposed based on results of this AEMP analysis. Routine sediment grabs will be collected and analyzed for chemistry in 2024 to track emerging spatial and temporal trends.

8.13 NOISE MONITORING

8.13.1 Meadowbank Site

As required by NIRB Project Certificate No.004 Condition 62: ***Cumberland shall develop and implement a noise abatement plan to protect people and wildlife from significant mine activity noise, including blasting, drilling, equipment, vehicles and aircraft. The noise abatement plan will be developed in consultation with Elders, GN, HC, and EC.***

The 2023 noise monitoring program at the Meadowbank Mine was conducted according to the Noise Monitoring and Abatement Plan (Version 4, December 2018). Complete results of the program are provided in Appendix 41 (2023 Noise Monitoring Report), and summarized below.

The objective of this program is to measure noise levels at five previously determined monitoring locations around the Meadowbank Site (R1 – R5), over at least two 24 h periods. Since high winds in the area tend to substantially reduce the quantity of available valid data, Agnico Eagle aims to conduct a minimum of two monitoring events of two to four days per station to fulfill monitoring objectives. In 2023, two surveys or more successful surveys were performed at all stations.

After data processing in keeping with standard methods (Alberta Energy Resource Conservation Board Directive 038), monitoring results collected under specified weather conditions are compared to the site's daytime target sound level (55 dBA), nighttime target sound level (45 dBA), and FEIS predictions (Cumberland, 2005).

Final daytime, night-time, and 24 h L_{eq} values calculated from recorded 1-min L_{eq} values for each monitoring event and station are shown in Table 8-84. All monitoring results met the daytime design targets. For one survey at station R2, the night-time design target of 45 dBA was exceeded (49.1 dBA). This occurred due to a temporary construction activity (runway re-surfacing) that was ongoing during night shift, approximately 600 m from the monitoring station. The night-time design target was met for all other surveys and monitoring stations. For one of the two surveys at station R5, two hourly L_{eq} values (August 8, 3 & 4 pm - 58 dBA, 62 dBA) marginally exceeded the FEIS-predicted maximum (57 dBA) for this location. This was caused by two brief (<2 minute) helicopter fly-overs. Helicopters were not included in FEIS noise modelling since they are occasional occurrences. Helicopters may also be related to exploration activities, rather than operations. Results for all other surveys and monitoring stations were less than FEIS predictions. Historical comparisons indicate no clear trends towards increasing sound levels. Overall, target sound levels and FEIS impact predictions are rarely exceeded site-wide.

No human receptors (e.g. cabins) are located in the vicinity of noise monitoring stations, and no noise-related complaints have been received to date. Impacts of sensory disturbance on wildlife are determined separately through the Terrestrial Ecosystem Monitoring Plan (TEMP), and reported annually in the Wildlife Monitoring Summary Report.

Noise monitoring occurs annually, and will continue in 2024 according to the Noise Monitoring and Abatement Plan (Version 4, December 2018), or most recent version at the time.

Table 8-84 Design targets, FEIS predictions, and measured daytime, night-time, and 24-h Leq values for monitoring locations R1 – R5 in 2023. Monitoring periods with insufficient valid data due to specified weather conditions are indicated (-). *R5 values are max. 1-h Leq. Values exceeding targets are in bold. ^While FEIS predictions were exceeded in one event at R5, this was caused by helicopter fly-overs, which were not part of Cumberland (2005) noise models since they are infrequent occurrences.

Monitoring Station and Start Date		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		*FEIS Prediction (dBA)*	$L_{eq, 24h}$ (dBA)
		Design Target	Measured Value	*Design Target*	Measured Value		
R1	1: 06/27	*55*	33.5	*45*	33.7	*58 - 63*	33.6
	2: 08/02		43.3		38.4		42.3
	3: 09/06		41.5		36.9		40.5
R2	1: 07/09	*55*	44.8	*45*	**49.1**	*58 - 63*	46.7
	2: 08/08		51.5		37.7		49.6
R3	1: 07/25	*55*	43.5	*45*	33.8	*49 - 53*	42.0
	2: 08/15		-		25.0		-
	3: 09/06		42.9		37.2		41.4
R4	1: 07/17	*55*	34.7	*45*	32.8	*58 - 63*	33.4
	2: 08/11		39.8		37.3		39.3
R5	1: 07/01	*55*	39.8	*45*	-	*1 h L_{eqs} < 57*	43.7*
	2: 08/08		49.1		44.7		**(61.6)*^**

8.13.2 Whale Tail Site

As required by NIRB Project Certificate No.008 Condition 5: ***Result of all noise monitoring undertaken by the Proponent shall be provided to the Nunavut Impact Review Board on an annual basis. The Proponent shall:***

> ***a) Conduct noise monitoring at least once during each phase of the Project at four (4) locations in the vicinity of the Whale Tail Pit Project and at two (2) locations along the haul road to demonstrate that noise levels remain within predicted levels for all Project areas; and***
>
> ***b) If monitoring identifies an exceedance, the Proponent shall provide an explanation for the exceedance, a description of planned mitigation, and shall conduct additional monitoring to evaluate the effectiveness of mitigative measures.***

The 2023 noise monitoring program at the Whale Tail Mine was conducted according to the Noise Monitoring and Abatement Plan (Version 4, December 2018). Complete results of the program are provided in Appendix 41 (2023 Noise Monitoring Report) and summarized below.

The objective of this program is to measure noise levels at six previously determined monitoring locations around the Whale Tail Mine and Haul Road (R6 – R11), over at least two 24 h periods annually. One additional far field station at the Whale Tail Mine Local Study Area boundary (R12) is also surveyed periodically. Since high winds in the area tend to substantially reduce the quantity of available valid data, Agnico Eagle aims to conduct a minimum of two monitoring events of two to four days per station to fulfill monitoring objectives.

After data processing in keeping with standard methods (Alberta Energy Resource Conservation Board Directive 038), monitoring results collected under specified weather conditions are compared to the site's daytime target sound level (55 dBA), nighttime target sound level (45 dBA), and FEIS Addendum predictions (Agnico Eagle, 2018).

Final daytime, night-time, and 24 h L_{eq} values calculated from recorded 1-min L_{eq} values for each monitoring event and station are shown in Table 8-85. Results for all surveys were less than the site's daytime design target (55 dBA), night-time design target (45 dBA) and FEIS prediction.

Historical comparisons indicate no clear trends towards increasing sound levels, and FEIS impact predictions have not been exceeded to date.

No human receptors (e.g. cabins) are located in the vicinity of noise monitoring stations, and no noise-related complaints have been received to date. Impacts of sensory disturbance on wildlife are determined separately through the Terrestrial Ecosystem Monitoring Plan (TEMP), and reported annually in the Wildlife Monitoring Summary Report.

Noise monitoring occurs annually, and will continue in 2024 according to the Noise Monitoring and Abatement Plan (Version 4, December 2018), or most recent version at the time.

Table 8-85. Design targets, permissible sound levels (PSL), FEIS predictions, and measured daytime, night-time, and 24-h Leq values for near-field monitoring locations R6 – R11 and far-field monitoring location R12 in 2023. Monitoring periods with insufficient valid data due to specified weather conditions are indicated (-). No values exceeded the relevant design target, PSL, or FEIS prediction for that location.

Monitoring Station and Start Date		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		*FEIS Prediction* (dBA)	$L_{eq, 24h}$ (dBA)
		Design Target	Measured Value	*Design Target*	Measured Value		
R6	1: 07/24	*55*	37.3	*45*	29.5	*40.5 - 42.5*	35.4
	2: 08/11		40.3		39.5		40.0
R7	1: 07/19	*55*	37.3	*45*	38.2	*36.2 - 40.4*	37.8
	2: 07/29		28.6		33.8		31.1
R8a	1: 06/28	*55*	38.8	*45*	36.6	*36.2 – 40.4*	38.2
	2: 08/17		23.7		19.7		22.7
R9a	1: 07/09	*55*	34.1	*45*	40.2	*40.4 - 45.1*	37.2
	2: 08/17		29.8		32.1		30.7
R10a	1: 07/14	*55*	34.0	*45*	32.2	*36.2 – 40.4*	33.5
	2: 08/03		32.4		30.6		31.8
R11a	1: 07/14	*55*	37.9	*45*	36.7	*45.1 – 50.0*	37.5
	2: 08/24		37.1		41.1		38.8
Monitoring Station and Start Date		**$L_{eq, day}$ (dBA)**		**$L_{eq, night}$ (dBA)**		***FEIS Prediction* (dBA)**	**$L_{eq, 24h}$ (dBA)**
		PSL	**Measured Value**	***PSL***	**Measured Value**		
R12	1: 07/02	*50*	-	*40*	31.8	*<35*	-

8.13.3 Meadowbank and Whale Tail Human Health Noise

In response to comments from Health Canada, monitoring indoor noise levels at off-duty worker locations to characterize potential exposure was scheduled to be completed in 2023 however due to operational constraints the sampling was completed in January 2024. The objective of this monitoring was to assess indoor sound levels, particularly in sleeping quarters.

While the Mine Health and Safety Act and its regulations do not mandate the understanding and mitigation of noise exposure during off-duty periods, Meadowbank management prioritizes the control and reduction of noise exposure within its worksites. This commitment is integral to our Hearing Conservation Program, which applies to all employees of Agnico Eagle and contracted personnel. Agnico Eagle conducts noise sampling throughout our operations and work areas to establish baselines and ensure proper mitigation measures are implemented in accordance with Nunavut Regulations. As Agnico Eagle recognizes that the noises in the sleeping headquarters can have an impact on the wellness of their employees, sampling was completed in the dorms.

Several jurisdictions as well as scientific and research committees have suggested guidelines for community noise, recommending outdoor and indoor noise level limits for day and night. Examples of some of these guidelines have been summarized in Table 8-86 below.

Table 8-86. Summary of select community noise guidelines.[7]

Time of day	Location	Guidelines (dBA)			
		Global	USA		Canada
		WHO	EPA	NIOSH	Health Canada
Daytime	Outdoors	55	55	50	55
	Indoors	35	45	40	
Nighttime	Outdoors	40	55	55	45
	Indoors	30	35	35	

Noise surveys were conducted in six rooms (Table 8-87 and 8-88) from January 15th to 31st, 2024, using a Larson Davis LXT integrating sound level meter logging at 10s intervals for approximately 24-hour period. The monitor was placed approximately 1 m from the ground and at least 1 m away from the window.

Table 8-87. Sampling locations, dates and other characteristics

Location	ID	Room	Rationale (Proximity to noise source)	Start date/time	End date/time
Whale Tail	D1	1623	Indoor heating system, light traffic, blizzard	2024-01-15 08:07 AM	2024-01-15 07:41 PM
	D2	1638	Road / light traffic	2024-01-16 08:15 AM	2024-01-17 07:07 AM
Meadowbank	D3	117	Door to smoke shack, busy corridor/intersection	2024-01-28 04:34 PM	2024-01-29 07:06 AM
	D4	830	Airport & gym	2024-01-29 09:30 AM	2024-01-30 05:33 AM
	D5	703	Road / light traffic	2024-01-30 09:11 AM	2024-01-31 08:53 AM
	D6	230	Mill, light traffic	2024-01-31 08:56 AM	2024-02-01 07:58 AM

[7] WHO = World health organization, EPA = Environmental Protection Agency, NIOSH = National Institute of Occupational Safety and Health.

Since the acoustic characteristics of the rooms were not assessed, LAeq was used. The overall LAeq metric was adjusted, i.e. data points collected within the first and last 30 minutes were filtered out to remove noise generated during device setup and removal.

The monitoring period was broken down into three distinct time periods: Day, defined as the period from 5 am to 5 pm; Evening, defined as the period from 5 pm to 9 pm; and Night, defined as the period from 9 pm to 5 am. This follows the residential schedule, where wake-up time is typically 5 am and sleep hours are from 9 pm to 5 am. LAeq was recalculated for each of these time periods. In addition to the above metrics, the number of times sound levels exceeded 55dB for each time period was also noted to understand the frequency of noise events exceedances.

Background noise levels, LA90 and LA10 (indicating the noise levels exceeded 90% and 10% of the time, respectively) were also collected and reported without adjustment. They provide a good indication of the ambient noise levels present in the room most of the time.

Table 8-88 presents the noise levels measured in the six rooms (D1 to D6) in dBA units. The table includes the adjusted LAeq (overall and for day, evening and night), the LAmax for each room and the LA90 and LA10 values.

Table 8-88. Summary findings from the measured rooms (D1-D6)

Room	LAeq	Background		Day (LAeq)	Evening (LAeq)	Night (LAeq)
		LA90	LA10	5am – 5pm	5pm – 9pm	9pm – 5am
D1	39.5	32.1	42.7	38.8	41.5	
D2	32.8	30.9	32.6	32.8	32.7	32.7
D3	34.0	30.4	32.8	33.4	36.4	32.1
D4	32.5	28.8	30.8	32.3	35.2	30.3
D5	34.9	32.6	33.8	36.2	33.5	33.0
D6	31.4	30.2	31.1	31.9	31.2	30.6

Overall, the LAeq values ranged from 31.4 dBA to 39.5 dBA. The background noise levels were between 28.8 dBA and 32.6 dBA, suggesting a generally quiet environment in the measured rooms. The LA90 values ranged from 30.2 dBA to 32.6 dBA, and the LA10 values ranged from 30.3 dBA to 42.7 dBA.

During the assessment, the number of times the maximum noise levels exceeded 55dBA was recorded. Agnico Eagle found that each room had one exceedance during the day and three out of five rooms (D2, D3 & D4) had one exceedance during the night. Two rooms (D5 & D6) had no exceedance at all during the night. All the other observed exceedances occurred between 5pm to 9pm or during the first/last 30 minutes of the monitoring. Overall, the results indicate that the ambient noise levels in the measured rooms were low, with higher noise levels generally observed during the evening periods.

The results show varying ambient noise levels in the measured rooms, with room D1 showing the highest noise levels. The outcome observed in D1 was likely due to the active blizzard conditions at time of sampling.

The room's acoustic characteristics were not investigated (e.g. potential for reverberation etc.). Specifics that could explain any noise exceedances or factors that could contribute to noise levels, such as mining operations, possible road traffic, off-duty workers occupying neighboring rooms, neighboring washrooms, housekeeping activities in the wings, and noise from laundry machines, fans, air conditioners, or other

ventilation systems, were not noted as we were not present in the rooms throughout the monitoring period.

Nevertheless, the results provide valuable insights into the noise levels within the residential wings during different times of the day highlighting the need to continue keeping noise levels down within the wings to protect the health and well-being of workers.

Overall, the findings indicated generally low ambient noise levels in the measured rooms during the designated sleep hours (day & night). Comparison with established guidelines other than those recommended by the World Health Organization, showed that all rooms had all daytime and nighttime noise levels below the specified limits.

The results confirm that the wellbeing of employees in the sleeping quarters is assured by adherence of the Noise Policy. At this moment, the Agnico Eagle Meadowbank Complex will not implement additional measures than those already in place.

Agnico Eagle Meadowbank Complex has strict policies in the residential wings restricting noisy activities during designated ‘sleep’ hours with a noise curfew in effect from 9 am to 5 pm and from 9 pm to 5 am. The following rules and regulations have been established to respect and promote the health and well being of coworkers;

- No one is to wander in the wings or go back to their room while on working duty without a good or valid reason
- Bring all useful belongings with you at the beginning of your shift to refrain from going back to your room during the day
- Refrain from talking loud in the wings at all times
- Move with delicacy while in your room and try to avoid making any useless clatter.
- Phone calls can be made in rooms between 5pm and 9pm. Phone calls outside of this designated time slot, need to be done outside the wings (recreation room, lounge, cafeteria, hallways, etc.)
- Minimize the sound levels of your television and your music

Disciplinary measures will be given to anyone not respecting these simple rules and disturbing co-workers in their sleep. Any complaint made for not respecting the policy will fall under «being disrespectful to a co-worker».

Complaints are recorded and forwarded to HR/Security for appropriate action, ensuring a timely response to all complaints, that can lead to disciplinary measures.

In 2023, the Health and Safety Department improved their hearing protection program by introducing molded ear plugs for Employees at Agnico Eagle’s expense. Employees can select molded ear plugs for their workplace as well as a pair of sleeping molded earplugs to enhance their sleeping experience.

These custom-fit ear plugs are designed to effectively reduce noise levels, provide added comfort during rest periods, and help individuals sleep better if they feel the environment is still too noisy.

8.14 AIR QUALITY MONITORING

8.14.1 Meadowbank Site

As required by NIRB Project Certificate No.004 Condition 71*: In consultation with EC, install and fund an atmospheric monitoring station to focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported annually to NIRB.*

And

As required by NIRB Project Certificate No.004 Condition 74*: shall employ environmentally protective method to suppress any surface road dust.*

The 2023 air quality and dustfall monitoring program at the Meadowbank Mine was conducted according to the Air Quality and Dustfall Monitoring Plan, Version 6 (March 2022). The objective of this program is to measure dustfall, NO2, and suspended particulates (TSP, PM10, PM2.5) at various monitoring locations around the Meadowbank Mine and All-Weather Access Road (AWAR).

Results obtained for the measured parameters in 2023 were primarily compared to Government of Nunavut (GN) Environmental Guidelines for Ambient Air Quality (October, 2011) and/or Canadian Ambient Air Quality Standards (CAAQS) for TSP, PM2.5 and NO2 (2020/2025); BC Air Quality Objectives (November, 2021) for PM10; Alberta Ambient Air Quality Guidelines (January, 2019) for passive dustfall, and to relevant model predictions from the Project's Final Environmental Impact Statement (Cumberland, 2005). Results for AWAR dustfall monitoring are also compared to management thresholds established in the Air Quality and Dustfall Monitoring Plan, Version 6 (March, 2022).

The complete report is provided as Appendix 42, and monitoring results are summarized below for the Meadowbank Mine and AWAR. Community concerns and dust mitigation measures are also highlighted.

8.14.1.1 *Community Concerns*

As described in the Air Quality and Dustfall Monitoring Plan, Agnico Eagle records community concerns that are raised with regards to dust generated by traffic on the AWAR and Whale Tail Haul Road. In 2023, no specific comments or complaints were received on this topic by the Meadowbank Environment Department, but Agnico Eagle continues to work with the community of Baker Lake to better understand and mitigate concerns around road dust. In response to the NIRB's 2019-2020 Recommendations, Agnico Eagle began the development of a community-based dustfall monitoring program in 2022. Meetings were held with the Hamlet Council and BLHTO. In August 2022, a berry picking session was held with two harvesters to collect IQ and listen to the experiences of these individuals, to assist Agnico Eagle in better mitigating potential effects of dust. In 2023, Agnico Eagle continued to collaborate with the community to identify areas of concern for road dust. In early September, Agnico Eagle had an open public session on the AWAR. The day after, a bus tour took 16 interested elders along the AWAR to locate and note where dust suppressant had been added on the road. Elders noticed the difference between the areas with and without dust suppressant. Agnico Eagle will continue in 2024 to investigate alternative dust mitigation measures and is committed to continue consultation with the community.

8.14.1.2 *On-Site Dust Mitigation and Air Quality Monitoring*

Dust mitigation for the Meadowbank Mine was carried out in 2023 according to the Air Quality and Dustfall Monitoring Plan (Version 6, March 2022). Watering was conducted regularly for mine site roads and the airstrip, as conditions required.

For all Meadowbank Mine air quality monitoring stations and parameters (suspended particulates, NO_2, dustfall), the vast majority of measurements were below relevant short-term regulatory guidelines or monitoring thresholds (24-h or 30-d). Across 300 samples for suspended particulates at the two Meadowbank monitoring stations, three results exceeded the relevant 24-h guideline in 2023 (two for TSP and one for PM_{10} – historical results for these parameters are shown in Figure 18-19). All onsite monitoring results for dustfall met the management threshold, which is equivalent to the Alberta Environment regulatory guideline for industrial areas (30 d average). For relevant parameters (TSP, $PM_{2.5}$, NO_2), regulatory guidelines for annual averaging times were also met.

Overall, there are no apparent trends towards increasing air quality concerns for these locations.

Figure 18 Historical 24-h average concentrations of total suspended particulates (TSP) at Meadowbank Mine monitoring stations DF-1 and DF-2. Dashed line indicates the 24-hr average GN guideline for ambient air quality.

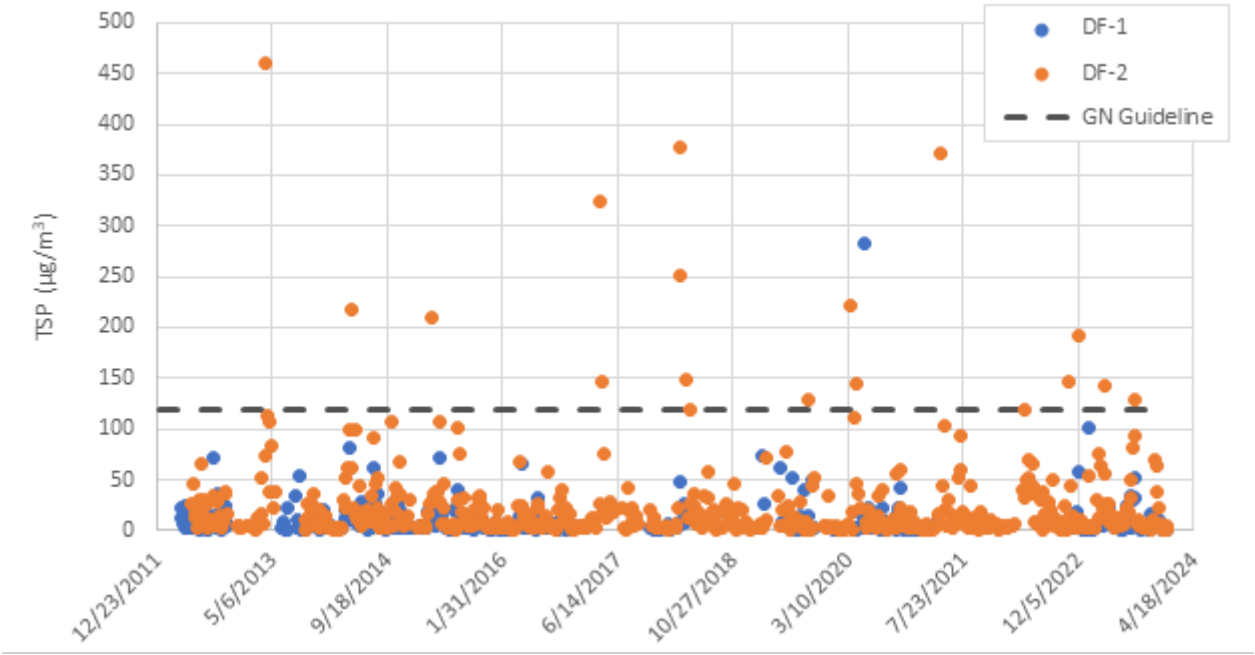
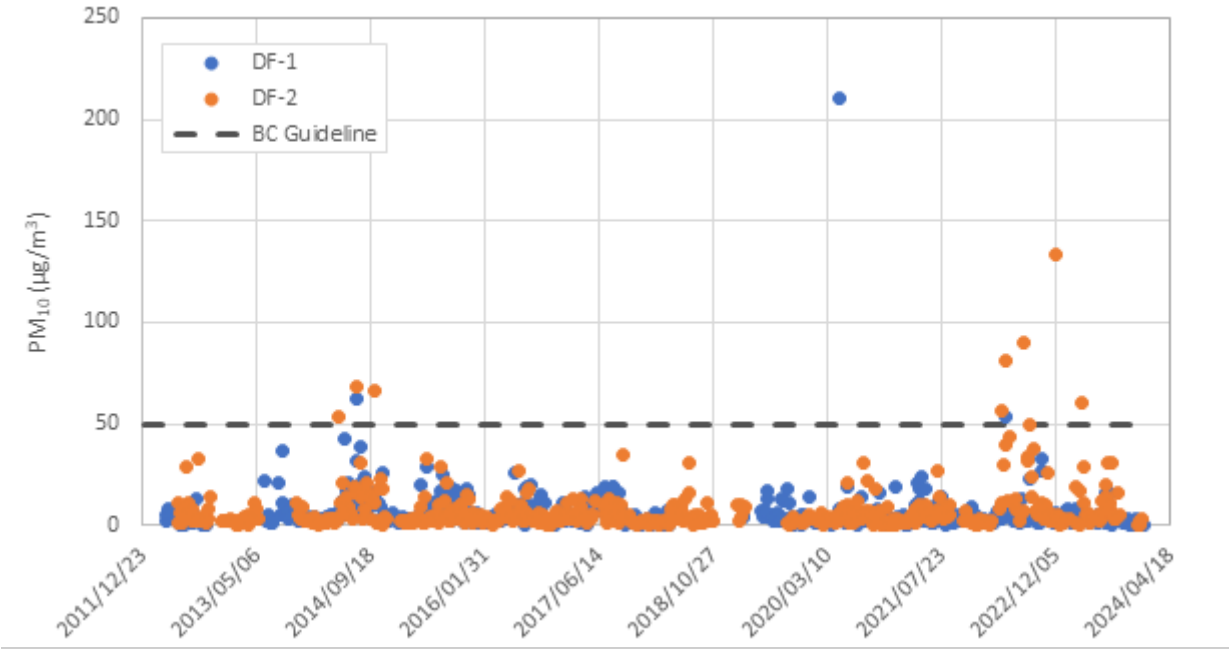


Figure 19. Historical 24-h average concentration of PM10 at Meadowbank Mine monitoring stations DF-1 and DF-2. Dashed line indicates the BC Air Quality Objective for this parameter. *Note: A fire in close proximity to the monitoring station is expected to have caused the observed spikes in 2022.*



8.14.1.3 *AWAR Dust Mitigation and Dustfall Monitoring*

According to the Air Quality and Dustfall Monitoring Plan (Version 6, March 2022), a calcium chloride dust suppressant is planned to be applied once or twice (based on visual inspection) during the summer season on five specified sections of the AWAR, two locations in Baker Lake, and one onsite location (Table 8-89). Between May 13 – August 17, 2023, dust suppressant in the form of calcium chloride (dry flake product) was applied at least once or twice to the required sections. Beyond these locations identified in the Air Quality and Dustfall Monitoring Plan, calcium chloride dry flake product was also applied on various road sections between the hamlet of Baker Lake and km 10 (multiple time points in June and August), and all the way from km 0 to km 20 (as a high traffic area near the hamlet) in mid-August, 2023. In total, more than 226 bags (1000 kg each) were applied on the AWAR in 2023. In addition to calcium chloride dry flake product, water was applied at various locations along the AWAR between May 13 and August 17, totalling approximately 637 m^3.

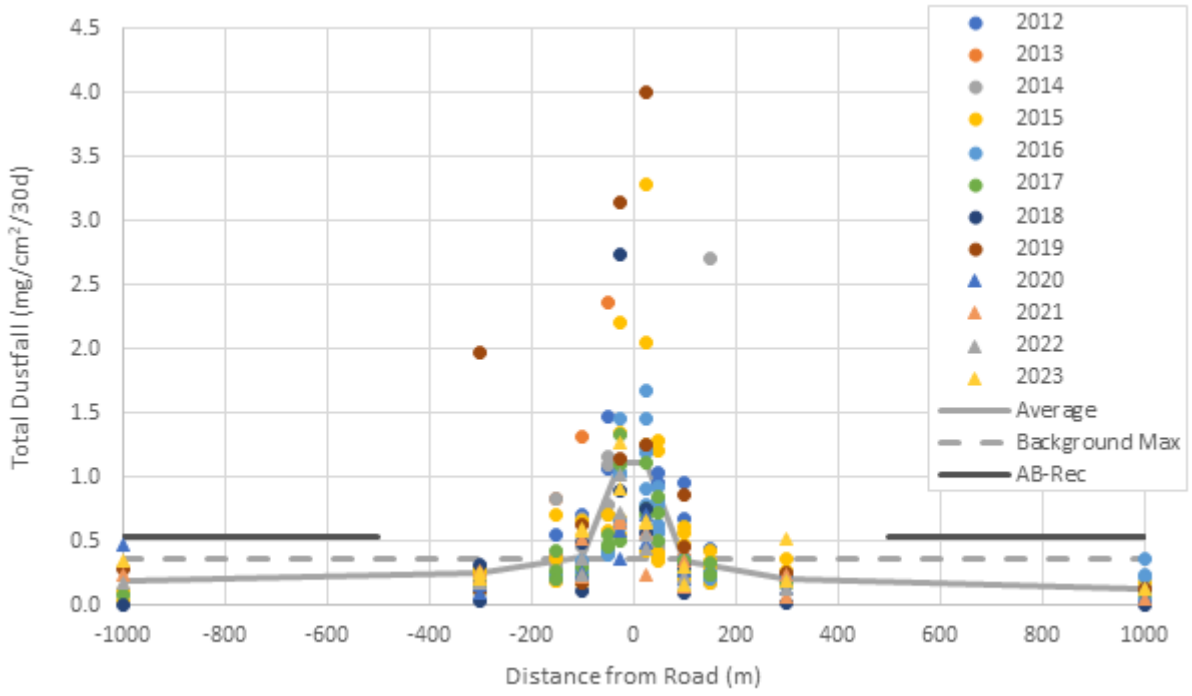
Dustfall monitoring was conducted in July – September 2023 at two locations along the AWAR in locations without dust suppression. For both transects, the established dust management threshold was met (0.53 mg/cm^2/30 d at 500+m from the road) in all three monitoring events. Historical dustfall results for these locations along with the management threshold are shown in Figure 20.

Table 8-89. Dust suppressant locations along the Meadowbank AWAR in 2023, as described in the Air Quality Monitoring Plan. Italics indicate supplemental dust suppression locations in 2023, over and above the plan requirements.

Location Type	Dust Suppression Location	Rationale	# 1000 kg Bags Applied
Hamlet	Agnico Eagle spud barge area	High traffic area near hamlet	(not recorded)
Hamlet	Agnico Eagle tank farm to Arctic Fuel site	High traffic area near hamlet	7

Hamlet	*Gatehouse to Baker Lake*	*High traffic area near hamlet*	*66*
AWAR	*km 10 – Gatehouse*	*High traffic area near hamlet*	*31*
AWAR	*km 10 - 20*	*High traffic area near hamlet*	*(not recorded)*
AWAR	km 10 - 12	High traffic area near hamlet & area of concern to HTO – proximity to lake	6
AWAR	km 24 – 26 (27)	Area of concern to HTO – proximity to lake	20
AWAR	*km 35, 37 - 39*	*New since 2021 (road design and surface stability; safety)*	*40*
AWAR	km 48 - 50	Area of concern to HTO – water crossing	(not recorded)
AWAR	km 68 - 70	Location identified by Agnico Eagle – water crossing	(not recorded)
AWAR	km 80 – 84	Location identified by Agnico Eagle – proximity to water & crossing	12
AWAR	*km 91 - 93*	*New since 2020 (safety considerations)*	*12*
Onsite	Emulsion plant road and km 104 - 106	High traffic area onsite	32

Figure 20. Total dustfall rates (mg/cm²/30d) for all samples collected since 2012 (August sampling events) along the Meadowbank AWAR in areas without dust suppression. Negative distances represent the downwind (east) side of the road, and positive distances represent the upwind (west) side.



8.14.2 Whale Tail Site

As required by NIRB Project Certificate No.008 Condition 1*: The Proponent shall:*

- ***a) Develop and implement an Air Quality Monitoring and Management Plan that includes clear objectives and that specifies air quality monitoring thresholds that will trigger adaptive management responses and actions;***
- ***b) In the implementation of the Plan, the Proponent shall demonstrate through active and passive monitoring of dustfall, for criteria air contaminant concentrations, incinerator stack testing, and***

vegetation, soil and snow chemistry sampling that dustfall and emissions of carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), sulphur dioxide (SO2), suspended particulate matter, mercury, dioxins and furans, and other chemicals remain within predicted levels and, where applicable, within levels or limits established by all applicable guidelines and regulations;

c) ***The Proponent shall ensure continuous NO2 monitoring is undertaken downwind of mining activities to allow for comparison to relevant standards including the Canadian Ambient Air Quality Standards;***
d) ***If exceedances occur, the Proponent shall provide an explanation for the exceedance, a description of planned mitigation, and shall conduct additional monitoring to evaluate the effectiveness of mitigative measures; and***
e) ***The Proponent shall also develop, implement, and report on the quality assurance and quality control protocols used to ensure data reliability and proper functioning of equipment.***

And

As required by NIRB Project Certificate No.008 Condition 2*: Prior to commencing construction activities the Proponent shall update the existing Dust Management and Monitoring Plan for the Meadowbank Mine site to address and/or include the following additional items:*

- ***Align plan requirements with commitments made in the Final Environmental Impact Statement and during the Final Hearing to monitor dust along the existing all-weather access road, the Amaruq haul road and any other roads and trails associated with the Project.***
- ***Verify commitments to the utilization of dust suppressants along the all-weather access road, the Amaruq haul road and any other roads and trails associated with the Project, including a description of the type of suppressant to be utilized and the frequency and timing of applications to be made throughout the various seasons of road use.***
- ***Outline the specific triggers, thresholds, and adaptive management measures that will apply if monitoring indicates that dust deposition is higher than predicted.***

The Proponent shall report annually to the Nunavut Impact Review Board with a summary of its dust management activities.

The 2023 air quality and dustfall monitoring program at the Whale Tail Mine was conducted according to the Air Quality and Dustfall Monitoring Plan, Version 6 (March, 2022). The objective of this program is to measure dustfall, NO_2, and/or suspended particulates (TSP, PM_{10}, $PM_{2.5}$) at various monitoring locations around the Whale Tail Mine and Whale Tail Haul Road (WTHR).

Results obtained for the measured parameters in 2023 were primarily compared to Government of Nunavut (GN) Environmental Guidelines for Ambient Air Quality (October, 2011) and/or Canadian Ambient Air Quality Standards (CAAQS) for TSP, $PM_{2.5}$ and NO_2 (2020/2025); BC Air Quality Objectives (November, 2021) for PM_{10}; Alberta Ambient Air Quality Guidelines (January, 2019) for passive dustfall, and to relevant model predictions from the Project's Final Environmental Impact Statement (Agnico Eagle, 2018). Results for WTHR dustfall monitoring are also compared to management thresholds established in the Air Quality and Dustfall Monitoring Plan, Version 6 (March, 2022).

The complete report is provided as Appendix 42, and results are summarized below for the Whale Tail Mine and Whale Tail Haul Road, along with a summary of road dust mitigation for each area.

8.14.2.1 *Onsite Dust Mitigation and Air Quality Monitoring*

Dust mitigation for the Whale Tail Mine was carried out in 2023 according to the Air Quality and Dustfall Monitoring Plan. Watering was conducted regularly for roads at the Whale Tail Mine to control dust. Whale Tail Haul Road dust control is discussed further in Section 8.14.2.2.

For all Whale Tail Mine air quality monitoring stations and parameters (suspended particulates, NO_2, dustfall), the vast majority of measurements were below relevant short-term regulatory guidelines or monitoring thresholds (24-h or 30-d). Across 177 samples for suspended particulates at the Whale Tail Mine monitoring station, seven results exceeded the relevant 24-h guidelines (four for TSP, two for PM_{10}, and one for $PM_{2.5}$). Historical results for these parameters are shown in Figures 21, 22 and 23. In the Whale Tail FEIS, exceedances were predicted to occur for TSP and PM_{10}. All onsite monitoring results for dustfall met the management threshold, which is equivalent to the Alberta Environment regulatory guideline for industrial areas (30 d average). While the continuous NO_2 monitor was not operational until June, all 1-h and 24-h measurements for NO_2 (June – December) were well below regulatory guidelines. For all relevant parameters (TSP, $PM_{2.5}$, NO_2), regulatory guidelines for annual averaging times were also met.

Estimated greenhouse gas emissions for the Meadowbank Complex (including the Whale Tail Mine) in 2023 for reporting to Environment Canada's Greenhouse Gas Emissions Reporting Program were 253,815 tonnes CO_2 equivalent, which is within FEIS (Agnico Eagle, 2018) predictions.

Overall, there are no apparent trends towards increasing or unpredicted air quality trends of concern at the Whale Tail Mine.

Figure 21. Historical 24-h average concentrations of total suspended particulates (TSP) at Whale Tail Mine monitoring station DF-6b. Dashed line indicates the 24-hr average GN guideline for ambient air quality. In the FEIS (Agnico Eagle, 2018), modeled concentrations of TSP were predicted to exceed the GN guideline at this monitoring location.

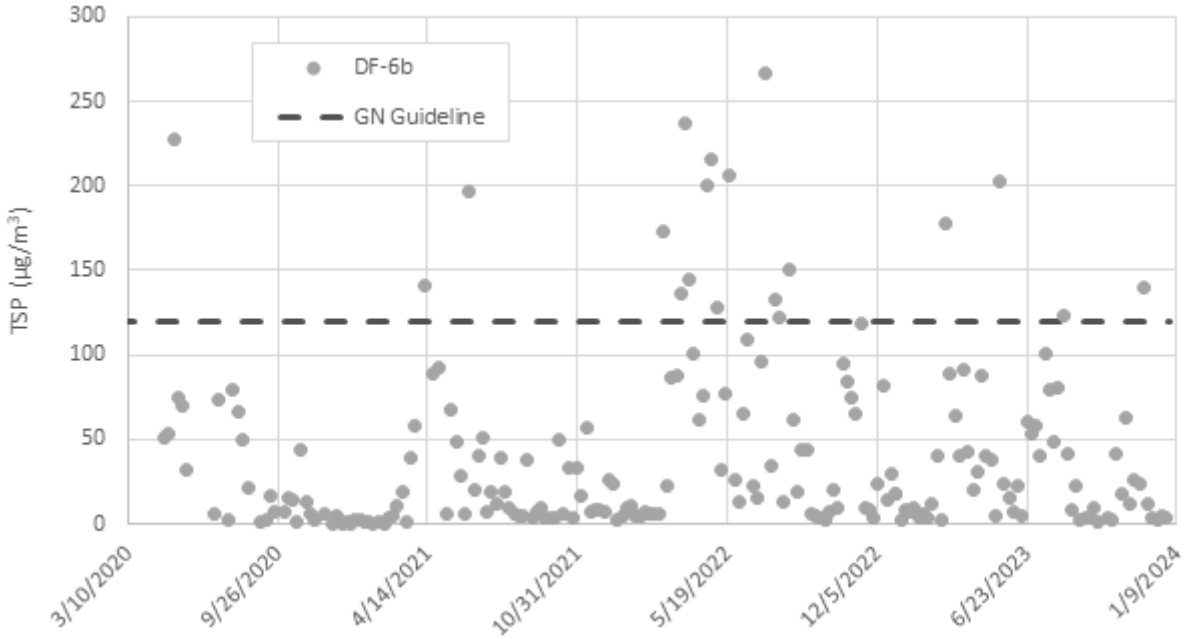


Figure 22. Historical 24-h average concentrations of PM10 at Whale Tail Mine monitoring station DF-6b. Dashed line indicates the 24-hr average BC guideline for ambient air quality. In the FEIS (Agnico Eagle, 2018), modeled concentrations of PM10 were predicted to exceed the guideline at this monitoring location.

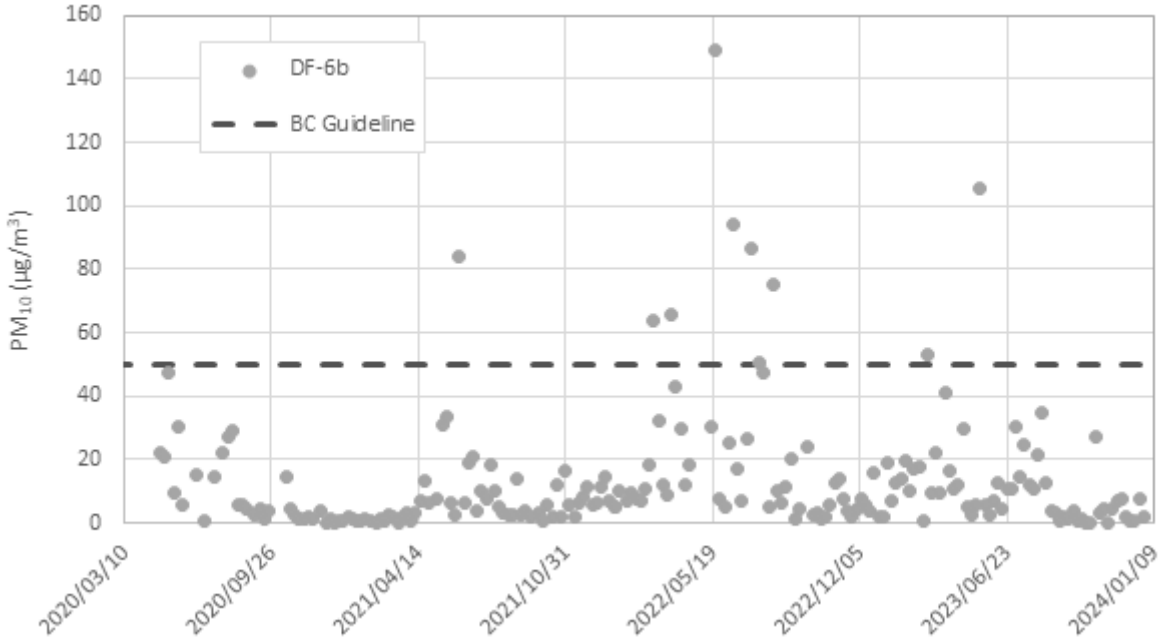
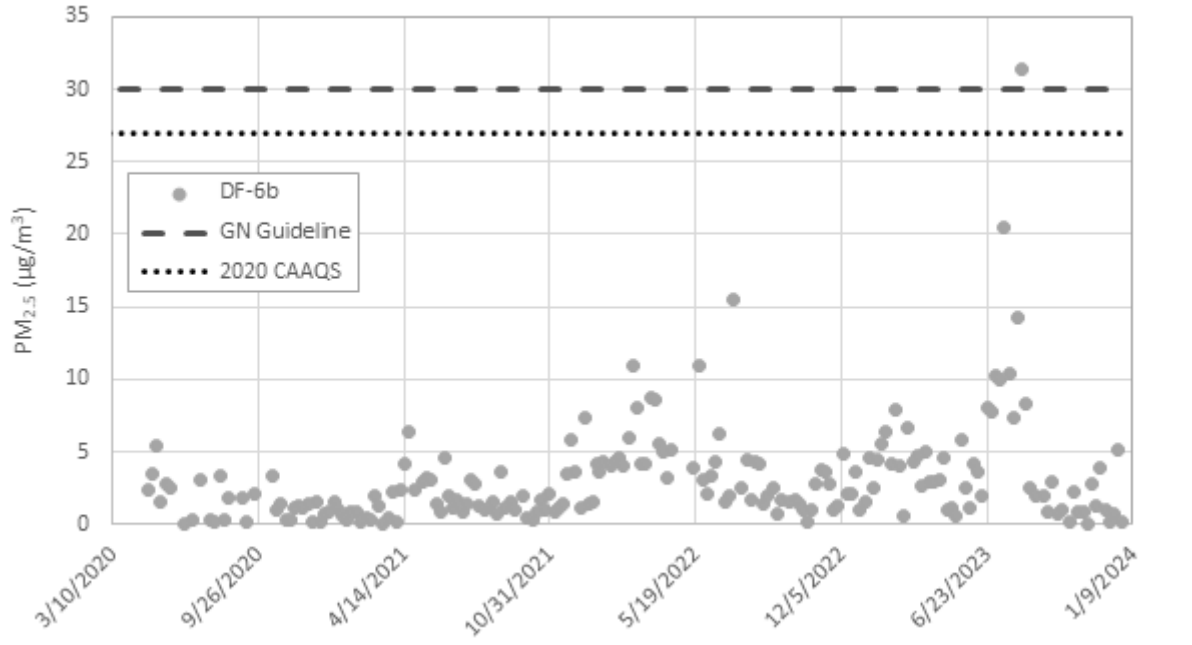


Figure 23. Historical 24-h average concentration of PM2.5 at Whale Tail Mine monitoring station DF-6b. Dashed line indicates the 24-hr average GN guideline for ambient air quality and dotted line indicates the 24-h CAAQS



8.14.2.2 *WTHR Dust Mitigation and Dustfall Monitoring*

In 2023, dust suppressant in the form of calcium chloride (dry flake product) was again applied to the entire length of the WTHR between May 10 and September 24. Generally, two to three applications were completed for all sections (applications along the entire length in May and July, and follow-up applications in certain areas). In total, 1,297 bags (1000 kg each) were applied.

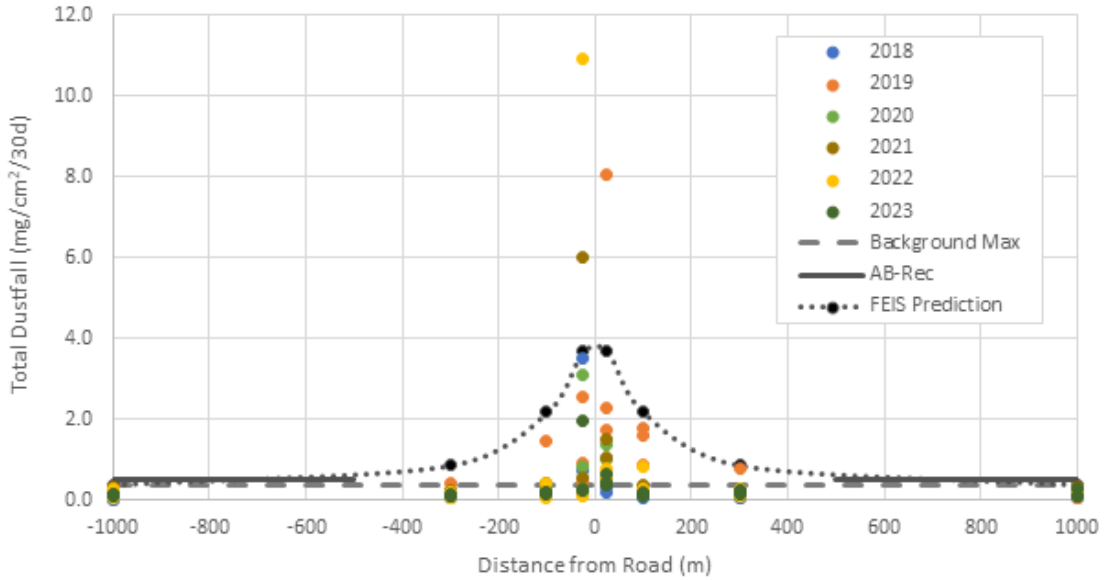
In addition to calcium chloride, road watering was conducted along the entire WTHR throughout the summer season, as needed. Between May 10 and September 24, approximately 10,589 m^3 of water were applied on the WTHR.

Dustfall monitoring on the WTHR in 2023 consisted of passive sampling over three 30-d periods during July, August, and September for 2-km transects centered on the road at km 134, km 151, and km 169. Results are compared to the specific FEIS Addendum predictions for deposition, as well as the management threshold of 0.53 mg/cm^2/30d at 500 m, to assess the effectiveness of dust suppression efforts. This threshold is based on the general FEIS Addendum prediction for dust deposition along the WTHR, and is equivalent to the Alberta Environment guideline for residential/recreational areas.

In 2023, as in previous years, some specific FEIS Addendum model predictions were exceeded, but only within very close proximity to the road (25 m). The overarching FEIS prediction that maximum deposition rates along the AWAR would decline below the management threshold and Alberta Environment recreational area guideline within 500 m of the road was met in all cases, so mitigation is considered to have been effective.

Historical dustfall results for WTHR locations along with the management threshold are shown in Figure 24.

Figure 24. Total dustfall rates (mg/cm2/30d) for all samples collected in August along the Whale Tail Haul Road to date. 2018 and 2019 data was collected at ground level, while 2020+ samples were collected on stands. Negative distances represent the east (downwind) side of the road, and positive distances represent the west (upwind) side. FEIS Prediction values are from the FEIS Addendum Appendix 4C, Table 4-C-24 (Agnico Eagle, 2018b). AB-Rec represented the management threshold of 0.53 mg/cm2/30d at 500 m from the road.



8.14.2.3 *Community Engagement*

Community engagement with regards to dust mitigation and monitoring for the Meadowbank Complex is discussed in Section 8.14.1.1.

8.15 GREENHOUSE GASES

As required by NIRB Project Certificate No.004 Condition 73*: Cumberland shall undertake to conserve the Project's use of energy, monitor the Project's greenhouse gas emissions, and continuously review and, if possible, consider for adoption new technologies to ensure greenhouse gases meet the latest Canadian standards or criteria.*

And

As required by NIRB Project Certificate No.008 Condition 3*: The Proponent shall maintain a Greenhouse Gas Emissions (GHG) Reduction Plan which includes:*

- ***An estimate of the Project's GHG baseline emissions;***
- ***A description of monitoring measures to be undertaken, including the methods, frequency, parameters, and a description the analysis that will be carried out on the monitoring data generated; and***
- ***A description of mitigative and adaptive strategies planned, and taken, to reduce project-related greenhouse gas emissions over the Project lifecycle.***

The Plan should be submitted to the Nunavut Impact Review Board (NIRB) within 60 days of the issuance of the Project Certificate, with results submitted annually thereafter or as may otherwise be required by the NIRB.

The Greenhouse Gas Reduction Plan (GHGRP) was submitted as Version 3 in April, 2020, and results of GHG emissions calculations are reported here according to Section 3.2 of the Plan, with comparisons to FEIS predictions. Values reported here for emissions in 2023 are considered preliminary at this time, with some minor adjustments possible in the final emissions calculations that will be reported to Environment and Climate Change Canada's Greenhouse Gas Emission Reporting Program by June 1st, 2024. Values for past years are updated according to the final GHGRP submission.

As part of the FEIS Addendum for the Whale Tail Pit Expansion Project (Agnico Eagle, 2018), Project-related emissions of GHGs were calculated for the maximum emission scenario (i.e. peak production; estimated to occur in 2022) using methods consistent with the GHGRP. Emissions associated with the Meadowbank Mill were calculated in the FEIS for Whale Tail Pit (Agnico Eagle, 2016), and are shown as a separate line item in Table 8-90. These values are consistent with Table 2.1 in the GHG Reduction Plan (April, 2020).

Table 8-90. Predicted Greenhouse Gas Emissions summary for the Whale Tail Mine in the peak production year of 2022 (from Agnico Eagle, 2018) and the Meadowbank Mill (from Agnico Eagle, 2016).

Emissions Source	Greenhouse Gas Emissions (kt CO_2)
Non-road Exhaust	142.0
Generators	18.0
Heaters	1.9
Incinerator	2.3
Whale Tail Mine Total	**164.2**
Meadowbank Mill	180.0
Meadowbank Complex Total	**344.2**

Calculated annual GHG emissions for the Meadowbank Complex beginning in 2018 (first year of Whale Tail Mine reporting) are provided in Table 8-91, with comparisons to FEIS predictions. Calculated emissions beginning in 2019 include both Whale Tail and Meadowbank sources combined, so only the total values are compared to FEIS predictions. Overall, total GHGRP-reportable emissions from the Meadowbank Complex (Meadowbank and Whale Tail sites) in 2023 were 253,815 tCO_2e, which is less than the FEIS-predicted maximum value of 344,200 tCO_2e.

Table 8-91. Predicted and calculated GHG emissions (t CO_2e) for all sources required under the Greenhouse Gas Pollution Pricing Act (S.C. 2018, c.12,s.186, Schedule 3) for the Meadowbank Complex. FEIS Predictions are further described in Table 8-90 above. *Note: Values for 2023 are preliminary at the time of this report*.

Emission Type	FEIS Prediction	2018	2019	2020	2021	2022	2023 (prelim.)
Electricity Generation - stationary fuel combustion emissions (Generators)	-	91,082	106,499	107,019	107,505	113,583	112,702
Electricity Generation - Stationary fuel combustion emissions (Other than generators)	-	-	577	266	604	2,978	5,629
Industrial process emissions	-	987	560	1,138	1,181	1,184	1,260
Industrial product use emissions	-	-	527	986	1,005	585	831
Venting emissions	-	-	-	-	-	-	-
Flaring emissions	-	-	-	-	-	-	-
Leakage emissions	-	-	-	-	-	-	-
On-site transportation emissions	-	90,650	82,951	112,791	130,404	127,690	133,364
Waste emissions	-	2,809	4,450	3,186	3,193	3,343	28
Wastewater emissions	-	-	-	-	-	-	-
TOTAL	344,200	185,528^	195,564*	225,385**	243,893***	249,362	253,815

^In 2020, calculation methods were revised for 2019+.
**Re-calculated in 2020. Previously reported in 2019 as 194,500.*
***Re-calculated in 2021. Previously reported in 2020 as 225,435.*
****Re-calculated in 2022. Previously reported in 2021 as 243,752.*
*****Re-calculated in 2023. Previously reported in 2022 as 248,921*

Calculated total monthly emissions for all sources required under the Greenhouse Gas Pollution Pricing Act (S.C. 2018, c.12,s.186, Schedule 3), for the Meadowbank Complex are shown in Figures 25 and 26, grouped by major and minor sources. Relatively little variation in sources of emissions has occurred month over month (Figure 26), though emissions overall do appear to increase in the winter months (Figure 25), likely due to heating requirements.

Figure 25. Calculated monthly GHG emissions for the Meadowbank Complex. Minor sources include emissions related to stationary combustion, industrial processes, industrial product use, and waste emissions.

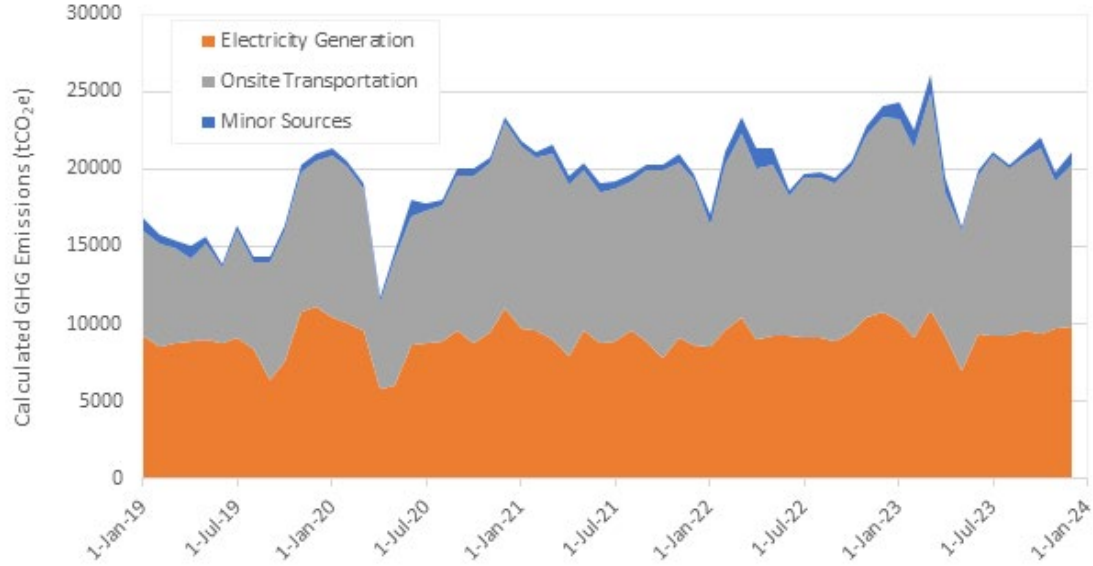
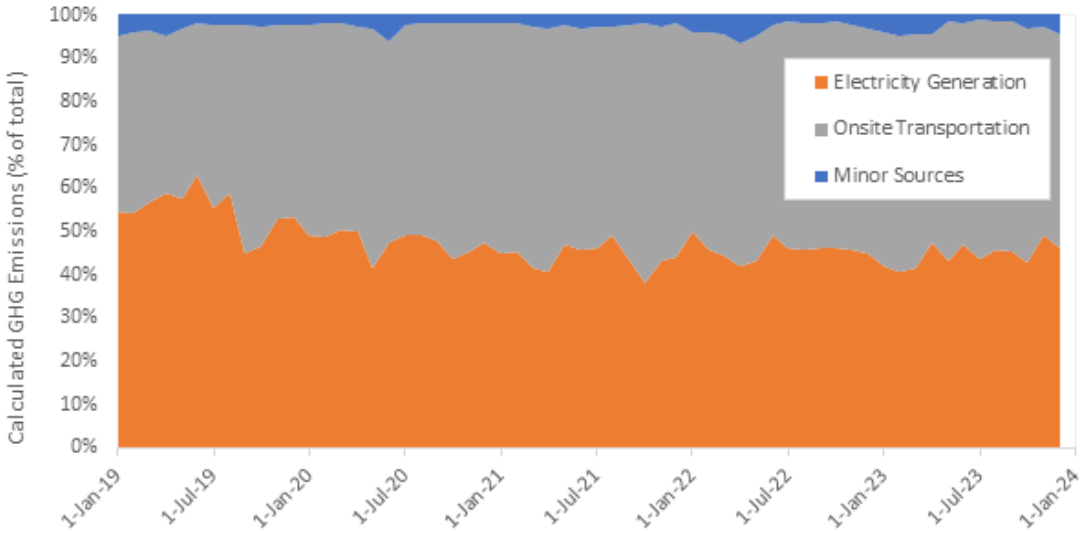
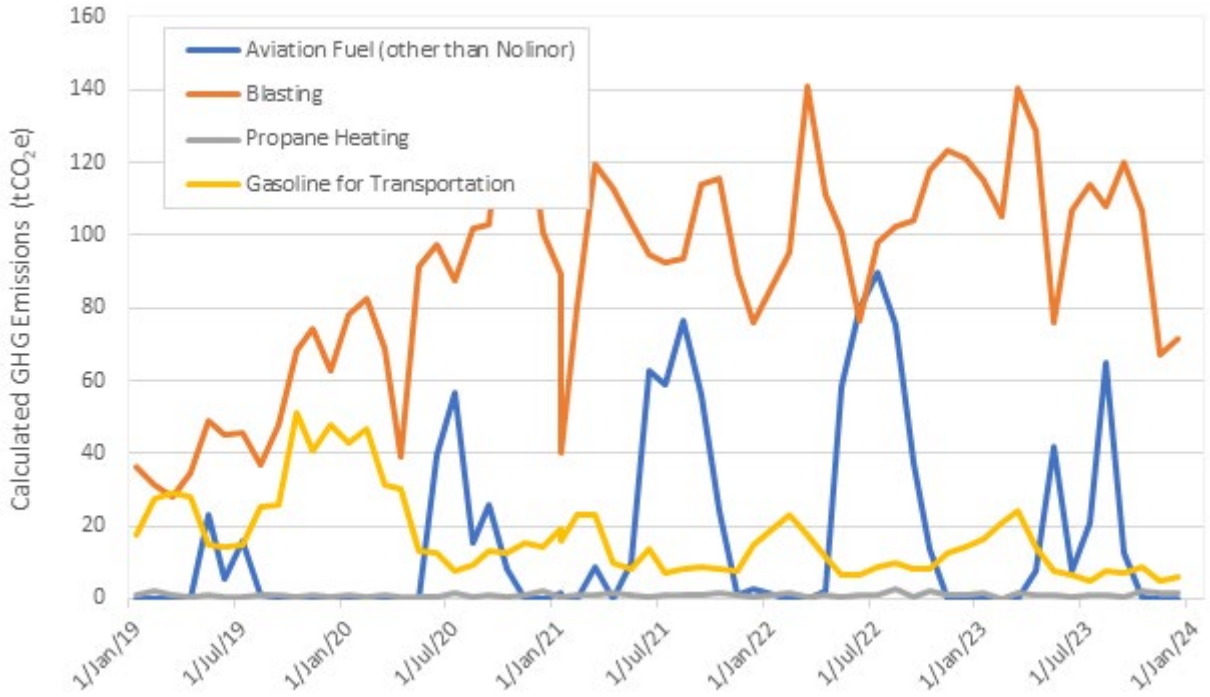


Figure 26. Calculated monthly GHG emissions (% of total) for the Meadowbank Complex. Minor sources include emissions related to stationary combustion, industrial processes, industrial product use, and waste emissions.



According to the GHGRP (Section 3.2), an analysis of specific sources is provided in Figure 27. These sources include aviation, blasting, propane heating, and light truck transportation using gasoline. It is noted that aviation emissions exclude aviation fuel for flights to Nunavut, which are not subject to carbon pollution pricing. Reported aviation fuel use is therefore primarily associated with helicopter use for exploration activities and personnel transport during the summer months. Use in 2020 – 2023 has increased compared to 2019 as a result of the increased use of helicopters for personnel transport to Baker Lake in lieu of in-town accommodation during the COVID-19 pandemic, and an increase in regional exploration activities. Emissions related to blasting steadily increased over the course of 2019 - 2021 as Whale Tail operations ramped up. Blast-related emissions appear to have generally plateaued beginning in 2021. Propane heaters form a very minor component of overall emissions and have been relatively constant (0.4 – 2.0 tons CO_2e/month). Similarly, use of gasoline for transportation (primarily associated with light trucks, but also potentially smaller vehicles such as ATVs and snowmobiles) has remained relatively constant, though a slight increase during the winter season of 2019-2020 was observed.

Figure 27. Calculated historical emissions related to specific sources at the Meadowbank Complex. Sources indicated in the GHGRP (April, 2020).



Agnico Eagle has an Energy and Greenhouse Gas Management Strategy developed to create value for the shareholders by operating in a safe, social and environmentally responsible manner. Agnico Eagle also has an Energy Savings Committee that involved members for each different departments on site. The objective of the Energy Savings Committee is to develop department level strategies to optimize and reduce energy and fuel consumption at the Meadowbank Complex.

Different projects over the years were held by Agnico Eagle over the duration of the project to reduce the energy consumption and increase or evaluate the use of new technologies at the Meadowbank Complex:

- Use of summer fuel
- Use of solar panels in northern condition operation - test completed and successful

- Identification of energy-saving opportunities in regards to the carbon tax
- TSM flow chart implemented with Strategic Optimization team for energy-saving opportunities
- Energy dashboard improvement for better energy consumption monitoring
- Energy dashboard internal audit to ensure energy consumption data accuracy
- Time study of the service equipment to increase capacity with the same consumption
- Whale Tail Camp Power Plant heat recovery study
- Use of a composter at Meadowbank
- Genset Synchro R&D test on the Whale Tail Power Plant. Expected fuel consumption decrease
- Insulation of remote buildings at Meadowbank
- Audit and initiate projects to improve the heat recovery from generators boiler and the distribution
- Shutting off the regrind circuit at the process plant when not required
- Implementation of a three phase energy saving campaign
- Winterizing windows at Meadowbank and Whale Tail
- Improve glycol heat usage at Whale Tail
- Compressed Air Audit
- Decommissioning of Incinerator

Section 4 of the Greenhouse Gas Reduction Plan (Version 3, April 2020) details some of the reduction initiative above. Some initiative have already been implemented, while others are currently being assessed. Emissions and energy reduction initiatives underway are summarized in Table 8-92.

As the Meadowbank Complex emits more than 50Kt of $CO2_e$/yr, a report will be submitted to Environment and Climate Change Canada's Greenhouse Gas Emission Reporting Program by June 1st, 2023. Mining operations in Nunavut are also subject to the federal Output Based Pricing System Regulations, which came into effect July 1st, 2019. An Annual Report and supporting Verification Reports, required as part of the OBPS, will also be submitted on June 1st, 2023.

Table 8-92. Meadowbank Complex emissions and energy reduction initiatives.

Description	Implementation Year	Stage of Development	Est. Annual Savings
Fuel Reduction Initiative	2018	Implemented	45,000 diesel L/year
Genset Synchro R&D	2019	Implemented	52,488 kWh/year
Whale Tail Camp Power Plant heat recovery study	2020	Implemented	1,944,000 kWh/year
Insulation of remote buildings	2019	Implemented	27,000 kWh/year
Meadowbank Composter	2019	Implemented	340,000 Diesel L/year

Description	Implementation Year	Stage of Development	Est. Annual Savings
Audit and improvement for the Heat recovery system at Meadowbank	2020	Implemented	30,000 kWh/year
Shutting off regrind circuit at the mill from time to time (as feasible)	2021	Implementation commenced	1,000.000 kWh/year
Energy saving campaign	2021	Implemented	800,000 kWh/year
Winterize windows	2021	Implemented	300,000 kWh/year
Improve glycol heat usage at Whale Tail camp	2022	Implementation commenced	70,000 Diesel L/year
Compressed air audit	2023	Implemented	250,000 Diesel L/year
Insulation campaign	2023	Implemented	1250,000 Diesel L/year
Incinerator decommissioning	2023	Implemented	430,000 Diesel L/year
Squarefoot Rationalization project (actively work to reduce square footage of heated areas)	2023	Implementation commenced	To be evaluated

8.16 CREEL SURVEY RESULTS

As required by DFO Authorization NU-03-0190 (AWPAR) Condition 5.2.4: ***Engage the local Hunter Trapper Organization(s) in the development, implementation and reporting of annual creel surveys within the water bodies affected by the Plan.***

And

NIRB Project Certificate No.004 Condition 51: ***Engage the HTOs in the development, implementation and reporting of creel surveys within waterbodies affected by the Project to the GN, DFO and local HTO.***

Completed discussion regarding creel survey and historic data is provided in Section 10 of the 2023 Wildlife Summary Monitoring Report (Appendix 39). The below is a summary of the findings and Agnico Eagle will refer to Appendix 39 for a complete discussion of the results.

Harvest calendars are provided on a household basis rather than an individual basis in order to simplify data entry and collection. The harvest calendar is attractive and consists of local photographs of wildlife and Baker Lake residents (see Appendix A for 2023 calendar – Appendix 39 of this report). Space is provided for each calendar day where harvest details can be documented. A map is provided at the end of the calendar that delineates a 4 km^2 UTM grid within the Baker Lake and Meadowbank Complex areas. Each grid has a unique code to facilitate recording of information. When calendars are issued, participants or participating households are encouraged to write harvest details (e.g., number of animals, sex, age and location [i.e., grid code]) for the appropriate date on the calendar.

Participants were interviewed in person three times during the year (i.e., June 2023, October 2023, and January 2024) by the harvest study coordinator. During the January 2024 interviews, remaining data from

2023 were collected. The purpose of the interviews is to ensure all harvest data are recorded on the calendars and to collect incidental information to complement calendar data, including notable Caribou movements, aggregations, and unique observations. Between interview periods, participants were often contacted by phone or social media to encourage recording of harvest data.

The number of fishermen reporting successful fishing trips in 2023 was 30, which is higher than the average of 23 fisherman from 2007 to 2015 and 2019 to 2021 (12 years), and the same as the number of fisherman reporting success in 2022. The highest number of fisherman reporting success in 2023 were in May and June.

The most common fish species captured, Lake Trout, represented 67% of the total catch in 2023, which was lower than in 2022 (72%) but the same as in 2020 and 2021 (67% in both years). Lake Trout catch in 2023 was higher than the average of 58% from 2007 to 2015 and 2019 to 2022. Arctic Char were caught at lower numbers in 2023 (52 individuals) than the average from 2007 to 2015 and 2019 to 2022 (74). Lake Whitefish were captured in relatively low numbers in 2023.

Fishing trips, regardless of success rate, did not generally occur beyond the immediate areas of Baker Lake, Whitehills Lake, and the lower AWAR. Some fishing occurred at Pitz Lake and along the northeastern shore of Baker Lake but, unlike in 2022, fishing was not reported along the Thelon River (Figure 7.1). Results indicate that study participants are less willing to travel long distances to catch fish, regardless of AWAR access, likely due to the abundance of fish near the Hamlet of Baker Lake and around Whitehills Lake.

In 2023, fishing periods with the most active fisherman was May and June. The periods with the most fish caught included the summer months (May and June), which reflects the high number of Lake Trout caught by fisherman heading out on the land after ice melt, and November. This trend can be observed in the overall trends from 2007 to 2015 and 2019 to 2022.

The 2023 HHS data were compared to the impact prediction thresholds to evaluate adherence to the impact predictions and the provision of adaptive management, as either a necessary or proactive measure. No thresholds were surpassed in 2023. (Section 6 and 7 of the 2023 Hunter Harvest Study and Creel Survey Summary Report, in Appendix 39).

8.17 NO FISHING POLICY

As Required by NIRB Project Certificate No.004, Condition 52: ***Cumberland shall enforce a no-fishing policy for employees while working on the job site.***

Agnico Eagle has a no-fishing policy for its Meadowbank and Whale Tail Mine Sites. The policy is enforced all through the year within environmental inspections. There were no incidents to report in 2023.

8.18 TERRESTRIAL ECOSYSTEM MANAGEMENT PLAN

As Required by NIRB Project Certificate No.008, Condition 28: ***The Proponent shall submit a revised TEMP to the Nunavut Impact Review Board (NIRB) within one (1) year of issuance of the Project Certificate, with subsequent versions provided as appropriate. Results of the TEMP shall be reported to the NIRB annually including details of how Inuit Qaujimajatuqangit contributed by knowledge holders has been considered and utilized in associated activities and updates.***

And

NIRB Project Certificate No.004 Condition 61: ***In consultation with EC, Cumberland shall incorporate into the Terrestrial Ecosystem Management Plan and the Air Traffic Management Plan a commitment for aircraft to maintain (whenever possible) a cruising altitude of at least 610 metres during point to point travel when in areas likely to have migratory birds, and 1000 metres vertical and 1500 metres horizontal distance from observed concentrations of migratory birds, and use flight corridors to avoid areas of significant wildlife importance.***

Agnico Eagle submitted the TEMP Version 7 in June 2019 (Appendix 58 of the 2019 Annual Report). This version includes revisions per additional comments from TAG members, and Whale Tail Expansion Project environmental assessment information requests, technical comments, and technical meetings. This section include both Meadowbank and Whale Tail sites, as condition from Project Certificate no. 004 and 008. TEMP Version 8 was submitted in 2020 within 60 days of issuance of the amended Project Certificate No.008 to comply with commitments made during the Expansion Project NIRB Review Process. This version was not approved, and an updated Version is being discussed with the TAG. The TAG recommended to postpone the submission of an updated TEMP into 2024. In 2023, Version 7 of the TEMP continued as the basis for 2023 monitoring and mitigation, with many modifications and exceptions applied through a collaborative approach within the TAG. Refer to Section 8.18.2 for more details regarding TAG activities.

8.18.1 Wildlife Monitoring Meadowbank and Whale Tail Site*

8.18.1.1 *Annual Monitoring*

As Required by NIRB Project Certificate No.004, Condition 55: ***Provide the Annual Wildlife Summary Monitoring Report.***

As a requirement of the NIRB Project Certificate, the 2023 Wildlife Monitoring Summary Report (2023 Annual Report) represents the 18th of a series of annual reports for the Agnico Eagle Meadowbank Complex. Baseline and monitoring programs were first initiated in 1999 and will continue through the life of the Mine. Details of the wildlife monitoring program for the Project are provided in the Terrestrial Ecosystem Management Plan (Version 7, Agnico Eagle 2019). The 2023 Wildlife Monitoring Summary Report provides the monitoring objectives, methodology, historical and current year results, and management recommendations for each monitoring program. The 2023 report builds on data presented in previous reports and incorporates monitoring recommendations from these reports, as well as recommendations and requests from intervenors on past reports made during the NIRB review process. Below is a summary of the results from each component of the 2023 Wildlife Monitoring Summary Report (Appendix 39) with more details provided in the following sections.

Wildlife monitoring is focused within the Local Study Area (LSA), which includes a 5 km area centered on the Meadowbank Mine Site and Vault Site (Meadowbank LSA), a 3 km area centered on the AWAR (AWAR LSA), and a 3 km area centered on the Whale Tail borrow areas and the WTHR (WTHR LSA).

Several wildlife monitoring programs are focused on supporting movement of caribou through the Mine area during spring and fall migration. Road surveys are completed regularly by Agnico Eagle Environmental Technicians who drive the length of the AWAR and the WTHR and search for caribou, recording all wildlife observations. The AWAR and WTHR are each surveyed about once every 2-3 days throughout the year, with a higher frequency of surveys occurring during the peak in caribou migration.

* TSM- Biodiversity and Conservation Management

Agnico Eagle added a Viewshed Survey program in 2020, which was designed to see caribou approaching the WTHR from vantage points that maximized the area that could be seen. These monitoring programs are used to advise mitigation measures such as road closures when large numbers of caribou are moving through the Mine area. Remote cameras have been placed along the WTHR since 2020, to monitor caribou crossing events along the road. The main objective for the remote camera program is to learn how characteristics of the WTHR, such as the slope and material of the road, influence caribou crossing events. A blast vibration and noise monitoring program was implemented at the Whale Tail Mine in 2021 to monitor how caribou respond to blasts. Snow conditions are measured along the WTHR to understand how snow management could influence caribou movement through the area.

Mine and Pit ground surveys are completed regularly throughout the year to identify habituated wildlife, wildlife mortalities, bird nests, and other wildlife observations near the Meadowbank and Whale Tail Mines. The ground surveys allow for all Mine site personnel to monitor wildlife on the Mine site. Peregrine falcon nest monitoring is completed annually within the LSA. Many peregrine falcons will return to the same nest site each year, and these known nests are monitored to track nesting success over time. Local community members are surveyed as part of the Hunter Harvest Study to understand hunting patterns close to the AWAR and WTHR. Finally, non-native plant surveys were completed along the AWAR, WTHR, and Whale Tail and Meadowbank Mine sites. These areas are surveyed by road and on foot, and any non-native species are logged and controlled if any are observed.

Each year the monitoring results are presented in a TEMP Annual Report and recommendations for adaptive management on monitoring programs are included. The annual monitoring results are often presented in the context of previous years of results to understand how wildlife interactions with the Mine may be changing over time. Adaptive management is an important process for updating survey methods and allows for the monitoring programs to evolve with experience and community and regulator input through the Nunavut Impact Review Board.

Take note that the following sections are just a summary of the TEMP report and Agnico Eagle will refer the reader to the whole report in Appendix 39 for an exhaustive comprehension of the program and results for 2023.

8.18.1.2 *Harvest Study Results*

As required by NIRB Project Certificate No.004 Condition 54

a. Updated terrestrial ecosystem baseline data

See the 2023 Wildlife Monitoring Summary Report attached in Appendix 39.

e. Details of a comprehensive hunter harvest survey to determine the effect on ungulate populations resulting from increased human access caused by the all-weather private access road, including establishing preconstruction baseline harvesting data, to be developed in consultation with local HTOs, the GN-DOE and the Nunavut Wildlife Management Board.

Completed discussion regarding HHS survey and historic data is provided in Section 10 of the 2023 Wildlife Summary Monitoring Report (Appendix 39). The below is a summary of the findings and Agnico Eagle will refer to Appendix 39 for a complete discussion of the results.

The HHS included 75 participants by the end of 2023, which is higher than participants in 2022, 2021 and 2020 (i.e., 59, 55, and 64, respectively). Higher numbers in 2023 are because of several new participants. Of the 2023 participants, Caribou harvest data were collected from 63 participants, which is higher than the 55 participants reporting Caribou harvests in 2022 and considerably higher than the 39 hunters in 2021. The 63 participants reporting Caribou harvest in 2023 is the highest number since the HHS began.

Based on the previous discussion of total numbers of hunters in the Hamlet of Baker Lake, there were 389 potential hunters within the Baker Lake community in 2008. The number is comparable to the comprehensive 5-year Nunavut Wildlife Harvest Study in which 336 Baker Lake hunters were contacted and interviewed. Discussions with Baker Lake HTO members in 2019 suggest the total number of hunters is over 300. Given the historical and current number of hunters in Baker Lake, an estimate of 300 to 350 active hunters is used in this analysis. Based on these numbers, the 63 hunters reporting Caribou harvest in 2023 conservatively represent from 18 to 21% of total hunters in the community.

Hunting is highly concentrated in the vicinity of the Hamlet of Baker Lake and along the AWAR to approximately Km 85. More moderate harvests were reported along the northeastern and southwestern shores of Baker Lake, while limited hunting was reported within the Thelon River system to Aberdeen Lake. Annual variation in harvest location and intensity is attributable to numerous factors. For instance, many hunters have stated during informal discussions that they have a ‘favorite’ hunting area that they frequent each year. Some hunters have stated that they prefer hunting in ‘convenient’ locations, whereas other hunters prefer remote locations well away from frequented areas. A percentage of hunters also enjoyed partaking in long distance hunting trips over multiple days.

Between 1996 and 2001, 18% of Caribou harvests were estimated to be within 5 km of the AWAR (prior to construction) and 67% of harvests occurred within the Meadowbank RSA. In the first year of the HHS study (2007), prior to completion of the AWAR, 34% of harvests were reported within 5 km of the AWAR alignment and 79% were recorded within the Meadowbank RSA. The HHS data (2007 to 2015 and 2019 to 2022) fluctuated between 34 and 54% of reported harvest within 5 km of the AWAR, and between 62 and 85% within the Meadowbank RSA. The 2023 HHS data indicated that 37% of reported harvest occurred within 5 km of the AWAR, and 71% occurred within the Meadowbank RSA. As was the case in other years, threshold levels of 20% set for monitoring the effects of the Meadowbank mine development (note – does not include the Whale Tail mine, which was approved under a separate permit with a different effect assessment) on the distribution of Caribou harvest within the RSA were not exceeded.

In 2023, only one (1) Caribou was harvested within 5 km of the WTHR, which compares to no reported harvest during the NWMB harvest study, no Caribou harvested in 2022, and three (3) Caribou harvested in 2021. Overall harvest numbers were too low to determine whether harvests have increased following construction of the WTHR. Within the Whale Tail RSA (note – overlaps with the Meadowbank RSA), a total of 74 harvests were reported in 2023, which is well above the average across the first 13 years of the study. Most harvests occurred along the northern end of the Meadowbank AWAR (i.e., up to Km 85) where the two RSAs overlap. Given the low numbers of reported harvests close to the WTHR and the prohibition of the public from the WTHR, it is unlikely that the presence of the road has resulted in increased harvest.

Based on the NWMB (2004) and inclusive Baker Lake HHS results (2007 to 2015; 2019 to 2023), highest Caribou harvests have occurred between August and December, with a second smaller peak between March and May. The similar pattern between the studies indicates that seasonal hunting preferences have not changed markedly in the last decade.

In spring 2023, overall Caribou hunting in the Meadowbank RSA was quite high with hunting occurring from the Hamlet of Baker Lake to the south end of Third Portage Lake around the Km 85 mark. Within the Whale Tail RSA, several Caribou were harvested at the south end of Third Portage Lake, which is also within the Meadowbank RSA. During the summer, Caribou in the Meadowbank RSA were harvested across a larger area but particularly along the AWAR up to around Km 85 and near the Hamlet of Baker Lake. Some harvesting occurred along the Thelon River to Aberdeen Lake and on the northeastern shore of Baker Lake. Several Caribou were harvested up to around Km 85 at the south end of the Whale Tail RSA. In the fall, hunting was much more concentrated along the AWAR around the Hamlet of Baker Lake and in the vicinity of Whitehills Lake, around the Prince River, and along the southwestern shore of Baker Lake. A small number of Caribou were reported as being harvested in the southern portion of the Whale Tail RSA in fall 2023. In winter, fewer Caribou were hunted along the AWAR and successful hunters were those that travelled further afield by snowmobile (e.g., along the Thelon River to Aberdeen Lake, east of Tehek Lake, and the southwestern side of Baker Lake). Scattered Caribou harvests were reported in the Whale Tail RSA.

There were seven (7) reported harvests for Muskox in 2023, which was considerably lower than the 18 reported harvests in 2022. Muskox harvests in 2023 were located outside the Meadowbank RSA in the vicinity of Pitz Lake and the Kazan River. Wolverine (total of 18 in 2023) was hunted in the Whitehills Lake area, along the Thelon River between Schulz and Aberdeen lakes, and at the southwestern end of Baker Lake. Wolf harvest in 2023 (47) was considerably lower than the 92 reported in 2022 and higher than the 26 reported in 2021. Wolves were either harvested close to Baker Lake, in the Whitehills Lake area, or east and northeast of the Whale Tail site. In 2023, the presence of the AWAR may have had some influence on participant hunting patterns for Wolf.

Arctic Fox was not reported as being harvested in 2023, which compares to 36 harvests in 2022, five (5) in 2021, and 11 in 2020, while Red Fox (3 individuals) was harvested near the Hamlet of Baker Lake. One (1) Grizzly Bear was reported as being taken in 2023 but this was outside the HHS boundaries.

Bird species reported as being harvested in 2023 included Canada Goose (*Branta canadensis*; 82 individuals), ptarmigan sp. (*Lagopus sp*.; 48), Snow Goose (*Anser caerulescens*; 8), Greater Whitefronted Goose (*Anser albifrons*; 2), gull species (*Larus sp*.; 2), Tundra Swan (*Cygnus columbianus*; 2), and Sandhill Crane (*Grus canadensis*; 1). Birds were reported as being collected primarily around the Hamlet of Baker Lake and Third Portage Lake near the Meadowbank Mine.

For the second year in a row, marine mammals were reported as being harvested. Beluga (*Huso huso*; 1 individual) and an unidentified seal species (1), were reported as being harvested by Baker Lake hunters in 2023 but these were outside the Meadowbank RSA.

The 2023 HHS data were compared to the impact prediction thresholds to evaluate adherence to the impact predictions and the provision of adaptive management, as either a necessary or proactive measure. No thresholds were surpassed in 2023. (Section 10.0 of Appendix 39).

f. Details of annual aerial surveys to be conducted to assess waterfowl densities in the regional study area during the construction phase and for at least the first three (3) years of operation, with the data analyzed and compared to baseline data to determine if significant effects are occurring and require mitigation.

At Meadowbank site, given the low densities of waterbird nests identified at the mine site and along the AWAR from 2005 - 2012 (i.e., too low to determine whether changes in nest abundance or success have

occurred), and the absence of data suggesting that mine or road-related effects are occurring, the waterbird nest survey program has been discontinued.

The Whale Tail Mine requires the construction of two dikes within Whale Tail Lake to divert water from the proposed pit to surrounding lakes and tributaries, resulting in flooding that will elevate water levels by 4 m and inundate approximately 157 ha of tundra during the active bird nesting window. To investigate mitigation options for minimizing flooding-related impacts to birds, Trent University, in collaboration with Environment and Climate Change Canada and Agnico Eagle, conducted active bird nest surveys and experimented with deterrent options in summer 2018, 2019 and 2021 at the Whale Tail site. Follow-up studies in 2021 indicated that while the average number of nests and bird density increased from 2019 to 2021 in upland control plots and nest density declined in flood zone plots, these differences were not statistically significant (Holmes 2022). Further analysis in 2022 of individual re-sightings support the hypothesis that birds will re-nest nearby post-flood, at least anecdotally. Six re-sighted Lapland longspur (*Calcarius lapponicus*) moved their nests an average of 180 m and uphill by 4 masl (metres above sea level), while six semipalmated sandpipers (*Calidris pusilla*) moved their nests an average of 151 m and downhill by 0.18 masl. The complete analysis and report on behavioural responses will be included in a second Trent University MSc Thesis manuscript, expected to be submitted prior to September 2024.

References for any publications produced in 2024 will be provided in the 2024 Annual Report, but otherwise reporting under the Migratory Bird Protection Plan is considered complete at this time.

g. Details of an annual breeding bird plot surveys and transects along the all-weather road to be conducted during the construction phase and for at least the first three (3) years of operation.

The breeding bird PRISM (Program for Regional and International Shorebird Monitoring) plot and bird transect monitoring programs were designed to evaluate potential Project-related changes in breeding bird species abundance, richness, and diversity over time. The program is one component of the larger monitoring strategy to evaluate the success of mitigation measures implemented to minimize the amount of vegetation (i.e., bird habitat) removed or degraded (e.g., dustfall) by the Project, and whether certain Mine activities such as the Mine site or AWAR have resulted in reduced or compromised habitat function or effectiveness (i.e., zone of influence) for breeding birds.

For the breeding bird transects, data analysis in 2011 and 2015 indicated that no road-related effects had occurred to date, and thresholds had not been exceeded; therefore, annual transect surveys were permanently suspended after 2015. In 2020, Agnico Eagle sent ECCC the comprehensive 2003-2015 analysis of all PRISM and breeding bird transect data.

Results of the comprehensive analysis determined there were no significant effects of the Project or Mine-related infrastructure on bird abundance, diversity or community composition, which supports that mitigation is effective. In 2022, Agnico Eagle Meadowbank Complex finalized a collaboration agreement with ECCC, with a focus on contributing to regional bird monitoring programs. The agreement includes a commitment to conduct 48 PRISM plots selected by CWS over 10 years (2021 to 2031), and to complete Breeding Bird Survey (BBS) routes along the AWAR and the Whale Tail Haul Road (WTHR) opportunistically when qualified individuals are on site. At a minimum, these BBS routes will be conducted every three (3) years during the operations, closure, and post-closure phases of the project. PRISM and BBS restart in 2022.

In 2023, two BBS routes consisting of 50 stations each set every 800 m each were surveyed along the AWAR and the WTHR. As well, 17 designated PRISM plots were surveyed at Meadowbank site for a total

of 21 plots out of the 48 PRISM plots selected. More detailed are provided in Section 15 of the 2023 Wildlife Monitoring Summary Report (Appendix 39).

h. Details of a monitoring program, including recording the locations and frequency of observing caribou and carnivores and any actions taken to avoid contact with or disturbance, and a specific mitigation plan for Shortearred owls and any other species of special concern pursuant to Schedule 3 of the Species at Risk Act located in the local study area or along the all-weather private access road.

See "2023 Wildlife Monitoring Summary Report" attached in Appendix 39 for a completed discussion.

All Mine site personnel, including construction and support staff, are required to document and report wildlife observed within the LSA of the Project as well as ancillary areas (e.g., AWAR and WTHR). The protocol involves notifying staff in the Environment Department, which is intended to ensure that potential problem animals are identified. Pertinent data, and daily and weekly Mine site inspection reports are consolidated and entered into an electronic database (EQuIS). Monthly summary reports and wildlife observation data are submitted to the GN and KivIA. Quarterly reports are submitted to the KivIA.

In 2023, eight mammalian species and ten avian species (four species could not be identified to an individual species) were detected and identified during road surveys in 2023. Seven mammal species were observed at both AWAR and WTHR, including Arctic fox (*Vulpes lagopus*), Artic ground squirrel (*Urocitellus parryii*), Arctic hare (*Lepus articus*), caribou, muskox, wolf (*Canis lupus*), and wolverine (*Gulo gulo*). Red fox (*Vulpes vulpes*) was only observed at WTHR. Caribou and muskox were the most frequently observed mammals. Five avian species were observed at both sites including Canada goose (*Branta canadensis*), peregrine falcon (*Falco peregrinus*), ptarmigan sp. (*Lagopus s*p.), sandhill crane (*Antigone canadensis*), and snow goose (*Chen caerulescens*). Bald eagle (*Haliaeetus leucocephalus*) and duck sp. were only observed at AWAR. Common raven (*Corvus corax*), passerine sp., and an unknown bird sp. were only observed at WTHR. At both AWAR and WTHR Snow geese were the most frequently observed species.

In 2023, eight mammalian species and three avian species were detected and identified incidentally on the AWAR and WTHR in 2023. Grizzly bears (*Ursus arctos horribilis*), red fox, and Arctic fox were only observed on the WTHR. The remainder of the species observed were recorded on both roads, including Arctic ground squirrel, Arctic hare, caribou, muskox, and wolf. On both roads, caribou and muskox were the most frequently observed species. Peregrine falcon and a falcon sp. were observed at WTHR. Sandhill cranes were only observed at AWAR.

A total of 54,940 caribou were detected across 215 AWAR road surveys (i.e., approximately 255 caribou per survey), and caribou were recorded in all seasons. Caribou were recorded during road surveys in every month except for January, February, and July. The highest total caribou counts across all years and seasons were recorded in fall 2022, followed by spring 2023. Corrected by survey effort, the highest numbers of caribou observed per survey were recorded in fall 2010 (1154.2 caribou/survey), fall 2014 (808.8 caribou/survey), fall 2015 (771.4 caribou/survey), fall 2022 (648.7 caribou/survey), and spring 2023 (639.1 caribou/survey).

A total of 35,863 caribou were detected across 242 WTHR surveys (i.e., approximately 148 caribou per survey) in 2023, which was greater than the previous three years. The highest total caribou counts across all years and seasons were recorded in spring 2019 (53,201 caribou) and spring 2023 (30,789 caribou; Table 3-5). Corrected by survey effort, the highest numbers of caribou observed per survey were

recorded in spring 2019 (858 caribou/survey), followed by spring 2023 (422 caribou/survey), and spring 2021 (215 caribou/survey).

Refer to Section 8.18.6 below for a discussion regarding species at risk.

8.18.1.3 *Caribou Migration Corridor Information Summary*

As required by NIRB Project Certificate No.004 Condition 56: ***Maps of caribou migration corridors shall be developed in consultation with Elders and local HTOs, including Chesterfield Inlet and placed in site offices and upgraded as new information on corridors becomes available. Information on caribou migration corridors shall be reported to the GN, KIA and NIRB's Monitoring Officer annually.***

A caribou collaring data sharing agreement was signed between Agnico Eagle and the GN on March 3rd, 2023. Agnico has analyzed the recent (2020-2023) collar information to estimate caribou herd ranges. This information will serve as a basis to initiate migratory corridor consultation discussions in 2024.

