AGNICO EAGLE

# MELIADINE GOLD PROJECT

## ANNUAL REPORT:

## NUNAVUT WATER BOARD LICENSE

## 2BB-MEL1424

April 2016

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## TABLES

# Acronyms

| | |
|---|---|
| AANDC | Aboriginal Affairs and Northern Development Canada (now, INAC) |
| AEM | Agnico Eagle Mines Limited |
| AWAR | All-weather Access Road |
| $BOD_5$ | Biochemical Oxygen Demand (milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C) |
| INAC | Indigenous and Northern Affairs Canada (formerly, AANDC) |
| KIA | Kivalliq Inuit Association |
| NTI | Nunavut Tunngavik Inc. |
| NWB | Nunavut Water Board |
| STP | Sewage Treatment Plant |
| TDS | Total Dissolved Solids |
| TSS | Total Suspended Solids |
| UV | Ultra-Violet |

# Introduction

The Meliadine Gold Project operated by Agnico Eagle Mines Limited - Meliadine Division (AEM) is located approximately 25 kilometres (km) north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson's Bay, the Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1'23.8''N, 92°13'6.42''W), on Inuit owned land. The project components include the 28 km All Weather Access Road (AWAR) between Rankin Inlet and Meliadine, the Itivia tank farm and laydown area and the mine site.

These various components and activities associated with the project require a number of different authorizations, leases, and permits from regulatory agencies including the Nunavut Water Board (NWB), Environment Canada (EC), Indigenous and Northern Affairs Canada (INAC), the Kivalliq Inuit Association (KIA) and the Nunavut Impact Review Board (NIRB).

This report is written to address the annual reporting requirements of the project under Nunavut Water Board License 2BB-MEL1424.

# Reporting Requirements

***Part B, Clause 6:*** The Licensee shall file an annual report on the appurtenant undertaking with the Board no later than March 31st of the year being reported which shall contain, but not limited to, the following information;

## Freshwater Quantities

a) The daily, monthly, and annual quantities in cubic metres of all freshwater obtained from Meliadine Lake at monitoring stations MEL-1 and drilling sites;

**Table 1 - Summary of Freshwater Usage**

| $M^3$ | Average Daily Meliadine Camp | Average Daily Underground | Average Daily Drills | Monthly Total |
|---|---|---|---|---|
| **January** | 24.9 | 8.4 | 0.0 | 1031.8 |
| **February** | 23.5 | 8.8 | 0.0 | 903.7 |
| **March** | 24.7 | 14.0 | 0.0 | 1200.4 |
| **April** | 27.5 | 10.7 | 8.4 | 1405.6 |
| **May** | 27.1 | 8.4 | 0.1 | 1136.0 |
| **June** | 25.2 | 2.1 | 0.0 | 821.3 |
| **July** | 23.8 | 0.8 | 0.0 | 763.7 |
| **August** | 22.6 | 1.7 | 0.0 | 752.8 |
| **September** | 29.6 | 0.8 | 0.0 | 911.5 |
| **October** | 33.7 | 0.7 | 0.0 | 1064.6 |
| **November** | 37.4 | 3.1 | 0.9 | 1239.7 |
| **December** | 38.6 | 4.0 | 1.5 | 1364.7 |

**Annual Total $M^3$ = 12,595.7**

## Water Quantity Pumped From Underground

b) The daily, monthly, and annual quantities in cubic meters of mine water pumped from the underground;

**Table 2 - Water Pumped from Portal Sump 1 to Surface Portal Sump in $m^3$**

| MONTH | WATER PUMPED OUT |
|---|---|
| 1-Jan-15 | 0.0 |
| 1-Feb-15 | 0.0 |
| 1-Mar-15 | 0.0 |
| 1-Apr-15 | 0.0 |
| 1-May-15 | 0.8 |
| 1-Jun-15 | 1971.0 |
| 1-Jul-15 | 1328.0 |
| 1-Aug-15 | 402.0 |
| 1-Sep-15 | 0.0 |
| 1-Oct-15 | 0.0 |
| 1-Nov-15 | 0.0 |
| 1-Dec-15 | 1.0 |
| **2015** | **3702.8** |

## Waste Rock Volumes

c) An estimate of the current volume of waste rock and ore stockpiled on site;

*After assessments preformed, the estimate of the stockpiles is approximately 20,992$m^3$ of ore and 94,826$m^3$ tonnes of waste. These stockpiles are located ~150m north of the portal entrance.*

## Sampling Data

d) Tabular summaries of all data generated under the monitoring program, part J;

*Please see Appendix A for data tables related to the 2015 monitoring. The location of sampling stations is shown on Figure 6 in Water Management Plan in Appendix B.*

