MEADOWBANK GOLD PROJECT

Executive Summary:
2012 Management Plans, Reports and Studies

March 2013

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Section 1: 2012 Management Plans: Summary of Revisions and Executive Summary Translations

1.1: Landfarm Design and Management Plan; Version 3

Summary of Revisions

This document is a revision the design features and operational procedures for the landfarm constructed at the Meadowbank Gold Project site for the storage and treatment of petroleum hydrocarbon contaminated soil, prepared in October 2008.

In 2012 the transport of contaminated soill back to the mine site for treatment/storage began. Landfarm design and management plan modifications (Version 2) were submitted by AEM to the Nunavut Water Board on October 22, 2012. This new plan focuses on minimizing the waste footprint onsite, and maximizing remediation potential through implementation of a pilot bioremediation project. The revisions in this document (Version 3) provide further rationale for the designs presented in Version 2, as well as additional details on the management of contaminated soils onsite. This includes spill prevention and contingency planning.

Executive Summary

General Information
The Landfarm Design and Management Plan (LDMP) describe the design features and operational procedures for the landfarm constructed at the Meadowbank Gold Project site for the storage and treatment of petroleum hydrocarbon contaminated soil.

Annual Review
The LDMP will be reviewed and updated at least annually if necessary. Completion of the annual review of the LDMP will be documented through signatures of the personnel responsible for reviewing, updating and approving the LDMP.

Record of Changes
A record will document all significant changes that have been incorporated in the LDMP subsequent to the latest annual review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Distribution List
Agnico-Eagle Mines Limited (AEM) will maintain a distribution list for the LDMP providing information about all parties that receive the plan including mine personnel, departments, and outside agencies.

1.2: Groundwater Monitoring Plan; Version 3

Summary of Revisions

This document is a revision of the Groundwater Monitoring plan in March 2009.

The whole document was reviewed and updated ; specifically the executive summary, addition of information on wells created in 2011, included well installation section, insert map of monitoring wells on the Meadowbank Site and an updated of wells location.

Executive Summary

This document presents the Meadowbank Mine Groundwater Monitoring Plan, a requirement of the Meadowbank Type A Water License No. 2AM-MEA0815. Conditions applying to groundwater monitoring; Schedule 1, Table 2: annual monitoring of groundwater quality at well locations that are to be determined.

The Meadowbank Mine has currently four operating groundwater monitoring wells. Two of these wells were drilled in 2008 and two were drilled in 2011. Additional, wells were previously drilled in 2003, 2006, and 2008, however these wells are inoperable. The design, installation, and initial production of each well were completed by Golder Associates.

Groundwater quality data has been used to predict the future quality of water that will accumulate in the pits during operation, and to determine baseline groundwater quality underneath the tailings basin before tailing deposition.

Groundwater wells will be sampled on a bi-annual basis. Analytical parameters will comply as per Schedule 1, Table 1, Group 3 of the Meadowbank Water License. Quality Assurance/Quality Control procedures and samples will be implemented for each monitoring well for each sampling occurrence.

An annual groundwater monitoring report will be submitted by Agnico-Eagle Mines Limited to the Nunavut Water Board (NWB) by March 31 annually. This report will conclude the data from the previous year's results, changes, dates in which sampling took place, methods, personnel involved with sampling, and an assessment of the data obtained.

1.3: No-Net-Loss Plan; Version 3

Summary of Revisions

This document is a revision the No-Net-Loss Plan, prepared in November 2006.

The following report describes the new no-net-loss plan (NNLP) that has been developed for the Meadowbank Gold site, near Baker Lake, Nunavut. With approval from Fisheries and Oceans Canada (DFO), this updated NNLP replaces the original that was created in 2006 (Cumberland, 2006), prior to acquisition of the site by Agnico-Eagle Mines Ltd: Meadowbank Division (AEM). This plan quantifies the losses to fish habitat that will occur throughout the mine development and operational phase, and the gains that will be achieved through compensation measures.

Executive Summary

An updated no-net-loss plan (NNLP) has been developed for the Agnico-Eagle Mines Ltd.: Meadowbank site, near Baker Lake, Nunavut. This plan quantifies the losses to fish habitat that will occur through mine operations, and the gains that will be achieved through compensation measures. With approval from Fisheries and Oceans Canada (DFO), this new NNLP will replace the original NNLP that was created in 2006 (Cumberland, 2006).

