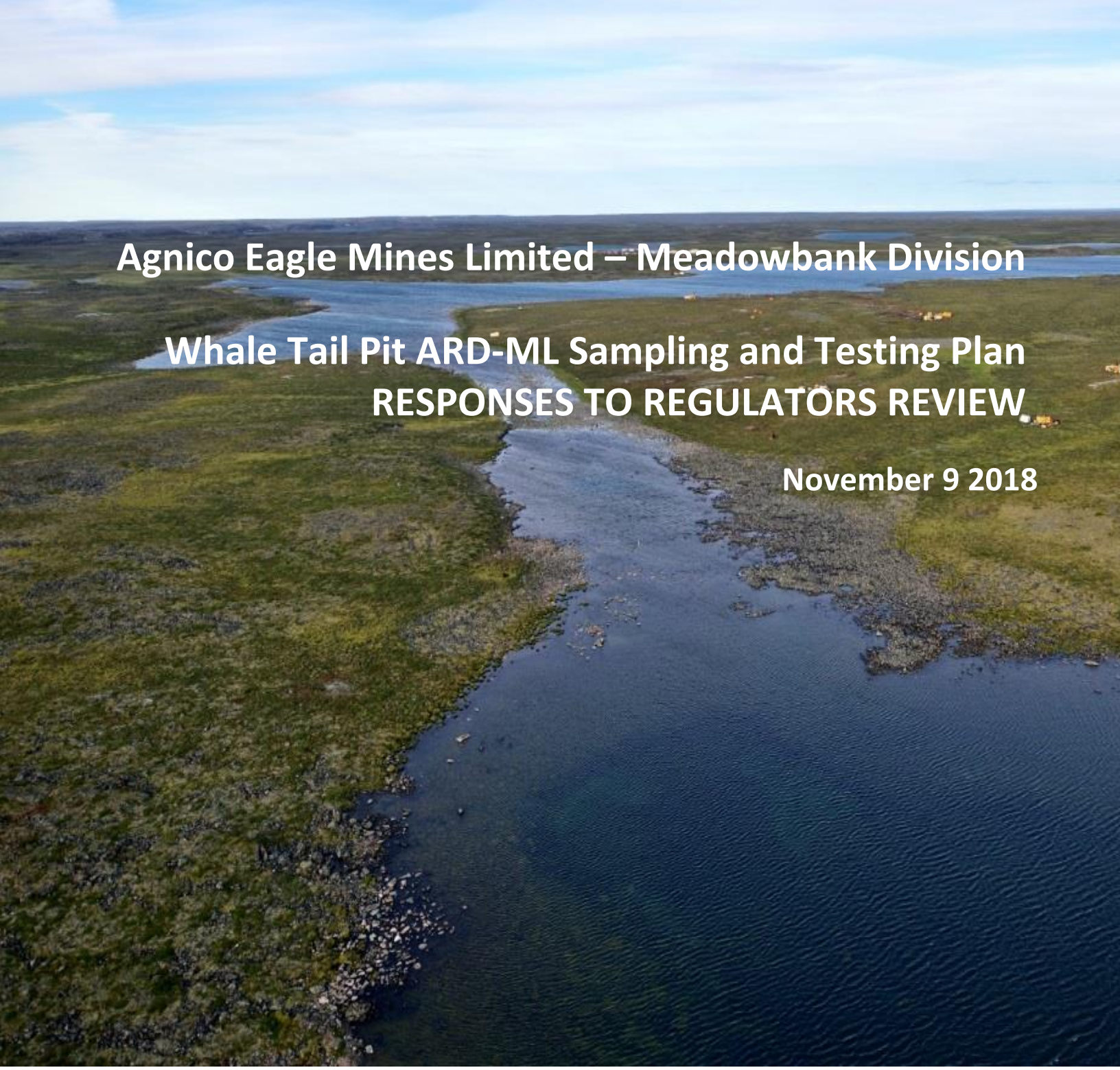

Agnico Eagle Mines Limited – Meadowbank Division

Whale Tail Pit ARD-ML Sampling and Testing Plan
RESPONSES TO REGULATORS REVIEW

November 9 2018

Table of Contents

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC) 3

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC) 5

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	**Environment and Climate Change Canada (ECCC)**	**Rec No.:**	**ECCC#1**
Re:	**Classifying Waste Rock**		

References:

Section 3.3, Table 3.3 ARD Guidelines used to Classify Whale Tail Pit Waste Rock and Overburden

Section 5.1, Table 5.1 Adaptive Management Actions Associated with the ARD/ML Plan

Comment:

Agnico Eagle Mines Ltd. (the Proponent) classified waste type non-Potentially Acid Generating (NPAG) as no more than one PAG (S>0.1% and NPR<1) for every 8 NPAG samples or no more than one uncertain sample (S>0.1% and 1≤NPR<2) for every 4 NPAG samples, using frequency of outlying data (column 3), and further indicates that these waste types can be used for construction (i.e. pads, roads, dykes etc.). Table 5.1 under Mitigation Strategies also says "Use only NPAG/NML waste rock for site construction and closure". ECCC is of the view that when results of Static and Kinetic tests indicate that a sample or waste type (rock) is PAG, or uncertain, it should be managed as PAG regardless of the frequency of occurrence, unless otherwise determined to be non-PAG by confirming tests.

Recommendation:

ECCC recommends that the Proponent explain the rationale for classifying waste rock that meets PAG criteria be classified as waste type non-PAG.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with ECCC recommendation.

The dig limits assigned in the field will be based on the results of the blast hole sample analysis. The frequency of outlying data associated with the NPAG classification for waste in a specific blast will include a maximum frequency of outlying data (i.e. PAG samples) as described in Table 3.3. This approach considers the high neutralization potential of the waste rock.

Interested Party:	**Environment and Climate Change Canada (ECCC)**	**Rec No.:**	**ECCC#2**
Re:	**Missing Figure**		

References:
Figure 1-1 Location of the Project

Comment:
Figure 1-1 is missing from the Plan.

Recommendation:
ECCC recommends that the Proponent update the Plan to include Figure 1-1 Location of the Project.

Agnico Eagle's Response to Recommendation:
Agnico Eagle agrees with ECCC and will update the plan to include figure 1-1.

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	Background, Results of Review
Re:			

A. BACKGROUND

On July 11, 2018, the Minister of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) approved Agnico Eagle Mines Limited's (AEM) Whale Tail Pit Project Type 'A' Water Licence No. 2AM-WTP1826 application.

The ARD and Metal Leaching Plan is one of three management plans to be updated prior to operation of the Starter Pit (i.e. Quarry 2) within the Whale Tail Pit area, and construction of the Waste Rock Storage Facility (WRSF) Berm. This is stated in Part B Item 15 of the Whale Tail Pit Water Licence which states "that commitments made with respect to submissions received during the technical review of the Application, as well as final submissions and issues raised during the 2017-2018 Public Hearing process are to be taken into account." Table 1 is in CIRNAC's March 19, 2018 final submission. AEM subsequent March 26, 2018 submission agreed to Table 1. In accordance with Table 1, the ARD and Metal Leaching Management Plan was reviewed with particular attention paid to laboratory leach testing and triggers for adaptive management related to leach testing.

