

APPENDIX D

JOB HAZARD ANALYSIS

FACILITY / SITE:	Meadowbank	DATE:	09-02-2014
DEPARTMENT:	ENG/ENV/MINE/SITE SERVICE/ ELEC	REVIEW DATE(S):	As needed
JOB BEING ANALYSED:	Drilling Investigation – Assay Road Leakage	TEAM LEADER:	Tom Thomson/ Ryan VanEngen/ Jeff Pratt

Step	Describe Job Steps	Hazards/Potential Incidents	Risk Control Methods Required
	<i>List the natural steps of the job (not too broad and not too fine)</i>	<i>What can happen at each step? Can an employee be struck by/caught on/contacted by/struck against/contact with/caught between?</i>	<i>Describe how hazards will be managed or removed. Consider elimination/substitution, engineering controls, administrative controls, personal protective equipment.</i>
1	Check the bootlegs before stake out of the holes.	1.1 Hit an old drilled hole.	1.1 Surveyor will validate the position of the holes to be drilled to ensure that there are no old holes in the vicinity of them. If yes, the regulation 14.52 of the mine act should then be apply (No drilling to be conducted within 1 m. of a bootleg)
2	Remove snow from drill locations.	2.1 Get equipment stuck, in deep snow 2.2 Slip, trips, and Falls in deep snow.	2.1 Site Services will remove snow a day or two prior to the drill program along mill, leach pad and tundra locations. 2.2 ensure stable footing and use proper ppe
3	Close the Road.	3.1 Equipment going through the road while drilling. 3.2 Access for emergency vehicles in assay lab and mill	3.1 Site service will close the road before staking out the holes. Site service will send an e-mail to all Meadowbank about the closure of the road. 3.2 Pick up trucks w keys will be placed and red-tap will be installed to indicate road closure.
4	Stake out the holes and electrical cables (surveyor)	4.1 Slips Trips and Falls 4.2 Weather – dress accordingly and take necessary breaks to warm up	4.1 Watch footing. 4.2 See Cold weather Manual.
5	Power off on electrical cable close to the drilling area	5.1 Electrocution - death	5.1 Power will be shut-off by electrical group and the Driller will lockout the power supply before drilling. *NOTE: If electrical group is unavailable to shut off power, drilling in the vicinity of power lines will

			<p>not occur.</p> <p>Drilling in vicinity of electrical lines will be put off until February 24th. Electrical department is aware of the plan and will assist Environment on February 24th with power shut down</p>
6	Drilling	<p>6.1 Dust and potential exposure to CN gases and liquids</p> <p>6.2 Electrical cables and building</p> <p>6.3 Communication cable</p> <p>6.4 Grounding cable</p> <p>6.5 Noise</p> <p>6.6 Working outside mill doors</p>	<p>6.1 Wear dust mask at all time when close to the drill (within 10 meters) and ensure multi gas vapour cartridges are used; wear Tyvek suits, nitrile gloves and goggles at all times; use mill decontamination area at all times; no eating or drinking while near the contamination site. Be sure to take your time and stay warm under cold conditions – use decontamination for warming up. Wash-up after work is complete.</p> <p>6.2 Underground electrical cable to be stake-out by surveyor. Power cable to be power-off before drilling. Minimal distance between a hole and an electrical cable fix at 3 meters. <u>Before starting drilling, the Environmental Technician in charge will have to wait for the confirmation from the electrical group that the power has been shut down and driller is locked out the power supply. All work near electrical cable will be completed on February 24th</u></p> <p>6.3 Minimal distance between a hole and a communication cable fix at 3 meters.</p> <p>6.4 Minimal distance between a hole and a grounding cable fix at 3 meters if possible but must be greater than 1.5 meters.</p> <p>6.5 Wear hearing protection at all time when close</p>



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JOB HAZARD ANALYSIS WORKSHEET

Form

DRAFT Rev 0

			<p>to the drill (within 10 meters)</p> <p>6.6 When drilling outside any of the access doors to the mill the inside of the man door or overhead door will need to be taped off with RED DANGER TAPE, so no one exits the door. This will be completed and coordinated with Mill employees.</p>
7	Moving the drill in between each holes	<p>7.1 Collision in between drill and Environment technician</p> <p>7.2 Overhead collisions and drill mast balance issues</p>	<p>7.1 Always have a good communication between the driller and the Environment Technician when moving. Communication will be on <u>Surface</u> Channel 5 or with loud verbal communication. Environment technician should always be at a minimal distance of 10 meters of the drill when moving.</p> <p>7.2 Ensure mast of drill is in a safe position while moving.</p>
8	Environment technician drilling follow-up	8.1 Heavy equipment running (drill) that could injure the Environment Technician.	8.1 Always keep a minimal distance of 5 meters from the drill when drilling. Always have good communication between the driller and the Environment Technician when drilling. Communication will be on Surface Channel 5 or loud verbal communication.
9	Sample of water/cuttings (Environment Technician)	<p>9.1 Heavy equipment running (drill) that could injure the Environment Technician.</p> <p>9.2 DUST</p> <p>9.3 CN gases or liquid contaminate exposure</p>	<p>9.1 The drill must stop any activity when the Environment Technician will perform his sampling. Always have a good communication between the driller and the Environment Technician when drilling. Communication will be on Channel 5.</p> <p>9.2 Fine samples will contain dust that could potentially contain Asbestos, so a half mask must be worn when sampling.</p>

			9.3 Use Tyvek suit at all times, nitrile gloves, goggles and face mask with multi gas vapour cartridges. Be sure to use decontamination area and wash up after work is completed.
10	Fill-up of the holes with steaming	10.1 Heavy equipment running (loader); 10.2 Lifting and digging with hand held shovel	10.1 A spotter should be there at all time when the loader will perform is job. The Road will remain closed at that time as well. 10.2 Use proper techniques for shoveling and stay within your means. If needed a loader could be made available around the mill. On the tundra, it is preferable to complete the filling by hand to avoid disturbing the tundra.
11	Turning power back after drilling near electrical cable is completed	11.1 Electrical hazard	11.1 Before putting the power back, the Environmental Technician in charge will advise the electrical group that the drilling is completed in the vicinity of the electrical cable. The driller will then remove lock from lock out.
12	Keep departments aware of drilling plan	12.1 Create a busy work area with too many groups working in one area. 12.2 Create a stop in production for mill if certain areas are blocked off and they cannot plan around it.	12.1 Relay work locations at morning management meeting to all departments. 12.2 Attend Mill morning meeting 7:15 a.m. in mill boardroom to relay the drill locations for the day.

Permits Required (check all that apply)

LOTO: ☒ Confined Space
Hot work ☐ Pre Excavation
Electrical Work ☐ Lift Permit

Review Drilling pattern and follow it. Meet with Mill and Electrical department.

PPE (check all that apply)

Safety Glasses ☒ Safety Boots
Hardhat ☒ Face shield
Gloves ☒ Welding helmet
Kevlar Gloves ☐ Earplugs X
Chemical gloves ☐ Ear muffs
Apron ☐ Chemical clothing
Goggles ☐ Respirator X

Tyvek suits

Half mask respirator with P100 filters if exposed to dust. 60926 3m mitgas and goggles.