The habitat evaluation procedure (HEP) followed in this plan was developed by Golder Associates and AEM, in consultation with DFO, and with adjustments as recommended in review

by Dr. Ken Minns. These adjustments were approved by DFO in the draft Meadowbank NNLP (June 2012). As in the original NNLP, this HEP involves the multiplication of affected areas (in ha) by a habitat suitability index (HSI) in order to derive a value in habitat units (HUs) that describes both the quality and quantity of habitat.

Baseline HU calculations (losses) for the Meadowbank site were conducted for three separate areas to facilitate the use of historically accepted loss: gain ratios. These are: the Main Minesite Area, the Tailings Storage Facility (TSF) and the Vault Lake Area. Habitat compensation is provided through a number of features which increase the area and value of habitat for the fish species present at Meadowbank, using the habitat suitability index (HSI) developed as part of the HEP. The majority of habitat ompensation consists of reflooding of pits and basins after implementation of habitat improvement features (pit backfilling, boulder gardens and constructed reef habitat). Supplementary habitat enhancements proposed onsite include the construction of a connecting channel, finger dikes and improvement of access for native fish species to certain areas.

To align with historical documentation, and to meet the required compensation ratios for each area, portions of habitat gains from certain areas were “allotted” to other areas where deficits occurred. After allotment, the calculated habitat units and ratios for each area are:

Thus, based on the compensation measures proposed in this NNLP, targeted historic ratios for gains in habitat units would be met for the Main Minesite Area and the TSF, and NNL would be achieved for the Vault Lake Area.

A suite of contingency options is proposed in the event that any of the primary options are not constructible or fail to meet the criteria for success outlined in the monitoring plan and the original authorization.

1.4: Emergency Response Plan; Version 4

Summary of Revisions

This document is a revision the Emergency response plan, prepared in November 2009.

The whole document was reviewed and updated.

Executive Summary

The Emergency Response Plan (ERP) is activated when a operations-related emergency accident or malfunction occurs, or if such an incident is foreseeable. The ERP outlines potential emergency scenarios, initial actions for emergencies and the internal and external resources available including personnel, emergency response equipment and communication systems.

The ERP will be reviewed and updated at least annually.

1.5: Hazardous Materials Management Meadowbank Mine Site Baker Lake Facilities; Version 2

Summary of Revisions

This document is a revision the hazardous materials management plan, prepared in August 2007.

The whole document was a comprehensive reviewed and updated.

Executive Summary

General Information
The Hazardous Materials Management Plan (HMMP) will be executed within the scope of normal operations. The Meadowbank Gold Project is in the Operations Phase, and as such, requires that the transportation, storage, handling and use of hydrocarbon products, ammonium nitrate and associated explosive materials, and all other chemicals be conducted in a safe and efficient manner.

Annual Review
The HMMP will be reviewed and updated at least annually. Completion of the annual review of the HMMP will be documented through signatures of the personnel responsible for reviewing, updating and approving the HMMP.

Record of Changes
A record will document all significant changes that have been incorporated in the HMMP subsequent to the latest annual review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Distribution List
Agnico-Eagle Mines Limited (AEM) will maintain a distribution list for the HMMP providing information about all parties that receive the plan including mine personnel, departments, and outside agencies.

1.6: Oil Pollution Emergency Plan, Meadowbank Mine Fuel Farm in Baker Lake; Version 1

Summary of Revisions

This document is a new oil pollution emergency plan for fuel farm in Baker Laker done in August 2012.

Executive Summary

This document presents the Oil Pollution Emergency Plan for Agnico-Eagle Mines Limited (AEM) Meadowbank Mine Site, All Weather Private Access Road (AWPAR) and Baker Lake Facilities, which is a requirement of the Meadowbank Gold Project Type A Water License No. 2AM-MEA0815 issued on June 09, 2008. Oil Pollution Emergency Plan (OPEP) designates lines of authority, responsibility, establishes proper reporting and details plans of action in the event of a spill. This plan applies to the operational phase of the mine and is applicable to all AEM employees and any contractors associated with the project located at latitude 65°01'52"N longitude 96° 04'22"W approximately 70 km north of Baker Lake in Nunavut including the Baker Lake Marshaling Facilities and the Fuel Farm located at latitude 64°18'36"N and longitude 95° 58'04"W and the AWPAR.