8.18.1.4 *Caribou Collaring Study Meadowbank*

As required by NIRB Project Certificate No.004 Condition 57*: participate in a caribou collaring program as directed by the GN-DOE*

And

As required by NIRB Project Certificate No.008 Condition 29*: The Proponent shall, in collaboration with the Government of Nunavut, collect additional caribou collar data and conduct analyses of this data to quantify the zone of influence and associated effects of project components on caribou movement for a study area that includes the Whale Tail mine site, the haul road, the Meadowbank Gold Mine and its All-Weather Access Road.*

A summary of the analyses and associated effects shall be provided annually in the Proponent's annual report to the Nunavut Impact Review Board.

. Further details are available in the Wildlife Monitoring Summary Report (Appendix 39).

8.18.1.5 *Remote Cameras*

The initial remote camera study design (October 2018 to November 2019) was intended to collect general trends on caribou crossing events and traffic or road activities on the WTHR, to inform fine scale traffic mitigation. An updated study design was implemented in November 2019, to examine the permeability of the WTHR to caribou movement as those interactions relate to the physical parameters of the road. The 2019 to 2021 remote camera data were previously analyzed for the 2020, 2021, and 2022 Wildlife Monitoring Summary Reports. Results from the 2023 remote camera program are summarized below. Furthers details are provided in the the Wildlife Monitoring Summary Report Section 8 (Appendix 39).

Locations of remote cameras have varied across program years. The same locations were used in 2023 as in 2021 and 2022. The locations of the paired remote cameras along the WTHR were selected based on high-frequency caribou crossing locations, and stratified across road height categories (i.e., <1.5 m, 1.5 to 3 m, and >3 m; Table 8-1). Road heights were determined in the field. Backfill material and slope at camera locations were determined from construction surveys (WSP 2019). Backfill slope along the WTHR is typically 2:1. In areas where backfill height exceeds 3 m, slope was recontoured to 4:1 for safety.

An automated approach was used to classify the 3,337,967 photos collected in 2023. A total of 2,636 photographs were selected by the automated approach and reviewed by a human observer. There were 402 total observations, 329 observations were “near wildlife” detections and 73 “far wildlife” detections. Fifteen species were detected in 2023: Arctic fox, Arctic hare, Canada goose, caribou, common raven, gray wolf, greater white-fronted goose, Lapland’s longspur, muskox, red fox, rock ptarmigan, sandhill crane, snow goose, wolverine, and unidentified bird species. All were detected on “near wildlife” detections. “Far wildlife” detections included grey wolf, caribou, common raven, muskox, and additional unidentified bird species. Caribou were detected between 15 February 2023 and 28 October 2023. Caribou were detected on all ten camera monitoring locations, and caribou crossing events were recorded on nine of ten camera monitoring locations. Caribou crossing events were detected in all seasons.

8.18.1.6 *Blasting Monitoring*

Pre-blast surveys for caribou and other wildlife were performed on 244 occasions on 210 days between 2 January to 31 December 2023. Caribou were observed during 33 surveys, Muskox during 5 surveys, Arctic fox were observed during 4 surveys, and red fox were observed during 1 survey. In most cases, wildlife were observed 1.5-2 hours prior to blasts. Blasts were cancelled on nine occasions during seven days in 2023 due to the presence of caribou identified during pre-blast surveys. Eight of the nine cancelled blasts were during spring migration (April 18, 26, 27, 28, 29, and May 15), and in each case the blast was cancelled because caribou observations exceeded GST. One cancelled blast was during summer (11 August) due to the presence of 10 caribou within 600 m of the blast. On one occasion on 12 August, a single caribou was observed within 400 m of the blast location and was monitored by the environment crew. On this occasion, blasting was postponed until the animal moved out of the blast radius and further from the mine site.

Caribou behaviour monitoring sessions in relation to blasting activities were not conducted during 2023 due to lack of caribou groups available for behaviour monitoring during the appropriate timeframe. Caribou observed during pre-blast surveys were mostly detected 1.5-2 hours prior to blasting and were not in the area during the caribou behaviour monitoring timeframe, which is 30 min before and after a blast. In cases when caribou were in close proximity during the timeframe for a scheduled blast, blasts were cancelled (eight occasions) or postponed (one occasion).

8.18.1.7 *Snow Study*

Results from the 2023 snow study are summarized below. For more detailed information, refer to the completed discussion provided in Section 17.1 of the 2023 Wildlife Monitoring Summary Report in Appendix 39.

A total of 36 surveys were completed during the spring migration of 2023, which was the targeted number of plots. Of the 36 survey locations, 17 were along the WTHR and 19 were along the AWAR. Workers were patrolling on a daily basis along the AWAR and the WTHR during the migration season (between 1 April and late May) for signs of caribou crossing tracks adequate for snow sampling measurements. Surveys during 2023 took place over 14 days. Prior to 2023, a full suite of snow data were collected at use plots and snow-managed control plots but not at non-managed control plots, and caribou track data were collected at use plots but not non-managed control plots. Data sheet improvements implemented in 2023 allowed for additional data fields to be collected in 2023.

Between 2020 to 2023, 64 locations were surveyed for the snow study, 36 of which were completed in 2023. Improvements for data collection implemented in 2023 allowed for a full suite of snow data (snow depth, snow hardness, slope) and caribou track data (in used plots and non-managed control plots) to be collected for 36 survey locations. Considering snow survey locations across all years, snow berms were wider on the downwind (east) than the upwind (west) sides of the road. Average snow berm height was nearly significantly different (t-test, p = 0.05), and was higher on the downwind side of the road. On both sides of the road, average snow berm height was less than 0.5 m. Slope was similar on upwind and downwind sides of the road. Snow depth was not different between upwind and downwind sides of the road, but snow depth differed between plot types. Snow depth was similar between use plots and snow-managed control plots, but snow was deeper in non-managed control plots compared to both plot types in the berm area. Snow hardness was similar between plots on the upwind and downwind sides of the road, and was also similar across plot types. Caribou track depth measurements between use plots and non-managed control plots could only be compared for data collected in 2023. Mean track depth was not significantly different upwind vs downwind. Average track depths were deeper in use plots compared non-managed control plots, however this difference was not significant (t-test, p = 0.07). Results from the 2022 the power analysis indicated that sample sizes are already sufficient to evaluate at moderate differences in snow hardness between plots (i.e., effect sizes of 50% or greater), however, collecting the full suite of snow data for 65 plots was recommended in order to be able to assess differences in snow hardness for smaller effect sizes (e.g., 25%) for both study questions. A minimum of 29 survey locations should be surveyed in 2024 to collect the remaining data required for the snow study. Final analysis of snow study data is anticipated to occur in 2024 if target sample sizes are achieved, and final results will be presented in the 2024 TEMP report.

8.18.1.8 *Caribou Behaviour*

Please refer to the completed discussion provided in Section 17.2 of the 2023 Wildlife Monitoring Summary Report in Appendix 39.

The behaviour monitoring data from 2023 were combined with data from 2020, 2021, and 2022, and all results outlined in this report use all years, unless otherwise stated. The program and combined data resulted in several key findings:

- The standard monitoring protocols adapted from the GNWT ENR worked well at the Project site.
- 70 surveys were conducted in 2023, compared to 104 surveys in 2022, 134 surveys in 2021, and 116 in 2020; 38 surveys occurred during spring migration from March to May, 1 occurred during calving and summer from June to August, and 31 occurred during fall migration from September to December.
- Observations were well distributed across a range of caribou group sizes from 1 to 2 individuals to >100.
- In total, 59% of disturbances were from heavy vehicles, 30% were from light vehicles, 1% were from blasts, and less than 1% were from ATVs or helicopters. Note, surveys that detected a response to blasting were not specifically the survey format to monitor caribou behavioural responses to blasting (i.e., surveying caribou behaviour for 30 min prior to and after a blast; Section 9.0).
- In 2023, 26 (37%) of the surveys were within 300 m of the road.

- Most caribou behaviour was foraging and moving slowly (non-response). The exception is smaller groups moved more than larger groups. Usually smaller groups (less than 25 individuals) crossed the road. However, plotting data did not show a clear relationship between caribou size and road crossings.

- Caribou mostly exhibited the non-response behaviours of standing, laying, feeding, and walking.

- Larger groups of caribou tended to be recorded further from the road. Seven groups larger than 100 individuals were recorded within 100 m of the road at the start of the survey, including two in 2021, three in 2022, and two in 2023.

- Approximately 50% of the surveys included a disturbance event; typically, haul traffic and light trucks from the mine, and occasionally all-terrain vehicles (ATVs) from Baker Lake on the AWAR for travel and harvesting.

- Following a disturbance event, the proportion of response behaviours in a group of caribou was significantly higher, but generally returned to baseline behaviours within two sampling intervals (i.e., six minutes).

The updates applied to the survey protocol from the previous years of data and analysis and were helpful in improving the overall quality and accuracy of the data. Even with the changes to the protocol, the trends in the results were highly consistent between the four years of data. This increases the confidence that trends are repeatable year to year. Overall, the results of the statistical analysis provided support for the key hypothesis that caribou tend to respond to disturbances, particularly when they are close to the road.

8.18.1.9 *Stop Work due to Wildlife*

As required by NIRB Project Certificate No.004 Condition 60*: Whenever practical, Cumberland shall implement a stop work policy when wildlife in the area may be endangered by the work being carried out.*

Numerous road closures were implemented on all project roads, to ensure safe passage to large groups of migrating Caribou herds. Section 3 of the 2023 Wildlife Monitoring Summary Report (Appendix 39) details and discusses the 2023 road closure. Below is a summary of the results.

Sightings of caribou that appeared to be travelling a migration route were noted in late summer and the fall migration decision tree for implementing road closures was implemented starting 31 July 2022. Significant movements of caribou and muskox occurred along the AWAR throughout October and November 2023, resulting in multiple closures to Project-related traffic. The AWAR was closed (i.e., 24-hour closure) on 97 days in 2023, with 80 days due to caribou and 17 days due to weather. The AWAR had closure days with less than 24 hours of closure on 56 occasions, including 26 closure days due to caribou. April and November had the highest number of days with closures (24-hour closures) and January and December had the highest number of days with partial closures (less than 24-hour closures). In total, the AWAR was closed for a total of 2,975 hours in 2023, with the highest number of closure hours reported in April, November, and May due to caribou migration. Speed restrictions were applied on 16 days on the AWAR and were applied in response to caribou or muskox presence. Mitigation measures such as reduced speeds were instituted due to the presence muskox or caribou herds during March, June, July, and September. In total, there were 124 days in 2023 with road closures and speed restrictions applied on the AWAR in response to caribou or muskox.

Significant movements of caribou occurred along the WTHR in spring during April, resulting in multiple closures to Project-related traffic. The WTHR was fully closed (i.e., 24-hour closure) on 37 days, with 33 closure days due to caribou and 4 closure days due to weather. On 64 days, the WTHR experienced closures occurring for less than 24 hours, with 23 closure days related to caribou and 1 closure day related to muskox. In total, the WTHR was closed for a total of 1503 hours in 2023, with the highest number of closure hours reported in April and May due to caribou spring migration and November due to fall migration. Speed restrictions were applied on 60 days on the WTHR and in all cases were applied in response to caribou and/or muskox presence. Reduced speeds were instituted due to the presence of both muskox and caribou herds throughout the year. Traffic restrictions were not applied on the WTHR. In total, there were 117 days in 2023 with road closures and speed restrictions applied on the WTHR in response to caribou and/or muskox.

The frequency of road surveys in 2023 demonstrate Agnico Eagle's commitment to preventing impacts to caribou from the AWAR, WTHR. Mitigation measures such as reduced speeds, convoys, and multiple road closures function to minimize road-related effects including mortality and injury, and to increase caribou passage. Incidental sightings in 2023 recorded in the Wildlife Log and road surveys showed that caribou crossed roads throughout the year, with especially high numbers during fall and spring migration.

Road-related monitoring and mitigation were implemented according to Figures 7 and 8 of the TEMP Version 7. Collar location maps were instrumental in assessing the need for increased road monitoring. Road-related mitigation related to caribou presence in 2023 resulted in road closures and a corresponding reduction in total vehicle movements. Outside of the fall migration period, road closures were implemented, or vehicle movements were restricted (e.g., light vehicles only, speed limit enforced) in response to high caribou numbers. During the fall migration period, road closures were implemented if there were two collared caribou in the regional study area.

Regular wildlife warnings were dispatched based on observation and monitoring data. The road supervisors and operators also ensured protection of wildlife by assisting in surveillance and closing roads as needed. Radio notices reminding operators of the appropriate speed limit were made frequently by dispatchers. During caribou peak migration, notices were sent to all road occupants, regulatory agencies, local groups, and wildlife consultants were notified, and road survey efforts were increased.

Also, once active nests were identified within quarries along the AWAR, mine-related activity was automatically halted within the quarries with the only disturbance being traffic on the nearby AWAR.

Lastly, open pit blasting events were cancelled at the Whale Tail Mine, due to wildlife presence in proximity of the blast. Refer to Section.8.18.1.6 above for more details.

8.18.1.10 *Raptor Nest Survey*

Refer to Section 13 of the 2032 Wildlife Monitoring Summary Report (Appendix 39) for a complete discussion of the methodology and results.

The raptor nest monitoring program is designed to determine Project-related effects, and the success of mitigation strategies to prevent disturbance to nesting raptors. Within the Meadowbank LSA and AWAR LSA, peregrine falcons have previously nested in quarries along the AWAR, the Portage Pit, and Goose Pit. Monitoring of peregrine falcon nests in quarries along the AWAR has been conducted since 2009. The Portage, Goose, Vault, Whale Tail, and IVR Pits are inspected for peregrine falcon activity daily prior

to and during the nesting season and managed under the Peregrine falcon Management and Protection Plan.

Monitoring in 2023 included surveys for nests associated with pits and quarries along the AWAR and WTHR. Raptor activity and potential nest locations were also noted on other surveys including road surveys, viewshed surveys, freshet monitoring, and on-site environmental monitoring. In addition, a research program was conducted by Arctic Raptors in 2023, to determine the relationship between nest success and Mine activity.

Four peregrine falcon nests were documented in Quarries 3 and 8 in 2023. Nests have previously been identified in both these quarries. A peregrine falcon was observed at Quarry 19 being protective of a nest, however no breeding activity was observed prior or during subsequent visits No raptor nesting evidence was observed in quarries along the WTHR in 2023 (Quarries 10.5, 26, 30, 35, 50, and 52). No other raptor nests were identified during pit checks or incidentally during other surveys in 2023.

Raptor nest management plans were not developed at the active nest sites, as Mine-related activity was already restricted within the quarries, with the only disturbance being traffic on the nearby AWAR. Intensive monitoring, which would include approaching nests by foot, was not conducted. Nest locations are not publicized to prevent inadvertent disturbance by curious Mine employees.

8.18.1.11 *Wildlife Deterrence*

As required by NIRB Project Certificate No.004 Condition 25: ***Cumberland shall manage and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. Cumberland shall employ legal deterrents to carnivores and/or raptors at all landfill and waste storage areas. The deterrents are to be developed taking into consideration Traditional Knowledge and in consultation with the HTO, EC and INAC and incorporated into the final Waste Management Plan prior to filing the Plan with the NWB.***

And

As required by NIRB Project Certificate No.004, Condition 59: ***In consultation with Elders and the HTOs, design and implement means of deterring caribou from the tailing ponds, such as temporary ribbon placement or Inukshuks, with such designs not to include the use of fencing"***

And

As required by NIRB Project Certificate No.008 Condition 36: ***Prior to removal or deterrence of raptors, the Proponent will contact the Government of Nunavut – Department of Environment to discuss proposed mitigation options and, if required, will obtain the necessary permits. The Proponent shall include summaries of any mitigation measures implemented and permits obtained in fulfillment of this term and condition in the Proponent's annual report to the Nunavut Impact Review Board.***

There was no removal of raptor nests at both the Meadowbank and Whale Tail sites in 2023. Deterrents were applied to Quarry 22 and Quarry 2 in 2023 to discourage raptor nesting. All activity within the area were postponed minimizing the impact of potential nesting for this species and therefore ensure proper conditions for nesting activity. Once an active nest is identified, mine-related activity (e.g., vehicle operation, heavy equipment, aircrafts, blasting, etc.) is automatically halted within the quarries, with the only potential disturbance being traffic on the nearby AWAR/WTHR.

In 2023, to ensure caribou did not frequent the tailings storage facilities, near-daily monitoring of the TSF was performed throughout the open water season by environment personnel. Should caribou be observed near the TSF, they were swiftly deterred. Furthermore, 2023 was a heavy construction season around the TSF to continue the progressive closure of those cells. As a result of the construction, few caribou were observed in the vicinity of the TSF. On account of the frequent presence of environment personnel and other workers in the area, it is not believed caribou spent any extended time near tailings, minimizing potential exposure.

Wildlife deterrents are implemented when habituated or problematic wildlife pose a threat to the wildlife or Mine personnel through human-wildlife conflict. Necessary deterrent strategies are determined and implemented by the Environment Department based on the severity of risk and the nature of the interaction. Each deterrence event is reported using the EQuIS database. Wildlife deterrents were used and reported throughout 2023 at the mine sites. A total of 62 deterrence activities were reported from interactions with four species of mammals: caribou, muskox, wolf, and wolverine. Deterrence actions in the winter months were primarily related to wolverine and wolves, whereas in the spring and summer deterrence actions were related mostly to caribou and muskox.

8.18.2 Terrestrial Advisory Group

As required by NIRB Project Certificate No.008 Condition 27: ***The Proponent shall participate in a Terrestrial Advisory Group with the Government of Nunavut, the Baker Lake Hunters and Trappers Organization, the Kivalliq Inuit Association, and other parties as appropriate to continually review and refine mitigation and monitoring details within the Terrestrial Ecosystem Management Plan. Additional caribou collar data, results from associated studies, Inuit Qaujimajatuqangit shared by knowledge holders and other monitoring data as available should be considered for incorporation as appropriate. Finalized Terms of Reference for the Terrestrial Advisory Group shall be provided to the NIRB within six (6) months of issuance of the Project Certificate. A summary of outcomes from Terrestrial Advisory Group meetings shall be provided to the NIRB on an annual basis in the Proponent's Annual Report.***

And

As required by NIRB Project Certificate No.008 Condition 30: ***The Proponent shall work with the Government of Nunavut, the Baker Lake Hunters and Trappers Organization and the Kivalliq Inuit Association through the Terrestrial Advisory Group to develop and update thresholds to trigger implementation of mitigation measures on both the AWAR and Whale Tail Haul road, up to and including temporary road closures. The Proponent shall consider how these thresholds and mitigation measures reflect caribou life cycle sensitivities as well as demonstrate how Inuit Qaujimajatuqangit was incorporated throughout the development of these criteria and procedures.***

The Proponent shall ensure the Terrestrial Ecosystem Management Plan is updated to reflect the thresholds agreed upon in accordance with the Terrestrial Advisory Group Terms of Reference, and that this Plan along with a summary of consultation with the Terrestrial Advisory Group are submitted on an annual basis or as thresholds are otherwise modified in the Proponent's annual report to the to the Nunavut Impact Review Board.

The Term of Reference for the TAG was provided to NIRB on November 1st, 2018. Refer to Appendix 46 of the 2018 Annual Report. The TOR was officially signed by all parties in 2019.

In fulfillment of Condition 27, a summary of outcomes from Terrestrial Advisory Group meetings are provided in the below section. Fulfillment of Condition 30 is discussed in Section 8.18.2.1.2.3.

8.18.2.1 *Terrestrial Advisory Group*

8.18.2.1.1 Meetings Held in 2023

In accordance with Nunavut Impact Review Board Project Certificate No.008 Term and Condition 27, a Terrestrial Advisory Group was established for the Meadowbank and Whale Tail mines. It provides technical oversight on the Mine's mitigation, monitoring and adaptive management measures related to the protection of wildlife. The following parties are actively part of the Terrestrial Advisory Group: the Baker Lake Hunter and Trapper Organization, the Government of Nunavut, the Kivalliq Inuit Association and Agnico Eagle. It is also a venue for TAG members to openly raise concerns about wildlife, and to review and discuss the results of wildlife monitoring and to discuss opportunities for ongoing research.

Terms of reference were finalized and signed by all parties in 2019. Several TAG meetings were held since June 2018. Meetings held in 2023 are summarized in Table 8-93 below.

Table 8-93 TAG meeting held in 2023

Date	TAG meeting No.	Type of meeting	Parties attending
February 21st, 2023	12	Conference call	Agnico Eagle, BLHTO, KivIA, GN
Series of meetings between April - May 2023	N/A	Recurrent spring migration update conference calls	Agnico Eagle, BLHTO, KivIA, GN
August 24th, 2023	13	Conference call and In-person at Baker Lake	Agnico Eagle, BLHTO, KivIA, GN
September 28th, 2023	14	Conference call	Agnico Eagle, BLHTO, KivIA, GN, CIRNAC
November 7th-8th, 2023	15	Conference call and In-person at Montreal	Agnico Eagle, BLHTO, KivIA, GN, CIRNAC
December 12th, 2023	16	Conference call and In-person at Baker Lake	Agnico Eagle, BLHTO, KivIA, GN, CIRNAC
Series of meeting between October and November, December 2023	N/A	Recurrent fall migration update conference calls	Agnico Eagle, BLHTO, KivIA, GN, CIRNAC

Discussions held in 2023 were fruitful and led to numerous resolutions on files/brainstorming sessions. To facilitate discussions during meetings or conference calls, where possible, Agnico Eagle provided agenda and reports summarizing thoughts prior to the TAG meeting. When feedback was provided prior to the meeting, these were incorporated into the presentation made at the meeting. This ensured discussions targeted key items and facilitated resolution of issues and closing of commitments made.

8.18.2.1.2 Summary of outcomes

This section summarizes the TAG meetings held in 2023.

TAG #12 – February 2023

TAG #12 focused on debriefing on the 2022 caribou fall migration, and preparing the upcoming spring migration. The fall migration debrief included reviewing available data, focusing on caribou observations

and collar data, implemented mitigation measures, and fuel autonomy mitigation measures. Looking ahead at the 2023 spring migration, Agnico Eagle proposed to establish recurrent calls with a reduced TAG (1-2 members per organizations) throughout the migration period to provide up to date information, and, if needed, guide decision-making.

Recurrent Spring Migration Update Conference Calls – April, May 2023

Throughout the migration period, Agnico Eagle hosted conference calls to provide up to date field observations, which were complemented by BLHTO and KivIA's field observation, and discuss the ongoing migration and operations status. When needed, requests were made and discussed, identifying the path forward.

TAG #13 – August 2023

TAG #13 was facilitated from Baker Lake, and focused on debriefing on the 2023 caribou spring migration, and establish the roadmap for TEMP v8 finalization. The spring migration debrief included reviewing available data, focusing on caribou observations and collar data, and implemented mitigation measures. Presented roadmap targeted a submission of TEMP v8 in November 2023.

TAG #14 – September 2023

TAG #14 focused on summarizing the main difference between TEMP v7 and the newly proposed TEMP v8, and preparing the 2023 caribou fall migration. Following the meeting, Agnico Eagle provided the TEMP differences summary in a plain language memo to all TAG members, followed by the proposed TEMP v8. TAG members were to provide comments on the proposed update to the TEMP.

TAG #15 – November 2023

TAG #15 was an in-person workshop held over 2 days focusing on reviewing and updating the proposed TEMP v8 to integrate the comments received. Significant differences could not be reconciliated over the two days. As a result, the TAG proposed to delay submission of the updated TEMP, to allow further discussion and ultimately a more robust management plan. The TAG also mentioned the intention to have another in-person workshop in early 2024, to establish a pilot caribou protection program for the 2024 spring migration.

TAG #16 – December 2023

TAG #16 was facilitated from Baker Lake, and focused on debriefing on the 2023 fall migration, and finalizing details for the early 2024 in-person workshop. The fall migration debrief included reviewing available data, focusing on caribou observations and collar data, implemented mitigation measures, and operational impact of the migration.

Recurrent Fall Migration Update Conference Calls – October, November, December 2023

Throughout the migration period, Agnico Eagle hosted conference calls to provide up to date field observations, which were complemented by BLHTO and KivIA's field observation, and discuss the ongoing migration and operations status. When needed, requests were made and discussed, identifying the path forward.

Table 8-94 below presents the outstanding action item summary from TAG meetings held in 2023 and from previous meeting.

Table 8-94 2023 TAG Action Item Summary

Action Item No.	Action Item Summary	Responsibility	Status
8 Nov23 - 1	GN to assess feasibility of annual presentation to the TAG on year-over-year trends or shifts in caribou distributions or movement.	GN	-
8 Nov23 – 2	Agnico to assess feasibility of GN and KivIA recommendations for traffic frequency monitoring and sensory disturbance threshold development.	Agnico Eagle	-
8 Nov23 – 3	Behavioural study re-analysis – Agnico to look at feasibility of evaluating effect of group composition, number of calves/young, males, females (Agnico Eagle)	Agnico Eagle	-
8 Nov23 – 4	Re-analysis of lead caribou data for fall migration (Agnico Eagle)	Agnico Eagle	-
8 Nov23 – 5	TAG to recommend delaying submission of revised TEMP 8.1 (Agnico to draft and circulate for sign-off)	Agnico Eagle	Complete 12-Dec-23
8 Nov23 – 6.1	Draft TEMP 8.1 – Agnico Eagle to provide written response to comments provided to date.	Agnico Eagle	-
8 Nov23 – 6.2	Draft TEMP 8.1 – Agnico Eagle to revise current draft according to today's discussion.	Agnico Eagle	-
8 Nov23 – 7.1	Lead caribou closures pilot study plan draft.	GN, KivIA	Complete and revised as Action Item 12Dec23-2
8 Nov23 – 7.2	Agnico to provide past years' road survey data to GN and KivIA.	Agnico Eagle	-
24Aug23-1	Agnico Eagle to provide to GN the total number of road surveys recorded during 2023 spring migration and/or describing spring 2023 caribou observations per road surveys	Agnico Eagle	To be provided by January, 2024
24Aug23-4	Agnico to address regulator comments on the 2022 Wildlife Summary Report with the TAG as indicated in Agnico Eagle's responses to the NIRB. Provide summary of recommendations and planned actions, and/or schedule meeting time to review.	Agnico Eagle	-
24Aug23-5	As part of TAG decision tracking documentation, incorporate recommendations from regulatory review of annual reports that are referred by Agnico Eagle to the TAG for discussion and decision-making.	Agnico Eagle	-
24Aug23-7	GN to provide info on any recent collaring work (new collars, new tech etc.), any results from recent calving surveys, and population estimates	GN	To be provided in January, 2024
24Aug23-8	Agnico to provide commentary or calculation of operational impacts of extended road closures for discussion as part of TEMP revisions.	Agnico Eagle	Complete 12-Dec-23
21Feb23-3	GN to look into creating figures/animations that combine road survey data with caribou collar data, as well as incorporating information on when road closures are due to weather.	GN	-
21Feb23-5	GN to look into sharing Meliadine-area collar animations with Agnico Eagle.	GN	Ongoing
21Feb23-6	Agnico Eagle to look into identifying caribou lead groups and their behaviours from past surveys.	Agnico Eagle	Archived 12Dec23 – will be completed as part of new lead caribou pilot study.

Action Item No.	Action Item Summary	Responsibility	Status
21Feb23-8	Agnico Eagle to draft plan for monitoring behavioural response to personnel escorts for the purpose of shift change during road closures, and provide to TAG for discussion.	Agnico Eagle	Archived 12Dec23 – no longer required.
29Nov22-9	Agnico Eagle follow up with KivIA about project tolerant memo, see what can be done with the data available and any changes that can be made.	Agnico Eagle	Archived 12Dec23 – no longer required.
29Nov22-10	Snow study – add data collection for snow characteristics across the three road height categories.	Agnico Eagle	Archived 12Dec23 – no longer required.

8.18.2.1.2.1 Group Size Threshold and Caribou Protection Measures

Many discussions have been held within the TAG regarding the calculation method for caribou's Group Size Thresholds along with other TEMP mitigations for the WTHR and AWAR. During the March 16th, 2021 TAG meeting, an agreement was reached to update the GST calculation method.

In order to ensure that 75% of caribou crossing the Meadowbank All-Weather Access Road (AWAR) or Whale Tail Haul Road (WTHR) are subject to enhanced mitigation, the following GST calculation method, initially proposed by the GN, shall be applied prior to each migration season (spring & fall).

1 – The minimum annual sample size of caribou group observations required to revise the GST shall be 100 caribou groups observed at a distance of greater or equal to 250 m and less or equal to 1000 m from the roads.

2 – An average of the annual GSTs calculated for the AWAR and WTHR will be applied to both roads (i.e. the same GST will apply to the AWAR and WTHR).

3 – All existing years of caribou group size data (with sufficient sample size as point 1 above) shall be used to calculate a mean GST.

Based on this agreed calculation method, several discussions were held in 2023 to discuss the results of the GST implementation. GST for 2024 will continue to be based on this calculation method. However, as previously mentioned, in the spring of 2024, the TAG intends to implement a pilot program, focusing on the lead caribou protection.

8.18.3 Wildlife Crossing Whale Tail Site

As required by NIRB Project Certificate No.008 Condition 32: ***The Proponent shall engage with the Baker Lake Hunters and Trappers Organization and other relevant parties to ensure that safety barriers, berms, and designed crossings associated with project infrastructure, including the haul road, are constructed and operated as necessary to allow for the safe passage of caribou and other terrestrial wildlife. Summaries of engagement with the Baker Lake Hunters and Trappers Organization regarding implementation of this condition shall be provided to the Nunavut Impact Review Board along with details of the selected crossings in the Proponent's annual report to the Nunavut Impact Review Board.***

Following consultation of the Baker Lake HTO, Agnico Eagle re-sloped, in previous years, the Whale Tail Haul Road at KM 127 to facilitate the wildlife passage in this area. BLHTO came back once the re-sloping was finalized and did not express any other concerns.

Within the TAG meetings, permeability and road design discussions are ongoing and will meet the satisfaction of all parties. Different projects are also ongoing and are being discussed at the TAG meetings, including monitoring movement of caribou with cameras. The TAG projects will be highly useful into the determination of the preferred wildlife passage and behavior in the field.

As part of the Whale Tail expansion project, Agnico Eagle has committed to conduct an analysis of available scientific and IQ caribou data (including collar, road sightings, trails, oral testimony and mapping) to determine sections of the Haul Road that are most likely to be used by migrating caribou. In July 2019, Agnico Eagle submitted to NIRB and TAG members a memo to fulfill this commitment. Following this submission, only the KivIA provided comments. Agnico Eagle submitted a revised version in August 2019 and received comments from KivIA. Agnico Eagle presented the updated report to the TAG on November 26th, 2019 for final approval. A site visit was organized for TAG members in November 2022. The Whale Tail Haul Road was observed on the field to discuss caribou obstruction. It is Agnico Eagle's understanding that flags are a more important nuisance needing addressing than further refining the Road's slope design. Further discussion remains needed to conclude the design requirement. Following this, a Construction Plan, will be provided to TAG members and the NIRB, if the WTHR enlargement to its full permitted width is required.

8.18.4 Wildlife Mortality Whale Tail Site

As required by NIRB Project Certificate No.008 Condition 33: ***A summary regarding all wildlife incidents reported, including a reference to whether compensation was or will be provided by the Proponent for direct mortalities, as well as a description of any other steps taken in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board. The Proponent shall provide wildlife incident reports to the appropriate authorities in a timely fashion. Wildlife incident reports should include the following information:***

> ***a) Locations (i.e., latitude and longitude), species, number of animals, a description of the animal activity, and a description of the gender and age of animals if possible;***
>
> ***b) Prior to conducting project activities, the Proponent should map the location of any sensitive wildlife sites such as denning sites, calving areas, caribou crossing sites, and raptor nests in the project area, and identify the timing of critical life history events (i.e., calving, mating, denning and nesting); and***
>
> ***c) Additionally, the Proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites.***

Section 3.6.9 of the 2023 Wildlife Monitoring Summary Report (Appendix 39) describes road-related wildlife mortalities. Table 3-19 of the 2023 Wildlife Monitoring Summary Report presents the project-related wildlife mortalities related to the All-weather Access Road, and Whale Tail Haul Road in 2023. Arctic hare, arctic fox, muskox and arctic ground squirrel can be found within that table. As per the IIBA Schedule J, Item 6.1, compensation was sent to KivIA for the arctic fox and muskox mortalities. Complete reports regarding these incidents were sent to the GN Conservation officer and KivIA.

Upon discovery of any roadkill, employees were reminded of road rules and the need to enforce these rules by Environment staff and/or road supervisors. All employees are regularly reminded at toolbox meetings that all Project-related incidents are to be reported and that wildlife have the right-of-way at all times. Mine staff are required to stop vehicles and wait for wildlife to crossroads. No feeding wildlife and waste management practices are also regularly reviewed with employees. There were no project-related caribou, grizzly bear, wolverine or wolf mortalities associated with the AWAR or WTHR in 2023.

Section 4.5.8 of the 2023 Wildlife Monitoring Summary Report (Appendix 39) provides a summary of recorded wildlife mortalities near or within the Meadowbank and Whale Tail mine sites. In 2023, there were six (6) wildlife project-related mortalities at Meadowbank, three (3) wolverines and three (3) wolves. These animals were dispatched on site following reception of the GN DOE wildlife destruction authorizations. Refer to report presented in Appendix 39 for more details regarding. As per the IIBA Schedule J, Item 6.1, compensation was sent, for the wolves and wolverines, to KivIA and the complete reports regarding these incidents were sent to the GN Conservation officer and KivIA. There was no project-related mortality at Whale Tail in 2023.

All 2023 project-related mortality reports are included in the 2023 Wildlife Monitoring Summary Report.

8.18.5 Migratory Birds Protection Plan Whale Tail site

As required by NIRB Project Certificate No.008 Condition 34: ***The Proponent will maintain a Migratory Birds Protection Plan for the Project in consultation with Environment and Climate Change Canada and other interested parties. The plan should include and/or demonstrate that the Proponent give consideration to the following:***

- ***Information obtained from baseline characterization of migratory bird and vegetation communities within the predicted flood area;***
- ***Results of field tests and/or the thorough literature review of the effectiveness of preferred deterrence prior to actual flooding; and***
- ***Details regarding monitoring the effectiveness of mitigation measures during flooding.***

Results of implementation of the Migratory Birds Protection Plan shall be reported to the Nunavut Impact Review Board on an annual basis in the Proponent's annual report.

Through collaboration with Trent University and ECCC, research studies were initiated in 2018 to determine the effectiveness of planned mitigation measures for migratory birds during flooding of the Whale Tail South area. This study was conducted over three field seasons (2018, 2019, 2021) - before, during and after flooding. The three objectives of this study were to:

1. Determine the efficacy of various audio and visual deterrents in preventing flood-zone nesting.

2. Estimate the number of nests and the species composition lost due to the flooding.

3. Examine the behavioural response of birds to:

    a. deterrents (e.g., impacts to duration on the nest) and

    b. flooding (determine whether birds re-nested nearby after the flooding events).

Complete methods and results for Objectives 1, 2, and 3a are published and available online in the Trent University MSc Thesis "*Assessing and Mitigating the Impacts of Mining-Induced Flooding on Arctic-Nesting Birds*" (Holmes, 2022a) and are not revisited further here. A manuscript focussing on the investigation into the effectiveness of deterrents (Objective 3a) was also submitted for publication in late 2021. Comments were received in 2022, and the manuscript was resubmitted in January, 2024 to *Avian Conservation and Ecology*.

Methods and results related to Objective 3b have been previously provided in Appendix A of the 2021 Migratory Bird Protection Report, with supplemental analysis as reported in the 2022 Migratory Bird Protection Update. The complete analysis and report on behavioural responses will be included in a second Trent University MSc Thesis manuscript, expected to be submitted prior to September, 2024.

References for any publications produced in 2024 will be provided in the 2024 Annual Report, but otherwise reporting under the Migratory Bird Protection Plan is considered complete at this time.

8.18.6 Species at Risk Whale Tail Site

As required by NIRB Project Certificate No.008 Condition 35: ***The Proponent shall ensure that the mitigation and monitoring strategies developed for Species at Risk are updated as necessary to maintain consistency with any applicable status reports, recovery strategies, action plans, and management plans that may become available through the duration of the Project. Information regarding development, implementation and monitoring of the measures developed by the Proponent in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.***

The intent of the federal Species at Risk Act is to protect species at risk from becoming extirpated or extinct as a result of human activity. Species with ranges that overlap with the Mine, may be considered to be of concern as a result of either their national, territorial or Committee on Status of Endangered Wildlife in Canada (COSEWIC) status. To date, no species have been listed under the Nunavut Species at Risk Act.

There are seven wildlife species of concern with breeding or wintering ranges that overlap with the Mine (Table 8-95). In November of 2016, caribou were designated as threatened by COSEWIC (2016).

Table 8-95 Species of Concern Meadowbank and Whale Tail Study Areas

Species	COSEWIC Assessment	Federal Species at Risk Act	Potential Impact
Caribou (barren-ground population)	Threatened	Under consideration for addition	· Direct habitat loss · Barriers to movement and changes in behaviour
Grizzly bear (western population)	Special Concern	Schedule 1 Special Concern	· May be attracted to developments if food is available · Direct habitat loss
Wolverine (western population)	Special Concern	Schedule 1 Special Concern	· May be attracted to developments if food or shelter is available · Direct habitat loss
Peregrine Falcon (anatum-tundrius complex)	Not at risk	No status	· Direct habitat loss

Species	COSEWIC Assessment	Federal Species at Risk Act	Potential Impact
Short-eared Owl	Threatened	Schedule 1 Special Concern	· Direct habitat loss
Red-necked Phalarope	Special Concern	Schedule 1 Special Concern	· Direct habitat loss
Polar Bear	Special Concern	Schedule 1 Special Concern	· None anticipated

Agnico Eagle will ensure that the mitigation and monitoring strategies developed for Species at Risk are updated as necessary to maintain consistency with any applicable status reports, recovery strategies, action plans, and management plans that may become available through the duration of the Mine. Updates to the Species at Risk will be considered during annual review and with each new revision of the TEMP.

8.18.7 Invasive Vegetation Species

As required by NIRB Project Certificate No.008 Condition 25: ***At least 30 days prior to first shipment of equipment and supplies to the site, the Proponent's mitigation plans, protocols, monitoring and inspection program required in fulfillment of this term and condition shall be provided to the NIRB for review. Subsequently, information regarding inspections, monitoring results, and any reports as referenced above shall be included in the Proponent's annual report to the NIRB. The Proponent shall:***

> ***a) Ensure that equipment and supplies brought to the project sites are clean and free of soils that could contain plant seeds or organic matter not naturally occurring in the area***
>
> ***b) Ensure that vehicle tires and treads are inspected prior to initial use in project areas;***
>
> ***c) Incorporate protocols for monitoring for the potential introduction of invasive vegetation species (e.g. surveys of plant populations in previously disturbed areas) into relevant monitoring and management plans for the terrestrial environment; and***
>
> ***d) Ensure any introductions of non-indigenous plant species must be promptly reported to the Government of Nunavut Department of Environment.***

In 2019, Agnico Eagle initiated a non-native plant monitoring study to assess and monitor the potential introduction of non-native plant species, including weeds or invasive species. Subsequent monitoring events occurred from 2020 to 2023. Surveys will continue to be completed annually as per the TEMP Version 7. Complete 2023 survey method and results are presented in Section 16 of the 2023 Wildlife Monitoring Summary Report – Appendix 39. Agnico Eagle will refer to the complete report in Appendix as the below is a summary of the results.

Surveys at the Meadowbank Complex were conducted by a WSP vegetation ecologist between 11 to 23 July 2023. The Meadowbank Complex area includes the AWAR, WTHR, Baker Lake tank farm, Whale Tail Mine site, and Meadowbank Mine site areas.

No non-native plants, as identified by the Canadian Endangered Species Conservation Council, were recorded along the AWAR, WTHR, Baker Lake tank farm, and Whale Tail sites. A total of 198 individual locations were surveyed for non-native plants in 2023. Eighteen surveys were completed in undisturbed tundra around the Meadowbank Mine site, WTHR, and AWAR to survey the presence/absence of non-native species. No non-native plants were found in the undisturbed areas surveyed.

One non-native plant species, common pea (*Pisum sativum*) was observed within the Meadowbank Mine site within a snow dump area. Approximately 150 common pea plants found within a 245 m^2 area were hand-pulled, bagged, and disposed of at the time of the survey. Common peas are an annual plant native to Ethiopia, the Mediterranean, and central Asia and have a growing season of 60 to 150 days. Given the climate at the Meadowbank Complex and short growing season, there is a low likelihood that this species could complete its life cycle and become an established population in this area; however, monitoring this location is recommended in 2024 to confirm there are no new common pea plants observations.

Agnico Eagle continued to implement in 2023, in accordance with the TEMP, a protocol to ensure that all equipment and bulk supplies must arrive to the mine site free of soil or plant debris to minimize the risk of invasive plant introduction. Invasive plant inspection surveys were completed on cargo in Becancour, prior to being loaded onto shipping vessel. Carrier had closely followed the procedure and confirmed that each equipment/sea can was free of invasive plant.

8.19 COUNTRY FOOD

As required by NIRB Project Certificate No.004 Condition 67: ***Develop and implement a program to monitor contaminant levels in country foods in consultation with HC; a copy of the plan shall be submitted to NIRB's Monitoring Officer.***

Agnico Eagle assesses risk to wildlife receptors making use of habitat in the vicinity of the Meadowbank Complex, and human health from consumption of country foods under the Wildlife Screening Level Risk Assessment Plan (a component of the Terrestrial Ecosystem Management Plan). A plan update is provided here as Appendix 39.

The WSLRA field program is completed on a 3-year cycle. The last Wildlife and Country Foods Screening Level Risk Assessment report was completed in 2021 and was provided as Appendix 46 of the 2021 Annual Report. In response to ECCC comments on this report, received in June 2022, Agnico Eagle provided a technical memorandum to ECCC in December 2022, with revised assumptions about the proportion of food (as benthic invertebrates) obtained by shorebirds from the TSF, and incorporating analysis of tailings beach sediment samples instead of mill effluent. In this analysis, the hazard quotient for arsenic marginally exceeded the target of 1, so Agnico Eagle committed to follow-up field sampling in 2023. This evaluation was completed following the same sediment sampling methods and with the same exposure assumptions used previously. Biota-sediment accumulation factors from the literature were revised to include more empirically derived values, which are considered to provide a more accurate characterization of risk. In this follow-up analysis (incorporating data collected in both 2022 and 2023), hazard quotients for all evaluated contaminants of potential concern were below the target of 1, indicating

negligible risk to shorebirds making use of the TSF as habitat, under the assumptions of the assessment. These results will be confirmed during the next scheduled WSLRA field program in 2024.

8.20 ARCHAEOLOGY

8.20.1 Meadowbank and Whale Tail Sites

As required by NIRB Project Certificate No.004 Condition 69: ***carry out the Project to minimize the impacts on archeological sites, including conducting proper archeological surveys of the Project area (including the all-weather road and all quarry sites); [Cumberland] shall provide to the GN an updated baseline report for archeological sites in the Project area.***

And

As required by NIRB Project Certificate No.004 Condition 70: ***shall report any archeological site discovered during the course of construction, including a burial site, immediately and concurrently to the GN and KivIA. Upon discovering an archeological site, Cumberland shall take all reasonable precautions necessary to protect the site until further direction is received from the GN. In the event that it becomes necessary to disturb an archaeological site, Cumberland shall consult with Elders, GN and KivIA to establish a site specific mitigation plan, and obtain all necessary authorizations and comply with all applicable laws.***

And

As required by CIRNAC Land Lease 66H/8-1-5 Condition 66: ***If an archaeological site is discovered with the Land, the lessee shall immediately advise the Minister and the Territorial Archaeologist in writing.***

And

As required by NIRB Project Certificate No.008 Condition 55: ***The Proponent shall conduct archaeological surveys prior to land disturbance related to the Project and report survey results to applicable parties, including the Government of Nunavut – Department of Culture and Heritage. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.***

And

As required by NIRB Project Certificate No.008 Condition 56: ***The Proponent shall report any archaeological site discovered during the construction, operation, and closure phases to the Government of Nunavut – Department of Culture and Heritage and the Kivalliq Inuit Association. Upon discovering an archeological site, the Proponent shall:***

- ***Take all reasonable precautions necessary to protect the site until further direction is received from the Government of Nunavut – Department of Culture and Heritage; and***
- ***If it becomes necessary to disturb an archaeological site, the Proponent shall consult with the Government of Nunavut – Department of Culture and Heritage, the Kivalliq Inuit Association, and potential impacted communities to establish a site specific mitigation plan, and obtain all necessary authorizations and comply with all applicable laws.***

Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.

In 2023, no archeology surveys pertaining to operation were required.

8.21 CLIMATE MONITORING

8.21.1 Meadowbank Site

As required by NIRB Project Certificate No.004 Condition 21: ***shall fund and install a weather station at the mine site to collect atmospheric data, including air temperature and precipitation.***

During the technical meeting and pre-hearing conference held in Baker Lake on January 14 -15, 2015 regarding the NWB Water License renewal, CIRNAC mentioned that *climate data provide important input for interpreting site-specific geothermal aspects, such as the rate of mine waste freezeback and active layer thicknesses, for permafrost encapsulation of the mine wastes. In addition, the previous year's climate is useful for interpreting the hydrology and water balance for the site.*" It was recommended that the annual monitoring report summarize monthly climatic conditions at the Meadowbank site over a 12-month period. Table 8-96 includes average, minimum and maximum air temperatures, average and maximum wind speed as well as daily average, total and maximum volume of precipitation (rainfall / snowfall) on site. It should be noted that Agnico Eagle does not have a snow gauge but rather a rain gauge. For this reason, snow precipitations are reported as mm of rain.

In 2023, temperatures and winds recorded were similar to annual trends observed from 2009-2022. The coldest temperature was -45.05°C and warmest temperature was 25.39 °C. The maximum wind speed recorded in 2023 was 32.48 m/s. Total precipitation in 2023 (222.15 mm) remain within the annual precipitation range from previous years: 2022 (226.30 mm), 2021 (355.48 mm), 2020 (168.99 mm), 2019 (334.54 mm) 2018 (154.38 mm), 2017 (268.35 mm) and 2016 (299.45 mm). Figures 28, 29 and 30 below show, respectively, the temperature average, wind speed average and total precipitation data from 2009-2023.

Table 8-96 Meadowbank 2023 monthly climate data

Month	Temperature Average	Temperature Max	Temperature Min	Wind Speed Average	Wind Speed Max	Total Precipitation	Daily average Precipitation	Max Precipitation
	ºC	ºC	ºC	m/s	m/s	mm	mm	mm
January	-27.48	-8.54	-39.90	5.67	18.15	10.25	0.33	2.80
February	-37.24	-27.35	-45.05	3.38	13.60	1.70	0.06	1.10
March	-27.51	-17.72	-39.07	4.14	15.11	2.50	0.08	1.10
April	-14.90	-3.42	-31.71	2.78	15.21	0.10	0.00	0.10
May	-0.43	12.35	-12.28	5.45	19.68	10.55	0.34	3.90
June	7.75	19.89	-2.16	4.90	18.37	54.00	1.86	19.45
July	13.90	25.22	5.43	4.94	14.84	10.25	0.33	5.00
August	12.59	25.39	1.14	5.12	17.40	65.05	2.10	17.20
September	5.86	17.39	-0.73	5.72	19.29	39.95	1.33	19.20
October	-1.38	9.16	-12.14	6.35	21.38	4.05	0.13	1.70
November	-15.00	-2.11	-29.77	6.24	32.48	8.70	0.29	2.60
December	-19.84	-8.65	-30.78	5.03	21.03	15.05	0.49	5.40
Total	N/A	N/A	N/A	N/A	N/A	222.15	N/A	N/A
Average	-8.64	3.47	-19.75	4.98	18.88	N/A	0.61	6.63

Figure 28 Meadowbank Site Temperature Average 2009-2023

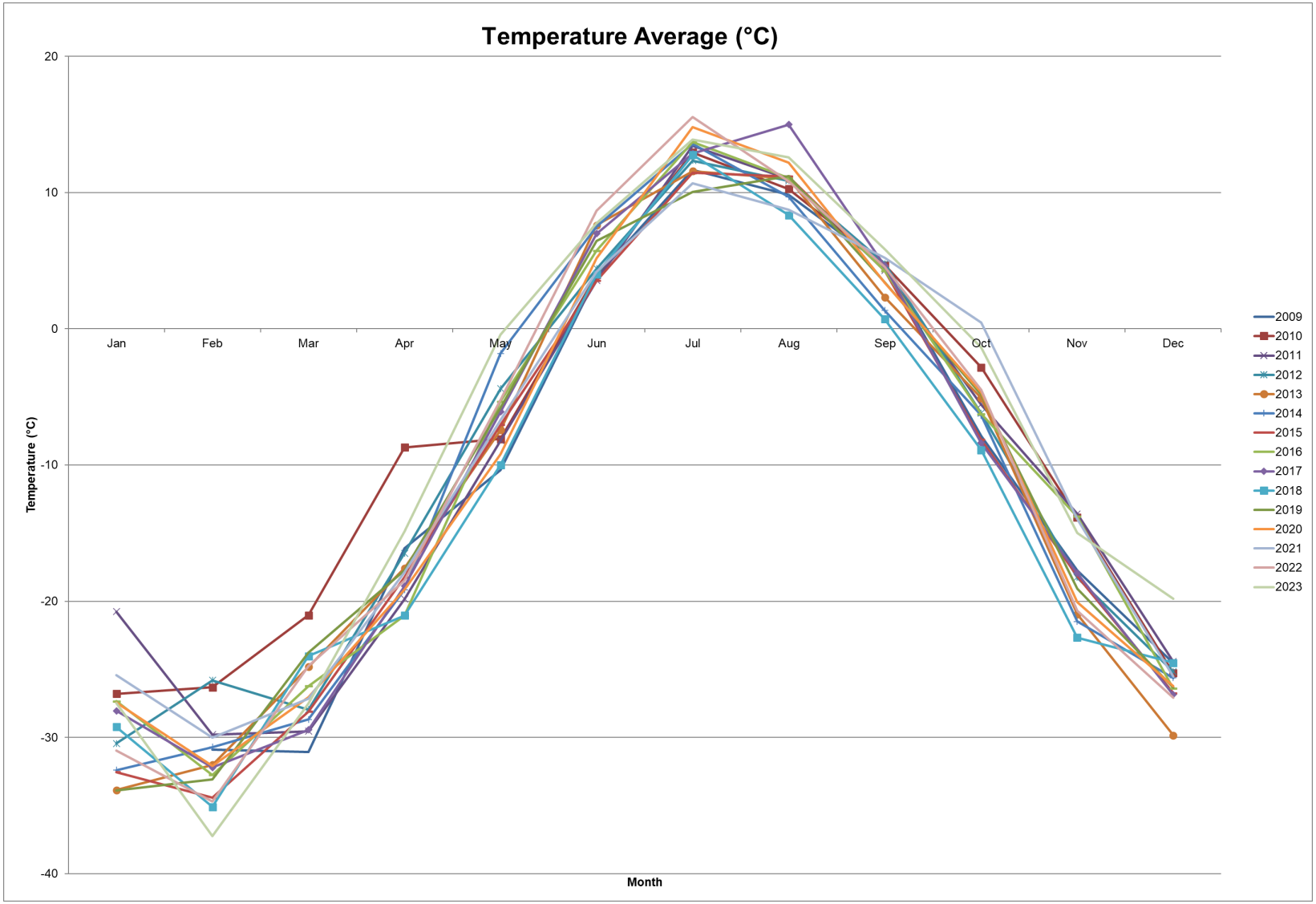


Figure 29 Meadowbank Site Wind Speed Average 2009-2023

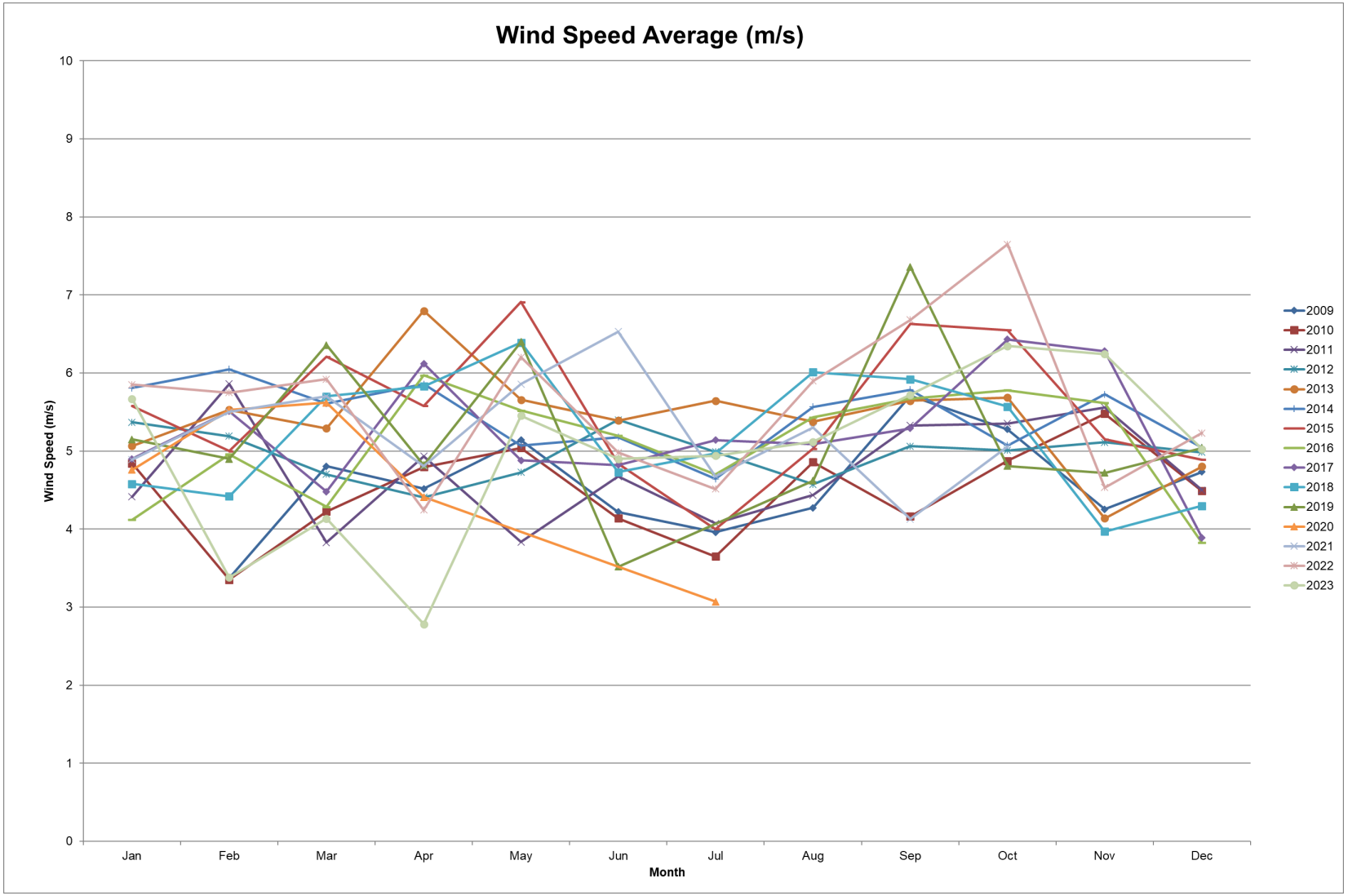
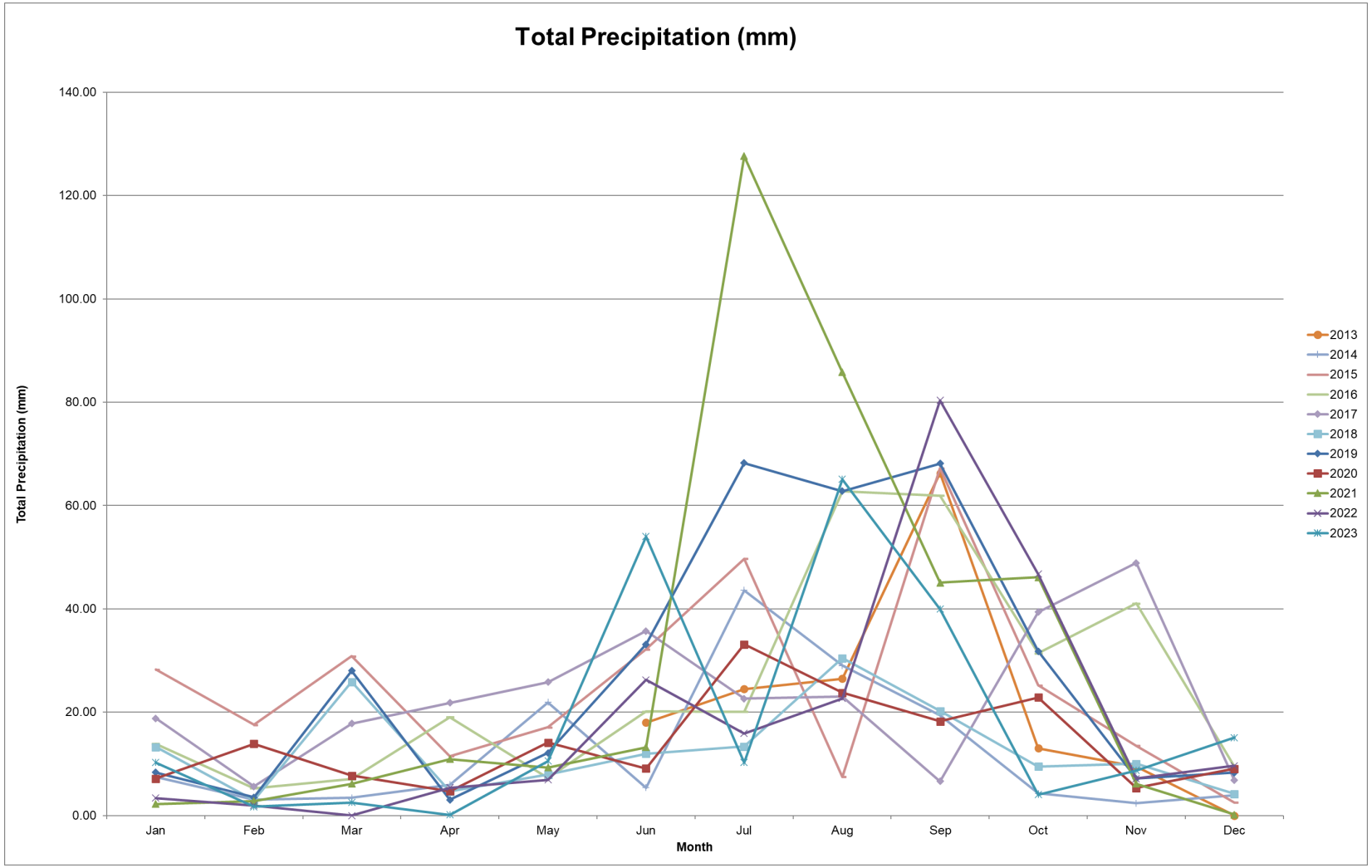


Figure 30 Meadowbank Site Total Precipitation 2013-2023



8.21.2 Whale Tail Site

The meteorological station at Whale Tail was functional for the whole year of 2022. Table 8-97 includes average, minimum and maximum air temperatures, average and maximum wind speed as well as daily average, total and maximum volume of precipitation (rainfall / snowfall) on site. It should be noted that Agnico Eagle does not have a snow gauge but rather a rain gauge. For this reason, snow precipitations are reported as mm of rain.

In 2023, temperatures, winds and precipitation recorded were similar to the data obtained for Meadowbank Site and to historic data from Meadowbank and Baker Lake from 2009-2022. Figures 31, 32 and 33 below show, respectively, the temperature average from 2018-2023, wind speed average from 2018-2023 and total precipitation data for 2019-2023. The coldest temperature for Whale Tail in 2023 was -44.20 °C and warmest temperature was 27.14°C. The maximum wind speed recorded in 2023 was 20.31 m/s. Total precipitation at Whale Tail site in 2023 (265.9mm) were lower than 2022 (293.40mm), 2021 (325.90 mm) and 2019 (352.58 mm), but higher than 2020 (198.05 mm).

Table 8-97 Whale Tail 2023 monthly climate data

Month	Temperature Average	Temperature Max	Temperature Min	Wind Speed Average	Wind Speed Max	Total Precipitation	Daily average Precipitation	Max Precipitation
	ºC	ºC	ºC	m/s	m/s	mm	mm	mm
January	-27.98	-8.97	-39.80	5.05	17.25	25.70	0.83	10.90
February	-36.77	-21.37	-44.20	3.46	15.54	5.60	0.20	1.70
March	-27.51	-15.17	-38.74	3.50	13.78	5.80	0.19	2.20
April	-14.78	-1.61	-30.61	3.29	15.21	1.10	0.04	0.60
May	-0.26	13.67	-12.95	4.11	19.72	5.10	0.16	2.30
June	8.32	20.97	-3.16	3.68	16.82	40.40	1.35	13.50
July	13.95	26.54	5.29	2.42	12.23	19.40	0.63	8.80
August	12.22	27.14	0.43	3.21	15.01	53.50	1.73	12.60
September	5.26	17.12	-1.25	4.29	18.93	43.30	1.44	12.60
October	-2.02	8.40	-14.07	4.40	19.99	7.50	0.24	1.40
November	-16.82	-4.23	-31.38	2.96	17.21	37.20	1.24	12.00
December	-20.14	-10.05	-31.95	4.16	20.31	21.30	0.69	4.60
Total	N/A	N/A	N/A	N/A	N/A	265.9	N/A	N/A
Average	-8.88	4.37	-20.20	3.71	16.83	N/A	0.73	6.93

Figure 31 Whale Tail Site Temperature Average 2018-2023

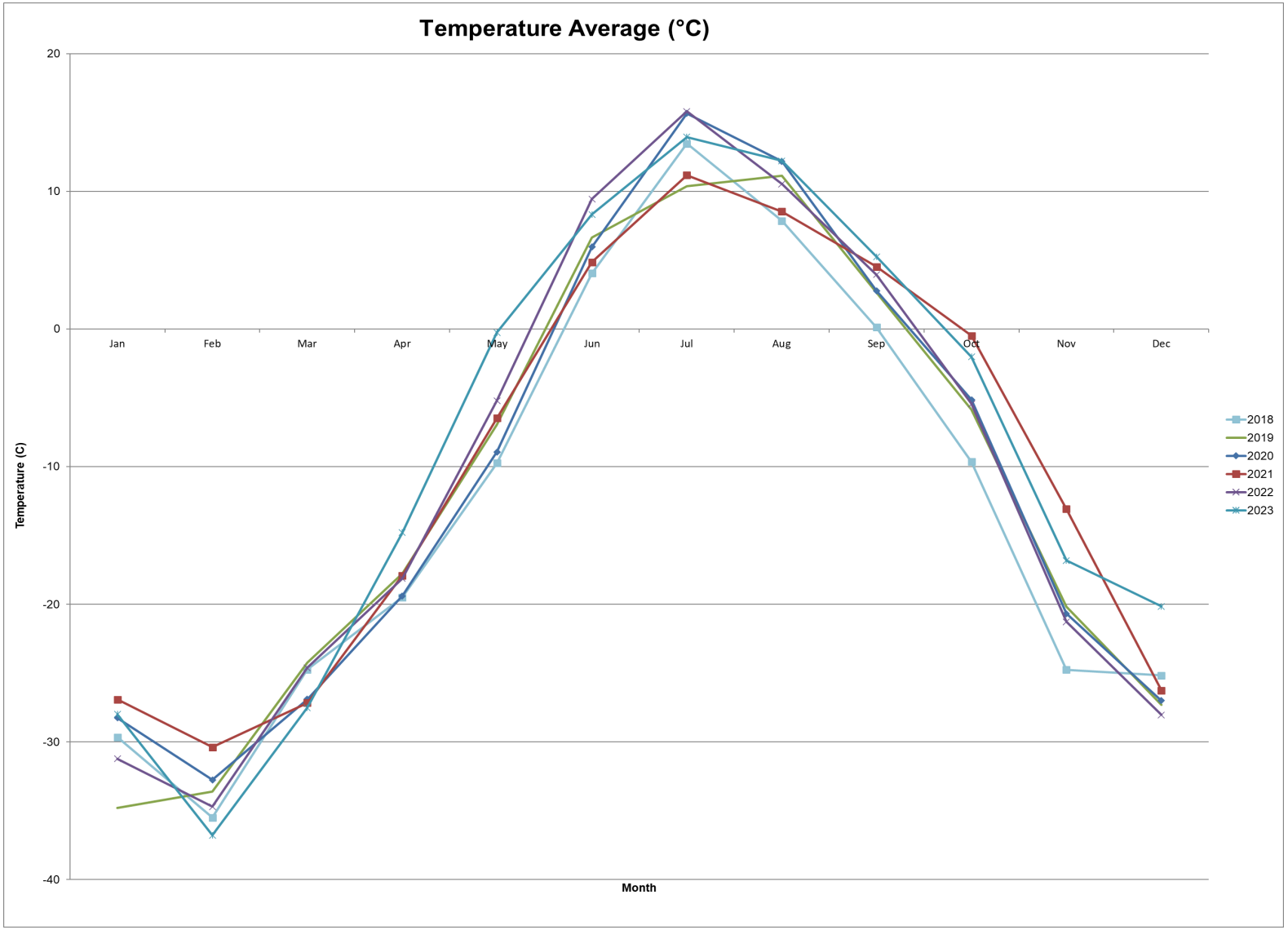


Figure 32 Whale Tail Site Wind Speed Average 2018-2023

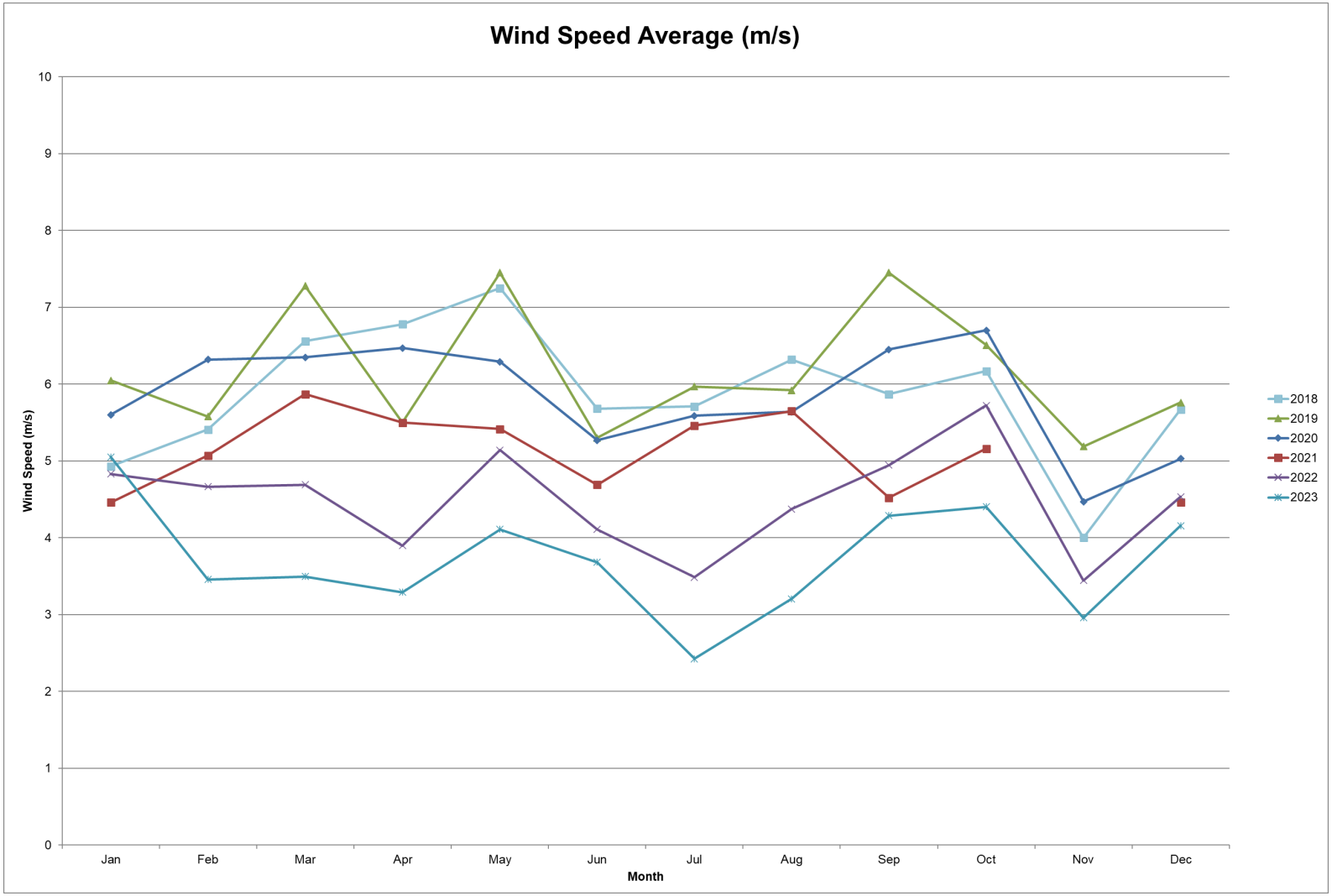
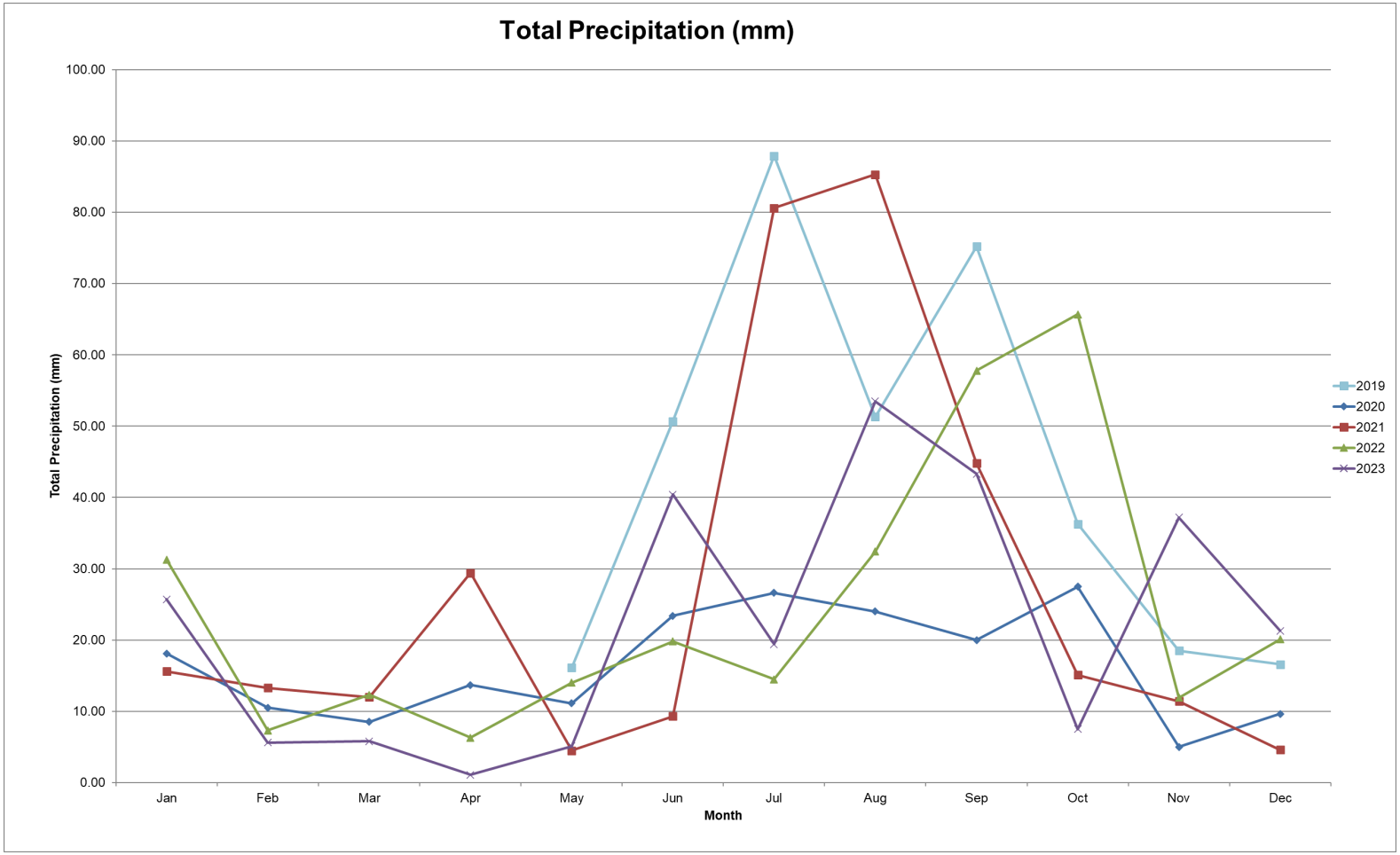


Figure 33 Whale Tail Site Precipitation 2019-2023



8.21.3 Historic Climate Data

Historic average is provided in Table 8-98 and Figures 34 to 36 below for temperature average, total precipitation and wind speed max. Temperature average were very similar for Meadowbank, Whale Tail and Baker Lake. Precipitation at Meadowbank and Baker show a similar trending. It is difficult to compare the historic data to Whale Tail for precipitation as the data started to be collected only in May 2019. Based on the information collected over three and a half years, Whale Tail has received more precipitation compared to Meadowbank and Baker Lake. For the wind speed max, Meadowbank and Whale Tail have similar trending as Baker Lake.

Table 8-98 Historic Meadowbank, Whale Tail and Baker Lake monthly climate data

Date	Meadowbank (average 2009-2023)			Whale Tail (average 2018-2023)			Baker Lake (average 2009-2023)		
	Temperature Average	Wind Speed Max	Total Precipitation	Temperature Average	Wind Speed Max	Total Precipitation	Temperature Average	Wind Speed Max	Total Precipitation
	°C	m/s	mm	°C	m/s	mm	°C	m/s	mm
January	-29.08	19.14	11.30	-29.80	20.03	22.68	-28.96	22.76	9.79
February	-31.80	18.03	5.84	-33.95	17.59	9.18	-30.82	21.31	7.57
March	-26.72	18.92	12.94	-25.86	20.95	9.65	-25.77	21.52	8.83
April	-17.66	19.15	8.71	-17.91	18.26	12.63	-16.81	21.43	14.18
May	-6.39	18.65	13.30	-6.26	18.94	10.16	-5.64	20.00	16.48
June	5.59	17.89	23.55	6.54	18.47	28.72	5.96	19.31	25.53
July	12.75	17.84	39.00	13.40	18.81	45.80	12.40	18.46	27.34
August	10.89	18.33	39.94	10.41	19.28	49.30	11.13	19.70	37.19
September	3.87	21.42	44.85	3.21	20.28	48.22	4.34	21.03	44.40
October	-5.39	20.90	24.94	-4.76	21.94	30.42	-4.88	21.46	25.17
November	-17.83	20.88	14.53	-19.46	16.14	16.80	-17.48	21.24	20.14
December	-25.64	18.76	6.91	-25.65	18.31	14.45	-25.05	21.43	12.24
Total	N/A	N/A	245.79	N/A	N/A	297.99	N/A	N/A	248.85
Average	-10.62	19.16	N/A	-10.84	19.08	N/A	-10.13	20.80	N/A

Figure 34 Historic Comparison Meadowbank, Whale Tail, Baker Lake Sites Temperature Average 2009-2023

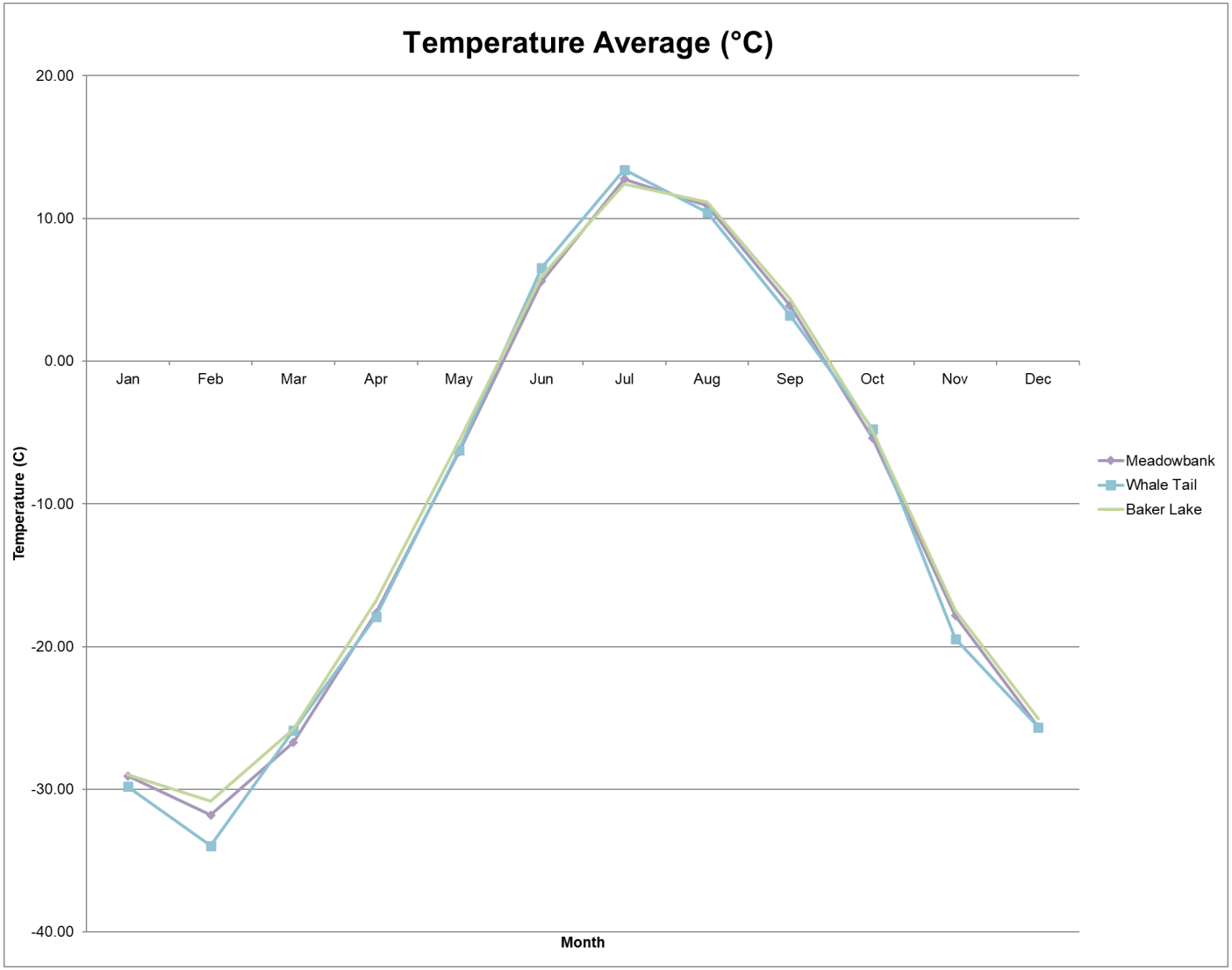


Figure 35 Historic Comparison Meadowbank, Whale Tail, Baker Lake Sites Total Precipitation Average 2009-2023

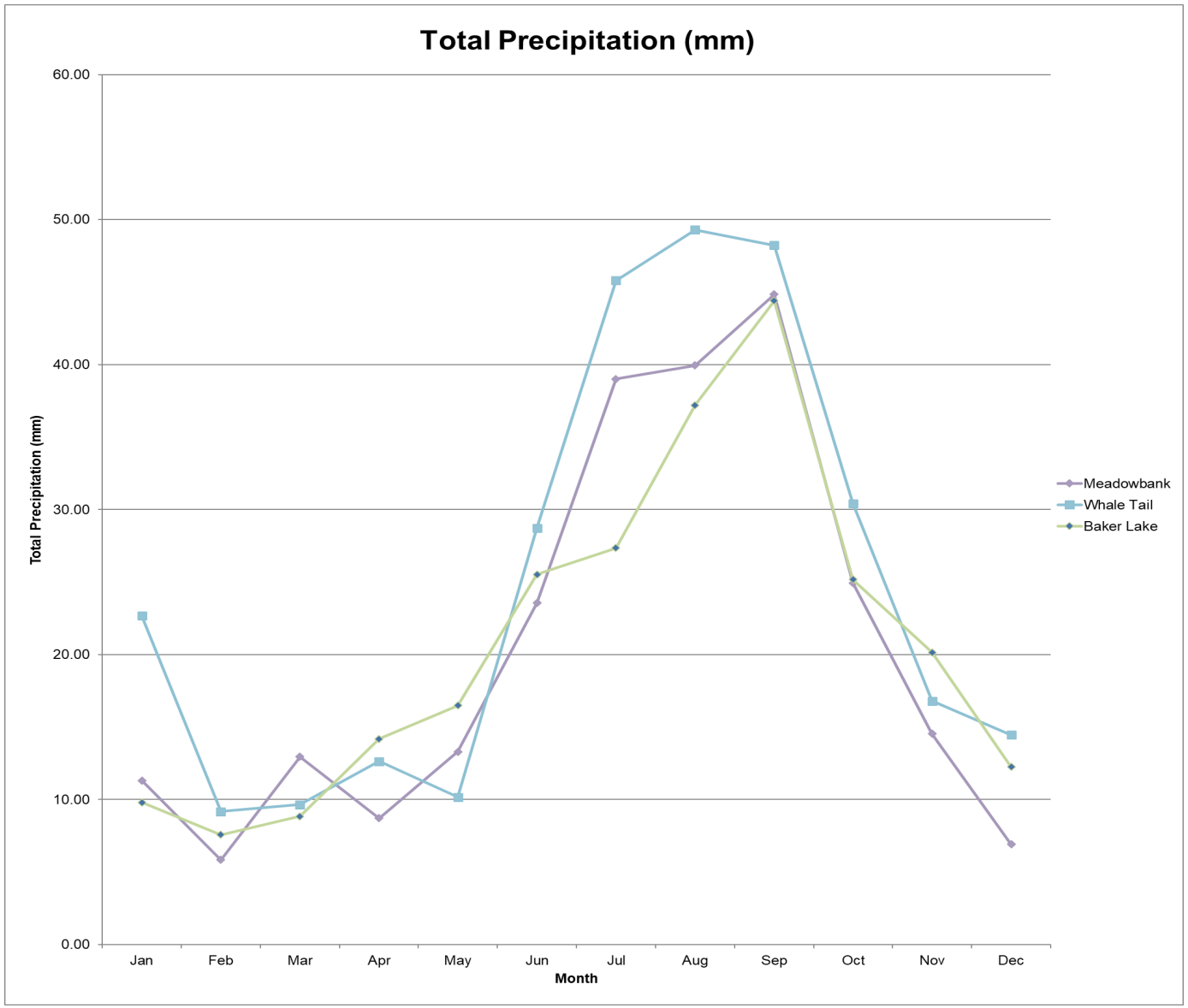
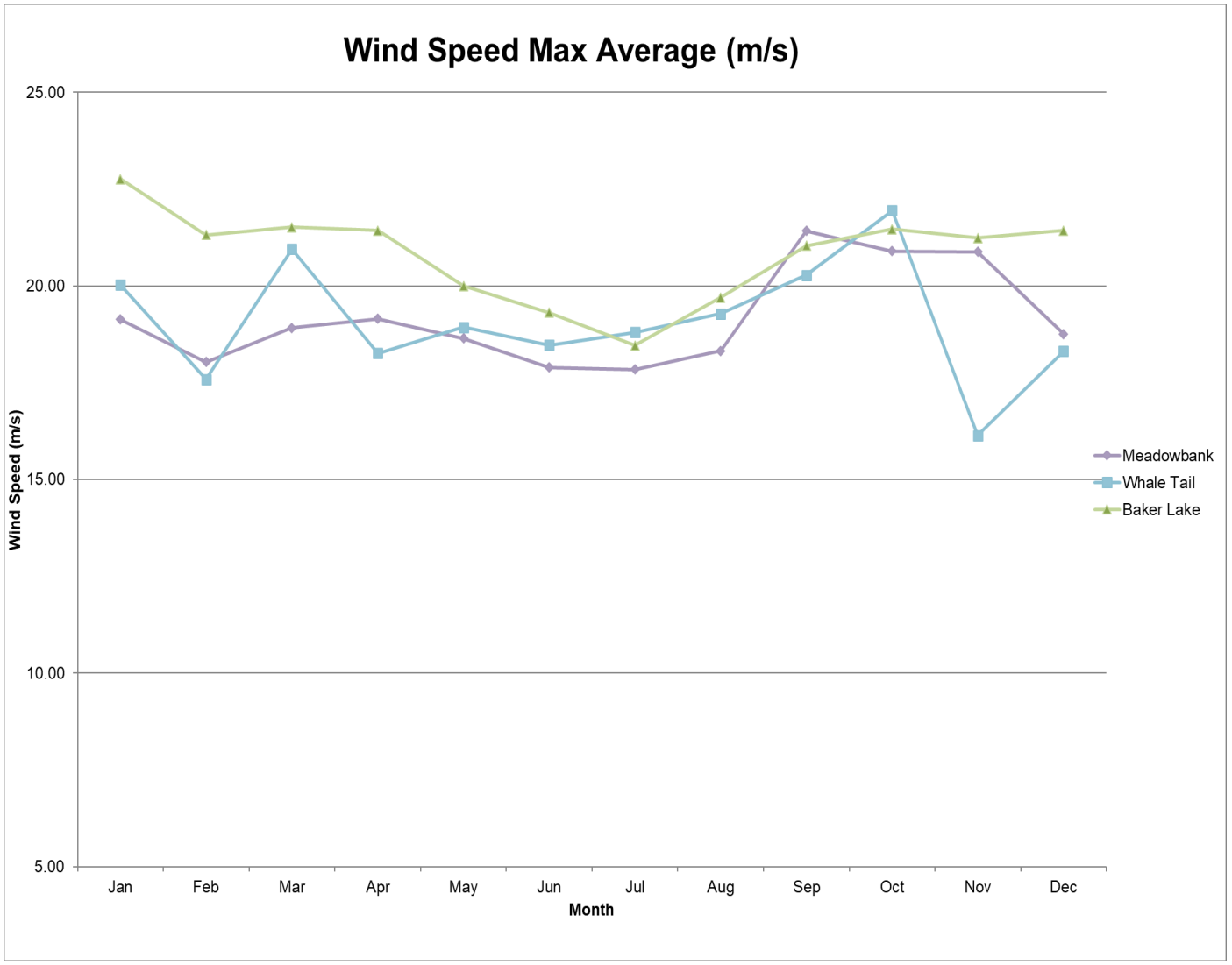


Figure 36 Historic Comparison Meadowbank, Whale Tail, Baker Lake Sites Wind Speed Max Average 2009-2023



8.22ADAPTIVE MANAGEMENT[§]

The primary objective of the Adaptive Management Plan (Version 1.5, July 2021) is to document specific mitigation measures and associated management actions to be taken when specified thresholds are exceeded for the following facilities and activities:

- Waste rock storage facility (WRSF)
- Receiver water quality
- Surface water quantity
- Underground mine water quantity

Table 8-99 presents the thresholds for the 2023 period for each of the components included in that plan.

Table 8-99 Summary of Adaptive Plan Threshold

Item	Threshold for 2023	Management Strategy
WRSF Permafrost Aggradation	Level 0 (normal operating condition)	Continue temperature monitoring of the WRSF
WRSF Surface Water Balance and Active Layer Development	Level 0 (normal operating condition)	Continue temperature monitoring of the WRSF
Receiver Water Quality Whale Tail South	Level 0 for total phosphorus (normal operating condition)	Continue monitoring as per Water Quality and Flow Monitoring Plan Update water balance and water quality forecast as part of the Annual Report
	Level 0 for arsenic (normal operating condition)	Continue monitoring as per Water Quality and Flow Monitoring Plan Update water balance and water quality forecast as part of the Annual Report
Receiver Water Quality Kangislulik Lake	Level 0 for total phosphorus (normal operating condition)	Continue monitoring as per Water Quality and Flow Monitoring Plan Update water balance and water quality forecast as part of the Annual Report
	Level 0 for arsenic (normal operating condition)	Continue monitoring as per Water Quality and Flow Monitoring Plan Update water balance and water quality forecast as part of the Annual Report.
Surface Water Quantity	Level 0 (normal operating condition)	Continue water monitoring as per water management plan. Update water balance and water quality monitoring as part of Annual Report
Underground Water Quantity	Level 0 (normal operating condition)	Continue water monitoring as per water management plan Update water balance and water quality monitoring as part of Annual Report

The WRSF adaptive management threshold level was evaluated based on the review of the thermal data. These data are provided in the 2023 Thermal Monitoring Report (Appendix 20). Permafrost aggradation was observed in the foundation of the WRSF in 2023. Freeze-back within the first 7 m is currently aligned with the model prediction. The model predicted an active layer up to 7 m which has not been observed so far in the monitoring data. Follow up of the monitoring data will continue.

