

August 31, 2016

Sophia Granchinho Manager, Impact Assessment - Nunavut Impact Review Board 29 Mitik St P.O. Box 1360 Cambridge Bay, NU X0B 0C0

Re: NIRB File No. 11EN010 Application No: 124668 – Opportunity to address comments received regarding Agnico Eagle Mines Ltd.'s "Amaruq Exploration – Portal/ Ramp, Quarry and Advanced Underground Exploration and Bulk Sample" project proposal

Dear Ms. Granchinho,

As requested, the following responses are intended to address the recommendations and comments outlined in NIRB letter dated July 25, 2016, regarding the "Amaruq Exploration – Portal/ Ramp, Quarry and Advanced Underground Exploration and Bulk Sample" project proposal. Agnico Eagle appreciates that NIRB has provided Agnico Eagle the opportunity to respond to the screening comments provided by the interveners.

Underground exploration is an important part of advancing a project such as Amaruq. Although the current surface drilling activities were screened by NIRB and permitted under NWB Type B 2BE-MEA1318, the underground ramp advancement for exploration is equally as important, as surface drilling will not allow Agnico Eagle to fully understand the underground potential at Amaruq. As a result, if approved, the exploration ramp will allow:

- Additional intensive exploration drilling of the Amaruq site, within the deeper depths, than is possible from surface drilling alone;
- Improved accuracy in drill results and provide an understanding of the deposit at deeper depths; and
- Additional underground drill results may enable design and feasibility studies to be conducted to determine the future potential at Amaruq.

In this response package, Agnico Eagle acknowledges the concerns of the interveners and believes that this type of project has no significant adverse environmental impacts. Given the scale of the project, the impacts are highly predictable and can be mitigated by keeping the site footprint small, utilizing the current infrastructure at Amaruq, and by applying best known technologies, best management practices and other proven technologies to develop the Amaruq Ramp/ Portal, Quarry and collect a bulk sample.

The following series of responses provided by Agnico Eagle will address the NIRB's comments. Agnico Eagle will further address the recommendations from the interveners technical concerns related to water management and waste rock acid rock drainage/ metal leaching (ARD-ML) during the NWB Type B amendment review phase of the project.

It is important to acknowledge that the activities proposed in this amendment are within the current footprint of the KIA exploration lease and are not going to significantly change the current camp activities that support surface drilling. Agnico Eagle will continue to work with local stakeholders prior to the construction, during construction and during the operation of the Amaruq exploration ramp/portal,



quarry and bulk sample to ensure the concerns that were raised in these comments have been adequately addressed.

Should you have any questions or require further information, please contact the undersigned Jamie Quesnel at <a href="mailto:Jamie.quesnel@agnicoeagle.com">Jamie.quesnel@agnicoeagle.com</a> M: 819.856.0821, or, Ryan Vanengen at <a href="mailto:ryan.vanengen@agnicoeagle.com">ryan.vanengen@agnicoeagle.com</a> M:819.651.2974.

Regards,

Agnico Eagle Mines Limited – Meadowbank Division

Regards,

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## **Road Dust Management**

1.1 The project would likely result in increased vehicular traffic on the road leading to Meadowbank, as well as the planned road between Amaruq and Meadowbank. The proposal could increase the amount of dust generated at the project site with the potential to damage the surrounding vegetation through mechanical damage and loss of sunlight through smothering. Further no information provided on the amount of freshwater required for dust suppression related to the increased in mine vehicle traffic related to the development and use of the portal.

# Agnico Eagle's Response to 1.1:

It is important to recall that the Amaruq Exploration Access Road was permitted to assist in the advanced exploration development of the Amaruq property, including the potential to support underground ramp development. The traffic volume between Meadowbank and Amaruq is not expected to change from what was described in the Amaruq Exploration Access Road proposal which was screened by NIRB and permitted under a Type B – 2BC AEA 1525. If deemed necessary, water trucks will be used during the summer to ensure dust levels are acceptable along the Amaruq Exploration Access Road. If deemed necessary, other suppressants may be used to suppress dust along the Amaruq Exploration Access Road.