Emergency Information :

Evacuation Route:

Evacuation Signal: Fire alarm or While on channel 5 switch to Channel 3 "Code 1, Code 1, Code 1"





Assembly Point: Arctic corridor

Location of Eyewash/shower:

Emergency phone number: 6911

First aid location: Medical Center

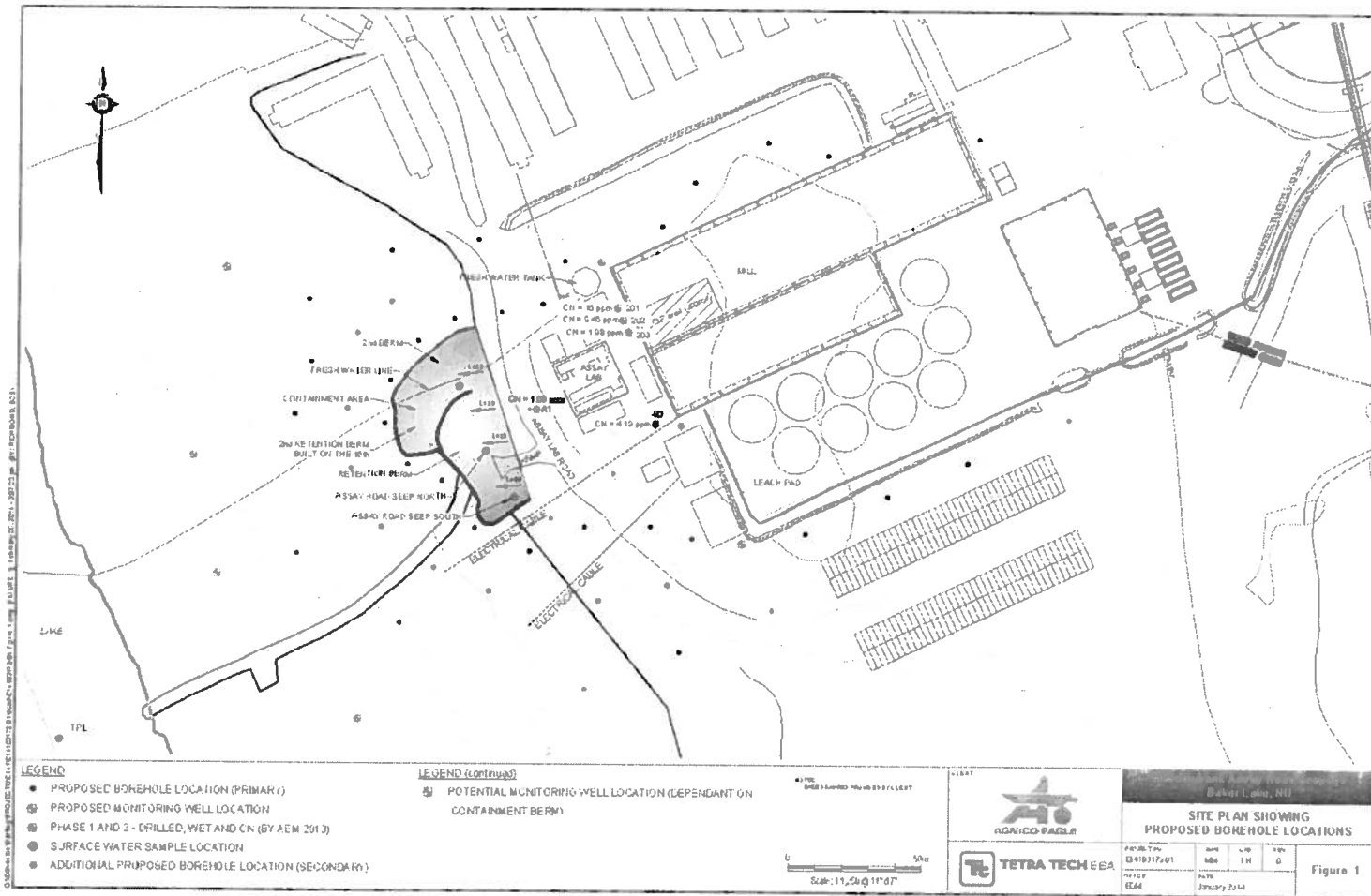
Note: LOTO acronym for Lock out tag out

Team Member	Tom Thomson	Signature	
Team Member	Tyrel Hemsley	Signature	Tyrel Hemsley Feb 21/14
Team Member	Van Laver	Signature	Van Laver
Team Member	STEPHEN POTVIN	Signature	
Team Member	DOUGLAS PICARD	Signature	
Team Member	Martin Thénault Médéric Gagnon	Signature	

February 21, 2014

Note: All printed copies of this document are uncontrolled.

Team Member		Signature	
Supervisor	<i>[Signature]</i> RYAN VAN NENGEN	Signature	<i>[Signature]</i>
H&S Coordinator		Signature	
H&S Superintendent		Signature	



February 21, 2014

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APPENDIX E

GROUND TEMPERATURE DATA

THERMISTOR STRING CALIBRATION

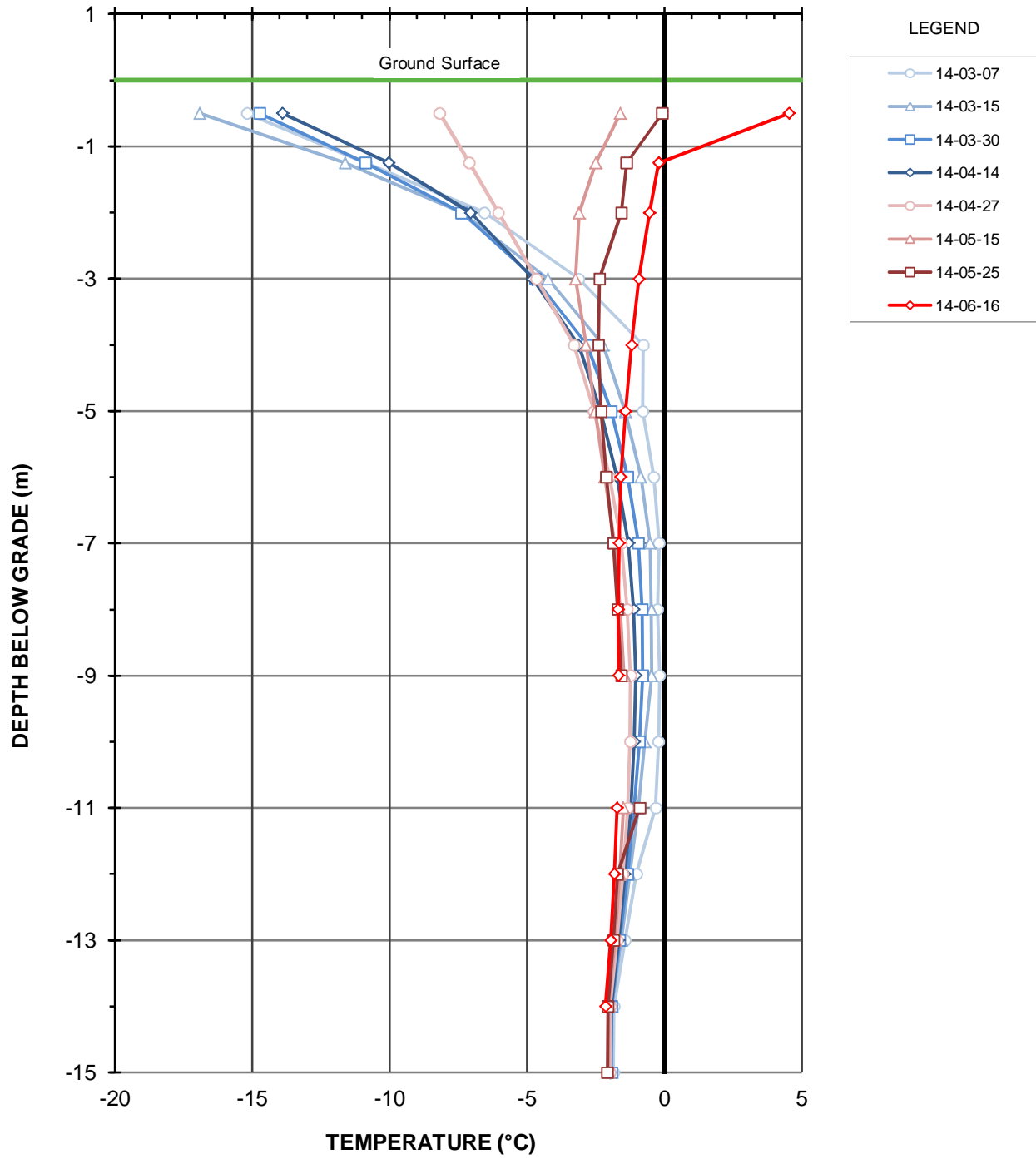
Project: <u>GTC Fabrication</u> Project No.: <u>E14103172-01</u> Client: <u>Agnico-Eagle Mines Limited</u> Attention: _____ Email: _____	Thermistor String No.: <u>2496</u> Client String No.: _____ Location of Installation: _____ Calibration Temp.: <u>0.02</u> Date of Calibration: <u>February 18, 2014</u>
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Depth of Thermistor (meters)	Colour of Wire	Plug Letter	Calibration Resistance (kΩ)			Temperature (°C)	Calibration Factor (°C)
			Trial 1	Trial 2	Trial 3		
0.5	Black	A	16.31	16.32	16.32	0.00	0.02
1.25	Purple	B	16.29	16.30	16.30	0.03	-0.01
2.0	Tan	C	16.32	16.32	16.32	0.00	0.02
3.0	Grey	D	16.33	16.34	16.34	-0.02	0.04
4.0	Red	E	16.34	16.34	16.34	-0.02	0.04
5.0	Brown	F	16.34	16.35	16.35	-0.03	0.05
6.0	Pink	G	16.30	16.31	16.31	0.02	0.00
7.0	Blue	H	16.32	16.32	16.32	0.00	0.02
8.0	Green	J	16.29	16.30	16.30	0.03	-0.01
9.0	Yellow	K	16.37	16.38	16.38	-0.07	0.09
10.0	Silver	L	16.31	16.31	16.31	0.02	0.00
11.0	Orange	N	16.33	16.34	16.34	-0.02	0.04
12.0	Orange/White	P	16.31	16.32	16.32	0.00	0.02
13.0	Black/White	R	16.30	16.30	16.30	0.03	-0.01
14.0	Brown/White	S	16.30	16.31	16.31	0.02	0.00
15.0	Red/White	T	16.35	16.35	16.35	-0.03	0.05
	White	M					