## Infrastructure Modifications

e) A summary of modification and/or major maintenance work carried out on the water supply facilities, Bulk Fuel Storage Facility, bermed fuel containment facilities and sewage disposal facility, including all associated structures, an outline of any work anticipated for the next year;

### *Fuel storage Facility*

*This is the up to date list for the tanks at the Meliadine Project.*

**Table 3 - Fuel Storage Location at Meliadine**

| Name | Detail | Capacity (L) |
|---|---|---|
| Tank 1 | Portal | 53436 |
| Tank 2 | Fuel Farm | 53436 |
| Tank 3 | Camp Gen | 53436 |
| Tank 9 | Fuel Farm | 100000 |
| Tank 10 | Fuel Farm | 100000 |
| Tank 11 | Fuel Farm | 100000 |
| Tank 12 | Fuel Farm | 85000 |
| Tank 13 | Fuel Farm | 85000 |
| Tank 14 | Fuel Farm | 100000 |
| Tank 15 | Fuel Farm | 100000 |
| Tank 16 | Fuel Farm | 100000 |
| Tank 17 | Fuel Farm | 100000 |
| Tank 18 | Fuel Farm | 100000 |
| Tank 19 | Fuel Farm | 53436 |
| Tank 20 | Fuel Farm | 53436 |
| Tank 21 | Fuel Farm | 53436 |
| Tank 22 | Fuel Farm | 53436 |
| Tank 23 | Fuel Farm | 53436 |
| Tank 30 | Portal | 50000 |
| Total fuel | | 1447488 |

| Name | Detail | Capacity (L) |
|---|---|---|
| Jet A Tank 4 | Jet A | 85000 |
| Jet A Tank 5 | Jet A | 85000 |
| Total jet fuel | | 170000 |

*In 2016, there will be four 50,000 litre fuel tanks added for fuel storage. The location will be determined in 2016.*

***Sewage Treatment Plant***

*The main points for the sewage treatment plant (STP) at the Meliadine project in 2015 are as follows:*

1. *Little John1/BioDisc1 was taken offline in mid-February due to a "metal on metal" sound that was observed. The unit remained offline until the end of March, at which point Site Services deemed the sound was a non-issue and was in turn restarted. At the end of April the sound was observed again, at which point a more in depth inspection was conducted. The root cause of the noise was found to be a worn bearing at one end of the Rotating Bio Contactor (RBC) shaft. The unit was again taken offline for bearing replacement. Repairs were completed by mid-May and the unit was restarted.*
2. *STP-Final/MEL-7 compliance sampling location was moved from "post-UV" to "post-Ozone Generator" in October.*
3. *Fecal coliform non-compliances were determined through laboratory analysis in October, November and December. The root cause of these non-compliances was found to be a build-up of TSS/sludge in the piping between the post-UV sump and the ozone generator. The piping was cleaned and the sludge build-up was removed, resulting in a return to compliance for this regulatory parameter.*
    - *Sludge build-up was determined to be caused by an overflow line that was part of the original STP layout and caused unfiltered wastewater to bypass the filtration and UV systems.*
        i. *This problem was corrected by Construction in December 2015/January 2016 when this overflow line was removed during STP upgrading activities.*
4. *A second equalization tank (EQ2) was installed in December.*
5. *A new kitchen wastewater grease trap was installed in December.*
6. *BioNest treatment systems (BIO3 and BIO4) were installed in December and put into recirculation during commissioning phase.*
    - *Discharge from BIO3 and BIO4 was diverted to EQ1 to be treated further by BIO1 and BIO2 (Biodiscs).*
7. *Construction began upgrades to the "disinfection loop" portion of the STP (completed at the beginning of 2016):*
        i. *UPSTREAM UV system (x2)*
        ii. *Filtration system (x4 : two 25 micron, two 3 micron)*
        iii. *Piping modifications*
        iv. *Overflow control (in-floor sump)*

*The operation manual for the BioNest is attached in Appendix B.*

## Unauthorized Discharges

f) A list of unauthorized discharges and follow-up action taken;

***STP***

*Fecal coliform non-compliances were determined through laboratory analysis in October, November and December. The root cause of these non-compliances was found to be a build-up of TSS/sludge in the piping between the post-UV sump and the ozone generator. The piping was cleaned and the sludge build-up was removed, resulting in a return to compliance for this regulatory parameter.*

***P1-A54***

*Analysis of the water quality monitoring data conducted in preparing the 2015 annual report shows a fairly rapid increase in chloride concentrations in Lake A54 starting in mid-June of 2015. This coincides with a similar trend increase in chloride concentrations in containment Pond P1 suggesting that something changed in the source loading for chloride coming into containment pond P1 that starts somewhere around mid-June of 2015 and that water is exiting containment pond P1 into Lake A54 in a means other than being pumped or overflowing through the installed roadway culvert. A similar trend in chloride concentrations is seen in Pond A38 downstream of Lake A54. At Lake A8 water quality monitoring indicates that chloride concentrations are above the natural background of around 10 mg/l, trending around 40 mg/l in past years but now trending around 50 mg/l in the summer of 2015 and have spiked previously in summer months (as high as 90 mg/l in one sample in 2014) but have always been below the CCME long term guidance of 120 mg/l for protection of freshwater aquatic life. There is no MMER discharge standard for chloride.*