Although there will be a small increase in vehicular traffic as a result of this amendment, most of the new equipment will be operated underground and are not expected to cause a significant increase in dust emissions. Furthermore, esker material will be used to top all exploration camp road surfaces, and as a result, are predicted to generate little additional dust. However, if deemed necessary through monitoring, tetra flakes or other approved dust suppressant(s), may be used to control dust emissions from increased activities nearest to the ramp and portal development. In order to stay within the water use limits under Type B 2BE – MEA1318, storm water from the proposed storm water storage pond (AP-5) could be taken and applied on the roads using a water truck. Traffic in other areas around the Amaruq exploration site is not expected to increase significantly.

1.2 Recommended the Proponent conduct appropriate dust suppression and monitoring to implement mitigation measures if needed and ensures it continues to meet its commitments to mitigate and monitor dust levels and effects, and considers the concerns raised by community members while developing its plan on how to meet these and any future commitments.

## Agnico Eagle's Response to 1.2:

Agnico Eagle agrees and as per response 1.1, will apply appropriate dust suppression. Upon approval of the amendment to the Type B, a dustfall monitoring program will be implemented for the exploration camp.



# **Insufficient Information in Application**

2.1 Could not comment on the likelihood of the proposed activities to arouse significant public concern as it is unclear from the submitted record of public consultation to what extent the meetings listed covered the scope of works for this proposal.

## Agnico Eagle's Response to 2.1:

Agnico Eagle refers the reviewer to Table 6 – Record of Public Consultation on page 30 of the Main Application Document. During meetings with the HTO, CLARC, Elders and regulatory agencies that commenced in January 2015, Agnico Eagle had identified the main function of the Amaruq Exploration access road as a route to provide fuel and supplies for future underground ramp development at Amaruq. This was explained to stakeholders during meetings beginning in January 2015 as a similar approach to what was undertaken at Agnico Eagle's Meliadine project near Rankin Inlet, as permitted under a Type B license.

On various occasions, including the September 8<sup>th</sup> visit Agnico Eagle presented information on the future advancement of Amaruq, including the underground exploration ramp/ portal development. Although the focus of most of these meetings were often on the Amaruq Exploration Access Road, the underground ramp proposal was discussed with the CLARC, HTO, Elders and KWB representatives and there were no significant concerns of the future advanced exploration activities.

Agnico Eagle will continue to meet with stakeholders prior to construction and operation of the ramp; open house community sessions will be held throughout the Kivalliq from October 17<sup>th</sup> to 27<sup>th</sup> 2016.



- 2.2 Insufficient detail in the application material provided and the potential effects of the project could not be fully assessed until more information is provided on the following:
  - Several water management gaps were identified including information for a full water balance for the primary water management structure.
  - ii) No details were provide that demonstrated that the Proponent will be adequately prepared to control water, and if necessary, treat it to meet discharge guidelines.
  - iii) More information regarding waste rock and quarry management is required.
  - iv) No plan was provided to manage potentially acid generating (PAG) rock or rock with potential metal leaching (e.g., quarry and pads).
  - v) Listing of management plans that would be applied when carrying out the proposed activities.
  - vi) Follow up is required on the following items and full discussion was provided by INAC:
    - a) Clarification of management plans and potential updates required;
    - b) Assessment of cumulative effects;
    - c) Geotechnical information related to overburden use in pad construction was not provided; and
    - d) Recommendations for closure planning.
  - vii) Information not provided regarding the extensions of the all-weather road to the northern and southern ends of the airstrip.