1.7: Spill Contingency Plan, Meadowbank Mine Site, All Weather Private Access Road (AWPAR) and Baker Lake Facilities; Version 3

Summary of Revisions

This document is a revision spill contingency plan, prepared in August 2008.

The document was reviewed and updated for hazardous materials stored on site.

Executive Summary

This document presents the Spill Contingency Plan for Agnico-Eagle Mines Limited (AEM) Meadowbank Mine Site, All Weather Private Access Road (AWPAR) and Baker Lake Facilities, which is a requirement of the Meadowbank Gold Project Type A Water License No. 2AM-MEA0815 issued on June 09, 2008. The Spill Contingency Plan (SCP) designates lines of authority, responsibility, establishes proper reporting and details plans of action in the event of a spill. This plan applies to the operational phase of the mine and is applicable to all AEM employees and any contractors associated with the project located at latitude 65°01'52"N longitude 96° 04'22"W approximately 70 km north of Baker Lake in Nunavut including the Baker Lake Marshalling Facilities located at latitude 64°18'36"N and longitude 95° 58'04"W and the AWPAR.

1.8: Wildlife Protection and Response Plan; Version 2

Summary of Revisions

This document is a revision of wildlife protection and response plan, prepared in March 2011.

The document was reviewed and updated to included recommendations from GN.

Executive Summary

As part of the Terrestrial Ecosystem Management Plan (2006), mitigation measures and monitoring initiatives have been proposed to lessen the likelihood that wildlife will become habituated to the Meadowbank Mine Site (the 'mine site') and its infrastructure. The TEMP identified measures to deter wildlife from obtaining food rewards, finding shelter around the mine site, gaining access to harmful substances present on the project site, being injured as a result of vehicle collisions, and damaging mine property.

Despite these mitigation measures, personnel may occasionally come into contact with wildlife that inhabits the Meadowbank area. To manage these incidents, a specific Wildlife Protection and Response Plan (WPRP) has been developed. Incidents must be managed to keep both humans and wildlife safe, using only humane control methods.

Furthermore, all staff must be familiar with the standard operating procedures and best practices aimed at ensuring human-wildlife conflicts are minimized during the life of the project. All personnel, including contractors, on site have a role to play in ensuring human safety, conservation of wildlife and documenting wildlife activities in the mine area.

The following WPRP provides information on general human-wildlife conflicts policies and regulations, species-specific response plans for ungulates and predatory mammals, and wildlife awareness.

1.9: Incinerator Waste Management Plan; Version 4

Summary of Revisions

This document is a revision of incinerator waste management paln, prepared in October 2008.

The document was a comprehensive reviewed and updated to included: stack testing will be completed biennially, adjusted quantities for mass reduction and include procedure for loading incinerator.

Executive Summary

This Incinerator Waste Management Plan (IWMP) describes the performance limits, waste management protocols, operation, monitoring and record keeping requirements for the incinerator, as part of the Agnico-Eagle Mines Limited (AEM) Meadowbank Gold Project in Nunavut. This plan was developed in support of AEM's application for a Type A Water License from the Nunavut Water Board (NWB). This updated IWMP is a component of the Meadowbank Environmental Management System. The IWMP will be reviewed annually by AEM and updated as needed. Any changes in operation/procedures are communicated to all applicable Meadowbank Departments.

The main objective of waste management relating to the primary incinerator and waste oil furnaces is to minimize the amount of waste to be incinerated by implementing an effective waste segregation and reuse (in the case of waste oil) program to ensure that only appropriate types of waste are incinerated. The primary objective of incineration is to eliminate materials from the landfill that could create odours, attracting wildlife to the landfill site or to the Meadowbank camp; as well as to avoid the generation of leachate caused by the decomposition of putrescible materials. The primary incinerator is a dual chamber, high- temperature incinerator and is used to dispose of solid waste from the accommodation camp, kitchen, shops, and offices that cannot be landfilled. The materials to be incinerated will be limited to putrescible waste such as paper, wood, food packaging and food waste. In addition, a series of small waste oil burning furnaces will be used for the disposal of used petroleum products such as heavy lubricants and engine oil. Ash produced from the incineration process will be disposed of in the on-site landfills. A protocol will be implemented for testing incinerator and waste oil burner ash and contingent measures for alternate disposal of ash if quality is unsuitable for landfilling.