Lead Length: 1.5m

Carrier: _____	Date Shipped: _____
W/B Number: _____	Shipped by: _____

Data presented hereon is for the sole use of the stipulated client. EBA Engineering Consultants Ltd. operating as EBA A Tetra Tech Company is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.



APPENDIX F

CONSTANT HEAD PERMEABILITY TEST RESULTS, 20 MM CRUSHED AGGREGATE/8% BENTONITE

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

Project: Assay Road Seepage Trench

Test No.: P-1

Project No.: E14103172-01.003

Sample No.: 1

Client: Agnico-Eagle Mines Ltd.

Sample Depth:

Attention:

Date Tested: May 20, 2014

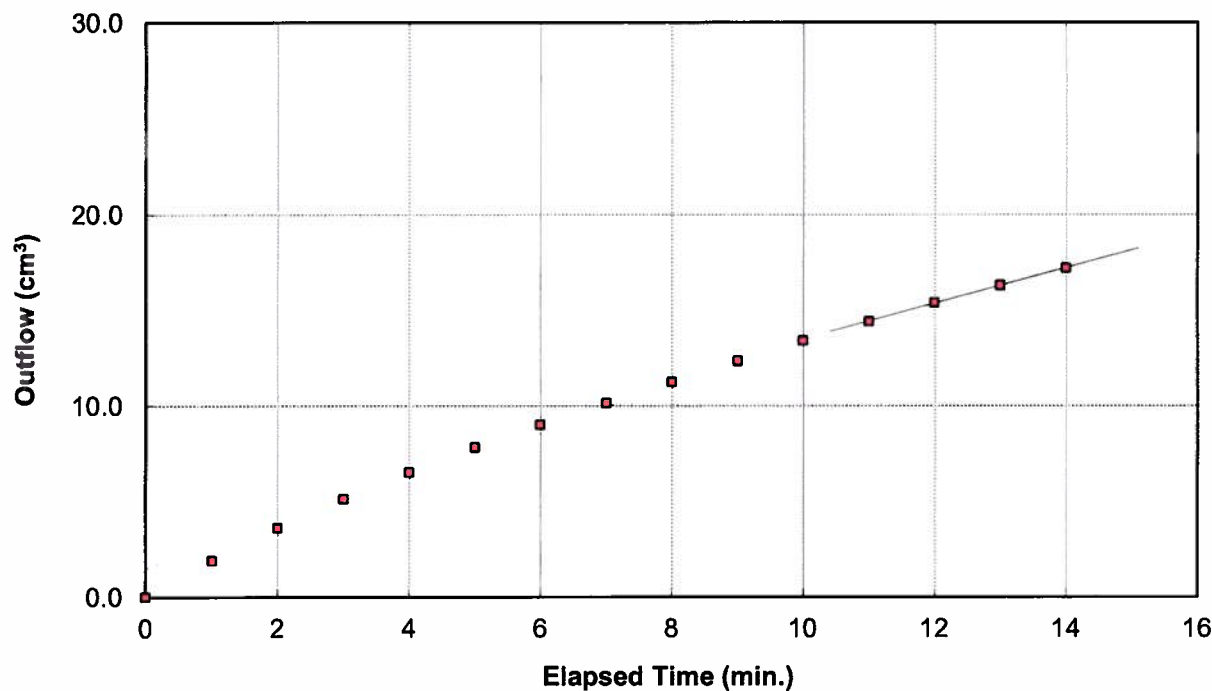
Tested By: SK

Soil Description: SAND & GRAVEL, 20 mm max., some silt with 8% bentonite

	Initial	Final
Moisture Content (%)	3.7	12.7
Dry Density (kg/m ³)	1875	1875
Compaction SPD (if applicable)	NA	NA

Sample Height = 17.02 cm
 Sample Diameter = 9.86 cm
 Head Differential = 15 kPa
 Flow Q = 0.016 cm³/sec
 Hydraulic Gradient i = 8.99
 Area of Sample A = 76.28 cm²
 Slope = 0.015 cm³/sec

Hydraulic Conductivity k_{20} = 2.2E-05 cm/sec



Remarks: Sample remolded at moisture content as received

Reviewed By: Najmul Islam P.Eng.

APPENDIX G

TETRA TECH EBA GENERAL TERMS AND CONDITIONS

GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. Tetra Tech EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. Tetra Tech EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

13.0 SAMPLES

Tetra Tech EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.



Appendix D

November 28th, 2013, Meadowbank Annual report workshop minutes



AGNICO EAGLE

AANDC, EC, KIA, NWB & AEM – Meadowbank Annual Report Review

Date: November 28, 2013 – 14:00 – 15:30

Subject: Meadowbank Annual report workshop

Location: Hosted by AEM via WebEx

Participants: AEM - Ryan VanEngen (WebEx host), Stephane Robert, Kevin Buck, Marie-Pier Marcil; NWB – Karen Kharatyan, Phyllis Beaulieu; KIA- Luis Manzo; AANDC- David Abernathy, Murray Ball, Ian Parsons; EC- Anne Wilson, Michael Mohammed

Attachments – see PDF presentation sent to participants on November 27th.

Introduction – Ryan VanEngen

“Round table”; introduction of all parties.

The group reviewed the purpose of the meeting:

- Review Type A water license annual report requirements and the AEM annual report format;
- Respond to issues raised by AANDC in PHC;
- Open discussion about how to proceed with annual reporting.