B. RESULTS OF REVIEW

CIRNAC notes, as stated by AEM, that "The Operational ARD-ML Sampling and Testing Plan is the primary tool to ensure that all overburden and waste rock generated during the Project is appropriately characterized and managed to prevent the future release of contaminants from the Whale Tail WRSF into the receiving environment."

CIRNAC would like to emphasize that based on its model results and waste rock management plan, AEM will need to construct a WRSF (waste rock storage facility) cover that will be at least 4.7-meter thick and free of potentially acid generating (PAG) or metal leaching (ML) waste rocks. This Operational ARD/ML Sampling and Testing Plan, therefore, has to be revised to include AEM's methodology and process for identifying any PAG or ML waste rock.

CIRNAC has identified a number of issues in the "Review Findings and Recommendations" that should be implemented to ensure the plan is sufficient.

Agnico Eagle's Response to Recommendation:

The process to identify PAG and ML waste rock will be the same regardless of the thickness of the cover. This method and process to sample, analyze, identify and classify waste rock is detailed in the ARD/ML Plan. Steps to be followed for this process are further described in the decision flowchart of Appendix B and a series of adaptive management strategies are identified in Table 5.1 of the plan. Furthermore, an example on how this process is executed at Meadowbank was provided during the Final Hearings of the FEIS and is included again in Appendix A of this document for reference. This process will be followed for the Whale Tail operations.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#1
Re:	General		

Finding:

The Plan indicates that the ARD/ML sampling and testing approach is based on practices at the Meadowbank Mine (e.g., S.3.1). However, it should be clarified that the risks associated with the Whale Tail Project are unique for a variety of reasons (increased ARD/ML potential, short operational life limiting adaptive management, etc.). As a consequence, all aspects of the approach used at Meadowbank are not necessarily appropriate for the Whale Tail Pit Project. Modifications of the Plan are therefore necessary to address the site-specific risks, as described in the following findings/recommendations.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC's comment that the ARD/ML control plan at the Portage WRSF of Meadowbank mine is not adequate to implement the same control at the Whale Tail WRSF, and as such does not agree with CIRNAC's recommendation that the control method for ARD/ML at Whale Tail is inappropriate. Both properties have waste rock with a potential for acid generation (PAG) and for leaching of chemicals (ML) which require control to minimize environmental effects. While Portage WRSF waste rock has lower ML potential, it has a more reactive PAG. Both issues are controlled in a similar way: by freezing and covering with good quality waste rock to host the full depth of the active thaw layer in order to avoiding water infiltration and contaminant transport in the long term. Freezing of the WRSF is occurring and on-going in the Meadwobank WRSF, achieving the end goal of controlling ARD and ML. Freezing of the PAG and ML Whale Tail waste rock below a cover of good rock is, in a similar way, expected to prevent contaminant transport from occurring under the waste rock cover, thereby mitigating the potential effects of leaching.

Agnico Eagle developed an expertise in waste rock management during the operation of the Meadowbank project and developed the Whale Tail ARD/ML sampling and testing plan based on practices adapted to the reality on the Whale Tail project. The following Waste Rock Management Plan elements are considered adequate to address the site-specific risks:

- Waste rock and overburden will be co-disposed together in one of the two piles constituting the Whale Tail WRSF area.
- All waste rock material will be sampled and tested during operations to confirm their ARD and ML potential in support of waste segregation.
- NPAG and NML Waste rock and suitable overburden produced during mining will be used in the construction of the mine site infrastructure, while some of the NPAG and NML waste rock will be put aside for capping at closure.
- Climate control strategies are effective for waste rock in an arid climate such as the one of Whale Tail Pit. The placement of materials at a low moisture content reduces the need for additional controls on seepage and infiltration.

- The surface runoff and seepage water from the Whale Tail WRSF and ore stockpiles will be collected in and monitored to validate assumptions on management effectiveness.
- Closure of the Whale Tail WRSF will begin when practical as part of the progressive reclamation program. The Whale Tail WRSF will be covered with NPAG and NML waste rock to promote freezing as a control strategy against the development of acidic drainage and transport of contaminants.
- Thermistors will be installed within the Whale Tail WRSF to monitor permafrost development. Thermal and water quality monitoring will be carried out during all stages of the mine life to demonstrate geotechnical stability and the safe environmental performance of the facilities.
- Adaptive management will be implemented where necessary to achieve objectives of the Mine Waste and Water Management Plans

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#2**
Re:	**Executive Summary**		

Finding:

The text indicates that the current Plan relates to the proposed amendment of Water Licence No. 2AM-MEA1525.

Recommendation:

The statement should be updated to clarify that the Plan is now linked to a new licence (as opposed to an amendment).

Agnico Eagle's Response to Recommendation:

Agnico Eagle agrees with CIRNAC recommendation and will update the plan accordingly.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#3**
Re:	**S.2.1**		

Finding:

The Plan indicates that the ARD/ML potential of each waste rock lithology was evaluated through a static and kinetic testing programs that are on-going.

Recommendation:

CIRNAC recommends that the updated results of the ongoing testing program be reported on an annual basis. The report should explicitly assess whether the updated results would affect prior conclusions regarding the environmental performance of the waste rock.

Agnico Eagle's Response to Recommendation:

Updated results of the ongoing testing program will be used to confirm the extensive work completed on the geochemical assessment of the Whale Tail project presented during the FEIS and Licence A process. However, the updated results of the on-going testing program will be reported in the upcoming annual report where the results would affect prior conclusions regarding the environmental performance of the waste rock.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#4**
Re:	**Table 2.1**		

Finding:

Table 2.1 presented a summary of the anticipated ARD and ML potentials of the six major bedrock waste types as well as overburden and lake sediment. However, no estimate is given on the volume or mass of each waste type.

Recommendation:

As it is critical that sufficient quantity of not-PAG (NPAG) and low-ML waste rocks be available for the construction of the WRSF cover, CIRNAC recommends that the volumes of each waste rock types be provided along with their ARD and ML potentials.

Agnico Eagle's Response to Recommendation:

Agnico Eagle agrees with CIRNAC recommendation and will provided waste rock volumes in the updated version of the plan.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#5**
Re:	**Table 2.1, Table A.1**		

Finding:

Both Table 2.1 and Table A.1 are summaries of the same set of static and kinetic test data (i.e., Golder 2016). In Table 2.1, the different waste rock types are classified as having (1) "ARD potential" or (2) "no ARD potential" or (3) "variable ARD potential". This classification can be misleading as Table A.1 shows that for many of the waste rock types classified as having "no ARD potential" (e.g., Komatiite South, Diorite), up to 29% of the samples tested are in fact having "ARD potential".

Recommendation:

CIRNAC recommends that quantitative data be presented quantitatively whenever possible.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. These two tables have different objectives. Table A.1 is presenting quantitatively the ARD/ML testing results and table 2.1 is summarizing the anticipated ARD\ML potential for each rock types. These tables are summarizing the result of the geochemistry baseline study.

