Appendix B4

Report: Quarry 22

AGNICO EAGLE

MEADOWBANK GOLD PROJECT

2014 Quarry 22 Report

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Division

March 2015

EXECUTIVE SUMMARY

Following the AANDC inspection report in 2012, this report has been prepared to provide information regarding the clean-up of quarry 22:

- Explanation of presence of contaminated soil in quarry 22;
- Transfer of material to Meadowbank Landfarm;
- Sampling of the soil at quarry 22; and
- Next steps for the finalization of the decontamination.

In addition, this report presents the laboratory results from the sampling done in 2014 as well as photos identifying the location of the samples.

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SECTION 1 • INTRODUCTION

1.1 BACKGROUND

The AWAR (All Weather Access Road) is used to transport material, goods and petroleum products from the Baker Lake Marshalling Facility to the Meadowbank Mine Site. Quarries all along the road were used for road building aggregate during the construction phase of the AWAR. It is anticipated that no additional materials will be taken from this quarry. Quarry 22 was also historically used as a temporary storage area for contaminated materials generated as a result of petroleum hydrocarbon spill clean-up activities. The site ceased to be used for this temporary storage when the Meadowbank Landfarm was completed in 2012. The remedial activity currently underway in Quarry 22 and described in this report consists of removal of contaminated materials, the commencement of pit wall sloping and confirmatory sampling of areas where material contaminated with petroleum hydrocarbons (PHC) were stored. The final reclamation of the quarries along AWAR will be done during the closure phase of the Meadowbank mine site as explained in the *AEM Interim Closure Plan.*

It should be noted that upon review of AEM files it was determined that this quarry site is on Inuit Owned Land and is subject to the conditions of a KIA Land use lease.

1.2 OBJECTIVES

This report summarizes the following aspects concerning quarry 22:

- presence of contaminated soil;
- movement of contaminated soil;
- confirmatory sampling performed after the soil removal;
- analytical results; and
- next steps in remediation.

SECTION 2 • QUARRY 22

Quarry 22 was used for temporary storage of contaminated soil generated from petroleum hydrocarbon spills (diesel fuel, hydraulic oil, motor oil, etc.) that occurred during operations of the Meadowbank site and spills that occurred during construction of the last portions of the AWAR up to June 2012. An approved landfarm was then built in 2012 in the north section of the south cell Tailings Storage Facility at the mine site to remediate contaminated material and to properly contain any potential leachate created from the treatment area.

2.1 SOIL REMOVAL

A two phased approach was presented in AEM's action plan response letter, dated June 2nd 2012, to the AANDC Water Resources Inspector. This action plan was in response to the findings stated in a Water License inspection dated March 23rd -24th, 2012. The first phase consisted of sampling and the second phase consisted of moving identified contaminated soils and course rock to the Landfarm.

In accordance with the action plan, a total of 4,413m^3 of soil and course rock was removed from Q22. Approximately half of this (1,930 m^3) was placed in the landfarm in windrows. The remaining course material, which was not contaminated with PHC's, was placed in the Meadowbank Waste Rock Storage Area. Residual, uncontaminated course rocks were used as pit wall sloping in Q22 (progressive reclamation).

2.2 QUARRY 22 GROUND SAMPLING

On September 7th, 2014, the Environment department sampled the soil from the substrate to assess the clean-up action and to determine if there was any residual contamination in the quarry.

A grid was designed to divide the quarry in portions representing areas where contaminated material had been stored (Appendix B). As such, areas from 0 to 1 represent a smaller sampling area in size as more contaminated material was stored in this area (towards back/walls). Size increased as areas move from 1 to 2 to 3. Portions from 3 and beyond represented the largest in area. The surface included any material that was used for sloping along the walls (see 2.1 above). This area sampling design was adopted to ensure that the soil characterization was well assessed; in particular, in the areas that received most of the contaminated material.

Within each separate area (Q22-1 to Q-22-8) a composite soil sample was collected from the surface at 30 centimetre intervals covering the whole area. This composite sample was collected in a clean Ziploc bag by an environmental technician in accordance with standard sampling techniques. The composite Ziploc bag was then thoroughly stirred and mixed. Following this, a 250 ml sample was obtained, placed in a standard glass sample bottle and sent to AEM's accredited lab. Sampling instruments were cleaned between each sample event.