Review NWB License Requirements for the Annual Report and 2012 Annual Report format– Ryan VanEngen

AEM reviewed the License 2AM-MEA0815: Schedule B – General Condition. This schedule describes what the annual report shall include sections related to Construction, Water, Waste, Spills, Modifications, Monitoring and Closure. Since 2008, AEM has structured the annual report to meet these conditions.

AEM reviewed the Table of Contents of the 2012 annual report and illustrated that all of the requirements stated in Schedule B are presented in the annual report. AEM also stressed the overlap between many of the conditions in the Type A water license, NIRB project certificate, DFO authorizations, KIA annual reporting and federal regulations, that in AEM's opinion are met in the annual report. AEM has provided Table 1.1 that list annual report requirements for all of our licenses and authorizations; this provides a guide to the reader on where to find text that responds to the specific conditions in all of the licenses.



AGNICO EAGLE

AANDC appreciated the effort that goes into the annual report and feel that AEM is meeting the conditions of the Type A License related to the annual report.

Overall, all participants (EC, AANDC, KIA, NWB) agreed with the format of the 2012 annual report and think it was easy to read.

AANDC suggested that, in consideration of the renewal, terms of reference should be established for the content of the Water Management and Waste Management Plan (separate) (i.e. balance, model predictions, quality info). The main concern from AANDC was that the water management information (balance and water quality predictions) was not presented in the annual report but was found in the SNC (2012) revised water management plan. AANDC noted that their annual reporting concerns and site water management are not related to AEMs freshwater use amendment application and that AANDC does not think the increased freshwater consumption rate will cause significant impacts to local aquatic ecosystem.

Review and discussion of AANDC water license amendment main points/ issues – Ryan VanEngen/ Kevin Buck – refer to AANDC email dated November 18th, 2013.

Issue #1: No stand alone Water Balance and Water Quality Monitoring Reports

Issue #2: Separation of the Mine Waste and Water Management Plan into Two Plans

Issue #3: Part E, Item 7 of the License References a Dated Monitoring Plan

Mine Waste and Water Management Plans

Issue #2: Separation of the Mine Waste and Water Management Plan into two Plans:

AANDC Recommendation stated that the amended water licence should remove any reference made to a Mine Waste and Water Management Plan. Rather, reference should be made to the Mine Waste Management and Water Management Plans that have been implemented by Agnico Eagle. In 2009, Agnico Eagle replaced the 2007 Mine Waste and Water Management Plan with a Mine Waste Management Plan and Water Management Plan. These plans address Part F, Item 16 of the licence. This change in management planning should be incorporated into an amended water licence.

AEM agrees and this will be part of the Type A water license renewal and not part of the actual amendment request.

Water Balance and Water Quality Modeling Reports – Discussion and AEM responses to AANDC's issues.

Issue #1: No stand- alone Water Balance and Water Quality Monitoring Reports



AGNICO EAGLE

Issue #3: Part E, Item 7 of the License References a Dated Monitoring Plan

Applicable licence conditions were reviewed:

Part E, Item 6: The Licensee shall submit a Water Balance and Water Quality Monitoring Reports to the Board for review, biannually (twice a year) for two years following the commencement of operations and annually thereafter. The Report shall include a comparison of predicted and measured parameters.

AEM presented all of the water balance data (section 4 of the 2012 annual report) and water quality monitoring data (section 8 of the 2012 annual report to meet Part I Schedule I). More specifically collection systems, dewatering, and mine site water quality data are presented in 8.1.2, 8.1.3, and 8.1.5 per type A water license.

Part E, Item 7: The Water Balance and Water Quality Model shall be re-calibrated as necessary in accordance with the action plan outlined in section 3.2.5.2 of the Water Quality and Flow Monitoring Plan (August 2007), and at a minimum of once every two years following the commencement of Operations. The results and implications of the re-calibrated model shall be reported to the Board.

The water balance and water quality model were re-calibrated in 2012 and submitted in the Annual Report.

AANDC appreciated this review but had difficulty to find this information in the 2012 annual report and had concerns that the modelling was not meeting the water license.

AEM will improve the reporting on water balance and water quality in our next annual report.

AEM noted that until 2012, the water management was primarily focused on dewatering and managing freshwater use and reclaim water optimization. As Meadowbank has progressed, our water management has transitioned to optimizing our operations and water management. We now have a dedicated team of water management engineers that routinely update the site wide water balance.

Discussion of Water Quality Modeling

AEM explained the reason for a quality model update in the Water license. Water quality modelling assists AEM (and regulators) to ensure the water will meet discharge criteria. This will assist us in - determining pit water quality, planning water treatment, evaluate discharge timing, etc.



AGNICO EAGLE

As we approach pit reflooding we will be reviewing our water quality model annually to ensure that CCME criteria to protect aquatic biota prior to breaching the dikes are met. The SNC forecasted water quality predictions for the pit and the downward trend of 2013 water quality data at ST-21, that will be used to predict future water quality in our 2013 model was reviewed as part of this workshop.

AANDC-requested that during the water license renewal the annual reporting conditions is clarified.

AEM agreed to discuss these issues during the water license renewal. AEM requested clarification on what predictions AANDC want AEM to compare to. AANDC asked to compare with the original model and give explanation in the difference between the two models.

KIA needs a comparison and summary table that states why there are differences. This will assist KIA in making a comparison.

AEM will include this information in our 2013 Annual Report – a comparison of results vs. predicted and offer explanations for significant changes.

KIA had some outstanding issues related to freshwater license amendment 1) waste rock use 2) and the effects of increased waste rock tonnage has on water compensation and water use. AEM and KIA will send a joint letter of agreement on compensation to NWB to allow the license amendment to proceed.

Closing – Stephane Robert

AEM is of the opinion that the annual report requirements of Schedule B of the Type A water license were met. All parties (AANDC, EC, KIA, and NWB) agree with the format and did not have specific suggestions on how to improve the annual report.

Separate from this License amendment, EC and AEM suggest that we host a workshop in mid-January (after Jan 17th) to review our water management plan. This would be a technical meeting to review specifics related to water balance and water quality to improve the revision of the plan. EC suggested that DFO also attend.

ANNUAL REPORT REVIEW AND WORKSHOP- NOV 28TH, 2013 - AEM, AANDC, KIA



AGNICO EAGLE

Introduction - Stephane Robert

- “Round table” introduction
- Purpose of the meeting

Review NWB License Requirements for the Annual Report – Ryan VanEngen

- Schedule B – General Condition: the annual report shall include...

Review 2012 Annual Report – Ryan VanEngen

- Table of Contents
- Ideas for future reports and discussion

Review and Discussion of AANDC water license amendment main points/ issues – Ryan VanEngen/ Kevin Buck

Closing – Stephane Robert

The purpose for hosting this workshop is mainly to:

- Review Type A water license annual report requirements and the AEM annual report format
- Respond to issues raised by AANDC
- Open discussion

Schedule B - General Conditions

The Annual Report referred to in Part B Item 5, shall include:

CONSTRUCTION

1. For the dikes and dams:
 - a. An overview of methods and frequency used to monitor deformations, seepage and geothermal responses;
 - 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 mitigative 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;

WATER

2. Results of lake level monitoring conducted under the protocol developed as per Part D Item 11.
3. Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 6 and 7.
4. The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility;

WASTE

5. Geochemical monitoring results including:
 - a. Operational acid/base accounting and paste pH test work used for waste rock designation (PAG and NPAG rock);
 - 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;
 - c. All monitoring data with respect to geochemical analyses on site and related to roads, quarries, and the All Weather Access Road;
 - d. Leaching observations and tests on pit slope and dike exposure;
 - e. Any geochemical outcomes or observations that could imply or lead to environmental impact;