Agnico Eagle would like to clarify that the waste rock will be identified and classified as PAG/NPAG and ML/NML using rock composition-based segregation criteria (sulfur, sulfur to carbonate ratio and arsenic content), not lithological criteria, in order to avoid the risk of compositional variability in lithologies and lithological mixing in the mining block model which will be used for rock excavation, as described in the ARD/ML Sampling and Testing Plan.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#6
Re:	Table 2.1, Table A.1, S.2.2		

Finding:

Overburden is classified as having "no ARD potential" and "low ML potential" in Table 2.1. However, Table A.1 of Appendix A shows that aluminum, copper and iron in test leachate of overburden samples exceeded their respective effluent quality criterion. Therefore, overburden should not be classified as having "low ML potential" and used for construction or as material for waste rock facility cover. In fact, in Section 2.2, it is stated that "Overburden generated from the Whale Tail Pit will be placed in the Whale Tail Waste Rock Storage Facility (WRSF)."

Recommendation:

CIRNAC recommends that AEM clarify overburden's ML potential and how it will be disposed of.

Agnico Eagle's Response to Recommendation:

For clarification, ARD/ML potential of the overburden material will be tested and if the overburden is considered as NPAG, Agnico Eagle will then evaluate if the material has the geotechnical properties to be used as construction material. Typically, overburden does not have the geotechnical properties to be used as construction material and this is the reason why Agnico Eagle is planning to place the overburden within the Whale Tail WRSF for permanent storage.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#7**
Re:	**Table 2.1**		

Finding:

Sediment characterization is based on Shake Flask Extraction tests instead of more reliable large column kinetic tests.

Recommendation:

Based on the elevated ARD/ML potential of sediments indicated by those tests, CIRNAC recommends that they be subjected to kinetic testing if the sediments are placed in any location other than the frozen core of the WRSF.

Agnico Eagle's Response to Recommendation:

Lake sediments that are removed will be placed in the core of the WRSF. Kinetic testing will not be completed.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#8**
Re:	**S.2.2**		

Finding:

This section discusses waste rock segregation and disposal. However, it is not clear how lake sediment will be disposed of.

Recommendation:

CIRNAC recommends that AEM clarify how lake sediment will be disposed of.

Agnico Eagle's Response to Recommendation:

The lake sediments will be stored permanently in the core of the Whale Tail WRSF.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#9
Re:	S.2.2.1		

Finding:

It is stated that "The Whale Tail WRSF will be constructed to encapsulate potentially acid generating (PAG) and 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 4.0 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 waste rock pile (Golder 2018, in preparation). Rock oxidation can still occur in frozen material but will proceed at a slower rate than predicted by laboratory testing because of the cold temperature 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."

We note the following errors in the above statement:
(1) The WRSF needs to be encapsulated by materials that are both NPAG and NML, not just NPAG;
(2) Based on AEM's latest thermal modeling results, a minimum of 4.7 meter thick WRSF cover will be required, not 4.0 meter; and
(3) "Long-term" in the last sentence needs to be defined for the statement to be correct. Given enough time, contaminants will be transported away from the core of the WRSF.

Recommendation:

CIRNAC recommends that the above-quoted statement be revised and clarified.

Agnico Eagle's Response to Recommendation:

(1) Agnico Eagle agrees with CIRNAC recommendation and will update Section 2.2.1 of the plan to clarify that the WRSF will be encapsulated by materials that are both NPAG and NML.

(2) Agnico Eagle agrees to include a statement on the objective to have a thermal cover of 4.7 meters, and to adapt the cover thickness based on site thermal monitoring results Section 2.2.1 will be updated.

(3) Long-term is to mean in perpetuity. Freezing as a control mechanism for arsenic mobilization is expected to achieve the Whale Tail waste rock storage facility closure objectives. Freezing will immobilize water and prevent contaminant transport out of the WRSF below the active thaw depth.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#10**
Re:	**S.2.2.1**		

Finding:

The Plan states that the WRSF cover will consist of a 4.0 m thick NPAG/NML waste rock layer on the top and edges of the facility. In contrast, the Waste Rock Management Plan indicates the thickness will be 4.7 m (based on additional modelling requested by CIRNAC during the EIS/licencing process).

Recommendation:

The discrepancies should be reconciled. In addition, statements regarding the thickness of the cover should be expanded to clarify that the currently assumed thickness may be modified during the detailed design process.

Agnico Eagle's Response to Recommendation:

Agnico Eagle agrees with the CIRNAC recommendation. A cover of 4.7m will be used as a first objective and final cover thickness will be defined based on thermal monitoring. This will be updated in Section 2.2.1.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#11
Re:	S.3.1		

Finding:

The document indicates that the Geology Superintendent will have the discretion to vary aspects of the Sampling and Testing Plan (e.g., reduced sampling rate) without approval from applicable authorities.

Recommendation:

CIRNAC recommends that the rationale for any such changes be clearly documented and implemented only with the prior approval of the NWB. Depending on the available evidence, additional sampling and testing may be required. This recommendation should be applied to the entire Plan (i.e., not just S.3.1).

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC's recommendation. Agnico Eagle is committed on respecting the objective of the Waste Rock Management Plan and ARD/ML Sampling and Testing Plan which is to identify and manage waste rock to avoid contamination of NPAG/ML rock stored for construction use and to properly store all other waste rock, overburden and excavated sediments to minimize effects on water quality in the long term. The Geology Superintendent will exercise professional judgment on operational aspects of the plan to achieve this stated objective. Activities pertaining to both plans will be presented in the annual report.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#12**
Re:	**S.3.1**		

Finding:

The Plan indicates that field sampling will be based on the collection of drill hole cuttings. We assume that some drill holes will intersect more than one lithology and, as a result, will contain cuttings that exhibit a range of ARD/ML potential. Those cuttings may not be fully mixed when sampled and, by extension may not be representative of the ARD/ML potential throughout the drill/blast depth.

Recommendation:

CIRNAC recommends that the Plan describe the approach that will be used to ensure the cuttings are representative (e.g., mixing the cuttings prior to sampling and/or sub-sampling).

Agnico Eagle's Response to Recommendation:

Drill cuttings is collected and fully mixed in a sampling stainless steel tray placed beside the drill. The sampling stainless steel tray content is transferred into a polyethylene plastic bag labeled with the sample identifier, stapling the barcode tag inside the bag; the sample is then sent to the assay lab.

This approach will be included in the updated plan.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#13
Re:	S.3.2.1, Appendix A		

Finding:

Appendix A states that "ARD potential was evaluated by comparing ABA results to the Canadian guidelines presented in MEND (2009)." In Section 3.2.1, it is stated that "The ARD potential of waste materials from Whale Tail Pit will be classified first based on total Sulphur content and then using the NPR-based guidelines published by MEND (2009). Total sulphur will be used as an initial screening criteria to identify NPAG material, whereby a sample will be considered NPAG when it contains less than 0.1 wt% sulphur, regardless of the NP (Golder 2016)."