#### Agnico Eagle's general response to the above comments:

Agnico Eagle believes the information provided in the application is sufficient; we are confident in our ability to manage water, waste rock, closure of the site and through best management practices and a compact site design impacts will be minimized. As stated in the cover letter, Agnico Eagle will respond to the technical questions related to water management and waste rock during the regulatory phase or NWB review stage by developing a site specific water management plan and an ARD -ML sampling and testing plan for the Amaruq Exploration site, including the underground operations and quarrying.

#### Agnico Eagle's response to i) and ii):

Agnico Eagle has provided a summary of the Amaruq Exploration site water management strategy during exploration ramp development in Section 10, titled "Water Management", beginning on page 25 of the Main Application document. In brief, freshwater will continue to be taken from Whale Tail Lake for potable use at the exploration camp, site water for drilling will be sourced from nearby lakes within the maximum freshwater use within Type B 2BE – MEA1318. Additionally, water will be taken from the storm water storage pond (AP-5) for dust management near the portal. During early development of the ramp, AP-5 water level will be drawn down through operations to increase the storage volume in



AP-5 until 2019. In 2019, it is expected that the ramp will be encountering a permeable zone or talik. Underground water will be collected and stored underground for use in development of the ramp. As a contingency, underground inflows could be brought to the surface and stored in AP-5. As stated in Section 10 of the application document, water from AP-5 will continue to be used for dust suppression near the portal and on roads within the drainage area of AP-5. Water will be monitored, treated and discharged if needed according to Type B effluent limits.

Agnico Eagle will commit to develop a detailed site specific water management plan (that will include a detailed water balance) during the NWB amendment regulatory review phase.

# Agnico Eagle's response to iii) and iv):

Please refer to responses provided in Section Waste Rock Characterization beginning on page 12.

### Agnico Eagle's response to v) and vi) a):

Below is a list of existing and approved management plans under the NIRB screening and Type 2BE-MEA1318 that will remain unchanged until the amendment is approved:

- Amaruq Waste Management Plan\_May 2016
- Amaruq Wildlife Management Plan May 2016
- Conceptual Reclamation and Closure Plan Version 5
- Quarrying Management Plan KVCA15Q01-November2015
- Spill Contingency Plan 2BE-MEA1318- Version 9
- Amaruq Waste Water Treatment System Operational and Maintenance Plan-December 2015

Upon approval, the following plans will apply:

- Revised plan Agnico Eagle Exploration Division. 2016. Amaruq Gold Project- Spill Contingency Plan, Exploration Camp, Drill Sites, Portal/Ramp and Quarry. Version 10 – provided with application on March 2016.
- Revised plan Agnico Eagle Exploration Division. 2016. Conceptual Closure and Reclamation Plan and RECLAIM estimate. Version 6 provided with the application on March 2016.
- New Plan Agnico Eagle Exploration Division. 2016. Amaruq Exploration Water Management Plan. V1 – to be provided to the NWB during the licensing phase.
- New Plan Agnico Eagle Exploration Division. 2016. Amaruq Exploration Site ARD-ML Sampling and Testing Plan. V1 to be provided to NWB during the licensing phase.

### Agnico Eagle's response to vi) b):

No significant additional, direct, or cumulative impacts are expected to air, wildlife, surface water, or the fisheries as a result of the amendment to include an underground ramp, quarry and bulk sample. Agnico Eagle believes all impacts will be mitigated through constructing a small compact footprint and ensuring standard best practices are implemented to control waste. The proposed activities and



infrastructure required to construct a portal and ramp for the underground exploration activities are within the KIA commercial lease and Agnico Eagle is proposing an amendment to Type B 2BE MEA1318 to include an underground ramp/portal, quarry and bulk sample to extend exploration underground. The activities under this amendment would commence in 2017.