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

6. Volumes of waste rock used in construction and placed in the Rock Storage Facilities;
7. An update on the remaining capacity of the Tailings Storage Facility;
8. Summary of quantities and analysis of seepage and runoff monitoring from the landfills;
9. A summary report of solid waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal;
10. 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;

SPILLS

11. A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken;

MODIFICATIONS

12. A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities;

MONITORING

13. The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I;
14. The results of monitoring under the AEMP;
15. Results of monitoring pursuant to the Fault Testing and Monitoring Plan (August 2007);

CLOSURE

16. 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;

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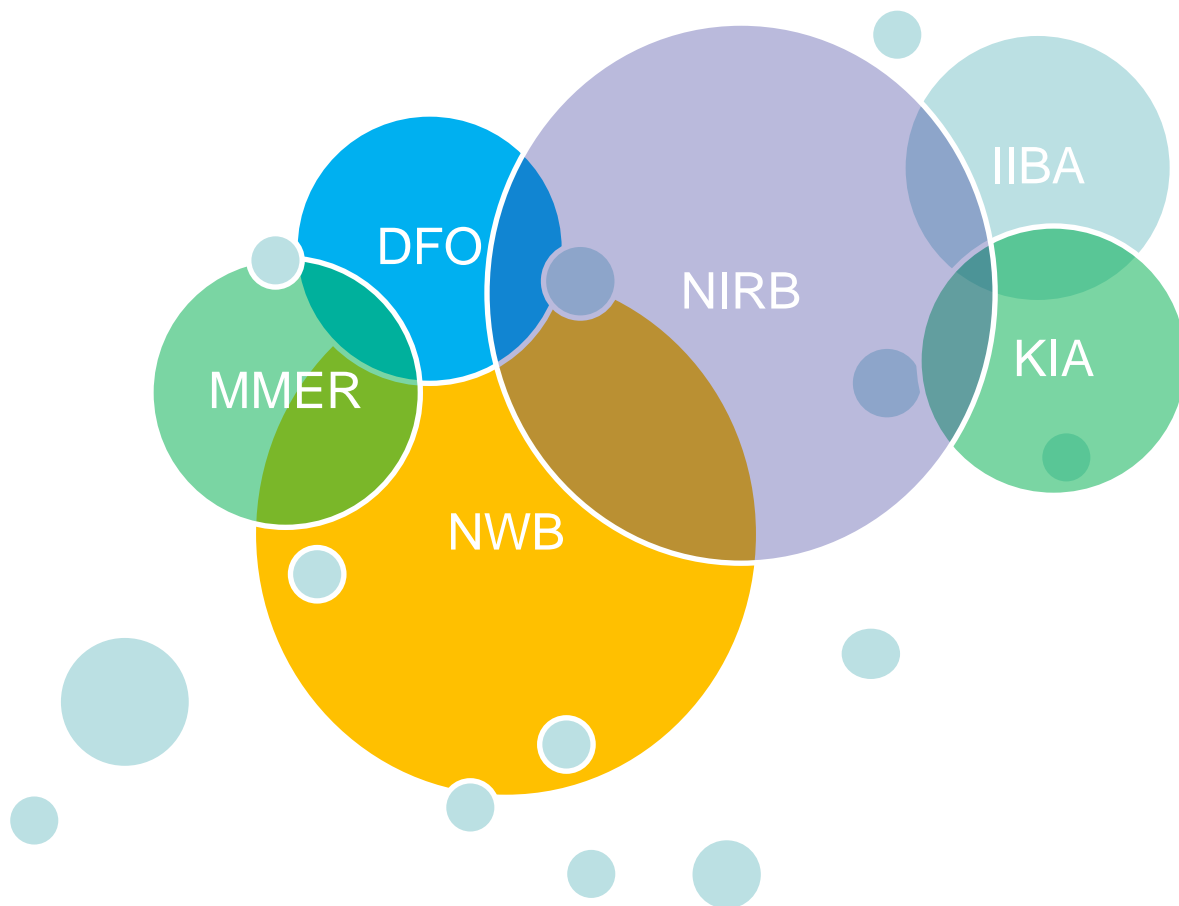
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MERGING NWB, NIRB, KIA, & DFO ANNUAL REPORT REQUIREMENTS



AEM ANNUAL REPORT - TABLE 1.1 - EXAMPLE

Table 1.1: List of Reporting Requirements

Authorization Reference	Reporting Requirement	Report Section
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.	11.2
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	8.1.9
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
NIRB Project Certificate No.004 Condition 19	Report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.	5.3.3
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	8.1.13
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 in particular if those plans affect the selection of Second Portage Lake as the preferred alternative for tailings management	11.6
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.	11.3.2
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.	11.3.2
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.	11.3.1
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.	11.3.2

AEM ANNUAL REPORT - TABLE 1.1 - EXAMPLE

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
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
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.	7
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	8.1.11
NWB 2AM-MEA0815 Schedule B 1	Construction Details for dikes and dams.	3.1
NWB 2AM-MEA0815 Schedule B 2	Results of lake level monitoring conducted under the protocol developed as per Part D Item 11.	4.1
NWB 2AM-MEA0815 Schedule B 3	Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 6 and 7.	4.2
NWB 2AM-MEA0815 Schedule B 4	The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility.	4.3
NWB 2AM-MEA0815 Schedule B 5	Geochemical monitoring results.	3.1
NWB 2AM-MEA0815 Schedule B 6	Volumes of waste rock used in construction and placed in the Rock Storage Facilities.	5.2
NWB 2AM-MEA0815 Schedule B 7	An update on the remaining capacity of the Tailings Storage Facility.	5.3.1
NWB 2AM-MEA0815 Schedule B 8	Summary of quantities and analysis of seepage and runoff monitoring from the landfills.	6.1
NWB 2AM-MEA0815 Schedule B 9	A summary report of solid waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.	6.2
NWB 2AM-MEA0815 Schedule B 10	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.	6.3
NWB 2AM-MEA0815 Schedule B 11	A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.	7
NWB 2AM-MEA0815 Schedule B 12	A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.	11.1
NWB 2AM-MEA0815 Schedule B 13	The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.	8

Figure- 2



AANDC WATER LICENSE AMENDMENT- MAIN POINTS / ISSUES



Issue #1: No stand alone Water Balance and Water Quality Monitoring Reports

Issue #2: Separation of the Mine Waste and Water Management Plan into Two Plans

Issue #3: Part E, Item 7 of the License References a Dated Monitoring Plan

Issue #2: Separation of the Mine Waste and Water Management Plan into Two Plans -

AANDC Recommendation

The amended water licence should remove any reference made to a Mine Waste and Water Management Plan. Rather, reference should be made to the Mine Waste Management and Water Management Plans that have been implemented by Agnico Eagle.

In 2009, Agnico Eagle replaced the 2007 Mine Waste and Water Management Plan with a Mine Waste Management Plan and Water Management Plan. These plans address Part F, Item 16 of the licence ... This change in management planning should be incorporated into an amended water licence.

AEM agrees and this will be part of the Type A water license renewal

Issue #1: No stand alone Water Balance and Water Quality Monitoring Reports

Issue #3: Part E, Item 7 of the License References a Dated Monitoring Plan

WATER BALANCE & WATER QUALITY MODELLING REPORT



Applicable licence conditions

Part E, Item 6: The Licensee shall submit a Water Balance and Water Quality Monitoring Reports to the Board for review, biannually (twice a year) for two years following the commencement of operations and annually thereafter. The Report shall include a comparison of predicted and measured parameters.