AEM has purchased an incinerator from Eco Waste Solutions that complies with applicable regulations. The incinerator is designed to achieve compliance immediately upon attaining normal full scale operation. In addition to the incinerator technology, the implementation of a waste management and segregation plan will limit emissions of dioxins and furans from the incinerator. Compliance to the performance limits will be confirmed by periodic stack testing annual initially and if the results meet the Canadian Council of Ministers of the Environment (CCME) Canada-wide Standards for Dioxin and Furans (CCME, 2000a) and the CCME Canada-wide Standards for Mercury Emissions (CCME, 2000b), then biennial as long as our waste stream has not changed.

In order to demonstrate compliance with performance limits, an annual incineration management report will be prepared and submitted to the NWB (as part of the water license annual report), Government of Nunavut (GN), Environment Canada (EC), and NIRB. The quantity and type of

materials incinerated on site during operations, together with results from stack emission and ash monitoring, will be included within the annual report.

This IWMP will be maintained by AEM to reflect the current operations at the Meadowbank Gold Project, permit requirements and regulatory setting. The IWMP will be reviewed on a regular basis and revised when necessary to ensure that the project staff, operators and regulatory bodies are kept aware of any changes to project operations.

1.10: Operation & Maintenance Manual Sewage Treatment Plant; Version 3

Summary of Revisions

This document is a revision of Operation & Maintenance Manual Sewage Treatment Plant, prepared in November 2008.

The document was a complete reviewed of the plan.

Executive Summary

The Nunavut Water Board (NWB) has issued Type A Water License 2AM-MEA0815 to Agnico-Eagle Mines Limited (AEM) for the Meadowbank Gold Project site authorizing the use of water and the disposal of waste required by mining and milling and associated uses.

AEM has prepared the following document which summarizes the operational and maintenance procedures to be followed at the sewage treatment plant.

This report documents the stand alone Operation & Maintenance Manual – Sewage Treatment Plant, as specified under Water License 2AM-MEA0815 Part D, Item 19 and includes the following requirements:

• The manual was prepared in accordance with the "Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories, 1996", and adapted for the use of a mechanical sewage treatment facility;

• The manual includes contingency measures in the event of a plant malfunction;
• The manual includes sludge management procedures; and

• The manual incorporates the Operation and Maintenance Manual requirements of 8BC-TEH0809, Part D, Item 10.

1.11: Core Recieving Environmental Monitoring Program (CREMP) Design Document 2012; Version

Summary of Revisions

This document is version 1 of the Core Recieving Environmental Monitoring Program (CREMP).

Executive Summary

This document presents a revised design for the Core Receiving Environment Monitoring

Program (CREMP). The CREMP, which was formerly referred to as the Aquatic Effects Management Program (AEMP) for Agnico-Eagle Mines' (AEM) Meadowbank Gold Mine and was included as part of the Environmental Assessment (EA) for the project in 2005 (AEMP 2005), has been formally implemented since 2006. The Type A water license (2AM-MEA0815) for the project issued by the Nunavut Water Board (NWB) in 2008 required a revised AEMP, and specified some of the requirements for that revision. Most importantly, while the 2005 AEMP was focused only on receiving environment studies at the level of basins and lakes, the revised AEMP (Azimuth 2012) needs to be broader in scope to comply with the following licence requirements (stipulated in Part I- 1):

- A detailed monitoring protocol to verify that the Canadian Council of Ministers of Environment Fresh Water Aquatic Life Guidelines are met thirty (30) metres from the outfall diffusers1;
- Annual reporting for more immediate adaptive management2;
- Mechanisms to measure changes to productivity in the lake as a result of the mine adding nutrients3;
- Sampling and Analysis Plans4; and
- Monitoring under Fisheries Authorizations, NWB Licence Compliance
-