The proposed expansion of the exploration activities is within 500m of the existing and approved camp infrastructure. Agnico Eagle proposes to build a portal for the ramp, a small waste rock pile that will drain toward the storm water storage pond (AP-5), a quarry, and proposes to construct a pad as a base for an office, warehouse and garage immediately adjacent to the portal. Two additional wings are proposed to be added to the existing camp and sewage treatment capacity will be increased. The proposed underground exploration development has been designed to maximize the use of the existing Amaruq site infrastructure while minimizing the environmental impacts and effects through design, monitoring and management. Direct and indirect impacts are summarized in Table 1 noted below. These predicted impacts are not expected to cause any significant cumulative impacts and are consistent with the exploration activities previously screened by NIRB and licensed under the Type B 2BE MEA1318 license.

Table 1: Predicted Direct and Indirect impacts and Proposed Mitigation

Environmental	Description of Predicted Impacts	Mitigation
Pathway		
Terrestrial Environment and Wildlife	A small increase of approximately 0.05 hectares immediately adjacent of the existing exploration site.	Maintain a small footprint and apply best management practices to ensure wildlife is protected.
Permafrost	Potential to cause instability due to thawing while advancing the ramp.	Design ramp in geologically stable zone and construct the majority of the ramp outside of the modeled talik zone.
Groundwater quality	Encountering groundwater during the advancement of the ramp could impact surrounding groundwater quality.	Apply best management practices for managing underground water. More specifically, manage underground water by: using the underground water for the advancement of the ramp, managing drilling and brine use, collect and store water underground and use the storm water storage pond AP-5 as a contingency. Treat water and discharge as deemed necessary.
Surface water	Waste Rock ARD-ML from the waste rock pile could cause impacts to	Design waste rock facility within the catchment of AP-5 storm water storage pond.



surface waters.

Control all contact water from the waste rock pad toward AP-5. Manage the storage volume of AP-5 by building a berm, monitor water quality, treat and discharge if needed according to the Type B effluent limits.

# Agnico Eagle's response to vi) c):

Attached in Appendix A you will find a summary of the overburden geochemistry results from samples taken near the Amaruq Exploration Quarry and Portal/ Ramp in 2015. In total 12 samples were collected and analyzed in 2015. Additional samples of the overburden will be collected in 2016 in preparation of ramp development.

The overburden will be disposed of within the proposed waste rock pad footprint.

## Agnico Eagle's response to vi) d):

A detailed closure plan is described in the Conceptual Reclamation and Closure Plan v6, and was provided as part of the NWB amendment application.

## Agnico Eagle's response to vii):

This appears to be a misunderstanding. The Amaruq exploration access road will not be extended as part of the exploration ramp/portal proposal. The total length of the road remains 64.1 km (from Vault Pit to the Amaruq Exploration site), which is permitted under Type B 8BC- AEA1525. At this time there are no intentions to extend to airstrip to the north, nor to the south.



# **Updated Information Required**

3.1 Noted that the proposal has yet to trigger the Metal Mining Effluent Regulations (MMER) and as such, the Project is subject to the prohibitions of the Fisheries Act section 36(6). Therefore it is not appropriate to use the MMER limits or its equivalent at this time as the compliance criteria.

### Agnico Eagle's Response to 3.1:

Agnico Eagle agrees with ECCC's comments however proposes to continue to adhere to Type 2BE-MEA1318 Part D Item 12 as an effluent quality limit.

12. All Effluent discharged from the Trench Water Containment shall be carried out in accordance with Part D, Item 1, directed to a natural depression where direct flow into a water is not possible and no additional impacts are created. All Effluent discharges shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample (mg/L)
Total Arsenic	0.5
Total Copper	0.3
Total Lead	0.2
Total Nickel	0.5
Total Zinc	0.5
Total Suspended Solids	25
Oil and Grease	No visible sheen
рН	6.0 to 9.5

3.2 Noise pollution produced by proposed activities could have negative impacts on wildlife including caribou, birds, and carnivores. An updated Wildlife Mitigation and Monitoring Plan should be provided with details about restrictions on blasting and drilling activities including cessation of activities while wildlife are in the vicinity.