For Whale Tail South and Kangislulik Lake, the water quality data is collected as part of the annual CREMP (Appendix 26, see Section 5.3). In 2023, for both lakes, the mean total phosphorus and total arsenic concentration for each sampling event remain at Level 0. Results from CREMP 2023 were used to assess adaptive management levels going into 2024. The mean concentrations of paired monthly sampling results were compared to Adaptive Management Plan thresholds. For Kangislulik Lake (total phosphorus and arsenic) and Whale Tail South (total phosphorus and arsenic), the water quality was assessed as Level 0 based on the results of the November 2023 sampling event. Monitoring as per the Water License will continue during 2024 along with the update of the water balance and water quality forecast as part of the Annual Report. Agnico Eagle will continue to track nutrients level in 2024, and additional measures outlined in the adaptive management plan will be implemented if warranted.

The surface and underground water quantity threshold in 2023 was at Level 0 as there was enough water storage capacity on site to manage water from these source

SECTION 9. CLOSURE

9.1 PROGRESSIVE RECLAMATION§

9.1.1 Meadowbank Site§

9.1.1.1 *Mine Site§*

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 17: ***A summary of any progressive closure and reclamation work undertaken including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.***

And

As required by KIA KVPL08D280 Production Lease Condition 6.01 (9): ***Reclaim and remediate the Leased Land in accordance with the Closure and Reclamation Plan, on an ongoing basis through the Term and deliver to KIA, not later than March 31 of each year of the Term, beginning five years after the effective date, an amended C&R Plan detailing the activities taken in the last year and to be undertaken in the next year and planned for the balance of the Term, that includes, but is not limited to the proposed methods and procedures for progressive reclamation.***

Agnico Eagle submitted the Meadowbank Interim Closure and Reclamation Plan dated May 29th, 2019 to CIRNAC on June 7th, 2019 and on July 24th, 2019 to the NWB. On March 2020, Agnico Eagle made a revision to the Meadowbank Interim Closure and Reclamation Plan (ICRP) – Update 2019 (Appendix 55 of the 2019 Annual Report) to address action items identified by the NWB during the review of the 2018 Annual Report.

Best management practices, including progressive closure, have been incorporated in the Meadowbank operation period. The current mine plan includes progressive closure associated with the following components:

- Open pits;
- Portage WRSF;
- Tailings Storage Facilities;
- Water management infrastructures.

The key closure activities that have been identified for progressive reclamation are detailed in the ICRP Section 6.2 for each individual component of the Project. The progressive reclamations activities provided in this ICRP will be updated in future versions of the plan to include new opportunities for progressive reclamation identified during operations.

In 2023, progressive reclamation activity occurred at the tailings storage facility of the Meadowbank Site. Progressive reclamation with the construction of the NPAG cover landform over the tailings in the North

Cell was first undertaken in winter of 2015 following the completion of the tailings deposition. The construction continued in 2016 to 2019. In 2023, the construction of the NPAG cover over the tailings and of some rockfill structures required to support possible additional tailings deposition were completed in the North and the South Cell. A total of 91,438 m^3 of NPAG rockfill material and 14,075 m^3 of granular NPAG material was placed in the TSF in 2023.

Based on mining operations, there may be some additional opportunities to complete progressive closure on the South Cell and North Cell TSF before closure. In 2023 Agnico Eagle continued the work to update the closure landform design of the TSF. Based on the design assessment and the site conditions, additional tailings deposition could be completed in the North and South Cell, along with construction of internal rockfill structures required for water management and tailings deposition and NPAG cover construction.

The flooding of Vault and Phaser/BB Phaser pits with natural inflow began at the end of mining operation in the area in 2019 and continued during 2023. At closure the flooding of this area will be supplemented by mechanical flooding. More details on this can be found in the Meadowbank Water Management Report and Plan.

In 2023 work progressed on the development and implementation of the closure water treatment system for the Portage and Goose Pits water as a result of in-pit deposition. The following main activities occurred, and will continue in 2024:

- Continue bench scale laboratory to define the water treatment technologies and design required for closure.

- Environmental studies assessing receiving environment water quality to understand the conditions of the lake in order to develop protective site-specific water quality objectives for closure, along with the evaluation of discharge location.

Details on the closure water treatment system for the Portage and Goose Pits water will be provided in the Final Closure and Reclamation Plan.

Following conversion of the Portage Attenuation Pond into the Reclaim Pond (South Tailings Cell) in 2014, some of the dewatering equipment from the North Cell reclaim system (i.e. dewatering pipelines, reclaim barge, effluent diffuser pipelines, and pumps) has been dismantled and removed. This activity occurred mainly in 2015. Some water management systems not required at Meadowbank were moved at Whale Tail Mine based on availability and needs on both sites. The clarifiers of the Water Treatment Plant (WTP) at Meadowbank was demobilized partially to be used at Vault WTP. The Vault water treatment plan was then demobilized to be installed at Whale Tail Mine. Water management facilities or equipment not used or deemed not necessary could be removed or transferred between sites during operations.

Closure and reclamation of the Portage WRSF occurred progressively during operations with the placement of the NPAG cover landform over the side slopes of the PAG WRSF. Refer to the Meadowbank ICRP Section 5.2.5.4 (Appendix 55 of 2019 Annual Report) for cover design details. Approximately 90% of the Portage PAG WRSF has been covered. No additional work on this item is planned to occur before closure as it will not be possible to progressively reclaim the uppermost bench or the top surface of the Portage WRSF as a landfill is planned to be located on the WRSF. A mandate was

also started to review the landform design and assess its performance for the Portage WRSF. Further details can be found in Section 5.4.1 of this report of the 2022 Annual Report.

The landfill located in the Portage WRSF will be in active use throughout the operation period and also during the closure period in order to receive debris from decommissioning. Operation landfills are progressively closed in the Portage WRSF during operation, but final closure of the landfill will occur at the end of the active closure stage.

Progressive reclamation activities for the buildings and equipment at Vault has occurred during operation after the mining activities. To date, the emergency camp and office at Vault have been removed. The incinerator at Meadowbank as also been partially dismantled, as the composter is presently in use. The Meadowbank emulsion plan has also partially been decommissioned as no more emulsion is being prepared at Meadowbank.

Specific timeline for progressive reclamation activities on site during operation for the buildings and equipment will be eventually defined. Efforts are also made to reduce inventories of consumables on site leading up to the end of operations.

9.1.1.2 *AWAR*[§]

As required by CIRNAC Land Lease 66A/8-71-3, Condition 35: ***The Lessee shall file annually a progress report for the preceding year outlining the ongoing reclamation completed in conformance with the approved Closure and Reclamation Plan.***

And

As required by KIA Right of Way KVRW06F04, Condition 28: ***Agnico Eagle shall file annually, no later than March 31st of each year, a progress report for the preceding year, outlining any ongoing restoration completed, in conformity with the Closure and Reclamation Plan.***

No progressive reclamation has been completed on the AWAR or associated quarries in 2023 as none of the quarries are considered as no longer being required as borrow source for road maintenance.

Quarries and granular borrow sites are required for maintenance work on the AWAR. The AWAR is used in operation but will also be used in closure. The road will be preserved as the main access to the site in a sufficient condition to allow access during closure for monitoring, inspection and maintenance activities. Material availability and proper maintenance are required to ensure the good state of the road.

A review of the available material and the schedule of planned maintenance is planned in 2024 to define a specific timeline for quarries progressive reclamation, if possible, with the operation and maintenance of the road.

9.1.1.3 *Quarries*[§]

As required by CIRNAC Land Lease 66A/8-72-6, Condition 33: ***The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with C&R Plan, as well as any variations from the said Plan.***

And

As required by KIA Quarry Lease KVCA06Q11, Condition 14: ***AEM shall conduct reclamation activities during the first 12 months of the term of this Permit in accordance with the Reclamation Plan attached as Schedule 3. AEM shall annually thereafter submit to KIA a Reclamation Plan detailing the proposed reclamation activities for the upcoming year. Such Plans shall be subject to the approval of KIA and will form part of this Permit. AEM shall conduct reclamation in accordance with the approved Reclamation Plans***

As mentioned in Section 9.1.1.1, no progressive reclamation has been completed on the AWAR or associated quarries in 2023 as none of the quarries are considered as no longer being required as borrow source for road maintenance.

9.1.2 Whale Tail Site§

9.1.2.1 *Mine Site*§

As required by NWB Water License 2AM-WTP1830 Part J, Item 2: ***The Licensee shall submit to the Board for approval within three (3) years of Operations, an updated Interim Whale Tail Pit Closure and Reclamation Plan prepared in accordance with the "Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories", issued by the Mackenzie Valley Land and Water Board (MVLWB) and Aboriginal Affairs and Northern Development Canada (AANDC) in 2013 (MVLWB/AANDC 2013) and consistent with the Mine Site Reclamation Policy for Nunavut, 2002. The Plan shall include all mine related facilities and Whale Tail Pit Haul Road.***

And

As required by NIRB Project Certificate 008 Condition 12: ***The Proponent shall provide a summary of its progressive reclamation efforts and associated feedback received from communities with respect to aesthetic values solicited by the Proponent as part of its public engagement processes in its annual reporting to the NIRB. As part of the Closure and Reclamation Plan, the Proponent shall develop and implement a program to:***

- ***Progressively reclaim disturbed areas within the project footprint, with an emphasis on restoring the natural aesthetics of the area through re-contouring to the extent practicable; and***
- ***In a manner that demonstrates that the Proponent has considered the aesthetic values of local communities (e.g. information regarding the acceptability of the topography and landscape of the project areas following progressive reclamation efforts).***

And

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 20: ***A summary of any progressive Closure and Reclamation work undertaken, including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.***

And

As required by KIA Production Lease KVPL17D01 Condition 6.01 (10): ***Deliver to KIA, not later than March 31, 2022 and not later than March 31st every three (3) years thereafter, a Conceptual Reclamation and Closure Plan and Reclamation Estimate, detailing the reclamation and remediation activities taken in the last three (3) years and to be undertaken in the next three (3) years and planned for the balance of the Term. That includes, but not is not limited to the proposed methods and procedure for the progressive […]***

Agnico Eagle submitted an updated version of the Whale Tail Interim Closure and Reclamation Plan (ICRP) on July 2020 to NWB. For details regarding the planned permanent and progressive reclamation, please refer to Section 5 and 6 of the Whale Tail ICRP provided in Appendix 51 of the 2020 Annual Report.

In 2023, progressive placement of the Whale Tail and IVR WRSF NPAG cover landform was completed over the side slopes of the facilities. In 2024, it is planned to continue the progressive placement of the NPAG cover on these facilities.

9.1.2.2 *Whale Tail Haul Road*[§]

As required by CIRNAC Land Lease 66H/8-2-1, Condition 25: ***The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.***

No reclamation work was undertaken at along the Whale Tail Haul Road in 2023.

9.1.2.3 *Quarries*[§]

As required by KIA Quarry Lease KVCA15Q02, Condition 14: ***AEM shall conduct reclamation activities until November 22, 2018, in accordance with the Reclamation Plan attached Schedule 3. AEM shall annually thereafter submit to KIA a Reclamation Plan detailing the proposed reclamation activities for the upcoming year.***

And

As required by KIA Quarry Lease KVCA18Q01, Condition 20: ***The permittee shall conduct reclamation activities during the first twelve months of the term of this Permit in accordance with the Reclamation Plan attached as Schedule 3. The permittee shall annually thereafter submit to the Association an Reclamation Plan detailing the proposed reclamation activities for the upcoming year.***

And

As required by KIA Quarry Lease KVCA15Q01, Condition 13: ***The permittee shall conduct reclamation activities during the first twelve months of the term of this Permit in accordance with the Reclamation Plan attached as Schedule 3. The permittee shall annually thereafter submit to the Association an Reclamation Plan detailing the proposed reclamation activities for the upcoming year.***

And

As required by CIRNAC Land Lease 66H/8-1-5, Condition 35: ***The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.***

No progressive reclamation work was completed in 2023. Quarries and eskers are required for maintenance work on the Whale Tail Haul Road. The road is used in operation but will also be used in closure and post-closure. The road will be preserved as the main access to the site in a sufficient condition to allow access during closure and post-closure for monitoring, inspection, and maintenance activities. Material availability and proper maintenance are required to ensure the good state of the road. A review of the available material and the schedule of planned maintenance will be done during operation to define a specific timeline for quarries reclamation in progressive closure, if possible, with the operation and maintenance requirements of the road.

9.2 RECLAMATION COSTS§

9.2.1 Meadowbank Site§

9.2.1.1 *Project Estimate§*

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 19: ***An updated estimate of the current restoration liability based on project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.***

And

As required by NIRB Project Certificate No.004, Condition 5: ***Cumberland shall meet with respective licensing authorities prior to the commencement of construction to discuss the posting of adequate performance bonding. Licensing authorities are encouraged to take every measure to require that sufficient security is posted before construction begins. This bonding should not duplicate other amounts of security required (e.g. the NWB).***

And

As required by NIRB Project Certificate No.004 Condition 78: ***Cumberland shall file a complete Closure and Reclamation Plan developed to comply with INAC's policy of full cost of restoration and any related NWB requirements such that the Inuit and taxpayers are not liable for any cost associated with the cleanup, modification, decommission, or abandonment.***

And

As required by NIRB Project Certificate No.004, Condition 80: ***File annually with NIRB's Monitoring Officer an updated report on progressive reclamation and the amount of security posted, as required by KivIA, INAC, and/or the NWB.***

Refer to Section 9.1.1 for the progressive reclamation discussion.

A permanent closure and reclamation financial security cost estimate has been prepared with the present Project layout and infrastructure. The cost estimate covers the closure and reclamation of all Project facilities as described Meadowbank Interim Closure and Reclamation Plan – Update 2019 (V.01, Appendix 55 of the 2019 Annual Report) for permanent closure of the Project.

Agnico Eagle was required to submit the detailed financial security cost estimate to Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and to the Kivalliq Inuit Association (KivIA) to support

land use and water licensing requirements. RECLAIM Version 7.0 workbook (March 2014) has been used for this estimate, as per the Guidelines for Closure and Reclamation Cost Estimates for Mines, issued by Indigenous and Northern Affairs Canada, Mackenzie Valley Land and Water Board and the Government of the Northwest Territories (INAC, MVLWB, GNWT, 2017).

Reclamation of the Project facilities can be divided into the following three general stages, as presented in the integrated schedule of the expected closure activities presented in Appendix P of the ICRP (Appendix 55 of the 2019 Annual Report):

- Operations: during which time progressive rehabilitation measures may be undertaken;
- Active Closure: during which time the major reclamation measures are undertaken;
- Post Closure: all major construction activities have been completed and ongoing monitoring and maintenance is required, with minimal activity on-site.

The updated 2019 estimated closure and reclamation costs for the Meadowbank Project represent a total of C$ 89,427,746. This total includes C$ 62,269,580 of direct costs and C$ 27,158,166 of indirect costs. The financial security cost estimate assumptions and methodology used for the calculations, along with the complete RECLAIM 7.0 spreadsheets are presented in Appendix Q of the ICRP (Appendix 55 of 2019 Annual Report).

For the purpose of this financial security cost estimate, only progressive rehabilitation measures which have already been completed to date (up to 2017) are considered in the calculations.

9.2.1.2 *AWAR and Quarries*[§]

As required by CIRNAC Land Lease 66A/8-71-3, Condition 23: ***The Lessee shall submit to the Minister no later than November 1st, 2025, and every three (3) years thereafter, an updated Closure and Reclamation Plan and cost estimates thereof.***

And

As required by CIRNAC Land Lease 66A/8-72-6, Condition 37: ***The lessee shall submit to the Minister every 2 years after the commencement date of this lease (January 2007), a report describing cumulative variations from the C&R Plan with updated cost estimates.***

And

As required by KIA Right of Way KVRW06F04, Condition 16: ***Agnico Eagle shall submit to KIA on March 31, 2009, and no later than March 31st of every second year thereafter, a report describing any variations from the Closure and Reclamation Plan and updated cost estimates.***

As described in Sections 9.1.1.1 and 9.1.1.2, no progressive reclamation has been completed on the AWAR or associated quarries in 2023.

The cost estimate for the reclamation of the AWAR and quarries represents C$ 993,078 as per the calculation completed with Reclaim 7.0 (March 2014) in the Meadowbank Interim Closure and Reclamation Plan – Update 2019 (V.01, Appendix 55 of the 2019 Annual Report)

9.2.2 Whale Tail Site§

9.2.2.1 *Project Estimate§*

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 22: ***An updated estimate of the current restoration liability based on Project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.***

And

As required by NWB Water License 2AM-WTP1830 Part C, Item 7: ***The Licensee shall, within twelve (12) months following the commencement of Operations and when the Licensee files a Final Reclamation and Closure Plan as required under the License, submit to the Board for review an updated reclamation cost estimate, using the INAC RECLAIM Reclamation Cost Estimating Model (Version 7.0 or the most current version in use at the time the updated reclamation cost estimate is submitted to the Board).***

And

As required by NIRB Project Certificate No.008, Item 7: ***The Proponent shall meet with respective licensing authorities prior to the commencement of construction to discuss the posting of adequate performance bonding. Licensing authorities are encouraged to take every measure to require that sufficient security is posted before construction begins.***

A permanent closure and reclamation financial security cost estimate has been prepared with the present Project layout and infrastructure. The cost estimate covers the closure and reclamation of all Project facilities as described in the Whale Tail Pit Project Interim Closure and Reclamation Plan (July 2020) (Appendix 51 of the 2020 Annual Report).

The cost estimate covers the closure and reclamation of all Project facilities as described in the ICRP and was prepared using RECLAIM Version 7.0 (March 2014), for permanent closure of the Project. The 2020 estimated closure and reclamation costs for the Whale Tail Project represent a total of C$50,663,508. This total includes C$30,714,735 of direct costs and C$19,948,773 of indirect costs.

As per NWB Water License Part C Item 1, Agnico Eagle has provided to both the Government of Canada (CIRNAC) and KivIA a Letter of Credit in the amount of C$ 25,331,754 for a total of C$ 50,663,508.

9.3 TOPSOIL/ORGANIC MATTER SALVAGE AND REVEGETATION

As required by NIRB Project Certificate 008 Condition 13: ***The Proponent shall explore the feasibility of topsoil/organic matter salvage as part of project development and provide updates to the Closure and Reclamation Plan based on this investigation. The Proponent shall provide a summary of its management of topsoil in annual reports to the NIRB.***

And

As required by NIRB Project Certificate No.008 Condition 26: ***The Proponent shall include revegetation strategies within its Mine Closure and Reclamation Plan that support progressive reclamation, and promote natural revegetation and recovery of disturbed areas compatible with the surrounding natural environment. These strategies should include exploration of the feasibility and practicality of topsoil/organic matter salvage through Project development. Consideration for the results of similar reclamation efforts at other northern projects, including the Meadowbank Gold Mine Project, must be demonstrated. Within three (3) years from the commencement of construction, information regarding the revegetation strategies developed and implemented by the Proponent in fulfillment of this Term and Condition shall be included in the Proponent's annual report to the NIRB. Subsequently, information regarding the Proponent's progress in fulfillment of this Term and Condition shall be provided annually in the Proponent's annual report to the NIRB.***

Natural revegetation is already promoted and included in the Whale Tail ICRP. As per the 2019 Whale Tail ICRP Revision 1, active revegetation has not been planned as part of the reclamation plan given the cold climate setting of the Project. During the project development, the overburden sporadic quantities were disposed in the WRSFs along with other material from stripping. The overburden material was not segregated due to the layer of overburden being too thin and the overall site conditions.

Agnico Eagle Meliadine Mine Site, as per the 11MN034 Project Certificate, need to undertake a similar study than for the Whale Tail Mine. A revegetation study was conducted between 2018 and 2021 at Meliadine.

Results of the various studies conducted by Meliadine mine site has been shared with Meadowbank and Whale Tail in order to fulfill the current Project Certificate No. 008 obligations. For further details, refer to the Meliadine Annual Report.

Additional assessment is being completed at Meadowbank site for the monitoring of natural revegetation and to identify ways to promote natural revegetation during the closure activities. The details will be included in the Final Closure and Reclamation Plan for Meadowbank and Whale Tail.

9.4 TEMPORARY MINE CLOSURE WHALE TAIL SITE

As required by NIRB Project Certificate No.008 Condition 47: ***The Proponent should undertake an analysis of the risk of temporary mine closure, giving particular consideration to how communities in the Kivalliq region may be affected by temporary closure of the mine, including consideration of the measures that can be taken to mitigate the potential for adverse effects (e.g. development of programs that provide transferable skills, identification of employment options that can include transfers amongst Agnico Eagle operations, etc.) This analysis is required to be updated as necessary to reflect significant changes to the Project or the socio-economic conditions in the region that may increase the risks and potential effects of temporary mine closures. This initial results of the Proponent's analysis should be provided to the Nunavut Impact Review Board (NIRB) within six (6) months of the issuance of the Project Certificate. Any updates to the analyses should be provided to the NIRB within three (3) months following completion of updated analyses by the Proponent.***

Agnico Eagle submitted the analysis of risk of temporary mine closure on September 11th, 2018. There have not been any updates since the last submission. The Analysis of the Risk of Temporary Mine Closure is included in the Appendix 50 of the 2018 Annual Report.

9.5 SOCIO-ECONOMIC CLOSURE PLAN WHALE TAIL SITE

As required by NIRB Project Certificate 008 Condition 51: ***The Proponent shall develop a conceptual Socio-economic Closure Plan that:***

- ***Links the socio-economic closure plans for Meadowbank and Whale Tail;***
- ***Identifies regular update and multi-party review requirements;***
- ***Shows evidence of consideration of socio-economic lessons learned from other northern mine closure experiences;***
- ***Includes evidence of consultation with Kivalliq communities and governance bodies on socio-economic objectives/goals related to closure planning;***
- ***Emphasizes plans, policies, and programs to increase transferable skills of Inuit workers, including into trades and other skilled positions; and***
- ***Includes all plans, policies and programs related to socioeconomic factors in a temporary closure situation; and***
- ***Includes a Workforce Transition Plan between the Whale Tail Project and other production mines owned and operated by the Proponent in the Kivalliq region.***

The Proponent shall advance the recommendations of the Conceptual Socio-economic Closure Plan through the development of a Final Socio-economic Closure Plan that will be part of the Whale Tail Pit Project Final Closure and Reclamation Plan.

The conceptual socio-economic closure plan will be provided to the Nunavut Impact Review Board within one (1) year of issuance of the Project Certificate, and updated as needed prior to closure with information provided in the Proponent's annual report to the Nunavut Impact Review Board.

As indicated in Agnico Eagle's response to the NIRB's 2022-2023 recommendations, throughout 2023, Agnico Eagle revisited this condition and formulated plans to deliver and implement recommendations from the Conceptual Socio-Economic Closure plan, encompassing components addressing the workforce transition plan. The initiatives taken to progress these matters include evaluating re-skilling opportunities for Inuit employees who may not be able to transition into comparable positions upon mine closure. Additionally, a workforce transition plan is being developed to facilitate the transition between the Whale Tail Project and other mines owned and operated in the Kivalliq region.

In more details, in 2023, Agnico Eagle reviewed recommendations for the Conceptual Socio-Economic Closure Plan (CSECP) under Project Conditions (TC) No. 51 for Whale Tail Project Certificate No. 008. Based on the framework established in 2021 (Figure 37), Agnico Eagle developed the following points in planning for social closure in accordance with TC 51:

- Started work on social closure studies, with delivery of final reports expected by Q2 2024.

- Consulted various socio-economic reports of other northern mine closures, specifically in the NWT.

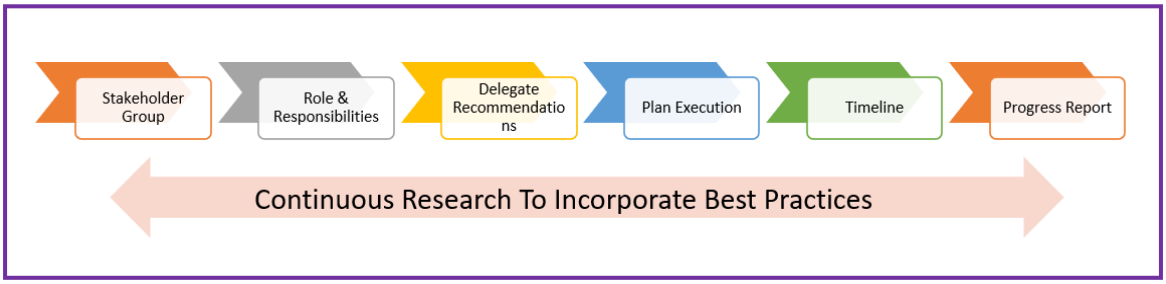
- Implemented progressive social closure tasks.

- Started planning engagement activities and community consultations; which will start in 2024.

- Evaluated re-skilling opportunities for Inuit employees who may not be able to transfer into similar positions upon mine closure

- Started development of workforce transition plan between Whale Tail Project and other mines owned and operated in the Kivalliq region.

Figure 37 Progressive Social Closure Planning Framework



Community consultations with various subgroups (youth, women, elders etc.) and consultation with Government, KivIA and Hamlet representatives are planned to be initiated in 2024 and continued throughout the remaining operation period, with the following objectives:

- Identify current risks, and link mitigation to the implementation plans and strategies developed through detailed closure planning activities;
- Discuss the sale or transfer of assets of benefit to Kivalliq communities;
- Support community priorities for economic development that reduces dependency on mining.

SECTION 10. PLANS / REPORTS / STUDIES

10.1SUMMARY OF STUDIES§

10.1.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 20: ***A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.***

No studies were requested by the NWB in 2023.

10.1.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 23: ***A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.***

No studies were requested by the NWB in 2023.

10.2 SUMMARY OF REVISIONS§

A list of management plans for the Meadowbank and Whale Tail mines is included in Tables 10-1 to 10-3. These tables include details on the latest version and submission date to regulators.

Table 10-1 Active Management Plans for Meadowbank Site§

Meadowbank Site		
Management Plan	**Submission Date**	**Version**
Meadowbank No Net Loss Plan, Phaser Offsetting Plan addendum and In-Pit disposal addendum	February 2019	3
Habitat Compensation Monitoring Plan	February 2017	4
Groundwater Monitoring Plan	April 2020	11
Water Quality Monitoring and Management Plan for Dike Construction and Dewatering + Addendum	July 2016	4
Water Quality and Flow Monitoring Plan	March 2016	5
Interim Closure and Reclamation Plan	April 2020	Rev 1
OPEP/OPPP	March 2024	17
Baker Lake Bulk Fuel Storage Facility: Environmental Performance Monitoring Plan	April 2022	6.1
Operational ARD-ML Sampling and Testing Plan	November 2013	2
Incinerator Waste Management Plan	June 2022	10
Landfarm Design and Management Plan	March 2024	5
Landfill Design Management Plan	March 2024	6
Dewatering Dike OMS	March 2024	11
Freshet Action Plan	March 2024	12
Tailings Storage Facility OMS	March 2024	12

Meadowbank Site		
Management Plan	**Submission Date**	**Version**
Waste Rock and Tailings Management Plan	March 2024	14
Pore Water Quality Management Plan	April 2020	2
Water Management Plan	March 2024	12
Sewage Treatment Plant Management Plan	March 2017	6
Transportation Management Plan: AWAR	October 2022	6

Table 10-2 Active Management Plans for Whale Tail Site[§]

Whale Tail Site		
Management Plan	**Submission Date**	**Version**
Mercury Monitoring Plan	March 2023	4
Fish Habitat Offsetting Plan Whale Tail and Whale Tail expansion	June 2020	1
Fish Habitat Offsetting Monitoring Plan (under DFO approval)	July 2021	2
Groundwater Monitoring Plan	May 2019	3
Arsenic Water Treatment Plan OMM	January 2019	2
Water Quality Monitoring and Management Plan for Dike Construction and Dewatering	May 2020	3
Water Quality and Flow Monitoring Plan	April 2019	6
Interim Closure and Reclamation Plan	July 2020	4
Operational ARD-ML Sampling and Testing Plan – Whale Tail Pit Addendum	February 2023	7.1
Landfarm Design and Management Plan	March 2024	3
Landfill Design Management Plan	March 2024	5
Water Management Infrastructure OMS	March 2024	4
Freshet Action Plan	March 2024	6
Waste Rock Management Plan	March 2024	12
Water Management Plan	March 2024	12
Sewage Treatment Plant OMM	February 2019	2
Shipping Management Plan	April 2022	4
Thermal Monitoring Plan	April 2022	4
Migratory Bird Protection Plan	April 2020	3
Whale Tail Pit Haul Road Management Plan	March 2023	4
Adaptive Management Plan	July 2021	1.5
Erosion Management Plan	December 2018	2
Incinerator and Composter Waste Management Plan	July 2023	2

Table 10-3 Active Management Plans for Meadowbank and Whale Tail Sites (Combined) [§]

Meadowbank & Whale Tail Sites (Combined)		
Management Plan	**Submission Date**	**Version**
Air Quality and Dustfall Management Plan	April 2022	6
Noise Monitoring and Abatement Plan	December 2018	4
Aquatic Effects Management Program (AEMP)	April 2022	5
Core Receiving Environment Monitoring Program Plan Update (CREMP)	April 2022	4
QAQC Plan	March 2024	9
Greenhouse Gas Reduction Plan	April 2020	3
Emergency Response Plan	March 2024	18
Hazardous Materials Management Plan	April 2022	7

Meadowbank & Whale Tail Sites (Combined)		
Management Plan	**Submission Date**	**Version**
Spill Contingency Plan	March 2024	21
Blast Monitoring Program	March 2024	9
MBK and Whale Tail Bulk Fuel Storage Facility	June 2022	7
Ammonia Management Plan	March 2024	5
Occupational Health & Safety Plan	December 2018	3
Wildlife and HHRA Country Foods Screening Level Risk Assessment Plan	March 2024	9
Terrestrial Ecosystem Management Plan	June 2019	7
Agnico Kivalliq Projects Socio-Economic Monitoring Program	April 2022	4

10.2.1 Meadowbank Site[§]

As required by NWB Water License 2AM-MEA1530 Part B, Item 16: ***The Licensee shall review the Plans or Manuals referred to in this License as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made.***

And

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 21: ***Where applicable, revisions will be completed as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.***

As per Water License 2AM-MEA1530 Part B, Item 16: '*The Licensee shall review the Plans or Manuals referred to in this License as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made*.' Plan will be considered as approved unless a notification from the NWB requested the formal approval process.

The following monitoring and management plans were revised in 2023 and 2024 for submittal as part of the 20232 Annual Report. Plans updated in 2023 and submitted with the 2022 Annual Report are not included as part of this list.

The following monitoring and management plans were revised and apply to the Meadowbank Site:

- Oil Pollution Emergency Plan and Oil Pollution Prevention Plan (OPEP/OPPP), Version 17 (Appendix 25);
- Meadowbank - Dewatering Dikes Operation, Maintenance and Surveillance Manual, Version 11 (Appendix 28);
- Meadowbank - Tailings Management Operation - Maintenance and Surveillance Manual, Version 12 (Appendix 29).

- Meadowbank Waste Rock and Tailings Management Plan, Version 14 (Appendix 17);
- Meadowbank Landfarm Design and Management Plan Version 5 (Appendix 53);
- Meadowbank Landfill Design and Management Plan Version 6 (Appendix 56); and
- Meadowbank Water Management Plan Version 12 (Appendix 13).

The following monitoring and management plans were revised and apply to both Meadowbank and Whale Tail sites:

- Emergency Response Plan, Version 18 (Appendix 36);
- Quality Assurance / Quality Control (QA/QC) Plan, Version 9 (Appendix 44);
- Spill Contingency Plan, Version 21 (Appendix 22);
- Blast Monitoring Program, Version 9 (Appendix 33); and
- Wildlife and HHRA Country Foods Screening Level Risk Assessment Plan, Version 9 (Appendix 40).

The above listed plans are in their respective appendix. A brief description of revisions made to each of plans is provided in the Control Document at the beginning of each plans.

In order to maintain ease of public access for important information, the Agnico Eagle Web Portal, https://aemnunavut.ca/media/documents/ has been updated with the 2016 to 2022 Annual Report, associated management plans, and other documents of interest. Agnico Eagle will continue to improve the Web Portal for ease of public access in 2024 by uploading a copy of the 2023 Annual Report along with the latest version available of management plans associated to the Meadowbank Complex.

10.2.2 Whale Tail Site[§]

As required by NWB Water License 2AM-WTP1830 Part B, Item 17: ***The Licensee shall review the Plans or Manuals referred to in this License as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made.***

And

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 24: ***Where applicable, revisions as Addenda, with an indication of where changes have been made, for Plans, Reports, and Manuals.***

And

As required by NIRB Project Certificate 008 Item 13: ***The Proponent is encouraged to provide on-going opportunities for consultation and comment on any substantive revisions to the Project-specific monitoring***

program, modelling, studies, management plans, management measures, and reporting under the Project Certificate.

As per Water License 2AM-WTP1830 Part B, Item 16: '*The Licensee shall review the Plans or Manuals referred to in this License as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made*.' Plan will be considered as approved unless a notification from the NWB requested the formal approval process.

The following monitoring and management plans were revised in 2023 and 2024 for submittal as part of the 2023 Annual Report. Plans updated in 2023 and submitted with the 2022 Annual Report are not included as part of this list.

The following monitoring and management plans were revised and apply to Whale Tail Mine:

- Whale Tail Incinerator and Composter Waste Management Plan, Version 2 (Appendix 43);
- Whale Tail Water Management Infrastructure Operation, Maintenance and Surveillance Manual, Version 4, (Appendix 30);
- Whale Tail Waste Rock Management Plan, Version 12 (Appendix 18);
- Whale Tail Landfarm Design and Management Plan Version 3 (Appendix 54);
- Whale Tail Landfill Design and Management Plan Version 5 (Appendix 56); and
- Whale Tail Water Management Plan, Version 12 (Appendix 14).

The above listed plans are in their respective appendix. A brief description of revisions made to each of plans is provided in the Control Document at the beginning of each plans. Some plans detailed in Section 10.2.1 above apply to both Meadowbank and Whale Tail sites. Refer to this section for more details.

In order to maintain ease of public access for important information, the Agnico Eagle Web Portal, https://aemnunavut.ca/media/documents/ has been updated with the 2016 to 2022 Annual Report, associated management plans, and other documents of interest. Agnico Eagle will continue to improve the Web Portal for ease of public access in 2024 by uploading a copy of the 2023 Annual Report along with the latest version available of management plans associated to the Meadowbank Complex.

The community also have the opportunity to comment and ask questions related to the mine during the different public consultations detailed in Section 11.9. Agnico Eagle also distributed in 2023 the ‘2022 Kivalliq Projects Socio-Economic and Environment Highlights’. This pamphlet included, among other, keys information on employment, education and training, culture and traditional lifestyle, caribou migration, MMSO, AEMP/CREMP, dust and waste management.

10.2.2.1 *Occupational Health and Safety Plan*

As required by NIRB Project Certificate 008 Condition 57: ***The Proponent shall update its Occupational Health and Safety Plan to include sexual health and well-being information in its employee orientation programming. In addition, the Proponent shall undertake an education program to inform workers of the range of health services available onsite. The updated plan shall be provided to the Nunavut Impact Review Board (NIRB), once completed within six (6) months of issuance of the Project Certificate. Summaries of the education programs undertaken and any future updates or modifications to the Occupational Health and Safety Plan and the education program shall be included in the Proponent's annual report to the NIRB.***

And

As required by NIRB Project Certificate 004 Condition 66: ***Cumberland shall establish a nursing station and hire a registered on-site nurse.***

Agnico Eagle submitted the updated Occupational Health and Safety Plan on December 14th, 2018 to NIRB, which includes information on the inclusion of sexual health and well-being during employee orientation. The last updated Occupational Health and Safety Plan is included in the Appendix 51 of the 2018 Annual Report.

Agnico Eagle's education program on the range of health services on site includes:

- Introduction to clinic services on mandatory e-learning and onsite safety induction for all new employees;
- Visit to clinic during the general site orientation for all new employees;
- Dedicated bulletin board for health and wellness information; and
- General awareness communications: visits to departmental tool-box meetings, emails, Agnico Eagle TV, posters, brochures, etc.
- Provision of condoms as well as feminine hygiene products to promote sexual health and hygiene awareness.

Additionally, since 2019, Agnico Eagle launched a site-wide daily communicator being shared by supervisors during the line-up meetings.

The nursing station was still operational in 2023.

10.3EXECUTIVE SUMMARY TRANSLATIONS§

10.3.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 22: ***An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this License.***

Appendix 57 includes an executive summary in English, French and Inuktitut for the following documents:

- All monitoring and management plans listed in Section 10.2.1 above.
- Reports or studies submitted in 2023 for Meadowbank site:
    - 2023 Annual Open Pit Geomechanical Inspection;
    - 2023 Habitat Compensation Monitoring Report;
    - 2023 Groundwater Monitoring Report; and
    - 2023 Thermal Monitoring Report.
- Reports or studies submitted in 2023 for both Meadowbank and Whale Tail sites:
    - 2023 Annual Report NIRB Screening Decision;
    - 2023 Annual Geotechnical Inspection;
    - Meadowbank and Whale Tail Dike Review Board Report 31;
    - 2023 Blast Monitoring Report;
    - 2023 Core Receiving Environment Monitoring Program (CREMP) Report;
    - 2023 Noise Monitoring Report;
    - 2023 Air Quality and Dustfall Monitoring Report;
    - 2023 Marine Mammal and Seabird Observer (MMSO) Report;
    - 2023 Socio-Economic Monitoring Program Report;
    - 2023 Inuit Workforce Barriers Study;
    - 2023 Elders Advisory Committee Summary Report; and
    - 2023 Wildlife Monitoring Summary Report.

10.3.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 25: ***An executive summary in English and Inuktitut of all plans, reports, or studies conducted under this License.***

And

As required by NIRB Project certificate No.008 Item 9: ***The Proponent shall make significant monitoring results and/or summaries of significant results available in English, Inuinnaqtun, and Inuktitut, to the extent feasible.***

Appendix 57 includes an executive summary in English, French and Inuktitut for the following documents. A summary in Inuinnaqtun is also provided for reports or studies of interest:

- All monitoring and management plans listed in Section 10.2.2 above.
- Reports or studies submitted in 2023 for Whale Tail site:
    - 2023 Thermal Monitoring Report;
    - 2023 Annual Open Pit Geomechanical Inspection;
    - 2023 Groundwater Monitoring Report;
    - 2023 Mercury Monitoring Program Report;
    - 2023 Fish Habitat Offsets Monitoring Report; and
    - 2023 Report on Implementation of Measures to Avoid and Mitigate Serious Harm.

Some reports detailed in Section 10.3.1 above apply to both Meadowbank and Whale Tail sites. Refer to this section for more details.

SECTION 11. MODIFICATIONS / GENERAL / OTHER

11.1MODIFICATIONS§

11.1.1 Meadowbank Site§

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 14: ***A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.***

Minor maintenance occurred at the East Dike seepage in 2023 to improve natural drainage of the area and to increase seepage collection in the existing seepage station.

In 2023, material was added on the crest of Bay-Goose dike, Saddle Dam 1, Saddle Dam 2 and East Dike to fill historic depressions and ease observation of changing conditions.

The downstream toe of Saddle Dam 1 was backfilled and graded to improve drainage of the area.

The tailings line for deposition into pit E was modified for operational purposes. The line has been leveled and the routing was improved.

Refer to Section 11.2.1 for information regarding the modification submitted to NWB for the infrastructure construction at the Baker Lake Marshalling area to improve water management around the site.

11.1.2 Whale Tail Site§

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 17: ***A summary of Modifications and/or major maintenance work carried out on all Water and Waste-related structures and facilities.***

Maintenance activity occurred in 2023 at the saline ditches for the underground WRSF and underground ore stockpile to improve water flow through the ditch and restore flow capacity.

Remediation work was performed on the WTD downstream causeway, seepage trench and V-Notch. The causeway was resurfaced, and the seepage collection trench improved. A container shelter was put onto the V-notch installation for improved winter protection.

11.2 MINE EXPANSION§

As required by NIRB Project Certificate No.004 Condition 29: R*eport to NIRB if and when [Cumberland] develops plans for an expansion of the Meadowbank Gold Mine, and in particular if those plans affect the selection of Second Portage Lake as the preferred alternative for tailings management.*

No new permitting activities for mine expansion were undertaken in 2023 for the Meadowbank Complex; however, two Modifications were submitted in 2023 as summarized below.

11.2.1 Meadowbank Mine: Baker Lake Marshalling Area§

Agnico Eagle proposed a Modification to the Meadowbank Mine; specifically, requesting to add infrastructure at the Baker Lake Marshalling area (Marshalling area) to improve water management around the site. The modification initiated based on CIRNAC's request to develop a long-term strategy to address the water management concerns around the Marshalling area.

The project proposal was submitted to the NPC on January 5th, 2023. On February 2nd, 2023 the NPC determined that the proposed Modification was exempt from screening by the NIRB, as the water management improvements did not change the general scope of the original or previously amended activities.

On February 3rd, 2023, Agnico Eagle submitted a 60-day notice to the NWB for a Modification to Water License 2AM-MEA1530 which included a Design Report for the water management infrastructure at the Marshalling area. The NWB sent an invitation for public comment on February 9th, 2023. Recommendations were provided by the KivIA and CIRNAC and Agnico Eagle provided responses on March 10th, 2023.

The NWB provided its approval of the Modification on March 24th, 2023.

11.2.2 Whale Tail and IVR Pushbacks and Saline Storage in IVR Pit§

Agnico Eagle proposed a Modification to the Whale Tail Mine; referred to as the 2023 Modification which consisted of the:

- Continuation of Whale Tail Pushback in the southwest portion of the Whale Tail Pit;
- Continuation of IVR Pushback in the south portion of the IVR Pit; and
- Temporary storage of groundwater in the east lobe of IVR Pit.

The project proposal was submitted to the NPC on April 19th, 2023. On May 26th, 2023 the NPC determined that the proposed Modification was exempt from screening by the NIRB, as the activities did not change the general scope of the original or previously amended activities.

On June 12th, 2023, Agnico Eagle submitted a 60-day notice to the NWB for a Modification to Type A Water License 2AM-WTP1830. The Modification included an updated Water Management Plan and Waste Rock Management Plan for the Whale Tail Mine. The NWB sent an invitation for public comment on June 13th, 2023. As a result, recommendations were provided by the KivIA, CIRNAC, and ECCC on July 11th, 2023 and Agnico Eagle provided responses on July 19th, 2023. CIRNAC issued a second round of recommendations and were addressed by Agnico Eagle on August 2nd, 2023.

The NWB provided its approval of the Modification for the Whale Tail and IVR Pushbacks and temporary storage of groundwater in IVR Pit on August 10th, 2023 indicating the modification proposed is consistent with the scope of activities considered under Type A Water License 2AM-WTP1830. The NWB also approved the Water Management Plan and the Waste Rock Management Plan submitted with the June 12th, 2023 Modification package.

Parallel to this, Agnico Eagle issued notice to the NIRB on May 30th, 2023 to inform of monitoring activities associated with the proposed Modification. On June 8th, 2023, the NIRB acknowledged Agnico Eagle's letter and commented that they should be kept informed of changes to Management Plans associated with the Whale Tail and IVR Pushbacks. Subsequently, following approval of the plans from the NWB, on August 15th, 2023 the Water Management Plan and Waste Rock Management Plan were sent to the NIRB.

11.3 EXPLORATION WHALE TAIL SITE

11.3.1 Ongoing Exploration Programs

As required by NIRB Project Certificate No.008, Condition 64: ***Within its annual reporting, the Proponent is encouraged to include detailed updates on the status of ongoing exploration programs associated with the Project and associated implications for future phase developments of the Amaruq property. Status updates in fulfillment of this Term and Condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.***

Diamond drilling completed by Agnico Eagle in 2023 on the Amaruq Property include delineation, conversion, exploration, and geotechnical work. Objective was to consolidate Open pit and U/G mineral resources and reserves on the Amaruq deposit. The data collected during the 2023 drilling campaign contributed to our understanding of the Whale Tail and IVR deposits and helped refine the 3D geological model.

This work was based out of the Whale Tail camp. The 2023 drilling campaign totaled 333 diamond drill holes totaling 54,601 meters.

A delineation drilling campaign was performed on IVR area (8,476 m), focusing on IVR-2 West pushback. Delineation objective was to bring more information about the resource quality and quantity.

Whale Tail pit was drilled (4,421 m) to delineate resources of this deposit. A very minor portion of this open pit drilling (5 ddh) was drilled from underground levels with up holes. For the underground Whale Tail delineation, total of 10,680 m were drilled to delineate underground Whale Tail resources.

A conversion drilling campaign of was done (19,691 m), primarily focusing on converting future underground resources at Whale Tail, secondly on converting Open Pit resources on the Whale Tail West Pit Pushback up to Kangislulik area, and thirdly on converting resources east of IVR-2 pit to validate potential for a minor pushback of the pit. The Whale Tail underground conversion portion was drilled with both surface and underground rigs.

Exploration drill holes (10,953 m) were done in the Whale Tail Deep area, IVR Deep area, as well as a near surface area located between Whale Tail and IVR pits. The purpose of the deep holes was to determine the underground potential for upcoming years and add mineral inventory and resources. For the area between Whale Tail and IVR pits, purpose was to determine if there were economical zones in a shallow area that was previously weakly drilled.

Finally, geotechnical holes were performed (381 m) during the 2023 campaign. Most of these meters were drilled on Kangislulik lake to determine improve understanding of ground condition/quality. One of

the geotechnical holes was done to install borehole instrumentation to validate the stability and thermal regime of a critical sector of Whale Tail pit.

Following the work effort to secure Amaruq Gold Deposit gold production, 2023 diamond drilling campaign carried on the Amaruq Production Lease mainly consolidate Open pit and U/G mineral resources and reserves on the Amaruq deposit. The data collected during the 2023 drilling campaign contributed to our understanding of the Whale Tail and IVR deposits and helped refine the 3D geological model.

In 2024, the objectives regarding the drilling campaign are to:

- Complete the conversion drilling on Kangislulik Lake;
- Continue the exploration drilling of the IVR and Whale Tail deposits at depths;
- Continue with the Whale Tail conversion for the underground stopes;
- Continue with the delineation of the Whale Tail pit;
- Complete IVR-2 pit pushback delineation drilling;
- Perform delineation drilling of the Whale Tail open pit resources using underground drills;
- Continue the delineation of the underground stopes in Whale Tail using the underground diamond drills; and
- Maintain exploration drilling for near surface resources within WT lease.

Regional Exploration will continue to be conducted in 2024 between Whale Tail and Meadowbank to find new near surface resources.

11.4 INTERNATIONAL CYANIDE MANAGEMENT CODE

As required by NIRB Project Certificate No.004, Condition 28: ***Cumberland shall become a signatory to the International Cyanide Management Code, communicate this to shippers, and do so prior to Cumberland storing or handling cyanide for the Project.***

In 2014 and 2015 audits and completion work were completed and assessed. A management of change process was implemented and put forward. From the status of Substantial Compliance in 2014, Agnico Eagle received full International Cyanide Management Code (ICMC) certification in March 2016 and again in January 2019. Additionally, Agnico Eagle completed a self-audit of the ICMC principals and standards in 2020. A third-party recertification audit of the Meadowbank Complex and its Supply Chain was completed in 2021 and the official ICMC certificates were received in September 2022.

As in previous years, a cyanide information brochure was made available to employees and the public. Copies are available at the Agnico Eagle's office in Baker Lake and are also online www.aemnunavut.ca/documents/.

As per previous years shipments, the transport of cyanide in 2023 included a qualified nurse and an Emergency Response Team member escorting the convoy of cyanide up to the Meadowbank mine site. In addition, they were present at the Baker Lake Marshalling facility for the removal of cyanide from the barge and the loading of the tractor trailers for hauling.

Agnico Eagle maintains its compliance with ICMC requirements. The full certification information can be found at: Agnico Eagle Mines Limited, Canada | The Cyanide Code

As part of the ICMC, Agnico Eagle is required to inform the community of Baker Lake and Chesterfield, details regarding the cyanide shipping and transportation along the All-Weather Access Road (AWAR), along with associated restrictions that apply to Hamlet residents regarding the usage of the AWAR.

In September 2023, Agnico Eagle held an in-person meeting in Baker Lake to share Cyanide transportation procedure and safety measures. Community members and first responders were invited to join the meeting. Feedback and comments were received during this in-person meeting from both the community members and first responders.

Agnico Eagle demonstrated its commitment to respecting Inuit culture through the modification of cyanide transportation operations at the Meadowbank Complex. After conducting an information session between Agnico Eagle representatives and members of the Baker Lake community to explain the cyanide transportation procedure under the ICMC, community members expressed their necessity to maintain access to a lake for collecting fresh water, especially for Elders, during AWAR closure. This reflects a good demonstration on how Agnico Eagle can adapt its operations to respect Inuit culture.

Upon careful evaluation of available options, Agnico Eagle personnel responsible for the transportation adjusted AWAR sections to be either closed or opened during transportation, ensuring community safety. This modification allowed the community, particularly Elders, to retain access to the land for harvesting and collecting fresh water. Throughout the transportation operations, regular communications and updates were shared with the Baker Lake Hamlet, HTO, Health Center, RCMP, and KivIA. Subsequent to these communications, Agnico Eagle received positive feedback from members of the community.

In December 2023, Agnico Eagle organized an information session in Chesterfield Inlet with support from local CLO. Due to transportation and accommodation issues, the Agnico Eagle representatives could not participate in person. The cyanide and shipping information was delivered virtually to local participants. Participants were referred to Agnico Eagle Nunavut website where they can find Cyanide Transportation and Management pamphlet. During the transportation, the community of Chesterfield Inlet were kept informed about the Cyanide transportation through Meadowbank Complex Facebook page. For future years, Agnico Eagle will make sure to deliver cyanide information session earlier in the year to ensure in-person presentation.

11.5 INSPECTIONS AND COMPLIANCE REPORTS[§]

11.5.1 Meadowbank and Whale Tail[§]

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 23: ***A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.***

And

As required by NWB Water License 2AM-WTP1830 Schedule B, Item 26: ***A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.***

11.5.1.1 *CIRNAC*[§]

CIRNAC Inspectors conducted three site (3) inspections of the Meadowbank Complex, covering the Meadowbank and Whale Tail Water Licenses (2AM-MEA1530 and 2AM-WTP1830) and NIRB Project

Certificates (No.004 and No.008) on March 21-22, 2023, May 24-26, and November 2-8, 2023. The purpose of these visits were to ensure compliance with the applicable terms. A summary is provided below, and the reports can be provided upon request.

- For the Meadowbank Site (Water License 2AM-MEA1530), the inspection reports (March and May) contained actions such as:

    - Demonstrate use or reuse of the items appearing abandoned with a completion date, or a plan with contingencies for the removal, dismantling, sale, or demolition with expected completion date. The plan will include an inventory of the items in this area with condition of the items and the above noted points will be considered for each item individually;

    - Remove sedimentation build up on the AWAR bridges, and build lips on the bridges that do not have them; and

    - Adjust the water meter display (Meadowbank Water Storage Tank) to view total amount of water withdrawn in cubic metres or Litres.

    Following the reception of the report, Agnico Eagle initiated works on the required actions. Furthermore, Agnico Eagle provided a response to CINAC Inspector on July 3rd related to the March Inspection report.

- For the Whale Tail Mine (Water License 2AM-WTP1830), the inspection report (March) contained actions such as:

    - Install a waste disposal facility signage at the landfarm; and

    - Demonstrate use or reuse of the items appearing abandoned, or a plan with contingencies for the removal, dismantling, sale, or demolition with expected completion date.

    As of this report, all required actions were completed. Agnico Eagle provided a response to CINAC Inspector on July 3rd related to the March Inspection report,

    No inspection report was received for Water License 2AM-WTP1830 following the May inspection.

- For the Meadowbank and Whale Tail Mine Project Certificates (NIRB Project Certificate No.004 & No.008), the inspection was to ensure compliance and make observations for the Terrestrial Ecosystem Management Plan (TEMP). No items of non-compliance were identified. The report contained recommendations such as:

    - Where consultation occurs for the reopening of roads or infrastructure specific information as to who was consulted and from which organization needs to be provided.

    - Any incidences where a vehicle travels upon a closed road must be adequately justified in annual reporting and any use of the road beyond regular road wildlife monitoring during closure must be included in the daily email distributions.

- Focus of inspection was to ensure compliance and review proponents application of the TEMP in relation to Caribou including the review of Wildlife observations and Data Collection, Data sharing with other organizations, and proponents' considerations during Caribou Migration.

Agnico Eagle acknowledges and appreciates the recommendations of the inspector and will work with the TAG and interveners to address recommendations.

11.5.1.1 *Environment and Climate Change Canada*

ECCC conducted an inspection of the Baker Lake Tankfarm, Meadowbank and Whale Tail site along with Government of Nunavut Conservation officer on July 22-23, 2023.

The following item was notice during visit:

- The signage on the ECCC registered fuel tank (km132) has faded due to the weather and is barely readable.

As of this report, the corrective actions were completed.

11.5.1.2 *Kivalliq Inuit Association*

KivIA did not conduct any site inspections at Meadowbank and Whale Tail in 2023. KivIA Baker Lake Lands Officer patrolled the All Weater Access Road and the Whale Tail Haul Road to review and ensure application of TEMP measures.

11.5.1.3 *Nunavut Impact Review Board*

The annual NIRB inspection of the Meadowbank and Whale Tail site was conducted from July 29^{h} to 30th, 2023. The Inspection Report was received in October 2023. All documents can be found on the NIRB public registry.

Find below a list of the main subjects that were discussed in the main inspection report:

<u>Meadowbank Site</u>

- The Monitoring Officers noted the following successes at the Meadowbank facilities since the previous site visit:
    - Operational noise monitoring equipment;
    - Operational wildlife deterrent at the landfill; and
    - Noise reduction pilot project on the AWAR flagpoles.
- The Monitoring Officers will be looking at the following items during the next site visit:
    - Information regarding Air Traffic logs;

- Re-covering of berm liner in the secondary containment berms at the fuel storage areas at the Baker Lake Marshalling Facility;
- Replacement of caribou migration maps; and
- Dust suppressants along the AWAR.

Whale Tail Site

- The Monitoring Officers noted the following successes at the Whale Tail pit facilities:
  - Dust suppressant applied and maintained on the Whale Tail Haul Road; and
  - Operational active NO2 monitoring equipment;
- The Monitoring Officer will be looking at the following during the next site visit:
  - Recovering of berm liners in the secondary containment berms at the fuel storage area at Whale Tail.

11.5.1.4 *HTO*

HTO conducted surveys almost daily on the AWAR during caribou migration. No site visit was organized in 2023 however, in September, Agnico Eagle organized a bus tour with 16 interested elders to go along the AWAR to locate and note dust suppressant added on the road portions up to 65 km.

11.5.1.5 *Government of Nunavut – Conservation Officer*

GN Conservation officer completed an inspection of the Baker Lake Tankfarm, Meadowbank, and Whale Tail site along with ECCC on July 22-23, 2023. No inspection or site visit reports were received.

11.5.1.6 *DFO*

DFO did not conduct any site inspections at Meadowbank and Whale Tail in 2023.

11.5.1.7 *Transport Canada Marine Safety and Security*

Transport Canada conducted an inspection at Meadowbank on March 21st, 2023. The focus of the inspection was safety inspection on boats.

Find below a list of the main items that were reported in the deficiency notices:

- Registration certificate;
- Marking of IMO / Official Number ;
- Marking and Labeling – Fueling point on new boat;
- On Board Training & Instructions;

- Means of Rescue; and
- Distress Flares.

Agnico Eagle sent on October 20th, 2023, the corrective actions for all the items included in the notices.

11.6 NON-COMPLIANCE ISSUES§

11.6.1 Meadowbank Site§

As required by NIRB Project Certificate No.004 Condition 4: ***Take prompt and appropriate action to remedy any noncompliance with environmental laws and regulations and/or regulatory instruments, and shall report any noncompliance as required by law immediately and report the same to NIRB annually.***

One (1) order received from CIRNAC stating the proponent has failed to meet obligations for the protection of Caribou under the Project Certificates 4 and 8 and the Terrestrial Ecological Management Plan. The order was received on May 26th, 2023. On September 8th, 2023, following additional information provide by Agnico Eagle, Agnico Eagle was determined compliant with the Project Certificate's Terms and Condition, and the order was closed. Additional items were noted for discussion rather than compliance concerns. Any future compliance issues in regard to the TEMP will be addressed through the Terrestrial Advisory Group.

There has been no (0) non-compliance related to the MDMER and Meadowbank Water License 2AM-MEA1530 in 2023.

11.6.2 Whale Tail Site§

As required by NIRB Project Certificate No.008 Item 6: ***The Proponent shall take prompt and appropriate action to remedy any occasion of non-compliance with environmental laws and regulations and/or regulatory instruments, and shall report any non-compliance as required by law immediately. A description of all instances of non-compliance and associated follow up is to be reported annually to the NIRB.***

One (1) order received from CIRNAC stating the proponent has failed to meet obligations for the protection of Caribou under the project certificates 4 and 8 and the Terrestrial Ecological Management Plan. The order was received on May 26th, 2023. On September 8th, following additional information provided by Agnico Eagle, Agnico Eagle was determined compliant with the Project Certificate's Terms and Condition, and the order was closed. Additional items were noted for discussion rather than compliance concerns. Any future compliance issues in regard to the TEMP will be addressed through the Terrestrial Advisory Group.

There has been no (0) non-compliance related to the MDMER and Meadowbank Water License 2AM-MEA1530 in 2023.

11.7AWAR / WHALE TAIL HAUL ROAD USAGE REPORTS

11.7.1 Authorized and Unauthorized Non-Mine Use

11.7.1.1 *AWAR Meadowbank Site*

As required by NIRB Project Certificate No.004 Condition 32g: ***Record all authorized non-mine use of the road, and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road, and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter.***

And

As required by NIRB Project Certificate No.004 Condition 33: ***Cumberland shall update the Access and Air Traffic Management Plan to: 1. Include an All-weather Private Access Road Management Plan, including a right-of-way policy developed in consultation with the KivIA, GN, INAC and the Hamlet of Baker Lake, for the safe operation of the all-weather private access road; and 2. To facilitate monitoring of the environmental and socio-economic impacts of the private road and undertake adaptive management practices as required, including responding to any concerns regarding the locked gates.***

And

As required by NIRB Project Certificate No.004 Condition 34: ***Cumberland shall, in consultation with the Hamlet of Baker Lake, KivIA, and the Royal Canadian Mounted Police, facilitate the hiring of a full-time road safety, search and rescue position to respond to safety matters arising from mine and unauthorized non-mine use of the all-weather private access road, including consulting with Baker Lake and Chesterfield Inlet Elders to incorporate Traditional Knowledge into search and rescue operations.***

And

As required by NIRB Project Certificate No.004 Condition 81: ***Beginning with mobilization, and for the life of the Project, Cumberland shall provide full 24 hour security, including surveillance cameras and a security office at the Baker Lake storage facility/marshalling area, and take all necessary steps to ensure the safe and secure storage of any hazardous or explosive components within the Hamlet of Baker Lake boundaries.***

The security department at the Meadowbank Complex maintains fully staffed security gatehouse at Baker Lake on a 24/7 schedule. The Security staff monitors the safety, traffic and security of all personnel and the public using the road. Agnico Eagle also has an emergency response team ready to respond to any incident that may occur on the AWAR. Agnico Eagle has several protocols and procedures in place to respond to emergencies.

Agnico Eagle procedures for non-mine uses of the road require that any local users report to the Baker Lake Gatehouse and sign a form that describes the safety protocol while on the road. The road is used primarily by local hunters using ATV's and snowmobiles. Daily records are kept. A summary of the non-mine authorized road use for 2023 is provided in Table 11-1. In 2023, 3,143 non-mine authorized road uses were recorded (drivers and passengers) compared to 2,352 in 2022. Table 11-2 below show the ATVs and snowmobiles usage from 2012-2023.

Table 11-1 2023 Monthly AWAR ATVs and Snowmobile Usage Records

Month	Numbers of ATV's (drivers and passengers)
January	1
February	0
March	0
April	5
May	373
June	453
July	245
August	544
September	727
October	569
November	226
December	0
Total	**3,143**

Table 11-2 2012-2022 AWAR ATVs and Snowmobile Usage Records

Year	# of ATV's
2012	1,456
2013	1,958
2014	1,319
2015	2,366
2016	1,504
2017	1,715
2018	1,091
2019	2,163
2020	2,223
2021	3,079
2022	2,352
2023	3,143

Agnico Eagle's Project Certificate 004 was issued in 2006. Following the approval of the All Weather Access Road (AWAR) in 2007, the Project Certificate was revised in 2009 to address concerns regarding access to the AWAR. Pursuant to Condition 33, Agnico Eagle prepared the Transportation Management Plan: All Weather Private Access Road in 2009. It was submitted and later approved by CIRNAC and GN. Therefore, no revision of the 2005 Access and Air Traffic Management Plan was undertaken. Agnico Eagle is of the opinion that the Transportation Management Plan replaced the Access and Air Traffic

Management Plan in 2009. The AWAR Transportation Management Plan was last updated in October 2022 and can be found in Appendix 45 of the 2022 Meadowbank Complex Annual Report.

11.7.1.2 *Whale Tail Haul Road*

As required by NIRB Project Certificate No.008, Condition 31: ***The Proponent shall develop and implement a Road Access Management Plan and maintain traffic monitoring logs along the haul road between the Whale Tail Pit project and the Meadowbank mine. Where traffic exceeds levels predicted within the Environmental Impact Statement, the Proponent shall develop and implement appropriate modifications to its wildlife protection measures. The Road Access Management Plan shall be provided to the Nunavut Impact Review Board (NIRB) 90 days prior to operations commencing. An annual summary of the monthly maximum, minimum and average traffic levels shall be provided to the NIRB in the Proponent's annual report.***

And

As required by CIRNAC Road lease 66H/8-2-1 Condition 60: ***The lease shall before the first (1st) day of September in each and every year during the term of the lease, provide to the Minister, a report of that years road activities. The report shall include, but not limited to:***

1. ***total number of loads hauled in that year***

2. ***total road operating cost for that year***

And

As required by CIRNAC Road lease 66H/8-2-1 Condition 63: ***The lessee agrees to monitor and report unauthorized non-mine use of the road, and collect and report this data to the Minister, who shall make this report accessible to the Nunavut Impact Review board, one (1) year after the road is opened and annually thereafter.***

Agnico Eagle has provided and implemented the Whale Tail Haul Road Management Plan to meet Condition 31 of the NIRB Project Certificate No. 008. The Security staff monitors the safety, traffic and security of all personnel using the road. Table 11-3 below shows the traffic data for 2023 along the Whale Tail Haul Road. Total one-way traffic along the WTHR included 58,284 long-haul, 5,279 medium equipment, and 2,410 light equipment vehicles, for a total of 65,973 vehicles. Total traffic along WTHR was slightly higher than 2021 and 2022 with 62,037 and 61,070 vehicles, respectively. The higher traffic in 2021-2023 compared to 2020 (50,441 vehicles) may be explained in part by the reduce operation that occurred at the beginning of 2020 in response to the COVID-19 restrictions and the growth of the long-haul fleet to increase in hauling capacity. It should also be noted that traffic detailed above represents an entry on the WTHR and did not necessarily travel the entire WTHR.

Table 11-3 Whale Tail Haul Road 2023 Traffic Data

Date	Long Haul	Medium Equipment	Light Equipment	Total
January	4,580	453	347	**5,380**
February	4,590	437	252	**5,279**
March	6,066	541	227	**6,834**
April	1,710	222	170	**2,102**
May	4,014	449	280	**4,743**
June	6,060	447	131	**6,638**
July	6,326	519	152	**6,997**
August	4,694	493	166	**5,353**
September	5,236	517	127	**5,880**
October	5,400	656	212	**6,268**
November	4,608	240	107	**4,955**
December	5,000	305	239	**5,544**
Total	**58,284**	**5,279**	**2,410**	**65,973**

The haul road traffic volumes for the Mine are consistent with those applied to the Approved Project FEIS Volume 4, Appendix 4-B, Table 4-B-15 (Agnico Eagle 2016c). Table 11-4 below provides the FEIS daily vehicle traffic on the haul road based on an estimate that there will be traffic on the road 337 days in the year. In 2023, the WTHR was fully closed (i.e., 24-hour closure) on 37 days. On 64 days, the WTHR experience closures occurring for less than 24 hours and speed restrictions were applied on 60 days on the WTHR.

In order to make comparison to FEIS, explosive truck, fuel, cargo and oversize were categorized as medium equipment. Pickup and bus were categorized as light equipment. Based on data collected in 2023, there is no exceedance to the FEIS. The annual daily average traffic was 160 for long haul, 14 for medium equipment and 7 for the light equipment (Table 11-5).

Table 11-4 FEIS Daily Vehicle Traffic on the Haul Road

Category	Lower 5%	Average	Upper 95%
Long Haul	64	154	173
Explosive	2	4	5
Fuel	1	2	4
Cargo	4	7	10
Pickup	12	20	26
Bus	0	2	4
Oversize	0	1	4

Table 11-5 2023 Annual Daily Average WTHR Traffic Comparison to Average FEIS

Category	FEIS	2023 Data
Long Haul	154	160
Medium Equipment	14	14
Light Equipment*	22	7

**Also included other type of small vehicles like cube van, vacuum tuck, ambulance etc*.

There is no non-mine use of the Whale Tail Haul Road by any local as the road is closed for public use. Two traditional land use crossing locations were identified during IQ/TK workshops and following meetings with the Hunters and Trappers Organization, a first location has been set at km 127 and is currently functional. Following consultation with HTO in 2019, it has been determined that no more locations for Traditional Land Use Crossings needed to be implemented along the WTHR.

Here is some specification regarding the crossing:

- Haul traffic from the Whale Tail Mine to Meadowbank Mill will have the right-of-way;
- Traditional land users (i.e. hunters on ATVs or snowmobiles) crossing the Whale Tail Haul Road on identified ramps must yield to Haul Road Traffic;
- Haul Road Traffic approaching traditional land use crossings must be vigilant of the potential use by ATVs or snowmobiles;
- Hunters and traditional land users on snowmobiles or ATVs have to stop, look both ways and yield to traffic before crossing the road; and
- Traditional land use marked signs were installed on the haul road to warn haul trucks and other vehicles on the road to ensure users protection and safety of traditional land users on ATVs or snowmobiles.

In 2023, no incidents involving non-mine authorized use occurred. Agnico Eagle is confident that the current procedures and protocols provide for the safety of the local public while using the road either for hunting access or for general recreational opportunities.

11.7.2 Safety Incidents

11.7.2.1 *AWAR Meadowbank Site*

As required by NIRB Project Certificate No.004 Condition 32e: ***Prior to opening of the road, and annually thereafter, advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is a private road with non-mine use of the road limited to approved, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.***

And

As required by NIRB Project Certificate No.004 Condition 32f: ***Place notices at least quarterly on the radio and television to explain to the community that the road is a private road with non-mine use of road limited to***

authorized, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.

And

As required by NIRB Project Certificate No.004 Condition 32h: ***Report all accidents or other safety incidents on the road, to the GN, KivIA [KIA], and the Hamlet immediately, and to NIRB annually.***

In 2023, two (2) formal engagements were organized to review AWAR procedure and monitoring, and to consult with the population. These engagements are as follows:

- During Cyanide Transportation Information Session (with Community First Respondents)
- Baker Lake Coffee and Chat (with Baker Lake Public)

In 2023, the Meadowbank Facebook page also provided updates on road closure throughout the year. The Baker Lake community was able to access the AWAR procedure via the Facebook Meadowbank Page and the website www.aemnunavut.ca/community/roads.

As indicated in the Section 11.4 above, in September 2023, Agnico Eagle held an in-person meeting in Baker Lake to share Cyanide transportation procedure and safety measures. During that meeting, participants were also made aware of general AWAR road uses as well as specific restrictions during cyanide transportation operations. Feedback and comments were received during this in-person meeting from both the community members and first responders.

Additionally, in September 2023, Agnico Eagle organized a bus tour with 16 interested elders to go along the AWAR to locate and note dust suppressant added on the road portions up to 65 km. Elders noticed the difference between the area where suppressant has been added on and areas where it has not been. Which shows that dust suppressant is effective.

In 2023, there were twelve (12) environmental spills that occurred along the AWAR. Tables 7-2 and 7-3 provide details on these spills. These spills were managed and remediated appropriately according to Agnico Eagle's Spill Contingency Plan.

In 2023, there were two (2) project-related wildlife mortalities along the AWAR. One (1) Arctic Ground Squirrel and one (1) Arctic Hare. All the incident/mortality reports can be found in 2023 Wildlife Monitoring Summary Report (Appendix 39).

To continue avoiding further incidents, messages are continually provided to employees and contractors to reinforce the procedures for wildlife protection during road use. As well, reminders were given on reporting any issues or observations concerning wildlife to the AWAR road dispatch.

11.7.2.2 *Whale Tail Haul Road*

As required by CIRNAC Road lease 66H/8-2-1 Condition 64: ***The lessee agrees to report any information received, including accidents or others safety incidents on the road, including the locked gates, to the minister, who shall make this information accessible to the GN, KIA a, the Hamlet of Baker Lake immediately.***

And

As required by NIRB Project Certificate No 008 Condition 66: ***The Proponent shall operate the Whale Tail haul road as a private access road, implement any reasonable measures to limit public access to the road, and develop strategies that account for unauthorized use. These measures must include, but are not limited to, the following:***

> ***a) The posting of signs in English and Inuktitut at the gate, each major bridge crossing, and each 10 kilometres of road, stating that public use of the road is prohibited;***
>
> ***b) Annually advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is restricted to mine use only;***
>
> ***c) Place local notices (e.g., radio, television, social media) at least quarterly to explain to the community that the road is restricted to mine use only;***
>
> ***d) Record all unauthorized non-mine use of the road, and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road; and,***
>
> ***e) Develop management strategies to ensure public and operator safety in the event of unauthorized public use.***

Since the AWAR is used by Nunavummiut for many reasons such as traditional activities, it was decided that an employee from Baker Lake would work at the gatehouse as a dispatcher.

In 2023, the Baker Lake community members were kept informed during the coffee and chat session in Baker Lake about AWAR and WTHR safety measures. A total of 30 community members attended this meeting in Baker Lake and were encouraged to provide their comments, thoughts or suggestions during the meeting.

Agnico Eagle also relayed AWAR/WTHR safety information and procedure via the Meadowbank Complex Facebook page. Additionally, the community could access the procedure and road status via the website www.aemnunavut.ca/community/roads.

No incidents involving non-mine authorized use occurred in 2023.

There have been no accidents to date involving mine related truck traffic and locals using ATV's/snowmobiles.

A total of fifteen (15) environmental spills occurred along the Whale Tail Haul Road in 2023. Table 7-4 and Table 7-5 provides details on each of these spills. All spills were managed and remediated appropriately according to Agnico Eagle's Spill Contingency Plan.

In 2023, there were three (3) project-related mortalities along the Whale Tail Haul Road. One (1) Arctic Hares, one (1) Arctic Fox, and one (1) Muskox were killed due to vehicle interaction. To avoid incidents, messages are continually provided to employees and contractors to reinforce the procedures for wildlife protection during road use. As well, reminders were given on reporting any issues or observations concerning wildlife to the Whale Tail Haul Road dispatch. All the incident/mortality reports can be found in 2023 Wildlife Monitoring Summary Report (Appendix 39).

11.7.2.2.1 Road Closure

As required by CIRNAC Road lease 66H/8-2-1 Condition 65*: The lessee shall give notice of any closure of the road to the Minister and the reasons thereof, and post any notice of closure at the access point and along the road.*

There were no Whale Tail Haul Road closures in 2023 that may have impacted local usage as the road is not public. There were road closures in 2023 due to bad weather and wildlife migration (Wildlife Monitoring Summary Report Appendix 39) at various intervals throughout the year. When this situation occurred, the road status was provided to all Agnico Eagle and contractor employees, the GN, KivIA and BLHTO with regular updates.

11.8 SHIPPING MANAGEMENT

As required by NIRB Project Certificate No.008, Condition 37: ***The Proponent shall maintain a Shipping Management Plan in coordination and consultation with applicable regulatory authorities and the Kivalliq Inuit Association, and the Hunters and Trappers Organizations of the Kivalliq communities. The updated plan should be submitted to the Nunavut Impact Review Board at least 90 days prior to the start to commencement of shipping activities, with subsequent updates submitted annually thereafter in the Proponent's annual report or as may otherwise be required by the NIRB.***

Agnico Eagle has developed and maintained a Shipping Management Plan prior to 2018 shipping activities. In 2023, Agnico Eagle followed the approved Shipping Management Plan (Version 4, April 2022) that was submitted as part of Appendix 56 of the 2021 Annual Report.

11.8.1 Marine Shipping Routing

As required by NIRB Project Certificate No.008 Condition 38: ***The Proponent shall ensure that marine shipping activities avoid sensitive wildlife habitat and species along the shipping route and use a routing south of Coats Island as the primary shipping route, subject to vessel and human safety considerations. Confirmation that the requirements of this term and condition are being effectively implemented by shipping companies contracted by the Proponent should be submitted as part of annual reporting to the Nunavut Impact Review Board.***

And

As required by NIRB Project Certificate No.008 Condition 39: ***The Proponent shall ensure that, subject to vessel safety requirements, a setback distance of at least 500 metres is maintained from colonies and aggregations of seabirds and marine mammals during Project shipping transiting through Hudson Strait, Hudson Bay, and Chesterfield Inlet. Confirmation that the requirements of this term and condition are being effectively implemented by shipping companies contracted by the Proponent should be submitted as part of annual reporting to the Nunavut Impact Review Board.***

And

As required by NIRB Project Certificate No.004 Condition 41: ***Subject to vessel and human safety considerations, Cumberland shall require shippers carrying cargo to the Project through Chesterfield Inlet to follow the following mitigation procedures in the event that marine mammals are in the vicinity of the shipping activities:***

- ***Wildlife will be given right of way;***
- ***Ships will maintain a straight course, constant speed, and will avoid erratic behaviour; and***
- ***When marine mammals appear to be trapped or disturbed by vessel movements, the vessel will stop until the mammals have moved away from the area.***

For the fourth year, Agnico Eagle produced a joint MMSO report with Agnico Eagle Meliadine Mine. As the shipping company Groupe Desgagnés and Woodward ship equipment, supplies, and fuel to Meadowbank and Meliadine and sometimes vessel deserve both sites during the same trip, it was determined that it will be efficient to report all the observations into the same report while ensuring that the requirement from both sites are clearly identified. The below is a summary of the findings and Agnico Eagle will refer to the 2023 Marine Mammal and Seabird Annual Report presented in Appendix 32 for a complete review.

The 2023 MMSO program continues to see greater survey effort compared to pre-2020. During the 2023 shipping season, a total of 23 Groupe Desgagnés and Woodward vessels serviced the Projects between July and October: nine (9) for Meadowbank, six (6) for Meliadine, and eight (8) serviced both Meadowbank and Meliadine. No incidents with marine mammals or seabirds were reported for the 2023 shipping season.

Vessel Mitigation

Vessels are required to transit south of Coats Island whenever the weather is safe to do so. The majority (78%) of vessels servicing the Meadowbank and Meliadine projects in 2023 travelled south of Coats Island, apart from five occasions, four of which occurred in June (one occasion) and July (three occasions) due to shipping route conditions, and the other one occurred in October due to inclement weather.

Setbacks from Sensitive Habitats

In compliance with Whale Tail Mine Certificate No. 008, Term and Condition 39, project vessels must follow a setback distance of 500 m from colonies and aggregations of seabirds and marine mammals while transiting through the Hudson Strait, Hudson Bay, and Chesterfield Inlet. In addition, vessels must follow a setback distance of 2 km from Marble Island, as per Meliadine's Shipping Management Plan.

Vessel tracks were mapped along with identified sensitive areas for wildlife; where detailed data was available, vessels were shown to avoid these areas where safe to do so. Groupe Desgagnés and/or Woodward vessel tracks appeared to potentially cross through the 2 km setback polygon at Marble Island on 10 occasions, and at the Coats Island setback polygon on two occasions. However, when examining the data, it appears that a vessel only entered the 2 km Marble Island buffer on two occasions. Track data is based on satellite AIS (Automatic Identification System); therefore, ship track intersections likely occurred due to lack of ship track resolution and the intersection of existing points to create a continuous shipping track. Agnico Eagle will continue to investigate alternative commercial AIS suppliers in 2024; however, Vesseltracker remains the most reliable at this time. In addition, Agnico Eagle continues to train vessel captain regularly and remind them of the importance of maintain sensitive habitat buffers prior to the start of the shipping season.

Updated training materials and poster for identification of common marines' species were also supplied to dedicated MMSO crew observers including detailed methods for marine mammal and seabird surveys (on moving vessels and stationary vessels), one-page fact sheet for marine mammal and seabird surveys, data sheets, and training videos. Training material was distributed before the 2023 shipping season. Agnico Eagle also held pre-trip training presentation and conducted monthly meetings with shipping compagnies to reinforce MMSO requirements and area of improvement in the data collection during the season. Mitigation procedures to follow in the event that marine mammals are in the vicinity of the shipping activities are also part of the training material and pre-shipping meeting with the compagnies.

11.8.2 Wildlife Monitoring on Vessel

As required by NIRB Project Certificate No.008 Condition 40: ***The Proponent shall develop and implement a ship-based marine mammal monitoring program, as part of a Marine Mammal Management and Monitoring Plan, in consultation with Fisheries and Oceans Canada, communities, and other interested parties. The Proponent shall report any accidental contact by project vessels with marine mammals or seabird colonies to applicable responsible authorities including Fisheries and Oceans Canada and Environment and Climate Change Canada. The Plan should be submitted to the Nunavut Impact Review Board at least 90 days prior to commencement of shipping activities, with subsequent updates submitted annually thereafter. Confirmation that the requirements of the Plan are being effectively implemented by shipping companies contracted by the Proponent should be provided with annual reporting.***

And

As required by NIRB Project Certificate No.004, Condition 36: E*nsure the placement of local area marine mammal monitors onboard all vessels transporting fuel or materials for the Project through Chesterfield Inlet*

The Marine Mammal Management and Monitoring Plan was provided as Appendix B of the Shipping Management Plan (Version 4, April 2022 – Appendix 56 of the 2021 Annual Report).

A complete report, 2023 Marine Mammal and Seabird Annual Report, detailing the 2023 mammal and seabird observations during the shipping season can be found in Appendix 32. Below is a summary of the report and Agnico Eagle will refer the reader to the report in Appendix for a complete review.

Marine Mammal Monitoring

In 2023, 64 transects were surveyed for marine mammals, and 62 stationary surveys were completed. There was a total of 20 sightings (five during dedicated surveys and 15 incidentally) of marine mammals during the 2023 shipping season, compared to 32 (surveys and incidentally) in 2022, 35 (surveys and incidentally) in 2021, 12 (surveys and incidentally) in 2020, seven (all during surveys) in 2019, none in 2018, and six (all incidental) in 2017. The majority of all marine mammal sightings between 2017 and 2023 were recorded in the Hudson Strait or near Marble Island and Chesterfield Inlet. There is an insufficient number of marine mammal sightings recorded to conduct a density analysis. No marine mammal-vessel interactions (e.g., strikes) were recorded by Groupe Desgagnés or Woodward in 2023, or in previous years (2017 through 2022).

Seabird Monitoring

No interactions between vessels and seabirds were recorded during the MMSO in 2023, or in previous years. Seabird survey effort on moving vessels in 2023 was lower than 2022 and 2021 but higher than early years, with 116 surveys completed with spatial effort. The decrease in moving vessel survey spatial effort is likely attributed to a more consistent adoption of new survey methods (reinforced in 2022 and 2023), an increase in errors on survey data sheets associated with incorrect coordinates or missing coordinates, and on fewer vessels travelling to site in 2023 (23) compared to previous years (e.g., 27 vessels in 2022 and 29 vessels in 2021). Over six years of moving vessel surveys for seabirds between 2018 and 2023, 48 species and 10,608 individual birds were recorded. The surf scoter was observed for the first time during moving surveys in 2023. The most common species recorded in 2023 were northern fulmar, razorbill, herring gull, and Wilson's storm-petrol. In 2023 northern fulmar continued to be one of the most reported species. Herring gulls were reported in a higher abundance than previous years, however, unknown gulls were under reported compared to previous years suggesting surveyors may have been more likely to identify previously unknown individuals as herring gulls. Previous to 2023 both common and thick-billed murre were recorded in relatively high abundance, however, in 2023 during moving surveys there were only two observations for both species combined. This suggests that common and thick-billed murre may have occurred at lower abundances in 2023 or they were more likely to be misidentified.

Seabird detectability and density were estimated using models which account for lower detectability of birds with greater distance from survey transects. Detectability estimates were mostly consistent between years, with the highest estimate in 2022, followed by 2019 and 2021. The detectability estimate in 2023 was the second lowest since modelling started in 2018, however, 2023 had the second highest predicted seabird density in the same time span. Both the spatial effort of surveys in 2023 and the number of seabirds detected during moving surveys were lower than previous years. The differences in estimated density reflect variability in the effort and number of birds detected between years.

Stationary vessel survey effort was approximately 82% higher than in 2022 and this is due to more consistent reporting of survey effort. A total of 134 stationary surveys were completed in 2023 which was the most out of all years, however, survey effort was only the third highest. This could be attributed to fewer vessels overall travelling to site in 2023 and to a change in survey methods in 2022 for shorter consecutive surveys which was more successfully implemented in 2023. A total of 3,602 individuals from 39 species were recorded during stationary vessel surveys from 2019 to 2023. The detection rate for stationary vessel surveys more than half of that for moving vessel surveys. This result is generally consistent with the data, which indicates that both detections and number of birds recorded per survey were lower for stationary surveys compared to moving surveys.

Marine Wildlife Observations – Baker Lake

In compliance with Project Certificate No. 004 Condition 36, local area marine mammal monitors have conducted a program of community wildlife observers on barges ferrying supplies between Helicopter Island and Baker Lake within Chesterfield Inlet between 2008 and 2019. In 2020 and 2021, community members were not permitted to board vessels due to health and safety restrictions in place related to the COVID-19 pandemic. In 2022, Agnico Eagle hired three local monitors from the community of Baker Lake for a total on 22 days surveys during the barge season. In 2023, Agnico Eagle had one local wildlife observers from the community of Baker Lake for a total of 27 days surveyed in July, August and October.

Wildlife were observed on 199 occasions in 2023. There were 195 separate sightings of birds (total of 663 individuals), one sighting of caribou (one individual), two sightings of muskox (13 individuals), and one sighting of an unknown seal species (one individual). The most frequently recorded birds were unknown gull species.

As established in 2020, the shipping companies continued to record marine wildlife sightings while vessels were at anchor near Helicopter Island, or on the tugs/barges between Helicopter Island and Baker Lake to supplement the community observer effort. In 2023, crew members onboard the tugs recorded a total of 36 incidental sightings while transiting between Helicopter Island and Baker Lake over 35 separate days between July 13 and August 31. Two marine mammals were recorded incidentally in July (one harbour seal and one bearded seal), and a total of 265 seabirds were recorded across 13 different species. In addition to the incidental sightings by the barges, vessels also completed stationary surveys while anchored at Helicopter Island and moving transect surveys when conditions allowed. In 2023 there were 42 stationary surveys for marine mammals completed at Helicopter Island. No marine mammals were observed during any of these surveys. For seabirds, 94 stationary surveys were completed (one of which had temporal effort recorded) and 17 moving transect surveys. During stationary seabird surveys, 792 individuals across 10 different species were observed, and during moving transect surveys, 282 individual seabirds across 11 different species were observed.

In 2023, Agnico Eagle continues effort in the recruitment of local monitors in compliance with Term and Condition 36. Recruitment is done with the Agnico Eagle's community agents to find reliable and available monitors that are willing to board the vessels for a significant time period, as the vessels are travelling back and forth from the Inlet to the Baker Lake community. Per previous years, recruitment from the community has always proved to be challenging as multiple candidates first accepted the proposed work but declined and/or changed their minds at the last minute or decide to unboard the vessel on short notice and did not want to pursue this type of work any further. Agnico Eagle start the recruitment process for local monitor in advance of the shipping season based on estimated vessel arrival date in Baker Lake provided by the shipping company. Those dates are preliminary and are subject to change, for example, depending on the shipping route conditions or other reasons out of Agnico Eagle's control. Once local monitors are selected, the hiring process started and booking of flight/accommodation, if needed, are completed. If there is delay in the vessel arrival in Baker Lake or if the local monitor decides to not do the work anymore, the flexibility to hire someone else on a short notice is largely reduce, especially if flight and accommodation in Baker Lake are needed. while Agnico Eagle have good collaboration from the shipping company, it should also be noted that some vessels have no rooms to accommodate local MMSO monitor due to configuration of the vessel and they need to prioritize their employees onboard to ensure safe operations.

In 2023, Agnico Eagle hired two (2) local monitors from the community of Chesterfield Inlet. The intent is to always have one local monitor on transiting vessel, and they overlap on schedule between 10 to 14 days. Due to delays encountered in the arrival of the vessels deserving the Meadowbank Complex, outside of Agnico Eagle's control, the first monitor from Chesterfield Inlet was on stand-by at the mine site and was finally not able to board the vessel, nor was he able to perform any observations. The second local monitor from Chesterfield Inlet had to cancel his duty for personal reason the day before heading to Baker Lake to board the shipping vessel. In order to comply with Condition 36, Agnico Eagle was able to hire a local monitor from the Baker Lake community that boarded the vessel for a first observation period of 13 days (July-August) and then return on the vessel for an additional 2 days (August) with early departure due to personal medical conditions. The same local monitor from community of Baker Lake

then board again the transiting vessel in October for a total of 13 days of observations. For 2024, it is Agnico Eagle's intent to continue to hire local monitors in compliance with Term and Condition 36.

Additional to the above and as an alternative to ensure data collection as per Condition 36, Agnico Eagle will continue to work with the shipping compagnies for the possibility to pursue in 2024, the marine mammal monitoring from Helicopter Island to Baker Lake infrastructures.

Agnico Eagle will continue to improve the effectiveness of the MMSO Program in compliance with Whale Tail Project Certificate No. 008 Term and Conditions 38, 39, 40 and Meadowbank Project Certificate No. 004, Term and Condition 36. As discussed in previous section, the training material that summarizes and simplifies both the Marine Mammal Management and Monitoring Plan (MMMMP) and Shipping Management Plan (SMP) has continued to show their effectiveness in 2023.

11.8.3 Notification to Communities

As required by NIRB Project Certificate No.008 Condition 41: ***The Proponent shall provide notification to communities regarding scheduled ship transits throughout the regional study area, including Hudson Bay and Chesterfield Inlet. The Proponent shall provide a summary of public consultation undertaken to address this term and condition in its annual report to the Nunavut Impact Review Board.***

In May 2023, Agnico Eagle intended to visit every community before the barge season by organising flights and meeting logistics to go to Chesterfield Inlet, Coral Harbour, Naujaat, Rankin Inlet and Baker Lake. Unfortunately, despite multiple attempts to land in the various communities, the tour had to be cancelled owing to unfavourable weather conditions. However, the Whale Cove presentation was delivered.

Agnico Eagle was ready to present information about:

- Proposed shipping scenario – Baker Lake
- Routing from Quebec to Nunavut
- Routing to go to Baker Lake
- Proposed scenario – Rankin Inlet
- Routing to go to Rankin Inlet
- All-weather Access Road Management
- Caribou Migration
- Process to find live information about the vessel routing
- Process to ask questions and raise concerns via Tusaajugut 'We are Listening'

As mentioned earlier in this report, Agnico Eagle has been making repeated attempts to reach Chesterfield Inlet since summer 2023. However, accommodations were not available in the community until mid-December because of ongoing construction of public infrastructure.

In December 2023, during a virtual engagement with Chesterfield Inlet community members, took the opportunity to explain shipping routing from Quebec to Nunavut with specific explanation and mapping going next to Chesterfield Inlet all the way to Baker Lake. Agnico Eagle welcomed local participants to share any thoughts and question and made sure to provide answers to all points arose.

Moving forward to 2024, Agnico Eagle representatives are proactively strategizing a visit to the community earlier in the year, prior to the recommencement of construction activities and while accommodations remain accessible.