We note that on page 14-13, MEND (2009) states "It is important to note that a % S cut-off should NOT be used as the only means of assessing ARD potential unless the minimum NP value is known. Even low levels of sulphide can lead to ARD if the NP is insufficient to neutralize the resulting acid." We also note that results from the Diavik Waste Rock Project show that effluent from low S content (<0.1 wt%S) waste rock had low pH (pH<4.5) and high concentrations of sulfate and dissolved metals (Bailey et al., 2016).

Recommendation:

CIRNAC recommends that the MEND (2009) guidelines be strictly applied unless it can be proven otherwise with site-specific data and analysis.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC's recommendation. The sulphur cutoff is not used as the only means to determine ARD potential: the buffering capacity of the waste rock is considered in the development of the cut-off for total sulphur (0.1%). The samples that report total sulphur below 0.1%, also have sufficient excess carbonate mineral buffering capacity. They have a carbonate neutralization potential ratio generally above 2 (4 out of 93 samples having S<0.1% report values less than 2) and have an average CaNP of 54 t CaCO3/1000t and the bulk CaNPR is 42 indicating the material with less than 0.1% sulfur is NPAG with sufficient buffering capacity to overcome any acidity that may be generated.

Further, the waste rock at Diavik is a different geology (granite and granite pegmatite host rock) that reports lower buffering capacity from aluminsilicate minerals compared with the buffering capacity from carbonate minerals observed at Whale Tail Pit; the Diavik example is not an appropriate comparison to waste rock at Whale Tail.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#14
Re:	S.3.2.2		

Finding:

The Plan states that it is not feasible to segregate waste materials based on measured ML potentials derived from leaching tests due to the time required to complete the tests. AEM therefore assessed alternative methods that could be used to rapidly screen wastes for segregation. It was concluded that the amount of arsenic released by leaching is proportional to the total arsenic content of the sample. Specifically, the Plan indicates that samples with total arsenic content below 75 ppm indicates a low potential to leach arsenic. On this basis, the Plan proposes to segregate wastes using the 75 ppm criterion. No analysis justifying the selection of the criterion is presented in the Plan.

Recommendation:

CIRNAC recommends that AEM present a detailed assessment demonstrating that the 75 ppm threshold is appropriate.

Agnico Eagle's Response to Recommendation:

As presented previously in the report Evaluation of the Geochemical Properties of Waste Rock, Ore, Tailings, Overburden and Sediment from the Whale Tail Pit and Road Aggregate Materials, (Golder 2016), Figure 13 is presenting the total versus leachable arsenic for all waste rock and ore samples.

Readily soluble arsenic is leached in short-term tests at concentrations that range up to two orders of magnitude, from 0.0008 mg/L to 8.9 mg/L (average 0.39 mg/L). The highest concentrations are reported in north komatiite and iron formation where arsenic ranges from 0.0092 to 8.9 mg/L (average 1.4 mg/L), corresponding to the upper quartile range of concentrations for all samples. These lithologies generally report a total arsenic content that is greater than about 75 µg/g (ppm).

Most waste rock samples with less than 75 ppm total arsenic leach arsenic at lower concentrations than the iron formation and komatiite samples. These samples are from north, central and south greywacke, north and south basalt, composite, chert and diorite waste rock.

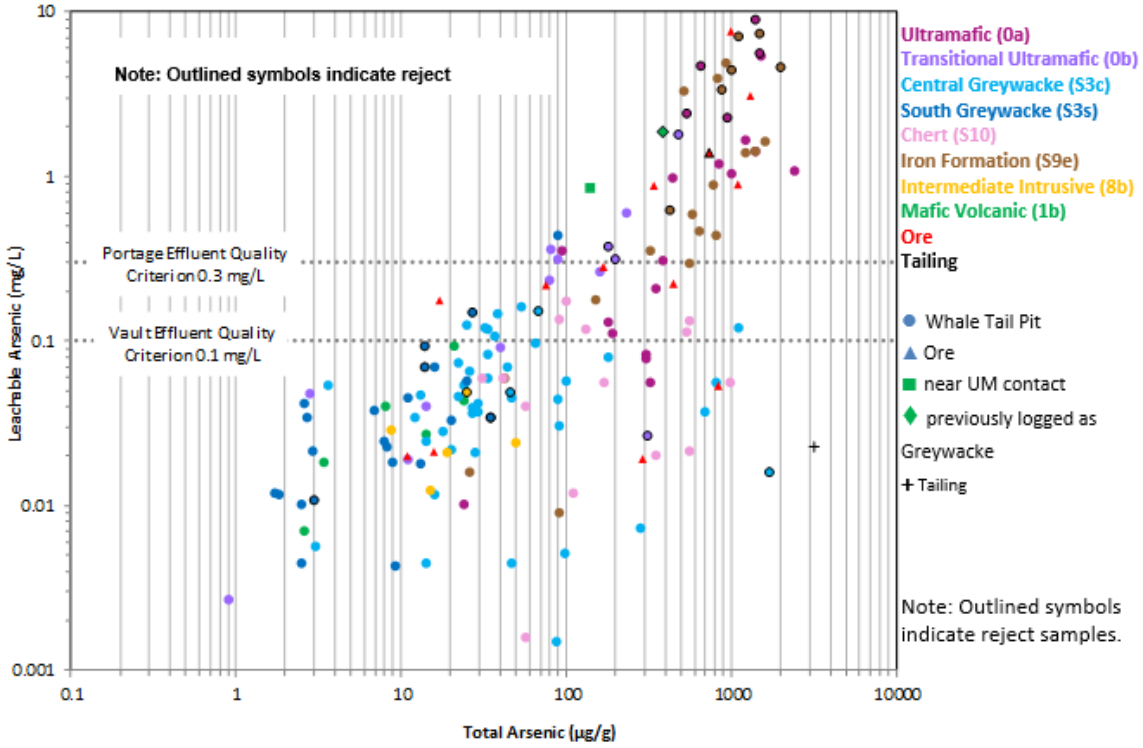

Figure 13: Total Arsenic vs Leachable Arsenic in Waste Rock, Ore, and Tailings

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#15
Re:	S.3.2.3		

Finding:

The Plan indicates that separate "duplicate" analyses will occur at a testing frequency of 75 samples per quarter.

Recommendation:

Instead of analysing a fixed number of samples per time period, CIRNAC recommends that the frequency of duplicate analyses be based as a percentage of the number of samples collected (e.g., one in five samples). Further CIRNAC recommends that the duplicate analysis rate be doubled for lithologies known to have elevated ARD/ML potential (i.e., Komatiite and Iron Formation).