Presented in the AEM annual report

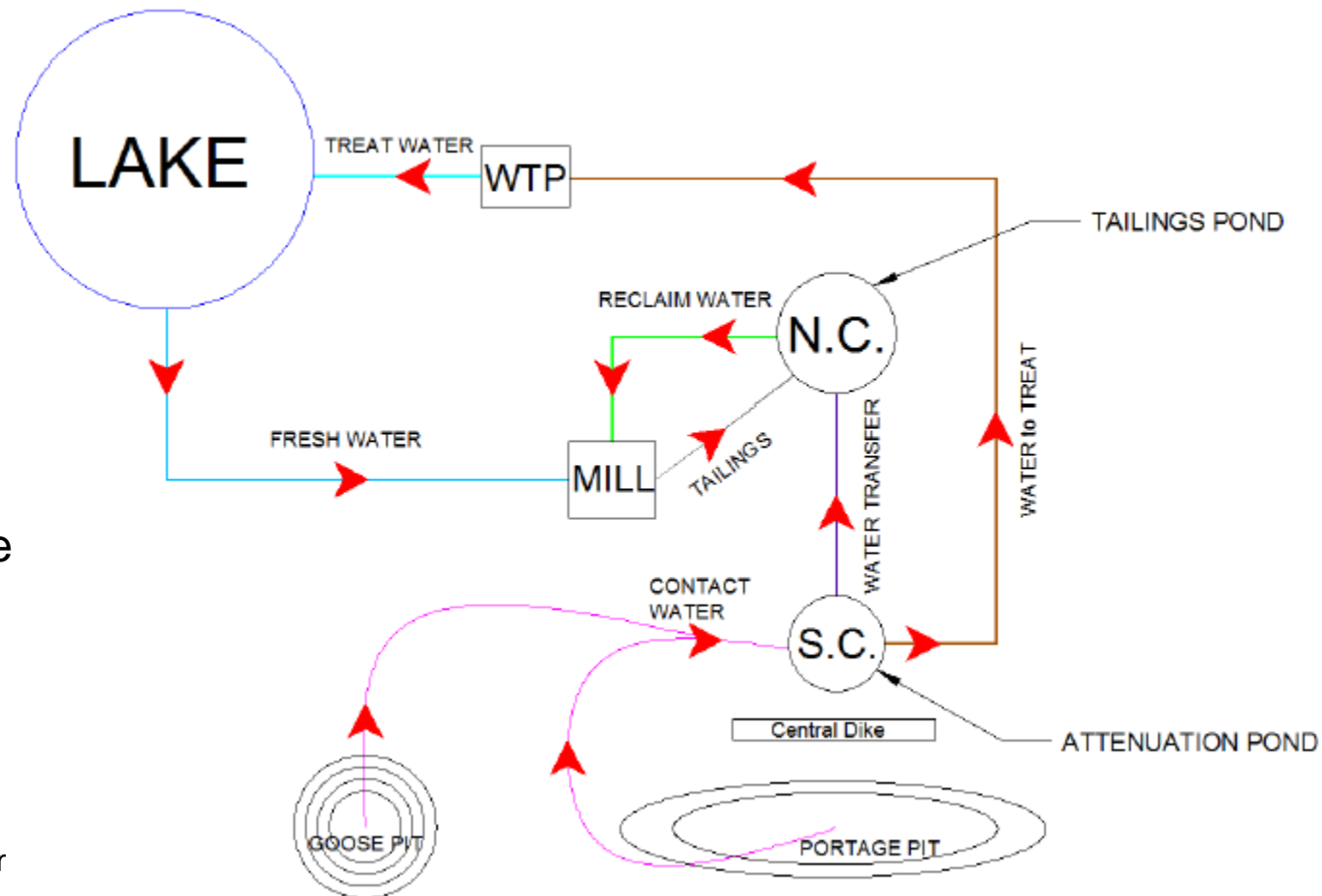
Part E, Item 7: The Water Balance and Water Quality Model shall be re-calibrated as necessary in accordance with the action plan outlined in section 3.2.5.2 of the Water Quality and Flow Monitoring Plan (August 2007), and at a minimum of once every two years following the commencement of Operations. The results and implications of the re-calibrated model shall be reported to the Board.

Recently reported in SNC (2012) water management plan. We will complete this annually as requested

Schedule B - General Conditions, Item 3, of the water licence requires Annual Reports to include "summaries of reporting results for the Water Balance and Water Quality model and any calibrations as required in Part E Items 6 and 7."

WATER BALANCE

As Meadowbank has progressed, our water management has transitioned from construction/ dewatering to optimizing our operations and water management . We now have a dedicated team of water management engineers that routinely update the site wide water balance.



In - house
expertise

Why is there a requirement for a water quality model update in the Type A water License?

To develop discharge criteria for the Type A water License.

To assist AEM in ensuring that the water quality will meet discharge criteria. This will assist us in- determining pit water quality, planning water treatment, evaluate discharge timing, etc.

AEM has met Type A License limits prior to discharging.

As we approach pit reflooding we will be reviewing our water quality model annually and ensure we meet CCME limits to protect aquatic biota prior to breaching the dikes.

4.2.2 Forecasted Concentrations in Reclaim Pond: North and South Cells

Table 4-2 summarizes the observations noted in Figures 4-1 to 4-14, specifically for the forecasted concentrations in the Reclaim Pond (North and South cells).

Table 4-2: Summary of Forecasted Concentrations in Reclaim Pond

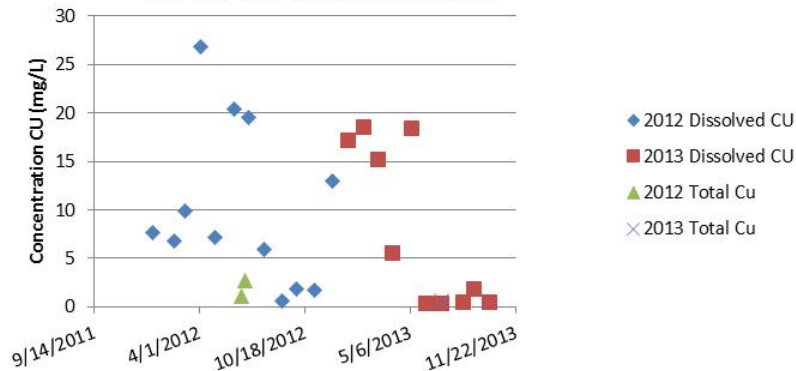
PARAMETER	FORECASTED CONCENTRATION (mg/L)				WATER LICENSE PART F (CCME)
	RECLAIM POND (NORTH CELL)		RECLAIM POND (SOUTH CELL)		
	July 2012 (initial)	July - August 2014 (end)	July - August 2014	2014 to 2019	(mg/L)
Total Cyanide (CN)	39.26	Decrease to 14	13	Fluctuate from 8 to 11	0.5 (free CN 0.005)
Copper (Cu)	19.58	Increase to 30	25	Fluctuate from 18 to 25	0.1 (0.002)
Iron (Fe)	7.4	Increase to 14	12	Fluctuate from 8.4 to 12	n/a (0.3)
Ammonia (NH ₃)	1.0	Increase to 14 (mg N/L)	11 (mg N/L)	Fluctuate from 8 to 11	16 (0.86) (mg N/L)
Nitrate (NO ₃)	8.6	Decrease to 6.6 (mg N/L)	5.7 (mg N/L)	Fluctuate from 3.8 to 5.7	20 (2.9) (mg N/L)
Chloride (Cl)	626	Decrease to 490	420	Fluctuate from 420 to 280	1000 (120)
Sulfate (SO ₄)	1457	Increase to 1600	1360	Fluctuate from 920 to 1600	Solubility limit of CaSO ₄ at 10°C ~1800 mg/L