### Agnico Eagle's Response to 3.2:

Common best management practices for noise abatement will be used during the ramp and underground development and quarrying activities. The mines act and regulated blasting practices will be employed for ramp development and quarrying for roads and pads to ensure the safety and protection of both humans and wildlife. The existing Amaruq wildlife monitoring plan will be updated to reflect these concerns prior to the construction of the ramp.



3.3 Additional baseline water and sediment quality should be collected to adequately characterize the freshwater environment surrounding the proposed exploration activities in order to be able to determine whether exploration activities have impacted the water quality within the project area.

## Agnico Eagle's Response to 3.3:

Agnico Eagle agrees and has collected baseline data, that includes water and sediment quality in surrounding lakes, including Whale Tail Lake in 2014, 2015 and 2016. Baseline report on the lakes surrounding the Amaruq Ramp can be found in the document titled "160630 03MN107- App6-G CREMP Baseline –IA1E- Whale tail Pit Core Receiving Environmental Monitoring Program 2014-2015 Baseline Studies."

The baseline document is available on the NIRB public registry – 16MN056 Application #124683 - Whale Tail Pit and Haul Road – Document 10 160630 03MN107-V6 Freshwater Environment – IA1E Part2.

- 3.4 Lack of information on the groundwater and the potential groundwater inflows into the underground workings as follows:
  - i) The depth of the underground workings area as they cross the Whale Tail Lake talik;
  - ii) Shape of the talik under Whale Tail Lake;
  - iii) Location of any vent raise;
  - iv) Projected water flow rates;
  - v) Details on how much of the Meadowbank data which is used as the template for the Amaruq Gold Project, is real and how much is a projection to the depths of the proposed Amaruq underground workings in determining the total dissolved solids projection;
  - vi) Potential saline content of any groundwater encountered; and
  - vii) Depth of Whale Tail Lake versus the depth of the underground workings.

## Agnico Eagle's Response 3.4 to i), ii), iii) and vii):

In response to the above comments, please refer to an updated Figure 1: Base Groundwater Inflow Calculation Plan and Cross Section, for questions about the depth of the underground workings, shape of the talik, location of the ventilation raises and engineered ramp. The underground workings cross the talik at a depth of approximately 250m below the surface. The underground workings are approximately 210 m below the bottom of Whale Tail Lake.

### Agnico Eagle's Response to 3.4 iv):

The projected flow rates were provided in our March 2016 submission based on the best available data (Knights Piesold, Nov 2015). Agnico Eagle refers the reviewer to Appendix B of the main application