11.8.4 Ingress/Egress of Ship Cargo

As required by NIRB Project Certificate No.004 Condition 37: ***Cumberland will contract only Transport Canada certified shippers to carry cargo for the Project, and will require shippers transporting cargo through Chesterfield Inlet to carry the most up-to date emergency response/spill handling equipment as recommended and accepted by the Government of Canada with the crew trained to deploy the equipment, including practice drills deploying spill equipment in remote locations within the Inlet.***

And

As required by NIRB Project Certificate No.004 Condition 38: ***Cumberland shall make every reasonable effort to minimize the number of ships and barges transporting cargo for the Project, and require shippers transporting cargo for the Project through Chesterfield Inlet to be operated in accordance with safe shipping management policies, including using Canadian Hydrographic Service published detailed marine charts and nautical instructions, and be fitted with modern state-of-the-art navigation equipment.***

And

As required by NIRB Project Certificate No.004 Condition 42: ***Cumberland shall ensure all fuel transfer operations take place in accordance with the Arctic Waters Pollution Prevention Act and relevant oil transfer guidelines.***

And

As required by NIRB Project Certificate No.004 Condition 82: ***Monitor the ingress/egress of ship cargo at Baker Lake and report any accidents or spills immediately to the regulatory agencies as required by law and to NIRB's Monitoring Officer annually.***

And

As required by NIRB Project Certificate No.004 Condition 43: ***Lightering activities at Helicopter Island are not approved, except in case of emergency only, and in such case Cumberland shall explain why all other methods were not practical, meaning technically, logistically, and financially not feasible.***

And

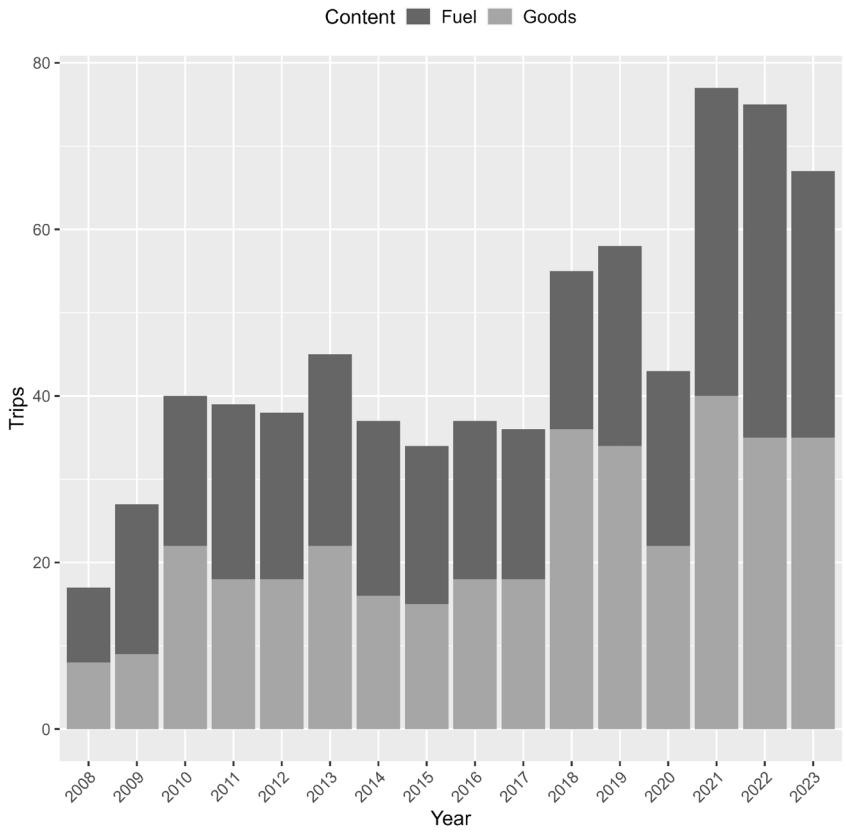
As required by NIRB Project Certificate No.008 Condition 43: ***The Proponent shall contract only certified vessels to carry cargo for the Project, and will ensure shippers are aware of the requirements of the Shipping Management Plan, the Risk Management and Emergency Response Plan, and the Oil Pollution Emergency Plan. Evidence of meeting the requirements of this term and condition should be submitted as part of annual reporting to the Nunavut Impact Review Board***

On August 27th, 2023, a diesel spill occurred during ship to shore operation at the Agnico Eagle Marshaling Facilities in Baker Lake. Diesel fuel was being transferred from the Kivalliq W. to the Agnico Eagle's tank on land, when the diesel transfer hose gets punctured because of chaffing on rocks closer to the shoreline, cause by the wave action. It is estimated that less than 2L of fuel entered the lake. The spill location was on the shores of Baker Lake. The spill was reported by shipping company to the Nunavut Spill Hotline (GN reference #: 2023-363). Agnico Eagle provided a report to Transport Canada as per Section 133 of the Vessel Pollution and Dangerous Chemicals Regulations. Report was also sent to ECCC and CIRNAC's Officer. Agnico Eagle did not observe any other accidents or spills at Baker Lake during the Ingress/Egress of ship cargo.

In 2023, Agnico Eagle monitored the ingress/egress of ship cargo at Baker Lake and the results are summarized in the below Figure 38. Barge trips from Chesterfield Inlet in 2023 numbered 35 for general cargo and 32 for fuel. With the expansion at the Whale Tail site, traffic increased in 2018 and 2019 compared to previous years (e.g., from < 40 in 2016 and 2017 to ~ 55 in 2018). Trips were down in 2020 due to COVID 19, but increased in 2021 and remained similar through 2023.

Only certified vessels were hired to carry the cargo at Meadowbank Complex. Annual meetings were held with the dry cargo and fuel carriers to review the shipping and emergency plan. Annual Mock spill exercises also take place at the Baker Lake as detailed in Section 7 above, as per the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan (Appendix 25). Shipboard Marine Pollution Emergency Plans from the fuel shipping compagnie are also included as appendices of the OPEP-OPPP.

Figure 38 Barge traffic (number of trips/year) arriving in Baker Lake from Chesterfield Inlet since 2008



11.8.5 Insurance

As required by NIRB Project Certificate No.004 Condition 45: ***"[Cumberland] shall carry, and require contracted shippers to carry adequate insurance to fully compensate losses arising from a spill or accident, including but not limited to the loss of resources arising from the spill or accident; any claims are to be reported to proper officials with a copy to NIRB's Monitoring Officer"***

All shipping contractors have insurance to fully compensate losses arising from a spill or accident, including but not limited to the loss of resources arising from spill or accident for all marine transport vessels and vehicles travelling on the AWAR and WTHR.

In 2022, Agnico Eagle reported to the authorities a 29 000 L spill of diesel fuel at KM 87 on the AWAR. In 2023, Agnico Eagle claimed the contractor, Arctic Fuel Services, concerning this incident. No claim was reported by the marine shippers in 2023.

11.9 CONSULTATION, ENGAGEMENT AND COMMUNICATION[§]

As required by NWB Water License 2AM-MEA1530 Schedule B, Item 24: ***A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.***

Refer to table in Appendix 48 for more information regarding the public consultation and participation with local organization and the residents of the nearby communities. Appendix 48 is also use as reference in the following sections.

11.9.1 Chesterfield Inlet§

As required by NIRB Project Certificate No.004, Condition 39: ***Cumberland shall advertise and hold a community information meeting in Chesterfield Inlet to fully discuss the shipping program for the Project. Thereafter, Cumberland shall annually advertise and hold a community information meeting in Chesterfield Inlet to report on the Project and to hear from Chesterfield Inlet residents and respond to concerns. A consultation report shall be submitted to NIRB's Monitoring Officer within one month of the meeting.***

And

As required by NIRB Project Certificate No.004, Condition 40: ***Cumberland shall gather Traditional Knowledge from the local HTOs and conduct a minimum of a one-day workshop with residents of Chesterfield Inlet to more fully gather Traditional Knowledge about the marine mammals, cabins, hunting, and other local activities in the Inlet. Cumberland shall report to KivIA and NIRB's Monitoring Officer annually on the Traditional Knowledge gathered including any operational changes that resulted from concerns shared at the workshop.***

And

As required by NIRB Project Certificate No.008 Condition 42: ***The Proponent shall design monitoring programs to ensure that local users of the marine area along the shipping route have the opportunity to provide feedback and input in relation to monitoring and evaluating potential project-induced impacts and changes in marine mammal distributions. The Proponent shall demonstrate how feedback received from community consultations has been incorporated into the most appropriate mitigation or management plans. The Proponent shall provide a summary of public consultation undertaken to address this term and condition in its annual report to the Nunavut Impact Review Board.***

As already mentioned in this report, throughout 2023, Agnico Eagle ensured Chesterfield Inlet community members and key stakeholders were continuously informed and consulted on various topics. Agnico Eagle intended to visit every community before the barge season in May 2023 by organising flights and meeting logistics to go to Chesterfield Inlet, Coral Harbour, Naujaat, Rankin Inlet and Baker Lake. Unfortunately, the tour had to be cancelled owing to unfavourable weather, even though there were multiple attempts to land in the various communities.

Following the planned shipping tour in Spring 2023, Agnico Eagle made repeated attempts to reach Chesterfield Inlet. However, accommodations were not available in the community until mid-December because of ongoing construction. Agnico Eagle reached out to local representative's multiple times and coordinated various scenarios to make it possible.

After the trip was deemed feasible, the local HTO went into an election, hence the workshop was put on hold. In December 2023, during a virtual meeting with Chesterfield Inlet Community members, Agnico Eagle disclosed the findings of their marine mammal and seabird observation program in Chesterfield Inlet. Findings included updates on monitoring surveys between Helicopter Island and Baker Lake,

vessels transit related to weather safety, the no incidents with marine mammals or seabird for the shipping season, and the previous 2022 survey aboard vessels transiting between Chesterfield Inlet and Baker Lake.

To provide an answer on attempt to answer Condition 40, Agnico Eagle has been making repeated attempts to reach Chesterfield Inlet since the summer of 2023. However, accommodations were not available in the community until mid-December because of ongoing construction of public infrastructure. After the trip was deemed feasible, the local HTO went into an election, hence potential workshop was put on hold.

Moving forward to 2024, Agnico Eagle representatives are proactively strategizing a visit to the community earlier in the year, prior to the recommencement of construction activities and while accommodations remain accessible.

To see any engagements that took place in Chesterfield Inlet in 2023, please refer to the summarized engagement in the Engagement Table appended in Appendix 48.

11.9.2 Hunters and Trappers Organizations[§]

As required by NIRB Project Certificate No.004, Condition 40: ***Cumberland shall gather Traditional Knowledge from the local HTOs and conduct a minimum of a one-day workshop with residents of Chesterfield Inlet to more fully gather Traditional Knowledge about the marine mammals, cabins, hunting, and other local activities in the Inlet. Cumberland shall report to KivIA and NIRB's Monitoring Officer annually on the Traditional Knowledge gathered including any operational changes that resulted from concerns shared at the workshop.***

And

As required by NIRB Project Certificate No.004, Condition 58: "*in consultation with Elders and the HTOs and subject to safety requirements, design the lighting and use of lights at the mine site to minimize the disturbance of lights on sensitive wildlife and birds*"

And

As required by NIRB Project Certificate No.004, Condition 68: ***Cumberland shall, in consultation with Elders, local HTOs and the Meadowbank Gold Mine SEMC, demonstrate that they are working toward incorporating Inuit societal values into mine operation policies."***

In 2023, three (3) formal engagements were held with local HTO representatives. In addition to these meetings, Agnico Eagle continued to have regular engagements on project activities throughout 2023, including regular communication between the Project Environment team and HTO.

Engagement topics included:

- Operation updates
- AWAR measures and Caribou migration

- Exploration activities update in the region
- Cyanide transportation and first responders' information session
- Permitting and Cultural awareness activities

The purpose and outcome of the above engagement initiatives are summarized in the Engagement Table appended in Appendix 48.

Moving forward to 2024, Agnico Eagles representatives are proactively strategizing a visit to the community earlier in the year, prior to the recommencement of construction activities and while accommodations remain accessible, to ensure proper meetings with local HTO representatives.

As previously explained in this report, Agnico Eagle reached out to local representative's multiple times and coordinated various scenarios to make it possible. After the trip was deemed feasible, the local HTO went into an election, hence the engagement was put on hold.

Agnico Eagle is also committed to ensuring employee wellbeing especially among Inuits. Through discussions, Agnico Eagle came to recognize the need for more mental health and cultural counselling tailored to Inuit employees.

For a demonstration of IQ integration into Meadowbank Complex operations, please refer to Section 11.9.4 For cyanide transportation adaption with respect to access to land and lake in the Baker Lake, suggestions received from local representatives allowed Agnico Eagle to adapt its transportation operations to ensure respect of traditional activities in the community.

In 2023, Agnico Eagle also followed recommendations made by the KEAC to integrate local culture into its operations in response to recommendations made, Agnico Eagle hosted the following activities:

1. February 2023 - Mental health and cultural counselling at Meadowbank Complex.

   Through discussions with the Committee, Agnico Eagle came to recognize the need for more mental health and cultural counselling tailored to Inuit employees. At the end of February, Agnico Eagle was pleased to host an Elder from Baker Lake, who visited the Meadowbank Complex mine site to provide mental health and cultural counselling to employees through appointment and walk-in sessions.

2. October to November 2023- Winter Travel Roads Mapping

   Throughout discussions with Agnico Eagle, the committee had identified that, the area between Baker Lake, Garry Lake, Back River and Gjoa Haven has an important winter travel route area. The Baker Lake elders recommended that they all meet again to map the area. A total of six (6) meetings were hosted by Agnico Eagle to complete the mapping exercise.

In 2024, Agnico Eagle will continue to work in collaboration with the KEAC to implement initiatives guided by their recommendations. Elders have expressed an interest in continuing the Mental health and cultural counselling at Meadowbank site.

11.9.3 Community Liaison Committees[§]

In 2023, Agnico Eagle saw the continuation of the new procedure for communicating with Baker Lake's Community Liaison Committee. This new procedure promotes communication between Agnico Eagle and the local subgroup (youth, women, seniors, etc.) through an informational newsletter. This newsletter, detailing operational activities and successes, including a section on how to reach out to the company for questions, concerns, or suggestions, was developed and mailed to the members of the Baker Lake Community Liaison.

Working with subgroups of stakeholders will help to better understand the problem and give them a platform to offer Agnico Eagle's management recommendation for solutions.

The newsletter for 2023 is available in Appendix 50.

11.9.4 Elders and IQ Validation

Following the establishment of the Kivalliq Elders' Advisory Committee (KEAC) in 2021, the committee comprised of Elders from Baker Lake, Chesterfield Inlet, Rankin Inlet, Whale Cove and Arviat which aimed to integrate Inuit Qaujimajatuqangit (IQ), Inuit Societal Values (ISV) and community knowledge into AEM's exploration, planning, workforce, wellness and operational plans. In 2023, Agnico Eagle continued to engage with Elders –engagement initiatives were organized, and these are as follows:

- -Four (4) public consultations; two (2) public events; three (3) meetings and one (1) cultural event with the Kivalliq Elders Advisory Committee (KEAC); and 1 field trip with Baker Lake Elders.

- -Four (4) meetings were also organized with representatives from Hamlet and one with the Kivalliq Wildlife Board.

As previously stated in Section 11.9, Agnico Eagle hosted an Elder from Baker Lake and organized a Mental health and cultural counselling at Meadowbank Complex Mine Site. During this visit, Agnico Eagle came to recognize the need for more mental health and cultural counselling tailored to Inuit employees. Elders provided mental health and cultural counselling to employees through appointment and walk-in sessions. At the time of producing this report, counseling activities and Elders presence at site is currently being planned – another example of how Agnico Egle is integrating this important matter of Inuit culture, and the key roles Elders can play with younger generation, into its operations.

From October 2023 to November 2023, Agnico Eagle prepared and implemented Winter Travel Roads Mapping. This was developed through discussions that Agnico Eagle had with the committee on Winter Travel. Throughout the discussions with Agnico Eagle, the committee identified the area between Baker Lake, Garry Lake, Back River and Gjoa Haven as an important winter travel route area. A total of 6 meetings were hosted by Agnico Eagle to complete the mapping exercise.

Appendix 48 provides a comprehensive overview of the public consultation process that involved local organizations and surrounding community members.

Appendix 52 also report highlights of the Kivalliq Elders Advisory Committee (KEAC) activities, engagements and initiatives for 2023.

Application of Inuit Quajimajatuqangit (IQ) and Traditional Knowledge (TK) to Monitoring Plans

In 2023, Agnico Eagle continued to follow the 2022 report to develop its methodology. This process allows consistent collection and integration of Inuit Qaujimajatuqangit and Inuit Traditional Knowledge into Agnico Eagle project phases.

The Inuit Qaujimajatuqangit and Inuit Traditional Knowledge Methodology consists of four steps:

1. Collection

   Inuit Quajimajatuqangit and Inuit Traditional Knowledge are collected and validated through multiple engagement channels with Kivalliq individuals, communities, and community groups. Engagement channels includes one-on-one conversations, focus groups, public consultations and open house with field experts and knowledge holders.

2. Documentation

   The IQ and TK collected during engagement are documented in IQ/TK collection forms. The forms gather details such as the date, engagement purpose, engagement type, engagement leader, Agnico Eagle supporting team, community participants and their organization, meeting notes, questions, and comments. Furthermore, the form also documents outcomes of the engagement and commitments made by Agnico Eagle to the participants. Lastly, the IQ/TK form requires the participants to provide consent that allows Agnico Eagle to use the shared information on Inuit Qaujimajatuqangit and Inuit Traditional Knowledge.

3. Interpretation

   This step consists of two sub-steps:

   a. Cross-referencing—New IQ/TK collected are cross-referenced with past collected IQ/TK to avoid duplication.

   b. Linking Valued Components —Agnico Eagle Inuit knowledge holders and supporting staff links the collected IQ/TK to specific Environmental and Socio-Economic Valued Components.

4. Storing

   All collected and interpreted data are stored in an internal database software system that allows history tracking and reporting. The database tracks all the consented and validated IQ/TK as well as the integration into the operational management and monitoring plans.

As responded to NIRB's 2022-2023 recommendations, the 2023 SEMR specifies instances where specific ISVs have been utilized or are relevant to the subjects under discussion. This is done to showcase Agnico Eagle's dedication to the utilization and implementation of IQ and ISVs and to initiate a move towards more comprehensive integration of IQ and ISVs in its monitoring and reporting efforts.

In another instance from the 2023 operations, Agnico Eagle demonstrated its commitment to respecting Inuit culture through the modification of cyanide transportation operations at the Meadowbank Complex. After conducting an information session between Agnico Eagle representatives and members of the Baker Lake community to explain the cyanide transportation procedure under the ICMC, community members expressed the necessity to maintain access to a lake for collecting fresh water, especially for Elders, during AWAR closure.

Upon careful evaluation of available options, Agnico Eagle personnel responsible for the transportation adjusted AWAR sections to be either closed or opened during transportation, ensuring community safety. This modification allowed the community, particularly Elders, to retain access to the land for harvesting and collecting fresh water. Throughout the transportation operations, regular communications and updates were shared with the Baker Lake Hamlet, HTO, Health Center, RCMP, and KIA. Subsequent to these communications, Agnico Eagle received positive feedback from members of the community.

In 2024, Agnico Eagle intends to disseminate a condensed version of the shared Inuit Qaujimajatuqangit from the preceding year. This information is expected to be shared as a component of the annual engagement activities scheduled within the community. Additionally, Agnico Eagle will actively explore suitable methods to communicate back the process of collecting and integrating Inuit Qaujimajatuqangit into its operations and activities.

11.9.5 Baker Lake[§]

11.9.5.1 *Community Meetings in Baker Lake*[§]

Throughout 2023, Agnico Eagle ensured Baker Lake community members and key stakeholders were continuously informed and consulted on various topics.

The following community engagement gives an overview of the activities took that place in Baker Lake in 2023:

- One (1) Consultation.
- Four (4) Employment Information Sessions including a Career Fair.
- Two (2) Events - Festival by the Lake and Baker Lake Christmas Feast.
- One (1) TASK Week event.
- Two (2) KEAC meeting in Baker Lake to present on the use of dust suppressant and winter travel routes.

- One (1) Cyanide Transportation information session to present on transportation procedure, safety measures and to gather feedback from community members on transportation and used of the AWAR.

- One (1) meeting with KEAC, Baker Lake HTO and Hamlet of Baker Lake on Traditional land use.

To ensure updates and communication with different groups, Agnico Eagle continued its newsletter distribution in 2023 and distributed it to the Baker Lake community liaison committee members. It had information on the company's accomplishments and operating activities, as well as contact information for any queries, worries, or ideas. A better understanding of the problems and a forum for stakeholder subgroups to advise Agnico Eagle Management on solutions will result from engagement with certain community subgroups.

Every member of the Community Liaison Committee received a newsletter in November 2023.

As part of the International Cyanide Management Code (ICMC), Agnico Eagle is required to inform the community of Baker Lake, details regarding the cyanide shipping and transportation along the All-Weather Access Road (AWAR), along with associated restrictions that apply to hamlet residences regarding the usage of the AWAR. In September 2023, Agnico Eagle held an in-person meeting in Baker Lake to share Cyanide transportation procedure and safety measures. Community members and first responders were invited to join the meeting. Feedback and comments were received during this in-person meeting from both the community members and first responders.

The purpose and outcomes of the above engagement initiatives are summarized in Appendix 48.

11.9.5.2 *Site Tours for Baker Lake Residents*[§]

Each year, Agnico Eagle provides a range of opportunities for Baker Lake community members, other Kivalliq groups and individuals to visit Meadowbank Complex every year.

In Summer 2023, at the Family Day in Baker Lake, Agnico Eagle conducted a draw among Baker Lake residents and provided the three winners with a helicopter tour to enable them to see the Whale Tale site/location. It is important to keep into consideration that the Whale Tail is more than 4 hours' drive from the Baker Lake community. A day trip for a large group would require almost 9 hours of driving by bus. Large group site visit to this site brings more complexity and efforts from community members. Small group visit via helicopter is a considered a good alternative.

Agnico Eagle also arranged for KSEC students and instructors from all around the Kivalliq to visit the Meadowbank complex. Thirty (30) students and professors were given the chance to tour the campus by bus and see the indoor facilities, which included the Geology core shack and the maintenance shop. At the end, supper and a few snacks were presented.

11.9.6 Community Engagement Initiatives[§]

Community engagement and consultation initiatives that Agnico Eagle held or participated in during 2023 are summarized in Appendix 48.

11.9.6.1 *Community Coordinators Program*[§]

The Community Coordinators program comprises both full-time and part-time Agnico Eagle Community Liaison Officers stationed in all Hamlets within the Kivalliq Region, including Rankin Inlet and Baker Lake.

The primary objective of these officers is to serves as a point of contact in each community, facilitating effective communication, providing necessary services, and coordinating activities across multiple domains. Their presence plays a vital role in fostering community engagement support.

These areas of support include:

- Support Human Resources (HR) department and the recruitment team.
- Assist HR and other Agnico Eagle departments to locate employees or potential employees as required.
- Provide advice and assistance to Agnico Eagle to organize and hold information sessions in the community on Agnico Eagle projects, initiatives, and engagement activities, including Inuit employment and business opportunities initiatives outlined in the Meadowbank Complex IIBA's.
- Provide updates to the Hamlet Council and to other community stakeholders on Agnico Eagle activities.
- Distribute Agnico Eagle information and promotional materials.
- Participate in Agnico Eagle's Nunavut donation initiatives and processes.
- Participate in organization community events and education initiatives.

The increased community involvement through the Community Liaison Officers will allow Agnico Eagle to achieve recruitment goals and the obligations for the NIRB and IIBA; therefore, rendering this position essential to Agnico Eagle's Nunavut operations. In 2023, Agnico Eagle had five (5) CLOs present in the following communities—Rankin Inlet, Baker Lake, Arviat, Chesterfield Inlet and Coral Harbour.

11.9.7 Communication

As required by NIRB Project Certificate No.008 Item 12: ***The Proponent shall establish a publicly-accessible Project-specific web portal or web page to make available in a central location all significant non-confidential monitoring and reporting information submitted to regulatory authorities pursuant to the Project Certificate and other territorial or federal permits issued for the Project. For clarity, posting on the Project-specific site does not replace any reporting obligation of the Proponent pursuant to the Project Certificate or any territorial or federal permit.***

In 2018, Agnico Eagle launched a Facebook page for Meadowbank Complex (Meadowbank and Whale Tail) which acts as another method with which it can inform the Kivalliq communities of important information, including road closures, recruitment information, and public meetings. This additional

medium of communication was suggested by multiple stakeholder groups, including the Kivalliq Socio-Economic Monitoring Committee.

Agnico Eagle continued to use the Meadowbank Complex Facebook page as a key medium of communication with employees and Kivalliq communities. In 2023, the social media platform was used to keep communities of impact informed and build awareness on the following topics:

- Baker Lake and Rankin Inlet community office hours of operation
- Employment information Session dates in Kivalliq communities
- Business Opportunities Posts
- Job posting -- Sanajiksanut Program Launch
- Sealift Season & Cyanide transportation
- All Weather Access Road – Awareness and Road Rules
- Caribou Migration and related road closures
- General Community Development initiatives and collaborations

The above social media posts are outcomes of active management plans for example, the 'Sealift Season' posts are directly related to the Shipping Management Plan and the 'Caribou Migration' posts are product of the Wildlife Management Plan. Social media posts were used to encourage engagement from community members. In 2023, Agnico Eagle Meadowbank Complex Facebook page made a total of 164 posts.

In 2023, the Nunavut Agnico Eagle website had blog posts on the following topics:

- Agnico Eagle Perseverance Kajussissimainarniq Scholarship
- Inunnguiniq project announcement and partnerships
- Celebrating the International Day of Women in Mining – Agnico Eagle's Nunavut Operations
- Partnership with local school for TASK week
- Regional Cabin donations in partnership with local contractor
- Agnico Eagle's Dr Leanne Baker Scholarship

All the blog posts were re-shared on the Meadowbank Complex Facebook pages to reach a wider community audience and to encourage engagement from the community of impact.

In addition, in order to maintain ease of public access for important information, the Agnico Eagle Web Portal, https://aemnunavut.ca/media/documents/ has been updated with the 2016 to 2022 Annual Report, associated management plans, and other documents of interest. Agnico Eagle will commit to keeping the Web Portal updated for ease of public access.

11.10 SOCIO-ECONOMIC MONITORING PROGRAM (SEMP, SEMC, SEMWG, SEMR)

11.10.1 Meadowbank and Whale Tail Sites

As required by NIRB Project Certificate No.004 Condition 63: ***the GN and INAC shall form a Meadowbank Gold Mine Socio-Economic Monitoring Committee ("Meadowbank SEMC") to monitor the socio-economic impacts of the Project and the effectiveness of the Project's mitigation strategies; the monitoring shall supplement, not duplicate, the monitoring required pursuant to the IIBA negotiated for the Project, and on the request of Government or NPC, could assist in the coordination of data collection and tracking data trends in a comparable form to facilitate the analysis of cumulative effects; the terms of reference shall focus on the Project, include a plan for ongoing consultation with KivIA and affected local governments and a funding formula jointly submitted by GN, INAC and [Cumberland]; the terms of reference shall be submitted to NIRB for review and subsequent direction within six (6) months of the issuance of a Project Certificate; [Cumberland] is entitled to be included in the Meadowbank SEMC.***

And

As required by NIRB Project Certificate No.004, Condition 64: ***[Cumberland] shall work with the GN and INAC to develop the terms of reference for a socio-economic monitoring program for the Meadowbank Project, including the carrying out of monitoring and research activities in a manner which will provide project specific data which will be useful in cumulative effects monitoring (upon request of Government or NPC) and consulting and cooperating with agencies undertaking such programs; [Cumberland] shall submit draft terms of reference for the socio-economic monitoring program to the Meadowbank SEMC for review and comment within six (6) months of the issuance of a Project Certificate, with a copy to NIRB's Monitoring Officer.***

And

As required by NIRB Project Certificate No 008, Condition 44: ***The Proponent is strongly encouraged to continue to participate in the work of the Kivalliq Socio-Economic Monitoring Committee along with other agencies and the communities of the Kivalliq region, and to identify areas of mutual interest and priority for inclusion into a collaborative monitoring framework that includes socio-economic priorities related to the Project, communities, and the Kivalliq region as a whole. Information regarding the Proponent's efforts in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board***

And

As required by NIRB Project Certificate No.008, Condition 54: ***Proponent should ensure that the development of all project monitoring plans and associated reporting and updates are undertaken with active engagement of Kivalliq communities, land users, and harvesters. The Proponent should work with the Kivalliq Inuit Association, the local Hunters and Trappers Organizations and the Kivalliq Socio-Economic Monitoring Committee to report on the collection and integration of Inuit Qaujimaningit through its monitoring programs for the Project. To the extent that the sharing of such information is consistent with, and not limited by, any confidentiality or other***

agreements, summaries addressing the Proponent's fulfillment of this term and condition should be included in the Proponent's annual report to the Nunavut Impact Review Board.

The Socio-Economic Monitoring Program (SEMP) is a framework used to monitor and evaluate the various indicators, metrics, units of measurements, etc., that are outlined in the Project Certificates. Agnico Eagle commits to reporting on the SEMP annually. In 2023, no changes were brought to the program.

The SEMP can be found in Appendix 47 of the 2023 Annual Report.

The SEMWG traditionally included GN and CIRNAC, however, in 2020 KivIA officially joined the SEMWG. The aim of this working group is to support Agnico Eagle's SEMP and the Kivalliq Socio-Economic Monitoring Committee (KvSEMC). In February 2023, Agnico Eagle organized one (1) teleconference with the SEMWG to receive comment and feedback from the most recent post-covid SEMC (Fall 2022).

The Kivalliq Socio-Economic Monitoring Committee (KvSEMC) meets annually to present data and consider socio-economic impacts and benefits of mining projects generally on the Kivalliq region. Members of the KvSEMC include Government of Nunavut (including specific departmental representation), Government of Canada, Kivalliq Inuit Association, Hunters and Trappers Organizations, Community representatives, community organizations and Project owners. The Government of Nunavut chairs the KvSEMC. Feedback provided in the KvSEMC informs the final Socio-Economic Monitoring Report. Additionally, the KvSEMC can recommend additional monitoring priorities.

Due to unexpected developments on the part of the Government of Nunavut Department of Economic Development & Transportation, the Kivalliq Socio-economic Committee (KvSEMC) scheduled for November was cancelled in 2023. At the time of this report, the KvSEMC is to be planned for Spring 2024.

The Socio-Economic Monitoring Report (SEMR) is the annual report on the SEMP. It is a comprehensive socio-economic monitoring report that contains Project-level data (data collected by Agnico Eagle at each Project site or regionally) and community-level data (data provided by or in communities), including data that is mandated by the Project Certificate. It is reviewed by the SEMWG prior to its submission, to allow for those groups to provide insight.

Agnico Eagle is appending the 2023 Agnico Eagle Kivalliq Projects Socio-Economic Monitoring Report, in Appendix 47.

11.10.2 Whale Tail Site Updates

As required by NIRB Project Certificate No.008, Condition 45: ***The Proponent shall work in collaboration with other socio-economic stakeholders including, the Government of Nunavut, Indigenous and Northern Affairs Canada, the Kivalliq Inuit Association, and communities of the Kivalliq region, to establish a socio-economic working group for the Project to develop and oversee a Kivalliq Projects AEM Socio-Economic Monitoring Program. The working group will develop a Terms of Reference, which outlines each member's roles and responsibilities with regards to, where applicable, project specific socio-economic monitoring throughout the life of the projects. The Proponent shall work with the other parties to use the updated Kivalliq Projects Socio-Economic Monitoring Program to monitor the predicted impacts outlined in the projects' respective***

environmental impact statements as well as regional concerns identified by the Kivalliq Socio-Economic Monitoring Committee. The Proponent shall work in collaboration with all other socio-economic stakeholders such as the Government of Nunavut, Indigenous and Northern Affairs Canada, Kivalliq Inuit Association, and the communities of the Kivalliq region in developing this program, which should include a process for adaptive management and mitigation in the event unanticipated impacts are identified. The Terms of Reference for this multi-party, multi-project Working Group are to be provided to the Nunavut Impact Review Board (NIRB) upon completion, and within one (1) year of issuance of the Project Certificate. The Proponent shall produce annual joint "AEM Kivalliq Projects" Socio-Economic Monitoring reports throughout the life of the Projects that are submitted to the NIRB and discussed with the wider Kivalliq Socio-Economic Monitoring Committee. Details of the Kivalliq Projects Socio-Economic Monitoring Program are to be provided to the NIRB upon finalization, and within one (1) year of issuance of the Project Certificate. Information regarding the Proponent's efforts in fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.

And

As required by NIRB Project Certificate No.008, Condition 53: ***Provided the collection and sharing of such information is consistent with and not limited by any Inuit Impact and Benefit Agreement with the Kivalliq Inuit Association and that employees are willing to voluntarily provide this information, the Proponent should collect and provide project-specific data concerning employee community of residence and number of employees that relocated from the year prior (where available, to and from, for Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Naujaat, Rankin Inlet and Whale Cove). The details of this process will be captured in the terms of reference for the project specific Whale Tail Pit Socio-Economic Monitoring Committee. Summaries of this information should be included in the annual Whale Tail Pit socio-economic monitoring reports submitted to the Nunavut Impact Review Board and shared with the wider Kivalliq Socio-Economic Monitoring Committee throughout the life of the Project.***

And

As required by NIRB Project Certificate No 008, Condition 46: ***The Proponent should develop a Project-specific Whale Tail Pit Socio-Economic Monitoring Program designed to:***

- ***Monitor for project-induced effects, including the impacts predicted in the Environmental Impact Statement through indicators presented in the Whale Tail Pit Socio-Economic Monitoring Plan;***
- ***Reflect regional socio-economic concerns identified by the Kivalliq Socio-Economic Monitoring Committee (KivSEMC);***
- ***Work in collaboration with all other socio-economic stakeholders such as the Kivalliq Inuit Association, the Government of Nunavut, and Indigenous and Northern Affairs Canada, and the communities of the Kivalliq region to develop the program;***
- ***Include a process for adaptive management and mitigation to respond if unanticipated impacts are identified; and***
- ***Monitor the success of existing and newly implemented gender-specific initiatives to determine their success and why they were considered successful or to identify any challenges to their implementation.***

Details of the Whale Tail Pit Socio-Economic Monitoring Program should be submitted to the Nunavut Impact Review Board (NIRB) within one (1) year of issuance of the Project Certificate. The Proponent should produce

annual Whale Tail Pit socio-economic monitoring reports throughout the life of the Project that are submitted to the NIRB and shared with the wider KivSEMC.

And

As required by NIRB Project Certificate No 008, Condition 50: ***The Terms of Reference for this multi-party, multi-project Working Group are to be provided to the Nunavut Impact Review Board (NIRB) upon completion, and within one (1) year of issuance of the Project Certificate. Details of the Kivalliq Projects Socio-Economic Monitoring Program are to be provided to the NIRB upon finalization, and within one (1) year of issuance of the Project Certificate. The Proponent shall produce annual joint "AEM Kivalliq Projects" Socio-Economic Monitoring reports throughout the life of the Projects that are to be submitted as part of the Proponent's annual report to the NIRB.***

Refer to Section 11.10.1 above.

11.10.3 Socio-Economic Monitoring Report

As required by NIRB Project Certificate No.004, Condition 65: ***Cumberland shall include in its socio-economic monitoring program for the Meadowbank Project the collection and reporting of data of community of origin of hired Nunavummiut.***

And

As required by NIRB Project Certificate No.008, Condition 48: ***The Proponent is strongly encouraged to submit staff schedule forecasts that should, at a minimum, include the following:***

- ***Title of positions required by department and division;***
- ***Quantity of positions available by project phase and year;***
- ***Transferable skills, both certified and uncertified which may be required for, or gained during, employment within each position;***
- ***The National Occupational Classification code for each individual position.***

The Proponent should also identify and register all trades occupations, journeypersons, and apprentices working with the Project and make this information available to the Government of Nunavut to assist in delivery of training initiatives and programs. The Staff Schedule should be submitted to the Nunavut Impact Review Board six (6) months prior to each phase of the Project (construction, operations, closure).

And

As required by NIRB Project Certificate No.008, Condition 53: ***Provided the collection and sharing of such information is consistent with and not limited by any Inuit Impact and Benefit Agreement with the Kivalliq Inuit Association and that employees are willing to voluntarily provide this information, the Proponent should collect and provide project-specific data concerning employee community of residence and number of employees that relocated from the year prior (where available, to and from, for Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Naujaat, Rankin Inlet and Whale Cove). The details of this process will be captured in the terms of reference for the project specific Whale Tail Pit Socio-Economic Monitoring Committee. Summaries of this information should be included in the annual Whale Tail Pit socio-economic monitoring reports submitted to the***

Nunavut Impact Review Board and shared with the wider Kivalliq Socio-Economic Monitoring Committee throughout the life of the Project.

And

As required by NIRB Project Certificate No.008, Condition 61: ***The Proponent, in collaboration with the Government of Nunavut and the Nunavut Housing Corporation, is encouraged to investigate measures and programs designed to assist Project employees with pursuing home ownership or accessing affordable housing options in the Kivalliq region. The Proponent should provide access to financial literacy, financial planning, and personal budgeting as part of the regular Life Skills Training and/or Career Path Program. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.***

And

As required by NIRB Project Certificate No.008, Condition 59: ***The Proponent is encouraged to work with the Kivalliq Inuit Association to establish cross-cultural training initiatives, which promote respect and consideration for the importance of Inuit Qaujimajatuqangit to the Inuit identity and to make this training available to Project employees and on-site sub-contractors. The Proponent should actively monitor the implementation of these initiatives, including the following items:***

- ***Descriptions of the goals of each program offered;***
- ***Language of instruction;***
- ***Schedules and location(s) of when each program was offered;***
- ***Uptake by employees and/or family members where relevant, noting Inuit and non-Inuit participation rates; and***
- ***Completion rates for enrolled participants, noting Inuit and non-Inuit participation rates.***

Summaries of the cross-cultural training initiatives implemented by the Proponent in fulfilment of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.

And

As required by NIRB Project Certificate No.008, Condition 62: ***The Proponent should work with the Government of Nunavut to develop an effects monitoring program that identifies Project-related pressures to community infrastructure such as airport and transportation infrastructure, policing, health and social services, in Baker Lake and all the point-of-hire communities of the Kivalliq Region. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.***

The section below summarizes key Agnico Eagle's socio-economic reporting, related primarily to employment and training. For the full report on the Project's socio-economic monitoring, please refer to the Appendix 47.

Reports can also be viewed on the Socio-Economic Monitoring Committee website on Agnico Eagle's website http://aemnunavut.ca/media/documents/.

11.10.3.1 *Workforce*

Agnico Eagle calculates the workforce based on headcount (snapshot of active employees taken at the end of the year, which includes full-time and part-time employees) and Full-Time Equivalents (FTE) (number of full-time positions based on hours worked, where one full time position is equivalent to 2,184 hours worked in a year).

The number of active Agnico Eagle employees working at Meadowbank and Whale Tail on December 31st, 2023, was 1,158, of which 197 employees were Inuit employees. The respective full-time equivalencies were 1,149 Agnico Eagle employees in total, of which 179 full-time equivalent (FTE) Inuit Agnico Eagle employees.

The number of contractors employed at the project is only calculated using full-time equivalents (FTEs) due to the cyclical nature of contractor work. Therefore, during 2023 there were 740 full time equivalent contractor positions, of which approximately 23 are filled by Inuit.

Taken together, there were 1,888 FTE employees (Agnico Eagle permanent, temporary, on-call, students, and contractors), working full- and part-time jobs, at the end of 2023.

Agnico Eagle defines job statuses as follows:

- Permanent employee: an employee whose current job is not specifically tied to a short-term project and the position is expected to be required throughout the life of mine (LOM).
- Temporary employee: an employee whose current job will not continue beyond a specified period.
- On-call employee: an employee who has an undefined contract and is called upon when the need arises. It is expected that on-call employees will move to temporary or permanent positions as they become available.

11.10.3.1.1 Employment Demographics for Nunavut Based Employees

Table 11-6 shows the employment demographics for community of hire by headcount.

Table 11-6 Home communities of Agnico Eagle Inuit employees (by headcount)

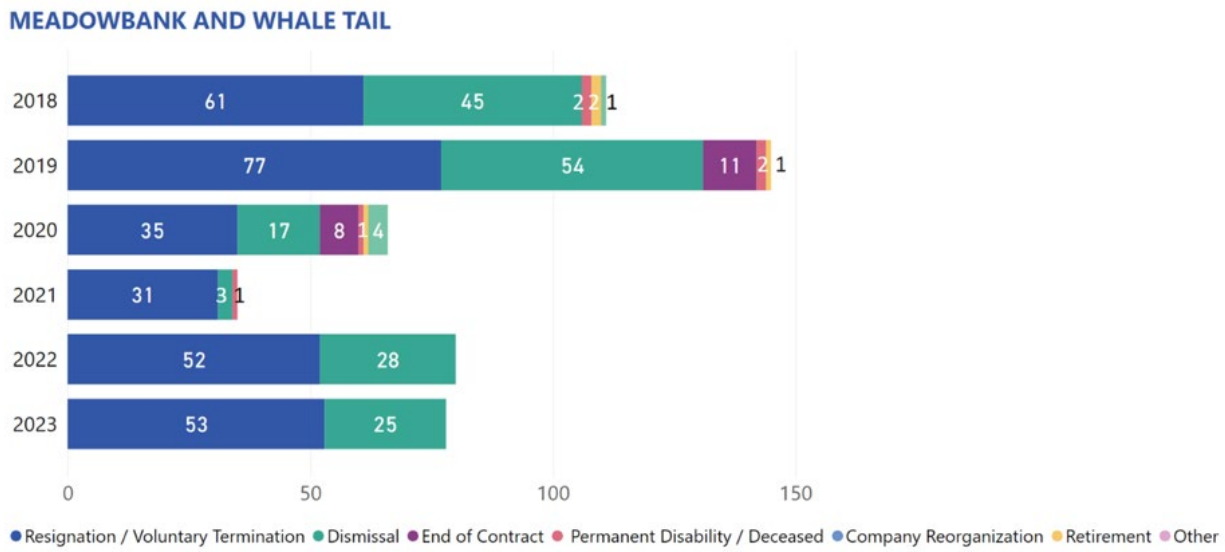
Community of Hire	2021 Agnico Eagle headcount	2022 Agnico Eagle headcount	2023 Agnico Eagle headcount
Arviat	63	50	33
Baker Lake	144	138	123
Naujaat	15	9	5
Rankin Inlet	14	16	5
Chesterfield Inlet	4	2	3
Whale Cove	5	2	2
Coral Harbour	12	5	2
Kitikmeot	1	1	0
Qikiqtani	0	0	0
Outside of Kivalliq	28	22	24
Total	**286**	**245**	**197**

Agnico Eagle pays for the transportation of all Kivalliq-based employees from their home community to the mine for each work rotation. For employees coming from Arviat, Chesterfield Inlet, Rankin Inlet and/or Whale Cove, Agnico Eagle has a service contract with Calm Air to transport employees by charter plane from Rankin Inlet directly to and from the Meadowbank mine airstrip. For employees coming from Coral Harbour and/or Naujaat, a commercial ticket is bought from their home communities to the Baker Lake airport. Once in Baker Lake, they are transported by bus to and from the mine site via a daily ride similar to employees coming from Baker Lake. For all other employees not located in the Kivalliq region, transportation is provided from Mirabel and Val-d'Or via a charter flight operated by Nolinor Aviation.

11.10.3.1.2Employee Retention

Figure 39 provides a breakdown of Inuit turnover (employees who leave Agnico Eagle's employment each year) by reason for leaving for Meadowbank/Whale Tail.

Figure 39 Breakdown of Inuit turnover 2018-2023



In 2023, 78 Inuit employees departed from Meadowbank/Whale Tail. In 2023, total resignations / voluntary departure accounted for 53 out of 78 terminations of Inuit employees, with the remaining turnover (25 Inuit employees) attributed to dismissal. Resignations/voluntary departure and dismissals when similar to the previous year.

Agnico Eagle conducts one-on-one exit interviews to gather information on reasons for resignation and voluntary departure. Exit interviews collect qualitative information on common reasons why employees have left.

The reasons for the 53 departures at Meadowbank / Whale Tail included:

- Moving to another job (11),
- Family situation (11),

- Not liking camp life and / or missing family (6),
- Not liking the job (8),
- Conflict with an employee / supervisor (4),
- Lack of access to child support (2), and
- Other (11)

The turnover rate for Inuit employees at all Agnico Eagle projects is consistently higher than that for non-Inuit employees. At Meadowbank / Whale Tail, Inuit employee turnover was 35% in 2023 compared to 13% for non-Inuit.

The 2023 Inuit and Nunavummiut Employment Survey further revealed that both Inuit employees and their spouses find employment at the mine challenging, which likely contributes to the higher turnover rates for Inuit employees. Worrying about family was mentioned by 59% of respondents when asked about the most difficult thing when being at work (mine site). Management of household (e.g., getting groceries, running errands, and household maintenance), taking care of children, or loneliness were mentioned by multiple respondents as being most difficult for their spouse when they are away for work.

11.10.3.1.3 Summer Student Employment Program

Agnico Eagle offers two (2) summer employment programs that are accessible to students. One of them is from Agnico Eagle's company-wide policy that offers a summer employment program to the children of all Agnico Eagle employees (both Inuit and non-Inuit) that are undertaking post-secondary education. The other is the Inuit Summer Employment Program, initiated in 2019, targeting Inuit students in high school or post-secondary education. This program tries to match students to positions in their areas of interest.

In 2023, Agnico Eagle had two (2) Inuit Summer Students based in Rankin Inlet and Baker Lake working with the Community Relations department supporting all Kivalliq mine sites.,. Finally, two (2) Summer Students in Meadowbank with the Environment department.

As per Agnico Eagle policies, students must be 18 years or over to work at the operation, and over 16 years old to work in the offices in Baker Lake or Rankin Inlet.

11.10.3.2 *Training*

Agnico Eagle's Training Management System (TMS) and the Learning Management System (LMS) tracks and reports on training activities. The list of training provided can be found in Appendix 49.

11.10.3.2.1 Pre-employment training (Sanajiksanut Program)

Sanajiksanut (or the Sanajiksanut Program) previously known as Labour Pool process or Pre-Employment Training program is the primary vehicle through which Agnico Eagle recruits and hires new Inuit employees. In 2021, Agnico Eagle and KivIA agreed to modify the existing process through a Memorandum of Understanding (MoU). As a result, the Work Readiness and the Mandatory Trainings were combined to become the Pre-employment Training Program (10-day community-based training).

This change reduced the number of steps for applicants and decreased the delay in applicants gaining employment.

In 2023, the Sanajiksanut Program supported different initiatives to facilitate access to employment for the Inuit workforce. Community-based and on-site training initiatives were supported and implemented to develop new training programs and create career opportunities. Job specific recruitment process was put in place to streamline the recruitment process and give more exposure to the different careers offered at the mine site. Focus was also put on Mining Awareness activities with high school and college students.

The Sanajiksanut Program is based on four (4) key principles:

1. **Partnership with Ilitaqsiniq (Nunavut Literacy Council)** – Agnico Eagle partnered with Ilitaqsiniq (Nunavut Literacy Council) to implement a community-based approach to the training and adapt the recruitment process to the Nunavummiut clientele. The revised pre-employment training is designed by Inuit for Inuit and delivered by an Inuit instructor from Ilitaqsiniq.

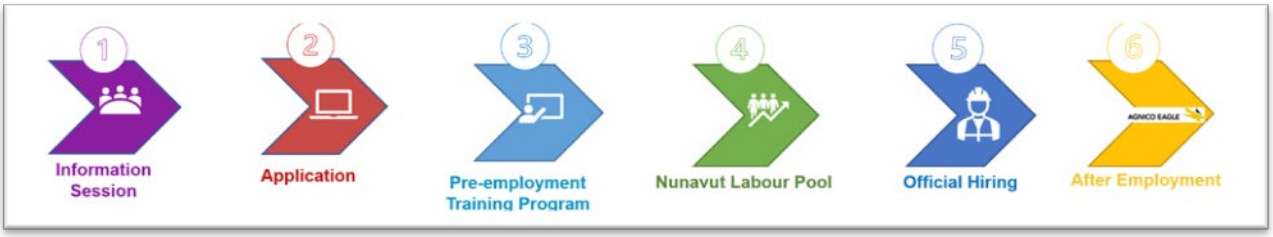
2. **Inuit workforce planning** – To facilitate access to employment and increase career opportunities and growth for the Inuit workforce the Inuit recruitment planning is conducted with the operational team.

3. **Recruitment process changes** – To meet the needs of the community members who are looking for employment at Agnico Eagle revised communication channels have been implemented to reach candidates when an opportunity arises.

4. **Mining Awareness** – Appeal younger generation who are the future of the Nunavut workforce by implementation career awareness programs in the Kivalliq schools and colleges.

The Sanajiksanut Program consists of four (4) steps, as presented in Figure 40.

Figure 40 Sanajiksanut Program



Step 1: Employment Information Sessions

In 2023, as part of the Sanajiksanut Program, employment information sessions were held in all seven (7) Kivalliq communities to provide information about the mines, the work lifestyle, and career opportunities as well as information about applying for jobs through different channels. Information sessions were organized during community activities to increase community outreach. Different types of employment

information sessions were organized to reach out to a maximum of community members (combined with community activities). However, some of the scheduled information sessions were cancelled due to the challenges associated with weather conditions, availability of accommodations and a presence of a Community Liaison Officer (CLO).

In total, Agnico Eagle completed 19 information sessions in 2023 (compared to 17 sessions in 2022), attended by 183 Inuit participants (compared to 78 participants in 2022).

Step 2: Online Application Process Facilitated by Employment Information Sessions

To facilitate online applications, Agnico Eagle has a Community Liaison Officer (CLO) in each Kivalliq community who can deliver employment information sessions and provide one-to-one assistance to candidates interested in applying online. In 2023, CLOs were present in five (5) communities: Rankin Inlet, Baker Lake, Arviat, Coral Harbour and Chesterfield Inlet. The Sanajiksanut Coordinator at the Agnico Eagle Rankin Inlet Office supports CLOs as well as the applicants. The Sanajiksanut Coordinator and the Chesterfield Inlet CLOs travelled to Naujaat and Whale Cove to conduct employment information sessions and to provide support to potential applicants. The Sanajiksanut Team was also available by phone and email to support applicants. In 2023, a social media communication tool was created to facilitate communications between the applicants and the Sanajiksanut Team.

Step 3: Pre-Employment Training Program

In 2023, five (5) Pre-Employment Training programs were delivered, with a total of 45 participants who completed the programs. All training programs are fully facilitated by Ilitaqsiniq (Nunavut Literacy Council). The Pre-Employment Training Programs align with the value of pilimmaksarniq, focusing on skill development and knowledge acquisition to empower individuals through learning experiences ISV. Two (2) training sessions were held in Arviat with 21 Inuit participants, two (2) in Rankin Inlet with nine (9) Inuit participants, and one (1) in Baker Lake with 15 Inuit participants. A training program scheduled in Chesterfield Inlet was cancelled due to a lack of accommodation in the community.

The participation in the training programs was lower than anticipated despite the advertisements through various channels. Some registered participants did not attend the program. In future years, Agnico Eagle will promote the training programs in advance and increase communications with participants to ensure a higher level of participation of community members.

Step 4: Labour Pool List Coordinated by the Labour Pool Coordinator

The Labour Pool List is a list of candidates who have successfully completed the steps of the Sanajiksanut Program. These candidates are eligible for opportunities with Agnico Eagle or Agnico Eagle's contractors. The list is managed by the Labour Pool Coordinator. In 2023, the Labour Pool List was updated, with candidates tracked against each step of the recruitment process. Since the changes in the recruitment process, Agnico Eagle was able to hire 325 Inuit employees of which 165 Inuit employees were hired in 2023.

11.10.3.2.2 Training Hours

The following categories of training are available:

- Mandatory: Mandatory training related to compliance with the Nunavut Mine Act, as well as training that is mandated according to Agnico Eagle Health and Safety policies. Many of these training sessions are offered via e-learning prior to employee's arrival on site.

- General: Training activities required at a departmental level and covers many employees working in different departments. General training includes training on light duty equipment as well as enterprise software systems and cross-cultural training.

- Specific: Focused on developing individual competencies related to a specific position. This training qualifies individual workers for promotion following their progression through the Career Path. These training programs are provided by in classroom (theory) learning as well as practical (one-on-one) learning.

- Emergency Response Training for certain individuals to assist and help in a variety of emergency situations.

Table 11-7 provides the training hours provided to Agnico Eagle employees at Meadowbank and Whale Tail (excluding contractors) in 2023.

Table 11-7 2023 Training hours

Type of Training	Inuit	Non-Inuit	Total
Mandatory	860	8,716	9,576
General	353	4,518	4,871
Specific	6,623	8,809	15,432
Education	65	0	65
Specific Practical Evaluation	228	418	646
Specific Primary Evaluation	24	12	36
ERT	804	6,488	7292
Total	**8,957**	**28,961**	**37,918**

11.10.3.2.3 Training Programs

11.10.3.2.3.1 E-Learning

Before coming to an Agnico Eagle site for the first time, newly hired employees must complete their Mandatory Training online, which consists of six (6) modules: General Induction, WHMIS, Fire Suppression, Job Hazard Analysis and Work Card, Spill Response, and Occupational Health and Safety (Personal Protective Equipment, Ladder Safety, Surface Standard Operating Procedure). The General Induction chapter provides general information about Agnico Eagle and working life at the mines, waste management, as well as information on the IIBAs and archaeological awareness. The e-learning training material has been translated into English, French, and Inuktitut. In 2023, administrative tools were developed in the Training Management System (TMS) in order to improve the user experience and the tracking of the training compliance. Also, some modifications to the structure of the system have been completed to ensure its sustainability and to allow communication of with other internal systems.

11.10.3.2.3.2 Cross-Cultural

In 2022, the training content and delivery were reviewed, and the decision was made to put the training on hold until it could be revamped. The training did not enhance cultural awareness and was too Agnico Eagle-centric. Aqqiumavvik was selected as the partner to develop new content for the training to include IQ and ISV values and to be more interactive by adding to-do-activities.

Significant progress was made in 2023 with the Cross-Cultural training program. Agnico Eagle provided a workshop on different cultures and backgrounds to understand cultural differences and improve communication in the workplace. Trainers will be trained to lead the workshops in January 2024 and Inuit site representatives will continue to support by leading the IQ portion of the content.

Building upon the insights gained from the previous year's evaluation, the program underwent a comprehensive overhaul to better align with Agnico Eagle's core values and to foster a deeper understanding of cultural dynamics.

This update reflects Agnico Eagle’s ongoing dedication to promoting cultural awareness and fostering an inclusive environment where every individual feels valued and empowered to contribute to shared success. Participants provided overwhelmingly positive feedback, indicating a marked improvement in addressing key themes such as colonization, decolonization, IQ principles, and reconciliation.

One notable enhancement to the program was the inclusion of Inuit perspectives and voices. Recognizing the importance of authentic representation and cultural sensitivity, efforts were made to have Inuit facilitators lead the workshops.

No workshop was delivered at the Meadowbank Complex in 2023 as the new program was being developed and tested at another mine site. Once ready, Agnico Eagle is looking to train support staff and deliver additional programming in 2024 at the Meadowbank Complex site.

The training has been rebranded as Cultural Awareness.

11.10.3.2.3.3 Career Paths

Agnico Eagle operates the Career Path program, which identifies the incremental steps that an employee must complete to advance in their chosen career of interest. The objective of the Career Path Program is to achieve 100% internal promotions for Inuit and no external candidates (southerners) hired to fill a position that is part of the program. In 2022, the Energy and Infrastructure Career Path and the Underground Career Path was reviewed at the Meadowbank Complex, and the Underground and Mine Operations Career Path were enhanced. In 2023, no major changes were made to the Career Path at the Meadowbank Complex. Still, Meadowbank Complex training department is continuously assessing internal program for improvement.

11.10.3.2.3.4 Trainee Programs

Agnico Eagle continues to support training efforts across projects. At Meadowbank / Whale Tail specific training increased for Inuit employees.

Training efforts for 2023 were as follows:

- Ten (10) trainees were enrolled in the Underground Trainee Program, and of those, seven (7) successfully completed the program.

- At Meadowbank, a pilot project was initiated in 2023 to deliver the program with CMAC. The aim was to train CMAC employees, with the support of Agnico Eagle, in the General Labor position. The duration of the program was 336 hours to focus on the General Labor position instead of the Haul Truck positions, delivering the Common Core Ontario training (3 days) instead of the Quebec training (7 days). Agnico Eagle was able to launch two (2) cohorts in the fall of 2023. The program was a success with three (3) out of four (4) trainees graduating from the program.

- At Meadowbank, six (6) trainees were enrolled in the Haul Truck Trainee Program, and of those, four (4) successfully completed the program. In 2023, Agnico Eagle also started two cohorts with two (2) trainees each, continuing the training in 2024.

- Two (2) trainees completed the Long-Haul Truck Trainee Program at Meadowbank.

- Eight (8) trainees were enrolled in the Process Plant Trainee Program, and of those, four (4) successfully completed the program.

- At Meadowbank, Agnico Eagle started the program in 2023 with four (4) trainees that year, of whom three (3) graduated the program.

The **Underground Trainee Program** is a trainee program at Meadowbank Complex created by Agnico Eagle and affiliated with CMAC. This program is a 42 days (504-hour) program. Trainees go through the Underground Common Core, given by a CMAC Instructor on-site, followed by training by Agnico Eagle trainers. By the end of the program, the trainees have the knowledge, the practice, and the experience to work in general labor.

The **Haul Truck Trainee Program**, run at Meadowbank, is a 42-day (504-hour) program to certify haul truck operators, which includes training on a simulator, in the classroom, and on the job. The program is aimed at existing employees in entry-level positions (e.g., dishwashers, janitors, chambermaids.).

A **Process Plant Trainee Program** is a 28-day program provides employees with an understanding of the mining and milling process and trains them to be competent and certified to fill positions as a process plant helper or a utility person.

The **Long-Haul Truck Trainee Program** is a 28-day (336-hour) program to certify long haul truck operators, which includes training on a simulator, in the classroom, and on the job. The program is aimed at existing employees in the mining department. A maximum of four (4) trainees is permitted at a time with one (1) trainer to provide the best training possible.

11.10.3.2.3.5 Apprenticeship Program

The Apprenticeship Program combines on-the-job learning and in-school technical instruction to allow Inuit employees the opportunity to be educated and trained in the trade of their choice. By the end of the program, the apprentice is able to challenge their Certificate of Qualification (COQ) to become a Journeyperson and will have the opportunity to challenge their Red Seal Exam. Currently, Agnico Eagle offers (9) trades: baker, cook, carpenter, millwright, electrician, heavy duty equipment technician, welder, housing maintainer and plumber.

In 2019, the program was reviewed in order to substantially increase our support to apprentices while they are at school for their technical instruction. Logistical, material, educational and financial support is provided to our Apprentices.

The Apprenticeship Program combines on-the-job learning and in-school technical instruction to allow Inuit employees the opportunity to be educated and trained in the trade of their choice. By the end of the 3- or 4-year program, the apprentice is able to challenge their Certificate of Qualification (COQ) to become a Gold Seal Journeyperson and will also have the opportunity to challenge their Red Seal Exam. In 2023, Agnico Eagle conducted an internal audit to see what trades could be offered to Inuit apprentices. Currently, Agnico Eagle focuses on the following (7) trades: carpenter, millwright, electrician, heavy duty equipment technician, welder, housing maintainer and plumber.

11.10.3.2.3.6 Adult Educator

In 2018, Agnico Eagle started an on-site education strategy at its Nunavut sites, starting with a permanent Adult Educator at Meadowbank. The objective of the Adult Educator is to support Agnico Eagle employees to develop numeracy, literacy, and soft skills which will assist employees to access higher job positions and be successful in their apprenticeship journey. For employees who are pre-apprentices and apprentices, the Adult Educator works with the employees to improve maths skills based on the types of questions they will see in technical training, test taking skills, reading comprehension, and scientific concepts. The goal is for the apprentice to be well prepared to attend technical training. For relief supervisors and leaders, Adult Educators provided one-on-one support to build leadership skills such as communication, resilience, managerial courage, organization, leading your peers, and professionalism.

In 2022, a full-time Adult Educator was present at Meadowbank Complex from March until December (activities were paused from January to March due to COVID-19). The Adult Educator worked with four (4) Inuit employees in the apprenticeship program, as well as five (5) Inuit who were in relief supervisor or leader roles.

Adult Educator continued to be present at the Meadowbank Complex. In 2023, the Adult Educator at Meadowbank Complex worked with one (1) Inuk employee in the apprenticeship program, as well as seven (7) Inuit who were in relief supervisor or leader roles.

The Adult Educator is also tasked with planning and implementing school-based initiatives such as TASK (Trades Awareness, Skills and Knowledge) week. The goal of TASK week is to motivate the students to think about their future after graduation. In 2023, Agnico Eagle partnered with Jonah Amitnaaq Secondary School (JASS) to support the annual TASK week in Baker Lake. Agnico Eagle actively participated in the

organization of the event and banquet/gala and provided 4 of the 7 trades instructors to train the 75 students who participated in this one-week event.

11.10.3.2.3.7 Emergency Response Team (ERT) training

At Agnico Eagle Mines Ltd., the most important priority is to keep employees safe. Meadowbank Complex Emergency Response Team (ERT) consists of internal employees that volunteers to respond to emergencies such as fire. The ERT practice takes place weekly, and each member must attend at least six (6) practices throughout the year. At the end of 2023, Meadowbank Complex ERT consisted of 105 active Emergency Responders for Surface and Underground operations. Six (6) Underground and three (3) Surface Basic Emergency rescue courses were given in 2023 to onboard new ERT members for Meadowbank / Whale Tail. In total, 77 training sessions were provided, including weekly practices, mock scenarios, and specialized trainings.

In 2023, Agnico Eagle participated in the Northwest Territories Mining Heritage Society Foundation (NMHSF) Mine Rescue Competition in Yellowknife, in both Surface and Underground competitions, and won three trophies.

11.11 GENERAL SOCIO-ECONOMIC PROVISIONS

11.11.1 Whale Tail Site

11.11.1.1 *Staff Schedule*

As required by NIRB Project Certificate No.008, Condition 48: ***The Proponent is strongly encouraged to submit staff schedule forecasts that should, at a minimum, include the following:***

- ***Title of positions required by department and division;***
- ***Quantity of positions available by project phase and year;***
- ***Transferable skills, both certified and uncertified which may be required for, or gained during, employment within each position;***
- ***The National Occupational Classification code for each individual position.***

The Proponent should also identify and register all trades occupations, journeypersons, and apprentices working with the Project and make this information available to the Government of Nunavut to assist in delivery of training initiatives and programs. The Staff Schedule should be submitted to the Nunavut Impact Review Board six (6) months prior to each phase of the Project (construction, operations, closure).

Construction Phase staff schedules have been sent to NIRB on May 2nd, 2018 and Operations Phase staff schedules have been sent to NIRB on April 25th, 2019 with an updated Version on June 25th, 2019 (Appendix 54 of the 2019 Annual Report).

11.11.1.2 *Semi-Annual Call with Regulators*

As required by NIRB Project Certificate No.008, Condition 49: ***The Proponent shall make best efforts to collaborate with the Government of Nunavut's Career Development Officer, Regional Manager of Career Development, and Director of Career Development. Semi-annual calls, at a minimum, should be initiated by the Proponent to address:***

- ***Hiring procedures and policies***
- ***Issues regarding employee recruitment and retention***
- ***AEM policies regarding career pathways and opportunities for advancement***
- ***Internal and/or partnered training and development of employees***
- ***Long-term labour market plans to facilitate training in communities***

Summary information addressing the Proponent's fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.

In September of 2023, Agnico Eagle organized a teleconference with the Government of Nunavut-Department of Family Services. One (1) representative, who is the Acting Regional Manager joined the call.

Some of the topics discussed were:

- TEE Exams for potential Apprentices candidates
- Employment Information Session with Nunavut Arctic College (NAC) & internship.
- Employment Information Session Agnico Eagle & Department of Family Services at the mine site.
- Information shared about Agnico Eagle Career Day event in Rankin Inlet in November and invite the Department of Family Services to participate.

In October 2023, Agnico Eagle organized an in-person meeting with the Acting Regional Manager and the Apprentice Officers to provide information about GN's participation in the Career Day event hosted by Agnico Eagle on November 8th.

In November 2023, the Government of Nunavut-Department of Family Services collaborated with Agnico Eagle to participate in the Career Day in Rankin Inlet. The Acting Regional Manager and the Apprentice Officer were present at the event. They participated in the mining awareness activities with the high school students, and they had their employment booth during the public session to provide information about the Apprenticeship Program.

The Government of Nunavut Department of Family Services' board met with Agnico Eagle via teleconference in September. One (1) representative participated in the call, which is the regional director. During the meeting, topics discussed included: TEE exams for potential apprentice applicants, Employment information session at Nunavut Arctic College (NAC) and possible internship, Employment information session Agnico Eagle and Family Services Department in the mine area and information was shared about the Agnico Eagle Career Day event in Rankin Inlet in November and the Family Services Department was invited to participate.

In November 2023, The Government of Nunavut Department of Family Services Board collaborated with Agnico Eagle to participate in the Rankin Inlet Career Day. The Acting Regional Manager and the Apprentice Officer were present at the event. They participated in the mining awareness activities with the

high school students, and they had their employment booth during the public session to provide information about the Apprenticeship Program.

11.11.1.3 *Listing of Formal Certificates and Licenses*

As required by NIRB Project Certificate No.008, Condition 52: ***The Proponent should develop and maintain an easily referenced listing of formal certificates and licenses that may be acquired via on-site training or training during project employment. The listing shall indicate which of these certifications and licenses would be transferable to a similar job site within Nunavut. The initial listing should be provided to the Nunavut Impact Review Board within six (6) months of the Project Certificate being issued. Updates to the list should be included in the Proponent's annual reports submitted to the Nunavut Impact Review Board and shared with the wider Kivalliq Socio-Economic Monitoring Committee throughout the life of the Project.***

In 2023, Agnico Eagle offered employees a "skills passport" to demonstrate transferrable skills. In July, Agnico Eagle met with MiHR to discuss the various initiatives that would grant AEM's internal training a national accreditation and the employees a skills passport. Some of these programs were;

- The Canadian Mining Certification Program which was designed to certify trainee graduates and experienced Inuit operators. This was implemented by getting our Trainers certified to be "Workplace Assessors." and;

- The Canadian Mining Recognition Program was created to recognize Agnico Eagle's in-house training programs.

In October 2023, Agnico Eagle decided not to pursue this option for several reasons such as;

- Lack of buy-in from the industry: only 1800 registered profiles in the database after 10 years of existence and;

- Volume of work required to undertake this project and direct benefits for local workforce.

Agnico Eagle aims to explore more accessible options such as issuing a passport from TMS (in-house training and hours of operations at Agnico would be recognized in the industry) and conducting an assessment/recognition of skills via School of Mines/Ecole des Mines.

The listing of formal certificates and licenses was sent to NIRB on December 14th, 2018. There have not been any updates since the last submission. The list can be found in Appendix 59 of the 2018 Annual Report.

11.11.1.4 *LMA and IWBS*

As required by NIRB Project Certificate No.008, Condition 50: ***The Proponent will report the results of its Labour Market Analysis (LMA) and Inuit Work Barrier Study (WBS) to the Kivalliq Socio-Economic Monitoring Committee upon completion in 2018, which should integrate the findings into its ongoing work identifying gaps between the Kivalliq labour market and mining market needs, and how to activate latent labour pool in the Kivalliq region to maximize labour "capture" from mining for the region. The Proponent shall report the results and implications of the LMA and WBS within its first year's Annual Report to the Nunavut Impact Review Board***

(NIRB), and show how the results have been integrated into an updated Socio-Economic Monitoring Plan for the Whale Tail Pit Project.

In 2023, the Employment and Culture Committee (ECC) which includes representatives from KivIA and Agnico Eagle signed an MOU on the KLMA updates on IIBA obligations. ECC recommended to the Implementation Committee (IC) to change KLMA timeline to include time to conduct the analysis and to work on recommendations. KLMA should now be performed every three (3) years and be aligned with other studies that are following the IIBA three (3) years review process. The ECC recommended aligning the KLMA timeline with the three-year review process of the IIBAs. As a result, the next KLMA update is scheduled for 2024.

Following this approval from the IC, the next KLMA update will be performed in 2024. In the meantime, AEM was involved in an initiative from Sakku - KIA business branch to support the development of local labour market analysis: Kivalliq Employment and Training Action Plan (KETAP).

In 2023, Agnico Eagle conducted an update to the IWBS, which is required under all Agnico Eagle's Kivalliq IIBAs. This edition of the 2023 IWBS covers three specific angles: gender-specific barriers, regional barriers and mine industry barriers. Complete report can be found in Appendix 51.

11.11.1.5 *Health Committee*

As required by NIRB Project Certificate No.008, Condition 58: ***The Proponent is encouraged to form a subcommittee which includes Government of Nunavut representatives to reach consensus decisions on health related issues that the Proponent or the Government of Nunavut bring forward (e.g. programs and services to address sexually transmitted infections, a process for the treatment and transport of workers that may require medical services beyond that which the mine provides, monitoring and reporting on the impacts of the Project on health services within the potentially impacted communities and particularly, Baker Lake. etc.). Information regarding the Proponent's fulfillment of this term and condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board.***

And

As required by NIRB Project Certificate No.008, Condition 60: ***The Proponent shall engage with the Government of Nunavut to develop a process to ensure that any conditions first treated at the mine site and requiring ongoing care is appropriately accommodated in a timely manner at community health centres as required. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.***

As indicated in Agnico Eagle's response to NIRB's 2022 Annual report comment, Agnico Eagle worked and made progression on this T&C in 2023. This work with the Government of Nunavut Health representatives will lead to more collaboration opportunities in 2024. See below details about meetings and discussions from 2023 engagements and communication:

A meeting with the Government of Nunavut Health department in October 2023 and a follow-up meeting in Rankin Inlet in November 2023 was held to discuss topics for possible collaboration. The objective of those meetings was to determine collaboration avenues and identify needs from each group to benefit the local community.

These topics included:

- Cyanide transportation: There is currently an ongoing collaboration between H&S and Community Relation on engaging communities prior to each cyanide transportation.

- Patient File Sharing: Agnico Eagle and GN Health discussed the possibility of having a system to ensure patient files are shared to improve communication between clinics for employees/patients' needs on reasons for visit. This collaboration will then be assessed to determine whether it will be implemented on a case-by-case method or based on the community.

- (STD)-STI/STD: Both the community and Agnico Eagle have strategies in place to prevent and inform people about STI/STD. These strategies include condom distribution in washrooms.GN health urged Agnico Eagle to continue its ongoing support for sexual health on site.

- Drug Prescription: There is the need for continuous support and collaboration of Controlled substances/narcotics use in the community and on-site. This is aimed at reducing the incidence of drug abuse.

Other important topics discussed include:

- Culture and language - Meadowbank clinic will contact GN Health for their "Topic of the Month" and content to be promoted on site (including Inuktitut translation).

- GN Health wanted to better understand staff availability on site, and if in case of a major event, how (either on site or in town) resources could be shared.GN Health and Agnico Eagle discussed that If needed, one nurse could potentially be sent to the Baker Lake clinic.

- Medical Support: There was a discussion on how Meadowbank can support health (Audiology and ENT) specialist visits in the community or at site. This could be helpful for Inuit worker fit to work/employment review. GN Health plans to confirm the name of the school or clinic doing local visit.

- Specific local health issues: GN Health highlighted that some communities are facing specific health issues, and wanted to know if the site is also facing similar situations/outbreaks. One example was the current increased cases of Tuberculosis in Naujaat.

The next meeting in 2024 will be scheduled for Q2 or Q3.

11.11.1.6 *Home Ownership*

As required by NIRB Project Certificate No.008, Condition 61: ***The Proponent, in collaboration with the Government of Nunavut and the Nunavut Housing Corporation, is encouraged to investigate measures and programs designed to assist Project employees with pursuing home ownership or accessing affordable housing options in the Kivalliq region. The Proponent should provide access to financial literacy, financial planning, and***

personal budgeting as part of the regular Life Skills Training and/or Career Path Program. Evidence of meeting the requirements of this term and condition should be submitted as part of the Proponent's annual reporting to the Nunavut Impact Review Board.

In 2023, Agnico Eagle and various stakeholders collaborated to find solutions to Nunavut's housing infrastructure needs, specifically in relation to energy-efficient building materials and training.

Two applications led by local partners, were submitted to the Green & Inclusive Community Building to serve as pilot projects for these solutions. Potential collaborations to aid in raising funds for the down payment needed to buy a home was discussed.

Another strategy being evaluated is the use of housing support as a means of attracting and retaining Inuit workers. Ilitaqsiniq offers a pre-employment curriculum that includes financial literacy, financial planning, and personal budgeting instruction for all new hires.

11.12 STATUS OF COMMITMENTS

11.12.1 Meadowbank Site

As required by NIRB Project Certificate No.004, Condition 1: ***The commitments in this Final Hearing Report as Appendix A: Cumberland's1 Commitments from the Final Hearing, are incorporated herein and must be met. In the event of a conflict between Appendix A and the Terms and Conditions of the Project Certificate, the Terms and Conditions of the Project Certificate prevail.***

An up to date listing of the status of implementation for commitments, made during the NIRB Final Hearings, and applicable to operation phase is provided in Appendix 1.

11.12.2 Whale Tail Site

As required by NIRB Project Certificate No.008, Condition 68: ***The Proponent shall maintain an up-to-date listing of the status of implementation for its commitments made during the Nunavut Impact Review Board's (NIRB) assessment of the Whale Tail Pit Project Proposal and the Whale Tail Pit Expansion Project Proposal through engagement of parties and active monitoring of associated implementation.***

The Proponent shall provide a status report on the implementation of all its commitments within three (3) months of issuance of the Project Certificate for the Whale Tail Pit Expansion Proposal and annually thereafter within its annual report to the NIRB.

An up to date listing of the status of implementation for commitments made during the NIRB assessment is provided in Appendix 2.

SECTION 12. POST-ENVIRONMENTAL ASSESSMENT MONITORING PROGRAM (PEAMP) – EVALUATION OF IMPACT PREDICTIONS

As required by NIRB Project certificate No.008 Item 11: ***The Proponent shall maintain the Environmental Impact Statement and the environmental monitoring programs developed for the Project, with predictions updated as new baseline data is collected. If the results of monitoring programs necessitate updates to effects predictions, the Proponent shall update the associated management programs and plans as required to address or reflect the updated assessment of effects.***

12.1PURPOSE

According to Appendix D of Meadowbank's NIRB Project Certificate No. 004, the Post-Environmental Assessment Monitoring Program (PEAMP) is a conceptual program designed "*to work as an instrument of the proponent's overall monitoring efforts and should provide feedback to the NIRB and other agencies regarding ongoing project monitoring.*" The goal of the PEAMP is to provide the NIRB and other regulatory agencies information on how actual environmental and socioeconomic effects of the Meadowbank mine site compare to impacts predicted in the Final Environmental Impact Statement (FEIS; Cumberland, 2005).

The objectives of the PEAMP as specified in Appendix D of the Project Certificate are to:

a) Measure the relevant effects of the project on the ecosystemic and socioeconomic environment(s). These effects may be measured through biophysical and socioeconomic monitoring programs undertaken by the Proponent or by other means as described in the Project Certificate;
b) Assess the accuracy of the predictions made within the FEIS;
c) Evaluate the effectiveness of project monitoring procedures and plans;
d) Identify impacts requiring additional mitigation or adaptive management; and
e) Provide relevant data and information to support regional monitoring initiatives where feasible.

Based on comments from the NIRB on Agnico Eagle's 2017 and 2018 PEAMP reports, and discussions by phone with NIRB representatives in November 2019, Agnico Eagle revised the PEAMP at that time to also address the following NIRB recommendations more specifically:

1) Include a discussion that references the baseline and previous years' monitoring data and identifies any trends for each valued ecosystem component where an effect has been observed. Include this information in table and graphic format in order to clearly demonstrate what is being observed.

2) Identify instances where original and/or amended impact predictions can no longer be supported based on project experience to date and include an analysis of the effectiveness of management and mitigation strategies currently employed.

Agnico Eagle recognizes the following recommendation, but asserts at this time that it is not a requirement of the PEAMP according to the Project Certificate:

3) Include a summary of lessons learned from the Project to date which can be applied to both updating existing project plans and to any of Agnico Eagle's other planned or ongoing projects as applicable.

Beginning in 2019, Agnico Eagle extended the PEAMP to include the Whale Tail Mine. Measured impacts are compared to those described in the FEIS for the Whale Tail Pit Project and the FEIS Addendum for the Whale Tail Pit – Expansion Project, as appropriate.

Having received no comments on the last PEAMP evaluation, this 2023 evaluation follows the same format used in 2022.

12.2 PEAMP EVALUATION

To fulfill Items A through D described in Appendix D of the Meadowbank Project Certificate No. 004, and in support of NIRB Recommendations 1 and 2 described above, a PEAMP evaluation has been carried out for each valued ecosystem or socioeconomic component (VC) identified in the FEIS documents for the Meadowbank Mine and the Whale Tail Mine (Cumberland, 2005; Agnico Eagle, 2016; Agnico Eagle, 2018). A conceptual model of the PEAMP evaluation process is provided in Figure 41. This process involves five components, described below. After an initial review of the FEIS to identify and summarize impact predictions for the current project phase (Part 1), Parts 2 – 5 are repeated on an annual basis to form the evaluation.

Part 1: For each VC, predicted residual impacts are summarized for the current project phase. Residual impacts are those occurring after planned mitigation measures are implemented (a summary of the FEIS-planned mitigation measures for each VC is provided Part 5, along with a description of implementation in the current monitoring year). Only predicted residual impacts for which monitoring was recommended in the FEIS are summarized, since the PEAMP program focuses on evaluating monitoring results in relation to impact predictions.

Part 2: For each predicted residual impact, current-year results of the associated monitoring programs are reviewed and summarized. Future results will be added to these tables to ensure historical trends can be observed, even when predicted impacts are not exceeded in a given year.

Part 3: When current monitoring results do not support an impact prediction (i.e. current-year measured impacts are outside of the range of predicted impacts), a trend analysis is conducted to review baseline and all monitoring data to date. A discussion of those results is provided.

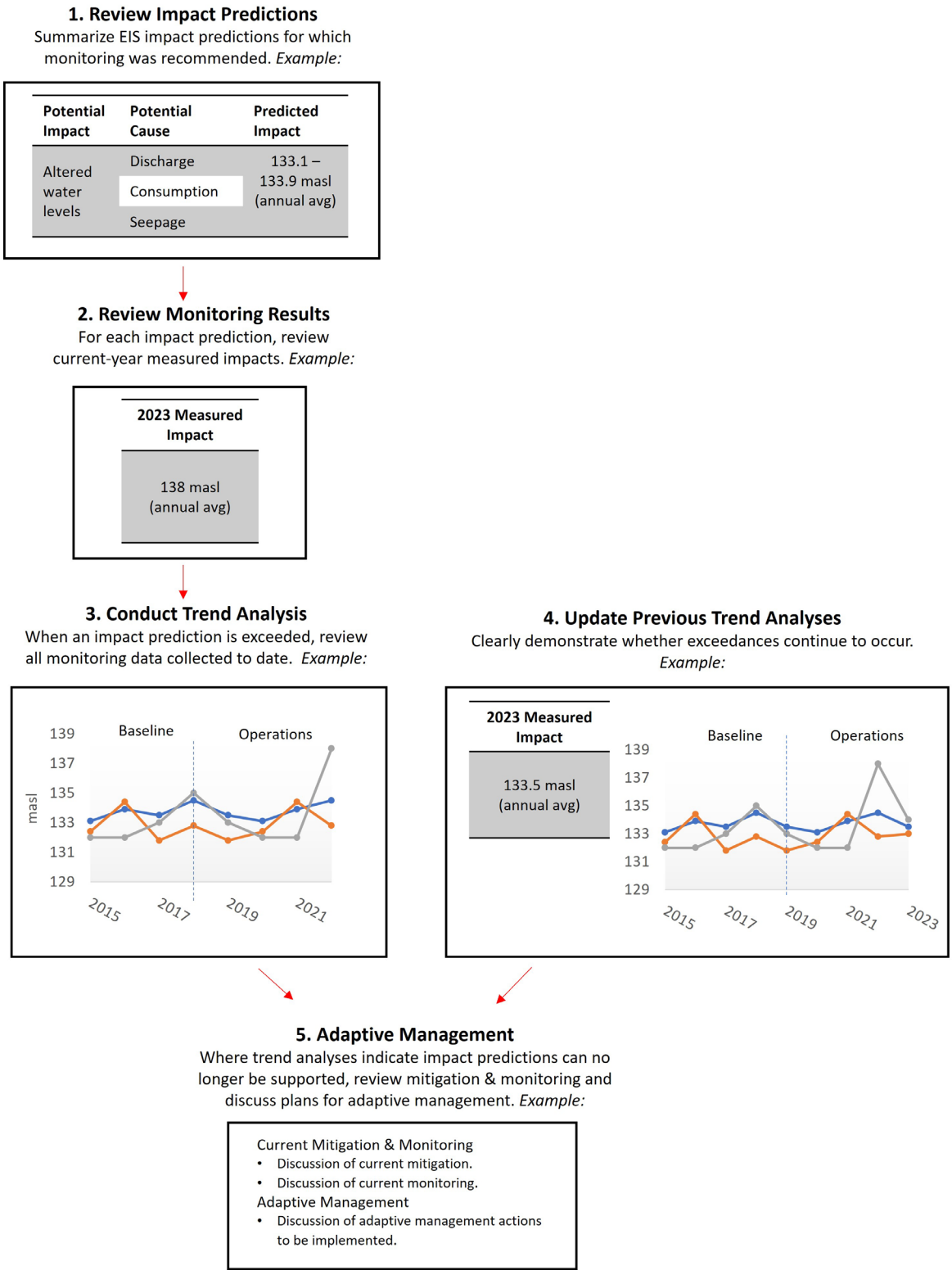
Part 4: Previously-reported trend analyses are updated, regardless of current year monitoring results. In this way, discussions and trend analyses will be presented in the PEAMP moving forward for all instances where impact predictions have historically been exceeded on one or more occasions. Moving forward, this period of trend analysis within the PEAMP will be limited to five years post-exceedance to limit redundancy in reporting, unless there is a specific rationale for extended review. Historical trends are generally included in individual monitoring reports, and those appendices will be referenced in cases where results have historically (> 5 years ago) exceeded impact predictions.

Part 5: Effectiveness of the monitoring programs in evaluating impact predictions is discussed. A summary of the FEIS-planned mitigation measures for each VC is provided, along with a description of

implementation in the current monitoring year. Where monitoring results indicate that impact predictions can no longer be supported, a description will be provided of the proposed adaptive management approaches.

It should be noted that the monitoring programs as described in the FEIS were developed at a conceptual level to assist in evaluating the overall potential impacts of the project. These were supporting documents in the FEIS and assisted in informing predictions, establishing regulatory limits, and forecasting management and mitigation actions to assist in the impact prediction process. Monitoring plans and sampling locations have since undergone changes and revisions to reflect actual mine operations. These differences are taken into account and identified when making comparisons to FEIS predictions.

Figure 41 Conceptual model of the PEAMP evaluation process.



12.3 SUMMARY OF IMPACTS

A summary of the predicted potential impacts for the Meadowbank Mine with references to the FEIS (Cumberland, 2005) are provided in Table 12-1.

A summary of the predicted potential impacts (primary effect pathways) for the Whale Tail Mine with references to the Project FEIS or FEIS Addendum (Agnico Eagle, 2016 or 2018) are provided in Table 12-2. Primary effect pathways are those pathways likely to result in a measurable change to measurement indicators that could contribute to residual effects on a VC relative to the Baseline Case or guideline values. Any change in quantitative impact predictions for the Meadowbank Mine as a result of Whale Tail Mine development is described in the PEAMP evaluation sections below.

Table 12-1 Summary of FEIS VECs, potential impacts, and references for impact predictions for the Meadowbank Mine (as in Cumberland, 2005).