Table 4-3: Summary of Forecasted Concentrations in Portage and Goose Pits

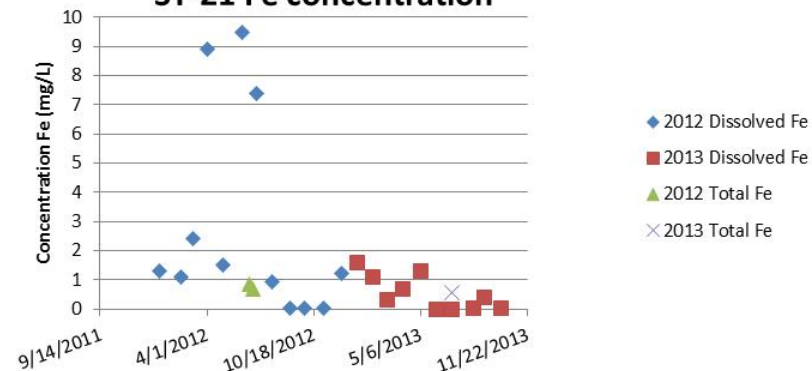
PARAMETER	FORECASTED CONCENTRATION (mg/L)				WATER LICENSE PART F (CCME) (mg/L)
	PORTAGE PIT		GOOSE PIT		
	Mar. 2015 ⁽¹⁾ (initial)	Jan. 2025 ⁽²⁾ (end)	Jan. 2017 ⁽¹⁾ (initial)	Jan. 2025 ⁽²⁾ (end)	
Total Cyanide (CN)	5	0.63	3.5	1.06	0.5 (free CN 0.005)
Copper (Cu)	10.2	1.4	7.8	2.3	0.1 (0.002)
Iron (Fe)	4.9	0.6	3.3	1.1	n/a (0.3)
Ammonia (NH ₃)	4.7	0.6	3.2	1.0	16 (0.86) (mg N/L)
Nitrate (NO ₃)	2.3	0.3	1.6	0.5	20 (2.9) (mg N/L)
Chloride (Cl)	117	22	115	37	1000 (120)
Sulfate (SO ₄)	560	72	380	120	Solubility limit of CaSO ₄ at 10°C ~1800 mg/L

EG. RECLAIM WATER QUALITY RESULTS

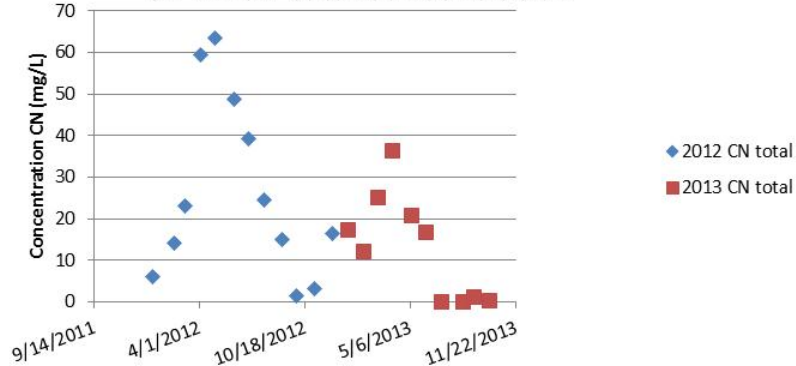
ST-21 Cu concentration



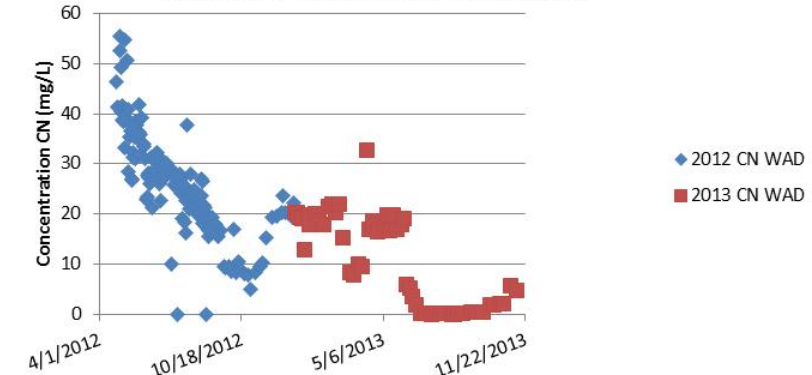
ST-21 Fe concentration



ST-21 CN total concentration



ST-21 CN WAD concentration



CONSIDERATIONS FOR FUTURE ANNUAL REPORTS



AEM is of the opinion that we meet the annual report requirements of Schedule B of the Type A water license

Are AANDC and KIA in agreement with the format of the annual report?

Is there a need to Restructure Schedule B?

(This could be done as part of the NWB type A license renewal)

We propose to host a workshop to review our water balance and water quality modeling in the first quarter of 2014.

QUESTIONS, DISCUSSION AND CLOSING





AGNICO EAGLE

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Appendix E

Laboratory Detection Limit

Multilab Direct

Parameters with detection limits for total metals (ICP Scan)			
Parameters	Detection limit	Detection limit	Detection limit
Metals	* Water (mg/L)	Drinking Water (mg/L)	Solids (mg/Kg)
Al	0.006	0.003	0.6
As	0.0005	0.0005	0.05
Sb	0.0001	0.0002	0.1
Ag	0.0002	0.0005	2
Ba	0.0005	0.0002	0.01
Be	0.0005	0.0005	0.1
Bi	0.0005	0.005	0.1
B	0.01	0.006	0.1
Cd	0.00002	0.00005	0.005
Ca	0.03	0.01	1
Cr	0.0006	0.0001	0.05
Co	0.0005	0.0005	0.05
Cu	0.0005	0.0005	5
Sn	0.001	0.0005	0.05
Fe	0.01	0.01	0.5
Mg	0.02	0.01	0.5
Mn	0.0005	0.0003	0.05
Mo	0.0005	0.0002	0.05
Ni	0.0005	0.0005	0.05
Pb	0.0003	0.0005	0.05
K	0.05	0.05	0.5
Se	0.001	0.0006	0.05
Si	0.01	0.01	0.1
Na	0.05	0.02	1
Te	0.0005	0.0005	0.1
Ti	0.01	0.01	0.01
U	0.001	0.0005	1
V	0.0005	0.0002	0.1
Zn	0.001	0.0005	0.05

* Water would include any of the surface, underground or wastewater

Parameters with detection limits for total metals			
Parameters	Detection limit	Detection limit	Detection limit
Metals	* Water (mg/L)	Drinking Water (mg/L)	Solids (mg/Kg)
Hg	0.00001	0.00001	0.01
Sr	0.005	N/D	10
Tl	0.005	N/D	2
W	0.005	N/D	N/D
Li	0.005	0.005	1