*Analysis of the water quality monitoring data also shows a change in the trend of ammonia concentrations measured in containment pond P1 again starting in mid-June of 2015.*

*It is our belief that the probable source of this increase in chloride and ammonia concentrations has to be from the underground mine development activities, chloride from the salt used in drilling and/or from increased inflow of higher salinity groundwater from the surrounding rock and from explosive use underground and possibly from surface management issues of the calcium chloride stored on surface and from snow management. We are currently having development activity occurring below the permafrost but are experiencing low ground water inflow in these areas.*

*Agnico has initiated a series of actions designed to both better understand the reasons behind these trends and to contain and/or treat the water coming from the underground workings to control these trends.*

*The final action plan will be defined in the revised Water Management Plan (March 2016) that will be attached in Appendix B.*

## Management Plan Updates

g) Updates or revisions to the abandonment and restoration plan, site water management plan, waste rock and ore storage management plan, spill contingency plan and the Sewage Treatment Plant operations and maintenance manual;

*Attached in Appendix B are the revised Spill Contingency Plan (December 2015 version), the Reclamation and Closure Plan (March 2016 version), Operations Manual for the BioNest system, and the Water Management Plan (March 2016 version).*

*The waste rock and ore storage management plan will be updated in Q2 2016 and will be submitted to the NWB and INAC inspector upon completion.*

## Restoration Liability

h) An updated estimate of the current Meliadine Gold Project restoration liability, as required under Part B, Item 3, based upon the results of the restoration research, project development monitoring, and any modifications to the site plan;

*An update of the "Reclamation and Closure Plan" was produced in 2016. The plan is attached in Appendix B.*

## INAC Inspection Reports

i) A brief description of follow-up action taken to address concerns detailed in inspection and compliance reports prepared by the Inspector;

*In 2015, Indigenous and Northern Affairs Canada (formerly AANDC) completed 4 inspections and provided reports for each inspection. These are as follows:*

*AANDC Inspection Report – March 20, 2015 and Follow-up*
*AANDC Inspection Report – June 9, 2015 and Follow-up*
*AANDC Inspection Reports – October 8, 2015 and Follow-up*
*MEL7 Exceedance Communications and Results*

*See Appendix C for the complete reports issued by INAC Inspector and AEM response to the inspectors' reports.*

## Summary of Drilling Activities

j) A summary of drilling activities and progressive reclamation of drill sites;

*In 2015, the following drilling activities took place at the Meliadine Site:*

- *20 holes drilled for a total of 268m from surface, this campaign was geotechnical drilling for construction.*
- *2 holes drilled for a total of 169m from surface to service the mine. One was for installing electrical cable from surface to underground, and one drilled for installing a ground for the powder magazine.*
- *3 holes drilled for a total of 1631m from underground for Hydrogeology investigations.*
- *11 holes drilled for a total of 3600m from underground to try to convert inferred resources into indicated resources in the Normeg formation.*

## Abandonment and Restoration

k) A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

### *Drilling*

- *Drill site reclamation is completed during the drilling program. The drilling sites are inspected after the drilling to ensure that no waste is present and that the casings are removed or cut to*

*ground level. All the conversion holes were cemented for the first 5m, the hydrogeology holes were partly or completely cemented.*

- *For 2016 the following is anticipated:*
  - *1000m of underground drilling to investigate the potential water inflow into the planned 2016 planned development.*
  - *1800m of condemnation drilling on surface*
  - *7500m of underground delineation and conversion drilling*
  - *12 surface holes for construction*

***Wastes***

- ***Hazardous Waste** was shipped to a southern facility for treatment. A total of 12 sea cans filled with Hazardous Waste were disposed of in approved facilities The disposition certificates are in Appendix D.*

- ***Construction Waste** was shipped to a southern facility for disposal. A total of 10 sea cans of construction waste were sent south to be disposed of in approved facilities.*

- ***Scrap Steel** was sent south for recycling. A total of 9 sea cans containing scrap metals were transported by boat and disposed of at a recycling facility in Quebec.*

## Board Requested Studies

l) A summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed;

*No request was received in 2015. Future studies will be primarily related to the A Water Licence.*

## Public Consultation

m) A public consultation/participation report describing consultation with local organizations and residents of the nearby communities, if any were conducted;