VEC	Summary of Potential Impacts	Reference (in Cumberland, 2005)
Surface water quantity	Reduced water level and flow in receiving lakes	FEIS, Section 4.21.2.3 FEIS App B, Table B4
Surface water quality	Contamination of receiving lakes	FEIS, Section 4.21.2.3 FEIS App B, Table B5 FEIS App E FEIS - WQ
Fish populations	Direct impacts through blasting. Indirect impacts through habitat changes.	FEIS, Section 4.21.2.7 FEIS App B, Table B13
Fish habitat	Direct impacts through habitat destruction or alteration. Indirect impacts through introduction of contaminants.	FEIS, Section 4.21.2.7 FEIS App B, Table B14
Vegetation (wildlife habitat)	Removal of plant cover, abrasion/grading, salt, dust, grey water release	FEIS, Section 4.21.2.4 FEIS App B, Table B6
Ungulates	Habitat loss, mortality	FEIS, Section 4.21.2.5 FEIS App B, Table B7
Predatory mammals	Habitat loss, mortality	FEIS, Section 4.21.2.5 FEIS App B, Table B8
Small mammals	Habitat loss, mortality	FEIS, Table 4.24 FEIS App B, Table B9
Raptors	Habitat loss, mortality	FEIS, Section 4.21.2.6 FEIS App B, Table B10
Waterfowl	Habitat loss, ingestion of contaminants, mortality	FEIS, Section 4.21.2.6 FEIS App B, Table B11
Other breeding birds	Habitat loss, mortality	FEIS, Section 4.21.2.6 FEIS App B, Table B12
Air Quality	Contamination of aquatic environment by dust. Contamination of terrestrial environment by dust. Poor air quality. Odours may attract scavengers. Production of greenhouse gases, other gaseous contaminants and particulate matter.	FEIS, Section 4.21.2.2 FEIS App B, Table B2
Noise	General disturbance of wildlife as a result of regular noises (behavioural changes, displacement). Reduced habitat effectiveness.	FEIS, Section 4.21.2.2 FEIS App B, Table B3

VEC	Summary of Potential Impacts	Reference (in Cumberland, 2005)
Permafrost	Thaw instability. Changes in permafrost depth in various areas (increase/decrease). Ice entrapment in tailings/reclaim.	FEIS, Section 4.21.2.1 FEIS App B, Table B1
Traditional Ways of Life (personal and community)	Reduced access to land. Reduction in traditional activities including harvesting. Undervaluing traditional ways and loss of knowledge.	FEIS Section 4.21.4.4 FEIS App B, Table B15
Employment, Training, and Business Opportunities	Financial expenditures of $23 million annually for 10 years. Employment of at least 60 workers. Goods and services contracts for local businesses. Overall increased economic activity, including indirect and induced effects. Increased capacity of local labour force to participate in formal economy. Increase in interest of school on part of youth. Increased individual, family, and community wellness.	FEIS Section 4.21.4.3 FEIS App B, Table B15
Wellness (personal and community)	Poor financial decision making. Increased income disparity. Increased public health and safety risks. Stress from rotational employment. Increased traffic accidents and emergencies. Disturbance by project activities.	FEIS Section 4.21.4.5 FEIS App B, Table B15
Infrastructure and social services	Shortage of housing and other infrastructure. Increased demand for social services.	FEIS Section 4.21.4.6 FEIS App B, Table B15
Sites of heritage significance	Potential degradation of historically significant sites.	FEIS Section 4.21.4.7 FEIS App B, Table B15
Contributions to economy of Nunavut and Canada	$92M annually during operations phase.	FEIS Section 4.21.4.8

Table 12-2 Summary of VCs and primary effects pathways (potential impacts) assessed in the *FEIS Addendum for the Whale Tail Pit – Expansion Project* (Agnico Eagle, 2018). In some cases (where indicated), pathways were carried over from the *FEIS for the Whale Tail Pit Project* (Agnico Eagle, 2016) and were not re-assessed in the FEIS Addendum. *Reference in Agnico Eagle (2018) unless indicated. *Note: Kangislulik Lake continues to be referred to in this table as Mammoth Lake, as it was in the FEIS Addendum documents.*

VC	Primary Effect Pathways (Volume 3, Appendix 3-C)	Reference*
Surface Water Quantity	Project footprint, which will physically alter watershed areas and drainage patterns, may change downstream discharge, water levels, and channel/bank stability in streams, and affect water quality, fish habitat, and fish	Section 6.3.3.1
	Dewatering of lakes may change discharges, water levels, and channel/bank stability in receiving and downstream waterbodies, and affect water quality, fish and fish habitat	
	Alteration of watershed flow paths may change flows, water levels, and channel/bank stability in diverted and receiving waterbodies, and affect water quantity, water quality, fish and fish habitat	
Water Quality	Project footprint, which will physically alter watershed areas and	Section 6.2.3

VC	Primary Effect Pathways (Volume 3, Appendix 3-C)	Reference*
	drainage patterns, rates and quantities of diverted non-contact water to new watersheds, change downstream flows through flooding and dewatering, water levels, channel/bank stability in streams, and disturb lakes and may affect water quality and sediment quality	
	Water management activities (dams, drainage, diversion, discharge, and dewatering) that will alter natural drainage paths and create a reservoir may cause a change in mercury cycling and bioaccumulation	
	Activities from construction activities and mining operations (e.g., equipment, vehicles, buildings, open-pit mining, blasting) can create fugitive dust emissions and subsequent dust deposition may cause a change in water quality	
	Activities from construction activities and mining operations (e.g., equipment, vehicles, buildings, open-pit mining, blasting) can alter air and dust emissions (including Sulphur dioxide, nitrogen oxides, and particulate matter) and subsequent deposition may cause a change in water quality	
	Release of treated mine effluent (including sources from sewage, WRSF pond, and attenuation pond contact) may cause changes to surface water quality and sediment quality (i.e., nutrient and metal concentrations) in Mammoth Lake in operations and closure.	
	Dewatering of waterbodies may change flows, water levels, channel/bank stability, and water quality (e.g., suspended sediments, nutrients, metals) in receiving and downstream waterbodies.	
Hydrogeology & Groundwater	(No primary pathways were identified)	NA
Fish and Fish Habitat	The construction of the Northeast, Whale Tail, and Mammoth dikes, Whale Tail, and IVR Pit and WRSF for the Expansion Project, dewatering of the diked area in Lake A17 (Whale Tail Lake) and Lake A16 (Mammoth Lake), (and dewatering and use of Lake A53 as the IVR Attenuation Pond for the Expansion Project, will result in the direct loss or alteration of fish habitat.	Section 6.5.4.2.2
	The construction of the North-East, Whale Tail, and Mammoth dikes will alter access to tributary streams and lakes (i.e., habitat connectivity) in the LSA, and may result in habitat loss for Lake Trout, Arctic Char, and Round Whitefish.	FEIS Volume 6, Section 6.5.3.2.2 (Agnico Eagle, 2016)
	During the construction and operations of the Whale Tail, Mammoth, and WRSF dikes, water diversions will result in a reduction of water levels in Lake A16 (Mammoth Lake) and downstream locations, affecting fish and fish habitat.	Fish and Fish Habitat Section 6.5.4.2.2. and Surface Water Hydrology Section 6.3.3.1.2.2
	Water diversions for the Whale Tail and Northeast dikes during construction and operations will flood tributary lakes and streams, and will result in the alteration of habitat	FEIS Volume 6, Section 6.5.3.2.2 (Agnico Eagle, 2016) Whale Tail Pit Fish Habitat Offsetting Plan, Table B-2
	The dewatering of the diked area in Lake A17 (Whale Tail Lake) and Lake A16 (Mammoth Lake), and smaller waterbodies in the northeast area for the Expansion Project, will result in the removal and subsequent mortality of fish from the area during the proposed fish-out	Section 6.5.4.2.2
	Release of treated mine effluent (including sources from sewage, WRSF pond, and attenuation pond contact) may cause changes to surface water quality and sediment quality (i.e., nutrient and metal	FEIS Volume 6, Section 6.4.3.3 (water & sediment) and Section

VC	Primary Effect Pathways (Volume 3, Appendix 3-C)	Reference*
	concentrations) in receiving environment lakes in operations and closure.	6.5.3.3.2 (lower trophic levels & fish) (Agnico Eagle, 2016) and Section 6.5.4.3
Terrestrial Wildlife and Birds	**Ungulates and Upland Birds:** Sensory disturbance from vehicles, on-site equipment, human presence and vibrations, can change the amount of different quality habitats, and alter wildlife movement and behaviour	Section 5.5.3
	Ungulates and Upland Birds: Direct loss and fragmentation of wildlife habitat from the Project footprint	
	Ungulates: Barriers to migration, which may affect population connectivity and distribution	
	Upland and Waterbirds: Destruction of nests and flooding from construction activities including increased flows or water levels can increase risk of mortality to individual birds, which can affect population sizes	
Noise	Noise emissions from vehicles on the haul road can increase ambient noise levels.	Section 4.4.3
	Noise emissions from mining equipment can increase ambient noise levels. Blasting can result in ground vibration and increase ambient noise levels.	
Air Quality and Climate	**Air Quality**: Vehicle emissions and fugitive dust from traffic on the haul road can affect air quality	Section 4.4.3
	Air Quality: Blasting, stationary and mobile combustion sources, and fugitive dust from mining activities in the Whale Tail Pit can affect air quality.	Section 4.4.3
	Climate: Additional 3 years of processing and use of supporting infrastructure at the Meadowbank mine site and the existing AWAR for delivery of materials can produce greenhouse gas emissions that contribute to climate change	Whale Tail Site: FEIS Addendum Section 4.2.3.1 Meadowbank Mill: FEIS Section 4.2.3.1 (Agnico Eagle, 2016)
Vegetation, Terrain, Permafrost & Soils	**Vegetation:** Physical loss of plants and vegetation communities due to project footprint or alteration of drainage patterns.	Section 5.4.3
	Vegetation: Dewatering of lakes and diversion of water may change downstream flows and water levels, affecting permafrost, soils, vegetation, and wildlife habitat	
	Vegetation: Air emissions, dust deposition, or chemical contamination on terrain, soils, and vegetation can potentially change the quality and/or chemical properties of soil and affecting vegetation. Dust deposition may cover vegetation and lead to physical and/or physiological damage.	
	Soil: Physical loss or alteration of terrain and soil from the Project footprint , impacting vegetation and available wildlife habitat.	Section 5.3.3.1
	Soil: Soil disturbance, stockpiling and transport can change physical, biological, and chemical properties of soils. Site clearing, contouring, excavation and decommissioning can cause admixing, compaction, and soil erosion and change soil quality.	
	Terrain and Soil: Physical changes, including degradation to the permafrost, terrain and soils in the area of the mine site footprint and supporting infrastructure (i.e., haul roads)	
	Terrain and Permafrost: Open Pit mining result in physical loss or permanent alteration of terrain, soils, and permafrost within the mined out areas. Permafrost degradation and retreat due to excavation of open pits and potential groundwater inflows to the open pit during operations if depth extends below the base of	

VC	Primary Effect Pathways (Volume 3, Appendix 3-C)	Reference*
	permafrost.	
	Permafrost: Underground mining resulting in physical loss or permanent alteration of permafrost within the mined out areas. Permafrost degradation and retreat due to excavation of the mined out areas coupled with the inflow of groundwater to the underground operations, as the proposed underground operation will extend below the permafrost.	
Heritage Sites	(No primary pathways identified)	NA
Traditional Land Use	**Wildlife Harvesting**: Project activities may affect continued opportunities for traditional wildlife harvesting	FEIS Section 7.3.3.2 (Agnico Eagle, 2016)
	Fishing: Project activities Primary may affect continued opportunities for traditional fishing	Section 7.3.2.1.2
	Plant Gathering: Project activities may affect continued opportunities for traditional plant harvesting	FEIS Section 7.3.3.2 (Agnico Eagle, 2016)
	Culturally Important Sites: Project activities may affect continued opportunities for the use of culturally important sites	FEIS Section 7.3.3.2 (Agnico Eagle, 2016)
	Marine Resource Harvesting: Project activities may affect continued opportunities for traditional marine resource harvesting	Section 7.3.2.1.5
Socio-Economics	The Project will contribute to territorial economic activity via expenditures, procurement and Gross Domestic Product contributions	Appendix 7-B, Section 7-B-1.4.2
	The Project will contribute to government revenues through the payment of taxes and royalties	
	The Project will contribute to local business development through procurement and contacting	
	The Project will result in direct, indirect and induced employment opportunities	Appendix 7-B, Section 7-B-1.4.3
	The Project will result in direct, indirect and induced incomes	
	The Project will provide training opportunities for its workforce	
	The Project will contribute to community education	
	Project incomes may enhance individual and community wellness by providing access to education, nutritious food, and recreation, and by reducing poverty	Appendix 7-B, Section 7-B-1.4.4
	The Project may enhance individual and community wellness by continuing community contributions and the IIBA	
	The Project will continue existing individual and family wellness programming (e.g., EFAP)	
	The Project may improve health and safety awareness amongst employees, their families, and their communities	
	The Project may result in accidental injury or emergencies	
	Project incomes may adversely affect family and community cohesion through social ills (e.g., substance abuse, sexual misconduct, family violence, crime)	
	Project incomes may exacerbate income inequality, social disparity, and, potentially, related conflict in families and crime in communities	
	Project rotational employment may adversely affect family and community cohesion related to extended time away from family and community	
	Population growth and demographic change	Appendix 7-B, Section 7-B-1.4.5
	Change in demand for and availability of housing	
	Change in demand for and capacity of services and infrastructure	

12.4 MEADOWBANK PEAMP EVALUATION

For each Meadowbank Mine VC, the completed PEAMP evaluation is presented in Sections 12.4.1 – 12.4.6, below, according to the six categories of assessment included in the FEIS (Aquatic Environment, Wildlife and Terrestrial Environment, Noise Quality, Air Quality, Permafrost, and Socio-Economics).

12.4.1 Aquatic Environment

Key mine development activities that were identified as having the potential to result in changes to the aquatic receiving environment for the Meadowbank Mine include: East Dike construction (2008), Bay-Goose Dike construction (2009-10), Vault Dike construction (2013), dewatering of lakes and impoundments (2009-2011, 2013, 2016), effluent discharge (2012 to present), and dust-generating activities (e.g., roads, tailings storage, rock crushing, blasting, hauling; generally 2008 to present, though blasting ceased in 2019).

Within the FEIS, impacts to the aquatic environment potentially caused by these activities are described for water quantity, water quality, and fish/fish habitat. Predicted and measured residual impacts for each of these VCs are described below.

12.4.1.1 *Water Quantity*

12.4.1.1.1 Parts 1 & 2: Summary of Predicted and Measured Residual Impacts

A summary of predictions for impacts to surface water quantity (Cumberland, 2005; Table B4.2) and the assessed accuracy of these predictions in 2018 - 2023 (measured impacts) is provided in Table 12-3. Cells are highlighted in grey when measured impacts exceed predictions for the current year. A historical trend analysis and discussion are provided for those observations in Section 12.4.1.1.2. Future results will be added to that section to ensure historical trends can be observed, even when predicted impacts are not exceeded in a given year.

Table 12-3 Predicted and measured impacts to water quantity during the Operations period. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.4.1.1.2.

Potential Impact	Potential Cause(s)	Proposed Monitoring	Actual Monitoring	Predicted Impact	Measured Impact					
					2018	2019	2020	2021	2022	2023
Altered (reduced) water levels in Third Portage Lake	Potentially high seepage rates (from lakes into pits); Water diverted from Second Portage Lake drainage into TPL	Monitor pit seepage rates Monitor discharge volumes of non-contact water	Third Portage Lake levels monitored	No change in lake level (FEIS modeled range = 133.82 – 134.19 masl)	See Figure 42 for measured water levels; *FEIS prediction exceeded but no change from baseline - see discussion, Section 12.4.1.1.2*					
	Freshwater consumption (Third Portage Lake)	Monitor freshwater use	Freshwater use monitored	NWB Water License 2AM-MEA1530 Part E, Item 1: 4,935,000 m^3	1,027,159 m^3	2,229,589 m^3	2,182,836 m^3	1,113,897 m^3	1,029,571 m^3	886,803 m^3
	Discharge from Portage Attenuation Pond	Monitor discharge volumes and timing	Discharge volumes monitored	458,400 m^3/yr (max)	No discharge					
Altered water levels in Second Portage Lake	Potentially high seepage rates (from lakes into pits); Non-contact water diverted from Second Portage Lake drainage	Monitor pit seepage rates Monitor discharge volumes of non-contact water	Lake levels monitored	Minor effect on lake level (baseline = 133.1 masl)	See Figure 43 for measured water levels; *FEIS prediction not well defined – see discussion, Section 12.4.1.1.2*					
Increased water levels in Wally Lake	Discharge from Vault Attenuation Pond	Monitor discharge rates	Monitored discharge rates and lake levels	Minimal increase in water levels. Total average annual discharge: ~456,450 m^3	No discharge. See Figure 44 for measured water levels. *FEIS prediction not well defined – see discussion, Section 12.4.1.1.2*					
Altered water levels in Turn Lake	Discharge from Phaser Lake for water management purposes during mining of Vault Pit	Monitor outflows at Turn Lake	Turn Lake water levels (2019+)	No significant impact	See Figure 45 for measured water levels; *FEIS prediction not well defined – see discussion, Section 12.4.1.1.2*					

12.4.1.1.2 Parts 3 & 4: Discussion

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

12.4.1.1.2.1 Changes in Lake Levels

FEIS Prediction:

Third Portage Lake - no change in lake levels (modeled range = 133.82 – 134.19 masl)

Second Portage Lake – minor change in lake levels (not quantitative)

Wally Lake – minor change in lake levels (not quantitative)

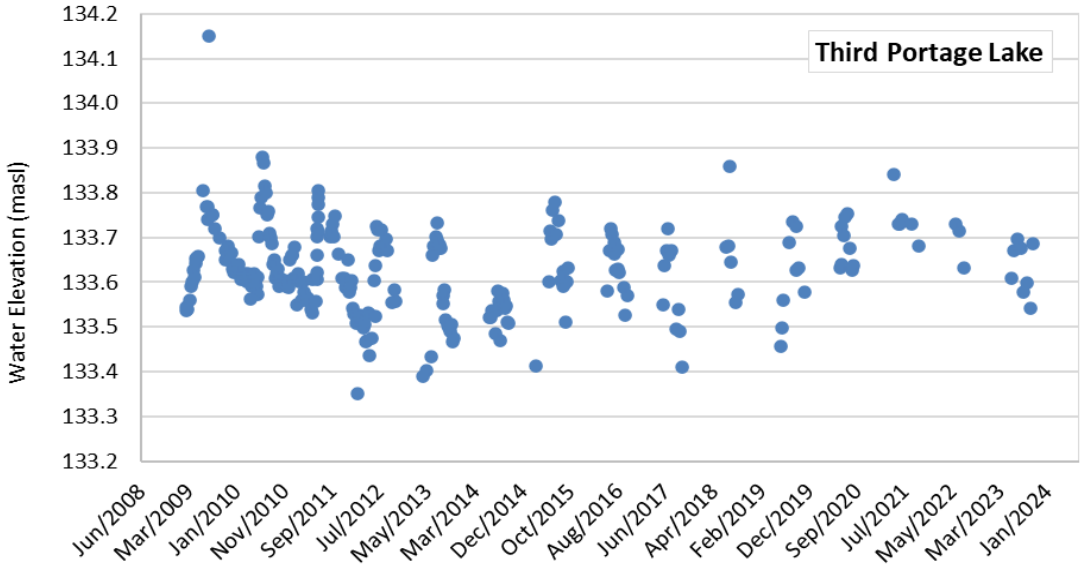
Turn Lake – no significant impact (not quantitative)

Discussion:

Third Portage Lake

FEIS hydrology modeling predicted the natural range of water levels in Third Portage Lake to be 133.82 – 134.19 masl, and the impact assessment indicated that this range would not be exceeded (Physical Environment Impact Assessment Report, 2005). Although these values accounted for 1-in-100 year precipitation or drought events, water levels were already below this range prior to operation, when monitoring began on March 14th, 2009 (prior to any significant freshwater consumption or discharge) (133.54 masl). Pumping rates of freshwater from Third Portage Lake have remained well within license limits, and water levels do not appear to have changed significantly since monitoring began (2009) (see Figure 42). Therefore, the Project does not appear to be having a significant impact on lake levels. Rather natural variation in baseline water levels may not have been well defined in the initial impact assessment.

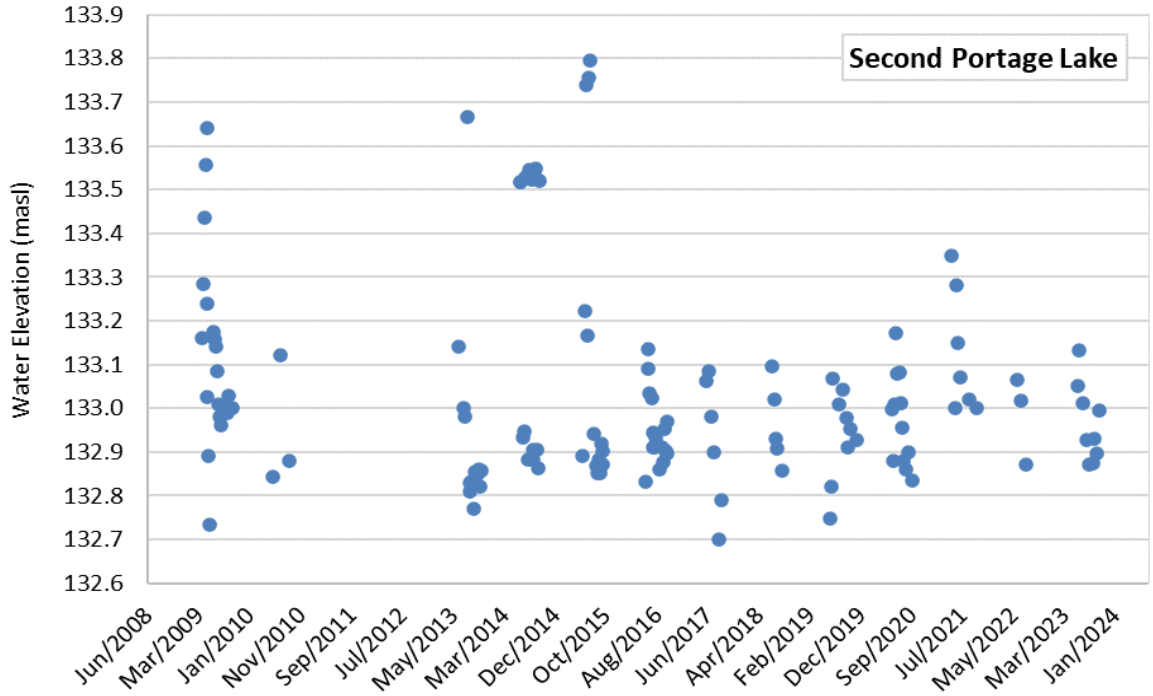
Figure 42 Measured water levels in Third Portage Lake (2009 – 2023).



Second Portage Lake

For Second Portage Lake, the FEIS predicted a “minor” effect on water levels. Since that prediction is not quantitative, historical measurements are reviewed here to identify any apparent trends that might arise. Although only one measurement of baseline water levels in Second Portage Lake was reported from 2005 in the FEIS (133.1 masl), making comparisons difficult, measured water levels since 2009 (when monitoring began) appear to be within this range (Figure 43).

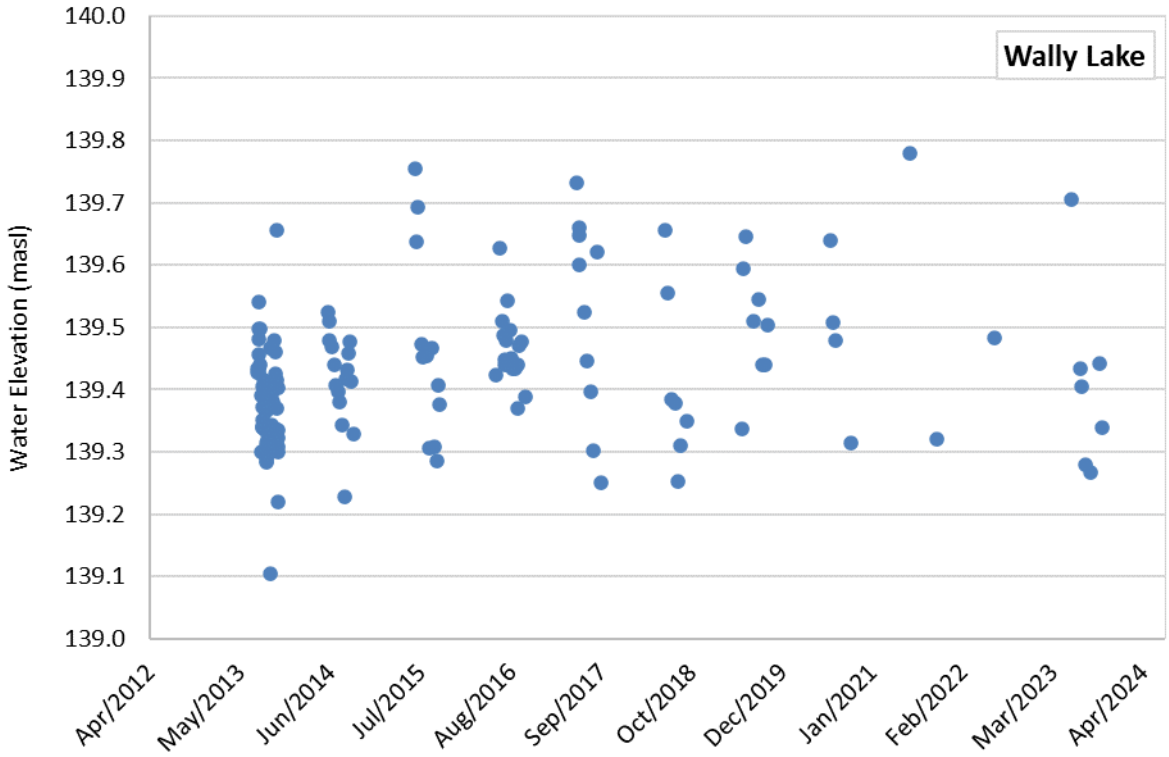
Figure 43 Measured water levels in Second Portage Lake (2013-2023).



Wally Lake

For Wally Lake, the FEIS predicted a “minimal” increase in water levels. Since that prediction is not quantitative, historical measurements are reviewed here to identify any apparent trends that might arise. No baseline measurements are available for Wally Lake, but since monitoring was required to begin in 2013, no clear upward or downward trends are observed (Figure 44).

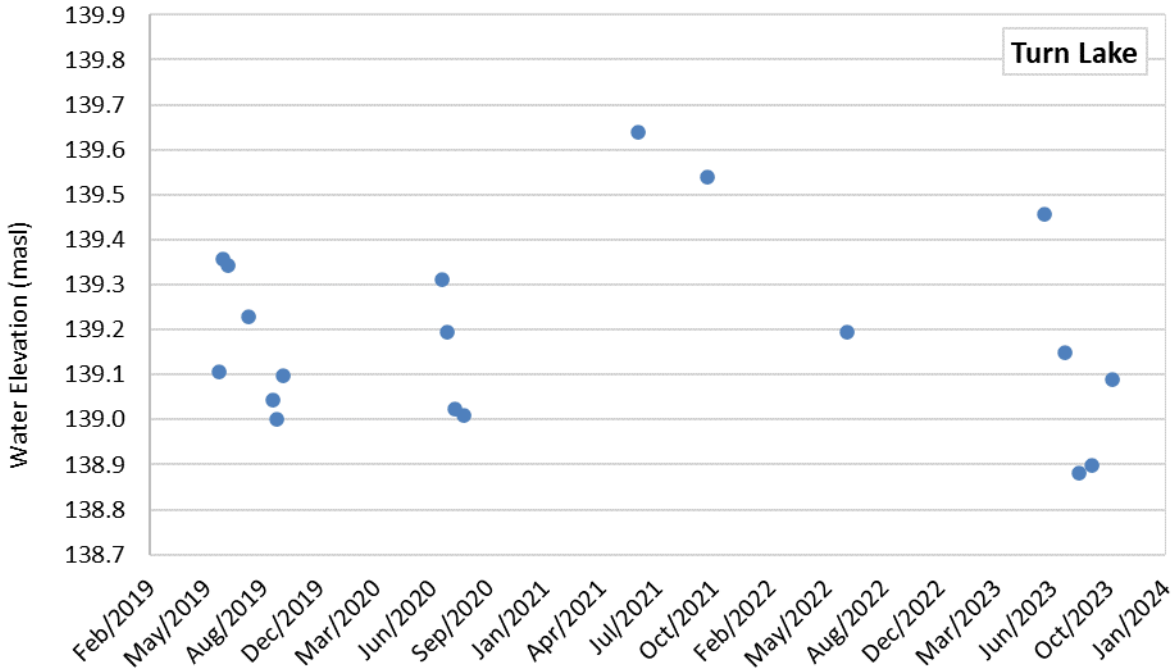
Figure 44 Measured water levels in Wally Lake (2013-2023).



Turn Lake

In the Meadowbank FEIS (Cumberland, 2005) water management plans called for discharge from Phaser Lake to Turn Lake during mining of the Vault Pit. No significant impacts on water levels in Turn Lake were anticipated, but monitoring of outflows was recommended. However, in 2015, an FEIS Addendum was submitted to NWB as part of the permitting process for the Vault Pit expansion into Phaser Lake. Under that mine and water management plan, discharge to Turn Lake was no longer required, eliminating the potential residual impact of that activity and requirements for monitoring in Turn Lake. However, in 2019, following recommendation from CIRNAC regarding the 2018 Annual Report, Turn Lake water level monitoring in the next open water season was completed, reported and compared to predictions. No baseline water levels were provided in the 2005 FEIS or 2015 FEIS Addendum for Turn Lake so 2019 was the first year for which measurements are available (Figure 45). Similar water levels have been observed since that time.

Figure 45 Measured water levels in Turn Lake (2019-2023).



12.4.1.1.3 Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management

Effectiveness of Monitoring

Although FEIS predictions for changes to surface water quantity were rarely quantitative, the monitoring programs being implemented at the Meadowbank Mine are able to measure changes in receiving environment water levels. Monitoring programs are therefore considered effective.

Effectiveness of Mitigation

A summary of the FEIS-planned mitigation measures for surface water quantity along with a commentary on implementation in 2023 is provided in Table 12-4. Mitigation measures related to water quality and fish and fish habitat are provided in Section 12.4.1.2 and 12.4.1.3, respectively.

Since no exceedances of FEIS predictions, baseline values, or updated license limits (where applicable) occurred, existing mitigation measures are considered to be effective as designed.

Table 12-4 Mitigation measures described in the FEIS to reduce impacts of the project to water quantity and commentary on current implementation.

Planned Mitigation Measure (FEIS, Section 4.24.2.5)	Implementation (2023)
Reducing the intake of fresh water from the neighbouring lakes by recycling and reusing water where practicable	**Yes** - Meadowbank continues to recycle reclaim water for mill usage.

Adaptive Management

Since existing mitigation measures are considered to be effective as designed, no adaptive management measures are proposed for 2023.

12.4.1.2 *Water Quality*

12.4.1.2.1 Parts 1 & 2: Summary of Predicted and Measured Residual Impacts

Aspects of the mine that were identified in the FEIS as potentially leading to significant impacts to water quality during operations (Cumberland, 2005; Table B5.2) are summarized Table 12-5, along with results of the monitoring programs aimed at assessing these impacts. This assessment focuses on comparing current measured effects with predicted impacts described in the Physical Environment Impact Assessment Report (2005) for receiving environment water quality. Associated monitoring programs are the CREMP and effluent monitoring under the MDMER.

The 2023 CREMP Report (Appendix 26) provides a comprehensive assessment of water quality monitoring for the receiving environment, with analysis of inter-annual trends, and a comparison to site-specific trigger values and FEIS predictions. Those results are summarized and referenced here. Complete results of effluent monitoring under the MDMER are provided in Section 8.3 above.

Overall, the FEIS predicted a “low” impact on the receiving environment water quality, which was designated by <1x change in CCME Water Quality Guidelines (CWQG), and no exceedances of MDMER/NWB Water License criteria. Monitoring results are compared to those predictions in Table 12-5 below. If exceedances occurred, cells are highlighted in grey and a discussion is provided in Section 12.4.1.2.2.

In addition, annual mean Meadowbank CREMP water chemistry results were compared to the maximum whole-lake average water quality modelling predictions for Third Portage, Second Portage, and Wally Lakes made in the FEIS (see 2023 CREMP report; Appendix 26). Any exceedances of these model predictions are noted in Table 12-5, and a full discussion is provided in Section 12.4.1.2.2.

Table 12-5 Predicted and measured impacts to water quality. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.4.1.2.2. Potential impacts as described in Cumberland, 2005; Table B5.2 and the Physical Environment Impact Assessment Report (2005) for receiving environment water quality. CWQG = Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Aquatic Life.

Potential Impact (*Cause*)	Proposed Monitoring	Actual Monitoring	Predicted Impact	Measured Impact					
				2018	2019	2020	2021	2022	2023
Impaired Wally Lake water quality (*Vault attenuation pond effluent discharge; dike leaching*)	Effluent and receiving environment monitoring	Receiving environment: CREMP water quality monitoring	CREMP results <CWQG except arsenic and cadmium.	CREMP results all <CWQG					
			Measured concentrations within model predictions	Some exceedances of specific model predictions but still "low" significance of impact - see discussion Section 12.4.1.2.2.1					
		Effluent monitored under MDMER, NWB Water License	Effluent: <MDMER	No effluent discharged to Wally Lake.					
Impaired Second Portage Lake water quality (*Portage Attenuation pond effluent discharge; dike leaching (East Dike seepage))*	Effluent and receiving environment monitoring	Receiving environment: CREMP water quality monitoring	CREMP results <CWQG except cadmium	CREMP results all <CWQG					
			Measured concentrations within model predictions	Some exceedances of specific model predictions but still "low" significance of impact - see discussion Section 12.4.1.2.2.1					
		Effluent monitored under MDMER, NWB Water License	<MDMER, NWB Water License	All effluent <MDMER and NWB Criteria			Two samples (17.5 and 16 mg/L) > max. monthly avg. for TSS (15 mg/L)	One sample (49 mg/L) > indiv. sample limit for TSS (30 mg/L)	All effluent <MDMER and NWB Criteria
				Three results above criteria since at least 2018 are not viewed as a significant departure from FEIS predictions – discussed in Section 12.4.1.2.2.2					
Impaired Third Portage Lake water quality (*Portage Attenuation pond effluent; dike leaching)*	Effluent and receiving environment monitoring	Receiving environment: CREMP water quality monitoring	CREMP results <CWQG except cadmium	CREMP results all <CWQG					
			CREMP measured concentrations within FEIS model predictions	Some exceedances of specific model predictions but still "low" significance of impact - see discussion Section 12.4.1.2.2.1					
		Effluent monitored under MDMER, NWB Water License	<MDMER, NWB Water License	No effluent discharge to Third Portage Lake.					

12.4.1.2.2 Parts 3 & 4: Discussion

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

12.4.1.2.2.1 FEIS Model Predictions for Water Quality

FEIS Prediction: Concentrations <CCME water quality guidelines; “low” magnitude of effects.

Discussion: As described in the 2018 - 2023 CREMP Reports, a number of measured parameters have exceeded quantitative FEIS water quality model predictions when these individual values are compared directly. However, the difference in spatial focus (i.e., the CREMP at the basin scale and the water quality model at the whole-lake scale) warrants caution interpreting any differences. To that end, results were also compared to the FEIS-predicted magnitude of impacts (“**Low**: concentrations are < 1x the CCME Water quality guideline (WQG)).

Beginning in 2020, annual measured mean concentrations have been screened against FEIS model predictions for maximum whole-lake average water quality concentrations, rather than comparisons for all individual monthly samples. As discussed in the CREMP report, silicon and strontium are excluded from this comparison because no baseline values were available. Where CREMP monitoring results have exceeded quantitative FEIS water quality model predictions but did not exceed CCME water quality guidelines, CREMP thresholds, or otherwise determined adverse effects levels (as detailed below), they were still considered to have a “low” magnitude of impact, consistent with general FEIS predictions.

Similar to previous years, parameters with annual means exceeding concentrations predicted in the FEIS water quality model in 2023 were: ionic compounds (calcium and magnesium), hardness, and total alkalinity. Concentrations for these parameters in 2023 along with FEIS predictions are shown in Table 4-6 of the 2023 CREMP Report (Appendix 26), and results are further discussed with historical figures, below.

The parameters that exceeded FEIS predictions in 2023 (calcium, magnesium, hardness, and total alkalinity) also regularly exceeded FEIS predictions from 2018 - 2022. Historical results for these constituents are shown in Figures 46 to 52 below, from the 2023 CREMP Report (Appendix 26). These water quality constituents do not have CCME guidelines and therefore the magnitude of significance was not explicitly predicted in the FEIS. A thorough review of the literature (2019 CREMP Report, Appendix J) suggests that the observed concentrations of these parameters are well below levels of concern for aquatic life. Therefore, following the intent of the FEIS magnitude ratings, these constituents would be considered consistent with a “low” magnitude of impact, because measured values regularly exceed baseline concentrations but are below concentrations associated with adverse effects.

Additional historical exceedances of FEIS predictions for the annual mean have included chloride, fluoride, and sulphate (2020 only). Historical results for these parameters are provided in Figures 50 to 52, and are not discussed further here since trends did not extend beyond a single year.

Based on these analyses, overall, CREMP water quality results were determined to be consistent with the “low” significance (i.e., <1x CCME WQG) rating applied to model predictions in the FEIS. Historical results for all other water quality parameters measured under the CREMP are provided in the 2023 CREMP Report (Appendix 26).

Figure 46 Total calcium (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26).

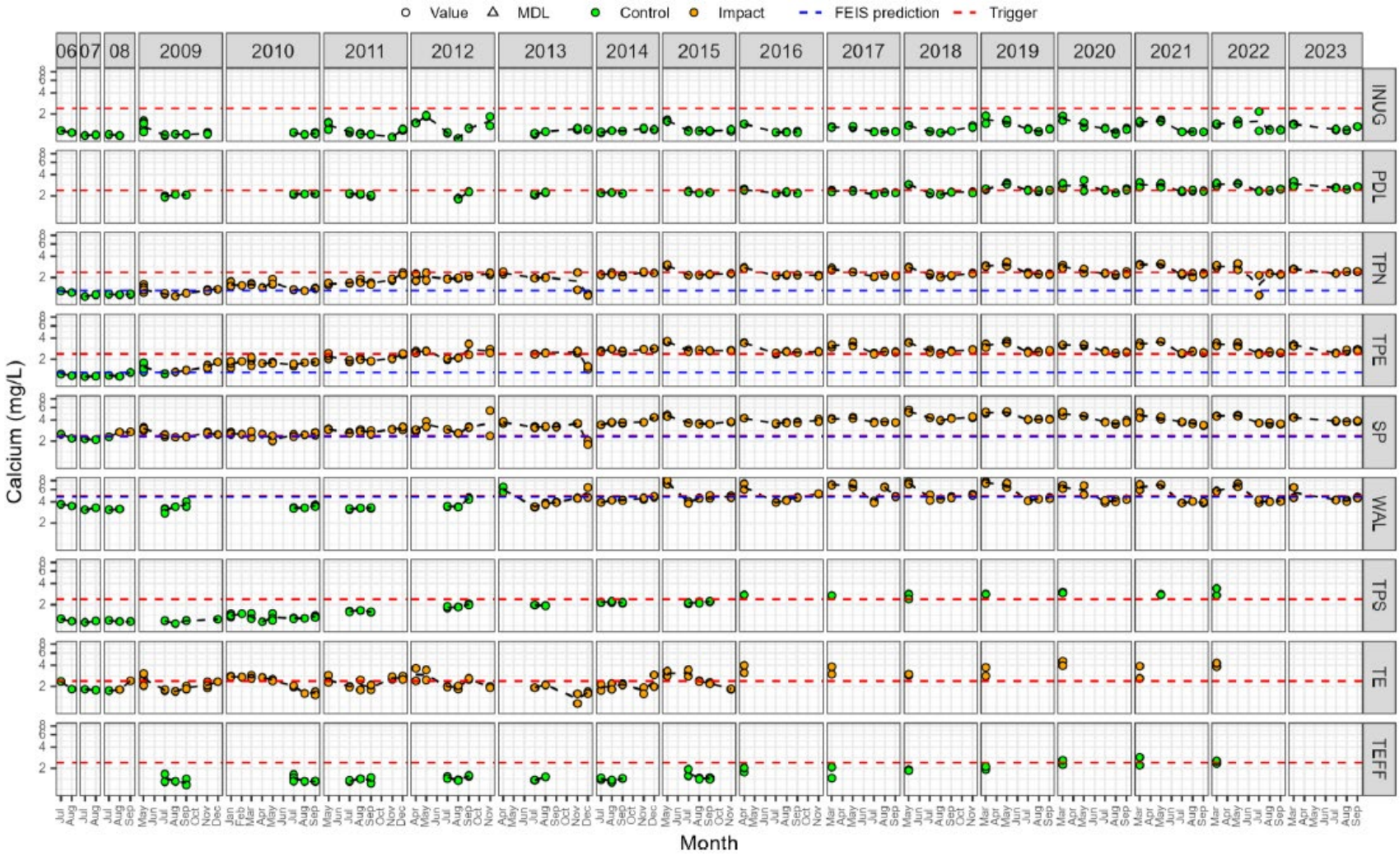


Figure 47 Total magnesium (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26).

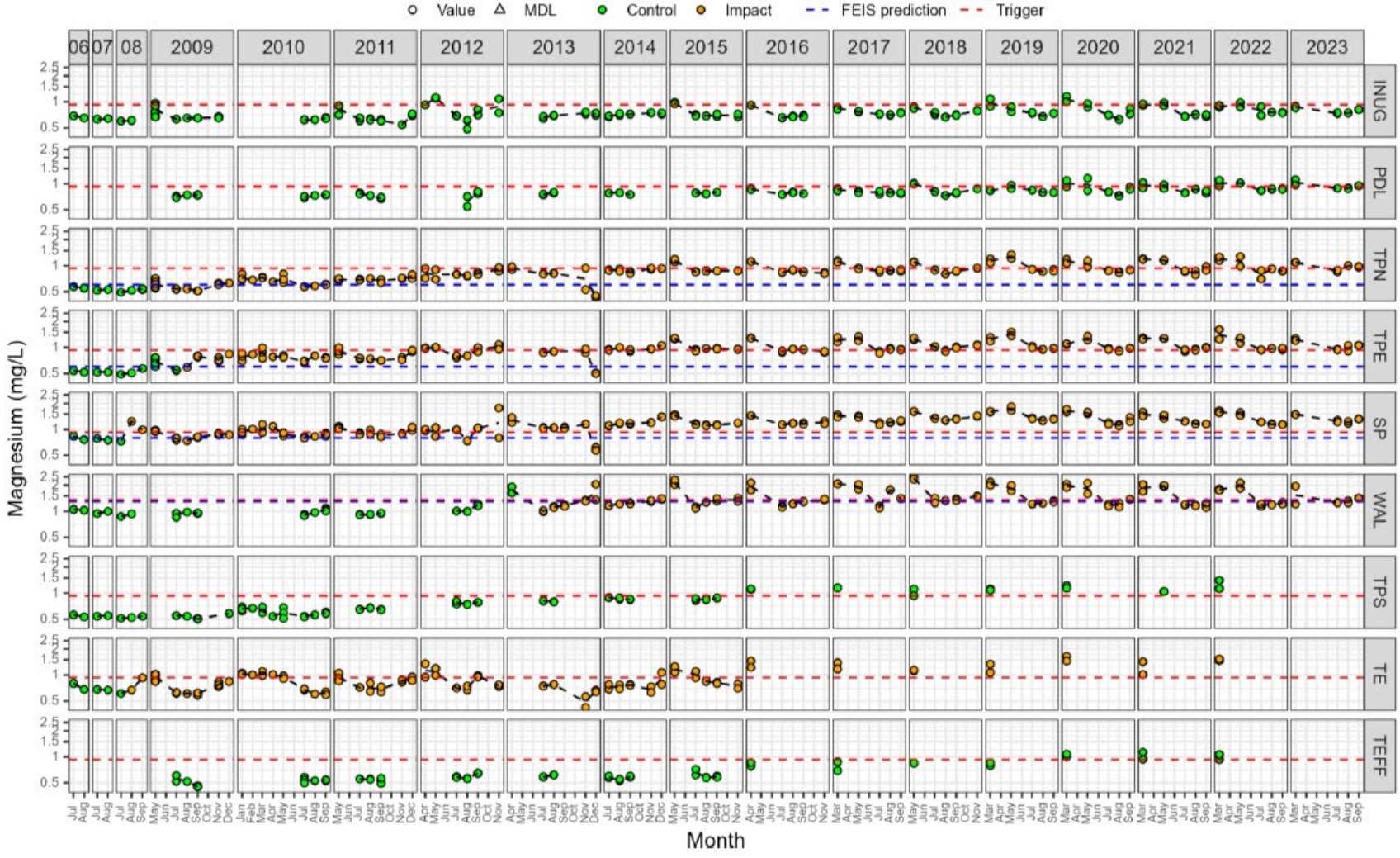


Figure 48 Laboratory-measured hardness (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26)

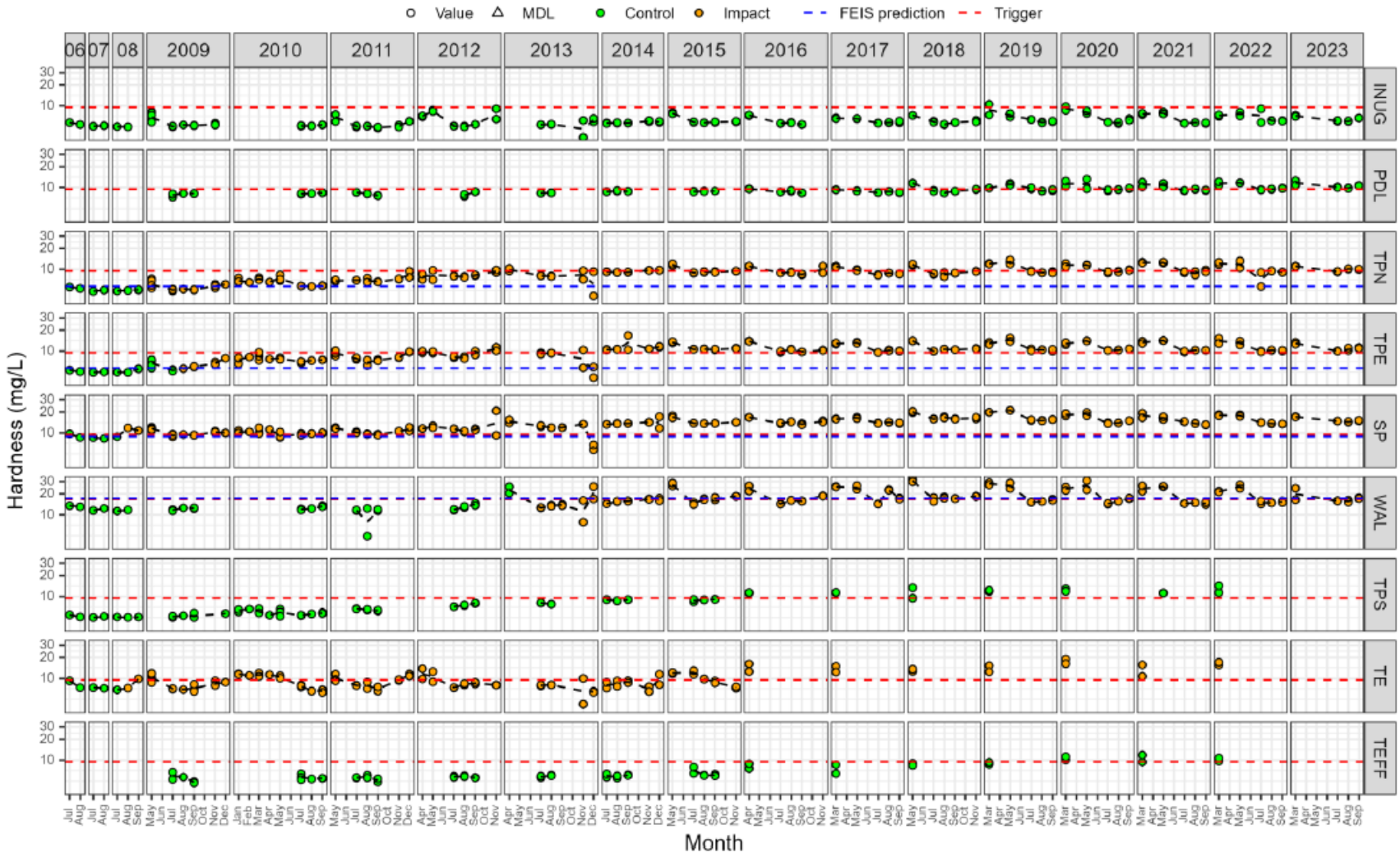


Figure 49 Total alkalinity (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26).

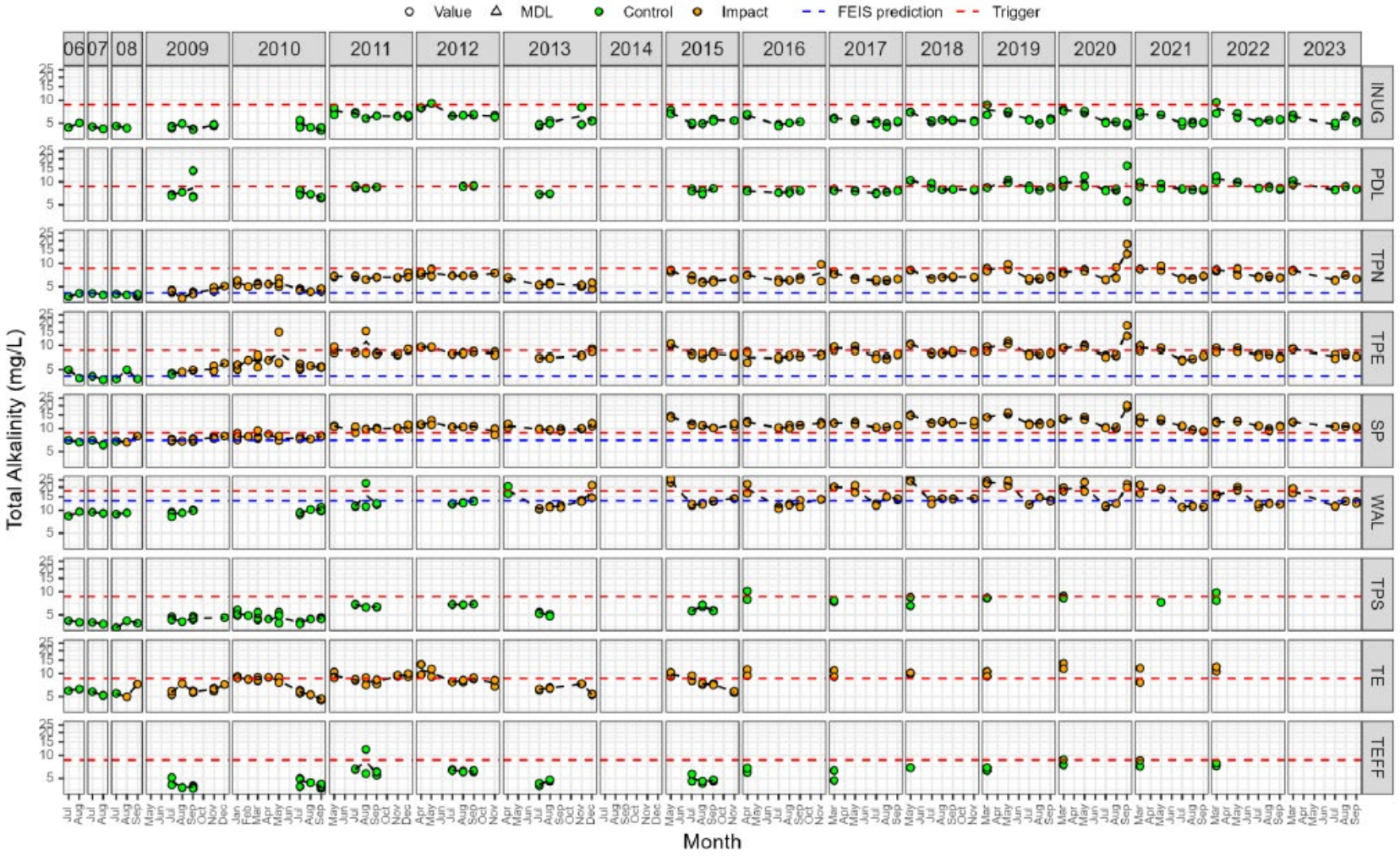


Figure 50 Chloride (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26).

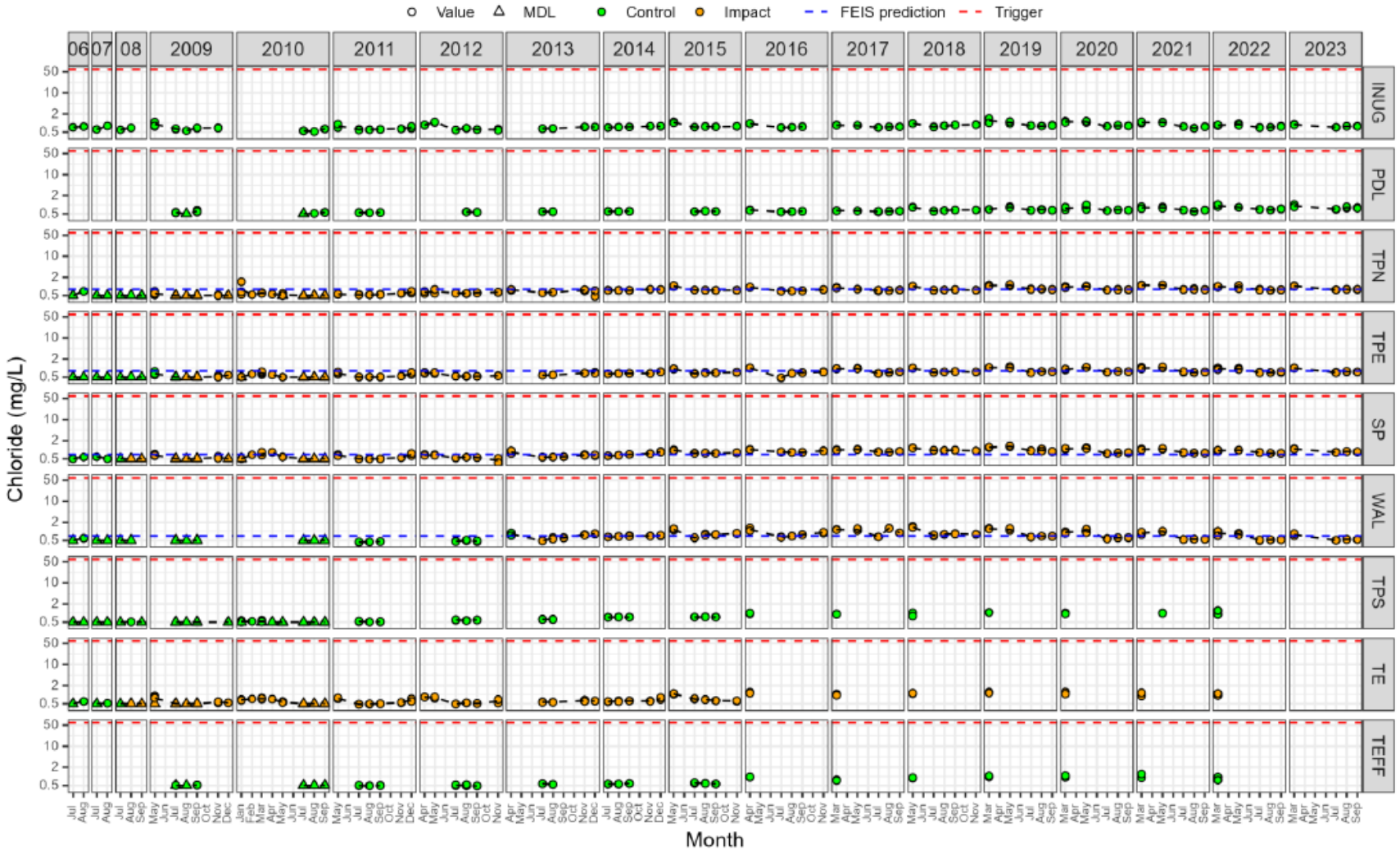


Figure 51 Fluoride (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26)

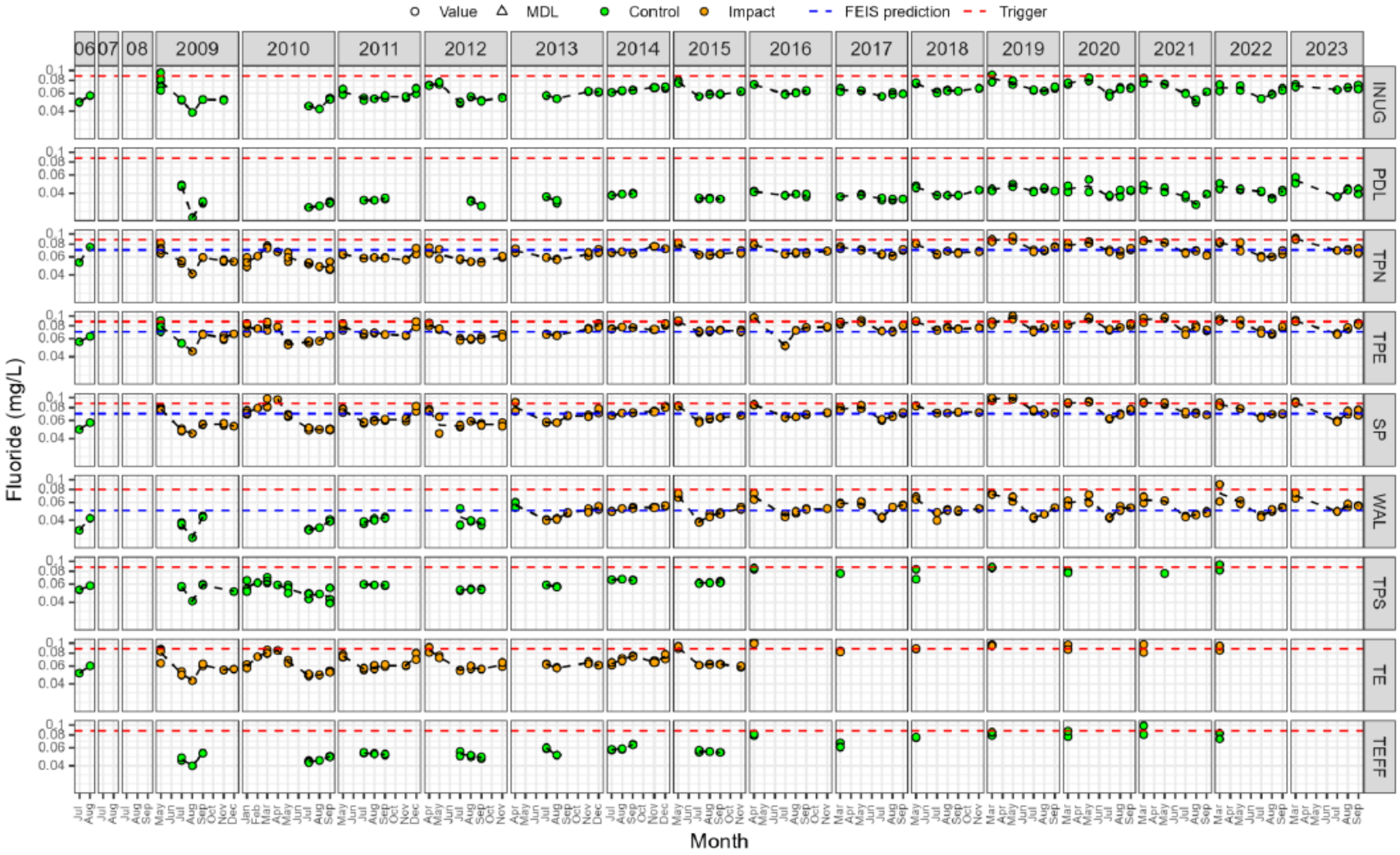
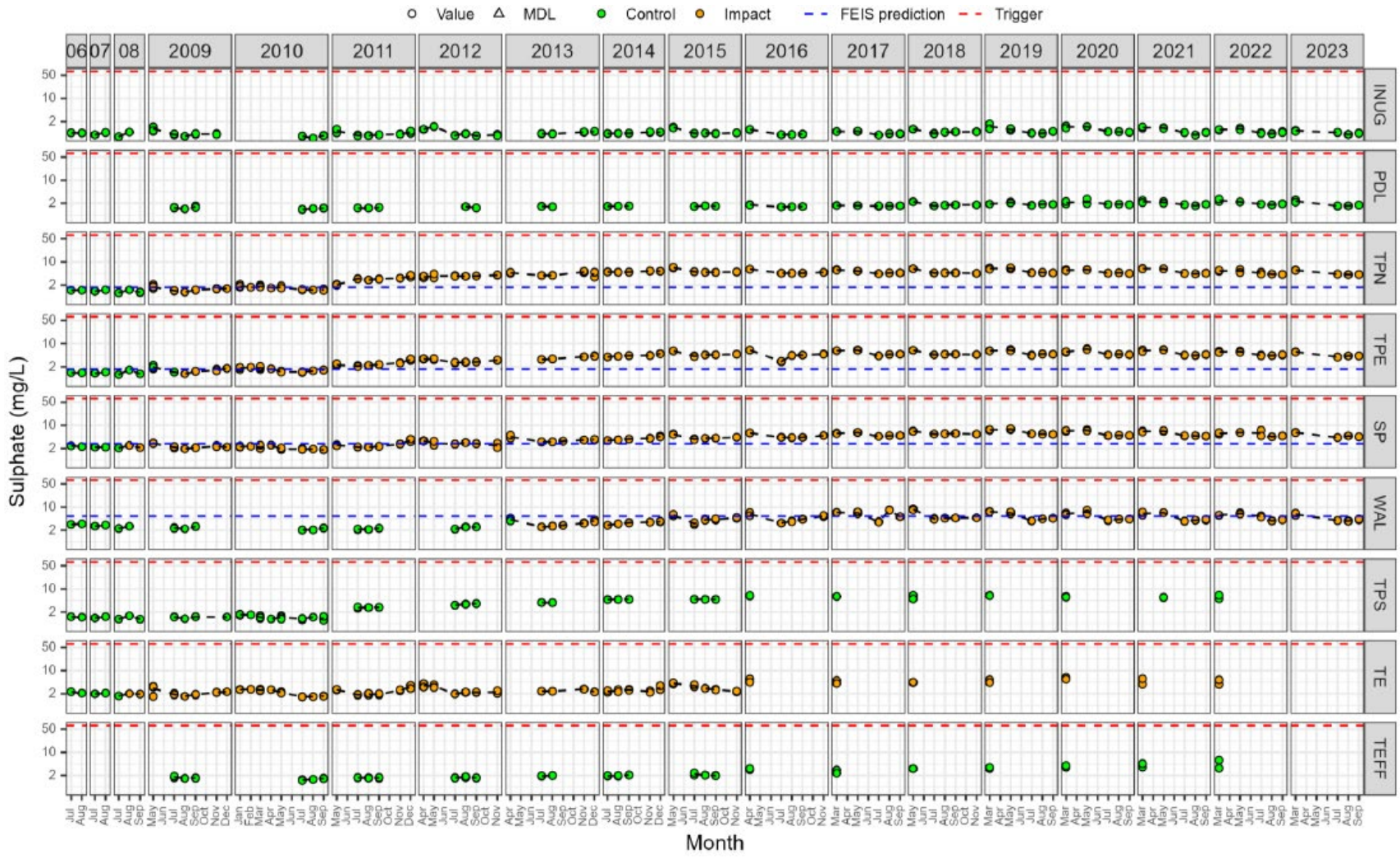


Figure 52 Sulphate (mg/L) in water samples from Meadowbank study lakes since 2006 (from 2023 CREMP Report, Appendix 26)



12.4.1.2.2.2 MDMER Criteria for TSS

Effluent discharge for the Meadowbank Mine in 2023 only consisted of East Dike seepage discharge as non-contact water (station ST-8/ST-MMER-3) to Second Portage Lake. Discharge occurred between January and April, 2023. All results were in compliance with NWB Water License and MDMER criteria.

Based on the infrequency of MDMER TSS exceedances (three samples since at least 2018), and since the receiving environment triggers for TSS have been met historically for this location in Second Portage Lake (2023 CREMP Report, Appendix 26), these results are not viewed as a significant departure from impact predictions.

12.4.1.2.3 Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management

Effectiveness of Monitoring

Based on the results in Table 12-5, current monitoring programs are able to address all FEIS impacts for which monitoring was recommended (i.e. monitoring is considered effective).

Effectiveness of Mitigation

A summary of the FEIS-planned mitigation measures for surface water quality, along with a commentary on implementation in 2023 is provided in Table 12-6. Mitigation measures related to water quantity, and fish and fish habitat are provided in Section 12.4.1.1 and 12.4.1.3, respectively, though some overlap may occur.

Table 12-6 Mitigation measures described in the FEIS to reduce impacts of the project to water quality, and commentary on current implementation.

Planned Mitigation Measure (FEIS, Section 4.24.2.5)	Implementation (2023)
Implementing measures to avoid the contact of clean runoff water with areas affected by the mine or mining activities	**Yes** - Management of non-contact water occurs through use of established diversion ditches, which are monitored according to NWB Water License requirements.
Collecting, transporting, and treating mine water, camp sewage, and runoff water that comes into contact with project activities, as necessary	**Yes** - A comprehensive management program for site contact water and sewage is ongoing as described in Section 8.5.3. Monitoring occurs according to NWB Water License requirements.
Managing potentially acid-generating or metal-leaching materials	**Yes** – Waste rock analysis and management according to acid-generating and metal-leaching potential is described in Section 5.1.
Monitoring quality of discharges	**Yes** – Minesite effluent is monitored according to NWB/MDMER criteria, as described in Section 8.3.
Adjusting management practices if monitoring results indicate discharge quality does not meet discharge criteria	**Yes** – In cases where discharge criteria are not met, discharge is ceased until results are within acceptable limits. E.g. Section 8.3.1.
Winter culvert installation	**N/A** – no new construction in 2023
Sediment control (e.g. use of geotextile for Baker Lake marine barge landing facility)	**Yes -** deployment of sediment control measures as needed
Use of riprap to stabilize shorelines around culverts and anchor pipes	**N/A** – no new construction in 2023
Treatment of effluent discharge	**Yes** – Minesite effluent is monitored according to NWB/MDMER criteria, as described in Section 8.3. No treatment required for TSS prior to release for East Dike discharge
Discharge only during open water, not under ice (Attenuation Pond discharge to Third Portage Lake)	**N/A** - Attenuation pond discharge is no longer occurring

Adaptive Management

Although some CREMP water quality results (for parameters without CCME guidelines) have exceeded quantitative FEIS predictions, a review of the literature (2019 CREMP Report, Appendix J) suggests that the observed concentrations of these parameters are well below levels of concern for aquatic life, so results were determined to be consistent with the FEIS-predicted “low” significance rating. As a result, no changes to current mitigation measures for water quality are planned at this time.

12.4.1.3 *Fish and Fish Habitat*

12.4.1.3.1 Parts 1 & 2: Summary of Predicted and Measured Residual Impacts

In addition to water quality and quantity, monitoring programs were developed to address the impacts of mining activities to fish and fish habitat. These are primarily guided by Fish Habitat Offsetting Plans and No Net Loss Plans (NNLP) and associated aquatics monitoring (e.g. CREMP, Habitat Compensation Monitoring Plan, Blast Monitoring Plan). Results of these programs are summarized in relation to FEIS predictions for impacts to fish and fish habitat (Cumberland, 2005; Table B13.2) in Table 12-7, below.

Note: Two pathways that are no longer relevant have been removed in Table 12-7 in 2023. 1 - Impacts of nutrients in treated sewage release is no longer evaluated, since sewage has always been directed to the tailings storage facility, and not to the receiving aquatic environment. 2 – Potential impairment of fish passage at AWAR stream crossings was evaluated from 2008 – 2011. Migrations were not impeded, and the program was concluded at that time in consultation with DFO.

Table 12-7 Predicted and measured impacts to fish and fish habitat. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.4.1.3.2. Potential impacts according to Cumberland, 2005; Table B13.2. CWQG = Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Aquatic Life. NM indicates not required to be measured.

<table>
<tr><th rowspan="2">Potential Impact</th><th rowspan="2">Potential Cause(s)</th><th rowspan="2">Proposed Monitoring</th><th rowspan="2">Monitoring Conducted</th><th rowspan="2">Predicted Impact in FEIS</th><th colspan="6">Measured Impacts</th></tr>
<tr><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th></tr>
<tr><td rowspan="2">Loss/ impairment of fish habitat</td><td>Construction of temporary and permanent in-water features (e.g. TSF, dikes, pits).</td><td>Monitoring of compensation features per NNLP inc. dike “pore water” (interstitial water) quality, periphyton growth, fish use).</td><td>Structure, interstitial water quality, periphyton growth, fish use under HCMP</td><td>Dikes will provide a medium for lower trophic growth; habitat for non-spawning life functions except Goose Island dike where spawning may occur.</td><td>NM</td><td>Compensation features appear to be functioning as intended (continuing periphyton growth, fish presence around dikes). Interstitial water quality not assessed in 2019.</td><td>NM</td><td>Compensation features appear to be functioning as intended (water quality <CWQG; continuing periphyton growth; fish presence around dikes).</td><td colspan="2">NM</td></tr>
<tr><td>Construction of barge facility in Baker Lake</td><td>Annual monitoring of shoreline stability and integrity (proposed 2016)</td><td>CREMP monitoring at Baker Lake barge dock</td><td>Negligible impact</td><td colspan="6">No impacts of barge activity on water quality, sediment quality, phytoplankton, benthic invertebrates observed to date.</td></tr>
<tr><td rowspan="3">Reduced fish egg survival</td><td>Metals and particulates from dike leachate</td><td>Targeted studies under AEMP (“pore water” (interstitial water) sampling during year 1</td><td>Interstitial water quality under HCMP</td><td>Dissolved metals may reduce fish egg survival and larval development during overwinter incubation.</td><td colspan="3">NM</td><td>Dike leachate (interstitial water quality) <CWQG</td><td colspan="2">NM</td></tr>
<tr><td>Metals and particulates from effluent</td><td>MDMER monitoring</td><td>MDMER monitoring</td><td><MDMER regulations</td><td colspan="3">Effluent < MDMER</td><td>Effluent <MDMER except April & May (marginal exceedance for TSS)
See discussion, Section 12.4.1.2.2.2</td><td>Effluent < MDMER except single TSS grab sample</td><td>Effluent <MDMER</td></tr>
<tr><td>Metals and particulates from road dust</td><td>Whole-lake water quality under CREMP</td><td>Whole-lake water quality under CREMP</td><td>Negligible ecological effect, <CWQG except cadmium (TPL), and arsenic and cadmium (Wally Lake)</td><td colspan="6">CREMP results <CWQG</td></tr>
</table>

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted	Predicted Impact in FEIS	Measured Impacts					
					2018	2019	2020	2021	2022	2023
	Blasting	Blast monitoring	Blast monitoring	Most blasts < DFO overpressure guideline (50 kPa); all blasts < PPV guideline (13 mm/s)	All blasts < DFO overpressure guideline and PPV guideline		NM - mining operations ceased in 2019			
Mortality of fish and fish eggs	Blasting	Blast monitoring	Blast monitoring	Most blasts will not exceed DFO overpressure guideline (50 kPa); no exceedances of PPV guideline (13 mm/s)	All blasts < DFO overpressure guideline and PPV guideline		NM - mining operations ceased in 2019			
	Worker fishing in project area, despite no-fishing policy	Staff interviews	Workers are not allowed to bring up to site fishing equipment. Luggage inspection to ensure policy is followed	Not defined	No recreational fishing					
	Increased fishing in area due to AWAR	Creel survey	Creel survey resumed 2021	Not defined	NM		No increase in fishing pressure due to AWAR or WTHR			
	Accidental spills (e.g. fuel)	Event-based monitoring; spill emergency response plan	Spill Contingency Plan	Not defined	*Impacts not defined in FEIS so not suitable for PEAMP evaluation. See SECTION 7 for spills reporting.*					
Fish stress, behavioral changes, avoidance	Increased concentrations of dissolved metals and TSS from dust	Whole-lake water quality monitoring under CREMP	Whole-lake water quality under CREMP	Negligible ecological effect; <CWQG except cadmium (TPL), and arsenic and cadmium (Wally Lake)	CREMP results <CWQG; no mine-related exceedance of TSS trigger.					
	Increased concentrations of dissolved metals and TSS from effluent discharge	MDMER monitoring	MDMER monitoring	Effluent < MDMER criteria	Effluent < MDMER		Effluent <MDMER except April & May (marginal exceedance for TSS)	Effluent < MDMER except single TSS grab sample	Effluent < MDMER	

<table>
<tr><th rowspan="2">Potential Impact</th><th rowspan="2">Potential Cause(s)</th><th rowspan="2">Proposed Monitoring</th><th rowspan="2">Monitoring Conducted</th><th rowspan="2">Predicted Impact in FEIS</th><th colspan="6">Measured Impacts</th></tr>
<tr><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td colspan="3"></td><td colspan="2">See discussion, Section 12.4.1.2.2.2</td><td></td></tr>
<tr><td rowspan="4">Impaired lower trophic levels (incl. loss of phytoplankton, periphyton and benthos)</td><td>Leaching of metals (from dikes)</td><td>Targeted studies under AEMP (“pore water” sampling; periphyton sampling) during year 1</td><td>Interstitial water quality under HCMP</td><td>Dike faces will provide a medium for periphyton growth</td><td colspan="3">NM</td><td>Dike leachate (interstitial water quality) <CWQG</td><td colspan="2">NM</td></tr>
<tr><td rowspan="3">Sedimentation through dust/particulate dispersion (road dust, wind dispersal, terrain disturbance) and effluent discharge</td><td>Water quality monitoring through CREMP</td><td>CREMP (water quality, sediment, and lower trophic level monitoring)</td><td>Negligible ecological effect; CREMP results <CWQG except cadmium (TPL), and arsenic and cadmium (Wally Lake)</td><td colspan="6">CREMP results <CWQG and no mine-related impairment of phytoplankton, benthic invertebrate communities.
The CREMP sediment threshold for Cr has been exceeded in Third Portage Lake. See discussion, Section12.4.1.2.3.</td></tr>
<tr><td rowspan="2">Effluent MDMER monitoring</td><td rowspan="2">Effluent MDMER monitoring</td><td rowspan="2">Settling of TSS and altered sediment chemistry may impact benthos.</td><td colspan="3" rowspan="2">Effluent < MDMER</td><td>Effluent <MDMER except April & May (marginal exceedance for TSS)</td><td>Effluent < MDMER except single grab sample</td><td rowspan="2">Effluent < MDMER</td></tr>
<tr><td colspan="2">See discussion, Section 12.4.1.2.2.2</td></tr>
</table>

12.4.1.3.2 Parts 3 & 4: Discussion

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

12.4.1.3.2.1 Exceedance of CREMP sediment thresholds

FEIS Prediction: Sedimentation (and altered sediment chemistry) through dust/particulate dispersion (road dust, wind dispersal, terrain disturbance) and effluent discharge would result in negligible ecological effect on lower trophic levels.

Discussion: To date, Meadowbank Mine CREMP monitoring results have indicated no mine-related effects on lower trophic levels in the receiving environment.

Historically, however, CREMP results have indicated mine-related increases in chromium in sediment for one receiving environment location (TPE). As a result, targeted studies assessing the ecological significance (potential for impact to lower trophic levels) of chromium increases in TPE occurred in 2015, 2018, and 2019. At the conclusion of the 2019 studies, results were determined to clearly demonstrate that the increase in sediment chromium at TPE is not adversely affecting the benthos at TPE (i.e. there is negligible ecological effect on lower trophic levels, and FEIS predictions are not being exceeded). No further targeted studies are planned at this time other than annual monitoring of the benthos community as part of the routine CREMP, along with annual sediment grab samples and a sediment coring program every 3 years**.** A complete description of the targeted chromium investigation is provided in the 2019 CREMP Report.

For reference, historical results for chromium in sediment at TPE and benthic invertebrate abundance are shown in Figures 53 and 54, from the 2023 CREMP report. Sediment chemistry was analyzed in 2023, and the CREMP trigger value was exceeded, with a statistically significant difference from baseline/reference. However, the mean chromium concentration was lower than observed in 2017 and 2020. As described in the 2023 CREMP Report, chromium concentrations at this location are considered to have stabilized, and current conditions do not pose risks to benthos.

Analyses of benthic invertebrate communities (e.g. abundance, taxa richness) in 2023 indicated no statistically significant changes at Third Portage Lake locations relative to baseline/reference conditions.

Figure 53 . Total chromium (mg/kg) in sediment samples (grabs and cores) from Meadowbank project lakes since 2006 (from 2023 CREMP Report, Appendix 26). The red dashed line is the CREMP trigger value.

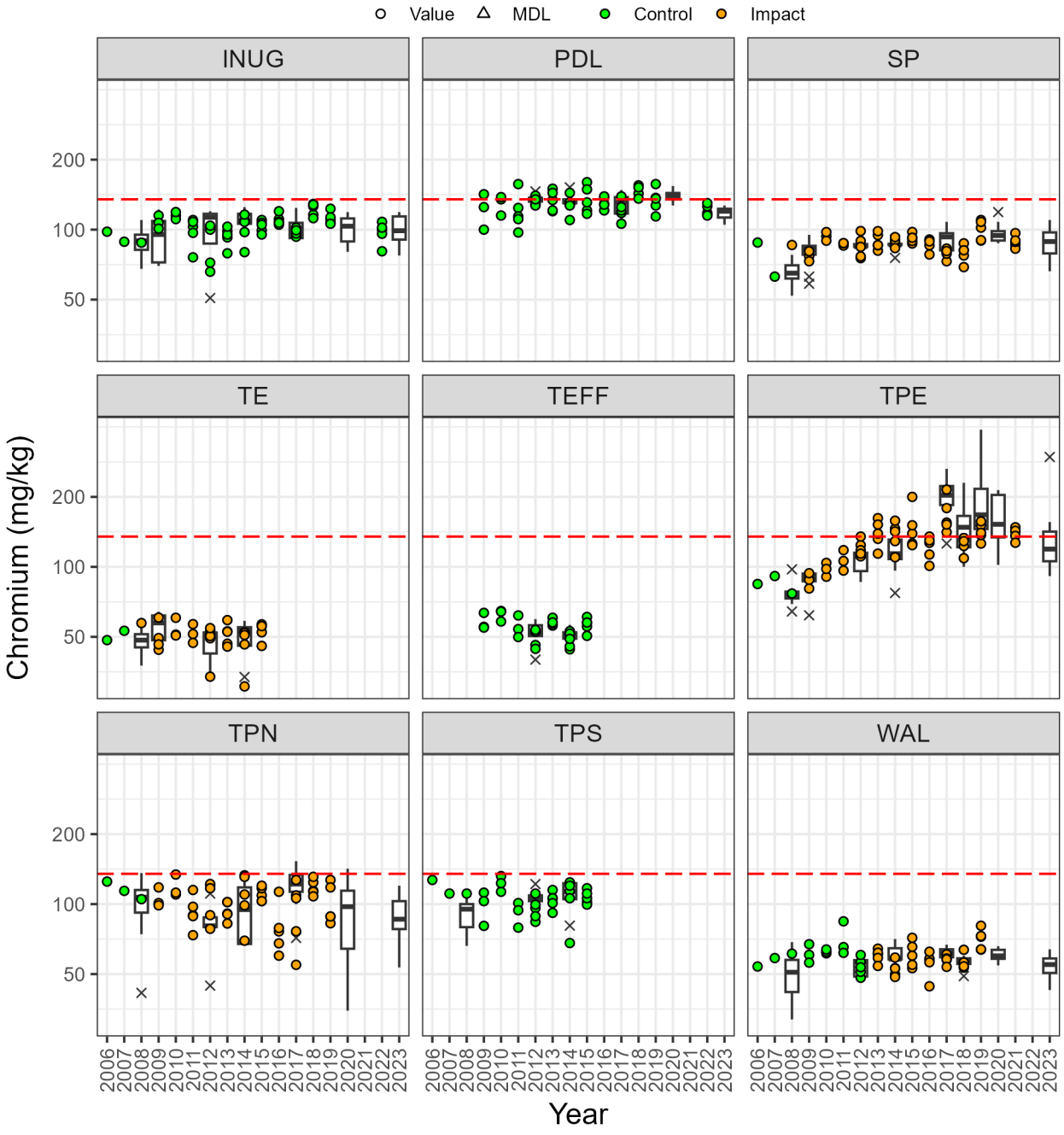
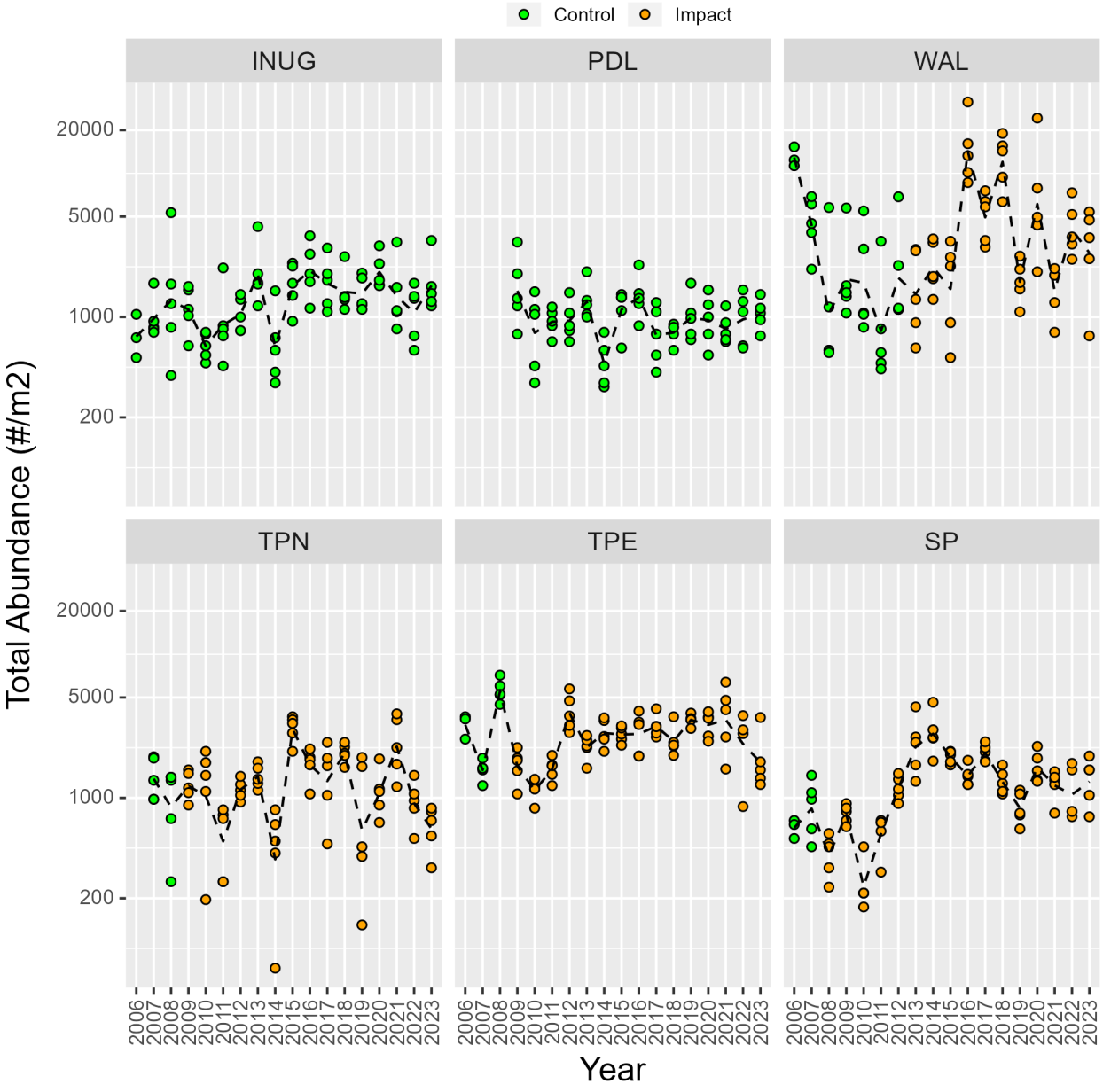


Figure 54 Benthic invertebrate total abundance (#/m2) from Meadowbank project lakes since 2006 (from 2023 CREMP Report, Appendix 26)



12.4.1.3.3 Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management

Effectiveness of Monitoring

In 2023, monitoring was able to address all potential causes of impacts identified in the FEIS (i.e. monitoring was considered effective), except worker fishing.

While the FEIS proposed staff interviews to assess any fishing being conducted despite a strict no-fishing policy onsite, in practice it has become evident that interviews are not required. To the best of knowledge, no cases of fishing by workers in contravention to the policy have ever been observed or reported. Despite the lack of formal monitoring, it is clear that this is not a significant source of potential impacts to area fish populations.

Effectiveness of Mitigation

A summary of the FEIS-planned mitigation measures related to fish and fish habitat, along with a commentary on implementation in 2023 is provided in Table 12-8. Mitigation measured specifically related to water quantity and water quality are provided in Sections 12.4.1.1.3 and 12.4.1.2.3, respectively, though some overlap may occur.

Table 12-8 Mitigation measures described in the FEIS to reduce impacts of the project to fish and fish habitat, and commentary on current implementation

Planned Mitigation Measure (FEIS, Section 4.24.2.5)	Implementation (2023)
Winter culvert installation	**N/A –** Not constructed in 2023
Sediment control (e.g. use of geotextile for Baker Lake marine barge landing facility)	**Yes –** Deployment of sediment control measures
Use of properly sized screens for freshwater intake	**N/A –** Not constructed in 2023
Use of riprap to stabilize shorelines around culverts and anchor pipes	**N/A –** Not constructed in 2023
Modification of the external surface of containment dikes	**Yes** - As described in the 2006 NNLP, dike faces below the water surface are constructed from low metal leaching iron formation rock. Dikes are capped with ultramafic rock above the water surface to minimize the potential for metals leaching.
Enhancement and improvement of connecting channels between lakes to enhance fish movement	No longer planned under updated DFO Fisheries Act Authorization NU-03-0191.3 (2013)
Treatment of effluent discharge	**Yes** – Mine site effluent is monitored according to NWB/MDMER criteria, as described in Section 8.3. No treatment required for TSS prior to release for East Dike discharge
Discharge only during open water, not under ice (Attenuation Pond discharge to Third Portage Lake)	**N/A** - Attenuation pond discharge is no longer occurring
Construction of fish habitat compensation features (according to DFO Fisheries Act Authorization NU-03-0191.3, 2013)	**Yes** – Construction of fish habitat compensation features as described in this document is ongoing. Monitoring is described in Section 8.8

Adaptive Management

Based on these results, no specific adaptive management actions are planned for 2023.

12.4.2 Vegetation, Terrestrial Wildlife, and Birds

12.4.2.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

The 2023 Wildlife Monitoring Summary Report (Appendix 39) provides a complete assessment of wildlife monitoring programs including a comparison to monitoring thresholds detailed in the Terrestrial Ecosystem Management Plan (TEMP Version 7; 2019) and FEIS impact predictions (Cumberland, 2005), where available. Results are summarized here in the PEAMP format.

For each terrestrial VC, a summary of predicted impacts and the accuracy of those predictions (observed impacts) as determined through various monitoring programs conducted under the TEMP is provided in Table 12-9. Thresholds for the implementation of adaptive management, as developed in the Terrestrial Ecosystem Management Plan (TEMP Version 7; 2019) were used in this comparison because most impact predictions in the Terrestrial Ecosystem Impact Assessment of the FEIS (Cumberland, 2005) were qualitative only. The 2019 TEMP thresholds were developed in consultation with the Terrestrial Advisory Group (TAG), and represent quantitative measurement endpoints that trigger management action.

Table 12-9 Predicted and measured impacts to terrestrial VECs, according to the Wildlife Monitoring Summary Report (Appendix 39). Measured impacts exceeding or potentially exceeding impact predictions/thresholds are shaded grey and further discussed in Section 12.4.2.2. NM = not required to be measured in the identified year. NA = no threshold or impact no longer assessed. *Potential impact and associated monitoring identified in the TEMP (2019), but not the original Meadowbank FEIS. ^Threshold for Meadowbank Complex (Meadowbank + Whale Tail Mines combined).

Potential Impact	Potential Cause(s)	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact					
					2018	2019	2020	2021	2022	2023
VEGETATION (WILDLIFE HABITAT)										
Habitat Loss	Mine site footprint, pits, roads, water management and collection systems	Pit and mine-site ground surveys, Mapping, GIS Analysis	Pit and mine-site ground surveys, Mapping, GIS Analysis	Predicted/Permitted Area + threshold over prediction: Mine Site – 867/1532 ha + 5% AWAR/Vault Haul Road – 348/455 ha + 5%	Mine Site - 1,129 ha AWAR – 173 ha	NM		Mine Site - 1130 ha AWAR – 180 ha	NM	NM
Habitat Degradation by Contamination	Dust from roads, TSF, airstrip	Vegetation and Soil Samples (SLRA)	Vegetation and Soil Samples (SLRA)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM	NM (2020 assessment postponed to 2021)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM
UNGULATES										
Sensory Disturbance	Avoidance due to noise and activity (roads, airstrip, mine site)	Pit and mine-site ground surveys, Satellite-collaring	Satellite-collaring data; Road surveys; Pit and mine-site ground surveys; Remote cameras	No threshold beginning in 2019 – Caribou Management Decision Tree in place	Potential exceedance of threshold (avoidance of habitat will not occur more than 500 m from site; 1000 m from AWAR). Last discussed in 2022 Annual Report Section 12.4.2.	NA (no threshold)				
Project-related Mortality	Mine-related activities (e.g., falling into pits, tailing, sludge or other means)	Pit and mine-site ground surveys	Pit and mine-site ground surveys	Two (2) Caribou or Muskoxen mortalities per year^	None	None	None	None	None	None

Potential Impact	Potential Cause(s)	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact					
					2018	2019	2020	2021	2022	2023
Vehicle Collisions	Vehicular collisions	Pit and mine-site ground surveys, Incidence reports	Pit and mine-site ground surveys, Incidence reports, road surveys	Two (2) Caribou or Muskoxen mortalities per year^	None	None	1 caribou mortality from assumed vehicle strike	None	None	1 muskox mortality
Habitat Loss and Degradation	Mine site footprint, pits, roads, water management and collection systems	Pit and mine-site ground surveys, Mapping, GIS Analysis	Pit and mine-site ground surveys, Mapping, GIS Analysis	High Suitability Habitat Predicted/Permitted Area + threshold over prediction: Growing – 240/531 ha + 10% Winter – 191/407 ha + 10%	Growing – 372 ha (70%) Winter – 280 ha (68.8%)	NM		Growing – 372 ha (70%) Winter – 280 ha (68.8%)	NM	NM
Hunting by Baker Lake Residents	Improved access to hunting along the AWAR	Hunter Harvest Study	Hunter Harvest Study	< 20% increase of historical harvest activities within the RSA; no significant impact to herds	NM	64% of harvest in RSA in 2019 compared to 67% baseline	Threshold not exceeded			
Exposure to Contaminated Water or Vegetation	Consumption of contaminated dust deposited on vegetation	Vegetation and Soil Samples (SLRA)	Vegetation and Soil Samples (SLRA)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM	NM (2020 assessment postponed to 2021)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM
PREDATORY MAMMALS										
Project-related Mortality	Mine-related mortality (falling into pits, TSF or other means)	Pit and mine-site ground surveys, Incidence reports	Pit and mine-site ground surveys, Road Surveys, Incidence reports	Destruction of two (2) problem Grizzly Bear, Wolverine, or Wolf per year^	One wolverine dispatched	One wolverine dispatched at Amaruq Camp	Two wolverine dispatched	One wolverine dispatched	One wolverine dispatched	Three wolverine and three wolves dispatched

Potential Impact	Potential Cause(s)	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact					
					2018	2019	2020	2021	2022	2023
	Vehicular collisions	Pit and mine-site ground surveys, Incidence reports	Road surveys; Security surveys	Two mortalities of Grizzly Bear, Wolverine, or Wolf per year due to vehicle collisions^	-	None	None	None	One wolverine	None
Sensory Disturbance to Denning Predators*	Blasting, vehicles, and ground personnel near active dens	Active den site surveys (WT FEIS)	Ground surveys, vehicle surveys, and Viewshed surveys. Active den sites identified during baseline studies will also be monitored.	1 den failure	NA	NA (not conducted in 2019 - no potential for impacts identified)	No dens observed or monitored			
SMALL MAMMALS										
Project-related Mortality	Vehicular or air traffic collisions, falling into pits, TSF or other means	Pit and mine-site ground surveys, Road Surveys, Incidence reports	Pit and mine-site ground surveys, Road Surveys, Incidence reports	No threshold beginning in 2019	Two artic hare mortalities along the AWAR	NA (no threshold)				
Habitat Loss and Degradation	Mine site footprint, pits, roads, water management and collection systems	Ground Surveys, Mapping, GIS Analysis	No monitoring as of 2018	No threshold beginning in 2018	NA (no threshold)					
Exposure to Contaminated Water or Vegetation	Consumption of contaminated dust deposited on	Vegetation and Soil Samples (SLRA)	Vegetation and Soil Samples (SLRA)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM	NM (2020 assessment postponed to 2021)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM

Potential Impact	Potential Cause(s)	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact					
					2018	2019	2020	2021	2022	2023
	vegetation									
RAPTORS										
Healthy Prey Populations	Mine Footprint, dust and exhaust, noise (road, airstrip, mine site, Baker Lake barge area)	Vegetation and Soil Samples; PRISM plot surveys; ELC habitat mapping	Vegetation and Soil Samples	Thresholds are qualitative, and can be achieved through management and maintenance of vegetation and healthy prey communities.	NA (no threshold)					
Disturbance of Nesting Raptors	Noise and Activity	Active Nest Monitoring	Pit and mine site ground surveys; Incidental wildlife reporting; Dedicated raptor nest surveys; Road surveys	One nest failure per year^	Threshold not exceeded			No confirmed mine-related nest failures		
					Note - limited data on nesting success. Further discussion provided in Section12.4.2.3.					
Project-related Mortality	Vehicle collisions	Road/Ground Surveys, Incidence reports	Road surveys, Incidence reports	One mortality per year^	Threshold not exceeded	None	None	None	None	None
WATERBIRDS										
Disturbance of Nesting Waterfowl	Noise and Activity; dewatering	Waterfowl Nest Surveys	Waterbird Nest Surveys (ended 2019); Pit and mine site ground surveys	One nest failure per year^	Threshold not exceeded	Waterbird Nest Survey program ended 2019. Replaced for the Whale Tail site with Migratory Bird Protection Plan (Section 12.5.2) Threshold for nest failure not exceeded in pit and mine site ground surveys.		Threshold not exceeded		

Potential Impact	Potential Cause(s)	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact					
					2018	2019	2020	2021	2022	2023
Habitat Loss and Degradation	Mine site footprint, pits, roads, water management and collection systems	Ground Surveys, Mapping, GIS Analysis	Ground Surveys, Mapping, GIS Analysis	High Suitability Habitat Predicted/Permitted Area + threshold over prediction: Mine Site – 518/417 ha + 10%	NM	NM		Mine Site - 274 ha	NM	NM
Exposure to Contaminated Water or Vegetation	Mine site dust; Secondary containment structures and tailings storage facilities	Vegetation and Soil Samples (SLRA)	Vegetation and Soil Samples (SLRA)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM	NM (2020 assessment postponed to 2021)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM
Project-related Mortality	Vehicle collisions	Road Surveys, Incidence reports	Road Surveys, Incidence reports	One mortality per year due to vehicle collision^	Threshold not exceeded	None	None	None	None	None
Project-related Mortality	Mine site-related mortality	Pit and mine-site ground surveys	Pit and mine-site ground surveys	One mortality per year due to mine activity other than vehicle collisions^	Two Long-tailed ducks found dead onsite. Last discussed in 2022 Annual Report Section 12.4.2.	None	None	None	None	None
OTHER BREEDING BIRDS										
Project-related Mortality	Vehicle/ bird collisions	Pit and mine-site ground surveys, Incidence reports	Pit and mine-site ground surveys, Road Surveys, Incidence reports	No threshold beginning in 2019	Threshold not exceeded (50 mortalities)	NA (no threshold)				
Habitat Loss and Degradation	Mine site footprint, pits, roads, water management and collection systems	Pit and mine-site ground surveys, Mapping, GIS Analysis	Pit and mine-site ground surveys, Mapping, GIS Analysis	High Suitability Habitat Predicted/Permitted Area + threshold over prediction: Mine Site –	-	NM		594 ha	NM	NM

Potential Impact	Potential Cause(s)	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact					
					2018	2019	2020	2021	2022	2023
				322/736 ha + 10%						
Exposure to Contaminated Water or Vegetation	Mine site dust	Vegetation and Soil Samples (SLRA)	Vegetation and Soil Samples (SLRA)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM (next assessed in 2020)	NM (2020 assessment postponed to 2021)	No excess mine-related risk (or measured concentrations >screening values)	NM	NM
Changes in Breeding Bird Populations	Mine Footprint, dewatering dust and exhaust, noise (road, airstrip, mine site, Baker Lake barge area)	Breeding Bird Prism Plots and Transects	Suspended in 2015. Resumed in 2022.	2022+: None	NA	Analytical report to be completed for CWS in 2020 to determine ongoing monitoring requirements.	Analytical report provided to CWS in 2020. Response pending.	NA – Agnico Eagle /ECCC agreement for PRISM and BBS to begin in 2022. There will be no threshold.	Surveys started but not completed due to medical issue.	Surveys completed as designed with ECCC

12.4.2.2 *Parts 3 & 4: Discussion*

Where impacts are exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here. In 2023, only the threshold for predatory mammal mortalities were exceeded for the Meadowbank Mine, as discussed below. Discussions from two threshold exceedances occurring in 2018 were retained through 2022 but are removed here since these thresholds have not been exceeded in the past five years.