Agnico Eagle's Response to Recommendation:

For clarification, Agnico Eagle are collection 1,875 samples per quarter, or 7500 per year. This sampling frequency has been selected to ensure comprehensive coverage of ARD characteristics of the waste. The duplicate frequency of 75 samples per quarter represents a frequency of 4%, which was selected based on the geospatial complexity of the deposit. Agnico Eagle does not agree with CIRNAC recommendation to double the duplicate analysis rate for lithologies known to have elevated ARD/ML potential as we are already extensively sampling the rock type and QA/QC validation is not based on ML/ARD potential. Furthermore, our duplication program is in addition to the internal laboratory QA/QC program of reference standards.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#16**
Re:	**S.3.2.3**		

Finding:

The Plan indicates that the results of the duplicate analyses will be evaluated against the proposed Effluent Quality Criteria (EQC) for arsenic which is stated to be the MDMER criterion of 0.1 mg/L. We note, however, that the MDMER will not apply to the post-closure discharges of WRSF seepage to Mammoth Lake.

Recommendation:

For post-closure discharges of WRSF seepage to Mammoth Lake, CIRNAC recommends that the results of the analyses be compared to the Site-Specific Water Quality Objective (SSWQO) for arsenic.

Agnico Eagle's Response to Recommendation:

The objectives and trigger levels for closure and post-closure will be defined in the final closure plan.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#17**
Re:	**S.3.2.3**		

Finding:

Some of the critical tests (i.e., total sulfur, total inorganic carbon, and total arsenic) will be carried out in the on-site laboratory for waste rock characterization, classification and disposal. However, no QA/QC procedure is described in the plan for the on-site laboratory tests.

Recommendation:

Given that waste rock classification and disposal will rely on on-site laboratory test results and that there is little room for error, CIRNAC recommends that AEM develop a QA/AC procedure for its on-site laboratory tests (i.e., total sulfur, total inorganic carbon, and total arsenic).

Agnico Eagle's Response to Recommendation:

Agnico Eagle has a QA/QC procedure in place for these tests. Two standards (1 blank and 1 standard) is completed for every 18 samples for the total sulfur and total inorganic carbon assays. For the total arsenic, the plan will be completed with two standards (1 blank and 1 standard) per 20 samples.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#17**
Re:	**S.3.3**		

Finding:

The text indicates that the ARD/ML classification of all samples will be logged in a database for the Project, and will be available as required for annual reports or upon request.

Recommendation:

Based on the risks associated with waste segregation (e.g., impacts of cover contamination) and the short operational life of the mine, CIRNAC recommends that comparative reporting be provided to the NWB on a quarterly basis (as opposed to annual reports).

Agnico Eagle's Response to Recommendation:

Agnico Eagle disagrees with CIRNAC's recommendation. Agnico Eagle has committed to provide analytical data as part of the annual reports.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#18**
Re:	**Table 5.1**		

Finding:

The table indicates that AEM Management will be notified if there are any deviations from the proposed plan (e.g., higher proportion of waste rock is PAG/ML than anticipated).

Recommendation:

CIRNAC recommends that the NWB also be informed of all such circumstances.

Agnico Eagle's Response to Recommendation:

This will be provided as part of the annual reports.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#19
Re:	General		

Finding:

During the EIS and Water Licensing processes, CIRNAC emphasized there was uncertainty regarding AEM's assumption there would be zero cover "contamination" (i.e., inadvertent inclusion of waste rock with elevated ARD/ML potential into the cover). The environmental risks of low levels of contamination (e.g., 2%) have been demonstrated to be significant. The current Plan does not include any sampling/testing to determine whether such contamination has occurred. Based on the significant, long-term and difficult to mitigate impacts associated with cover contamination CIRNAC requires additional monitoring evidence to verify that rock with elevated ARD/ML potential will not been incorporated into the cover.

Recommendation:

CIRNAC recommends that a sampling/testing program be conducted of the cover materials both before placement (i.e., from the NPAG/NML stockpile) and after placement (i.e., from the cover itself). This program should be designed to include the collection of representative cover material samples and long-term kinetic testing. The analysis program should be initiated no later than one year prior to closure and the results of the ongoing study should be reported annually. Information from the kinetic testing would help to inform the final design of the cover and any long-term management decisions for the site (e.g., the duration of post-closure monitoring).

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. Sampling and segregation procedure detailed in the ARD-ML plan is robust and QA-QC practices are in place to assess the process. In addition, the shape of the WRSF will not allow proper sampling of the thermal cover after placement.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#20**
Re:	**General**		

Recommendation:

Related to the previous point, CIRNAC recommends that the post-closure performance of the WRSF facility be re-modelled annually with actual measured data regarding the ARD/ML properties of the cover one year prior to site closure. The objective of the additional model run is to confirm that revised long-term seepage predictions are consistent with the original assessment.

Agnico Eagle's Response to Recommendation:

The model will be updated with the final closure plan based on actual measured data.

Reference

Golder Associates Ltd. (Golder) 2016. Evaluation of the Geochemical Properties of Waste Rock, Ore, Tailings, Overburden and Sediment from the Whale Tail Pit and Road Aggregate Materials. Report Prepared for Agnico Eagle Mines Ltd. 493 p. June 2016. Included in Whale Tail Pit FEIS, Volume 5, Appendix 5-E.

APPENDIX A

Waste Rock Material Segregation Methodology and Management at Meadowbank

Technical Memo

Date: August 8, 2017
To: Luiz Manzo, Director of Lands, Kivalliq Inuit Association
From : Jamie Quesnel, Agnico Eagle Mines, Environment Superintendent Nunavut; Erika Voyer, General Supervisor Environment Nunavut, Agnico Eagle Mines

Subject: Waste Rock Material Segregation Methodology and Management at Meadowbank

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SUMMARY

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 Meadowbank waste rock management plan. Sampling and testing of waste materials for acid rock drainage (ARD) is conducted during mine operation 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 will continue during the remaining operation period. The same methodology will be put in place during the construction and mining operations at Whale Tail Project, in order to segregate adequately the waste rock material.

Operational sampling and analysis is completed on site during mining activities in order to identified and delineate the material type in the pits during mining. Agnico Eagle sampled approximately 25% of all blast holes and analyzed the percentages of sulphur and carbon. The results from these analyses are used to differentiate the PAG and NPAG materials. Once characterized, the waste rock material is segregated and placed in appropriate location.

The geochemical properties of all Meadowbank mining wastes have been confirmed, by certified laboratory, through both static and kinetic testing on numerous representative samples, by various test methods and through multiple project development stages. These data were used to develop a mine waste management plan that was adequately protective of the environment and was authorized by regulatory agencies.

Information regarding the waste rock characterization is also managed and recorded by the mine dispatch 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 (RSF), as well as construction use are recorded into a database. The Waste Rock Management Plan is updated annually with current production quantities and actual Life of Mine, dictating the production and mining schedule. Waste rock management is also part of the weekly planning of the mine engineering department. Because of the large material requirement for construction and NPAG rock cover as well as the importance for adequate placement of material, waste rock management is a fundamental component of the mining planning at Meadowbank.

The Meadowbank waste rock segregation and management protocol were presented in several mining and environmental conferences and symposiums (*International Conference on Acid Rock Drainage, 2012; Cold Covers Practice, 2014; Quebec Mines Conference, 2014; Symposium sur l'Environment et les Mines, 2015*) as well as presented in technical papers (*The Meadowbank Gold Mine – Reclamation Planning in an Arctic Environment, 2012; Waste Rock Management and Closure Planning in Northern Climate: The Meadowbank Mine, Nunavut, 2015*).