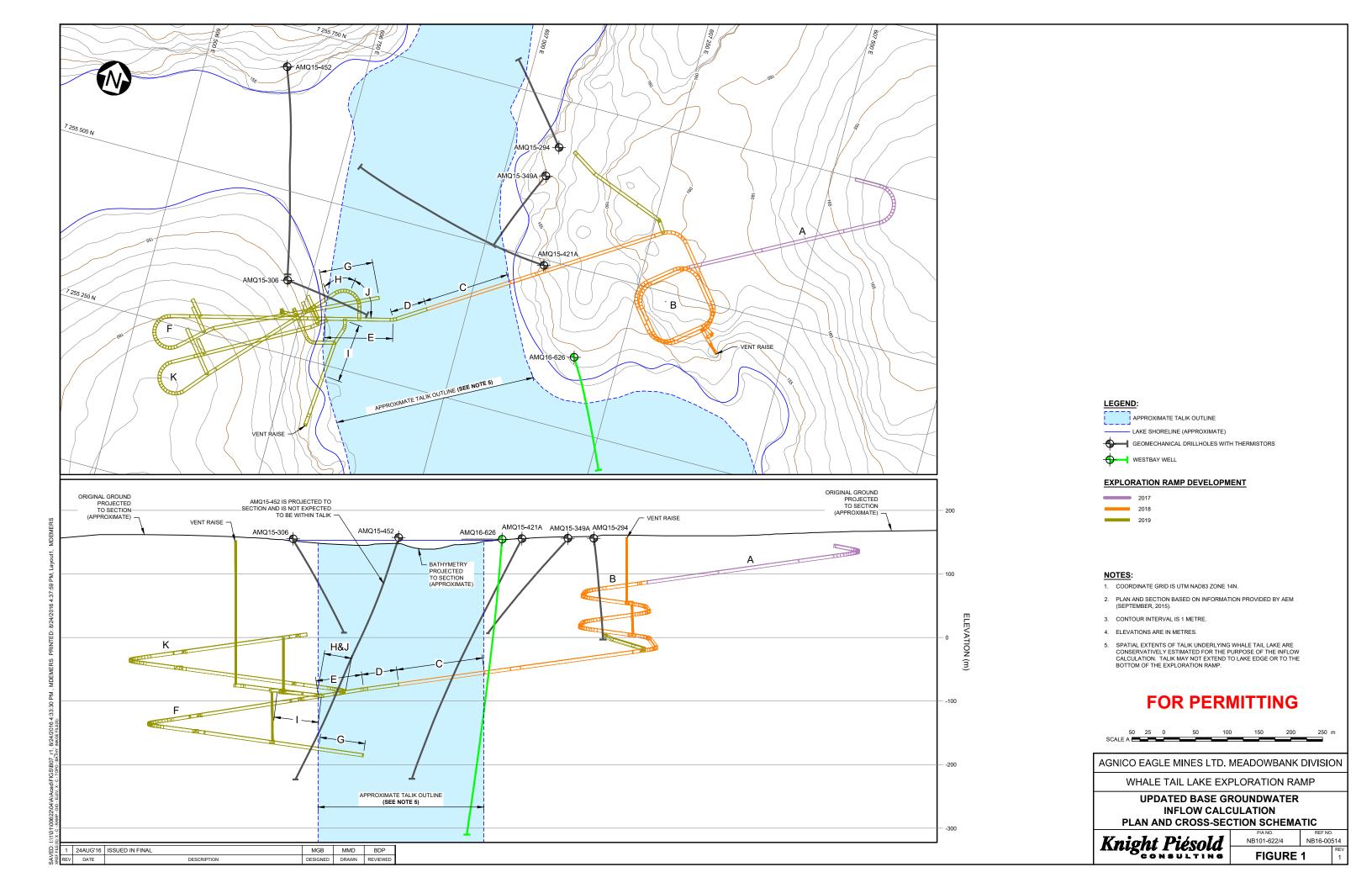
document, page 39 of Knights Peisold (2015), Section 4.3 – Exploration Ramp Groundwater inflow estimates of our submission document.

## Agnico Eagle's Response to 3.4 v) and vi):

It is important to understand that all hydrogeological models are based on the best available information, are iterative and as a project develops will become increasingly robust. In 2015, Agnico Eagle installed 3 groundwater wells in areas with the highest likelihood to encounter the talik zone. Ground water wells were installed from the shore and angled to intercept within the talik zone at a depth between 180m and 255m (shown in updated Figure 1). However, given the low permeability of the rock formation within the talik zone, inflow rates were very low (i.e. indicating a frozen or partially frozen zone) and therefore during monitoring, groundwater samples were not found to be representative of the natural groundwater quality or froze, and could not be purged. As a result, additional hydrogeological data were collected in 2015 to provide an estimate of inflows and total dissolved solids (TDS) in support of ramp development. This was determined by using hydraulic conductivity data from packer tests, thermistors, collection of lithological information, and rock mass quality data.

Knights Peisold (2015) than applied standard practices for modeling which leveraged Meadowbank data, including the Meadowbank freezing point depression vs TDS function, which was calibrated against the available Amaruq site specific hydrogeological data. As described on page 39 of Knights Peisold (2015) Section 5, TDS values were derived and are expected to range between 1,000 mg/L at a depth of 220 meters below ground surface (mbgs) to 1,700 mg/L at a depth of 340 mbgs. The potential saline content of the groundwater was modeled as TDS.