1. Project-related Mortality of Predatory Mammals (2023)

TEMP Threshold (2023): Destruction of two (2) problem Grizzly Bear, Wolverine, or Wolf per year (Meadowbank Mine and Whale Tail Mine combined).

Discussion: In 2023, six incidents of project-related mortality for predatory mammals occurred at the Meadowbank Mine, including three wolves and three wolverines. These mortalities occurred when animals were required to be dispatched following unsuccessful deterrence actions. In all cases, destruction permits were first issued by a GN Wildlife Officer. In response to this threshold exceedance, reminder notices were sent to all mine crews regarding wildlife procedures, focused on wildlife attractants, rights-of-way, and incident reporting requirements. At the Whale Tail Mine, there were no project related mortalities.

12.4.2.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

As indicated in Table 12-9, some monitoring requirements have been eliminated in the TEMP since the FEIS was developed, in consultation with regulators (e.g. habitat loss for small mammals, waterbird surveys outside of the Whale Tail flood zone).

Based on the results in Table 12-9, current TEMP monitoring programs are able to address most other FEIS impacts for which monitoring was recommended (i.e. monitoring is considered effective), with the exception of individual raptor nesting success. Monitoring programs are in place to assess impacts to raptors, but the structure of the monitoring and mitigation program and small number of nests observed in recent years do not allow analysts to confirm specifically whether potential nest failures are mine-related. Although compliance with the existing raptor TEMP threshold has been difficult to assess, management and mitigation approaches are enacted to protect nesting raptors according to the 'Peregrine Falcon Management and Protection Plan on the Meadowbank Gold Project Site' (see Appendix E of the 2019 TEMP). Further, Agnico Eagle has engaged Arctic Raptors beginning in 2021[8] to conduct a more complete analysis of mine-related impacts on raptors, including statistical analysis of nest occupancy (population). Through this analysis in 2023, there is no evidence of mine-related disturbance for rough-legged hawk or gyrfalcon nest occupancy, and population sizes may be increasing slightly. The peregrine falcon population has remains mostly in line with previous years, however, inconsistent monitoring

[8] Arctic Raptors has been conducting surveys on the Meadowbank site since 2015, but generally only once per year, which does not allow statistical determination of nest success or occupancy. Surveys moving forward are planned for twice per year.

(without disturbing birds) and lack of statistical power introduces uncertainty in the estimates. Raptor population analyses will continue in 2024.

Effectiveness of Mitigation

FEIS-planned mitigation measures to limit impacts of the Project on terrestrial wildlife were originally described in the Terrestrial Ecosystem Management Plan (Version 1, October 2005), a component of the Project FEIS (Cumberland, 2005). This plan is regularly updated, and a mitigation audit is a component of the current plan.

The audit evaluates:

- What mitigation was implemented,
- Which mitigation is perceived or shown to be effective,
- Whether new mitigation has been implemented in response to new issues; and
- Whether some mitigation is redundant or unnecessary.

In 2023, all monitoring and mitigation were conducted according to the TEMP V7. In the context of the PEAMP evaluation, mitigation is considered effective if impact predictions (or in this case, TEMP thresholds) are not being exceeded. However, it's the first year since 2011 where the threshold for Project-related Mortality of Predatory Mammals is exceeded. Therefore, since no TEMP thresholds were exceeded for the Meadowbank Mine in 2023, mitigation is considered effective.

Adaptive Management

Following the exceedance of thresholds related to mortality of predatory mammals, reminders were sent to all departments regarding wildlife procedures, and related existing TEMP management measures are emphasized for implementation in 2024. Following the decommissioning of the incinerator, it was decided to reorganize the composter building (the composter and incinerator were housed in the same building). This reorganization should help alleviate some challenges encountered with wildlife in this sector. Furthermore, due to the increase in wildlife observation around the landfill, towards the end of summer, it was decided to relocate and compact the waste present within the landfill. The new landfill location minimizes exposed waste wall, reducing possible wildlife attractants.

In addition, several new management recommendations are planned to be implemented in 2024 to minimize impacts to wildlife or better reporting. As described in the 2023 Wildlife Monitoring Summary Report (Appendix 39), these consist of:

- Pit and Mine Site Ground Surveys
    - Review of methods with the TAG and helicopter contractor to discuss decisions made for take-off/landing and short versus long-range flights.
    - Improve comments for reasons for low flights, even if flying low for only a portion of the flight.

- Consider error for flight altitude measurements as well as error for Latitude and Longitude provided from aircraft monitoring.

- Consider higher resolution Digital Elevation Model (DEM) and potential error from DEM

- Caribou Satellite-Collaring Program

  - Further exploratory analyses to assess the efficacy of a lead caribou mitigation approach. Results will be presented to the TAG.

- Remote Camera Program

  - The future of the remote camera program should be discussed with the TAG. The remote camera program is unlikely to contribute to adaptive management but could provide insight into time between vehicle traffic and caribou crossing events. Deploying more cameras across the WTHR, and potentially the AWAR could increase the number of caribou crossing event detections. However, this would require significantly more effort to deploy and maintain cameras and to review camera photos.

- Breeding bird monitoring

  - It is recommended that PRISM plots and BBS routes be surveyed in June 2024. The remaining 27 PRISM plots should be completed prior to the mine closure and BBS routes surveyed within the committed 3-year cycle.

- Non-Native Plant Surveys

  - One occurrence of a non-native plant, common pea, was documented in 2023. These plants were hand pulled and removed at the time of survey. Surveys in 2024 should return to this location to monitor for new common pea plants.

- Snow study

  - A minimum of 29 survey locations should be surveyed in 2024 to collect the remaining data required for the snow study.

- Road and Viewshed Survey Comparison

  - Following discussion with the TAG in November 2022, more viewshed surveys should be performed, especially those completed on the same day as road surveys to allow a more rigorous comparison of the two survey methods.

  - Viewshed observations exceeding GST values only occurred in spring 2022. Continuation of viewshed surveys in summer and winter (i.e., outside of sensitive periods) could be discussed at future TAG meetings.

  - A spotting scope should be used rather than binoculars during viewshed surveys to increase detection distance.

12.4.3 Noise

12.4.3.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

While noise generation was predicted in the FEIS for many minesite components, a significant environmental effect of noise (disturbance of wildlife; reduced habitat effectiveness) requiring monitoring was determined in association with pit development, tailings handling, and the mill (Cumberland, 2005; Table B3.2). Monitoring sites were established around the site and along access roads, as described in the current Noise Monitoring and Abatement Plan (V4, December, 2018).

Table 12-10, below, compares FEIS predictions for sound levels produced by the Project (Cumberland, 2005 – Noise Impact Assessment) with the results of noise surveys (measured ambient sound levels) conducted since 2018 when this PEAMP evaluation process began.

It is noted that while noise modeling for FEIS purposes determines a single sound pressure level produced by a specified combination of Project-related activities at a given location under certain assumed atmospheric conditions, in reality, measured noise levels vary over time, depending on contributions from background sources, wind direction, ground cover, irregular or occasional activities, etc. While most Meadowbank FEIS noise predictions were not specifically time-averaged, they were assumed to be constant over the course of a day, and they are primarily compared here to the measured 24-h L_{eq}. This value represents the average sound pressure level produced by all sources during a 24 h period, under various climatic conditions including wind speeds and direction. While data is filtered in keeping with standard methods to minimize the range of weather conditions represented (see Noise Monitoring Report, Appendix 41), these differences in the derivation of model-predicted values and measured noise levels are noted, and this evaluation is considered a screening-level comparison for the purposes of noise management, and not a comprehensive validation of FEIS model predictions.

Since the potential impacts of Project-related noise were all identified as wildlife disturbance, the accuracy of noise-related predictions is also monitored through the terrestrial environment monitoring programs, as discussed in Section 12.4.2.

To date, measured ambient noise levels have only exceeded FEIS predictions as a result of infrequent events excluded from standard noise modeling (aircraft flyovers). However since this does occur from time to time, a discussion and historical trend analysis is provided in Section 12.4.3.2.

Table 12-10 Predicted and measured sound levels for the Meadowbank Mine. *Values estimated from sound level contour plots in Cumberland, 2005 – Noise Impact Assessment. **For the R5 location, FEIS predictions specify the maximum modelled 1-h Leq value. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.4.3.2.

Potential Impact	Proposed Monitoring	Monitoring Station	FEIS Predicted Value (dBA)*	Measured Value $L_{eq,\ 24\text{-}h}$ (dBA)					
				2018	2019	2020	2021	2022	2023
Moderate and high noise levels from blasting, drilling, TSF berm construction and material handling will disturb wildlife and result in reduced habitat effectiveness.	Monitor noise levels (and behavioural responses of wildlife)	R1	58-63	37.2	47.6	35.5	35.8	45.6	33.6
				43.4	-	37.2	36.7	-	42.3
				-	-	-	-	-	40.5
		R2	58-63	40.7	36.8	32.0	48.5	34.6	46.7
				37.5	34.1	-	44.2	-	49.6
		R3	49-53	38.8	38.9	34.0	36.1	-	42.0
				-	-	39.4	37.4	-	-
				-	-	-	-	-	41.4
		R4	58-63	57.3	-	34.3	-	34.0	33.4
				36.7	-	32.1	34.0	-	39.3
		R5	Max 1 h L_{eq} = 57**	All 1 h L_{eq} <57	All 1 h L_{eq} <57	All 1 h L_{eq} <57	-	All 1 h L_{eq} <57	All 1 h L_{eq} <57
				(1 of 22 $L_{eq\ 1\text{-}h}$ > 57 dBA)	(1 of 32 $L_{eq\ 1\text{-}h}$ > 57 dBA)	All $L_{eq\ 1\ h}$ <57	-	-	(2 of 44 $L_{eq\ 1\text{-}h}$ > 57)

12.4.3.2 *Parts 3 & 4: Discussion*

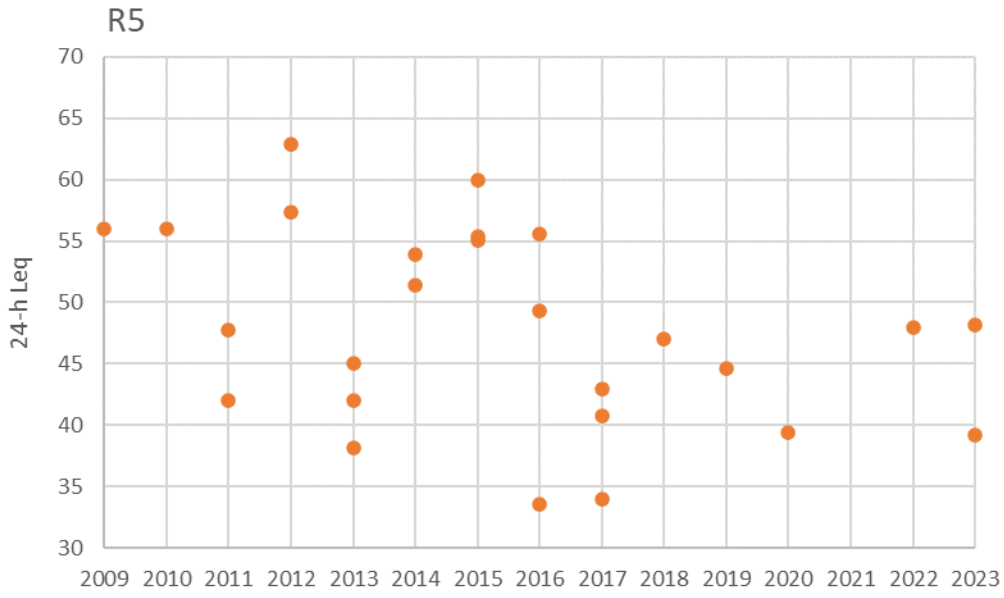
Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

12.4.3.2.1.1 Noise Levels at R5

***FEIS Prediction*:** For station R5, FEIS predictions specified that one-hour L_{eq} values would not exceed 57 dBA.

***Discussion*:** In 2018, 2019, and 2023 this prediction was exceeded for one or two hours within the datasets. In all cases, peaks above 57 dBA were short in duration (1 – 2 peaks per hour, lasting less than 3 min). In 2019 and 2023 sound recordings were reviewed and peaks were determined to be caused by helicopter or aircraft flyovers. These were not included in FEIS noise models (as is standard) because of their infrequent occurrence and short duration. Helicopters are also regularly used for exploration activities, so may not have been related to operations. These survey results are therefore not specifically considered to have exceeded impact predictions. Nevertheless, 24-h L_{eq} measurements since 2009 were reviewed to understand if any trends towards increasing noise levels above FEIS predictions are occurring for any monitoring location. Results for all stations are provided in the Noise Monitoring Report (Appendix 41) and results for R5 are shown in Figure 55. From this review, there is no clear trend towards increasing sound levels above FEIS predictions at any noise monitoring station.

Figure 55 Historical 24-h Leq values for monitoring station R5 at the Meadowbank Mine. No valid surveys were obtained in 2021 despite three attempts, primarily due to weather outside of acceptable conditions.



12.4.3.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

Based on the results in Table 12-10, current monitoring programs are able to address all FEIS impacts for which monitoring was recommended. Monitoring is therefore considered effective.

Effectiveness of Mitigation

FEIS-planned mitigation measures to limit impacts of the Project on area noise levels were originally described in the Air Quality and Noise Management Plan (October 2005). This plan was most recently updated in December 2018. A summary of the mitigation measures in place to ensure impacts to area noise levels are minimized is provided in Table 12-11, with a commentary on implementation in 2023.

Since no consistent exceedances of FEIS predictions has occurred, existing mitigation measures are considered to be effective.

Table 12-11 Mitigation measures described in the Noise Abatement and Monitoring Plan (December, 2018) to reduce impacts of the project on area noise levels, and implementation in 2023. NA = not applicable.

Noise Source	Planned Mitigation Measure (Noise Abatement and Monitoring Plan, December 2018)	Implementation (2023)
Whale Tail Haul Road Construction and Widening	Operate construction equipment within specification and capacity (i.e. don't overload machines)	**NA**
	Adequate equipment maintenance	**NA**
	Avoid operating numerous pneumatic tools at the same time, and spread operation throughout working periods	**NA**
	Avoid prolonged idling	**NA**
	If blasting is required, preference for daytime blasting	**NA**
Road traffic (mine site, AWAR) and Haul Roads operation	During maintenance, check that noise abatement devices are in good order (e.g., brakes, exhaust mufflers, engine hoods)	**Yes –**Maintenance logs
	Enforce speed limits	**Yes –** Ongoing
	Use shallow slopes for haul road	**Yes –** Ongoing
	Educate truck drivers about the characteristics of diesel engines (i.e., that the flat torque characteristic allows ascending an incline in a higher gear, which is a less noisy operation)	**Yes –**SOP and best practices
	Keep road surfaces in good repair to reduce tire noise	**Yes –**Road maintenance
	Avoid prolonged idling	**Yes –**No Idling Policy
	Avoid trucking operation during night time on access road, when possible	**Yes –** When possible
Air traffic (Meadowbank)	Avoid low altitude flights (not lower than 610 m in sensitive bird/wildlife areas), except on take-off and landing	**Yes –** Ongoing
	Restrict air traffic to daytime hours except for emergencies	**Yes –** Ongoing
Impact equipment (pile drivers, jack hammers, drills, pneumatic tools)	Avoid operating numerous pneumatic tools at the same time, and spread operation throughout working periods	**Yes –**Best practices
Stationary equipment (compressors, generators, pumps)	Keep equipment in good condition	**Yes –**Preventive maintenance
Blasting	Use delays, both surface and down hole	**Yes –**Blast monitoring program

Noise Source	Planned Mitigation Measure (Noise Abatement and Monitoring Plan, December 2018)	Implementation (2023)
	Preference for daytime blasting	**Yes –**Blast monitoring program
	Blasting in depressed pits (normal production practice)	**Yes –**Blast monitoring program
Outdoor material handling equipment (crushers, concrete mixers, cranes)	Place crushers in sheltered/enclosed locations if possible	Completed
	Maintain equipment in good working condition	**Yes –** Ongoing
	Turn equipment off when not in use if practicable	**Yes –** Ongoing
Earth moving equipment (trucks, loaders, dozers, scrapers)	Aim to restrict equipment age so only newer, more efficient machinery will operate onsite	**Yes –**Maintenance logs
	Operate equipment within specification and capacity (i.e., don't overload machines)	**Yes –**Maintenance logs
	Use noise abatement accessories such as sound hood and mufflers	**Yes –**Maintenance logs
Primary plant facilities (gyratory primary crusher, SAG mill, ball mill, power plant)	Provide building with walls absorbing noise	**Completed**
	Maintain equipment on a regular basis, replace worn parts, lubricate as required	**Yes –**Preventive maintenance
	Provide diesel plant units with efficient intakes and exhaust silencers	**Yes –**Preventive maintenance
	Use conveyor system with low noise output, paying particular attention to rollers	**Completed**
	Enclose conveyors where necessary	**Completed**
Utilities and services	Ensure that a rotating biological contactor treatment system operates quietly	**Completed**
	Dump solid waste behind barriers	**NA**

Adaptive Management

Since measured ambient noise levels have only exceeded FEIS predictions as a result of infrequent events excluded from standard noise modeling (aircraft flyovers) and there are no clear trends towards increasing noise levels around the Meadowbank Mine, no adaptive management actions are planned for 2024 based on this PEAMP analysis.

12.4.4 Air Quality

12.4.4.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

In order to estimate potential impacts of the Project on air quality, modeling exercises were conducted as a component of the original project FEIS to determine emission rates and dispersion of various criteria air contaminants from different sources (Air Quality Impact Assessment, Cumberland, 2005)[9]. This included modeling the emissions of three size fractions of suspended particulates ($PM_{2.5}$, PM_{10} and TSP) originating from the TSF, WRSF, and ore stockpile, for 24 h and annual averaging times. Deposition rates for dust from these sources were also calculated ($g/m^2/30d$). While maximum ground level concentrations were described in the FEIS document for all size fractions, contour plots were only provided for TSP and deposition rates (Air Quality Impact Assessment, Cumberland, 2005).

[9] As part of the FEIS for the Whale Tail Project (Agnico Eagle, 2016), qualitative assessments were performed to predict potential changes to modeled impacts that would occur from the extended use of the Meadowbank site infrastructure (mill and AWAR), but changes were not quantified.

In addition, modeling was conducted for criteria pollutants (CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$) emitted from the power plant and mobile sources for 1h, 24h and annual averaging times, and concentration contour plots were provided for these analyses.

The monitoring program for air quality recommended in the Meadowbank FEIS included only static dustfall, which is being continuously monitored at four locations around the minesite. In addition, Agnico Eagle conducts monitoring of TSP, PM_{10}, $PM_{2.5}$ and NO_2, in accordance with the current Air Quality and Dustfall Monitoring Plan. Carbon monoxide and sulphur dioxide are not required to be monitored as part of the program developed by Agnico Eagle in consultation with regulatory agencies.

Based on available FEIS modelling results, the following predicted values were able to be compared to measured values: NO_2 (annual average), $PM_{2.5}$, and PM_{10} (annual and 24-h average). Monitoring results for these parameters are considered adequately comparable to FEIS predictions, since modelling included all reasonably significant emission sources for these parameters. FEIS predictions for TSP and dust deposition (30 d rate) are not suitable for comparison to field measurements (i.e. monitoring results) since only emissions from three specific point sources were required to be modeled (TSF, WRSF, ore stockpile). For reference, all results for TSP and dustfall monitoring are provided in the 2023 Air Quality and Dustfall Monitoring Report (Appendix 42), along with comparisons to regulatory guidelines and historical measurements.

Even for those measured parameters which are compared here to FEIS predictions (NO_2, $PM_{2.5}$, PM_{10}), it should be noted that while field monitoring captures emissions from all mine-related sources, as well as background sources, the FEIS presents modeled outputs from combinations of specific sources as described above. Therefore, accuracy of these quantitative predictions cannot specifically be assessed through field monitoring. However, if measured concentrations or deposition rates are lower than predicted values, it can be concluded that FEIS predictions are not being exceeded. In some cases, as described below, measured or estimated background concentrations were able to be added to predicted values to improve the comparison. The following specific methods were used:

- Modeled values for suspended particulates ($PM_{2.5}$ and PM_{10}) were obtained for the two monitoring locations (DF-1 and DF-2) from the FEIS Air Quality Impact Assessment Figures 6.2 – 6.24. PM_{10} values were derived from Figures 6.7 and 6.8, based on references in the text (Table 6.1), although these figures are labelled as SP. Model values for a TSF size of 960x560m were used in the comparison.

- A recent impact assessment for the Whale Tail Pit project at Meadowbank calculated background values for $PM_{2.5}$ of 6.7 and 3.6 $\mu g/m^3$ for 24-h and annual averaging times, respectively (Whale Tail Pit FEIS, Appendix 4-A). No background data was available for other size classes of suspended particulates, but these $PM_{2.5}$ values were added to predicted concentrations of $PM_{2.5}$ and PM_{10} for the comparison, since $PM_{2.5}$ forms a subset of PM_{10}.

- It is noted that for NO_2, modeling results were only provided in the FEIS for the maximum predicted ground-level concentration, which occurred adjacent to the power plant. The closest NO_2 monitoring station (DF-2) is at a distance of approximately 1 km southwest (cross-wind) from this location.

Table 12-12 summarizes the predicted residual impacts to air quality and results of the FEIS-comparable monitoring conducted in 2018 - 2023.

Note: One potential impact has been removed in Table 12-12 in 2023. Generation of dust during placement of dike material is no longer evaluated, since dike construction has been complete since 2011. In addition, GHG emissions are assessed collectively for the Meadowbank and Whale Tail sites in Section 12.5.4.

Table 12-12 Predicted and measured impacts to air quality for the Meadowbank Mine. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.4.4.2. Predicted impacts according to the Air Quality Impact Assessment, Cumberland, 2005. *Addition of background values described above in Section 12.4.4.1.

Project Component	Potential Impact	Proposed Monitoring	Monitoring Conducted	Max. Predicted Value + Est. Partial Background*	Measured Value				
					2018	2019	2020	2021	2023
Dewatering	Generation of dust from exposed lake sediment	Static dustfall	Static dustfall, NO_2 and suspended particulates	NO_2 (ppb; annual avg.) = 4.97 $PM_{2.5}$ (µg/m^3; 24 h avg.): DF-1: 26.7 DF-2: 16.7 $PM_{2.5}$ (µg/m^3; annual avg.) DF-1: 4.6 DF-2: 4.1 PM_{10} (µg/m^3; 24 h avg.): DF-1: 26.7 DF-2: 46.7	Predictions rarely exceeded; See figures and discussion, Section 12.4.4.2.1				
Pits	Generation of dust and gases from blasting, excavation etc.	Static dustfall							
Waste Rock Facility and Tailings Storage Facility	Generation of dust from material deposited on waste rock pile or tailings	Static dustfall							
Onsite Roads and Traffic, Airstrip	Generation of dust and emissions from use of roads and airstrip	Static dustfall							
All Weather Access Road	Generation of dust and emissions from frequent activity by service vehicles accessing staging facility	Static dustfall	Static dustfall transects	< Vault Haul Road results	< Vault Haul Road results; See discussion, Section 12.4.4.2.2				

12.4.4.2 *Parts 3 & 4: Discussion*

If air quality impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

12.4.4.2.1 $PM_{2.5}$ and PM_{10}

To facilitate review, figures are provided below for all comparisons of measured concentrations of NO_2, PM2.5, and PM10 since 2018, when the current PEAMP evaluation began.

Historically, all measured annual average concentrations of NO2 have been less than the FEIS prediction (Figure 56).

Among results for suspended particulates (Figures 57 to 59), a number of samples exceeded FEIS predictions in 2022 at location DF-2. These were likely associated with a large structure fire that occurred adjacent to the DF-2 location in March 2022, and the subsequent re-construction activities, resulting in a significant new source of particulate matter in that vicinity. Since this was an isolated event and annual averages have not exceeded regulatory guidelines (see 2023 Air Quality and Dustfall Monitoring Report, Appendix 42) to date, results in 2022 are not expected to represent a trend towards increasing air quality concerns beyond FEIS predictions. As described in Section 12.4.4.1, FEIS predictions only include emissions from specific Project-related sources, so individual samples may be expected to exceed these values as a result of localized events (mine-related or otherwise), as occurred in 2023 (two of 185 samples for PM2.5 and PM10).

Figure 56 Arithmetic mean of the measured 1-month NO2 concentrations each year as measured by passive samplers at location DF-2, along with the FEIS maximum model prediction (Cumberland, 2005).

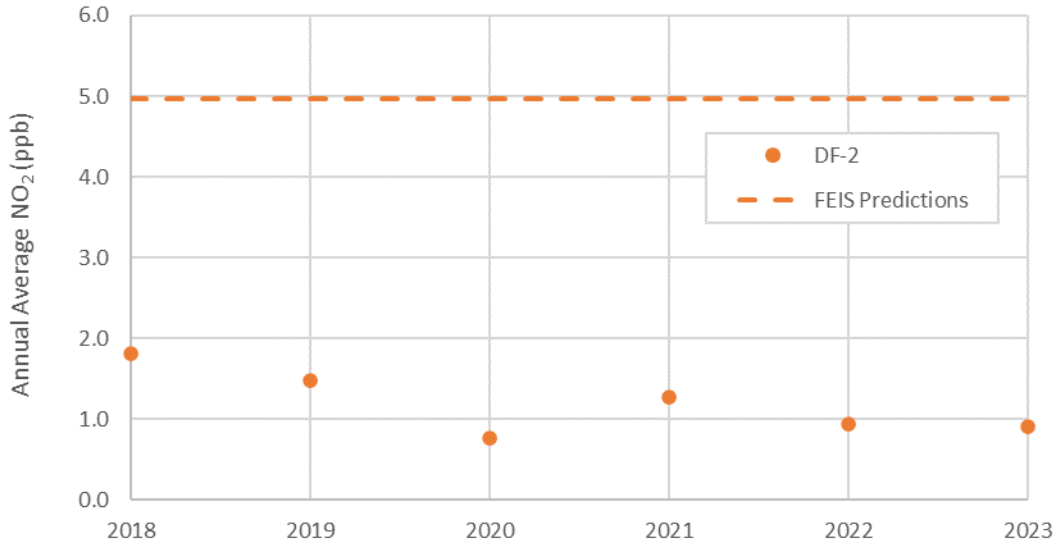


Figure 57 Arithmetic mean of the measured 24-h average concentrations of PM2.5 throughout each year, and FEIS-modeled maximum annual average concentrations of PM2.5 for monitoring stations DF-1 and DF-2 at the Meadowbank Complex (Cumberland, 2005).

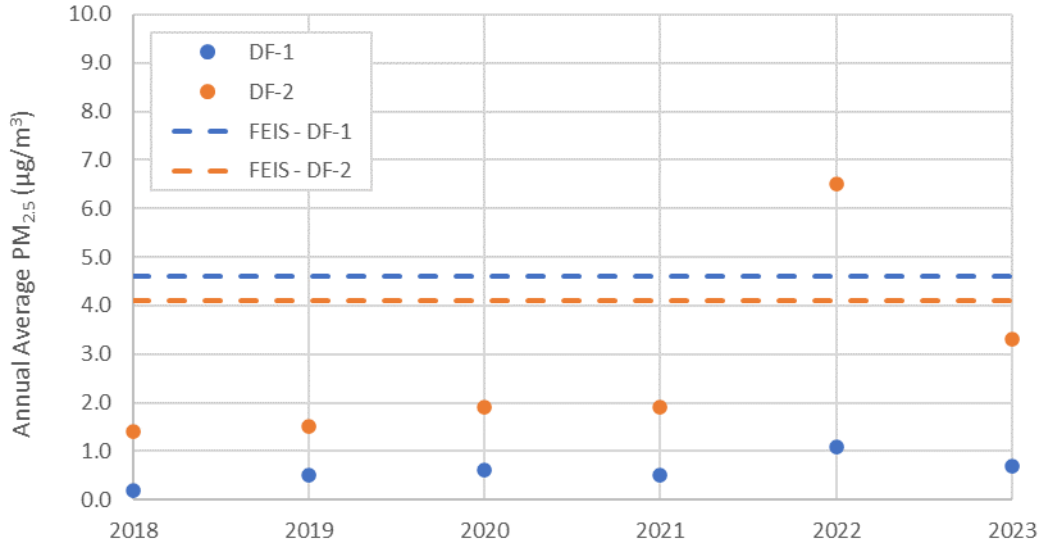


Figure 58 Measured 24-h average concentrations of PM2.5 at Meadowbank Mine monitoring stations DF-1 and DF-2, and the FEIS-modeled maximum expected concentrations for these locations, for specified Project-related sources (see description in text).

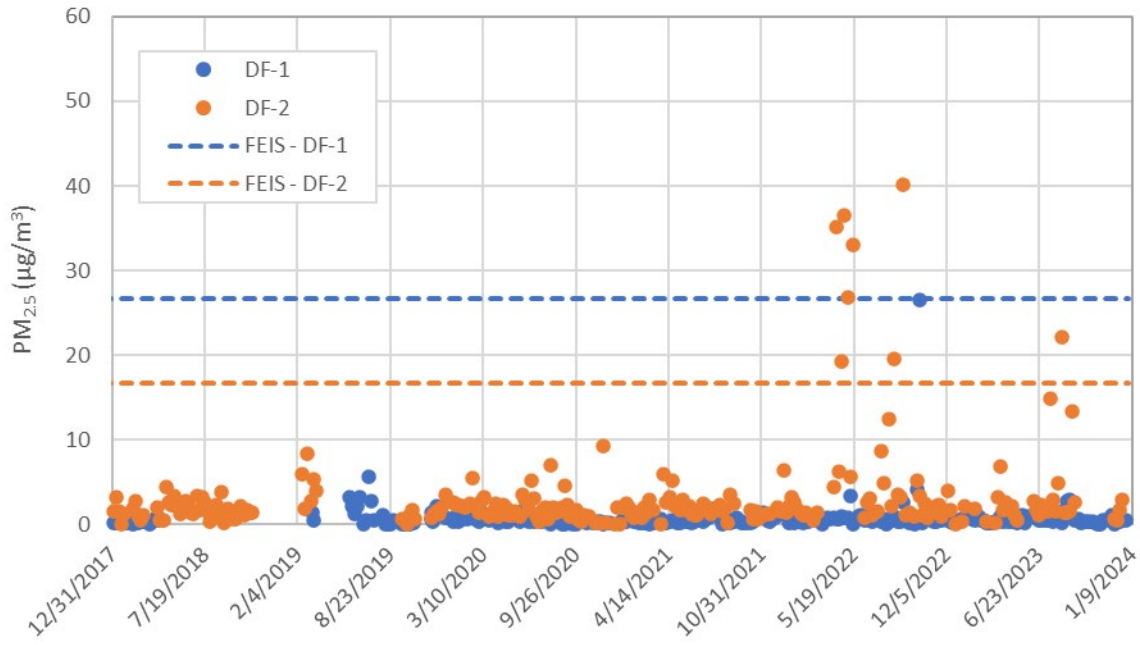
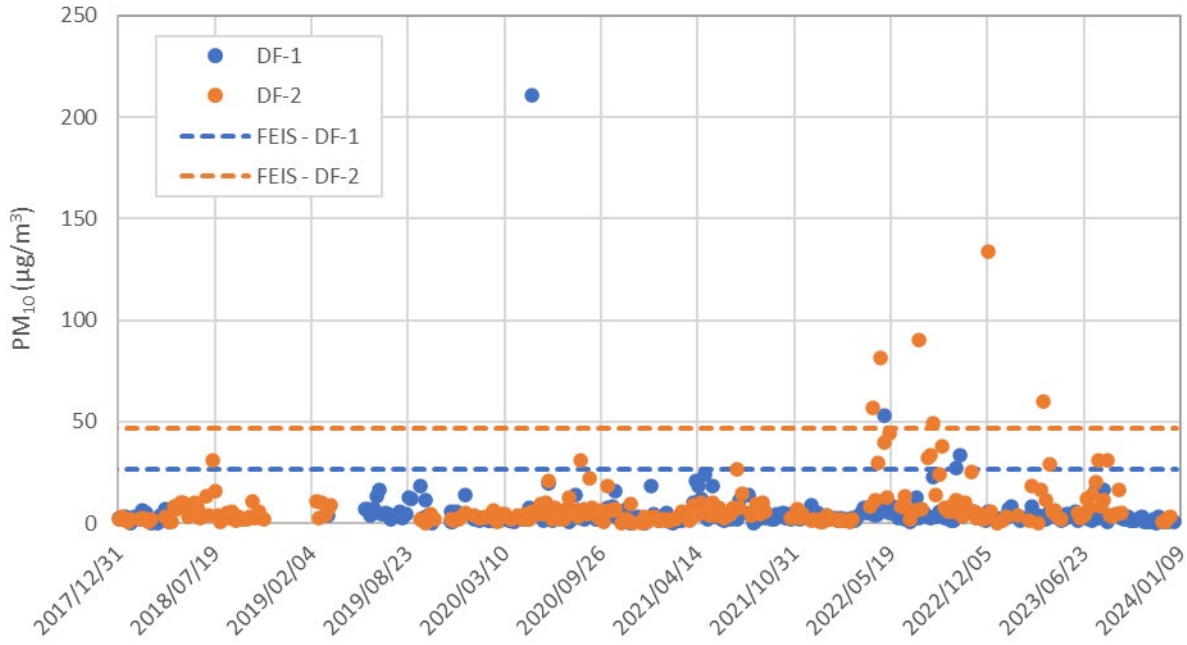


Figure 59 Measured 24-h average concentrations of PM10 at Meadowbank Mine monitoring stations DF-1 and DF-2, and the FEIS-modeled maximum expected concentrations for these locations for specified Project-related sources (see description in text).



12.4.4.2.2 AWAR Dustfall

In their *2018-2019 Annual Monitoring Report for the Meadowbank Gold Project and the Whale Tail Pit Project*, the NIRB requested a discussion of whether the predictions in the FEIS may have potentially underestimated the amount of dust produced on the mine site, including along the all weather access road (AWAR). In the 2019 Annual Report, Agnico Eagle provided this review of FEIS modelling, and supplemental comparisons of dustfall results. While the full discussion is not re-visited here, the comparison of Vault Haul Road dustfall and AWAR dustfall is carried forward along with 2023 results.

Within the FEIS, air quality modeling was completed for the Vault Haul Road. That modeling indicated that the worst-case level of air pollution (mainly due to fugitive dust) would be in the range of, or less than, air quality objectives. Since traffic rates along the AWAR were predicted to be lower than the Vault Haul Road, air quality modeling was not specifically conducted for the AWAR - i.e., impacts of the AWAR on air quality were assumed to be lower than impacts of the Vault Haul Road. To validate this assumption of the FEIS, dustfall monitoring results from the Vault Haul Road area were compared with those collected along the AWAR, to determine whether air quality impacts (as measured through this FEIS-recommended monitoring method) are similar.

Dustfall results for DF-4 (500 m west of the Vault Haul Road) and the most comparable location with respect to the AWAR (km 18 and 78; 300 m west of the road) are provided in Figure 60. The following differences in sample collection methods are kept in mind while interpreting this data:

- Samples collected along the Vault Haul Road are collected on a 2 m stand (ASTM method), while those collected historically (prior to 2020) along the AWAR were at ground level, due to logistical constraints. As described in the 2019 Air Quality and Dustfall Monitoring Report, results for ground level samples have always been higher than results for associated samples at 2-m height.

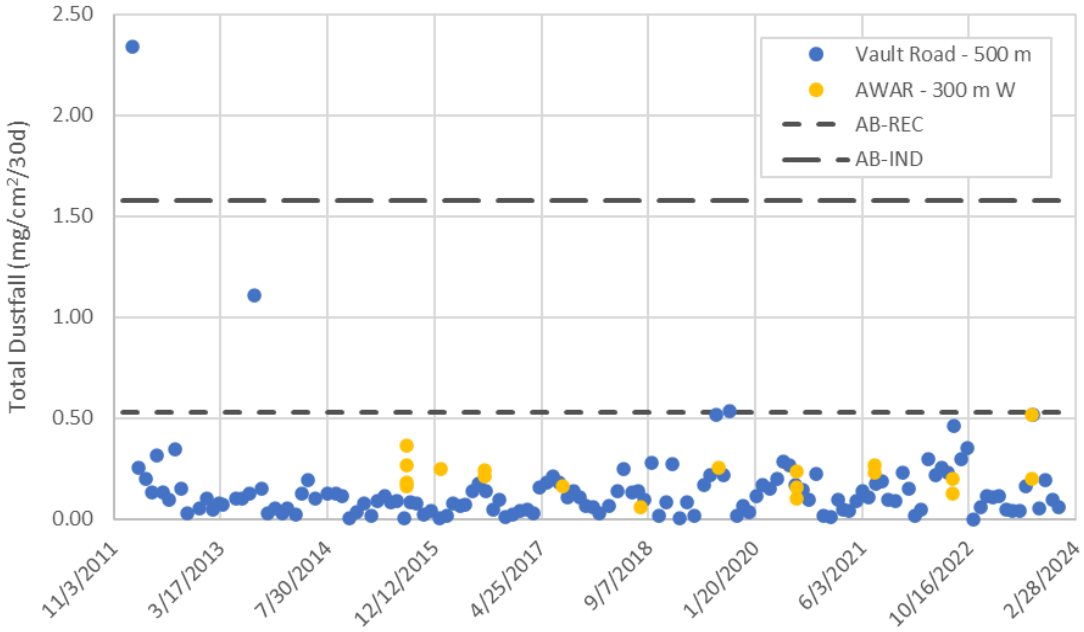
- Samples collected along the Vault Haul Road are at a distance of approximately 500 m from the road, while those used in this comparison for the AWAR are at a distance of 300 m. No samples have been collected at 500 m from the AWAR, and results at 300 m are expected to provide a conservatively high comparison.

- Results for the AWAR are only available for the summer season, when higher traffic rates and dry road conditions prevail. Results used in historical comparisons are from the August sampling event only. These results can therefore be considered peak values, and averages based on these are likely inflated compared to the true annual average (as calculated for the Vault Haul Road dataset).

- AWAR samples provided here are collected in locations where dust suppression is not applied, whereas the Vault Haul Road is watered near-continuously in the snow-free season.

Despite these differences which generally result in a very conservative comparison of dustfall rates between the Vault Haul Road location and AWAR samples, measured dustfall rates in both locations are historically similar. These results suggest that the FEIS assumption of lower air quality impacts along the AWAR as compared to the Vault Haul Road was valid.

Figure 60 30-d rates of total dustfall measured at monitoring station DF-4 (500 m west of the Vault Haul Road) and along the AWAR (km 18, 78; 300 m west). Alberta Environment dustfall guidelines for recreational areas (AB-Rec) and industrial areas (AB-Ind) are shown.



12.4.4.3 *Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

As described in Section 12.4.4.1, only a subset of FEIS air quality predictions are suitable for comparison to monitoring results, and a variety of caveats are applicable, as discussed. However, the air quality monitoring program at the Meadowbank Mine was designed in consultation with regulators (ECCC) for the purpose of monitoring changes in ambient air quality at the site and for comparisons to regulatory guidelines, and is therefore considered effective as designed. A complete analysis of air quality monitoring results in comparison to regulatory criteria is provided in the 2023 Air Quality and Dustfall Monitoring Report (Appendix 42).

Effectiveness of Mitigation

A summary of the planned mitigation measures for air quality (per Air Quality and Noise Management Plan, 2005) is provided in Table 12-13, along with a commentary on current implementation.

As described in the Air Quality and Dustfall Monitoring Report (Appendix 42), monitoring thresholds were established within the current Air Quality and Dustfall Monitoring Plan to confirm effectiveness of existing mitigation. For the Meadowbank Mine, thresholds relate to dustfall measurements for onsite and AWAR locations. In 2023, these thresholds were met in all cases. Mitigation to limit dust generation for the Meadowbank Mine is therefore considered to have been effective in 2023.

Table 12-13 Mitigation measures described in the Air Quality and Noise Management Plan (October, 2005) to reduce impacts of the project on area air quality, and commentary on current implementation.

Emission Source	**Planned Mitigation Measure** (Air Quality and Noise Management Plan, 2005)	**Implementation (2023)**
Plant Production Facilities	Select the diesel power plant engines with low NOx emissions to prevent ozone formation and with low hydrocarbon emissions to lower GHG emissions	**N/A**
	Use low sulphur content diesel fuel to mitigate SO2 emissions	**Yes -** Use of summer fuel
	Collect and vent any process emissions (flotation, CIP circuit, carbon treatment, gold refining, and cyanide detoxification) into the atmosphere	**Yes -** All process enclosed in the mill facility except leach tank
	Design all stacks using good engineering practice (including accessible sampling ports and Adequate height) to ensure the required dispersion to meet ambient air quality objectives	**Yes -** Design to meet engineering practice
	Implement fleet maintenance program to ensure that all diesel-powered equipment will operate efficiently, thereby reducing air emissions	**Yes-** Preventive maintenance per manufacture recommendation
	Install dust filters at the primary crusher building and at fine grinding facilities (SAG mill and ball mill) and provide dust suppression equipment (dust covers, sonic sprays, etc.)	**Yes -** Filter installed at major dust generating equipment
	Install enclosure of feed conveyor to avoid fugitive emissions during windy weather	**Yes -** All conveyer are enclosed
	Provide crushed ore stockpile enclosure to limit any dust to indoor environment	**Yes -** Enclosed in a dome
Transportation	Impose vehicle speed limit on Vault haul road to mitigate fugitive dust and reduce engine emissions	**Yes** - Speed limit enforcement on Vault Haul Road and AWAR
	Apply dust suppressants (water, calcium chloride) to haul	**Yes -** Dust suppressant applied on

Emission Source	Planned Mitigation Measure (Air Quality and Noise Management Plan, 2005)	Implementation (2023)
	and service roads during dry weather to mitigate fugitive dust	mine site and roads
	To reduce vehicle emissions, do not let motors idle, except when necessary	**Yes -** No idle policy implemented. Application of the policy followed by Environment Department. Reminder of the policy sent as needed to all employees.
	Upgrade road-surfacing materials using local coarse rocky aggregates	**Yes -** Mine site road surfaced with NPAG waste rock material
Blasting & Waste Disposal	Limit blasting to calm days or use delay blasting technique; natural mitigation to take place when mining pits are from 85 to 175 m below the ground level; ore and waste to be coarse run-of-mine muck not prone to generating excessive dust	**N/A –** No blasting occurred
	Cover dewatered tailings with non-potentially acid-generating (non-PAG) aggregates to control wind erosion	**N/A -** No cover was added
Miscellaneous	Provide pressure valves to control fuel vapour fugitive emissions from the storage tanks	**Yes -** Installed at all locations
	Use water spray instead of pneumatic flushing while cleaning equipment and working areas when temperature is above the freezing point	**Yes -** All machine cleaning is done inside shop (wash bay)
	Use site-generated mineral material (dirt, aggregate, etc.) to cover disposed solid waste at the waste dump	**Yes -** Waste dump is located in the Portage Waste Rock Facility and is covered with waste rock created by mining activities
	Select waste incinerator with build-in emission control system (secondary combustion chamber, catalytic converter, etc.) and install a stack to disperse emissions to concentrations below ambient air quality objectives	**N/A –** Incinerator dismantled
	Apply vegetation cover on stripped areas and long-term stockpiles	**N/A -** Natural revegetation to occur during the reclamation phase. Revegetation option to be considered in the Final Closure and Reclamation Plan.

Adaptive Management

Since current mitigation is considered to have been effective, no changes to management actions with regards to ambient air quality are planned for 2023 for the Meadowbank Mine as a result of this PEAMP analysis.

12.4.5 Permafrost

12.4.5.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

A summary of predicted residual impacts to permafrost (after mitigation), as described in the FEIS (Cumberland, 2005; Table B1.2), and results of monitoring being conducted to assess the accuracy of these predictions is provided in Table 12-14 below. A complete description of monitoring results is provided in the 2023 Geotechnical Inspection Report (Appendix 7), which reviewed instrument data for the 2022-2023 period.

In general, degradation of permafrost was predicted in association with the construction of mine buildings, and development of permafrost was predicted in association with dikes, TSF, and WRSF construction. Predictions are typically related to closure-phase impacts. Therefore, results of monitoring to date are presented here to demonstrate progress, but validity of the prediction (i.e. whether or not the prediction is supported by the monitoring data) cannot be determined at this time.

Table 12-14 Predicted and measured impacts to permafrost for the Meadowbank site. Predicted impacts according to Cumberland, 2005, Table B1.2. Measured impacts according to the 2023 Geotechnical Inspection Report (Appendix 7)

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted	Predicted Impact in FEIS	Measured Impacts			
					2018	2019	2020 - 2022	2023
Permafrost aggradation and stabilization of new active layer in dikes	Dike design	Monitor ground temperatures; monitor slopes; monitor sub-permafrost pore pressures (tailings dike)	Ground temperature monitoring (thermistors)	Net increase in permafrost distribution and/or decrease in ground temperatures.	East Dike, Bay-Goose Dike, South Camp Dike: similar to historical trends, partially frozen foundations. Vault Dike: frozen foundation Central Dike: similar to historical trends, partially frozen foundation SD1&2: frozen foundations; SD3,4,5: partially frozen foundations; Stormwater Dike: partially frozen foundation		East Dike, Bay-Goose Dike, South Camp Dike: similar to historical trends, partially frozen foundations with cooling trends at edges of seepage zones. Vault Dike: frozen foundation Central Dike: similar to historical trends, partially frozen foundation SD1&2, 4&5: frozen foundations; SD3: partially frozen foundations; Stormwater Dike: partially frozen foundation	
Permafrost changes in Second Portage Lake (2PL) NW arm area	Dewatering, reclaim and attenuation pond filling, and tailings deposition	Representative monitoring of ground temperatures; assessment of anticipated ice entrapment (i.e. ground ice development)	Thermistor monitoring in TSF (thermistors NC-T1, NC-T2, NC-17-01 through 08)	Net increase in permafrost distribution and/or decrease in ground temperatures	Thermistors indicate tailings are not completely frozen.	Thermistors indicate tailings are not completely frozen. Freezeback and progression of freezing front is occurring in the North Cell in section not entirely frozen. Data are showing quicker freezeback than anticipated		
Permafrost changes in Third Portage Lake (TPL) north central shoreline and Portage Pit area	Portage pit development	Assessment of suspected ground ice development in conjunction with permafrost aggradation. Assessment of ground ice content of select shoreline polygons.	None	Net increase in permafrost distribution and/or decrease in ground temperatures	General increase in permafrost aggradation due to structures; permafrost is developed in part of the Portage Pit and Goose Pit walls, under the Goose Dike.			
Permafrost changes in waste rock area	Construction of waste rock facility	Internal and foundation temperatures to be monitored	Thermistor monitoring of internal and foundation temperatures	Fall, winter and spring placement will continue to bury the natural ground surface and permafrost will aggrade into the	Frozen ground conditions under the Portage WRSF for all thermistor locations. Rockfill temperature below 0 °C for at least 10m above ground surface for all instruments. Decreasing trends in active zone depth are recorded at most thermistor locations. Temperature trends in the structure are becoming more consistent with			Frozen ground conditions under the Portage WRSF for all thermistor locations. Rockfill temperature below 0 °C for at least 10m above ground

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted	Predicted Impact in FEIS	Measured Impacts			
					2018	2019	2020 - 2022	2023
				waste rock where a new and temporary active layer will form. Placement of lifts on natural ground in the summer may continue to cause temporary and localized deepening of the active layer, warming of near surface permafrost and possible subsidence, particularly in low lying areas.	predicted temperature over time.			surface for all instruments. Variable active layer thickness, influenced by annual temperature trends in most instruments as well as long-term permafrost aggradation.
Potential settlement of buildings	Loss of permafrost under heated structures	Ground temperature measurements where there is a need to monitor foundation temperatures	None	Net decrease in permafrost distribution and/or increase in ground temperatures	No ground temperature measurements have been undertaken at or near buildings on site. To date there has been no observed thawing of foundations.			
Permafrost changes below pipelines	Stabilization of permafrost temperature and active layer thickness	Monitor pipeline alignment for potential permafrost degradation	None	Minor any undifferentiated net gain or loss of permafrost	No ground temperature measurements but no observations of thawing due to pipelines.			

12.4.5.2 *Parts 3 & 4: Discussion*

Permafrost conditions continue to be monitored, but since final impact predictions relate to the closure/post-closure phase, no commentary on potential exceedances is made at this time.

Nevertheless, to help demonstrate the current status towards achieving these predictions, historical trends for all thermal monitoring results are provided in the 2023 Thermal Monitoring Report (Appendix 19).

12.4.5.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

Based on Table 12-14, all FEIS predictions for which monitoring was recommended are being addressed through current programs. Monitoring is therefore considered effective.

Effectiveness of Mitigation

A summary of the planned mitigation measures for permafrost during the current operations phase of the project (FEIS Physical Environment Impact Assessment Report (2005), Table C.2) along with implementation in 2023 is provided in Table 12-15. Mitigation measures proposed for operations-phase components which have already occurred (e.g. dewatering) or those associated with design-phase planning are not included.

Table 12-15 Mitigation measures described in the FEIS, Appendix B (October, 2005) to reduce impacts of the project on permafrost, and commentary on current implementation

Project Component	Planned Mitigation Measure (FEIS Section 4.24.2.4)	Implementation (2023)
Waste Rock Storage	Schedule placement of waste rock on thaw-sensitive polygons during winter months, possibly in conjunction with proactive measures to enhance ground chilling prior to placement (e.g. snow removal and/or compaction); use flatter side slopes	**N/A –** Poratge WRSF no long active Annual geotechnical inspection completed by third party Annual revision of the Waste Rock and Tailings Management Plan
Tailings Storage Facility	Management of ice entrapment	**Yes -** Follow up done on ice entrapment and best practices
Ditches (roads, airstrip, contact water)	Silt fences as required to manage sediment loss; rock aprons as required to slow the rate of thaw penetration and stabilize the underlying soils	**N/A -** Silt fences not required as of yet
Freshwater intake & pipeline	Use insulated pipe with heat tracing; elevate pipeline across thaw sensitive terrain	**Yes -** Insulated pipe and elevated (freshwater line)
Discharge facilities & pipeline	Use insulated pipe with heat tracing; elevate pipeline across thaw sensitive terrain	**Yes -** Insulated pipe and elevated
Non-contact diversion facilities	Silt fences as required to manage sediment loss; rock aprons as required to slow the rate of thaw penetration and stabilize the underlying soils	**N/A -** Silt fences not required as of yet
Vault access road culverts (Turn Lake)	Maintenance, as required, to restore smooth grade where thaw settlement is a problem; avoid culverts in areas susceptible to thaw settlement	**N/A -** No maintenance as yet required

Adaptive Management

No changes to permafrost monitoring or management programs are planned in 2024, based on this PEAMP analysis.

12.4.6 Socio-Economic Impacts

A comprehensive assessment of socio-economic indicators, comparison to FEIS predictions, and review of management/mitigation measures is provided in the 2023 Socio-Economic Monitoring Report (Appendix 47) and summarized here in the PEAMP format. Since, in many cases, is it not possible to distinguish impacts of the Meadowbank mine from those of the Whale Tail mine, the PEAMP evaluation is combined for this sector.

12.4.6.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

Based on results of the 2023 Socio-Economic Monitoring Report (SEMR), the accuracy of Project impacts as predicted in the FEIS documents (Cumberland, 2005 - Table B15.2; Golder, 2018) is assessed for each identified valued socio-economic component in Table 12-16, below. When specific impact predictions are not being met, further discussion is provided in Section 12.4.6.2.

Table 12-16 Summary of FEIS predictions for VSECs, observed trends, and interpretation of monitoring results in comparison to FEIS predictions (Cumberland, 2006; Golder, 2018). Measured impacts that are trending in a negative manner outside of predictions are further discussed in Section 12.4.6.2.

Sector and Overarching FEIS Prediction	Metric	2023 Overview	Specific FEIS Prediction	Accuracy of the FEIS Prediction
1. Employment	**1.1 Total project employment (Agnico Eagle & contractors)**			
MEADOWBANK: "The potential impacts of employment are likely to take some time to gain full momentum, and overall are considered of high magnitude, positive, long term and of high significance, specifically to those individuals and their families who are able to benefit" (Cumberland Resources, 2006, p. 120) **WHALE TAIL:** "The Expansion Project will create direct, indirect and induced employment opportunities." (Golder Associates, 2018, p. 9)	**Project employment (permanent, temporary & contractor)**	Employment at Meadowbank / Whale Tail decreased by 6.3% in 2023 to 1,898. Contractors account for 39% of Meadowbank / Whale Tail employment.	MEADOWBANK "It is expected that the construction phase workforce will average 160 and peak at 310, and the operation phase workforce is estimated at 370." (Cumberland Resources, 2006, p. 119) WHALE TAIL "Direct average operational employment is expected to be 1,166 positions." (Golder Associates, 2018, p. 9)	MEADOWBANK – Prediction is exceeded WHALE TAIL – Prediction is exceeded
	1.2 Project Inuit employment (Agnico Eagle and contractors)			
	Project employment (Inuit & non-Inuit) *Inuit FTEs* *Inuit FTE rate*	Inuit employment at Meadowbank / Whale Tail decreased in 2023 to 179 FTEs (decrease by 28 FTEs over 2022 levels). Inuit employment as a proportion of total was 16% in 2023, representing a decrease from 18% in 2022.	MEADOWBANK – none WHALE TAIL[10] (inc. contractors) *"Excluding the final year of operations when Project employment ramps down, direct average operational employment is expected to be 1,166 […] Of these, nearly half (491 or 42%) are expected to be filled by Nunavummiut, the majority of which are employed at the Meadowbank Mine and will move over to the Expansion Project."* (Golder Associates, 2018, p. 9)	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is not supported
	Project contractor employment (Inuit & non-Inuit) *Inuit FTEs* *Inuit FTE rate*	At Meadowbank / Whale Tail, Inuit contractor employment decreased by 1 FTE to 23 FTEs in 2023. Inuit FTE for contractors was 3% in 2022 and 2023.		
	1.3 Project employment by Kivalliq community			
	Project employment by Kivalliq community (Inuit & non-Inuit)	The number of Kivalliq-based employees generally trended downward year-over-year at Meadowbank / Whale Tail, decreasing by 22% in 2023, and reaching 173 employees in 2023. In 2023, 71% (123) of Meadowbank / Whale Tail's Kivalliq-based employees were from Baker Lake.	MEADOWBANK – none WHALE TAIL Baker Lake is expected to fill 3 management jobs, 16 skilled jobs, 187 semi-skilled jobs, and 66 entry level jobs, for a total of 272 jobs (Golder Associates, 2018, p.10-11).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is not supported
	Project contractor employment by Kivalliq community (Inuit & non-Inuit)	In 2023, a total of 20 contractor employees were hired from Kivalliq communities (a decrease from 23 in 2022), of which 14 contractors were hired from Baker Lake.		
	1.4 Employee turnover			
	Agnico Eagle Inuit turnover by reason **Turnover rates (Inuit & non-Inuit)** *Inuit rates* *Non-Inuit rates* **Turnover rate by Kivalliq community**	Resignation / voluntary departures accounted for the majority (53 or 68%) of reasons for turnover among Agnico Eagle Inuit employee in 2023. In 2023, there were 78 departures in total, compared to 80 in 2022. Inuit turnover rates at Meadowbank / Whale Tail increased from 29% in 2022 to 35% in 2023. Turnover rates for non-Inuit employees slightly decreased from 14% in 2022 to 13% in 2023. By community, turnover rates increased in most communities with the exception of Baker Lake.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
2. Gender	**2.1 Gender-specific initiatives**			
None	**Overview and assessment of gender-specific initiatives**	Agnico Eagle is continuing to develop its policy and programs to encourage greater gender equality. At present, 13 programs are active.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	2.2 Project employment by gender			
	Project and contractor employment (gender; Inuit & non-Inuit) – FTE	There were 167 Agnico female FTEs at Meadowbank / Whale Tail in 2023, down from 190 in 2022. There were 52 female contractor FTEs at Meadowbank / Whale Tail in 2023, down from 57 in 2022.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	Project and contractor employment (gender; Inuit & non-Inuit) – rate	The proportion of Agnico female employment at Meadowbank / Whale Tail decreased from 16% in 2022 to 15% in 2023. The proportion of contractor female employment at Meadowbank / Whale Tail in 2023 was unchanged at 7%.		
	2.3 Project employment by gender and skill level			
	Agnico Eagle female employment by skill level	For Meadowbank / Whale Tail, 50 female employees were in management & professional roles (compared to 65 in 2022), 25 in skilled positions (compared to 24 in 2022), 53 in semi-skilled positions (compared to 56 in 2022), and 39 in unskilled positions (compared to 44 in 2022).	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	Proportion of skills levels held by female employees	In 2023, female employees held 41% of all unskilled jobs (down from 42% in 2022). In all other categories, females held less than one-fifth of the available positions in 2023: 18% for management and professional (compared to 20% in 2022), 11% for semi-skilled (compared to 12% in 2022), and 8% for skilled (compared to 9% in		

[10] This includes 1,143 Agnico Eagle employees, 740 contractors, five (5) students & co-op and 10 on-call employees.

Sector and Overarching FEIS Prediction	Metric	2023 Overview	Specific FEIS Prediction	Accuracy of the FEIS Prediction
		2022).		
3. Income	**3.1 Income paid to projects' Inuit employees**			
MEADOWBANK: "The potential impacts of increased income are considered of high magnitude, positive, long-term and of high significance, particularly to those individuals and their families who are able to benefit. It is expected that overall community effects, moderate in significance, are likely to be most experienced in Baker Lake, as most direct employment will occur here." (Cumberland Resources Ltd., 2006, p. 121) **WHALE TAIL:** "The Expansion Project will generate direct, indirect and induced incomes." (Golder Associates, 2018, p. 12)	**Income paid to Agnico Eagle project Inuit employees**	Total income paid to Meadowbank /Whale Tail Inuit employees (excluding contractors) in 2023 was $20.8M (compared to $22M in 2022).	MEADOWBANK "Direct project wages paid to people in Kivalliq Region, primarily Baker Lake, could exceed $4M annually." (Cumberland Resources, 2006, p. 121). WHALE TAIL "During operations, the Expansion Project is projected to generate $421.1 million (cumulatively) in direct labour income in Nunavut, and $509.3 million in total territorial labour income." (Golder Associates, 2018, p. 12)	MEADOWBANK – Prediction is exceeded WHALE TAIL – Prediction is not supported
	3.2 Income by Kivalliq community			
	Median employment income of tax filers by Kivalliq community	Baker Lake and Rankin Inlet have had the highest median incomes in the Kivalliq region up to 2017, but more recent data is unavailable.	MEADOWBANK The Meadowbank FEIS makes no specific predictions regarding changes in the median income of Kivalliq communities but does predict that Baker Lake will experience the most positive effects of increased income. WHALE TAIL – none	MEADOWBANK – Prediction is supported WHALE TAIL – TBD (cannot be determined at this time)
4. Education and Training	**4.1 Investment in education-based initiatives**			
MEADOWBANK: "The potential impacts of education and training are considered of medium magnitude, positive, long term and of high significance, specifically to those individuals and their families who are able to benefit." (Cumberland Resources Ltd., 2006, p. 121) **WHALE TAIL:** "The Expansion Project will provide workforce training and support community education" (Golder Associates, 2018, p. 12).	**Agnico Eagle investments in education-based initiatives**	In 2023, Agnico Eagle made $586,019 in contributions to education-based initiatives, down from $765,196 in 2022.	MEADOWBANK "Cumberland and KIA will address the need for a broader based project education and training initiatives [sic] to assist those who wish to develop skills that will position them for project employment." (Cumberland Resources Ltd., 2006, p. 121) WHALE TAIL "The Expansion Project will provide workforce training and support community education" (Golder Associates, 2018, p. 12)	MEADOWBANK – Prediction is supported WHALE TAIL – Prediction is supported
	Enrolment in Agnico Eagle summer student program (Inuit & non-Inuit)	In 2023, Agnico Eagle had two (2) Inuit Summer Students based in Rankin Inlet and Baker Lake working with the Community Relations department and two (2) in Meadowbank with the Environment department (a total of 4 in 2023, and 4 in 2022).	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	4.2 Secondary school graduation by region			
	Secondary school graduation rate by region	In 2017, graduation rates in the Kivalliq region were at an all-time high, being consistently higher than those in the other two regions (since 2010). However, in 2018, there was a general decrease in graduation rates in Nunavut. More recent data on secondary school graduation rates is not available. In 2023 this metric was supplemented with data on the number of graduates in the Kivalliq region. In 2023, there were 75 graduates in the Kivalliq region, down from 109 in 2022.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	4.3 Project training and education			
	Agnico Eagle investments in mine training and education initiatives Average specific training hours (Inuit & non-Inuit) Participation in career and skills programs Inuit Participation in pre-apprenticeship and apprenticeship programs by type	Investments in externally delivered training programs have dropped substantially since 2016 due to the discontinuation of the Kivalliq Mine Training Society (KMTS) and the suspension of the Arviat Community Training Program in 2019. In 2023, training investment at Agnico Eagle reached a total of $5,030,481. The total unspent amount as of December 31, 2023, was $56,867. Agnico Eagle is confident to pay the remaining amount in 2024 and remove any loss of benefit from pandemic-impacted years when it was not possible to reach the $3.6M commitment. There was an increase in specific training provided at Meadowbank /Whale Tail for Inuit employees from 33 hours in 2022 to 37 in 2023 and from 8 hours in 2022 to 9 in 2023 for non-Inuit employees. There was also an increase in participation in skills programs (across all Project), from 19 participants in 2022 to 30 participants in 2023. Of the 30 trainees, 16 were at Meadowbank / Whale Tail. There were 5 active Inuit apprentices in 2023 (across all Projects), down from 6 in 2022.	MEADOWBANK "Cumberland and KIA will address the need for broader based project education and training initiatives to assist those who wish to develop skills that will position them for project employment." (Cumberland Resources Ltd., 2006, p. 121) WHALE TAIL "The Project will continue the workforce training programs in place at Meadowbank Mine" (Golder Associates, 2018, p. 12)	MEADOWABNK – Prediction is supported WHALE TAIL – Prediction is supported
	4.4 Project employment by skill level			
	Agnico Eagle Inuit employees by skill level **Agnico Eagle FTE/employment by skill level (Inuit & non-Inuit)**	In 2023, the number of Inuit employees in unskilled roles decreased to 90 from 117 in 2022, and in semi-skilled roles to 99 from 125 in 2022. Numbers in management and professional roles decreased from 1 in 2022 to 0 positions in 2023 and for skilled roles it remained unchanged at 2 in 2023; Inuit employees continue to be underrepresented in both roles. FTE Agnico Eagle employment by skill level: • Unskilled (82 Inuit and 5 non-Inuit) • Semi-skilled (92 Inuit and 391 non-Inuit)	MEADOWBANK – none WHALE TAIL "As Nunavummiut employees achieve further training and education, it is expected that they will be better poised to advance to more skilled positions as they arise, thereby increasing representation of Nunavut residents in the skilled, professional and management employment categories" (Golder Associates, 2018, p. 12) Total composition of employment includes 154 entry level jobs, 493 semi-skilled jobs, 323 skilled jobs, and 202 professional and	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is not supported

Sector and Overarching FEIS Prediction	Metric	2023 Overview	Specific FEIS Prediction	Accuracy of the FEIS Prediction
		• Skilled (3 Inuit and 277 non-Inuit) • Management and professional (2 Inuit and 297 non-Inuit)	management jobs. Workers from Nunavut are expected to fill 154 entry level positions, 305 semi-skilled positions, 29 skilled positions, and 4 management positions (Golder Associates, 2018, p.10-11).	
	4.5 Trade certificates / apprenticeships in Nunavut			
	Trade certificates / apprenticeships by community	At the time of this report, data on trade certificates / apprenticeships by Kivalliq community was not available.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK– TBD (cannot be determined at this time) WHALE TAIL– TBD (cannot be determined at this time)
5. Contracting and Business Opportunities	**5.1 Contract expenditures**			
MEADOWBANK: "The potential impacts of employment are likely to take some time to gain full momentum, and overall are considered of high magnitude, positive, long term and of high significance, specifically to those individuals and their families who are able to benefit." (Cumberland Resources Ltd., 2006, p. 120) **WHALE TAIL:** The Project will generate "continued local economic activity" (Golder Associates, 2018, p. 6). "The Expansion Project will sustain local business development and contracting" (Golder Associates, 2018, p. 8).	**Contract expenditures on NTI-registered businesses** *NTI expenditures* *Proportion NTI*	In 2023, Meadowbank / Whale Tail procurement from NTI registered businesses was $495M, up from $477 in 2022. NTI expenditures, as a proportion of total spend remained at 69% in 2023.	MEADOWBANK "With continuing preferential contracting, local business participation in the project is expected to grow with time." (Cumberland Resources Ltd., 2006, p. 7) WHALE TAIL "…about $271 million procured from Nunavut-registered companies. Of this, roughly 84% ($223 million) will be through Kivalliq-registered businesses… [of which] …67% is expected to accrue to those in Rankin Inlet, with 32% accruing to those in Baker Lake." (Golder Associates, 2018, p. 19)	MEADOWBANK – Prediction is supported WHALE TAIL – Prediction is partially supported
	NTI-registered business expenditures by Nunavut community	Procurement from NTI-registered businesses (across all Projects) located in Baker Lake increased to $54M in 2023 (from $50M in 2022). Expenditures in Rankin Inlet increased in 2023 to $591M (from $580M in 2022). Expenditures in Arviat increased to $47M in 2023 (from $35M in 2022). Other NTI spend increased to $159M in 2023 (from $143M in 2022).		
	Contract expenditures on Nunavut-based businesses *Nunavut-based expenditures* *Proportion Nunavut-based*	Meadowbank / Whale Tail contract expenditures on Nunavut-based businesses (including NTI-registered businesses) increased to $523M in 2023 from $497M in 2022. As a proportion of total expenditures, this increased slightly from 71% in 2022 to 73% in 2023.		
	Project contract expenditures on Nunavut-based businesses by business location	Meadowbank / Whale Tail contract expenditures at Baker Lake businesses increased to $43M in 2023 from $36M in 2022.		
6. Health and Safety	**6.1 Health and safety training**			
MEADOWBANK: "Health and safety of workers and the population at large is subject to legislation and perhaps more importantly to best practices. Health and safety training also has applications in personal life – workers often not only use new health and safety training on-the-job, but also at home in the course of daily tasks." (Cumberland Resources Ltd., 2006, p. 126) **WHALE TAIL:** "The Expansion Project may improve worker and public health and safety." (Golder Associates, 2018, p. 13)	**Average mandatory training hours provided to Agnico Eagle employees (Inuit & non-Inuit)**	Mandatory training hours at Meadowbank / Whale Tail increased from 7 hours in 2022 to 11 hours in 2023 for Inuit employees, and from 16 hours in 2022 to 20 hours in 2023 for non-Inuit employees.	MEADOWBANK – none WHALE TAIL "The Expansion Project may improve worker and public health and safety." (Golder Associates, 2018, p. 13)	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is supported
	6.2 Health and safety on-site			
	Visits by project employees to Agnico Eagle clinic for work-related and other reasons	Visits by Agnico Eagle employees to Meadowbank / Whale Tail on-site clinics went up from 2.2 in 2022 to 4.5 in 2023 for non-work-related visits, and from 0.7 in 2022 to 0.9 in 2023 for work-related visits.	MEADOWBANK – none WHALE TAIL While the Expansion project's planned activities are expected to yield an overall positive effect on worker and public health and safety, there remains "potential risks associated with accidents and emergencies." (Golder Associates, 2018, p. 13)	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is supported
	Project combined lost-time and light duty accident frequency (per 200,000 person-hours)	Project combined lost-time and light duty accident frequency decreased from 0.81 in 2022 to 0.55 in 2023.		
7. Population Demographics	**7.1 Employee Migration**			
MEADOWBANK: "The potential impacts of migration are complex and are likely to have both positive and negative components, but of low magnitude. Any effects of migration are long term but are likely to be low significance. It is not likely that migration to any other community than Baker Lake would be significant." (Cumberland Resources Ltd., 2006, p. 126) **WHALE TAIL:** "Expansion Project employment opportunities could spur migration to Baker Lake and Rankin Inlet…dependent on scale of speculative migration." (Golder Associates, 2018, p. 18)	**Project Agnico Eagle Inuit employees residing outside Nunavut** *Total Inuit employees* *Proportion of Inuit employees residing outside Nunavut*	At Meadowbank / Whale Tail, the number of Inuit employees residing outside Nunavut increased from 22 in 2022 to 26 in 2023. As a proportion of total Inuit employees residing outside Nunavut, this was 13% in 2023, up from 9% in 2022.	MEADOWBANK The Meadowbank FEIS suggests that in-migration of Southerners to Baker Lake would be the primary concern. WHALE TAIL "Project employment opportunities could spur migration to Baker Lake and Rankin Inlet." (Golder Associates, 2018, p. 15).	MEADOWBANK – Prediction is not supported WHALE TAIL – Prediction is not supported
	Project contractor Inuit employees residing outside Nunavut *Total Inuit contractors* *Proportion of Inuit contractors residing outside Nunavut*	In 2023, 9 Inuit employees employed by contractors (total 3.1 FTE count) resided outside Nunavut, representing 8% of total Inuit employment that year.		
	7.2 Population estimates in Kivalliq communities			
	Population estimates in Kivalliq communities (Inuit & non-Inuit) *Estimates in communities* *Annual percent change*	Data regarding Inuit and non-Inuit residents in Rankin Inlet and Baker Lake is not available since 2016. Population changes in Kivalliq communities in 2022 were on par with those in previous years.	MEADOWBANK "It is not likely that migration to any other community than Baker Lake would be significant," but does not provide any specific predictions on changes to populations in Kivalliq communities. (Cumberland Resources, 2006, p. 126) WHALE TAIL	MEADOWBANK – Prediction is not supported WHALE TAIL – Prediction is not supported

Sector and Overarching FEIS Prediction	Metric	2023 Overview	Specific FEIS Prediction	Accuracy of the FEIS Prediction
			"Project employment opportunities could spur migration to Baker Lake and Rankin Inlet." (Golder Associates, 2018, p. 15).	
8. Community Infrastructure and Services	**8.1 Use of GN health services**			
MEADOWBANK: "The impacts on social services and infrastructure, of low to medium magnitude, are considered largely positive in the medium term and of moderate significance. There is some potential for closure to have a negative impact on social service delivery." (Cumberland Resources Ltd., 2006, p. 128) **WHALE TAIL**: "Project-induced in-migration could increase demand for services and infrastructure in Baker Lake and Rankin Inlet." (Golder Associates, 2018, p. 17-18).	**Kivalliq community health centre visits per capita**	Data on Kivalliq community health centre visits has not been available since 2016. In 2023, there was no personal or work-related referrals to community health care centres at Meadowbank / Whale Tail. Incidents requiring use of GN health services increased at Meadowbank / Whale Tail from 7 in 2022 to 16 in 2023.	MEADOWBANK "Increased employment and business opportunities will result in increased income, a measure of economic security, capacity building that will contribute to employability over the long term, and improved self-image of employees and their families. This could result in reducing dependence on government social services." (Cumberland Resources Ltd., 2006, p. 128) WHALE TAIL "Project-induced in-migration could increase demand for services and infrastructure in Baker Lake and Rankin Inlet … [including] healthcare services." (Golder Associates, 2018, p. 17)	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	Employees referred to community health care centre for personal or work-related reasons			
	Incidents requiring use of GN health services			
	8.2 Use of public infrastructure			
	Estimates of use of public physical infrastructure directly related to Project (airports, port, meeting facilities, roads)	In 2023, there was limited use of Baker Lake Airport to access commercial flights, nine (9) vessels were received in Baker Lake for 154,000 m^3, and the Meadowbank AWAR was used 3,142 times compared to 2,323 times in 2022.	MEADOWBANK "The impacts on social services and infrastructure, of low to medium magnitude, are considered largely positive in the medium term and of moderate significance. There is some potential for closure to have a negative impact on social service delivery." (Cumberland Resources Ltd., 2006, p. 128) WHALE TAIL "Project-induced in-migration could increase demand for services and infrastructure in Baker Lake and Rankin Inlet." (Golder Associates, 2018, p. 17)	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	8.3 Social assistance			
	Per capita social assistance expenditures by Kivalliq community	Data for capita social assistance expenditures and percentage of households receiving social assistance is not available since 2018.	MEADOWBANK "The impacts on social services and infrastructure, of low to medium magnitude, are considered largely positive in the medium term and of moderate significance. There is some potential for closure to have a negative impact on social service delivery." (Cumberland Resources Ltd., 2006, p. 128) WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	Percentage of households receiving social assistance by Kivalliq community			
9. Individual and Community Wellness	**9.1 Agnico Eagle's Programs**			
MEADOWBANK: "Individual and community wellness is intimately associated with potential impacts on traditional ways of life as discussed above. In addition, however, individual decisions on the use of increased income, household management in relation to rotational employment, migration, public health and safety, disturbance particularly during the construction phase, and Cumberland's support for community initiatives are being negotiated in the IIBA are [sic] the other drivers that have the potential to effect [sic] individual and community wellness." (Cumberland Resources Ltd., 2006, p. 123) **WHALE TAIL:** "The Expansion Project is not expected to change the impacts on community health and cohesion stemming from additional incomes predicted in the Approved Project FEIS, including Substance abuse, Sexual misconduct, Family violence, Crime, Income disparity, Social disparity." (Golder Associates, 2018, p. 14) "Expansion Project-induced in-migration could increase demand for housing in Baker Lake and Rankin Inlet… dependant on scale of speculative migration." (Golder Associates, 2018, p. 18)	**Agnico Eagle wellness programs offerings & utilization by project employees and community members**	Agnico Eagle continues to provide individual and family wellness planning, financial investments to support mental health and prenatal nutrition, and vaccination campaigns. Agnico Eagle signed agreements with the following partners to provide $5M dedicated to mental health. Of that $5M, the following was provided in 2023: -$50,000 to the Arctic Rose Foundation, -$500,000 to Breakfast Club of Canada.	MEADOWBANK – none WHALE TAIL "The Expansion Project continues the benefits [positive wellness effects] to communities predicted in the Approved Project FEIS" (Golder Associates, 2018, p. 18).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is supported
	9.2 Perceptions of health & wellness			
	Self-reported effect of project on health & wellness	The results of the 2023 Inuit and Nunavummiut Employment Survey show that while majority of personal relationships have remained stable among those who responded to the survey, respondents often worried about families when on-site, felt lonely, and/or worried about keeping their job. Many also struggled with their financial situation and found it challenging to pay bills on time.	MEADOWBANK – none WHALE TAIL "Project incomes [and rotational employment] may affect family and community health and cohesion." (Golder Associates, 2018, p. 14-15).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	9.3 Criminal violations			
	Criminal violations per hundred people by community	In 2022, the latest year for which data is available, crime rates across the Kivalliq region averaged 32 violations per 100 people, a slight increase from 30 in 2021. Crime rates tend to be higher in Rankin Inlet, with Baker Lake and Coral Harbour also having higher crime rates since 2018. By category, mischief, disturbing the peace, and assault tend to be more common in Rankin Inlet, Baker Lake, and Chesterfield Inlet, noting that mischief has declined annually since 2017 in Chesterfield Inlet.	MEADOWBANK – none WHALE TAIL "Project incomes may affect family and community health and cohesion [crime]." (Golder Associates, 2018, p. 14).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	Criminal violations per hundred people by type and community			
	Baker Lake			
	Rankin Inlet			
	Chesterfield Inlet			
	9.4 Health centre visits			
	Kivalliq community health centre visits by reason	Data for this indicator has not been available since 2016.	MEADOWBANK "The potential public health and safety impacts of the project, of unknown magnitude, are negative, and, because there is such high impact at the individual level in the event that a risk is realized, the effects must be considered long term and of high significance." (Cumberland Resources Ltd., 2006, p. 126) WHALE TAIL "Project-induced in-migration could increase demand for services and infrastructure in Baker Lake and Rankin Inlet [health care]." (Golder Associates, 2018, p. 17).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	9.5 Housing			
	Persons on waitlist for public housing by community	In 2023, 1,167 people were on a public housing waitlist in the Kivalliq region, representing a 14.1% increase over 2022 demand.	MEADOWBANK – none	MEADOWBANK – TBD (cannot be determined at this time)

Sector and Overarching FEIS Prediction	Metric	2023 Overview	Specific FEIS Prediction	Accuracy of the FEIS Prediction
	Housing needs by community as a percentage of housing stock	In 2023, Kivalliq communities with the highest needs are Arviat (78%), Baker Lake (75%), Rankin Inlet (64%), Naujaat (63%), Coral Harbour (63%), and Whale Cove (57%) (all rated as 'critical need'), and Chesterfield Inlet (32%, rated as 'serious').	WHALE TAIL "Project-induced in-migration could increase demand for housing in Baker Lake and Rankin Inlet." (Golder Associates, 2018, p. 16).	WHALE TAIL – TBD (cannot be determined at this time)
	Number of people in core housing need by type and community	The most recent year for which this data is available is 2016.		
	Self-reported home ownership aspirations by community	In the 2023 Inuit and Nunavummiut Employment Survey, 72% of respondents indicated they wished to own a home in the last 12 months and 85% want to buy a house / condo in the future.		
	9.6 Food security			
	Self-reported concerns on food availability by community	The 2023 Inuit and Nunavummiut Employment Survey showed that two-thirds of respondents (67%) worried about food running out, representing a slight increase in this metrics over 2022 results (66%).	MEADOWBANK – none WHALE TAIL "Regular incomes can help lift or keep people out of poverty; provide access to nutritious food." (Golder Associates, 2018, p. 20).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is supported
	Cost of the Revised Northern Food Basket (RNFB)	There was an overall increase in the cost of the RNFB in 2021, in line with the high inflation experienced overall in Canada. Annual changes ranged in 2021 from a 2% decrease in the RNFB in Chesterfield Inlet to 13% increase in the RNFB in Coral Harbour. Information for 2022 was not available at the time of PEAMP preparation.		
	Agnico Eagle investments in food security initiatives	Agnico Eagle continues to make notable efforts to reduce food insecurity in the Kivalliq Region, and in 2023 contributed $500,000 to provide breakfast for students in the Kivalliq and Kitikmeot communities.		
	9.7 Suicide			
	Suicides per 10,000 people by region	The Kivalliq region had the lowest suicide rate in Nunavut, but only marginally, and despite a drop in 2020 (the latest year for which data is available), suicide rates remain at crisis levels, being 6 times the rate of suicide in Canada in 2020. Information for 2021, 2022 and 2023 was not available at the time of PEAMP preparation.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
10. Culture and Traditional Lifestyle	**10.1 Perceptions of culture and traditional lifestyle**			
MEADOWBANK: "There is potential for both negative and positive impacts, of any magnitude, on traditional ways of life, which could be of high significance. Any net impact, since it would be an impact of cultural change, would be long term and continue beyond the life of the project. The impact would be experienced primarily in Baker Lake." (Cumberland Resources Ltd., 2006, p. 123) **WHALE TAIL:** "Rotational employment can […] have negative effects on cohesion, taking workers away from their communities and families for extended periods of time, and can erode traditional values" (Golder Associates, 2018, p. 12)	**Self-reported effect of project on overall communities and on cultural and traditional activities**	According to the 2023 Inuit and Nunavummiut Employment Survey, Inuit employees indicated that Agnico Eagle has had a positive (59%), neutral (37%) and negative (4%) impacts on their community. The results show a mixed change in employees' participation in cultural activities compared to 2022 - 11% indicated they participated more in traditional activities, 45% stated that their participation had not changed, and 34% indicated that their participation had decreased. In 2023, all survey participants indicated they had participated in some form of traditional and cultural activities in the last 12 months.	MEADOWBANK – none WHALE TAIL "Rotational employment can […] have negative effects on cohesion, taking workers away from their communities and families for extended periods of time, and can erode traditional values" (Golder Associates, 2016, p. 12).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is supported
	10.2 Culture and traditional lifestyle			
	Population identifying Inuktitut as their mother tongue, by Kivalliq community	The proportion of the population that identified Inuktitut as their mother tongue declined in all communities from 2006 to 2021.	MEADOWBANK "The project will not significantly restrict access to, or productivity of lands used for traditional activity." (Cumberland Resources Ltd., 2006, p. 122) WHALE TAIL "Rotational employment can […] have negative effects on cohesion, taking workers away from their communities and families for extended periods of time, and can erode traditional values" (Golder Associates, 2018, p. 12).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	Number of Agnico employees identifying Inuktitut as their first language	The number of Agnico Inuit employees at Meadowbank / Whale Tail with Inuktitut as a first language fell from 118 (48%) in 2022 to 91 (45%) in 2023.		
	Self-reported effect of project on use of Inuktitut	The 2023 Inuit and Nunavummiut Employment Survey results confirmed it is important to Inuit employees to speak Inuktitut at the mine site and that, for most, working at the mine had not impacted their use of Inuktitut at home. However, 10% of respondents indicated that they felt they spoke Inuktitut now less at home as a result of working at the mine.		
	Use of AWAR by community	There was an increase in usage of the Meadowbank AWAR from 2,323 in 2022 to 3,142 uses in 2023.		
	Number of consultations with Elder's Advisory Committee on integrating Inuit knowledge	Four (4) public consultations; two (2) public events; three (3) meetings and one (1) cultural event with the Kivalliq Elders Advisory Committee (KEAC); and 1 field trip with Baker Lake Elders.		
	Agnico Eagle investments to support community and traditional activities	In total, in 2023, $69,160 was invested to support community traditional activities, a decrease from $129,186 in 2022.		
	10.3 Country food use at project			
	Country food kitchen usage	Country food kitchens were accessed by more than 20 employees in 2022 and 2023.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK – TBD (cannot be determined at this time)
	Country food night events attendance	There were five (5) country food nights hosted in 2023, compared to six (6) in 2022.		WHALE TAIL – TBD (cannot be determined at this time)
11. Nunavut Economy	**11.1 Royalties and taxes**			
MEADOWBANK: "The economic impacts on the economy of Nunavut, of high magnitude, are positive over the medium term and of high significance, particularly during the construction phase." (Cumberland Resources Ltd., 2006, p. 129)	**Project payments, royalties and taxes**	In 2023, for Meadowbank / Whale Tail, payments from taxes, royalties, and IIBA commitments to the NTI and KIA increased from $95.4M in 2022 to $109.1M in 2023.	MEADOWBANK – none WHALE TAIL "The Project's operational government revenue impact from taxes is projected to be approximately $307 million, of which 14% ($41.5 million) would accrue to Nunavut." (Golder Associates, 2018, p. 8).	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – Prediction is supported
	11.2 Trade Balance			

Sector and Overarching FEIS Prediction	Metric	2023 Overview	Specific FEIS Prediction	Accuracy of the FEIS Prediction
WHALE TAIL: "The Expansion Project will continue to contribute to territorial economic activity." (Golder Associates, 2018, p. 7)	**Nunavut trade balance**	In 2022, the trade deficit was $469M, the lowest level on record since 2002 (compared to the average of $1,180M from 2010 to 2017). Information for 2023 was not available at the time of PEAMP preparation.	MEADOWBANK – none WHALE TAIL – none	MEADOWBANK– TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)
	11.3 Nunavut GDP			
	Nunavut GDP (all industries), Nunavut GDP (mining, quarrying and oil & gas)	Nunavut's GDP has been trending upwards since 2010. In 2022, mining accounted for approximately $1,329M or 36% of total GDP ($3,741M). Information for 2023 was not available at the time of PEAMP preparation.	MEADOWBANK – "The results indicate that during the construction phase, the project would contribute $120.3 M to the GDP of Nunavut … During the operations phase, the annual contribution to GDP would be $35.5M…" (Cumberland Resources, 2006, p. 119) WHALE TAIL "During operations, the Expansion Project will represent a contribution to the territorial economy, with total annual GDP contributions of $100 million to $120 million annually." (Golder Associates, 2018, p. 7)	MEADOWBANK – TBD (cannot be determined at this time) WHALE TAIL – TBD (cannot be determined at this time)

12.4.6.2 *Parts 3 & 4: Discussion*

For each metric with a specific FEIS prediction that is not supported (as identified in Table 12-16), a trend analysis and discussion is provided here from the 2023 Socio-Economic Monitoring Report (Appendix 47). That report further provides trend analyses and discussions for every metric assessed in Table 12-16, above.

12.4.6.2.1 Project Inuit Employment (Agnico Eagle and Contractors)

A complete discussion of this issue is provided in Section 1.2 of the 2023 SEMR (Appendix 47), as summarized below.

FEIS Prediction:

> MEADOWBANK – none
>
> WHALE TAIL (inc. contractors) – "Excluding the final year of operations when Project employment ramps down, direct average operational employment is expected to be 1,166 […] Of these, nearly half (491 or 42%) are expected to be filled by Nunavummiut, the majority of which are employed at the Meadowbank Mine and will move over to the Expansion Project." (Golder Associates, 2018, p. 9)

Discussion: Trends in Agnico Eagle and contractor employment numbers are provided in Figures 61 and 62.

In 2023, Agnico Eagle's Inuit employees worked the equivalent of 272 FTEs, while another 122 FTEs were filled by contractors' Inuit employees, for a total of 394 FTEs. Considering year-over-year change, in 2023, Agnico Eagle's Inuit employment decreased at Meadowbank / Whale Tail by 28 FTEs whilst contractors decreased by 1 FTEs at Meadowbank / Whale Tail.

At Meadowbank / Whale Tail, Agnico Eagle's Inuit FTEs comprised 16% of the total employee base in 2023, down from 18% in 2022. For contractors, Inuit FTEs were at 3% of total FTEs in 2022 and 2023. The combined (Agnico Eagle and contractors) Inuit FTE effort for Meadowbank / Whale Tail was 11% in 2023, being notably lower than the FEIS prediction of 42% for Whale Tail.

In 2022, Agnico Eagle started to track missed work hours for Inuit employees as a retention initiative. The aim is to better support employee well-being and prioritize work-life balance following inuuqatigiitsiarniq. In 2023, Meadowbank / Whale Tail had 53 FTEs in missed hours. The reason for missed hours varies but the most common reasons include not showing up for work, calling in sick, and family reasons. This greatly impacts the overall Inuit FTE count annually.