93 Arseneault, Val-d'Or, Québec, Canada J9P 0E9
Tél : 819.759.3555 Sans frais : 1.888.822.6714 agnicoeagle.com

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ON SITE WASTE ROCK ANALYSIS

The Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Mine sites in British Columbia (Price, 1997) provide factors for the conversion of total sulphur and total inorganic carbon to maximum potential acidity (MPA) and carbonate neutralization potential (NP), respectively, which are then used to classify material as PAG/NPAG. Since it was possible to equip the Meadowbank onsite assay laboratory with the equipment required for these analyses, their use as a surrogate for the complete suite involved in traditional ABA testing was assessed and confirmed using exploration drill cores (Golder, 2005a).

As a result of these analyses, the Meadowbank onsite assay lab has been equipped to analyze total sulphur and total inorganic carbon in waste rock, allowing for the characterization of acid generating potential onsite, with overnight turn-around times. The same laboratory and method are planned to be used for the Whale Tail Project.

ON SITE WASTE ROCK CHARACTERIZATION

The most conventional method of characterizing the acid generation potential of waste rock is to classify it as PAG, NPAG or of uncertain acid generating potential (uncertain ARD potential, treated as PAG material) based on its Net Potential Ratio (NPR). The NPR of a material is calculated as the ratio of its measured carbonate neutralization potential (NP) to its calculated maximum potential acidity (MPA). Geology staffs apply the following procedures to characterize the waste rock at Meadowbank.

Samples of drill cuttings are analyzed on-site for total sulphur and total inorganic carbon. The results from these analyses are used to calculate the Net Potential Ratio which defines NPAG from PAG materials. The following steps lead to the calculation of the **NPR**:

i. Total sulphur is converted into a maximum potential acidity (**MPA**) value by multiplying the total S wt% by 31.25 which yields an MPA value in kg $CaCO_3$ equivalent.

ii. Total inorganic carbon is similarly converted into a carbonate neutralization potential (**NP**) by multiplying the total wt% inorganic carbon (reported as $\%CO_2$) by 83.34 which yields an NP value in kg $CaCO_3$ equivalent. NP = ((%C x 100.09)/12.01)x10

iii. The Net Potential Ratio (**NPR**) for the blast hole drill cutting sample is then calculated as **NPR = NP/MPA**.

WASTE ROCK CLASSIFICATION PAG/NPAG

The ARD potential of waste rock, till (overburden) and tailings materials from the Meadowbank mine were previously classified by Golder Associates using the NPR-based guidelines published by INAC (*INAC, 1992. Guidelines for ARD Prediction in the North – Northern Mine Environment Neutral Drainage Studies No. 1*), which are summarized in Table 1 below. The NPR guideline value to differentiate between uncertain and NPAG has been adjusted from 3 to 2 using the criteria described in the INAC reference guide (knowledge of rock chemistry, mineralogy and reactivity of neutralizing minerals). For example, the use of carbonate NP as a surrogate for bulk NP was examined using data obtained from exploration drilling. Carbonate NP and bulk NP correlate well, which suggests that NPR values calculated using carbonate NP would be comparable to NPR values calculated using bulk NP. It also emphasizes that at Meadowbank measured NP is equal to carbonate NP and is thus fully available for neutralization of any acid generated (i.e, there does not appear to be any carbonate that is lost as iron carbonate or other mineral forms that cannot provide neutralization potential).

The NPR ratio adjustment was accepted during the NIRB environmental assessment process.

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Initial Screening Criteria	ARD Potential
NPR < 1	Likely acid generating (PAG)
1 < NPR < 2	Uncertain
2 < NPR	Non-potentially acid generating (NPAG)

Table 1: Summary of ARD guidelines used to classify Meadowbank waste rock and overburden (based on INAC, 1992).

QA/QC PROGRAM

The onsite lab carries out a quality control quality assurance (QA/QC) program that includes the following elements:

- Use of certified reference materials to verify the precision of analytical methods;
- To validate the method used by Agnico Eagle, approximately 300 rock samples (quarterly analysis of a minimum of 75 duplicate samples) of the main rock types from production drill holes are sent annually to an accredited commercial lab (external lab) for acid base accounting (ABA) analysis using the Modified Sobek Method (MEND, 1991) for determination of NP/AP and metal leaching using the Shake Flask Method (Modified ASTM D3987). The results confirmed Agnico Eagle methodology and results to differentiate PAG/NPAG rock. The results are reported to the Geology Superintendent and the Environment staff.

FIELD METHODS – SAMPLING AND DELINEATION OF WASTE ROCK

Field sampling of rock material for use in NPR analyses proceeds according to the following guidelines:

- Drill holes are sampled in accordance with the frequency set out in writing by the Geology Superintendent. The default sampling frequency is the sampling of every fourth drill hole in each drill hole pattern;
- Each sample should weigh no less than 1 kg;
- The sample is labeled using a convention that is readily traceable back to the production drill hole numbers;
- Composite samples are not to be used because they confuse the data and render it more difficult for use in model creation or comparison.

Following laboratory analysis, geology staff will classify waste rock and overburden as NPAG if the NPR value is greater than 2; PAG if the NPR value is less than 1 and uncertain for NPR values between 1 and 2 (Table 1). These criteria can be re-evaluated when judged relevant by the Geology Superintendent in consultation with the Mine Engineer, as additional test data become available. ARD classifications of all samples are logged in Meadowbank's GEMCOM database.

NPR values will be transferred to the mine plans for that specific blast. Once blasting is complete the mine surveyor will use NPAG and NPAG outlines from the drill pattern to outline the respective "dig limits" in the open pit. Different material categories are separated into packets, identified in the field using stakes, wire flags and flagging tape so that each packet can be excavated and sent to the appropriate destination. Packets classified as NPAG should include no more than one

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acid-generating sample (NPR>2) for every 8 non-acid-generating samples (NPR<1). Neither should they include more than one sample of uncertain acid-generating potential (1<NPR<2) for every 4 non-acid-generating samples (NPR<1).

Photo 1 and 2 below illustrates the sampling of the drill holes and the delimitation of the packets in the blasted rock material. Figure 1 presents a schematic view of the packet stakeout in the field after the material has been blasted.