SECTION 3 • RESULTS/CONCLUSION

Results from the September 2014 fall confirmatory sampling (Table 1) indicate some remnants of contamination when compared to the CCME remediation Criteria for Industrial use of Coarse material. Please refer to Appendix A. Most of the contamination remaining is associated with Fraction 3 for which the CCME criteria is 1700 mg/Kg.

Table 1 – Quarry 22 sampling results

	CCME remediation criteria (mg/Kg)	Q22-1	Q22-2	Q22-3	Q22-4	Q22-5	Q22-6	Q22-7	Q22-8
Fraction 1	320	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Fraction 2	260	400	130	<10	96	<10	<10	<10	37
Fraction 3	1700	10000	4600	1100	6800	500	1600	2200	3100
Fraction 4	3300	1900	1100	250	1500	170	570	520	660

Based on the degradation history of PHC's in the Meadowbank Landfarm AEM is confident that the natural degradation of Petroleum Hydro Carbon (PHC) related products is an effective remediation method. Therefore AEM proposes to scarify the remaining contaminated areas in Q22 during the summer of 2015 and conduct another round of sampling in the late fall before freeze up. Results will be compared to the 2014 data to determine the level of degradation. Once the results are analysed a further course of action will be developed which may include additional removal of material. AEM will ensure that runoff (if any) will stay within the site of the quarry during freshet and thus not impact any watercourses and/or the environment. AEM also proposes to add this item specifically to our weekly AWAR inspection. To date there have not been any impacts to water outside of this quarry.

Appendix A
2014 Laboratory Certificates

Multilab DIRECT

Results summary

Client: **Agnico Eagle Division Meadowbank**

Company: M. Stephane Robert

Address: General Delivery
Baker Lake Nunavut X0C 0A0

Phone: (604) 677-0689 (--)

Fax: (604) 677-0687

Date received: July 11, 2014

Sampled by: Robin Allard

Matrix: Sediment

Lab number:	35915	35916	35917	35918	35919	35920	35921	35922
Sample name:	Q22-2	Q22-3	Q22-4	Q22-5	Q22-6	Q22-7	Q22-8	Q22-1
Sampling date:	09-07-2014	09-07-2014	09-07-2014	09-07-2014	09-07-2014	09-07-2014	09-07-2014	09-07-2014
% of humidity %	0.85	0.45	0.47	0.79	0.66	0.47	1.5	0.58
Hydrocarbures (Fraction F1 (C6-C10)) mg/Kg	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hydrocarbures (Fraction F2 - F4))								
- Petroleum Hydrocarbons F4 (C34-C50) mg/Kg	1100	250	1500	170	570	520	660	1900
- Petroleum Hydrocarbons F3 (C16-C34) mg/Kg	4600	1100	6800	500	1600	2200	3100	10000
- Petroleum Hydrocarbons F2 (C10-C16) mg/Kg	130	<10	96	<10	<10	<10	37	400

These results are as followed on the Certificate's analisys of the coresponding project number.
In case of difference between these files , the results are singed on the results summary

Reported on: July 23, 2014

F-02-13
Version 2ième: 18/10/2006

125, boul Industriel, Rouyn-Noranda (Québec) J9X 6P2 ● Tél: (819) 797-0550 ● Fax:(819) 797-2155 ● Courriel: multilab@cablevision.qc.ca ● www.multilab-direct.com

Quality control Report

Company: **Agnico Eagle Division Meadowbank**
Client: M. Stephane Robert
Address: General Delivery
Baker Lake Nunavut X0C 0A0
Phone: (604) 677-0689 (--)
Fax: (604) 677-0687

Lab number: Multiple
Date received: 11-juil-14
Sampled by: Robin Allard
Matrix: Sediment

Parameter	Standard				Sample duplicate	
	Limit	Nom	Obtenue	Intervalle	1	2
Hydrocarbures (Fraction F1 (C6-C10)) mg/Kg	<0.06					

Lab number: 35915:35922

Reported on: July 23, 2014

125, boul Industriel, Rouyn-Noranda (Québec) J9X 6P2 ● Tél: (819) 797-0550 ● Fax:(819) 797-2155 ● Courriel: multilab@cablevision.qc.ca ● www.multilab-direct.com

Appendix B
Area Delimitation Quarry 22


0
Q22-1
1
Q22-2
Q22-3
2
Q22-5
Q22-4
Q22-6


Q22-7
3
Q22-8