The level of Inuit employment at Agnico Eagle is explored in detail in the Kivalliq Labour Market Analysis (KLMA). The 2021 KLMA repeats findings of previous analyses that the Kivalliq Inuit labour supply does not meet Agnico Eagle's labour demands due to a combination of factors related to demographics, education and skills, and willingness to work.

Sanajiksanut (or the Sanajiksanut Program) is the primary vehicle through which Agnico Eagle recruits and hires new Inuit employees. In 2021, Agnico Eagle and KivIA agreed to modify the existing process through a Memorandum of Understanding (MoU). As a result, the Work Readiness and the Mandatory Trainings were combined to become the Pre-employment Training Program (10-day community-based

training). This change reduced the number of steps for applicants and decreased the delay in applicants gaining employment.

In 2023, the Sanajiksanut Program supported different initiatives to facilitate access to employment for the Inuit workforce. Community-based and on-site training initiatives were supported and implemented to develop new training programs and create career opportunities. Job specific recruitment process was put in place to streamline the recruitment process and give more exposure to the different careers offered at the mine site. Focus was also put on Mining Awareness activities with high school and college students. In total in 2023, the Sanajiksanut program hired 94 Inuit employees at the Meadowbank Complex (87 for Agnico Eagle, and 7 for contractors).

Figure 61 Project Agnico Eagle employment (Inuit & non-Inuit)

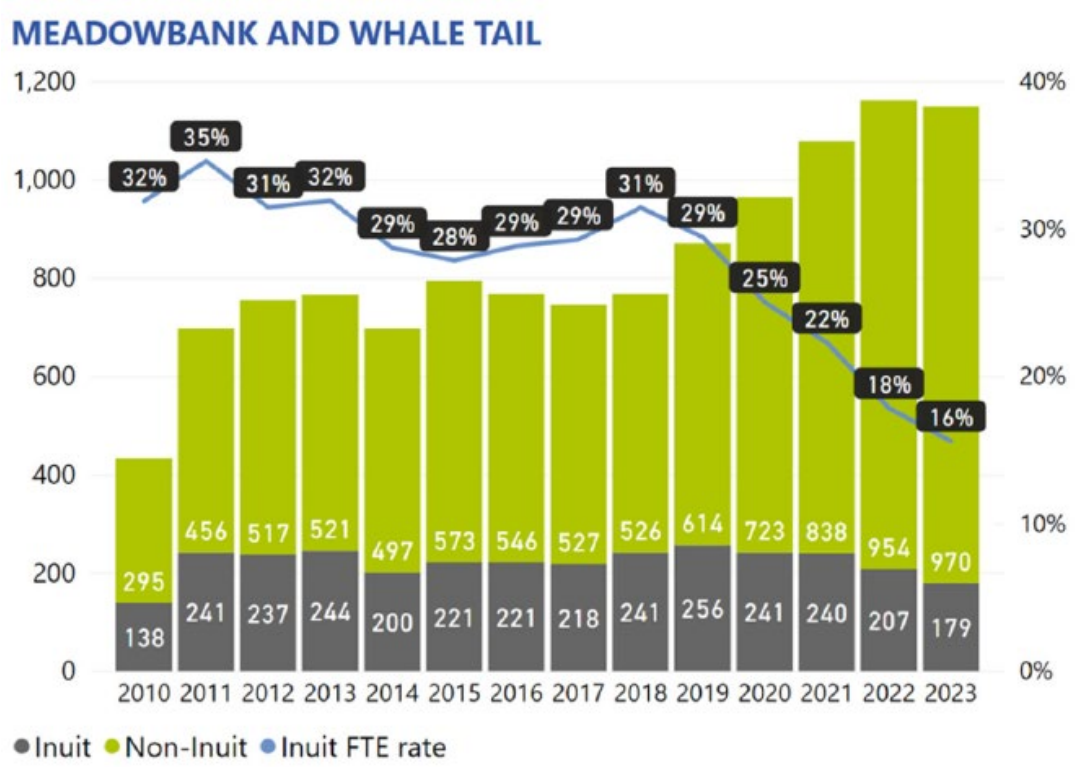
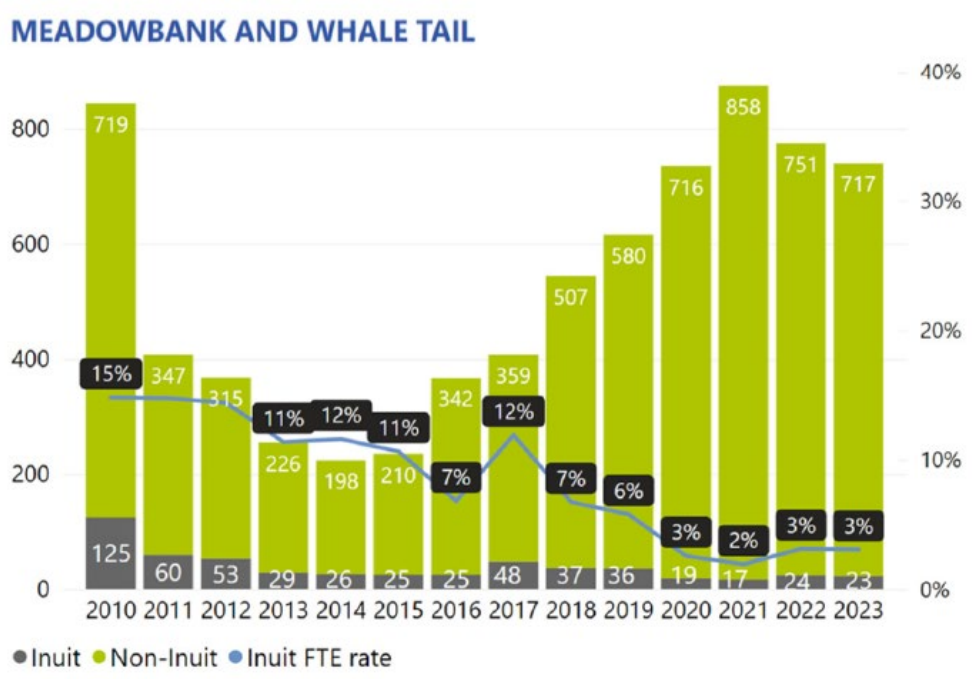


Figure 62 Project contractor employment (Inuit & non-Inuit) [11]



12.4.6.2.2 Project Agnico Eagle Employment by Kivalliq Community

A complete discussion is provided in Section 1.3 of the 2023 SEMR (Appendix 47), and the issue is summarized below.

***FEIS Prediction*:**

MEADOWBANK – none

WHALE TAIL – The FEIS estimates Baker Lake is expected to fill 3 management jobs, 16 skilled jobs, 187 semi-skilled jobs, and 66 entry level jobs, for a total of 272 jobs (Golder Associates, 2018, p.10-11

Discussion: The number of Agnico Eagle's Kivalliq-based employees generally trended downward year-over-year at Meadowbank / Whale Tail, decreasing by 10% in 2020, 14% in 2021, 14% in 2022, and 22% in 2023, reaching 173 employees in 2023. Contractors' employment of Kivalliq-based employees also decreased from 23 in 2022 to 20 in 2023. In 2023, there were 183 Kivalliq-based employees at Meadowbank/Whale Tail.

12.4.6.2.3 Income Paid to Projects' Inuit Employees

A complete discussion is provided in Section 3.1 of the 2023 SEMR (Appendix 47), and the issue is summarized below.

[11] Due to data availability, post 2017 Meadowbank / Whale Tail contractor data and all Meliadine contractor data represent full time equivalents (FTEs), derived based on person-hours worked. The remainder of data points (Meadowbank 2010 to 2016) represent the number of employees as a snapshot at one time of year. Trends between these years should be interpreted with caution.

***FEIS Prediction*:**

MEADOWBANK - “Direct project wages paid to people in Kivalliq Region, primarily Baker Lake, could exceed $4M annually.” (Cumberland Resources, 2006, p. 121).

WHALE TAIL - “During operations, the Expansion Project is projected to generate $421.1 million (cumulatively) in direct labour income in Nunavut, and $509.3 million in total territorial labour income.” (Golder Associates, 2018, p. 12). The FEIS estimates 217 positions will be filled by employees from Baker Lake.” (Golder Associates, 2016, pp. 7-53)”

Discussion: Total income paid to Inuit employees (excluding contractors) in 2023 was $33.8M, representing a 4% increase since 2022. Income paid to Inuit workers represented 11% of total income paid to Agnico Eagle employees on both sites in 2023. With 92% of Inuit employees residing in the Kivalliq communities, there continues to be a significant and positive impact on the personal income of people in the region, in line with FEIS predictions. By the end of 2023, Agnico Eagle has paid a cumulative total of $305.8M of employment income to Inuit employees of all Agnico Eagle projects since 2010.

12.4.6.2.4 Project Employment by Skill Level

A complete discussion of this issue is provided in Section 4.4 of the 2023 SEMR (Appendix 47), as summarized below.

***FEIS Prediction*:**

MEADOWBANK - none

WHALE TAIL - “As Nunavummiut employees achieve further training and education, it is expected that they will be better poised to advance to more skilled positions as they arise, thereby increasing representation of Nunavut residents in the skilled, professional and management employment categories” (Golder Associates, 2016, pp. 7-55).

***Discussion*:** Figure 63 shows the number of Inuit employees at each skill level between 2014 and 2023. Agnico Eagle changed how various skill levels are classified in 2013 and 2014, and consequently year-over-year trends of Inuit employment by skill level cannot be drawn pre-2014.

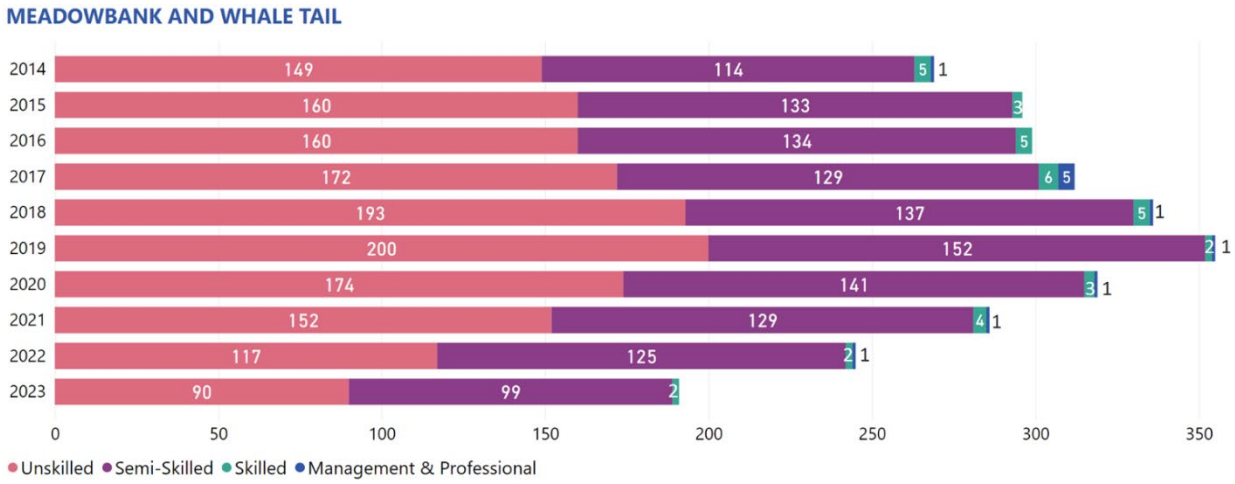
In 2023, the number of Inuit employees continued to decrease in semi-skilled and unskilled job categories at Meadowbank, but remained constant for skilled, and decreased for management & professional positions. Overall, most unskilled jobs and less than a quarter of semi-skilled jobs are held by Inuit employees, while Inuit employees are underrepresented in management & professional / skilled roles.

For overall employment by skill level in 2023, Meadowbank / Whale Tail had 87 FTEs in unskilled roles, 483 in semiskilled, 280 in skilled, and 299 in management and professional.

There are several longer-term barriers identified in the KLMA to retention and advancement of Inuit in the workplace. These include family needs, cultural priorities, language barriers, and access to support programs. Ultimately, there are three (3) pathways through which higher skilled employment can be achieved: (1) direct hiring, (2) greater retention, or (3) internal career progression. The IWBS Study (Mining Industry Human Resources Council (MiHR), 2018a) also identified several challenges to increasing Inuit representation in higher skilled positions through internal advancement programs,

including inadequate skillsets, high absentee rates, impact of cultural norms, and lack of adequate time and space for training.

Figure 63 Project Agnico Eagle Inuit employees by skill-level



12.4.6.2.5 Employee Migration and Population estimated in Kivalliq communities

A complete discussion of this issue is provided in Appendix 47 (Section 7.1) as summarized below.

***FEIS Prediction*:**

Employee Migration:

> MEADOWBANK - The Meadowbank FEIS suggests that in-migration of Southerners to Baker Lake would be the primary concern.
>
> WHALE TAIL – Project is not expected to generate employment-driven migration." (Golder Associates, 2016, 3-C-38)

Population estimated in Kivalliq communities:

> MEADOWBANK- "It is not likely that migration to any other community than Baker Lake would be significant," but does not provide any specific predictions on changes to populations in Kivalliq communities. (Cumberland Resources, 2006, p. 126)
>
> WHALE TAIL - "Project employment opportunities could spur migration to Baker Lake and Rankin Inlet." (Golder Associates, 2018, p. 15)

***Discussion*:**

Agnico Eagle monitors the movement of employees into- and out of Nunavut.

At Meadowbank / Whale Tail, the number of Inuit employees residing outside Nunavut in 2023 increased to 26 from 22 in the previous year. Overall, it has remained relatively flat since 2015, with the exception of 2021 when there was a peak of 28 employees living outside the region (likely attributable to the fact that

Nunavummiut employees did not have access to the site for extended periods in 2021 to prevent the spread of COVID-19 to communities).

In 2023, net employee movements included:

-Eight (8) Inuit employees moving out of Nunavut

-Two (2) Inuit employees moving into Nunavut

-Zero (0) non-Inuit moving in and out of the territory.

The number of Inuit and non-Inuit employees moving into and out of Nunavut – and between Baker Lakes and Rankin Inlet has been minimal. Employment at Agnico Eagle's projects provides Inuit employees with income and skills that may facilitate moving out of the territory. Other factors unrelated to the mines, such as the housing shortage in Nunavut, and the lower cost of living and educational and job opportunities elsewhere in Canada, may also contribute to out-migration.

Agnico Eagle's employee migration data indicates minimal impact on Kivalliq communities. Based on available and current data, there is no indication of mining-induced in-migration, countering FEIS predictions for both mine sites.

12.4.6.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

Existing monitoring programs are able to address most FEIS predictions (Table 12-17), so these monitoring measures are considered to be effective. In some cases, existing monitoring programs (mainly those run at the community- or territory-level) cannot specifically determine the impact of Agnico Eagle's operations on observed changes. Namely these metrics include health centre visits, social assistance use, and health and safety awareness among families and communities.

Effectiveness of Mitigation

A summary of the planned mitigation measures for socio-economic impacts for the Meadowbank operations phase (per FEIS, Appendix B, Table B.15-2) along with implementation in 2023 is provided in Table 12-17.

A summary of the planned mitigation measures for socio-economic impacts for the Whale Tail construction and operations phase (per FEIS, Volume 3, Table 3-C-8, Table 3-C-9, Table 3-C-10) along with implementation in 2023 is provided in Table 12-18.

Overall, the only potentially significant departures from FEIS predictions identified in Section 12.4.6.1 are regarding Project Inuit employment, and Project employment by skill level. Agnico Eagle continues to recognize and address these gaps through new management and mitigation initiatives such as the improved Leadership Development program, Adult Educators Program, Career Path training programs, the Cross-Cultural training and others, which are described in the 2023 SEMR.

Table 12-17 Mitigation measures described in the Meadowbank Project FEIS to reduce impacts of the project on socio-economic VECs (sub-headings in italics), and commentary on current implementation.

Planned Mitigation Measure (FEIS, Appendix A, Table B.15-2)	Implementation (unless indicated, reference to 2023 Socio-Economic Monitoring Report, Appendix 47)
Employment, training, and business opportunities	
Preferential employment and contracting	**Yes -** See Section 1.1, 5.1 and "Existing Management and Mitigation"
Preferential hiring	**Yes -** See Section 1.1, 5.1 and "Existing Management and Mitigation"
Preferential procurement	**Yes** - see Section 5.1
Education and training initiatives	**Yes –** Section 4
Education initiatives directed at specific concern around youth and their future in a mixed economy	**Yes –** Section 4.1 and 4.2 and "Existing Management and Mitigation"
Traditional ways of life	
Allowing use of project winter road to traditional land users	**Yes** – Section 10.2
Income and workforce management practices that value and provide opportunity for traditional activity	**Yes** – Section 3
Workforce management and community initiatives in support of traditional activity	**Yes** – Section 10
Individual and community wellness	
Assistance to individuals experiencing problems and their families, zero tolerance policies	**Yes** – Section 9
Short rotations	**Yes –** Inuit Workforce Barriers and Strategies (IWBS) report (Appendix 61 of the 2018 Annual Report)
Workforce management best practice, including codes of conduct, rotation to point of hire, etc.	**Yes –** Inuit Workforce Barriers and Strategies (IWBS) report (Appendix 61 of the 2018 Annual Report)
Driver training, public education to reduce potential for traffic accidents	**Yes** - Driver training is part of Mandatory Training, public education to reduce potential for traffic accidents is done through annual AWAR public meetings
Operations best practice to minimize emergencies, emergency response planning in the event of an emergency	**Yes** – e.g. Emergency Response Team (ERT) Training, Crisis Management Plan (CMP), Emergency Response Plan
Support for community wellness initiatives	**Yes** – Section 9
Infrastructure and social services	
Employment at good wages	**Yes** – Section 1 and 3
Avoidance of sites of heritage significance, protocol in place in event that new sites are identified	**Yes** – Archaeology Management Plan: Always conduct archeology studies or consultation of previous archaeology studies before construction to confirm present or not of heritage sites. Mitigation measure to be implemented as per the consultant recommendation and Government of Nunavut

Table 12-18 Mitigation measures described in the Whale Tail FEIS to reduce impacts of the project on socio-economic valued components (sub-headings in italics), and commentary on current implementation. Excludes environmental design features, as these are a component of completed design plans and not ongoing mitigation. TEMP = Terrestrial Ecosystem Management Plan.

Planned Mitigation Measure (FEIS Table 3-C-1)	**Implementation (2023)**
Heritage Sites	
Complete heritage assessment for the Project footprint to identify archaeological sites present.	**Yes** –Archeology Management Plan - Always conduct archeology studies or consultation of previous archaeology studies before construction to confirm present or not of heritage sites. Mitigation measure to be implemented as per the consultant recommendation and Government of Nunavut.
Alter or adjust the location of a Project component or activity to fully avoid impacts on culturally important sites such as graves; otherwise mitigate and conduct heritage resource surveys in accordance with the GN department of Culture and Heritage.	
For archaeological sites that will be adversely affected by the Project, and where more passive mitigation strategies (e.g., capping, relocation) are not viable for those locations, preservation by systematic recording (i.e., excavation or documentation) is an option.	
Complete additional heritage baseline assessment for any changes to the Project footprint in areas considered to have potential to contain heritage resources.	
Agnico Eagle will mark the perimeter of heritage sites to be avoided with flagged stakes or similar, will erect “no work zone” signage, and, if in a potentially high traffic area, will erect snow fencing or similar barrier to prevent entry. Agnico Eagle will monitor condition of site barriers.	**NA**
Agnico Eagle will include no work areas on project drawings.	**Yes** – Archaeology Management Plan
Provide awareness training for Agnico Eagle and Contractors that includes general guidelines for the appropriate response to the inadvertent discovery of known or suspected archaeological materials.	**Yes** – Archaeology Management Plan
Traditional Land Use – Wildlife Harvesting	
Surveys of proposed granular sources for dens and nests will take place prior to construction.	**Yes** – TEMP
Wildlife will have the right-of-way and vehicle traffic will be minimized according to the TEMP. Maximum speed limits of 50 km/hr will be enforced.	**Yes** – TEMP
Traffic volumes will be managed and roads closed when large numbers of caribou are present, in consultation with the HTO, GN, and KIA according to the TEMP.	**Yes** – TEMP
All employees will be provided with wildlife environmental awareness training.	**Yes** – TEMP
Drivers will be alerted when caribou are observed near the haul road.	**Yes** – TEMP
Littering and feeding of wildlife will be prohibited.	**Yes** – TEMP
Employees will be notified when caribou, muskox and predatory mammals are observed in the local study area.	**Yes** – TEMP
Land will be cleared outside the breeding season (June 1 to August 1). Mitigation to reduce impacts to nesting birds will be discussed with Environment Canada.	**Yes** – TEMP
All spills will be immediately reported, cleaned up and/or isolated from the receiving environment. Ready access to emergency spill kits. Regular maintenance of equipment to reduce oil leakage. Training in refueling procedures for site staff. Hazardous materials and fuel will be stored according to regulatory requirements.	**Yes -** Detailed mitigation is provided in the Emergency Response Plan, Hazardous Materials Management Plan, Whale Tail Haul Road Management Plan and Spill Contingency Plan.
Monitoring for bird nesting activity. Birds showing nesting activity will be discouraged from nesting and roosting on site infrastructure.	**Yes -** Detailed mitigation is described in the TEMP.
Attenuation Ponds will be monitored for use by water birds. Deterrents will be used if required. Attenuation Ponds will be monitored for water quality.	**Yes -**Detailed mitigation is described in the TEMP.
Enforce no hunting, trapping, harvesting or fishing policy for employees and contractors. Hunter harvest survey, consistent with the Meadowbank Mine will continue. Access to the Project will be controlled (gated at Meadowbank); Restricting public vehicle access beyond km 85 of Meadowbank All-weather Access Road. All efforts will be made to enforce a no shooting zone for the public along the road and around the Project site.	**Yes** - Detailed mitigation is provided in the Whale Tail Haul Road Management Plan, Interim Closure Plan and Reclamation Plan and TEMP.
Any PAG or high metal leaching waste rock will be segregated at source and placed into designated areas within waste rock storage facilities to control acid generating reactions and the migration of contaminants. Leachate from the waste rock piles will be monitored and controlled and not released to the natural environment.	**Yes -** Detailed mitigation is provided in the Operational ARD-ML Sampling and Testing Plan, Landfarm Design and Management Plan, Landfill Design and Management Plan, and Mine Waste Rock and Tailings Management Plan, Air Quality and Dustfall Monitoring Plan, Road Management Plan, Water Management Plan, AEMP, CREMP and the TEMP.
Traditional Land Use – Fishing	
Best management practices for erosion and sedimentation control (e.g., ground cover, silt fences and curtains, runoff management), where needed.	**Yes –** Water Management Plan
Quarries will be inspected on a regular basis to monitor water ponding, particularly at spring melt; when there is flow from a quarry that could enter a waterbody, a water quality sample will be collected and analyzed.	**Yes –** Water Quality and Flow Monitoring Plan
The dike will be constructed using non- potentially acid-generating rock or low potential for metal leaching material	**Yes** – Construction Design Report, ARD-ML Sampling and Testing Plan
In-stream works will be constructed in winter, when possible, to avoid increased TSS and turbidity, and changes to water and sediment quality.	**Yes** - Best practices
Mining staff will not be allowed to hunt or fish while on their work rotation; Agnico Eagle will develop and enforce “no hunting, trapping, harvesting or fishing policy” for employees and contractors, which will be consistent with the Meadowbank Mine.	**Yes**
Runoff and seepage from the Project site will be diverted to sumps and attenuation ponds (and treated if required), prior to release.	**Yes –** Water Management Plan, Water Quality and Flow Monitoring Plan
Water quality in attenuation ponds will be monitored and managed such that the discharge meets discharge limits.	**Yes –** Water Quality and Flow Monitoring Plan
Any potentially acid generating (PAG) or high metal leaching waste rock will be segregated at source and placed into designated areas within the waste rock storage facility.	**Yes –** Operational ARD-ML sampling and testing plan
Traditional Land Use – Plant Gathering	
Implement the spill plan for potential chemical spills, including hydrocarbons.	**Yes -** Spill Contingency Plan
Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed.	**Yes –** Erosion Management Plan
Use of non-acid generating materials for road bed and fills.	**Yes –** Operational ARD-ML sampling and testing plan
Implement dust control measures on mine roads, when required, including enforcing speed limits.	**Yes –** Air Quality and Dustfall Monitoring Plan, Road Management Plan
Road surfaces will be maintained through grading and the addition of granular material.	**Yes –** Road Management Plan
Equipment and vehicles will comply with relevant non-road emission criteria at that time of purchase.	**Yes**
Waste rock management procedures developed for potentially problematic waste rock/overburden material. Implement the Mine Waste Rock and Tailings Management Plan.	**Yes** - Mine Waste Rock and Tailings Management Plan.
Hazardous materials and fuel will be stored according to regulatory requirements to protect the environment and workers.	**Yes –** Hazardous Management Plan
Adherence to the AWAR and Whale Tail Pit Haul Road Dustfall Monitoring Plan (Appendix B of the TEMP).	**Yes** – Air Quality and Dustfall Management Plan
Traditional Land Use – Culturally Important Sites	
See measures listed under Heritage Resources, above.	**NA**
Provide ongoing consultation with the community of Baker Lake (specifically Elders and the HTO Members), and provide opportunities for participation in heritage resource surveys and mitigation measures.	**Yes**

Planned Mitigation Measure (FEIS Table 3-C-1)	**Implementation (2023)**
Best Management practices for controlling equipment noise emissions, including: • Use of silencers on all trucks • Enforcing speed limits • Regular maintenance will be implemented for equipment and vehicles	**Yes –** Noise monitoring and abatement plan
Implement the mitigation measures outlined in the Noise Monitoring and Abatement Plan that was developed for the Meadowbank mine site in 2009 (Agnico Eagle 2009) and refined in 2013 (Agnico Eagle 2013).	**Yes –** Noise report
Traditional Land Use Access	
The haul road will be closed to the public. Access to the Project will be controlled (gated at Meadowbank); Restricting public vehicle access beyond km 85 of Meadowbank All-weather Access Road.	**Yes**
Enforce no hunting, trapping, harvesting or fishing policy for employees and contractors.	**Yes**
Hunter harvest survey, consistent with the Meadowbank Mine will continue.	**Yes -** TEMP
Agnico Eagle will work with local wildlife harvesters to ensure the preferred ATV and snowmobile crossing areas are well identified for both hunters and operators on the road.	**Yes** – HTO/Elders consultation
Socio-Economics	
Use of existing Meadowbank Mine workforce.	**Yes**
Continue existing training initiatives for the Project's workforce.	**Yes –** See 2023 Socio-Economic Monitoring Program Report section "Existing Management and Mitigation"
Housing out-of-area workers in on-site camp; Fly-in/fly-out to and from Kivalliq communities	**Yes**
Continue social management approach identified in the Socio-Economic Management and Monitoring Plan (Appendix 8-E.6).	**Yes**
Implement noise and air quality mitigations including: Adherence to the • Air Quality Monitoring Plan. • Enclosures are used to reduce fugitive emissions at the processing facility. • Adherence to the Incinerator Waste Management Plan •Adherence to the AWAR and Whale Tail Pit Haul Road Dustfall Monitoring Plan (Appendix B of the TEMP). • Best Management practices for controlling equipment noise emissions, including use of silencers on all trucks • Enforcing speed limits. • Regular maintenance will be implemented for equipment and vehicle.	**Yes**- Air and Noise reports

Adaptive Management

Existing management and mitigation related to VSECs are described in the 2023 SEMR (Appendix 47).

These include, for example:

- Cross Cultural training: Agnico Eagle provides cross cultural training program, an in-class training course for employees from different cultures and backgrounds to understand cultural differences and improve communication in the workplace.

- Leadership development program: This program is designed specifically for employees in supervisory roles with the aim of honing their leadership skills. The program consists of 5 five modules that covers various aspects of leadership. In 2023, a total of 41 sessions were delivered across all sites.

- Adult Educator: For employees who are pre-apprentices and apprentices, the Adult Educator works with the employees to improve math skills based on the types of questions they may see in technical training, test taking skills, reading comprehension, and scientific concepts. The goal is for the apprentice to be well prepared to attend technical training.

- KEAC: The Kivalliq Elders Advisory Committee which is made up of 21 Elders from Baker Lake Chesterfield Inlet, Rankin Inlet, Whale Cove, and Arviat was created in 2021 to integrate ISV, IQ and community knowledge into Agnico Eagle's operations. In 2023, multiple activities took place with the KEAC to support with employment and recruitment initiatives, training and other important operational activities.

- Inunnguiniq: A mental health support program by Agnico Eagle with the aim of creating a safe and supportive space for individuals to improve well-being. In 2023, Agnico Eagle created the Inunnguiniq project, which consists of a $5M investment dedicated to supporting active lifestyle, food security and respect of Inuit culture with local and national partners.

- Newsletter: A newsletter, containing operational activities and achievements, including a section on how to reach out to the company for questions/ concerns/ suggestions, was produced and sent to the members of the Baker Lake Community Liaison Committee. Engagement with specific community sub-groups will allow better understanding of the issues and provide a venue for stakeholder sub-groups to advice Agnico Eagle Management for solutions. In November 2023, a newsletter was sent to all Community Liaison Committee members.

12.5 WHALE TAIL PEAMP EVALUATION

For each valued component (VC) in the FEIS Addendum for the Whale Tail Pit – Expansion Project (Agnico Eagle, 2018), a summary of the primary effects pathways that were evaluated is provided in Section 12.3, above. The completed PEAMP evaluation for residual effects associated with those pathways is presented in Sections 12.5.1 – 12.5.6, below.

VCs in this FEIS Addendum include Climate, Air Quality, Noise, Permafrost, Terrestrial Environment (vegetation, wildlife and birds), Aquatic Environment (surface water quantity, surface water quality, hydrogeology and groundwater, fish and fish habitat), Heritage Resources, Traditional Land Use, and Socio-Economics. These are generally the same VCs as identified and assessed for the original Meadowbank FEIS (Cumberland, 2005). For two VCs (hydrogeology and groundwater, heritage

resources) no primary effects pathways or residual impacts were identified. For the remaining VCs, predicted residual impacts and measured residual impacts are examined here.

12.5.1 Aquatic Environment

Key mine development activities that could result in changes to the aquatic receiving environment for the Whale Tail Mine include: Whale Tail and Mammoth Dike construction, dewatering of Whale Tail Lake – North Basin and the IVR area waterbodies, effluent discharge, and dust generated through onsite activities including roads.

Within the Project FEIS Addendum (Agnico Eagle, 2018), impacts to the aquatic environment potentially generated through these activities are described for water quantity, water quality, and fish/fish habitat. Predicted and measured residual impacts for each of these VCs are described below.

12.5.1.1 *Water Quantity*

12.5.1.1.1 Parts 1 & 2: Summary of Predicted and Measured Residual Impacts

A summary of predictions for impacts to surface water quantity (FEIS Addendum, Section 6.3, as summarized in Table 3-C-5) and the accuracy of these predictions since 2019 (measured impacts) are provided in Table 12-19. Cells are highlighted in grey when measured impacts exceed predictions for the current year. Future results will be added to that section to ensure historical trends can be observed, even when predicted impacts are not exceeded in a given year.

Table 12-19. Predicted and measured impacts to surface water quantity for the Whale Tail Mine during the construction and operations period (primary pathways according to FEIS Addendum, Table 3-C-5). Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.5.1.1.2.

<table>
<tr><th rowspan="2">Primary Effect Pathways</th><th rowspan="2">Residual Impact</th><th rowspan="2">Proposed Monitoring</th><th rowspan="2">Key Monitoring Parameters</th><th rowspan="2">Key Predicted Impact</th><th colspan="5">Measured Impact</th></tr>
<tr><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th></tr>
<tr><td rowspan="2">Project footprint, which will physically alter watershed areas and drainage patterns, may change downstream discharge, water levels, and channel/bank stability in streams, and affect water quality, fish habitat, and fish</td><td rowspan="6">Change in discharge rate and the spatial distribution of water</td><td rowspan="6">Monitoring of flows and water levels at key locations

All piped and/or pumped discharges to waterbodies will be monitored continuously

Climate monitoring, including continuous measurements of rainfall and temperature, will be performed to allow validation of the hydrological model, assessment of seasonal conditions and to provide input to water management.

Whale Tail Haul Road Management Plan</td><td>Whale Tail South water level</td><td>Dewatering (2019): peak 155.7 masl

Operations (2020+): 156.0 masl</td><td>Peak: 155.8 masl</td><td>Peak: 155.8 masl</td><td>Peak: 155.6 masl</td><td>Peak: 155.6 masl</td><td>Peak: 155.53 masl</td></tr>
<tr><td colspan="5">2019 flood peak was slightly higher than predicted for that year, but did not exceed final flood level prediction.
2020+ flood peaks are slightly lower than predicted due to minor infrastructure design changes. See discussion, Section 12.5.1.1.2.1</td></tr>
<tr><td rowspan="3">Dewatering of lakes may change discharges, water levels, and channel/bank stability in receiving and downstream waterbodies, and affect water quality, fish and fish habitat</td><td>Kangislulik Lake water level</td><td>Dewatering (2019): Slight decrease from baseline

Operations (2020+): Slight increase from baseline</td><td colspan="5">Kangislulik Lake levels have varied slightly around predictions. See discussion, Section 12.5.1.1.2.2</td></tr>
<tr><td>Northeast Diversion water level</td><td>N/A</td><td colspan="2">Flooded in 2019 and dewatered in 2020. See discussion in 2020 PEAMP.</td><td colspan="3">N/A</td></tr>
<tr><td>Nemo Lake water level</td><td>Operations (2020+): similar to or slight decrease from baseline</td><td colspan="5">Nemo Lake levels similar to baseline. See discussion, Section 12.5.1.1.2.3.</td></tr>
<tr><td rowspan="2">Alteration of watershed flow paths may change flows, water levels, and channel/bank stability in</td><td>Whale Tail Lake dewatering discharge</td><td>Total discharge will occur in 2019, with a volume of</td><td>4,940,198 m^3</td><td>741,620 m^3</td><td colspan="3">No dewatering</td></tr>
<tr><td colspan="5">Some discharge was ongoing until 2020 instead of completion in 2019. Discussed in 2020 and 2021 PEAMP Evaluation.</td></tr>
</table>

Primary Effect Pathways	Residual Impact	Proposed Monitoring	Key Monitoring Parameters	Key Predicted Impact	Measured Impact				
					2019	2020	2021	2022	2023
diverted and receiving waterbodies, and affect water quantity, water quality, fish and fish habitat			monitoring	4,643,712 m^3					
			Freshwater withdrawal monitoring (Nemo Lake)	Operations – 2020+: 125,143 m^3/year NWB Water License 2AM-WTP1830: 209,544 m^3	50,559 m^3	43,252 m^3	67,816m^3	75,408 m^3	81,986 m^3

12.5.1.1.2 Parts 3 & 4: Discussion

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

12.5.1.1.2.1 Whale Tail Lake Water Levels

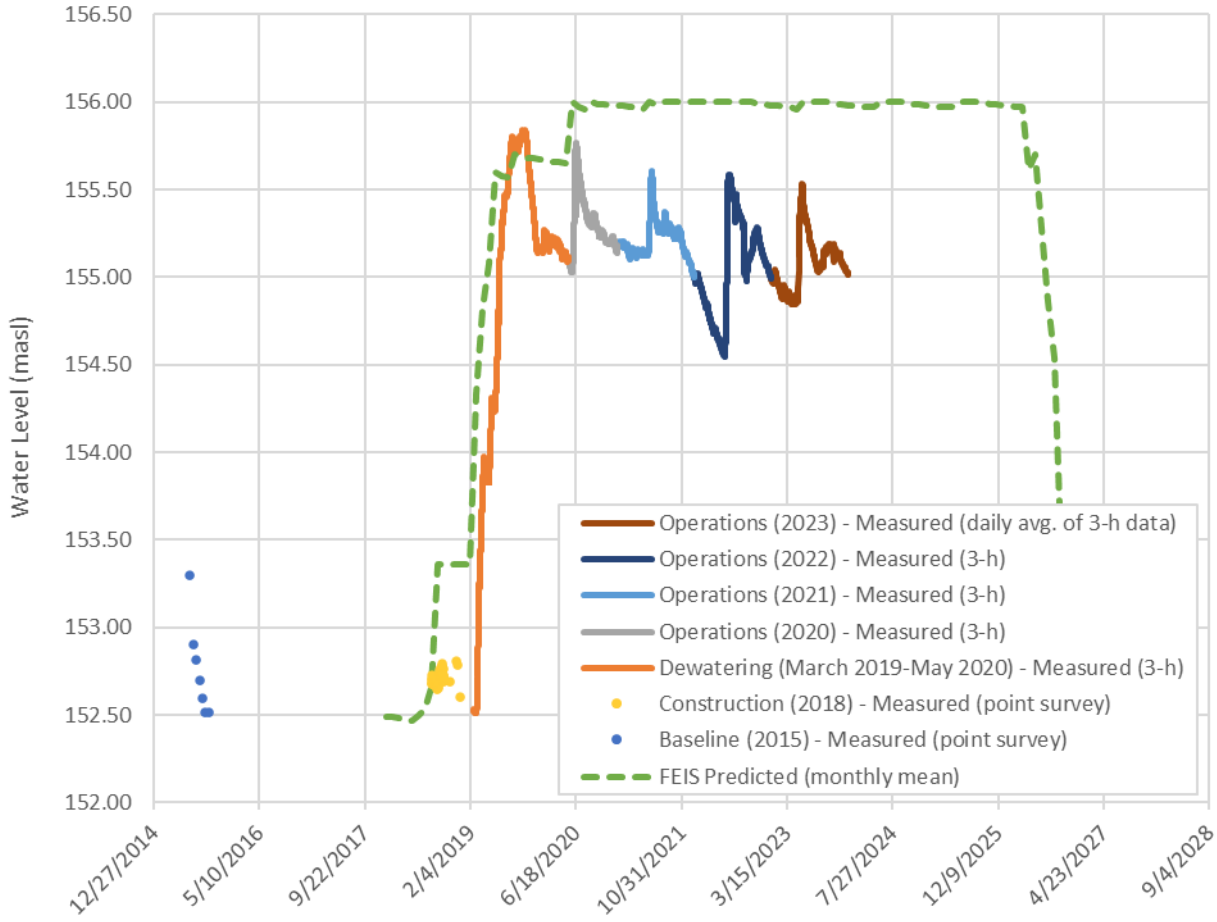
Water levels in Whale Tail Lake South Basin as measured from 2019 - 2023 using piezometric data are shown in Figure 64, below, along with measurements during the construction phase (2018; measured by GPS survey), available baseline measurements (2015), and FEIS Addendum predictions (from FEIS Appendix 6-F). It is noted that FEIS-predicted water levels were calculated as monthly timesteps in a mean annual water balance, whereas measured water levels are assessed every 3 hours. Measured values may therefore be expected to vary around the prediction, due to both inter-annual climate variability and scale of measurement.

Due to record rainfall, peak water levels in 2019 exceeded predictions in July (up to 155.8 masl), but did not reach the maximum predicted final flood level of 156.0 masl, which was planned to occur in 2020. Following discussions with NWB, Agnico Eagle pumped non-contact water from the Whale Tail South flood zone directly to Kangislulik/Mammoth Lake beginning in October, 2019. This activity temporarily substituted for the passive flow which now (since freshet 2020) occurs through the South Whale Tail Channel (SWTC).

Beginning in 2020, water levels in Whale Tail South were lower than FEIS Addendum models, which predicted a mean level of 156.0 masl would be maintained throughout the operations period. This change follows an amendment to the final design[12] of the South Whale Tail Channel, which included a decrease in the original inlet elevation by 0.5 m, to 155.3 masl. Operational water levels moving forward are therefore expected to be lower than the 156.0 masl mark. Water levels in WTS now vary from approximately 154.60 – 155.55 masl over the course of a year.

[12] The completed construction summary report for the South Whale Tail Channel is available through the NWB public registry here: ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1830%20Agnico/3%20TECH/D%20CONSTRUCTION/D16/South%20Channel/

Figure 64. Measured (3-h interval and monthly mean, as indicated) and predicted water levels in the Whale Tail South flood zone. Predicted water levels from FEIS Addendum for the Whale Tail Pit Expansion Project, Appendix 6-O, Table D-14.



12.5.1.1.2.2 Kangislulik Lake Water Level

Water levels in Kangislulik Lake as measured primarily throughout the open water seasons of 2018 (construction period) and 2019 (dewatering period) by GPS survey are shown in Figure 65 along with available baseline measurements (2015), 2020-2022 piezometer results, and FEIS predictions for the operations period (months of June – September, annually; from data in FEIS Addendum Section 6.3.3.1.4.2 and ERM, 2020-App. I).

As shown in Table 12-20, FEIS predictions (Agnico Eagle, 2016 - Appendix 6-E) indicated that mean monthly water levels in Kangislulik Lake would decline up to 12 cm below baseline values during the dewatering phase. Predictions for the operations phase were updated in the FEIS Addendum (Section 6.3.3.1.4.2, Table 6.3-3) and indicated that mean monthly water levels may increase up to 5 cm from baseline.

Median, low-flow year, and high-flow year modeled baseline water levels were provided in ERM (2020) – Appendix I, facilitating comparison to FEIS Addendum predictions for changes. Low-water thresholds for ensuring non-measurable residual impacts to fish habitat are also provided in that document. In ERM (2020), predicted water levels were compared to modeled baseline water levels for a low-flow year, as

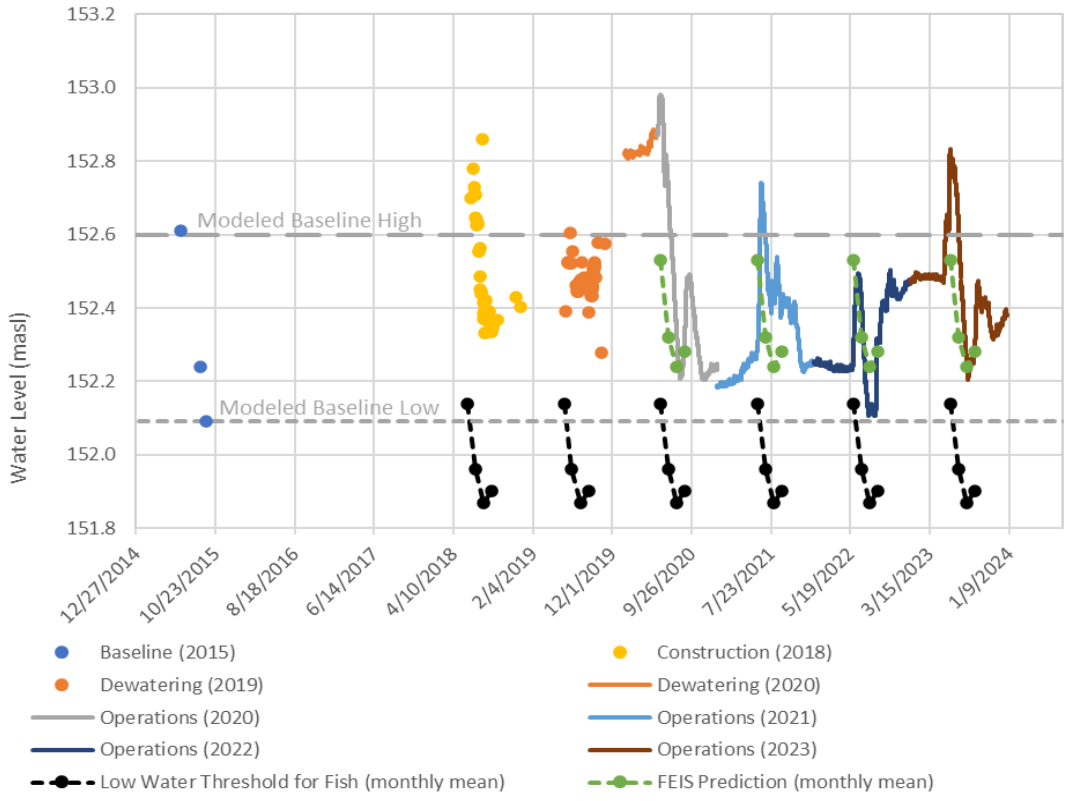
well as modeled baseline median water levels values minus 10%, and the water elevation change associated with a 10% under-ice withdrawal volume (for Kangislulik Lake, median water level minus 0.34 m, as shown in Figure 65).

In 2020, 2021, and 2023, measured water levels were similar to or higher than predicted monthly means, and in 2022, measured water levels were similar to or slightly lower than predicted monthly means. The late-summer drop in water levels recorded at Kangislulik Lake in 2022 was anecdotally observed in area reference lakes as well (as described in the Fish Habitat Offsets Monitoring Report, Appendix 37), and likely represents natural inter-annual variability. To date, water levels have not declined below measured baseline values or impact thresholds for fish.

Table 12-20 Predicted change in water levels from baseline in Kangislulik Lake during the construction and dewatering phases (from FEIS Appendix 6-E) and operations phase (from FEIS Addendum Section 6.3.3.1.4.2, Table 6.3-3) under mean monthly discharge scenarios.

Project Phase	Year (approx.)	June	July	August	September	October
Construction (m)	2018	-0.16	-0.16	-0.11	-0.14	-0.13
Dewatering (m)	2019	-0.12	-0.04	-0.05	-0.09	-0.10
Operations (m)	2020 – 2026	+0.05	+0.02	+0.03	+0.04	+0.03
Closure (m)	2026+	-0.20	-0.20	-0.14	-0.14	-0.13

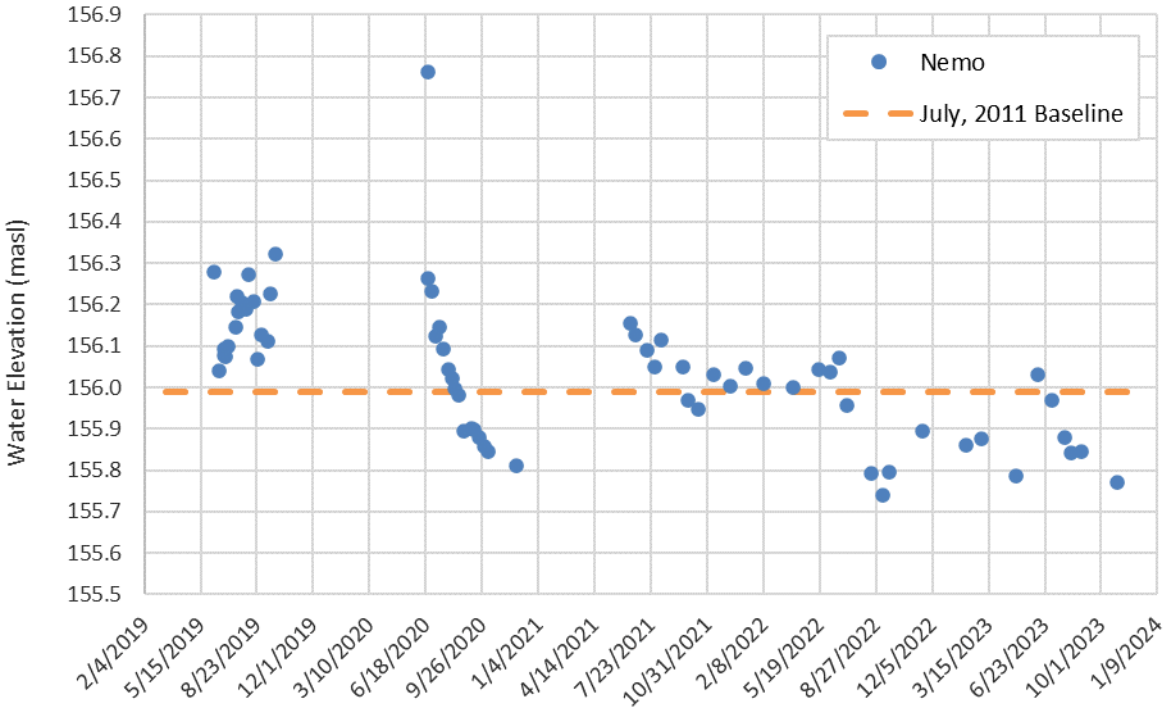
Figure 65 Operations-phase FEIS predictions (monthly mean for June – September annually; from data in FEIS Addendum Section 6.3.3.1.4.2 and ERM, 2020-App. I) and measured water levels in Kangislulik (Mammoth) Lake. Results from 2015 – 2019 are by GPS survey, and results for 2020+ are piezometric data (3-h intervals). Low water threshold for fish from App. I of ERM (2020) (median baseline water level minus 0.34 m).



12.5.1.1.2.3 Nemo Lake Water Levels

In the FEIS Addendum (Agnico Eagle, 2018), expected changes to Nemo Lake water levels as a result of planned freshwater intake and surface water diversions were assessed. During the operations phase, mean monthly water levels were expected to remain similar to baseline values in May and decrease by 0.07 m in June, 0.09 m in July, 0.08 m in August, 0.07 m in September, and 0.04 m in October, from the baseline values. Measured water levels are shown in Figure 66. Since only a single baseline water level estimate is available (from July, 2011 imagery – C. Portt and Associates, 2018), a quantitative comparison to FEIS Addendum predictions of change is not feasible. However, water levels have generally remained similar to baseline.

Figure 66. Measured water levels in Nemo Lake. A single baseline water level estimate from July, 2011 imagery is available and water levels may be expected to vary about that point.



12.5.1.1.3 Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management

Effectiveness of Monitoring

Although FEIS recommendations for monitoring related to surface water quantity were not always specific, and comparisons of measured results to quantitative FEIS predictions was not always feasible, the monitoring programs being implemented at the Whale Tail Mine are able to measure changes in receiving environment water levels in key locations. Monitoring programs are therefore considered effective as designed.

Effectiveness of Mitigation

A summary of the FEIS-planned mitigation measures for surface water quantity along with a commentary on implementation in 2023 is provided in Table 12-21. This summary excludes Environmental Design

Features, which are incorporated into construction plans but are not ongoing mitigation measures included in this annual review.

Since water levels are generally within the range of FEIS predictions accounting for design changes, baseline levels, and/or above low-water thresholds for fish, existing mitigation measures are considered effective at this time.

Mitigation measures related to water quality and fish and fish habitat are provided in Sections 12.5.1.2.3 and 12.5.1.3.3, respectively.

Table 12-21 Mitigation measures described in the Whale Tail FEIS Addendum (Agnico Eagle, 2018) to reduce impacts of the project to water quantity during the construction and operations phases, and commentary on current implementation

Project Activity	Planned Mitigation Measure (FEIS Addendum, Section 3, Table 3-C-5)	Implementation (2023)
Mine Infrastructure Footprint (e.g. open pits, site roads, access roads)	Best management practices for erosion and sedimentation control (e.g., ground cover, silt fences and curtains, runoff management), where needed.	**Yes** – Erosion Management Plan
Site Water Management: Dewatering of Project Footprint Lakes to Downstream Receiving Lakes	Pumped discharge will be directed to the lake environment, and not directly to outlets, to attenuate flow changes.	**Yes** – Water Management Plan
	If feasible, pumped discharge to the receiving environment will cease during the winter.	**Yes –** As feasible
Site Water Management: Watershed Modification by Diversion of Water	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed.	**Yes** – Erosion Management Plan
	Where practical, natural drainage patterns will be used to reduce the use of ditches or diversion berms.	**Yes** – Erosion Management Plan
General construction and operation of the Whale Tail Haul Road	Where deemed appropriate, use of staggered culvert configuration, and removal of snow at the culvert inlet and outlet prior to the freshet to promote drainage during spring thaw and freshet.	**Yes**
	Inspection prior to spring melt period to identify build-up of snow or ice, and take remedial action.	**Yes** – Freshet Action Plan
	Regular inspection of the road to identify any areas where ponding of water along the road represents a risk, and installing additional culverts or drains to alleviate the risk.	**Yes** – Freshet Action Plan
Open Pits	Mined-out pit flooding will be augmented by active freshwater diversion active flooding will reduce the period required to flood the pits, and the period of time with increased hydraulic gradients between waterbodies.	**Yes** – Water Management Plan
Existing Meadowbank Infrastructure	See Meadowbank site PEAMP for water quantity	-

Adaptive Management

Since mitigation measures are considered to have been effective, no adaptive management measures for water quantity are proposed for 2023 at this time, based on results of the above PEAMP analysis.

12.5.1.2 *Water Quality*

12.5.1.2.1 Parts 1 & 2: Summary of Predicted and Measured Residual Impacts

A summary of predictions for residual impacts to surface water quality (FEIS Addendum, Section 6.2, as summarized in Table 3-C-6) and the accuracy of these predictions in 2019 - 2023 (measured impacts) are provided in Table 12-22. Cells are highlighted in grey when measured impacts exceed predictions for the

current year. Future results will be added to that section to ensure historical trends can be observed, even when predicted impacts are not exceeded in a given year.

To assess predict impacts of the Whale Tail Mine on water quality, site-wide water quality modeling was conducted for the full suite of parameters (nutrients, metals, major ions) for the operations and closure phases as part of the FEIS Addendum (Agnico Eagle, 2018). Water quality predictions were developed for locations within the mine footprint (attenuation ponds [Whale Tail and IVR], flooded Whale Tail Pit, flooded IVR Pit) and the downstream receiving environment (Kangislulik Lake, Lake A15, Lake A12, Lake A76, Downstream Node 1, and Downstream Node 2) (FEIS Addendum Table 6.2-3 and Figure 6.2-1).

This PEAMP evaluation focuses on a comparison of general water quality predictions for effluent and receiving environment locations with monitoring results from the Water Quality Monitoring Plan for Dike Construction and Dewatering, the Water Quality and Flow Monitoring Plan, and the Core Receiving Environment Monitoring Program. Water quality monitoring results for onsite locations are not specifically included in this review, since any discharge from those locations to the receiving environment is assessed under effluent monitoring.

Given the uncertainties associated with the FEIS Addendum water quality modelling exercise (i.e., the development stage of the Project, laboratory-based input values, assumptions where data did not exist and consideration of an average climate year), the predicted concentrations are considered by the modellers to be order-of-magnitude estimates (FEIS Addendum Section 6.2.3.3.1). This uncertainty is considered in comparisons of annual water quality monitoring data with FEIS predictions.

The 2023 CREMP Report (Appendix 26) provides a comprehensive assessment of water quality monitoring for the receiving environment, with analysis of inter-annual trends, and a comparison to site-specific trigger values and FEIS predictions. For 2020 and onwards, water chemistry data (monthly measured concentrations for each parameter) from Whale Tail South and Kangislulik Lake are compared to water quality predictions in the 2018 Whale Tail FEIS Addendum. These are the only downstream lakes for which both model predictions and monitoring results are available. In previous CREMP/PEAMP assessments (2019), model results were only available for Kangislulik Lake, according to the 2016 FEIS.

Exceedances of FEIS water quality model predictions are noted in Table 12-22, and a full discussion is provided in Section 12.5.1.2.2.

Table 12-22 Predicted and measured impacts to surface water quality for the Whale Tail Mine during the construction and operations period (primary pathways according to FEIS Addendum Section 3, Table 3-C-6). Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.5.1.2.2. *FEIS Addendum, Appendix 6-H – as described in Section 6.2.3.3.1, these are expected to be accurate within an order of magnitude. **Appendix G of the 2021 CREMP Report. * FEIS Addendum Section 6.2.3.3.2.1**

Effects Pathway	Proposed Monitoring	Current Monitoring	Predicted Impact	Measured Impact				
				2019	2020	2021	2022	2023
Project footprint, which will physically alter watershed areas and drainage patterns, rates and quantities of diverted non-contact water to new watersheds, change downstream flows through flooding and dewatering, water levels, channel/bank stability in streams, and disturb lakes and **may affect water quality and sediment quality** Water management activities (dams, drainage, diversion, discharge, and dewatering) that will alter natural drainage paths and create a reservoir may cause a **change in mercury cycling and bioaccumulation**	Dike Construction and Monitoring Plan (FEIS Addendum – Construction Phase only)	Water Quality Monitoring Plan for Dike Construction and Dewatering	Dewatering effluent: <NWB criteria***	Dewatering effluent: Four exceedances for TSS occurred – see discussion, Section 12.5.1.2.2.1	Dewatering effluent: < NWB criteria	N/A (no lake dewatering)		
Activities from construction activities and mining operations (e.g., equipment, vehicles, buildings, open-pit mining, blasting) can create fugitive dust emissions and subsequent dust deposition may cause a **change in water quality**	CREMP	CREMP (inc. Mercury Monitoring Plan)	Receiving environment comparable to FEIS water quality model predictions*	Water quality results to date are consistent with the predicted magnitude of impact (*low* or *medium*). See discussion, Section 12.5.1.2.2				

<table>
<tr><th rowspan="2">Effects Pathway</th><th rowspan="2">Proposed Monitoring</th><th rowspan="2">Current Monitoring</th><th rowspan="2">Predicted Impact</th><th colspan="5">Measured Impact</th></tr>
<tr><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th></tr>
<tr><td rowspan="2">Activities from construction activities and mining operations (e.g., equipment, vehicles, buildings, open-pit mining, blasting) can alter air and dust emissions (including sulphur dioxide, nitrogen oxides, and particulate matter) and subsequent deposition may cause a change in water quality</td><td rowspan="2"></td><td rowspan="2"></td><td></td><td colspan="5"></td></tr>
<tr><td>Total Mercury** - WTS: 5.21 ng/L
MAM: 8.43 ng/L</td><td>NM (see 2019 CREMP Report)</td><td colspan="4">WTS: <5.21 ng/L
MAM: <8.43 ng/L</td></tr>
<tr><td>Release of treated mine effluent (including sources from sewage, WRSF pond, and attenuation pond contact) may cause changes to surface water quality and sediment quality (i.e., nutrient and metal concentrations) in Kangislulik (Mammoth) Lake in operations and closure.</td><td rowspan="2">Water Quality and Flow Monitoring Plan</td><td rowspan="2">Water Quality and Flow Monitoring Plan</td><td rowspan="2">Effluent <NWB criteria***</td><td colspan="3" rowspan="2">Effluent <NWB criteria</td><td rowspan="2">Effluent < NWB criteria except one sample and the monthly mean for total arsenic in April (discharge to WTS) – see discussion, Section 12.5.1.2.2.3</td><td rowspan="2">Effluent <NWB criteria</td></tr>
<tr><td>Dewatering of waterbodies may change flows, water levels, channel/bank stability, and water quality (e.g., suspended sediments, nutrients, metals) in receiving and downstream waterbodies.</td></tr>
</table>

12.5.1.2.2 Parts 3 & 4: Discussion

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), or require further explanation, a discussion is provided here.

12.5.1.2.2.1 Water Quality Monitoring Plan for Dike Construction and Dewatering Results

In 2019, water quality compliance monitoring in accordance with MDMER and NWB criteria was conducted for dewatering discharge and dike construction. Whale Tail North basin dewatering occurred between March and December, 2019, with discharge to Whale Tail South basin and Kangislulik (Mammoth) Lake. During daily water quality monitoring, four isolated incidents arose when individual TSS or turbidity concentrations exceeded the MDMER grab sample maximum and/or NWB Type A Water License criteria for the short-term maximum. The NWB Maximum Monthly Mean was not exceeded for any parameter. Based on standard operating procedures identified in the Water Quality Monitoring for Dike Construction and Dewatering Plan, supplemental management actions were not required. This low number of exceedances is not expected to constitute a significant departure from overall FEIS predictions of water quality.

In 2020, dewatering of the Whale Tail North basin to Whale Tail South continued from January – May, Quarry 1 was discharged to Kangislulik Lake in April, Attenuation Pond discharge to Kangislulik Lake occurred in June – October, and to Whale Tail South in November and December. No exceedances of MDMER/NWB water license criteria occurred.

No lake dewatering occurred in 2021 - 2023.

12.5.1.2.2.2 Core Receiving Environment Monitoring Program Results

Within the receiving environment where water quality monitoring is conducted, impact predictions in the form of water quality models are available for Kangislulik Lake (2019 onwards), and WTS (2020 onwards). Overall, FEIS analysis predicted the magnitude of potential effect on water quality in each of the lakes would be *low* (<1x CCME Water Quality Guidelines for the Protection of Aquatic Life) for all parameters with CCME guidelines, except for total phosphorus which was *medium* (1 to 10x CCME WQGs).

In the 2023 CREMP Report (Appendix 26), monthly mean results for water quality parameters were screened against FEIS Addendum monthly predictions for Kangislulik Lake and WTS. As described in Section 6.4.3.3.1 of the FEIS Addendum, these model predictions are estimated to be accurate within an order of magnitude (10x).

In 2023, specific monthly predictions for the majority of modelled parameters were exceeded in field measurements for at least one month (March, May, July, August, and/or September). However, the 10x range of prediction uncertainty was not exceeded in any sample for WTS or Kangislulik Lake. Furthermore, of the parameters that exceeded both their respective CREMP trigger values (generally set at the 95th centile of baseline data) and FEIS model predictions in 2023, the absolute concentrations of these parameters remain low (<CCME WQG, where available).

Historically, individual monthly concentrations of nitrate and manganese have exceeded the 10x range of prediction uncertainty in a small subset of samples for WTS (March and May, 2020 and/or 2021) but

CREMP trigger values were not exceeded. No measurements have exceeded 10x the FEIS monthly prediction in Kangislulik Lake.

Therefore, following the intent of the FEIS magnitude ratings, results overall would be considered consistent with the predicted magnitudes of impact ("low" or <1x CCME WQG, or otherwise determined adverse effects levels; except for TP which was predicted at 1 - 10x CCME WQG, or a medium magnitude of impact).

12.5.1.2.2.3 Water Quality and Flow Monitoring Plan Results

Discharge from the Whale Tail/IVR Attenuation Ponds occurred through the Whale Tail South Diffuser periodically in January, February, March, April, May, September, and October, 2023. Effluent samples were collected weekly for water chemistry analysis and comparison to NWB Water License limits (station ST-WT-24) and MDMER criteria (station ST-MDMER-11). Complete results are provided in Sections 8.5.3.2 and 8.3.2). All results met NWB Water License and MDMER criteria.

Historically, a single exceedance of these limits occurred for this location (April, 2022, for total arsenic). Since arsenic results declined below NWB/MDMER effluent limits after the single exceedance was recorded, this was considered to have been an isolated event and no additional measures were required, outside of identified corrective measures at the time of the event.

In addition, discharge through the Kangislulik Lake Diffuser occurred periodically in June, July, August, and September, 2023. All results met NWB Water License and MDMER criteria.

12.5.1.2.3 Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management

Effectiveness of Monitoring

Based on the results in Table 12-22 and discussed above in Section 12.5.1.2.2, current monitoring programs are able to address all FEIS impacts for which monitoring was recommended (i.e. monitoring is considered effective).

Effectiveness of Mitigation

A summary of the FEIS-planned mitigation measures for surface water quality, along with a commentary on implementation in 2023 is provided in Table 12-23. Since receiving environment water quality to date is within the range of FEIS predictions (specific monthly values or predicted magnitude of effects), and any exceedances of effluent quality limits have been isolated, existing mitigation measures are considered effective at this time.

Mitigation measured related to water quantity, and fish and fish habitat are provided in Sections 12.5.1.1.3 and 12.5.1.3.3, respectively, though some overlap may occur.

Table 12-23 Mitigation measures described in the Whale Tail FEIS Addendum to reduce impacts of the project on surface water quality during the construction and operations phases, and commentary on current implementation.

Project Activity	Planned Mitigation Measure (FEIS Addendum, Section 3, Table 3-C-6)	Implementation (2023)
Whale Tail Pit Infrastructure Footprint (e.g. open pits, site roads, access roads)	Erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed.	**Yes** – Erosion Management Plan
	Regular road inspections to check for ponding.	**Yes** – Site inspections
	Monitoring during activities and use of adaptive management where necessary.	**Yes** – Site inspections
	Pumped water from the dewatered waterbodies will be directed through properly designed structures to the lake environment, and not to lake outlets, to prevent erosion in the receiving waterbodies and to attenuate flows.	**Yes** – Water Management Plan
	During dewatering activities, TSS will be monitored, and if necessary, treated before release downstream.	**Yes** – No dewatering in 2023
Site Water Management (drainage and diversions)	Water that does not meet discharge criteria will be treated prior to discharge into Kangislulik Lake.	**Yes** – Water Management Plan
	A Water Management Plan has been developed and describes designs to reduce changes to local flows, drainage patterns, and drainage areas (adherence to Water Management Plan)	**Yes** – Water Management Plan
	Use of turbidity curtains during dike construction to limit disturbance to lakes and waterbodies	**Yes** – No in water dike construction in 2023
	Monitoring during activities and use of adaptive management where necessary.	**Yes** – Water Management Plan
	Use of the Dewatering Dikes, Operations, Maintenance and Surveillance Manual developed by Agnico Eagle.	**Yes** –Dewatering Dike OMS
Earthworks: Drilling, blasting and excavation (includes Quarry/Borrow Pit) and Crushing activities for the haul road and Whale Tail Pit development	Where possible, stockpiling of rock and fill from quarries and borrow sites will be placed such that surface water is not diverted through the piles with runoff to surface waterbodies; drainage from quarries will not flow directly into any waterbodies or watercourses.	**Yes** – Erosion Management Plan
	When there is seepage from a quarry that could enter a waterbody, a water quality sample will be collected and analyzed.	**Yes** – Site inspections
	Quarries will be inspected on a regular basis to monitor water ponding, particularly at spring melt.	**Yes** – Site inspections
	Best management practices for erosion and sediment control.	**Yes** – Erosion Management Plan
Site Water Management along the road (seepage and runoff)	Use of non-acid generating material at any watercourse crossings. Testing will verify lack of acid rock drainage and metal leaching potential. Testing will continue on new sources identified for road building.	**Yes** – Operational ARD-ML sampling and testing plan
	Road contact water will be monitored during construction.	**Yes** – Construction Design Report
Mining and supporting infrastructure for the Whale Tail Pit and haul road	Implement dust control measures, if needed on mine roads.	**Yes** – Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes**
	Enforcing speed limits (maximum speed 50 km/h) to suppress dust production.	**Yes** – Road logs

Project Activity	Planned Mitigation Measure (FEIS Addendum, Section 3, Table 3-C-6)	Implementation (2023)
	If deemed necessary through monitoring, dust from roads will be managed through use of dust suppressant.	**Yes** – Air Quality and Dustfall Monitoring Plan
	The running surface of the road will be maintained thereby reducing the generation of dust.	**Yes** – Road maintenance
	Adherence to the Air Quality and Dustfall Monitoring Plan	**Yes** – Air Quality and Dustfall Monitoring Plan
	Most personnel arriving at or leaving the site will be transported by bus, thereby reducing the amount of traffic (and dust).	**Yes**
	Construction equipment and trucks will be equipped with industry-standard emission control systems.	**Yes**
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes** – Air Quality and Dustfall Monitoring Plan
	Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles.	**Yes** – Air Quality and Dustfall Monitoring Plan
	SO2 emissions from non-road vehicles and stationary equipment will be reduced through the use of low emission diesel fuel.	**Yes**
	Adherence to existing air quality monitoring plan to detect changes in air quality	**Yes** – Air Quality and Dustfall Monitoring Plan
	Adherence to water quality monitoring and adaptive management in the CREMP to detect changes in water quality	**Yes** - CREMP
Dike Construction	Erosion and sediment control measures will be implemented during dike construction, where appropriate (e.g., installation of silt curtains for turbidity control)	**Yes** –No in water dike construction in 2023
	The dike will be constructed using non-potentially acid-generating rock or low potential for metal leaching material	**Yes** – Construction design report
	Adherence to the Water Quality Monitoring and Management Plan for Dike Construction and Dewatering, including installation of turbidity curtains and monitoring.	**Yes** - Water Quality Monitoring and Management Plan for Dike Construction and Dewatering
Development of Supporting Infrastructure for Whale Tail Pit and the haul road	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks), where needed to limit disturbance to lakes.	**Yes** – Erosion Management Plan, site inspection
	In-stream works will be constructed in winter, when possible, to avoid increased TSS and turbidity, and changes to water and sediment quality.	**Yes** - Water Quality Monitoring and Management Plan for Dike Construction and Dewatering, best practices
	Where applicable, construction runoff will be captured and managed to minimize suspended solids.	**Yes** – Erosion Management Plan
	Regular road inspections to check for ponding.	**Yes** – Site Inspections
Mine Site Operations and Maintenance, including the use of existing infrastructure at Meadowbank Mine and the haul road	Best management practices for erosion and sediment control (e.g., silt curtains, runoff management) will be implemented, as needed to limit disturbance to lakes.	**Yes** – Erosion Management Plan, site inspection
	Water Management Plan is approved and adhered to at existing facilities and Water Management Plan specific to the Whale Tail Pit	**Yes** – Water Management Plan

Project Activity	Planned Mitigation Measure (FEIS Addendum, Section 3, Table 3-C-6)	Implementation (2023)
	areas has been developed and these plans have considered the containment and management of contact site water	
	Runoff and seepage from the Project site will be diverted to sumps and attenuation ponds (and treated if required), prior to release	**Yes** – Water Management Plan
	Water quality in attenuation ponds will be monitored and managed such that the discharge meets discharge limits	**Yes** – Water Management Plan
	Any potentially acid generating (PAG) or high metal leaching waste rock will be segregated at source and placed into designated areas within the waste rock storage facility	**Yes** - Mine Waste Rock Management Plan, Operational ARD-ML sampling and testing plan
	Adherence to the Operational ARD/ML Testing and Sampling Plan and the Mine Waste Rock and Tailings Management Plan	**Yes** - Operational ARD/ML Testing and Sampling Plan
Construction and operation of roads	Regular road inspections to check for ponding	**Yes** – Site Inspections
	Removal of snow at the culvert inlet prior to freshet.	**Yes** – Freshet Action Plan
Development of Supporting Infrastructure for Whale Tail Pit and the haul road	Regular inspection of the road to identify any areas where ponding of water along the road represents a risk, and installing additional culverts to alleviate the risk.	**Yes** – Freshet Action Plan
Site Water management: Seepage and Runoff	A Water Management Plan has been developed and describes the containment and management of contact water on-site	**Yes** – Water Management Plan
	Seepage will be captured at sumps and diverted to the Attenuation Pond.	**Yes** – Water Management Plan
	Facility discharge water will be monitored for water quality, and treated as required, prior to discharge	**Yes** – Water Management Plan
	Performance of the dikes will be monitored and appropriate remediation applied, if required	**Yes** – Water Management Plan
Fuel Storage and use (includes Chemical and Hazardous material Storage and Explosives Storage Area)	The Spill Contingency Plan will be implemented, including ready access to an emergency spill clean-up kit for cleaning up any spills.	**Yes** – Spill Contingency Plan
	Hazardous materials and fuel will be stored according to regulatory requirements to protect the environment and workers and will be stored at the Meadowbank Mine.	**Yes** – Hazardous Management Plan
	Storage tanks (e.g., fuel, engine oil, hydraulic oil, and waste oil and coolant) will be double walled, or located in lined and bermed containment areas	**Yes** – Best practices, site inspection
	Hazardous wastes will be temporarily stored at Whale Tail Pit and then transported to the Meadowbank Mine in appropriate containers to prevent exposure until they are shipped off site to an approved facility.	**Yes** – Hazardous Management Plan
	Individuals working on site and handling hazardous materials will have appropriate training (e.g. WHMIS)	**Yes** – Hazardous Management Plan
	Soils from petroleum spill areas will be deposited at the Meadowbank Mine Landfarm	**Yes** – Landfarm Management Plan
	Equipment will be re-fueled, serviced, or washed away from the watercourse crossings	**Yes** – Best practices
	Fuel, lubricants, hydraulic fluids, and other chemicals will be stored at least 31 m away from the high water mark of any waterbody.	**Yes** – Hazardous Management Plan

Project Activity	Planned Mitigation Measure (FEIS Addendum, Section 3, Table 3-C-6)	Implementation (2023)
	Construction equipment will be regularly maintained	**Yes** – Maintenance logs
	Emergency spill kits will be available wherever toxic materials or fuel are stored and transferred	**Yes** – Spill Contingency Plan
	Enforced speed limits	**Yes** – Ongoing
Mining Activities and Water Management	Adherence to Water Management Plan	**Yes** – Water Management Plan
	Treated sewage will be piped to the attenuation pond	**Completed**
	Water quality in attenuation ponds will be monitored and managed such that the discharge entering Kangislulik Lake meets Type A Water License discharge limits. If water quality does not meet discharge limits, it will be circulated and re-treated.	**Yes** – Water Management Plan
	Other applicable design features and mitigation, as outlined in the Interim Closure and Reclamation Plan	**Yes** - Interim Closure and Reclamation Plan
Water Management Infrastructure, including existing infrastructure that will be used the Meadowbank Mine site, the haul road, and the Whale Tail Pit	Manage pumping rates so total annual discharge from Whale Tail and Nemo Lake does not drop below the 10-year dry condition	**Yes** – Water Management Plan
	Water withdrawal rate(s) will be controlled to avoid effects on the source water lake(s).	**Yes** – Water Management Plan
	Capture and reuse site water to reduce fresh water requirements	**Yes** – Water Management Plan
	During dewatering activities, TSS will be monitored, and if necessary, treated before release downstream	**Yes** – No dewatering in 2023
	Pumped water from the dewatered waterbodies will be directed through properly designed structures to the lake environment, and not to lake outlets, to prevent erosion in the receiving waterbodies and to attenuate flows.	**Yes** – No dewatering in 2023
	Erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed	**Yes** – Construction design report, Freshet Action Plan, site inspection
Open Pits	Groundwater inflow to the pits or other dewatered areas will not be directly released to local watersheds	**Yes** – Groundwater Management plan
	All pit water will be pumped to the Attenuation Pond for management and treated prior to release	**Yes** – Water Management Plan
	Mined-out pit flooding will be augmented by fresh water diversion	**Yes** – Water Management Plan

Adaptive Management

Since no exceedances of FEIS predictions occurred for water quality programs in 2023, no new adaptive management measures are planned at this time based on this PEAMP analysis.

12.5.1.3 *Fish and Fish Habitat*

12.5.1.3.1 Parts 1 & 2: Summary of Predicted and Measured Residual Impacts

The FEIS documents for the Whale Tail Mine assessed potential direct and indirect effects to fish and fish habitat as a result of Project activities. Residual impacts were associated with dewatering dike construction, lake dewatering, water diversion (flooding), pit re-flooding, and effluent discharge. A summary of predictions for residual impacts to fish and fish habitat (FEIS Volume 6, Section 6.5, as summarized in Volume 3, Table 3-C-7; FEIS Addendum Section 6.5, as summarized in Table 3-C-7) and the accuracy of these predictions in 2019 - 2023 (measured impacts) is provided in Table 12-24. Cells are highlighted in grey when measured impacts exceed predictions for the current year. Future results will be added to that section to ensure historical trends can be observed, even when predicted impacts are not exceeded in a given year.

Note: Effects pathways associated with the Northeast Flood Zone are excluded from this table beginning in 2023, since this area was dewatered in 2020 to permit construction of the IVR Pit and previously predicted impacts are no longer applicable.

Table 12-24 Predicted and measured impacts to fish and fish habitat for the Whale Tail Site during the construction and operations period (primary pathways according to FEIS and FEIS Addendum Tables 3-C-7). Effects Pathways added for the Expansion Project are in italics. NA = not assessed. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.5.1.3.2. *FEIS values differ slightly from those calculated under the Whale Tail Pit Fish Habitat Offsetting Plan (March, 2018).

Effects Pathway	Predicted Impact	Proposed Monitoring	Current Monitoring	Measured Impact				
				2019	2020	2021	2022	2023
The construction of the (Northeast,) Whale Tail, and Mammoth Dikes, and Whale Tail Pit, and the dewatering of the diked area in Lake A17 (Whale Tail Lake) and Lake A16 (Kangislulik Lake) will result in the direct loss or alteration of fish habitat.	Areas (ha) specified in FEIS and Fish Habitat Offsetting Plan for Whale Tail Pit (March, 2018)	None	As-built Reports for Mammoth and Whale Tail Dike	NA – per updated FHOMP (June, 2021), areas lost to be verified following offset construction (est. 2026 for WTS and Lake A18, est. 2043 for WTN). See discussion Section 12.5.1.3.2.1.				
The dewatering of smaller waterbodies and watercourses in the northeast area to permit construction of the IVR Pit and WRSF for the Expansion Project, and the dewatering of and use of Lake A53 as the IVR Attenuation Pond for the Expansion Project, will result in the direct loss or alteration of fish habitat.	Areas (ha) specified in FEIS Addendum and Fish Habitat Offsetting Plan for Whale Tail Pit Expansion Project (June, 2020)	None	As-built Reports for IVR Pit, WRSF, Attenuation Pond	NA – to be calculated following completion of the as-built reports (est. 2026).				
Water diversions for the Whale Tail (and Northeast) dikes during construction and operations will flood tributary lakes and streams, and will result in access to new habitat. *Extension of flooding period for Whale Tail South due to the Expansion Project.*	***Whale Tail South Flood Zone*** *FEIS Operations phase assumption:* +3.5m to 156 masl (from July 2011 baseline), resulting in 131 ha of flooding, access to new habitat and potential increase in population productivity. (Not assumed to provide offsetting habitat until after construction of the A18 Sill and drawdown, est. 2026)	None	Water level monitoring & surface area calculation Fish Habitat Offsets Monitoring Plan	NA – flooding not complete in 2019 (peak 155.84 masl)	Annual range of approx. 154.60 – 155.55 masl, and approx. 117 ha of flooding at peak. See full discussion, Section 12.5.1.3.2.2 Since the flood zone is not considered offsetting habitat prior to permanent sill construction (est. 2026), final flood zone habitat area will be calculated at that time.			
The dewatering of the diked area in Lake A17 (Whale Tail Lake) and Lake A16 (Kangislulik Lake) *and smaller waterbodies in the northeast area for the Expansion Project* will result in the removal and subsequent	***Whale Tail Lake est. loss:*** 870 kg or 3346 fish	None	2018 Whale Tail Lake Fishout Report	***Whale Tail Lake loss:*** 776.6 kg or 3078 fish	***IVR area waterbodies loss:*** A46 – 0.56 kg	NA (fish outs complete)		

Effects Pathway	Predicted Impact	Proposed Monitoring	Current Monitoring	Measured Impact				
				2019	2020	2021	2022	2023
mortality of fish from the area during the proposed fish-out.	***IVR area waterbodies est. loss:*** A46 – 2.9 kg A47 – 43.2 kg A48 – 1.2 kg A49 – 23.5 kg A53 – 125.5 kg A0 – 0.4 kg A-P38 – 1.2 kg **TOTAL = 197.9 kg**		2020 Whale Tail Expansion Project Fishout Report		A47 – 2.4 kg A48 – 4.3 kg A49 – 6.5 kg A53 – 55.7 kg A0 – 0.30 kg A-P38 – 0 kg A50 = 0 kg A51 = 0 kg A52 = 0 kg **TOTAL = 69.8 kg**			
The construction of the (North-East), Whale Tail, and Mammoth Dikes will alter access to tributary streams and lakes (i.e., habitat connectivity) in the LSA for Lake Trout, Arctic Char, and Round Whitefish.	Minor effect on fish populations (not quantified).	None	None	Presence of the Whale Tail and Mammoth Dikes was predicted to eliminate fish passage between these lakes, potentially affecting abundance. While this effects pathway was likely mitigated with construction of the South Whale Tail Channel (which connects the Whale Tail flood zone with Kangislulik Lake and is passable to fish), it is also it is not considered feasible to specifically evaluate the incremental impacts of this altered habitat connectivity on large-bodied fish populations in this area, amidst the variety of other mine-related physical changes (e.g. flooding) and with limited quantitative baseline data on fish movements between lakes.				
Water diversions will result in a reduction of water levels in Kangislulik (Mammoth) Lake and downstream locations during some project phases, affecting fish and fish habitat.	No measurable residual impacts to fish (App. I - 2020 Fish Habitat Offsetting Plan for the Whale Tail Pit Expansion Project)	Water level monitoring	Water level monitoring	Kangislulik Lake levels have varied around predictions. See discussion, Section12.5.1.3.2.2.				
Release of treated mine effluent (including sources from sewage, WRSF pond, and attenuation pond contact) may change trophic status in Kangislulik (Mammoth) Lake, *Whale Tail Lake, and downstream waterbodies* in operations and closure.	**Total phosphorus:** >mesotrophic trigger (10-20 µg/L) in Kangislulik (Mammoth) Lake, to a max. of 29 µg/L (2021). Within mesotrophic trigger range (10-20 µg/L) in WTS to a max. of 20 µg/L (2026).	Total phosphorus (CREMP)	CREMP	Below predicted concentrations.	Some exceedances of specific monthly predictions but within or below predicted trophic range.			
	Phytoplankton: Increase in phytoplankton biomass and possibly altered species composition in Kangislulik (Mammoth) Lake, Whale Tail Lake, A15, A12, A76 and potentially further	None	CREMP	Increase in phytoplankton biomass.	Non-significant increases and decreases in phytoplankton biomass. Significant reduction in taxa richness in	Increase in phytoplankton biomass (significant in A20 only), no change in species composition.	Non-significant increases in phytoplankton biomass, no change in species composition.	Increase in phytoplankton biomass in WTS, MAM, and A20 (significant in WTS and A20 only), no

Effects Pathway	Predicted Impact	Proposed Monitoring	Current Monitoring	Measured Impact				
				2019	2020	2021	2022	2023
	downstream to DS1.				WTS.			significant change in species composition.
	Zooplankton: Increase in secondary production (zooplankton) and altered species composition in Kangislulik (Mammoth) Lake and downstream lakes.	None	None	NA (not measured)				
	Benthic Invertebrates: Possible delayed increase in benthic invertebrate abundance and biomass.	None	CREMP	No mine-related changes in benthic invertebrate abundance and/or richness.			Some increases in abundance and/or richness at near-field lakes, unlikely to be mine-related.	
	Forage Fish: Possible increase in forage fish abundance.	None	Fish Habitat Offsetting Plan	Research study underway as described in the 2023 Fish Habitat Offsets Monitoring Report (Appendix 37) (complete results planned for end 2024)				
	Large-bodied Fish: Possible minor increase in growth and reproduction rates for large-bodied fish (not measurable).	None	Environmental Effects Monitoring (MDMER)	N/A	No difference in key effect indicators for lake trout.	N/A	N/A	Results due July 2024
	Discussion:			*Since in many cases FEIS predictions for impacts of effluent release were not quantitative, further discussion is provided in Section 12.5.1.3.2.4, below.*				

12.5.1.3.2 Parts 3 & 4: Discussion

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), or for pathways where further details are warranted, a discussion is provided here.

Most quantitative FEIS and FEIS Addendum predictions for impacts to fish and fish habitat were for changes to habitat areas and direct loss of biomass as a result of the dewatering and fish-out of Whale Tail Lake North and the IVR Pit area.

12.5.1.3.2.1 Habitat Losses

Predicted direct habitat losses for the Whale Tail North area were calculated as the in-water footprints of the Mammoth and Whale Tail Dikes. The validity of these predictions can be assessed by comparing as-built dike footprint area to the footprint from FEIS and offsetting plan designs, taking the assumed baseline water level into account. Construction summary reports (as-built designs) were finalized in November, 2020, and these comparisons were planned to be completed in 2021. In general, the final constructed footprint of these dikes was similar to FEIS-phase designs. However, according to the updated Fish Habitat Offsets Monitoring Plan (June, 2021), full structural assessments in the context of fish habitat losses will be conducted once after construction of the final habitat offsets – i.e. for offsets obtained through flooding, this will occur once final post-closure water elevations are reached (est. 2026 for Whale Tail South and Lake A18, and 2044 for Whale Tail North). At that time, structural assessments will confirm the total area of the losses and offsets, and compare these to offsetting plans, including losses related to the footprints of the Mammoth and Whale Tail Dikes.

For the IVR area, habitat losses were calculated in the FEIS Addendum as the area of affected waterbodies and length of affected watercourses. For the associated offsetting plan (ERM, 2020), losses were calculated as a total area, including waterbodies and watercourses. Eventual as-builts for the IVR Pit, IVR WRSF and IVR Attenuation Pond will be reviewed to generally confirm the footprint of those facilities impacts waterbodies as predicted (est. 2026).

12.5.1.3.2.2 Whale Tail South Flooding

FEIS (2016) predictions indicated that during operations, water levels in Whale Tail South would increase in elevation by 3.5 m (from 152.5 to 156.0 masl) and increase in surface area from 369 ha to 513 ha, resulting in 144 ha of flooding (Volume 6, Section 6.5.3.2). Refined water level modelling in the FEIS Addendum predicted 148.5 ha of flooding at elevation 156.0 masl (FEIS Addendum, Appendix 6-F, Table 6-F-1). The resulting impacts on fish were only assumed to occur at the individual level (access to new habitat). No population-level changes were assumed as a result of this additional aquatic habitat.

Within the Fish Habitat Offsetting Plan for Whale Tail Pit (March, 2018), the calculated expansion of aquatic habitat during operations was 131 ha, which is smaller than FEIS calculations. This is due to differences in assumed baseline water levels (152.5 masl in the FEIS, 153.02 masl in the offsetting plan). Although a potential increase in fish population productivity during the operations phase was noted in this Plan, the flooded terrestrial zone was not assumed to provide fish habitat for offsetting purposes until after drawdown to +1 m above baseline (154.02 masl, from a baseline of 153.02 masl), during the closure phase. This drawdown was planned to occur from 2022 – 2026, and the permanent flooded habitat would occur in Whale Tail Lake only.

No change to these assumptions was presented in the Whale Tail Pit Expansion Project's Fish Habitat Offsetting Plan (ERM, 2020), except the drawdown will not begin until 2026, but will still be completed within the same year. Under this plan, a sill will be constructed between Lake A18 and Whale Tail Lake (South Basin) in 2026 to maintain some of the flooding in upstream areas. The new permanent water level throughout this area would be 155.3 masl, which is 1.3 m above baseline in A18 (as measured using July 2011 imagery).

Measured water levels in the Whale Tail South flood zone to date are shown in Section 12.5.1.1.2.1. To help preserve integrity of the Whale Tail Dike, construction designs for the South Whale Tail Channel were changed prior to construction in early 2020. The inlet invert elevation was decreased by 0.5 m from original plans, to an elevation of 155.3 masl. As a result, operational water levels in the Whale Tail South area have been lower than the FEIS prediction of 156.0 masl (generally 154.6 – 155.75 masl). These water levels correspond to a terrestrial flood zone range of approximately 50 - 117 ha (FEIS Addendum, Appendix 6-F, Table 6-F-1) which is 14 – 81 ha smaller than the 2018 offsetting plan calculation for the operations period (131 ha). However, as noted above, no offsetting habitat was associated with temporary operations-phase flooding, and the assumptions for permanent habitat creation (post-closure habitat) in both the 2018 and 2020 offsetting plans are still expected to be met once the South Whale Tail Channel is decommissioned and a permanent sill is constructed to maintain water levels at the specified elevation in Lake A18.

12.5.1.3.2.3 Kangislulik Lake and Downstream Water Levels

FEIS and FEIS Addendum predictions indicated that "*during the construction and operation of the Whale Tail, Mammoth, and WRSF dikes, water diversions will result in a reduction of water levels in Kangislulik Lake and downstream locations, affecting fish and fish habitat*" (FEIS Addendum, Section 6.5.4.3). The predicted change in water levels is summarized above in Section 12.5.1.1.2.2 (Kangislulik Lake Water Level). Discharges and water levels were expected to be slightly reduced at Lake A5, and changes were not expected to be measurable at Lake DS1, so the evaluation focused on Kangislulik Lake. Modelled declines in water levels during the construction and closure phases (up to 0.2 m reduction in mean monthly lake level) were predicted to result in a "*moderate effect to population abundance and distribution*" of VC fish species.

However, as part of offset planning for the Whale Tail Pit Expansion Project (Appendix I in ERM, 2020), potential impacts of water level changes in Kangislulik and downstream lakes on fish habitat were assessed in more detail. Predicted water levels were compared to modeled baseline water levels for a low-flow year, as well as modeled baseline median water levels values minus 10%, and finally, the water elevation change associated with a 10% under-ice withdrawal volume (for Kangislulik Lake, median water level minus 0.34 m – low flow threshold for fish, as shown in Section 12.5.1.1.2.2). Based on this comparison, predicted changes (including up to a 20 cm decline in Kangislulik Lake water levels during the closure phase) were expected to have *"a low probability of detectable residual impacts on the downstream aquatic ecosystem"*. Monitoring of water levels in Lake A16 (Kangislulik Lake), and if required, in Lakes A12, A15, and A76 during closure was recommended to confirm predictions.

Under the existing water management strategy and as described in the Project FEIS Addendum – Whale Tail Pit Expansion Project (December, 2018; Section 6.3.3.1.4, Table 6.3-3, copied below), no flow reduction is predicted for Kangislulik Lake and downstream lakes under the current Operational Phase of the Project (2020 – 2026). During this Project phase, there is no significant water storage onsite and no

diversion of water out of the Whale Tail watershed. While the inflow location for Whale Tail Lake to Kangislulik Lake has changed from the eastern inlet to the constructed South Whale Tail Channel, all flows still fully report to Kangislulik Lake. The combined effect of all permitted Operational Phase project activities (including effluent discharge to Whale Tail South and Kangislulik Lake) is a minor increase in mean monthly water levels for Kangislulik Lake (up to +5 cm above baseline was predicted) during this Project phase.