Photo 1: Preparation of the samples from drill cuttings Photo 2: Differentiation of PAG/NAG rock and ore after a blast based on laboratory results and blast pattern

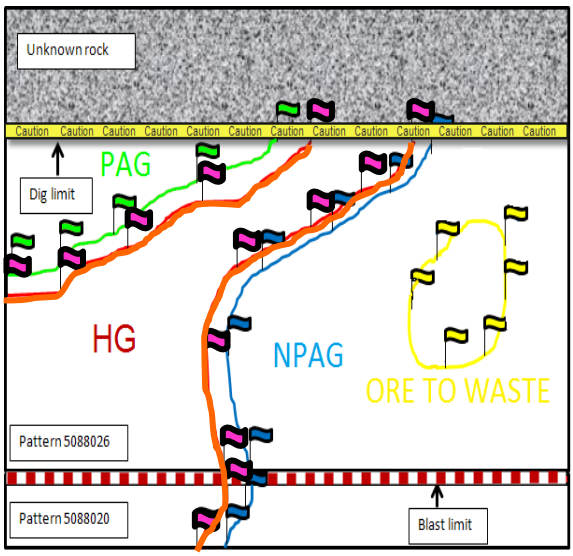

Figure 1: Sample packet stakeout in the field.

MATERIAL TRACKING - FLEET MANAGEMENT SYSTEM AND MATERIAL DATABASE

Information regarding the waste rock characterization is also managed and recorded by the mine dispatch Wenco system, tracking in real time load of material, including waste rock, and their respective destination. The information for each area

93 Arseneault, Val-d'Or, Québec, Canada J9P 0E9
Tél : 819.759.3555 Sans frais : 1.888.822.6714 agnicoeagle.com

ready to mine prepared by geology is imported in the system. The system and the dispatcher in charge, guides the operators and ensures the ore and waste rock material is transported to the appropriate destination.

Wenco system is a computer system used to manage and control surface mining equipment. The system offers real time fleet management and machine guidance technology that records data related to mining equipment activity, location, time, production, and maintenance. This information is also displayed to machine operators and other mining personnel. The system connects with mobile computers on field equipment such as excavators and haul trucks. For example, operators of loading equipment in the pit have information on screens about the type of material they are excavating. The haul truck drivers also have access to information in their equipment, about what they are hauling and where is the appropriate destination for the material. In fact, the system will even warn a haul truck operator if a load is being misdirected based on GPS movement of the hauling equipment. One of the purposes of this system is to track material, to ensure ore, as well as waste rock PAG and NPAG goes to the appropriate location.

The system displays in real time information about equipment location and destination, as well as pit development information. As shown on Photo 3, the dispatcher in charge constantly follows the evolution of the pit development and production, having access to live maps and tables showing the different equipment and types of material in exploitation. Figure 2 presents an example of a map showing the location of different production equipment within the pit, as well as defined sectors including different types of ore and waste rock, color coded. Figure 3 presents a typical table including the status of different loading equipment, their location, the type of rock material they are working in, as well as production data, such as quantities of material excavated and which haul trucks are assigned to an area.

Dispatchers follow the system during hours of production and will intercept loads of material going into the wrong location. It is also possible with the system to locate where material was placed, in order to recover it, if required due to a misdirected load, and bring it to the right location.

All production data, including all waste rock haulage to the waste rock storage facilities (NPAG and PAG RSF's) and construction use are recorded into a database. This database includes all quantities of material placed in different locations, and is used to confirm quantities of material and follow the waste rock management plan.

Photo 3: Dispatcher in charge of the fleet management system during operations

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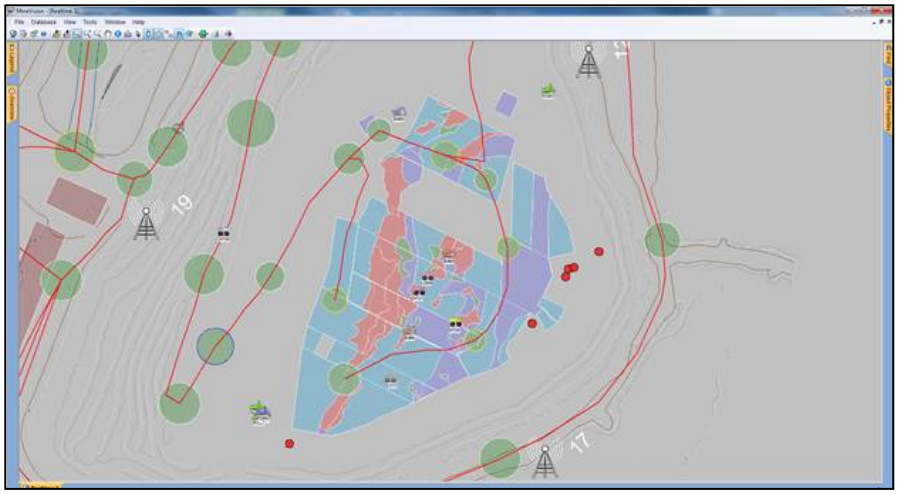

Figure 2: Map showing the location of production equipment within the pit, ore and PAG/NPAG material in color coded zones

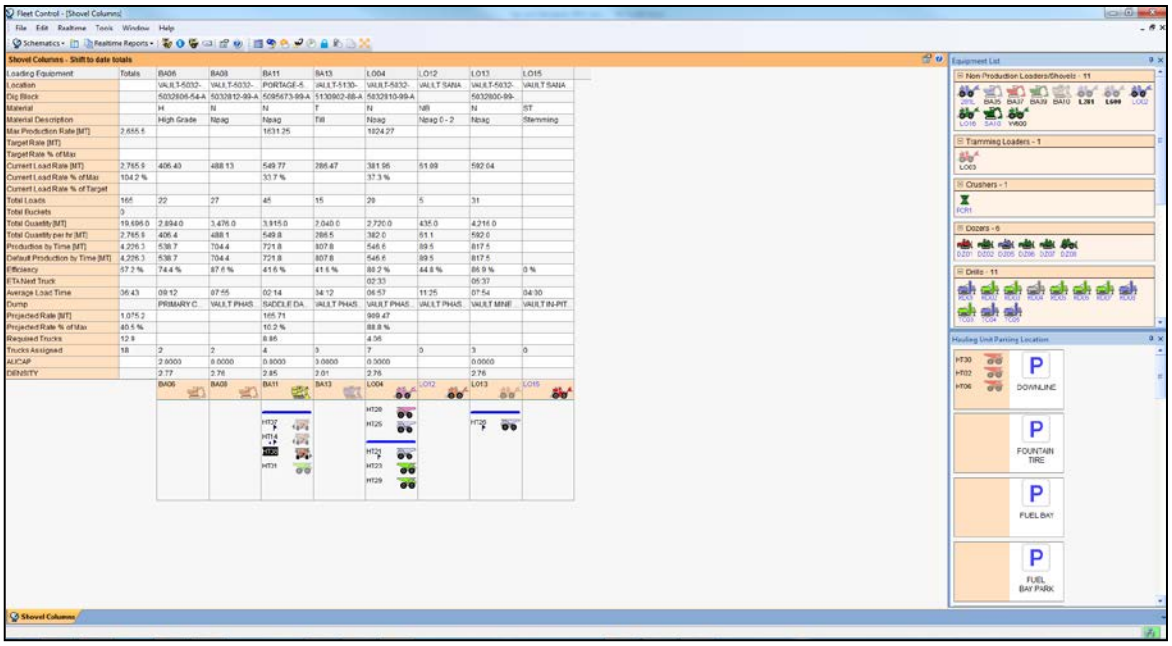

Figure 3: Table including the status of different loading equipment - location, type of rock material and production data.