As an update, in April 2016, Agnico Eagle installed a West Bay deep ground water well with various sampling intervals or ports to a depth of 550 mbgs. Agnico Eagle continues to develop the well and will report the water quality findings of the 2016 hydrogeological sampling program and updated predicted groundwater inflows during the NWB licensing phase or as soon as they are available.





#### **Waste Rock Characterization and Use**

#### 4.1 Lack of information on:

- i) Volumes for the rock quarry, services pad and operations pad,
- ii) Tonnage and rock volumes to be removed, and
- iii) Testing of the overburden material that would be used in pad construction.

### Agnico Eagle's Response to 4.1: François to provide information

- Rock quarry volume approximately 360,000 m<sup>3</sup>
  Service pad volume maximum 63,432 m<sup>3</sup>
  Operations pad volume maximum 85,012 m<sup>3</sup>
- ii) Tonnage and rock volume removed 258,619 m<sup>3</sup>
- iii) Testing of overburden material is provided in Appendix A. Additional testing will be undertaken in 2016.
- 4.2 Recommended that the Proponent ensure all rock materials used for construction are characterized to determine that they are non-potential acid generating (NPAG).
- 4.3 Any rock or construction material that shows potential for metal leaching or produce acid rock drainage should not be used for construction.

### Agnico Eagle's Response to 4.2 and 4.3:

Agnico Eagle agrees and commits to ensuring that all rock materials used for construction material will be NPAG. As stated previously, Agnico Eagle will submit an Amaruq Exploration site ML-ARD monitoring and management plan for quarrying and ramp development as part of the regulatory review phase.

4.4 The analyses of the rocks closer to the deposit within the development of the ramp should not be limited to arsenic, but include other metals of concern. Further, the geochemical database for PAG and non-PAG rock should be expanded for several elements to better determine the extent and significance of leachable metals within all rock types.

#### Agnico Eagle's Response to 4.4:

Agnico Eagle appreciates the feedback from ECCC and KIA and below has updated Figure 2, page 7 of Golder (2016) Evaluation of Geochemical Properties of Waste Rock from the Underground Ramp, Whale Tail Underground Deposit, Amaruq Project. Agnico Eagle agrees with the comments and will continue to expand the geochemical database of kinetic and static testing to better determine the extent and significance of leachable metals within representative rock types. It is important to note that the ramp is deliberately designed to be within geotechnically stable, NPAG, non-metal leaching material (Intermediate Intrusive and Mafic Volcanic). Only a small proportion of the underground development will generate ultramafic and iron formation waste rock, which have the highest risk for arsenic leaching but also have a low potential for acid generation. Furthermore, the number of samples collected specifically targeted areas within area of the ramp to meet standard statistical approach for the



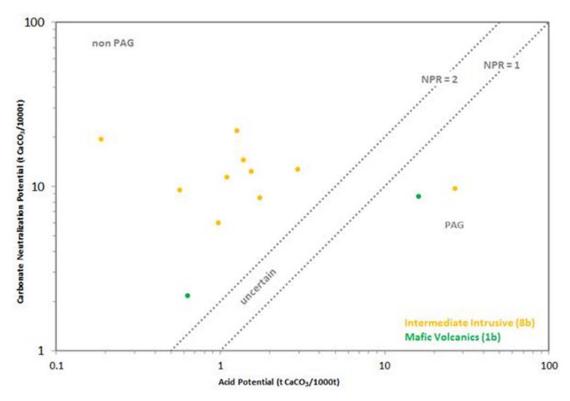
purposes of this analysis as well as fulfilling the recommended number of samples per volume of material recommended by BCMEND (Price 1997<sup>1</sup>).