Although no decline in water levels is predicted for the current operations phase, and monitoring was not specifically recommended until the closure phase, Agnico Eagle has measured water levels in Kangislulik Lake since 2018. Monitoring by GPS survey occurred in 2018 – 2019, at which time piezometers were installed in the Mammoth Dike with 3-h data logging. These measured water levels along with FEIS predictions for the operations period (months of June – September, annually; from data in FEIS Addendum Section 6.3.3.1.4.2 and ERM, 2020-App. I), modeled baseline low flow conditions (ERM, 2020), and the identified low flow threshold for fish (median water level minus 34 cm for June – September; ERM, 2020 – App. I) are shown in Section 12.5.1.1.2.2.

In 2020, 2021, and 2023, measured water levels were similar to or higher than predicted monthly means, and in 2022, measured water levels were similar to or slightly lower than predicted monthly means. The late-summer drop in water levels recorded at Kangislulik Lake in 2022 was anecdotally observed in area reference lakes as well (as described in the 2023 Fish Habitat Offsets Monitoring Report, Appendix 37), and likely represents natural inter-annual variability. To date, water levels have not declined below measured baseline values or impact thresholds for fish.

12.5.1.3.2.4 Lake Ecosystem Productivity

Since residual impacts on fish and fish habitat due to changes in lower trophic levels were predicted, but those predictions were not quantitative, a discussion is provided here.

FEIS-predicted impacts to fish and fish habitat during the operations period were associated with changes in lower trophic levels, and these stem from a predicted increase in nutrient concentrations due to effluent discharge. As a result of effluent inputs, increased phytoplankton biomass and possibly altered species composition was predicted but not quantified for Kangislulik Lake, Whale Tail Lake, A15, A12, A76 and potentially further downstream to DS1. An increase in zooplankton populations was predicted, along with a potentially delayed increase in benthic invertebrate abundance and biomass. Finally, an increase in forage fish abundance was identified, with a possible minor increase in growth and reproduction rates for large-bodied fish (not measurable).

For this effects pathway, impact predictions were primarily planned to be evaluated by tracking total phosphorus measurements under the CREMP. However, Agnico Eagle also monitors changes to phytoplankton communities and benthic invertebrate communities through this program. In addition, forage fish populations are evaluated through an academic research study under the Whale Tail Pit Fish Habitat Offsetting Plan (C. Portt & Associates, 2018), and effluent-related impacts to both forage and large-bodied fish populations are also evaluated through the Environmental Effects Monitoring requirement of MDMER legislation.

Total Phosphorus Concentrations

For Kangislulik Lake, phosphorus concentrations were predicted to increase briefly beyond the CCME mesotrophic range (10 - 20 µg/L) during the operations phase, to a maximum of 29 µg/L (in 2021; Figure 67). Measured concentrations of total phosphorus in Kangislulik Lake are shown in Figure 68, and have remained below predictions to date with the exception of a few individual samples.

For Whale Tail South, concentrations in 2019 – 2022 were predicted to be in the oligotrophic range, or 4 – 10 µg/L, followed by a period in the mesotrophic range during operations (2022 – 2028; 10 – 20 µg/L). Peak concentrations were expected to reach a maximum of 20 µg/L, in 2026 (Figure 67). Predicted and measured values to date are shown in Figure 68. While some measured concentrations of total phosphorus have exceeded monthly FEIS predictions in WTS (particularly in 2020), all were within an order of magnitude (the level of uncertainty assigned to these predictions in the FEIS), and average concentrations have been within predicted trophic levels to date.

Figure 67 Predicted concentrations of phosphorus for various receiving environment locations (from FEIS Addendum for Whale Tail Pit Expansion Project – Appendix 6-H, Section 4.1.3).

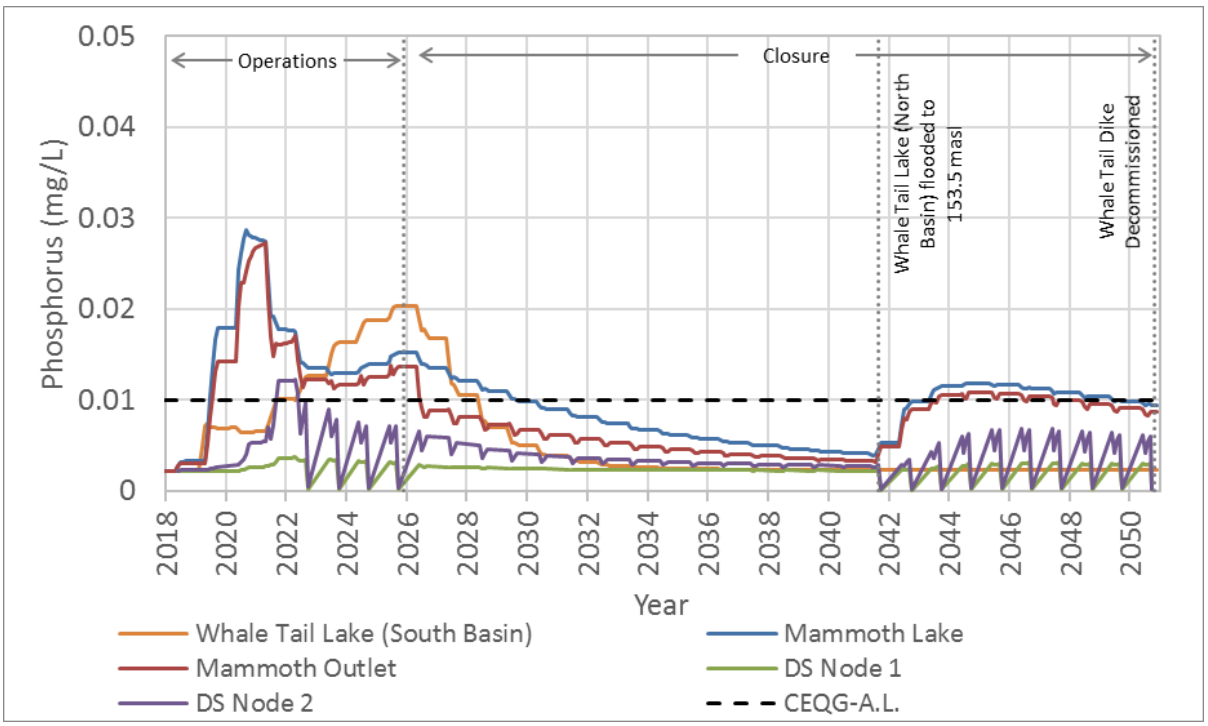
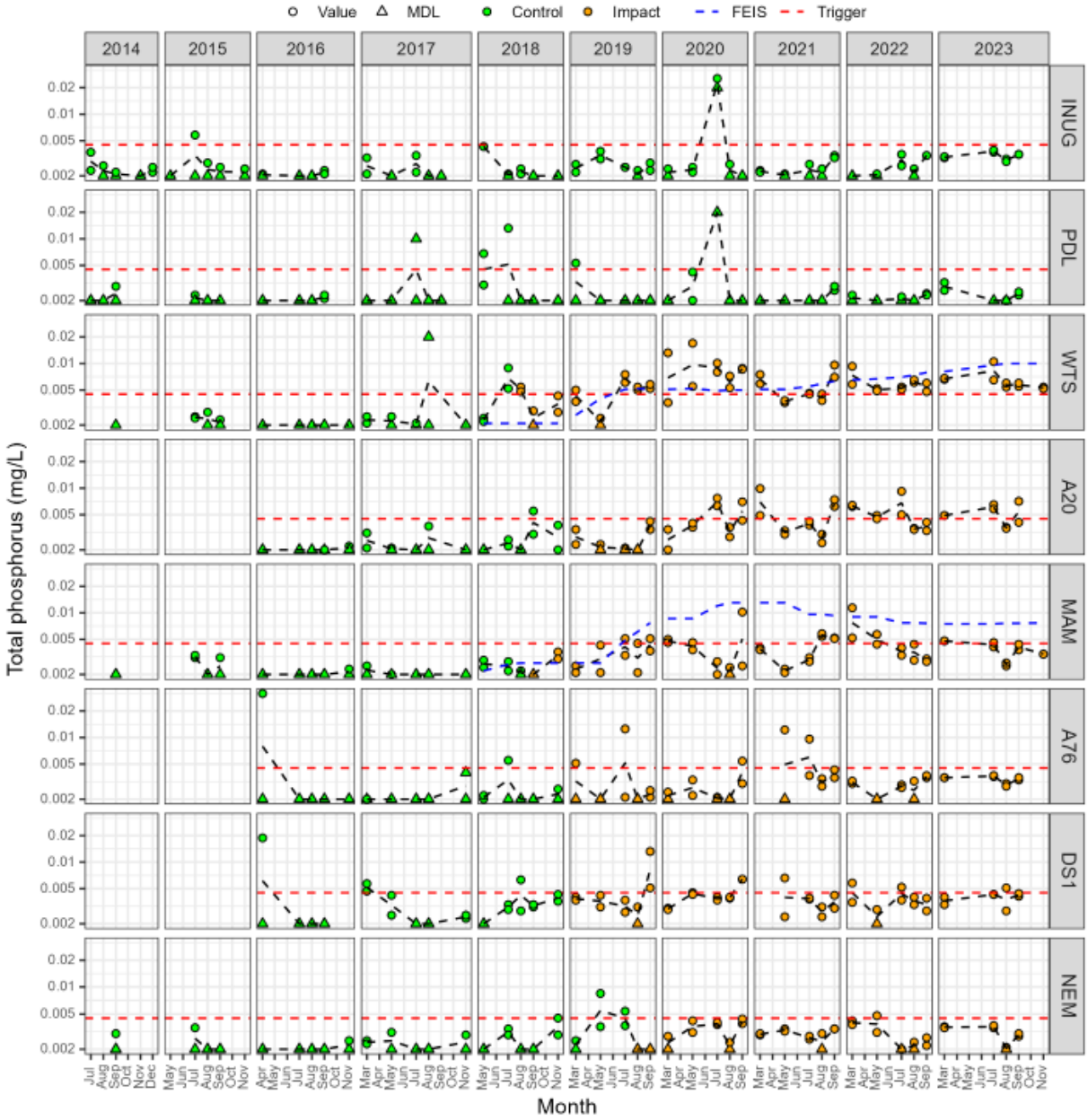


Figure 68 Total phosphorus in water samples from Whale Tail study area lakes since 2014 (from 2023 CREMP Report, Appendix 26). Red dashed line indicates CREMP trigger value. Blue dashed line indicates FEIS Addendum model prediction



Phytoplankton

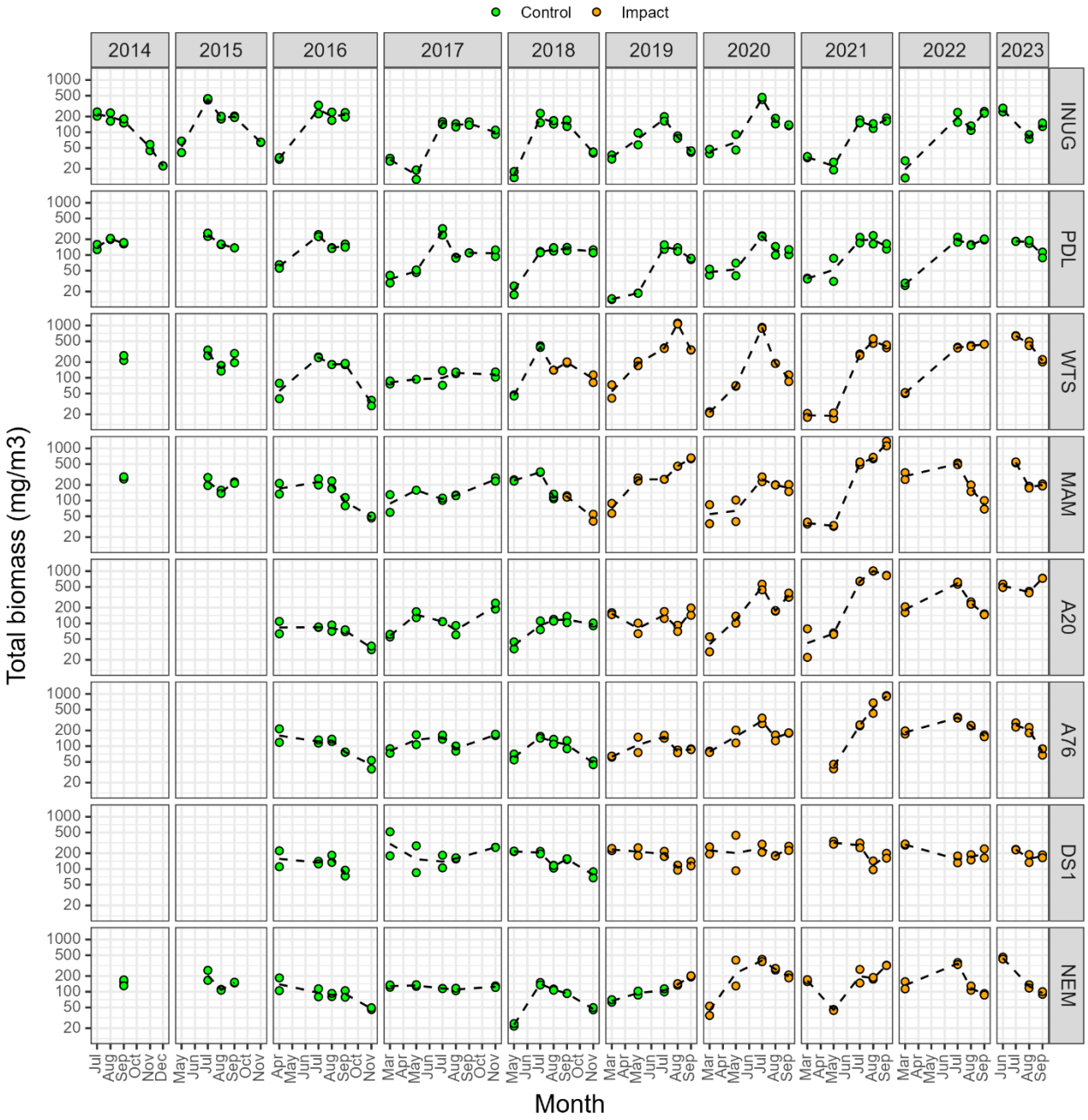
Overall, increases in phytoplankton biomass that have been observed in WTS, A20, and Kangislulik Lake since the onset of mining activities are consistent with predictions made in the FEIS regarding increasing nutrient concentrations in these lakes.

Specifically, in 2019, there was a statistically significant increase in annual average phytoplankton biomass in Whale Tail South and a notable, but not statistically significant, increase in Kangislulik Lake

(Figure 69, below), relative to baseline/reference conditions. While biomass was higher than seen during baseline monitoring, the apparent increases were also driven by lower biomass at the reference area (INUG) relative to previous years. In 2020, there were no statistically significant changes to phytoplankton biomass, but in 2021 a statistically significant increase (compared to baseline/reference) was seen in A20, along with notable but not statistically significant increases in other near- and mid-field lakes (Kangislulik, WTS, A76). In 2022, all near- and mid-field impacted lakes experienced an apparent but not statistically significant increase in phytoplankton biomass. In 2023, a statistically significant increase in total phytoplankton biomass compared to baseline/reference conditions occurred for WTS and A20 (> 20% effect size), with a non-significant increase in MAM, and decrease in A76 and DS1.

To date, species composition has only been affected (reduced) in WTS in 2020, and not since, suggesting the 2020 observation was due to natural variation. An impact on taxa richness was predicted in the FEIS.

Figure 69. Total phytoplankton biomass (mg/m3) from the Whale Tail Mine CREMP study lakes since 2014 (figure from the 2023 CREMP Report, Appendix 26).



Zooplankton

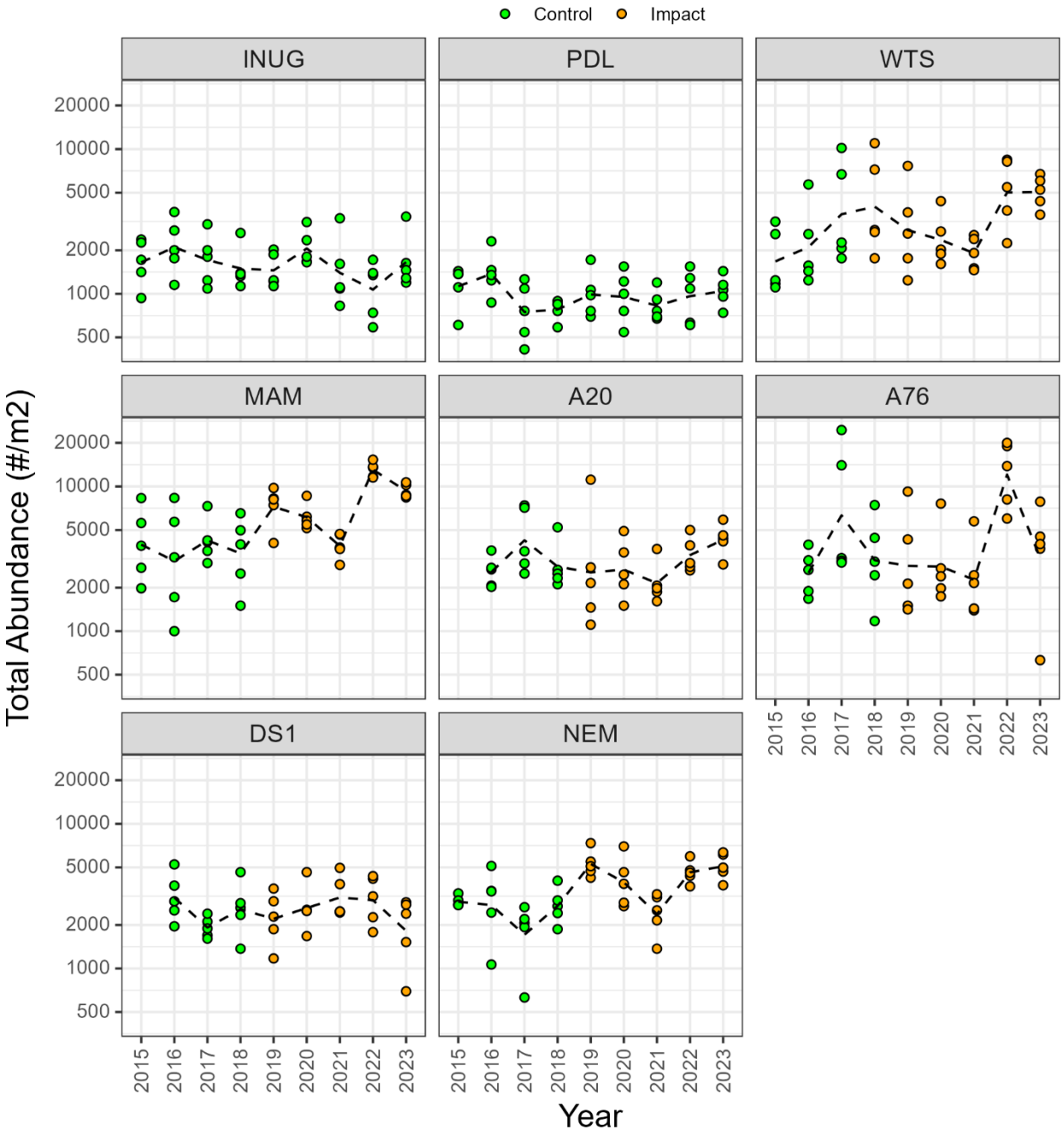
Zooplankton is not monitored in the receiving environment for reasons of low statistical power, as discussed in the 2019 PEAMP report.

Benthic Invertebrates

The benthic invertebrate community evaluation in 2023 included statistical analysis of data for all post-flood time periods to date (2020-23, 2021-23, 2022-23, and 2023 alone) in comparison to baseline/reference. For all time periods, there were statistically significant increases in abundance at KAN and NEM. There was also a statistically significant increase at WTS for the 2022-23 dataset. Similarly, there were significant increases in taxa richness at KAN and NEM for all time periods, along with increases for most time periods at A20, and for 2022-23 at DS1 (a far field lake).

The apparent changes in abundance compared to reference lakes could indicate the influence of mining activity, however, there are number of environmental factors (e.g., temperature) that could also result in these patterns. Based on 17 years of monitoring benthic communities at the Meadowbank study lakes, the CREMP Report consultants (Azimuth Consulting Group) determined that the most likely explanations for the observed changes are natural variability and a regional climate trend (2022-23) rather than mine influence. This determination was made based on observations of water temperatures (high in 2022 and 2023), and trends in nutrient and sediment chemistry (increased nutrients and primary production but no change in sediment TOC, an important nutrient pathway for the benthic community). Analyses will continue in subsequent years to help understand causation (whether trends continue).

Figure 70. Benthic invertebrate total abundance (#/m^2) from Whale Tail study area lakes since 2015 (from the 2023 CREMP Report, Appendix 26).



Forage Fish

Potential increases in forage fish abundance were also predicted to occur as a result of trophic changes associated with effluent discharge. Populations of slimy sculpin and ninespine stickleback in the Whale Tail area lakes were monitored through a research study agreement with the University of Waterloo (Section 8.9), primarily from 2018 – 2021. Data collection for some endpoints (CPUE, length, weight) was

continued in 2022 and 2023 by Agnico Eagle. Final results of this study are now expected in late 2024, but preliminary conclusions suggest the presence of small bodied fish in flood-zone lakes at rates no lower than reference.

Small-bodied fish (slimy sculpin) are also included in Environmental Effects Monitoring studies (described below for large-bodied fish), but evaluation of abundance is not specified in that program.

Large-Bodied Fish

A possible minor increase in growth and reproduction rates for large-bodied fish as a result of trophic changes was noted as a FEIS prediction, though this change was not expected to be measurable. These metrics were not specifically planned to be monitored, but Agnico Eagle is required under the Metal Mining Effluent Regulations (MDMER) to monitor effects of effluent on fish and fish habitat. According to these regulations, Environmental Effects Monitoring studies are designed in consultation with Environment and Climate Change Canada on a 3-year cycle. To date, results for large-bodied fish are available for the study conducted in 2020, which examined differences in pre-established indicators for lake trout populations between the effluent exposure area (Kangislulik (Mammoth) Lake) and two reference lakes. In that study, fish in Kangislulik (Mammoth) Lake did not differ from one or both reference lakes for each key effect indicator with a critical effect size (total weight at length, total weight at age, liver weight per body weight, liver weight at age).

In addition, Agnico Eagle conducted field programs to monitor lake trout populations in flood zone lakes (WTS, A20) in 2023 as a component of the Fish Habitat Offsets Monitoring Plan. The final evaluation for this dataset (including analyses related to growth and reproductive status) will be provided to DFO in 2024, but the interim high-level analysis as presented in the FHOMP Report (Appendix 37) indicates that similar to small-bodied species, lake trout are present in these flood-zone lakes at rates no lower than reference.

Summary

Overall, nutrient concentrations have increased at near-field lakes where effluent is released (Kangislulik Lake, Whale Tail South), in keeping with quantitative FEIS predictions.

FEIS predictions for subsequent changes to lower trophic levels were not quantitative but were expected to occur as a result of nutrient inputs. Phytoplankton monitoring through the CREMP suggests enrichment (increase in biomass) is occurring at Whale Tail South and A20. While increases in benthic invertebrate abundance and taxa richness have also been observed, as predicted, in recent years (mainly 2022 and 2023) for Whale Tail, A20, and Kangislulik (Mammoth) Lakes (as well as Nemo Lake, which does not receive mine effluent), these changes are still considered unlikely to be mine-related. Analyses of data for small-bodied fish populations continue, but current results suggest they are present in WTS, A20, and MAM at rates no lower than reference. EEM indicators for large-bodied fish evaluated in 2020 (relationships in length, weight, age, liver weight) did not differ between the effluent exposure area (Kangislulik (Mammoth) Lake) and one or both reference lakes, and in 2023, lake trout appeared present in WTS and A20 at rates no lower than reference lakes.

12.5.1.3.3 Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management

Effectiveness of Monitoring

Based on the results in Table 12-24, existing monitoring is able to effectively address all FEIS predictions for changes to fish and fish habitat, with the exception of predicted potential increases in zooplankton (discussed in the 2019 PEAMP) and impacts of altered habitat connectivity between Whale Tail and Kangislulik (Mammoth) Lakes. This impact was predicted to be minor and reversible, and no monitoring was specified. While this effects pathway was likely mitigated with construction of the South Whale Tail Channel (which connects the Whale Tail flood zone with Kangislulik (Mammoth) Lake and is passable to fish), it is also it is not considered feasible to specifically evaluate the incremental impacts of this altered habitat connectivity on large-bodied fish populations in this area, amidst the variety of other mine-related physical changes (e.g. flooding) and with limited quantitative baseline data on fish movements between lakes.

Effectiveness of Mitigation

A summary of the FEIS planned mitigation measures related to fish and fish habitat, along with a commentary on implementation in 2023 is provided in Table 12-25. Mitigation measured specifically related to water quantity and water quality are provided in Sections 12.5.1.1.2 and 12.5.1.2.2, respectively, though some overlap may occur.

Table 12-25 Mitigation measures described in the Whale Tail FEIS Addendum to reduce impacts of the project to fish and fish habitat, and commentary on current implementation.

Project Activity	Planned Mitigation Measure (FEIS Addendum, Table 3-C-7)	Implementation (2023)
Mine infrastructure footprint	Best management practices for erosion and sedimentation control (e.g., ground cover, silt fences and curtains, runoff management), where needed.	**Yes** – Freshet Action Plan
Site water management (road infrastructure) and Whale Tail Haul Road operation	Where possible, in-stream works will be constructed in winter when watercourses are frozen. In-stream works will be conducted according to DFO timing windows to avoid critical periods for fish.	**N/A** – No construction in fish-bearing watercourses in 2023
	Mining staff will not be allowed to hunt or fish while on their work rotation; Agnico Eagle will develop and enforce "no hunting, trapping, harvesting or fishing policy" for employees and contractors, which will be consistent with the Meadowbank Mine.	**Yes**
	Watercourses will be inspected upstream and downstream of the crossings for, erosion, scour, and flow blockages	**Yes** – Road Inspection
	Regular inspection of the road to identify any areas where ponding of water along the road represents a risk, and installing additional culverts or drains to alleviate risk, where required.	**Yes** – Road Inspection
	Rock aprons at culvert inlets and outlets will provide erosion protection and prevent localized erosion from concentrated high velocity flows above the peak 1:10 year rainfall event.	**Yes** – Road Inspection
	Use of staggered culvert configuration, and removal of snow at the culvert inlet and outlet prior to the freshet to promote drainage and increased conveyance of flow during spring thaw and freshet.	**Yes** – Road Inspection
Earthworks: Drilling, blasting and excavation (includes Quarry/Borrow Pit) and Crushing activities	Only the required amount of explosive will be used as necessary for the amount of rock or borrow material to be blasted	**Yes** – Blast Monitoring Program
	Applicable guidelines for set-back distances and quantities of explosives will be followed.	**Yes** – Blast Monitoring Program
	Where possible, stockpiling of rock and fill from quarries and borrow sites will be placed such that surface water is not diverted through the piles with runoff to surface waterbodies; drainage from quarries will not flow directly into any waterbodies or watercourses.	**Yes** - Mine Waste Rock Management Plan
	Borrow and rock quarry activity will be at least 31 m from the high water mark of any waterbody	**Yes** - Mine Waste Rock Management Plan
	Borrow pits and quarry will be excavated and sloped for positive drainage	**Yes** - Mine Waste Rock Management Plan
	Quarries will be inspected on a regular basis to monitor water ponding, particularly at spring melt.	**Yes** - Mine Waste Rock Management Plan
	Drainage from borrow pits and quarry will not flow directly into any waterbodies or watercourses.	**Yes** - Mine Waste Rock Management Plan
	When there is ponded water in the rock quarry or borrow pits that could enter a waterbody or watercourse, a water quality sample will be collected and analyzed, and the results used to determine appropriate mitigation measures (e.g., prevent runoff from entering waterbody or watercourse).	**Yes** - Mine Waste Rock Management Plan
	To avoid and mitigate Serious Harm to Fish, Agnico Eagle will continue to adhere to blasting requirements and will continue to use practices consistent with those used at the Meadowbank Mine. Agnico Eagle will engage with DFO, when required.	**Yes** – Blast Monitoring Program
	Use of non-acid generating material at watercourse crossings; testing will verify lack of acid rock drainage and metal leaching potential.	**Yes** - Mine Waste Rock Management Plan
	Any PAG or high metal leaching waste rock will be segregated at source and placed into designated areas within the waste rock storage facilities.	**Yes** - Mine Waste Rock Management Plan
General Construction /Decommissioning Activities	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks), where needed to limit disturbance to lakes and streams.	**Yes** - Mine Waste Rock Management Plan
	In-stream works will be in winter, when possible, to avoid increased TSS and turbidity, and changes to water quality	**Yes**
	Where applicable, runoff from construction / decommissioning activities will be captured and managed to minimize suspended solids (e.g., discharged into an attenuation pond to settle out suspended sediments)	**Yes** – Design report
	Where possible, in-stream works will be constructed in winter when watercourses are frozen. In-stream works will be conducted according to DFO timing windows to avoid critical periods for fish.	**Yes**
	Bridge abutment installation will span majority of the active channel (i.e., outside of the high-water mark), and if feasible, construction will occur in winter	**N/A** – No bridge installation in 2023
	Disturbed areas along the streambanks will be stabilized and allowed to revegetate upon completion of work	**Yes** – Streambanks allowed to revegetate
Site Water Management	A Surface Water Management Plan will be implemented	**Yes** – Water Management Plan
Dike Construction / Decommissioning causing release of sediment	Use of the Dewatering Dikes, Operations, Maintenance and Surveillance Manual developed by Agnico Eagle.	**Yes** - Water management infrastructure OMS
	Best management practices for erosion and sedimentation control (e.g., ground cover, silt fences and curtains, runoff management), where needed.	**Yes** – Water Quality Monitoring Plan for Dike Construction and Dewatering + Freshet Action Plan
	During summer construction, turbidity curtains will be installed near the portion of the alignment where dike construction will occur, which is an approach demonstrated at other northern mining projects	**Yes** – Water Quality Monitoring Plan for Dike Construction and Dewatering
	Non- potentially acid generating, chemically inert material (i.e., granite) will be used to construct the dike to prevent leaching of metals into water.	**Yes** – Design construction report
	Turbidity monitoring will be conducted at designated locations throughout open water and under-ice conditions, within and outside of the zone of the turbidity curtains. In the event that TSS concentrations approach monitoring thresholds, a review of local conditions and activities will be conducted.	**Yes** – Water Quality Monitoring Plan for Dike Construction and Dewatering
General mining activities and use of vehicles causing fugitive dust & other air emissions	Implement dust control measures, if needed on mine roads.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes –** Air Quality and Dustfall Monitoring Plan
	Enforcing speed limits (maximum speed 50 km/h) to suppress dust production.	**Yes –** Whale Tail Transportation Management Plan
	If deemed necessary through monitoring, dust from roads will be managed through use of dust suppressant	**Yes –** Air Quality and Dustfall Monitoring Plan
	The running surface of the road will be maintained thereby reducing the generation of dust.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Adherence to the Air Quality and Dustfall Monitoring Plan	**Yes –** Air Quality and Dustfall Monitoring Plan
	Most personnel arriving at or leaving the site will be transported by bus, thereby reducing the amount of traffic (and dust).	**Yes**
	Adherence to water quality monitoring and adaptive management in the CREMP to detect changes in water quality	**Yes** - CREMP
	Construction equipment and trucks will be equipped with industry-standard emission control systems.	**Yes**
	Compliance with regulatory emission requirements will be met.	**Yes –** FEIS air quality impact assessment
	Exhaust emissions from non-road vehicles will be managed through regular and	**Yes** – Maintenance logs

Project Activity	Planned Mitigation Measure (FEIS Addendum, Table 3-C-7)	Implementation (2023)
	routine maintenance of vehicles	
	SO_2 emissions from non-road vehicles and stationary equipment will be reduced through the use of low emission diesel fuel.	**Yes**
Waste Rock Storage Areas and Stockpiles	A Water Management Plan has been developed and describes the containment and management of contact water on-site.	**Yes** – Water Management Plan
	Contact water will be monitored and managed through the Storage and Attenuation Ponds. The IVR Diversion will divert clean runoff from the upper watershed of the IVR Pit to the Nemo Lake watershed.	**Yes** – Water Management Plan
	Seepage will be captured at sumps and diverted to the Attenuation Pond.	**Yes** – Water Management Plan
	Facility discharge water will be monitored for water quality, and treated as required, prior to discharge	**Yes** – Water Management Plan
	Performance of the dikes will be monitored throughout their construction and operating life.	**Yes** – Water Management Plan
Site Water Management	Manage pumping rates so total annual discharge from Whale Tail and Nemo Lake does not drop below the 10-year dry condition	**Yes** – Water Management Plan
	Water withdrawal rate(s) will be controlled to avoid effects on the source water lake(s).	**Yes** – Water Management Plan
	Capture and reuse site water to reduce freshwater requirements	**Yes** – Water Management Plan
	Pumped water from the dewatered lakes will be directed through properly designed structures to prevent erosion in the receiving waterbodies	**Yes** – Water Management Plan
	Pumped discharge will be directed to the lake environment, and not directly to outlets, to attenuate flow changes	**Yes** – Water Management Plan
	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed	**Yes** – Water Management Plan
	Water Management Plan will be implemented	**Yes** – Water Management Plan
	A fish-out of the diked area of Whale Tail and Kangislulik lakes, and smaller waterbodies in the northeast area for the Expansion Project, will be conducted before and during dewatering phase; the fish-out plan will be designed and implemented in consultation with DFO and local Inuit communities, and will consider recommendations in Tyson et al. (2011).	**NA -** Fish-out complete
	Appropriately sized fish screens, which meet DFO guidelines, will be fitted to pumps to limit fish access and to limit fish entrained to the smaller species and life stages	**Yes** – Water Management Plan
	Runoff and seepage from the Project site will be diverted to sumps and the attenuation pond (and treated if required) prior to release.	**Yes** – Water Management Plan
	Water quality in attenuation ponds will be monitored and managed such that the discharge meets discharge limits.	**Yes** – Water Management Plan
	Potential acid generating rock and metal leaching waste rock will be segregated at source and placed into designated areas within waste rock locations	**Yes** - Mine Waste Rock Management Plan
Fuel Storage and use (includes Chemical and Hazardous material Storage and Explosives Storage Area)	The Spill Contingency Plan will be implemented, including ready access to an emergency spill clean-up kit for cleaning up any spills	**Yes** - Spill Contingency Plan
	Hazardous materials and fuel will be stored according to regulatory requirements to protect the environment and workers and will be stored at the Meadowbank Mine.	**Yes** – Hazardous Management Plan
	Storage tanks (e.g., fuel, engine oil, hydraulic oil, and waste oil and coolant) will be double walled, or located in lined and bermed containment areas	**Yes** – Hazardous Management Plan
	Hazardous wastes will be temporarily stored at Whale Tail Pit site and then transported to the Meadowbank Mine in appropriate containers to prevent exposure until they are shipped off site to an approved facility	**Yes** – Hazardous Management Plan
	Individuals working on site and handling hazardous materials will have appropriate training (e.g. WHMIS)	**Yes** – Hazardous Management Plan
	Soils from petroleum spill areas will be deposited at the Meadowbank Mine Landfarm	**Yes** – Landfarm Management Plan
	Equipment will be re-fueled, serviced, or washed away from the watercourse crossings.	**Yes** – Best practices
	Fuel, lubricants, hydraulic fluids, and other chemicals will be stored at least 31 m away from the high water mark of any waterbody.	**Yes** – Weekly Inspection
	Construction equipment will be regularly maintained	**Yes** – Maintenance Logs
	Emergency spill kits will be available wherever toxic materials or fuel are stored and transferred	**Yes** – Spill Contingency Plan
	Enforced speed limits	**Yes**
Mining Activities and Water Management – effluent release	Adherence to Water Management Plan	**Yes** – Water Management Plan
	Runoff and seepage from the Project site will be diverted to sumps and the attenuation pond	**Yes** – Water Management Plan
	Treated sewage will be piped to the attenuation pond	**Yes** - Completed
	Water quality in Attenuation Ponds will be monitored and managed such that the discharge entering Kangislulik Lake, Whale Tail Lake, or the alternative discharge locations (Lake 1 or Lake 5) meets discharge limits. If water quality does not meet discharge limits, it will be circulated and re-treated.	**Yes** – Water Management Plan

Adaptive Management

Since existing mitigation measures are considered effective at this time, no adaptive management actions are planned as a result of this 2023 PEAMP evaluation.

12.5.2 Vegetation, Terrestrial Wildlife, and Birds

12.5.2.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

The 2023 Wildlife Monitoring Summary Report (Appendix 39) provides a complete assessment of wildlife monitoring programs including a comparison to monitoring thresholds detailed in the Terrestrial Ecosystem Management Plan (TEMP Version 7; 2019) and impacts predicted in the *FEIS for the Whale Tail Pit Project* (Agnico Eagle, 2016) and *FEIS Addendum for the Whale Tail Pit Expansion Project* (Agnico Eagle, 2018). Results are summarized here in the PEAMP format.

For each wildlife VC, a summary of residual predicted impacts and the accuracy of those predictions (observed impacts) as determined through various monitoring programs conducted under the TEMP is provided in Table 12-26. Thresholds for the implementation of adaptive management, as developed in the TEMP were used in this comparison because most impact predictions in the Terrestrial Ecosystem Impact Assessment of the FEIS (Agnico Eagle, 2016) and FEIS Addendum (Agnico Eagle, 2018) were qualitative only. The TEMP thresholds were developed in consultation with the Terrestrial Advisory Group (TAG), and represent quantitative measurement endpoints that trigger management action.

Of note is that Table 12-26 below presents only TEMP results for monitoring conducted in relation to predicted residual impacts for the Whale Tail Mine. Results for all additional TEMP monitoring endpoints have thresholds that were developed for the Meadowbank Complex as a whole, and these results are described in the Meadowbank Mine PEAMP evaluation, Section 12.4.2.

Table 12-26 Predicted residual impacts to terrestrial environment and wildlife VCs for the Whale Tail Site during the construction and operations period (primary pathways according to FEIS Volume 5, and updated to reflect FEIS Addendum, Section 5.4 and 5.5 as indicated); thresholds according to the Terrestrial Ecosystem Management Plan (Version 7; 2019); and measured impacts according to the annual Wildlife Monitoring Summary Report (Appendix 39). NM = not required to be measured in the identified year. NA = no threshold.

Effect Pathway	Proposed Monitoring	Current Monitoring	Threshold/ Prediction	Measured Impact				
				2019	2020	2021	2022	2023
VEGETATION (WILDLIFE HABITAT)								
Direct loss and fragmentation of vegetation habitat from the Project footprint	TEMP	TEMP - Ground Surveys, Mapping, GIS Analysis	Predicted/Permitted area + threshold over prediction (Whale Tail site and haul road): 1188/1505 ha + 5%	NM		775 ha	NM	NM
Loss or alteration of local flows, drainage patterns (distribution), and drainage areas from the Project footprint and haul road that can cause changes to vegetation	None	TEMP - Ground Surveys, Mapping, GIS Analysis	*FEIS Addendum, Section 5.4.3.1.2:* Localized and temporary effects to vegetation habitat quality through decreased species abundance.	NA (no threshold)				
Dust deposition on vegetation from haul roads and mining activities (air emissions, dust deposition, or chemical contamination on terrain, soils, and vegetation can potentially change the quality and/or chemical properties of soil and effecting vegetation)	TEMP	TEMP (Screening Level Risk Assessment)	*Prediction (Proponent Response to IRs for the Whale Tail Pit Expansion Project FEIS Addendum, "Human Health and Ecological Risk Assessment – Whale Tail Pit Expansion Project" – Golder, May 2019):* All soil concentrations <CCME guidelines or max. baseline + 10%. All water concentrations <screening values.	NM	NM (2020 assessment postponed to 2021)	All soil concentrations <CCME guidelines or max. baseline + 10%, or exceedances not mine-related. All water concentrations <screening values.	NM	NM
UNGULATES								
Sensory disturbance from vehicles, on-site equipment, human presence and vibrations, can change the amount of different quality habitats, and alter wildlife movement and behaviour	Satellite-collaring data; Road surveys; Pit and mine-site ground surveys; Incidence reports, HOL surveys	Satellite-collaring data; Road surveys; Pit and mine-site ground surveys; Remote cameras; HOL surveys	No threshold as of 2019 – Caribou Management Decision Tree in place	NA (no threshold)				
Direct loss and fragmentation of wildlife habitat from the Project footprint	Ground Surveys, Mapping, GIS Analysis	Ground Surveys, Mapping, GIS Analysis	High Suitability Habitat Predicted/Permitted Area + threshold over prediction: Growing – 38/56 ha + 10% Winter – 613/1057 ha + 10%	NM		Growing – 21 ha Winter – 561 ha	NM	NM
Barriers to migration, which may affect population connectivity and distribution	-	Remote camera	None	NA (no threshold)				
PREDATORY MAMMALS								
NONE (See Table 12-9)	-	-	-	-	-	-	-	-
SMALL MAMMALS								
NONE (See Table 12-9)	-	-	-	-	-	-	-	-
RAPTORS								
NONE (See Table 12-9)	-	-	-	-	-	-	-	-
WATERBIRDS								
Destruction of nests and flooding from construction activities including increased flows or water levels can increase risk of mortality to individual birds, which can affect population sizes	None	Trent University/ECCC migratory bird deterrent studies (2018 – 2020); Migratory Bird Protection Report (Appendix 47)	*Prediction (FEIS Section 5, Table 5.5-11)*: Total 89 nests displaced (waterbirds and upland birds)	Prelim est. 32 – 62 nests displaced		Final estimate: 31 – 50 nests lost through flooding	-	-
UPLAND BREEDING BIRDS								
Sensory disturbance from vehicles, on-site equipment, human presence and vibrations, can change the amount of different quality habitats, and alter wildlife movement and behaviour	None	PRISM Plots and BBS (resumed 2022)	*Threshold: None* *Prediction (FEIS Volume 5, Section 5.5.3.3):* Upland bird density will decrease by 50% within 200 m of project facilities. At 1.41 birds/ha, 6000 birds may be impacted. *Prediction (FEIS Addendum, Section 5.5.3.3):* Additional 419 birds impacted. Changes in density or productivity are unlikely to be detectable.	NA – program suspended pending ongoing regulatory review.		NA – Agnico Eagle/ECCC agreement for PRISM and BBS to begin in 2022. There will be no threshold.	Surveys initiated as designed with ECCC.	
Destruction of nests and flooding from construction activities including increased flows or water levels can increase risk of mortality to individual birds, which can affect population sizes	None	Trent University/ECCC migratory bird deterrent studies (2018 – 2020); Migratory Bird Protection Report (Appendix 47)	See Waterbirds section, above.	See Waterbirds section, above.				

12.5.2.2 *Parts 3 & 4: Discussion*

Where impacts are exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here. To date, no thresholds have been exceeded.

12.5.2.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

Based on the results in Table 12-26, current TEMP monitoring programs are able to address all FEIS impacts for which TEMP monitoring was recommended (i.e. monitoring is considered effective).

Effectiveness of Mitigation

See Section 12.4.2.3 for discussion of the mitigation audit, completed as a component of the TEMP.

In the context of the PEAMP evaluation, mitigation is considered effective if impact predictions (or in this case, TEMP thresholds) are not being exceeded. Therefore, since no TEMP thresholds were exceeded (Table 12-26) in 2023, mitigation for these impacts is considered effective.

Adaptive Management

Management recommendations are summarized in the PEAMP for the Meadowbank Mine, above (Section 12.4.2.3).

12.5.3 Noise

12.5.3.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

In the initial FEIS (Agnico Eagle, 2016), noise impacts were modeled and assessed for three primary pathways: construction of the Whale Tail Haul Road, operation of the Whale Tail Haul Road, and operation of the Whale Tail Pit. In the FEIS Addendum for the Whale Tail Pit Expansion Project (Agnico Eagle, 2018), no new primary pathways were identified but updated noise modeling for the Project incorporated new activities (haul road widening, surface and underground mine operations) and modeling approaches (modeling for the full length of the haul road during operation). Modeling reflected mining activities during the year 2022, which is planned to be the year of highest production for the Project, and anticipated highest sound emissions.

In the FEIS noise assessment, modeled Project sound levels at the local study area (LSA) boundary were compared with Permissible Sound Levels (PSLs) from AER Directive 038 (40 dBA night-time, 50 dBA daytime) to provide a reference for Project impacts. However, residual impacts were not specified or classified as significant or non-significant because noise does not have an assessment endpoint. Any potential effects associated with the primary pathways are captured in the assessment of potential effects to other VCs (e.g. wildlife and the aquatic environment).

As described in the Noise Monitoring and Abatement Plan, noise monitoring stations have been established around the minesite and along the Whale Tail Haul Road to evaluate ambient noise levels on an annual basis. For the purposes of this PEAMP, measured sound levels in those locations are

compared to model predictions from the FEIS Addendum (Agnico Eagle, 2018). In accordance with noise mitigation measures listed in the FEIS Addendum (Volume 3, Appendix 3-C, Table 3-C-1 and see below Table 12-27), periodic far-field monitoring was also conducted in 2022 (and opportunistically in 2023) to confirm adherence with the PSL.

Table 12-27, below, compares FEIS predictions for area sound levels with the results of noise monitoring conducted under the current Noise Monitoring and Abatement Plan. For all monitoring stations, FEIS predictions were derived from the maximum sound emissions scenario: summertime, haul road widening plus surface and underground operations (Agnico Eagle, 2018 - Volume 4, Figure 4.4-3). Measured background sound levels (Agnico Eagle, 2016 - Volume 4, Appendix 4-D) were added to all predictions.

It is noted that while noise modeling for FEIS purposes determines a single sound pressure level produced by a specified combination of Project-related activities at a given location under certain assumed atmospheric conditions, in reality, measured noise levels vary over time, depending on contributions from background sources, wind direction, ongoing or punctual activities, etc. While FEIS predictions are not specifically time-averaged, they are compared here to the 24-h L_{eq} calculated from monitoring results, which represents the average sound pressure level produced by all sources over the course of a day, under varying climatic conditions including wind speeds and direction. This evaluation is therefore considered a screening-level comparison for the purposes of noise management, and not a comprehensive validation of specific FEIS model predictions.

Table 12-27 Ambient noise levels for the Whale Tail Mine and Haul Road. *Values identified from sound level contours in Agnico Eagle, 2018; Section 4, Figure 4.4-3 plus measured background levels (Agnico Eagle, 2016; Appendix 4-D). Measured impacts exceeding predictions are shaded grey and further discussed in Section 12.4.3.2. ^Value for 2019 from the FEIS (Agnico Eagle, 2016; Volume 4).

Effect Pathway	Monitoring Station	FEIS Addendum Predicted Max. Value (dBA)*	Measured Values $L_{eq,\ 24\text{-}h}$ (dBA)				
			2019	2020	2021	2022	2023
Noise emissions from vehicles on the haul road can increase ambient noise levels.	R6	2019^: 50.0 2020+: 42.5	41.8	33.1	-	33.4	35.4
			-	28.2	34.2	-	40.0
	R7	40.4	-	36.8	37.9	-	37.8
			-	-	-	-	31.1
Noise emissions from mining equipment can increase ambient noise levels. Blasting can result in ground vibration and increase ambient noise levels.	R8	45.1	-	32.8	39.3	-	-
			-	-	40.6	-	-
			-	-	41.4	-	-
	R8a	40.4	-	-	-	29.5	38.2
			-	-	-	-	22.7
	R9	45.1	-	35.5	39.8	-	-
			-	30.9	35.5	-	-
	R9a	45.1	-	-	-	34.0	37.2
			-	-	-	-	30.7
	R10	50.0	-	-	41.3	-	-
	R10a	40.4	-	-	-	29.9	33.5
			-	-	-	-	31.8
	R11	50.0	-	38.8	-	-	-
			-	34.7	-	-	-
	R11a	50.0	-	-	37.4	-	37.5
			-	-	35.0	-	38.8
PSL check	R12	35	-	-	-	31.0	-

12.5.3.2 *Parts 3 & 4: Discussion*

Where impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion will be provided here.

To date, measured 24-h L_{eq} values have not exceeded FEIS-modeled maximum sound levels for near-site locations, or the PSL at the local study area boundary.

12.5.3.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

The noise monitoring program that was implemented in 2023 at the Whale Tail Mine was conducted in accordance with the approved Noise Monitoring and Abatement Plan (December, 2018), which was designed in conjunction with the FEIS Addendum's noise impact assessment. This monitoring program is therefore considered effective as designed.

Effectiveness of Mitigation

FEIS-planned mitigation measures to limit impacts of the Project on area noise levels were described in the FEIS Addendum Volume 3, Table 3-C-1 and the associated Noise Monitoring and Abatement Plan for the Project (Version 4, December 2018). This Plan includes noise mitigation measures for both the Meadowbank and Whale Tail Mines, and implementation of the planned abatement measures in the current year is detailed in Section 12.4.3.

Since measured ambient 24-h noise levels have not exceeded FEIS maximum model predictions, existing mitigation measures are considered to be effective.

Adaptive Management

No adaptive management actions are planned based on this evaluation, since the monitoring program is able to effectively measure ambient area noise levels and all planned mitigation practices are in place.

12.5.4 Air Quality and Climate

12.5.4.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

In the Whale Tail Mine FEIS documents, residual impacts were not classified for air quality as a VC, because air quality does not have an assessment endpoint, only measurement endpoints (i.e., comparison to relevant ambient air quality guidelines or standards). Any potential effects associated with the primary pathways are captured in the assessment of potential effects to, and residual impact classifications for, other VCs. Nevertheless, quantitative predictions were made in relation to air quality guidelines, so the validity of those predictions is assessed here, where feasible using results from approved monitoring programs.

In order to estimate potential impacts of the Project on air quality, modeling exercises were conducted as a component of the FEIS Addendum to determine emission rates and dispersion of various criteria air

contaminants (CACs) from different Project sources (Agnico Eagle, 2018; Section 4). These included assessments for the Whale Tail Site and the Whale Tail Haul Road.

For the Whale Tail Haul Road, calculation of CAC emissions included the following sources:

- Exhaust from vehicles operating on the haul road; and
- Road dust from the un-paved haul road.

Air quality dispersion modelling of a representative 1 km section of the haul road oriented northeast to southwest was used to predict the following:

- Maximum plus background concentrations of CACs as a function of distance from the haul road;
- Maximum dust deposition as a function of distance from the haul road.

For the Whale Tail Site, calculation of CAC emissions included the following sources:

a) Whale Tail Pit activities, including:
   - in pit and underground drilling and blasting;
   - in pit and underground material handling;
   - un-paved road dust from mining operations; and
   - exhaust from off-road equipment operating in the Whale Tail Mining area;
b) Wind erosion from ore pad and waste storage pile;
c) Stationary combustion emissions from the camp heating and camp power; and
d) Un-paved road dust and vehicle exhaust from the section of haul road within the Property boundary; and
e) Emissions from an incinerator.

Air quality dispersion modelling was then conducted to predict maximum plus background concentrations of CACs at the Property boundary. Associated monitoring was recommended and is conducted according to the Air Quality and Dustfall Monitoring Plan (March, 2022), as follows:

Table 12-28. Air quality monitoring locations and parameters for the Whale Tail Site and Haul Road (Air Quality and Dustfall Monitoring Plan, March 2022). ^Installed in 2021.

Monitoring Location	Measured Parameters
DF-6a or b	TSP, PM_{10}, $PM_{2.5}$, passive NO_2, dustfall
DF-7^	Continuous active NO_2
DF-8 (co-located with DF-7) ^	Passive NO_2
Whale Tail Haul Road km 134	Dustfall transect
DF-9^/Whale Tail Haul Road km 151	Passive NO_2, dustfall transect
Whale Tail Haul Road km 169	Dustfall transect

For the Whale Tail Haul Road, dust deposition is measured over three transects using static dustfall collectors that are deployed in the field for a 30-d period. However, due to differences in particle sizes

collected by static dustfall monitors (typically < 0.85 mm) and those assessed through air quality emissions and dispersion modelling (typically < 30 µm), these are considered screening-level comparisons only. Since dustfall canisters collect particles across a much wider range of sizes than included in standard modeling, they are very likely to measure higher rates of total dustfall than those specified in the FEIS. However, if measured dustfall is lower than predicted dustfall, model results can be verified as conservative. To improve the comparison, maximum measured background rates of static dustfall in this area during baseline studies (0.27 mg/cm^2/30d) are added to FEIS predicted deposition rates (see 2023 Air Quality and Dustfall Monitoring Report in Appendix 42 for further details).

For the Whale Tail Mine, concentrations of suspended particulates are assessed using automated air samplers (Partisol 2025 Sequential Air Samplers). These samplers measure concentrations of suspended particulates over a 24-h period every 6 days. Again, field-measured suspended particulate matter concentrations are considered appropriate for comparison with model predictions for screening purposes only, for various reasons. For example, models incorporate emissions from specific sources, under set meteorological conditions, and terrain considerations. Further, much like dustfall, differences in size fractions between modeled and measured values are a consideration for TSP. Finally, for the Whale Tail Mine, the suspended particulate monitoring station is located near the centre of project activity, close to sources and adjacent to various buildings where power is available, and model results in these conditions are generally considered particularly variable from field measurements, compared to assessments at the property line or further receptor locations. As a result, total suspended particulate monitors at the Whale Tail Mine are most appropriate for assessing trends over time and comparisons to management thresholds, rather than specific modelled impact predictions.

Onsite concentrations of NO_2 by volume (ppb) are analyzed over one-month periods using a passive sampling device provided by an accredited laboratory. A continuous (active) NO_2 monitoring station was installed in 2021, sited in consultation with ECCC.

Dustfall (deposition of particulate matter) onsite is measured using the static dustfall collectors described for the Whale Tail Haul Road, above.

For reference, all data handling methods and results for air quality and dustfall monitoring are provided in the 2023 Air Quality and Dustfall Monitoring Report (Appendix 42), along with comparisons to regulatory guidelines, FEIS predictions, and historical measurements.

Impact predictions associated with these air contaminants and monitoring locations are summarized in Table 12-29, along with monitoring results to date. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.5.4.2.

Note: One effect pathway was removed from Table 12-29 in 2023 since it has always been evaluated under the Meadowbank PEAMP – "Additional 3 years of processing and use of supporting infrastructure at the Meadowbank mine site and the existing AWAR for delivery of materials can continue to affect air quality".

Table 12-29 Predicted and measured impacts to air quality and climate for the Whale Tail Mine and Haul Road. 2019 measurements are compared to predictions from the FEIS for the Whale Tail Pit Project (Agnico Eagle, 2016). 2020+ measurements are compared to predictions from the FEIS Addendum for the Whale Tail Pit – Expansion Project (Agnico Eagle, 2018). NM = not measured. Measured impacts exceeding or potentially exceeding predictions are shaded grey and further discussed in Section 12.5.4.2. *Addition of background values described above. ^Predictions for the 24-h average are open-ended (> 120 µg/m3 or >50 µg/m3) and therefore not compared to measured values. **Updated in 2023.

Effect Pathway	Proposed Monitoring	Monitoring Conducted	FEIS Prediction + Background*	Measured Value	FEIS Addendum Prediction + Background*	Measured Value			
				2019		2020	2021	2022	2023
Vehicle emissions and fugitive dust from traffic on the haul road can affect air quality	Static dustfall	Static dustfall	Max. deposition rate* ($mg/cm^2/30d$) 25 m: 1.46 100 m: 0.83 300 m: 0.53 1000 m: 0.38	Max. dustfall ($mg/cm^2/30d$) 25 m: 8.04 100 m: 2.24 300 m: 1.42 1000 m: 0.46	Max. deposition rate* ($mg/cm^2/30d$) 25 m: 3.67 100 m: 2.17 300 m: 0.86 1000 m: 0.38	Max. dustfall ($mg/cm^2/30d$) 25 m: <3.67 100 m: <2.17 300 m: <0.86 1000 m: <0.38	Max. dustfall ($mg/cm^2/30d$) 25 m: 10.08 100 m: <2.17 300 m: <0.86 1000 m: <0.38	Max. dustfall ($mg/cm^2/30d$) 25 m: 10.93 100 m: <2.17 300 m: 1.26 (*not mine-related*) 1000 m: <0.38	Max. dustfall ($mg/cm^2/30d$) 25 m: 13.17 100 m: <2.17 300 m: <0.86 1000 m: <0.38
Blasting, stationary and mobile combustion sources, and fugitive dust from mining activities in the Whale Tail Pit can affect air quality.	TSP, PM_{10}, $PM_{2.5}$, NO_2, dustfall	TSP, PM_{10}, $PM_{2.5}$, NO_2, dustfall	NO_2: 4.4 ppb (annual average)	1.46 ppb	NO_2: 8 - 16 ppb (annual average)	1.29 ppb	1.66 ppb	2.17 ppb	2.00 ppb
			TSP: 24-h: 174 µg/m³ Annual: 16.9 µg/m³	NM	TSP^: Annual: 30 - 45 µg/m³	35.0 µg/m³	24.3 µg/m³	64.9 µg/m³	37.1 µg/m³
			PM_{10} 24-h: 52.4 µg/m³	NM	PM_{10}: NA^	-	-	-	-
			$PM_{2.5}$ 24-h: 20.1 µg/m³	NM	$PM_{2.5}$ 24-h: 21 - 28 µg/m³	< 28 µg/m³			Max. 31 µg/m³
			$PM_{2.5}$ Annual: 4.3 µg/m³	NM	$PM_{2.5}$ Annual: 5 – 7.5 µg/m³	1.44 µg/m³	1.82 µg/m³	3.9 µg/m³	4.5 µg/m³
Greenhouse gas emissions from the Project can contribute to climate change.	Report emissions	GHG emissions reported	Whale Tail Site: 64.2 kt $C0_2e$/yr Meadowbank Mill: 180 kt CO_2e/yr	189,867 t CO_2e total (2020 recalc. = 195,564 t CO_2e total)	Whale Tail Site: 164.2 kt $C0_2e$/yr Meadowbank Mill: 180 kt CO_2e/yr	225,385 t CO_2e total	243,893 t CO_2e total	249,362 t CO_2e total**	253,815 t CO_2e total (prelim.)

12.5.4.2 *Parts 3 & 4: Discussion*

Where air quality impacts are exceeded or potentially exceeded based on monitoring results (as identified in Parts 1 & 2, above), a discussion is provided here.

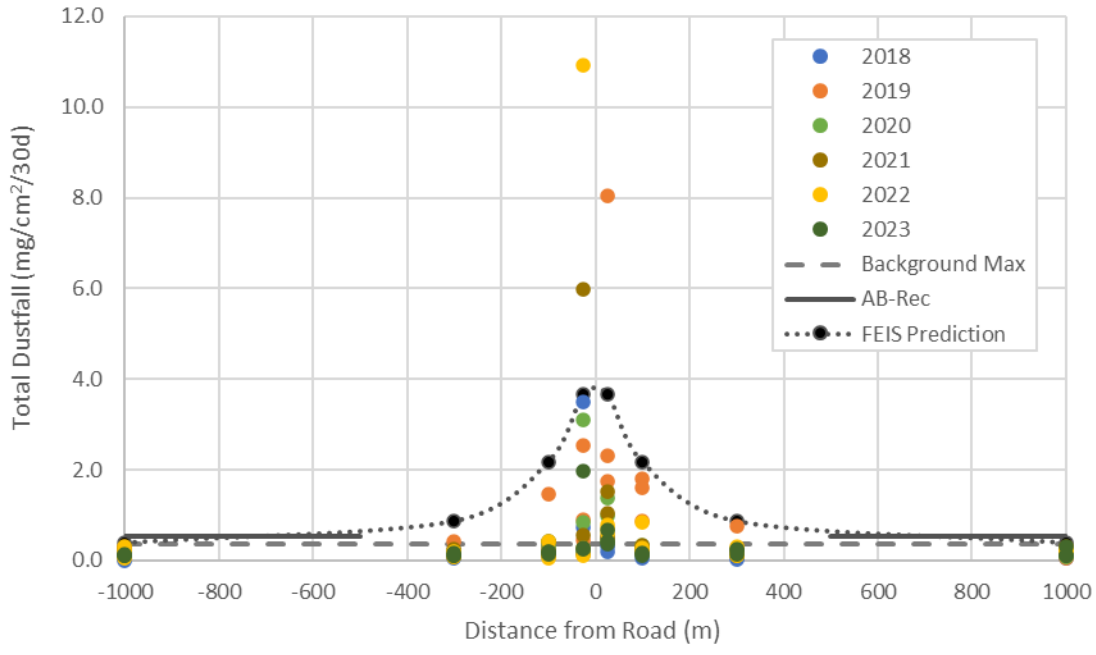
12.5.4.2.1.1 Whale Tail Haul Road Dustfall

Specifically, in 2019, measured rates of dustfall along the Whale Tail Haul Road commonly exceeded FEIS-predicted rates of dust deposition. This was likely a result of three factors: differences in particle size between deposition modeling and dustfall measurements, sampling at ground level as opposed to 2-m height, and limited dust suppressant application in 2019. As further described in the 2023 Air Quality and Dustfall Monitoring Report (Appendix 42), sampling beginning in 2020 was conducted on stands, dust suppressant was applied to the full length of the WTHR along with intermittent watering, and FEIS predictions were updated according to the assessment for the Whale Tail Expansion Project. All dustfall monitoring results for the WTHR in 2020 were below FEIS Addendum predictions, and one or two samples across all transects have exceeded predictions since 2021. This has occurred primarily at the 25 m distance. The overarching FEIS prediction that that maximum deposition rates would decline below 0.53 mg/cm^2/30 d within 500 m of the road has been met in all monitoring events.

As discussed above, field dustfall monitoring represents a very conservative comparison to FEIS predictions, so the isolated exceedances that have occurred to date are anticipated.

Historical results for August (the time period with the driest conditions and generally highest rates of traffic) are shown in Figure 71.

Figure 71. Total dustfall rates (mg/cm^2/30d) for all samples collected in August along the Whale Tail Haul Road to date. 2018 and 2019 data was collected at ground level, while all 2020+ samples were collected on stands. Negative distances represent the east side of the road, and positive distances represent the west side. FEIS Prediction values are from the FEIS Addendum Appendix 4C, Table 4-C-24 (Agnico Eagle, 2018).



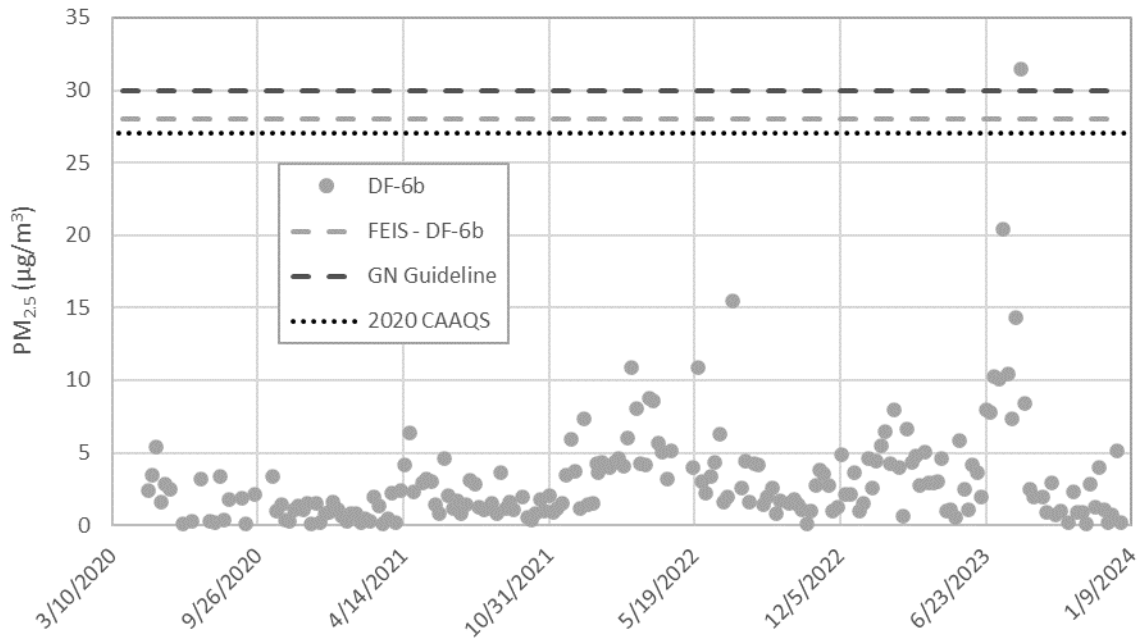
12.5.4.2.1.2 Total Suspended Particulates

Annual average TSP measured at Whale Tail Mine onsite location DF-6b (65 µg/m3) in 2022 exceeded the maximum FEIS Addendum prediction for this location (45 µg/m^3). As discussed above, TSP monitoring provides a conservative comparison to model predictions, due to a variety of differences in methodology. The DF-6b monitoring station is located near the centre of the project footprint (adjacent to and downwind of the camp facility), so it is likely that measured suspended particulate concentrations were influenced by larger particle sizes, potentially from nearby construction activities, that are not included in air quality modelling. Typically, modeled TSP only includes particles with an aerodynamic diameter <30 µm, whereas Partisol TSP units are not size-selective. It is noted that annual average TSP did not exceed the GN regulatory guideline, and FEIS Addendum predictions were not exceeded for other size fractions. In the FEIS Addendum, 2022 was planned to be the year of highest production, and the increase in measured particulate may have been caused by a general rise in site activity. Onsite air quality management measures were planned to be reviewed to help minimize future emissions. Results in 2023 were again less than the FEIS prediction for the annual average.

12.5.4.2.1.3 $PM_{2.5}$

In 2023, a single particulate sample at the Whale Tail Mine monitoring station exceeded the FEIS Addendum prediction for PM2.5. Historical results are shown in Figure 72. As described in Section 12.5.4.1, field monitoring results are expected to differ from model estimates in some portion of field samples due to various differences in modeling assumptions and measurement methods. This is considered to have been a localized event, and not a significant deviation from FEIS predictions.

Figure 72. Measured 24-h average concentrations of $PM_{2.5}$ at Whale Tail Mine monitoring station DF-6b, and the FEIS-modeled maximum expected concentration for this location, for specified sources (see description in text).



12.5.4.3 *Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

In 2023, all monitoring recommended in the FEIS to assess air quality impacts was conducted according to the Air Quality and Dustfall Monitoring Plan (March, 2022).

Overall, it is considered difficult to compare air quality model outputs with specific monitoring results. Air quality modelling is a statistical exercise which captures the maximum and average concentrations expected from an emissions source, under specific meteorological conditions, and terrain factors. Additionally, air quality modelling considers only the sources in the model which typically does not include transboundary transport or other background sources of contaminants.

However, air quality monitoring at the Whale Tail Mine is able to effectively measure ambient concentrations of CACs, and compare with regulatory guidelines and management thresholds. When field-measured values are lower than model results, those predictions can be confirmed as conservative.

Effectiveness of Mitigation

A summary of the planned mitigation measures for air quality during the construction and operations phases is provided in Table 12-30, along with a commentary on current implementation.

As described in the Air Quality and Dustfall Monitoring Report (Appendix 47), monitoring thresholds were established within the Air Quality and Dustfall Monitoring Plan (March, 2022) to confirm effectiveness of existing mitigation. Thresholds relate to dustfall and suspended particulate measurements. In 2023, thresholds for the Whale Tail Mine and Haul Road were met, with the exception of the single measurement for $PM_{2.5}$ (described in Section 12.5.4.2.1.3), so existing mitigation (Table 12-30) is considered to have been effective.

Adaptive management is described further below.

Table 12-30. Mitigation measures described in the Project FEIS Addendum (Table 3-C-1) to reduce impacts of the project on area air quality and climate, and commentary on current implementation

Project Activity	**Planned Mitigation Measure** (FEIS Addendum Volume 3, Table 3-C-1)	**Implementation (2023)**
General construction, operations, and decommissioning activities associated with the Whale Tail Pit and the haul road; and Mining of the Whale Tail Pit	All vehicles will adhere to the 50 km/h speed limit.	**Yes**
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
Upgrading of the haul road from the Whale Tail Pit to the Meadowbank Mine	Implement dust control measures, if needed on mine roads.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase.	**Yes –** Air Quality and Dustfall Monitoring Plan
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
Traffic on the haul road from the Whale Tail Pit to the Meadowbank Mine	Watering of roads and enforcing speed limits to suppress dust	**Yes –** Air Quality and Dustfall Monitoring Plan

Project Activity	Planned Mitigation Measure (FEIS Addendum Volume 3, Table 3-C-1)	Implementation (2023)
	production.	
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes**
	Regular maintenance will be implemented for equipment and vehicles	**Yes** – Maintenance logs
Construction of the Whale Tail Pit	Best Management practices for controlling fugitive dust from construction activities	**Yes** – Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase	**Yes**
	Regular maintenance will be implemented for equipment and vehicles	**Yes** – Maintenance Logs
Mining of the Whale Tail Pit	Watering of pit roads and enforcing speed limits to suppress dust production.	**Yes** – Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at the time of purchase.	**Yes**
	Regular maintenance will be implemented for equipment and vehicles.	**Yes** – Maintenance logs
	Enclosures are used to reduce fugitive emissions at the processing facility	**Yes** – Air Quality and Dustfall Monitoring Plan
	Adherence to the Incinerator Waste Management Plan	**Yes –** Incinerator decommissioned in 2022

Adaptive Management

Thresholds were met in 2023, so no further adaptive management actions are planned based on this PEAMP analysis.

12.5.5 Soil, Terrain, and Permafrost

12.5.5.1 *Parts 1 & 2: Summary of Predicted and Measured Residual Impacts*

Although primary pathways of effects were identified for soil, terrain, and permafrost, no residual impact predictions were made because soil, terrain, and permafrost do not themselves have measurable effects endpoints. Any potential effects associated with the primary pathways for soil, terrain, and permafrost are captured in the assessment of the potential effects to, and residual impact classifications for other VCs.

12.5.5.2 *Parts 3 & 4: Discussion*

N/A – residual impacts are not measured for permafrost directly. Potential effects are captured in the assessment of other VCs.

12.5.5.3 *Part 5: Effectiveness of Monitoring and Mitigation, and Adaptive Management*

Effectiveness of Monitoring

Soil, terrain, and permafrost conditions will be continuously monitored and inspected during all phases of the Project to ensure the effectiveness of the design criteria. Where required, adaptive management strategies will be implemented. Full details on management plans and monitoring for the waste rock pile, dewatering of the dikes, and haul road are provided in the Mine Waste Rock and Tailings Management Plan, Water Management Plan, and Whale Tail Pit and Haul Road Management Plan, respectively.

However, since no predictions were made with respect to residual impacts of permafrost directly, these programs are not designed to validate any predictions. Rather, impacts of permafrost are measured through measurement indicators for other VCs and effectiveness of those monitoring programs are assessed in the relevant sections of this report.

Effectiveness of Mitigation

A summary of the planned mitigation measures for permafrost according to the FEIS Volume 3, Table 3-C-2 is provided in Table 12-31, along with a commentary on current implementation. Similarly, planned mitigation measures for soil and terrain are provided in Table 12-32, along with current implementation. If impacts to other VCs are occurring beyond FEIS predictions and those effects are potentially due to impacts on soil, terrain, or permafrost, this record of mitigation can be reviewed. For the purposes of this annual review, the mitigation summary does not include Environmental Design Features, which are incorporated into construction plans but are not ongoing mitigation measures.

Table 12-31 Mitigation measures described in the Whale Tail FEIS (Table 3-C-2) to reduce impacts of the project on permafrost during the construction and operations phases, and commentary on current implementation. Mitigation measures listed here do not include Environmental Design Features that are factored into construction plans.

Project Activity	Planned Mitigation Measure (FEIS Table 3-C-2)	Implementation (2023)
Mine infrastructure footprint	Implement slope stability criteria to manage erosion.	**Yes -** Slopes were designed and built to angle of repose to minimize erosion. Slopes were built using properly graded material to minimize erosion.
	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed.	**Yes -** Silt curtains not required as of yet. Infrastructure was designed and built with erosion and sedimentation control as needed (such as channels and dikes). Turbidity barriers installed during construction of Whale Tail Dike upstream East abutment capping.
Earthworks: Drilling, blasting, grading, trenching, excavation and backfilling, crushing activities, and dike construction	Minimize footprint areas for stripping and removal of material. Use appropriately designed structural fill and thickness to maintain and promote permafrost conditions.	**Yes -** All footprint areas were minimized as much as possible. Fill thicknesses were designed with maintaining permafrost in mind.
	Where possible, stockpiling of rock and fill from quarries and borrow sites will be placed such that surface water is not diverted through the piles.	**Yes -** Stockpiles were placed in areas away from surface water flow. Location planning for stockpiles considers the topography and watersheds.
	Minimum setback distance of 31 m from the ordinary high water mark of waterbodies.	**Yes -** The minimum setback distance of 31m from the high water mark was respected.
	Thick drifted snow greater than 1 m thick will be removed before the road fills are placed.	**Yes -** Snow removal took place before any fill was placed.
	Minimize depth of excavations to limit impact on active layer.	**Yes -** Excavation of any kind was avoided when possible and the depth was minimized as much as possible.
	Monitoring of the Whale Tail Dike will be undertaken to understand the hydraulic and thermal behaviour of the dike during filling Whale Tail (South Basin)	**Yes -** Regular instrument monitoring continues.
	Minimize depth of quarrying to limit impact on active layer. Maximum quarry depths of 3 m are currently planned.	**Yes -** Quarry depths were limited as much as possible.
	Appropriate design of quarry walls to promote stability, and to minimize annual slope degradation.	**Yes -** All quarry walls were designed and built to slope angles that would minimize slope degradation.
	Appropriate design of quarries to manage water and minimize ponding of water within the quarries which would result in a deeper active layer.	**Yes -** All quarries were designed and built with floors sloped to promote drainage.
	Where possible, stockpiling of rock and fill from quarries and borrow sites will be placed such that surface water is not diverted through the piles with runoff to surface waterbodies.	**Yes -** Stockpiles were placed in areas away from surface water flow. Location planning for stockpiles considers the topography and watersheds.
	Drainage from quarries will not flow directly into any waterbodies or watercourses	**Yes -** It was ensured that drainage from quarries would not go into any waterbodies or watercourses.
	Submission of all design drawings to the Nunavut Water Board for approval, prior to construction.	**Yes -** Design drawings were submitted to the Nunavut Water Board for approval prior to construction.
Mine Site Facilities Construction	Where possible, use thaw-stable road fills for construction.	**Yes -** Very few options are available for road fills but placement and design are always done with maintaining permafrost in mind.
	Road fill material will be placed directly over the existing soil layer without cutting, stripping, or grubbing to avoid disturbing the subgrade soils.	**Yes -** Road fill material was always placed directly over the existing soil layer.
	Placement of the road construction materials during winter will minimize disturbance to the permafrost.	**Yes -** Roads were constructed during the winter whenever possible.
	Thick drifted snow greater than 1 m thick will be removed before the road fills are placed.	**Yes -** Snow removal took place before any road fill was placed.
	Stockpile snow on thaw-stable materials, or in areas that are insensitive to thaw settlement.	**Yes -** Snow was placed in designated snow dump areas
Mine Site Operations and Maintenance, including use of existing facilities and AWAR	Use appropriate drainage and water diversion structures to minimize water ponding during thaw.	**Yes -** Water ponding was minimized through pumping during the spring thaw.
	Stock pile snow on thaw-stable materials.	**Yes -** Snow was placed in designated snow dump areas
	Use snow fencing where appropriate to minimize snow clearing requirements.	**Yes -** Snow fencing was not required yet.
	Annual road maintenance as required.	**Yes -** All roads are maintained and inspected frequently.
	Continue to use appropriate facilities management methods to reduce the amount of ice trapped within the facility.	**Yes -** At the Meadowbank TSF tailing deposition planning was done to reduce ice entrapment as much as possible.
	Use appropriate deposition planning (i.e., tailings placed in layers to promote freezing).	**Yes -** During in-pit deposition, one deposition point is used in each pit. The method of tailings discharge ensures that ice forms on the wall but not within the tailings body in the pit.
	Where possible begin construction during winter months, when active layer is frozen.	**Yes -** Starting construction of the WRSF and stockpiles was planned for winter months whenever possible.
Waste Rock Storage Areas and Stockpiles	Place waste rock in lifts to promote freezing of pile.	**Yes -** Waste rock was always placed in lifts to promote freezing.
	Use appropriate water management methods to avoid water ponding and to control high volume potentially erosive flows.	**Yes -** Water ponding and erosive flows were minimized through pumping during the spring thaw.
Water Management Infrastructure	Manage snow accumulation locally	**Yes -** Snow removal was performed according to a plan with designated snow dump areas.
	Regular inspection of the road to identify any areas where ponding of water along the road represents a risk, and installing additional culverts or drains to alleviate the risk.	**Yes -** Regular inspection of the road was performed to identify the spots where water may pond or was ponding. Culverts were inspected and if they were frozen or plugged they were fixed. If culverts could not be fixed they were replaced.
	Pumped discharge to receiving lake will only occur while water quality discharge criteria are met.	**Yes -** Frequent testing of all water pumped to the receiving environment was performed. If water quality discharge criteria were not met the water was treated by the WTP and only pumped once the criteria was met.
	Pumped discharge will be directed to the lake environment, and not directly to outlets, to attenuate flow changes.	**Yes -** Pumped discharge was only directed to approved area and not directly to outlet
	Shoreline areas susceptible to extensive erosion will be addressed by appropriate erosion protection measures, mitigation measures based on adaptive management, or a combination of both, to reduce erosion and associated re-suspension of fine sediment.	**Yes -** Water management was planned and executed in order to avoid causing erosion on shorelines. Examples include using sunken diffusers, discharging water only on boulder pads, and discharging water to lakes at low enough rates to prevent quick rises in water elevation.
	Use appropriate back filling methods for the placement of fill material. Initial permafrost retreat that may occur during the placement of backfill may be replaced by permafrost re-establishing within the backfilled areas.	**Yes -** Fill material was placed in thin lifts and compacted to promote the establishment of permafrost.
Open Pits	Water inflows to the pit will require sumps and be pumped to the Attenuation Pond.	**Yes -** Water inflows to the pit were directed to sumps and pumped to approved location (Whale Tail and IVR Attenuation Ponds)
	Insulate water lines as they produce heat and can thaw adjacent	**NA**

	frozen ground.	
Underground Mining	Water inflows to the underground excavations will require sumps and be pumped to the Attenuation Pond.	**Yes -** Underground water inflows are pumped to the Groundwater Storage Pond (GSP)
	Appropriate operations and maintenance procedures in place for the operation of the fuel tank farm.	**Yes -** To prevent fuel spills procedures were put in place to safely operate the fuel tank farm. These procedures include fuel spill protocols, inspections, and maintenance practices.
Fuel Storage and use (includes Chemical and Hazardous material Storage and Explosives Storage Area)	Appropriate re-fueling areas and procedures to minimize and capture spills.	**Yes -** All re-fueling areas are equipped with safeguards to prevent and capture spills. Re-fueling procedures are in place and employees are trained how to re-fuel before operating vehicles.
	Implement the spill plan for potential chemical spills, including hydrocarbons	**Yes -** Spill plans are in place for all types of chemical spills. Employees are trained on how to apply the spill plan to their work.
	Minimize ground disturbance.	**Yes -** Ground disturbance was minimized as much as possible.
Waste Management: Landfill, Landfarm, Sewage Treatment	Use appropriate waste management methods to operate the facilities within the proposed waste rock piles, to promote permafrost growth.	**Yes -** Waste management methods are in place and followed closely to promote permafrost growth, including the creation of small sub-landfills which are encapsulated by waste rock. Inspections and surveys are performed to ensure the landfill is being constructed properly.

Table 12-32. Additional mitigation measures (beyond those in Table 12-31 above) described in the FEIS Addendum for the Whale Tail Pit Expansion Project (Table 3-C-2) to reduce impacts of the project on soil and terrain during the construction and operations phases, and commentary on current implementation. Mitigation measures listed here do not include Environmental Design Features that are factored into construction plans.

Project Activity	Planned Mitigation Measure (FEIS Addendum Table 3-C-2)	Implementation (2023)
Mine Infrastructure Footprint (e.g. open pits, site roads, access roads)	Locating borrow sites as close to the haul road as practical.	**Yes**
	Minimizing borrow areas by using suitable waste rock (e.g., Vault Pit waste rock) to the greatest extent practicable	**Yes**
	Avoid new disturbances by using existing ones where possible	**Yes**
Earthworks: Drilling, blasting, grading, trenching, excavation and backfilling, crushing activities, and dike construction	Most of the overburden will be placed in the Waste Rock Storage Facility, except for a small amount used in operations, which will only be temporarily stockpiled. Overburden will be piled at the base of the Whale Tail WRSF and surrounded with waste rock to stabilize the material and then all the overburden stockpiled in the Whale Tail WRSF will be eventually covered with waste rock.	**Yes** - Mine Waste Rock Management Plan
	Erosion control practices on steep slopes to limit wind and water erosion.	**Yes** – Site inspection, design construction, best practices
Mine Site Facilities Construction	Use of non-acid generating material for road construction	**Yes -** Operational ARD/ML Testing and Sampling Plan, design construction
Mine Site Operations and Maintenance, including use of existing facilities and AWAR	Implement dust control measures on mine roads, when required	**Yes** - Air Quality and Dustfall Monitoring Plan
	Road surfaces will be maintained through grading and the addition of granular material.	**Yes** - Air Quality and Dustfall Monitoring Plan
	Equipment and vehicles will comply with relevant non-road emission criteria at that time of purchase	**Yes -** Operational ARD/ML Testing and Sampling Plan, design construction
	Use of non-acid generating materials for road bed and fill	**Yes -** Operational ARD/ML Testing and Sampling Plan, design construction
	Enforcing speed limits will assist in reducing dust emissions	**Yes**
	Implement the spill plan for potential chemical spills, including hydrocarbons	**Yes** – Spill Contingency Plan
	Adherence to the Air Quality and Dustfall Monitoring Plan	**Yes** - Air Quality and Dustfall Monitoring Plan
	Complete a Wildlife Screening Level Risk Assessment every 3 years	**Yes** - TEMP
	Water Management Plan is approved and adhered to at existing facilities and Water Management Plan specific to the Whale Tail Pit areas has been developed and these plans have considered the containment and management of contact site water.	**Yes** – Water Management Plan
	Natural construction materials will be tested before they are used to confirm that they are not potential acid draining or potential sources of metal leaching	**Yes -** Operational ARD/ML Testing and Sampling Plan
Waste Rock Storage Areas and Stockpiles	(see Fish and Fish Habitat section, above)	**NA**
Water Management Infrastructure	(see Water Quantity, Water Quality, and Fish and Fish Habitat sections above)	**NA**
Fuel Storage and use (includes Chemical and Hazardous material Storage and Explosives Storage Area)	(see Water Quality section above)	**NA**

Adaptive Management

Adaptive management consists of changes to permafrost, soil and terrain mitigation methods in response to results of monitoring programs which indicate exceedances or potential exceedances of impact predictions. In this case, the validity of impact predictions related to permafrost, soil and terrain are measured through effects on other VCs. If impacts to other VCs are exceeding predictions as a result of permafrost changes, adaptive management will be considered and reported here.

No adaptive management has been required to date.

12.5.6 Archaeology, Traditional Land Use, and Socio-Economics

Since, in many cases, is it not possible to distinguish impacts of the Meadowbank project from those of the Whale Tail project on Archaeology, Traditional Land Use, and Socio-Economics, the PEAMP evaluation is combined for this section and provided under Section 12.4.6.

12.6 Contributions to Regional Monitoring

In fulfillment of Item E in Appendix D of the Project Certificate, a description of Meadowbank's investments in regional monitoring initiatives, academic research studies and ongoing data sharing programs is provided in Table 12-33. These are programs in addition to publication of compliance-related onsite monitoring results. They contribute to the general advancement of environmental management in the North, and help ensure continued optimization of environmental mitigation and monitoring programs at Meadowbank and elsewhere.

Table 12-33 Contributions of the Meadowbank Complex to regional monitoring initiatives, academic research studies, and ongoing data sharing programs. Any related changes to Meadowbank's onsite monitoring and mitigation plans are described

Program Type	Program Title	Contribution/Program Summary	Dates
Multi-Stakeholder Advisory Groups	Terrestrial Advisory Group	To reach consensus on research projects, needs for future monitoring and research, gain approval and ensure consistent endpoints of success, a Terrestrial Advisory Group (TAG) was created.	2017 - present
	Meadowbank Fisheries Research Advisory Group	Created to oversee the implementation of fisheries research projects related to offsetting for Whale Tail Pit, the Meadowbank Fisheries Research Advisory Group (MFRAG) meets annually and provides a forum for input and recommendations on these studies. Members are: DFO, HTO, KIA, appointed external advisor, and AEM.	2019 - present
Regional Monitoring Studies	GN Caribou Collaring Program	Meadowbank continues to contribute to the GN DOE caribou collaring program which started in 2008. Seven deployments, with a total of 117 collars, have been completed in the area around Baker Lake since Agnico Eagle became involved in the collaring program. In 2017, Agnico Eagle finalized discussions with the GN and entered into a renewed Memorandum of Understanding to commit to another term contribution in support of the regional GN caribou monitoring program. Wildlife branch in directing the implementation, data analysis and management of caribou populations in the Kivalliq region. Agnico Eagle signed a data sharing agreement with the GN DoE in March 2023, regarding the caribou satellite-collaring program, which includes data collected within the Meadowbank Complex RSA. The collaring program is owned and manage by the GN, and Agnico Eagle supports as required. With the agreement, Agnico Eagle receives daily collared-caribou maps, which helps guide operational decision in the Meadowbank Complex. The data of the collared caribou was used in various studies in 2023, including an update to the Caribou Migration Timing Analysis, and a review of caribou herd ranges	MOU: 2008 –March 2020 DSSA: March 2023- present
	ZOI Study	In 2017, in collaboration with Agnico Eagle staff, WSP biologists and statisticians worked to determine a zone of influence (ZOI) for the Meadowbank mine, or evaluate if it is affecting a large number of individuals. It is predicted that reduced use of preferred habitats should reduce herd size (from lower survival and reproduction). Data analysis was completed and hypotheses were tested, documents were provided to regulators and reviewed, presentations were made at the GeoScience Forum. This project continues to be reviewed by the TAG.	2017 - present
	Caribou Behaviour and Road Crossing Studies	In 2018, review of caribou data lead to a TAG project to explore the link between caribou road crossings and road closures. Results were presented to the TAG in 2019, and used to inform ongoing monitoring and mitigation. Studies to inform caribou behaviour around road crossings and blasts are ongoing.	2018 - present
	Snow Study	Per Whale Tail Expansion Project commitment 9 from the TAG Meeting held in Baker Lake June 11 – 13, 2019, Agnico Eagle committed to complete a 3-year snow monitoring program as part of the TEMP to measure snow conditions adjacent to the WTHR, with the goal of determining whether changes to snow resulting from snow removal along the WTHR result in conditions that potentially inhibit caribou movements.	2020 – 2021 (pilot study) 2022 – 2024 (full study)
Academic Research Programs	Whale Tail Complementary Measures Suite	Suite of six research programs related to fish and fish habitat in the Meadowbank region. Included in Agnico Eagle's Fish Habitat Offsetting Plan for the Whale Tail Pit project. Projected total contributions from Agnico of $1.6 M. Further information in: Fish Habitat Offsetting Plan for Whale Tail Pit, Appendix C (May, 2018).	2018 – 2034 (est).
	Baker Lake Wastewater Study	Industry partner in NSERC CRD project "Validating Environmental and Human Health Improvements Associated with Wastewater Treatment Upgrades in Arctic Communities". Total contributions from Agnico of $590,000.	2019 – 2026
	Arctic Raptors	Collaboration with Dr. Alastair Franke/Arctic Raptors to conduct annual raptor monitoring at the Meadowbank and Meliadine sites. The Arctic Raptors program has been monitoring raptor populations in the Arctic since the 1980s.	2015 - present
	Migratory Bird Ecology and Effectiveness of Deterrents	As part of commitments made during the permitting process for Whale Tail Pit, Agnico is funding and facilitating a study on effectiveness of deterrents for minimizing impacts of flooding on nesting waterbirds in the Amaruq area (Dr. Erica Nol, Trent University; Dr. Paul Smith, ECCC). Total contributions from Agnico are $120,000 plus in kind support. As part of these contributions, Agnico has also agreed to support a study on ecology and nest site selection factors for area waterbirds (Dr. Erica Nol, Trent University). Finally, results of these studies will also contribute to the ArcticNet funded study "Modernizing Ecosystem Monitoring to Support	2018 – 2021

Program Type	Program Title	Contribution/Program Summary	Dates
		Sustainable Development in the Eastern Canadian Arctic" (Dr. Paul Smith, ECCC; Dr. Christina Semeniuk, University of Windsor). This project uses advanced technology to track birds' movements across the Eastern Arctic, and behaviour in relation to human development and disturbance. Results will inform environmental impact mitigation efforts by industry, and simultaneously, contribute to national and international efforts to conserve Arctic biodiversity.	
Other Information Sharing Programs	DFO Fishout Database	Agnico Eagle contributes raw data files from all fishout programs to DFO's Fishout Database.	2009 – 2020 (last fishout program)

SECTION 13. REFERENCES

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