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WASTE ROCK MANAGEMENT PLANNING

Waste rock and till produced during mining was used in the construction of the mine site infrastructure, including dikes, roads, pad foundations, while some of the NPAG waste rock is being put aside for capping at closure and for underwater structures for fish habitat compensation. The balance of the PAG or NPAG waste rock that will not be used is placed and will remain in the dedicated rock storage facilities for PAG or NPAG material. Figure 2 presents the waste rock storage facilities for Meadowbank, with the specific waste rock type they contain.

As a first step in waste rock management planning, options were developed to define the main use and destination for each rock type based on the results of geochemical testing. The second step required accounting of the quantity and timing of extraction of each waste rock type on an annual basis. This included further refinement of the quantity, type and timing of construction material requirements for each infrastructure project. To this end, the lithology of waste rock was added to the geological block model for each deposit and a detailed account of construction requirements was made based on the most advanced infrastructure designs available at the moment of planning. The Waste Rock Management Plan is updated annually with current production quantities and actual Life of Mine, dictating the production and mining schedule. Planning of the placement of waste rock material is reviewed for each Life of Mine exercise, considering the different waste rock facility locations and capacity, as well as the closure NAG cover requirements.

Waste rock management is also part of the weekly planning of the mine engineering department. Part of the mining planning includes the management of waste rock, to ensure the plan established with the Life of Mine is followed, to ensure material required for construction or closure purposes are properly stored, and also to plan for adequate and permitted storage areas. Figure 5 shows an example of the waste rock management diagram updated and included in the weekly planning discussion between engineering, geology and mine production. Because of the large material requirement for construction and NPAG rock cover, as well as the importance for adequate disposal to meet closure objectives, waste rock management is a key component of the mining planning at Meadowbank.

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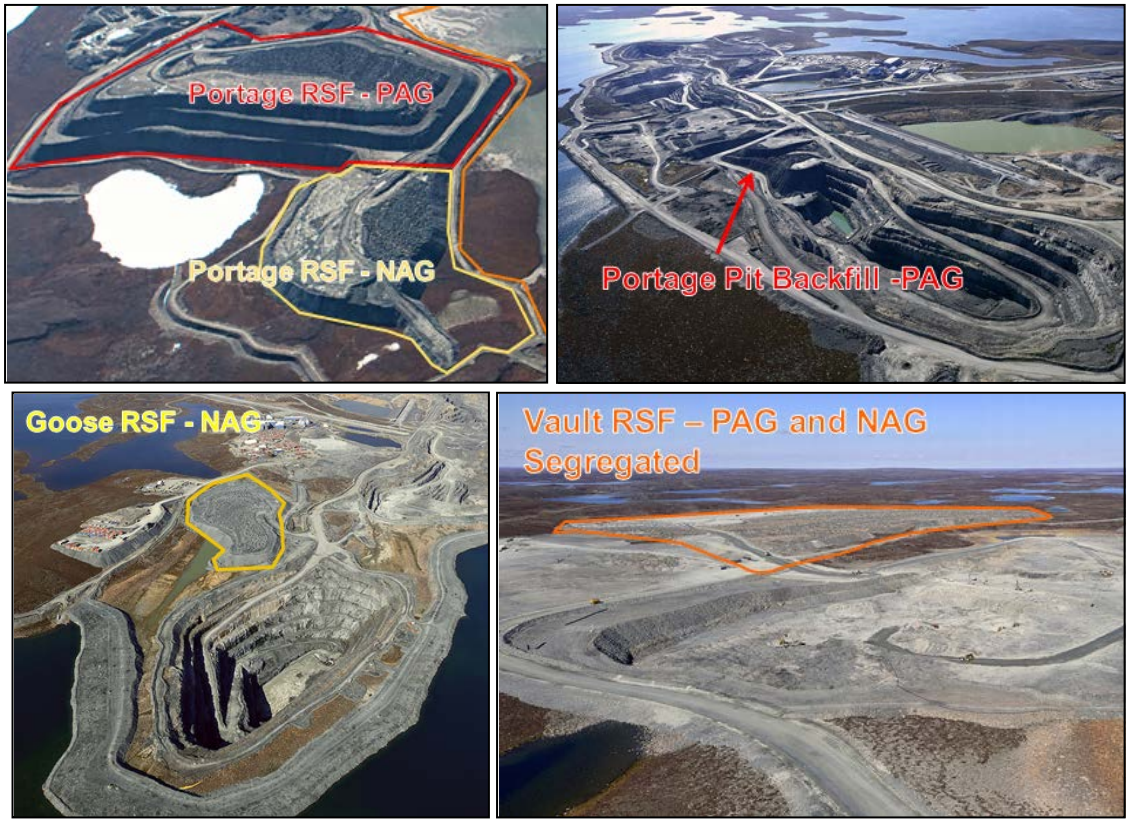

Figure 4: Waste Rock Storage Facilities at Meadowbank

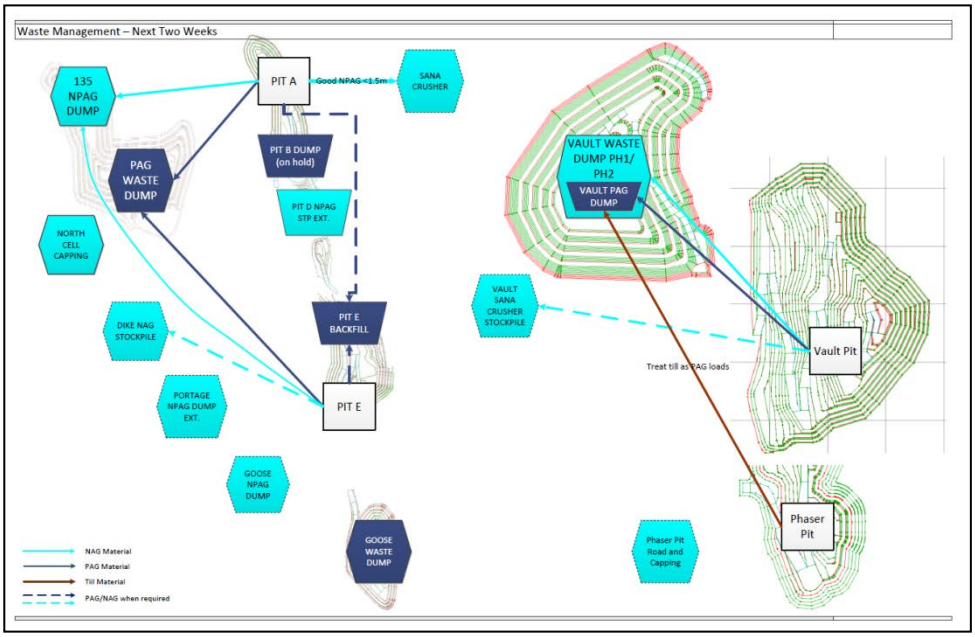

Figure 5: Two Weeks Waste Rock Material Management Diagram

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