The sampling plan also considered the much larger dataset obtained from the characterization of waste rock from the open pit. As demonstrated in Figure 6 on page 12 of Golder (2016), there is a clear distinction between lithologies that provides confidence in our ability to predict NPAG vs PAG. The dataset for greywacke from the underground development shows two distinct populations of samples: samples that have a high sulphur content and low buffering capacity which are PAG and samples that have noticeably higher carbonate buffering capacity and very low Sulphur content which are NPAG. This pattern is also observed in the larger geochemical database for the deposit where greywacke has higher sulphur content in close proximity to the ore zone whereas greywacke located at a further distance from the ore zone is generally non-PAG and with low sulphur content. A sulfur content cutoff of 0.2% is proposed to distinguish between PAG and NPAG rock which may be overly conservative for greywacke in the underground development where a lower value of 0.04% could potentially be considered. Accordingly, the greywacke lithology is considered to have a variable ARD potential depending on the location of the material with respect to the ore zone. This makes greywacke suitable for segregation during mining. These characteristics are consistent within each lithology whether samples are from the ramp, the underground development or the open pit areas.

Agnico Eagle will collect additional samples during pilot testing and ramp development which will increase the dataset and support refinement of the segregation criteria, if necessary. A waste rock field cell (lysimeter) has been constructed at the Amaruq exploration site to assist in long term insitu monitoring of PAG and non-PAG leachable rock materials. Lastly, Agnico Eagle will follow an ARD-ML sampling and testing plan during development which includes testing for sulphur and carbonate content. This will facilitate proper identification and management of NPAG and PAG material to ensure proper handling and management of all rock types.

<sup>&</sup>lt;sup>1</sup> Price, W.A. 1997. Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia, Ministry of Energy and Mines. 159p.

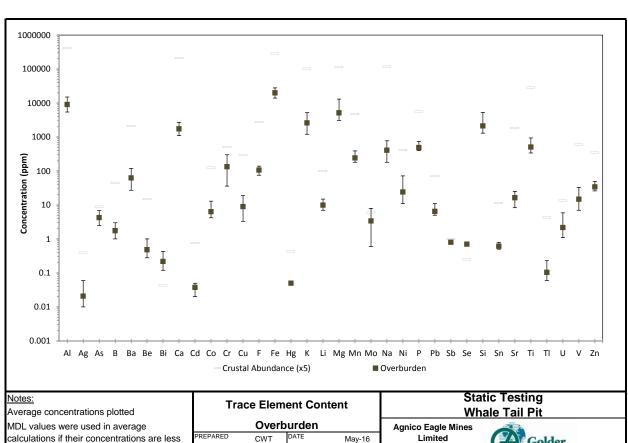




Update to Golder (2016) - Figure 2: Carbonate Neutralizing Potential vs Acid Potential – Ramp and Portal Samples



Appendix A – Summary of Amaruq Overburden Geochemical Results

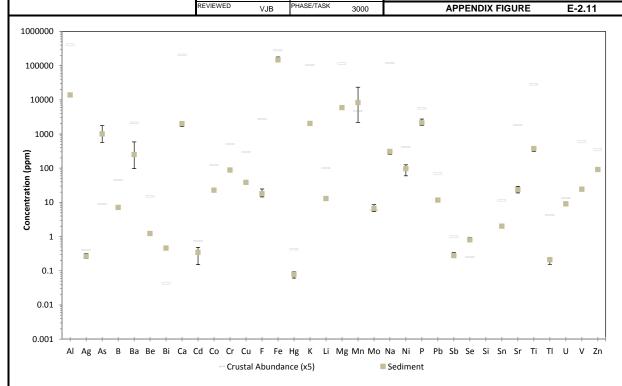


than the MDL

Meadowbank Division

1520817





Notes: Average concentrations plotted MDL values were used in average calculations if their concentrations are less than the MDL

**Trace Element Content Lake Sediment** CWT May-16 CHECKED JOB NO JMC 1520817 REVIEWED HASE/TASE VJB 3000

Static Testing **Whale Tail Pit Agnico Eagle Mines** Limited