Detection limits for inorganic and organic parameters			
Parameters	Detection Limit	Detection Limit	Detection Limit
	* Water (mg/L)	Drinking water (mg/l)	Solid (mg/kg)
% humidity - Water content	NA	NA	0.01%
Acidity	2	2	NA
Agressivity	NA	NA	NA
Alkalinity	2	2	2
Ammonia nitrogen	0.01	0.01	0.1
BHAA	1	1	NA
Bicarbonate (HCO3)	2	2	10
Polychlorinated biphenyls (PCB)	NA	NA	NA
Bromides	0.01	0.01	0.01
Dissolved Bromides	0.01	0.01	NA
BTEX	NA	NA	NA
Carbonate (CO3)	2	2	2
Free residual chlorine	0.1	0.1	NA
Total residual chlorine	0.1	0.1	NA
Chloride	0.5	NA	1
Total coliforms	NA	NA	NA
Fecal Coliforms	NA	NA	NA
Volatile organic compounds	NA	NA	NA
Phenolic compounds	NA	NA	NA
Conductivity	1	1	NA
Color	1	1	NA
Free Cyanide	0.005	0.005	0.005
Total Cyanide	0.005	0.005	0.005
BOD5	1	1	NA
COD	2	2	NA
Hardness	1	1	1
E-Coli	NA	NA	NA
Enterococcus	NA	NA	NA
Fluorides	0.02	0.02	1
Granulometry (Sieving tests)	NA	NA	0.01%
Oil and Grease (total)	1	1	80
Hydrocarbons (C10-C50)	0.1	0.1	80
Monocyclic Aromatic Hydrocarbons	NA	NA	NA
Polycyclic Aromatic Hydrocarbons	NA	NA	NA
Petroleum Products Identification (PPI)	NA	NA	NA
Phenol Index (colorimetry)	0.002	0.002	NA
Lixiviation : pH 4.93	NA	NA	NA
Lixiviation CPEU-9	NA	NA	NA
Lixiviation pH : 2.88	NA	NA	NA
Lixiviation SPLP	NA	NA	NA
Lixiviation TCLP	NA	NA	NA
Suspended solids	1	1	NA
Sample weight (grams)	0.01	0.01	NA
NH3	0.05	0.05	NA
NH4	0.05	0.05	NA
Nitrates (NO3)	0.01	0.01	0.01
Nitrites (NO2)	0.01	0.01	0.01
Odor	NA	NA	NA
Orthophosphate (O-P04)	0.01	0.01	0.01
Dissolved Oxygen	NA	NA	NA
Loss on ignition	NA	NA	0.10%
pH	NA	NA	NA
Dissolved Phosphorus	0.01	0.01	NA
Total Phosphorus	0.01	0.01	10
Neutralisation Potential	NA	NA	NA
Acid Generating Potential	NA	NA	NA
Neutralisation Power	NA	NA	NA
Radium (RA 226)	0,002 Becquerels/L	0,002 Becquerels/L	NA
Dryness	NA	NA	0.10%
Dissolved Solids	1	1	NA
Total Solids	1	1	NA
Sulfure	0.01%	0.01%	0.003 % (M-S-1.0)
Sulfur (S)	NA	NA	0.01%
Dissolved sulfur (S)	0.01%	0.01%	NA
Sulfate (SO4)	0.6	0.6	0.01%
Sulfites (SO3)	0.1	0.1	NA
Sulfosalts	2	2	NA
Sulfides	0.03	0.03	NA
Total thiosalts	2	2	NA
Thiosulfates (S2O3)	0.02	0.02	NA
Trihalomethanes (THM)	NA	NA	NA
Turbidity	0,02 NTU	0,02 NTU	NA

*Water would include any surface, underground or wastewater



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Water-Physical Tests			
Hardness (as CaCO ₃)	APHA 2340B	0.50	mg/L
Water-Anions and Nutrients			
Ammonia, Total (as N)	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC	0.0050	mg/L
Bromide (Br)	APHA 4110 B.	0.050	mg/L
Chloride (Cl)	APHA 4110 B.	0.10	mg/L
Chloride (Cl)	APHA 4110 B.	0.50	mg/L
Fluoride (F)	APHA 4110 B.	0.020	mg/L
Nitrate (as N)	EPA 300.0	0.0050	mg/L
Nitrite (as N)	EPA 300.0	0.0010	mg/L
Orthophosphate-Dissolved (as P)	APHA 4500-P Phosphorous	0.0010	mg/L
Phosphorus (P)-Total	APHA 4500-P Phosphorous	0.0020	mg/L
Phosphorus (P)-Total Dissolved	APHA 4500-P Phosphorous	0.0020	mg/L
Silicate (as SiO ₂)	APHA 4500-SiO ₂ E.	0.50	mg/L
Sulfate (SO ₄)	APHA 4110 B.	0.50	mg/L
Water-Cyanides			
Cyanide, Free	ASTM 7237	0.0050	mg/L
Cyanide, Weak Acid Diss	APHA 4500-CN CYANIDE	0.0050	mg/L
Water-Organic / Inorganic Carbon			
Dissolved Organic Carbon	APHA 5310 TOTAL ORGANIC CARBON (TOC)	0.50	mg/L
Total Organic Carbon	APHA 5310 TOTAL ORGANIC CARBON (TOC)	0.50	mg/L
Water-Total Metals			
Aluminum (Al)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.003	mg/L
Antimony (Sb)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Arsenic (As)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Barium (Ba)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Beryllium (Be)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Bismuth (Bi)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Boron (B)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.01	mg/L
Cadmium (Cd)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Calcium (Ca)-Total	EPA 3005A/6010B	0.05	mg/L
Chromium (Cr)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Cobalt (Co)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Copper (Cu)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Iron (Fe)-Total	EPA 3005A/6010B	0.01	mg/L
Lead (Pb)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Lithium (Li)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Magnesium (Mg)-Total	EPA 3005A/6010B	0.1	mg/L



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Manganese (Mn)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Mercury (Hg)-Total	EPA 245.7	0.000010	mg/L
Molybdenum (Mo)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Nickel (Ni)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Phosphorus (P)-Total	EPA 3005A/6010B	0.05	mg/L
Potassium (K)-Total	EPA 3005A/6010B	0.1	mg/L
Selenium (Se)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Silicon (Si)-Total	EPA 3005A/6010B	0.05	mg/L
Silver (Ag)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Sodium (Na)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.05	mg/L
Strontium (Sr)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0002	mg/L
Sulfur (S)-Total	EPA SW-846 3005A/6010B	0.50	mg/L
Thallium (Tl)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Tin (Sn)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Titanium (Ti)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.01	mg/L
Uranium (U)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Vanadium (V)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.001	mg/L
Zinc (Zn)-Total	APHA 3030 B&E / EPA SW-846 6020A	0.003	mg/L

Water-Dissolved Metals

Aluminum (Al)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.001	mg/L
Antimony (Sb)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Arsenic (As)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Barium (Ba)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Beryllium (Be)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Bismuth (Bi)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Boron (B)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.01	mg/L
Cadmium (Cd)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Calcium (Ca)-Dissolved	EPA 3005A/6010B	0.05	mg/L
Chromium (Cr)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Cobalt (Co)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Copper (Cu)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0002	mg/L
Dissolved Mercury Filtration Location	EPA SW-846 3005A & EPA 245.7		
Dissolved Metals Filtration Location	APHA 3030 B&E / EPA SW-846 6020A		
Dissolved Metals Filtration Location	EPA 3005A/6010B		
Dissolved Metals Filtration Location	EPA SW-846 3005A/6010B		
Iron (Fe)-Dissolved	EPA 3005A/6010B	0.01	mg/L
Lead (Pb)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Lithium (Li)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Magnesium (Mg)-Dissolved	EPA 3005A/6010B	0.1	mg/L



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Manganese (Mn)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Mercury (Hg)-Dissolved	EPA SW-846 3005A & EPA 245.7	0.000010	mg/L
Molybdenum (Mo)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00005	mg/L
Nickel (Ni)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0005	mg/L
Phosphorus (P)-Dissolved	EPA 3005A/6010B	0.05	mg/L
Potassium (K)-Dissolved	EPA 3005A/6010B	0.1	mg/L
Selenium (Se)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Silicon (Si)-Dissolved	EPA 3005A/6010B	0.05	mg/L
Silver (Ag)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Sodium (Na)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.05	mg/L
Strontium (Sr)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0002	mg/L
Sulfur (S)-Dissolved	EPA SW-846 3005A/6010B	0.50	mg/L
Thallium (Tl)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Tin (Sn)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.0001	mg/L
Titanium (Ti)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.01	mg/L
Uranium (U)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.00001	mg/L
Vanadium (V)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.001	mg/L
Zinc (Zn)-Dissolved	APHA 3030 B&E / EPA SW-846 6020A	0.001	mg/L

Water-Plant Pigments

Chlorophyll a	EPA 445.0	0.010	ug
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Methodology

Product	Matrix	Product Description	Analytical Method Reference
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".
ANIONS-CL-LOW-IC-VA	Water	Low level Chloride by Ion Chromatography	APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0 This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.