*Agnico Eagle Mines Limited (AEM) continued to have an active public consultation program in 2015. Public and regulatory consultations conducted in 2015 are outlined in table 4.*

**Table 4 - 2015 Public and Regulatory Consultations**

| DATE | PLACE | Parties present and Subjects of meeting |
|---|---|---|
| January 25 | Ottawa | Meeting with KIA to discuss water compensation and closure costs |
| Feb 2 | Rankin Inlet | Meeting with HTO to discuss Hunters Harvest Study and wildlife survey along AWAR |
| Feb 23-24 | Conference Call | Project certificate workshop with NIRB, KIA, EC, DFO, GN, INAC |
| March 24 | Iqaluit | Workshop to discuss the Licence A phase approach with EC, GN, INAC, NRC, TC, CANNOR, KIA and DFO |
| March 27 | Ottawa | Meeting with KIA and INAC to discuss security agreement to avoid double bonding |
| April 2 | Conference Call | Meeting with NIRB to discuss Licence A phase approach |
| April 17 | Iqaluit | Meeting with NWB to discuss Licence A phase approach |
| Aug 10-11 | Montreal | Meeting with KIA and their consultant to present phase 1 of Meliadine project |
| Sept 2 | Rankin Inlet | Site visit by NIRB monitoring officer |
| Sept 2 | Rankin Inlet | Community session organize by NIRB to explain monitoring activities |
| Sept 18-19 | Rankin Inlet | Meeting with INAC in preparation of Licence A |
| Sept 21 | Rankin Inlet | Presentation to the CLARC committee (KIA) of the Licence A application |
| Sept 21 | Rankin Inlet | Meeting with GN to discuss the by-pass road design |
| Oct 14-15 | Rankin Inlet | Technical meeting, community session and pre-hearing conference hosted by NWB for Licence A |
| Oct 29 | Rankin Inlet | Presentation to the Kivalliq Wildlife Board on caribou protection |
| Nov 10 | Winnipeg | Meeting with DFO concerning authorization needed for phase 1 of Meliadine project |

| | | |
|---|---|---|
| Nov 12 | Edmonton | Meeting with EC to discuss commitments made during the technical meeting for Licence A |
| Nov 17 | Iqaluit | Meeting with GN to present Meliadine Licence A project |
| Nov 17 | Iqaluit | Meeting with INAC to discuss commitments made during technical meeting of Licence A |
| Nov 25-26 | Iqaluit | Meetings with different departments of GN |
| Dec 7 | Edmonton | Meeting with NTI |

## Waste and Water Requests

n) Any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.

*No details were requested by the Board.*

## *Part F, Clause 3:*

Drill holes shall be immediately sealed and permanently capped to prevent induced contamination of groundwater or salinization of surface waters. The Licensee shall report all artesian flow occurrences within the annual report, including the location (GPS coordinates) and dates.

*One hole from the Hydrogeology drilling campaign recorded significant artesian flow. TIS15-200-001 had 5.0L/min at 501m. Coordinates for this well are: x= 540048.67 y=6988358.59. This water was intersected on July 9th 2015.*

## *Part F, Clause 4:*

Where drilling activity has penetrated below the permafrost layer, the NWB requests that the proponent record the depth of permafrost and location of the drill hole to be included within the annual report.

*Three holes from the underground Hydrogeology drilling program penetrated below the permafrost layer. Thermistor data between the three holes indicates a lower boundary to the permafrost at ~460m vertical depth below surface.*

**Table 5 - Hydrogeology Holes Penetrated Below Permafrost**

| *Drill Hole ID* | *X* | *Y* |
|---|---|---|
| TIS15-200-001 | 540048.67 | 6988358.59 |
| TIS15-200-002 | 540058.01 | 6988357.94 |
| TIS15-225-001 | 539996.15 | 6988355.84 |

## *Part H, Clause 3:*

The licensee shall review the (Spill Contingency) plan referred to in this part as required by changes in operation and/or technology and modify the plan accordingly. Further revisions to the plan are to be submitted in the form of an addendum to be included with the annual report, unless otherwise by an inspector.

*The "Spill Management Plan" was updated in December 2015 and is attached in Appendix B.*

### *Part I, Clause 4:*

The licensee shall review the (Abandonment and restoration) plan referred to in this part as required by changes in operation and/or technology and modify the plan accordingly. Revisions to the plans are to be submitted in the form of an addendum to be included with the annual report.

*An update of the "Reclamation and Closure Plan" was produced in 2016. The plan is attached in Appendix B.*

# Conclusion

In closing, in 2015 was another year of growth for the Meliadine project with minor issues arising.

In 2016, the Meliadine project will see some personnel from the Meadowbank project evolving into positions at Meliadine as well as a greater influence from the established Nunavut Service Group to help further optimize the project and prepare for construction and advancement on the Meliadine project.