Monitoring, Environmental Effects Monitoring, and Groundwater Monitoring. The last requirement diverges from traditional AEMPs (INAC, 2009) and required AEM to propose a new approach, which was presented in draft to the NWB (March 2-3, 2010 in Yellowknife) and necessitated the restructuring of the AEMP. As a result the AEMP was restructured to serve as an overarching 'umbrella' that conceptually provides an opportunity to integrate results of individual, but related, monitoring programs in accordance with the Type A water license requirements. The scope of the 2005 AEMP, which was essentially the core receiving environment monitoring, is now one of the monitoring programs that is integrated under the restructured AEMP and has been renamed the Core Receiving Environment Monitoring Program (CREMP) to minimize confusion. The CREMP is the core, broad scale program that is aimed at detecting potential impacts at the scale of lakes or basins. It is intended to monitor large-scale basin-wide changes in physical and biological variables to evaluate potential impacts from all mine related stressors to the receiving environment. It therefore serves as the most important monitoring program for evaluating short-term and long-term potential impacts, for which other programs provide additional support and verification. In 2011, AEM submitted an updated CREMP design (Azimuth, 2010), which superseded the original design (AEMP 2005). At the same time, AEM commissioned Azimuth to begin a thorough review of the historical data to ensure that the CREMP design would be able to detect potential minerelated impacts and would address most of the requirements in the Type A water license listed above. This document presents the revised CREMP design, which aims to ensure that the data generated from the CREMP will be adequate for detecting potential mine-related impacts in a timely manner, and to determine whether management actions (i.e., further assessment or mitigation) are warranted. The document is organized as follows:

- Section 2 briefly describes the components of the CREMP and the available data.
- Section 3 describes the methodology for development of criteria for action (i.e. determining when action should be taken based on results of monitoring), and applies that methodology to the components of the CREMP.
- Section 4 presents the experimental design for evaluating CREMP data, and applies that design to current data to determine optimal sampling intensities.
- Section 5 summarizes the implications for CREMP sampling of the analyses in Section 4.
- Section 6 discusses links to the broader AEMP including how CREMP findings

are used in identifying whether management actions are warranted Note to reader: the majority of the statistical analyses conducted for this report were conducted on data collected through part or all of 2010. Some components (e.g., zooplankton) included data through 2011.

1.12: Aquatic Effects Management Program (AEMP) Meadowbank Mine, Version 2

Summary of Revisions

This document is version 2 of the Aquatic Effects Management Program (AEMP) Meadowbank prepared in May 2010.

The document was a complete reviewed of the plan.

Executive Summary

The Aquatic Effects Management Program (AEMP) for Agnico-Eagle Mines' (AEM) Meadowbank Gold Mine was included as part of the Environmental Assessment (EA) for the project in 2005 (AEMP 2005), and has been formally implemented since 2006. The water license (2AM-MEA0815) for the project issued by the Nunavut Water Board (NWB) in 2008 required a revised AEMP, and specifies some of the requirements for that revision. Most importantly, while the 2005 AEMP was focused on core receiving environment studies at the level of basins and lakes, the revised AEMP needs to be broader in scope to comply with the following licence requirements (stipulated in Part I-1):

- A detailed monitoring protocol to verify that the Canadian Council of Ministers of Environment Fresh Water Aquatic Life Guidelines are met thirty (30) metres from the outfall diffusers1;
- Annual reporting for more immediate adaptive management2;
- Mechanisms to measure changes to productivity in the lake as a result of the mine adding nutrients3;
- Sampling and Analysis Plans4; and
- Monitoring under Fisheries Authorizations, NWB Licence Compliance Monitoring, Environmental Effects Monitoring, and Groundwater Monitoring.

The last requirement diverges from traditional AEMPs (INAC, 2009) and required AEM to propose a new approach, which was presented in draft to the NWB (March 2-3, 2010 in Yellowknife) and necessitated the restructuring of the AEMP. As a result the AEMP was restructured to serve as an overarching 'umbrella' that conceptually provides an opportunity to integrate results of individual, but related, monitoring programs in accordance with the Type A water license requirements. The scope of the 2005 AEMP, which was essentially the core receiving environment monitoring, is now one of the monitoring programs that is integrated under the restructured AEMP and has been renamed the Core Receiving Environment Monitoring Program (CREMP) to minimize confusion.

Section 2: Executive Summary of Reports or Studies Submitted in 2012

2.1: 2011 Annual Geotechnical Inspection

Executive Summary

Agnico-Eagle Mines Limited (AEM) Meadowbank Division requested Golder Associates Ltd. (Golder) to conduct an annual geotechnical inspection, pursuant to the requirement of Water License Permit No. 2AM-MEA0815, Part I, Item 12 (page 23 and 24) for the Meadowbank Gold

Project, Nunavut. Under Part I, Item 12, AEM is required to undertake an annual geotechnical inspection of the following facilities between the months of July and September:

- Dewatering Dikes;
- Stormwater Dike;
- Saddle Dams;
- Pit walls;
- Tailings Storage Facility;
- Shoreline protection at the location of the Wally Lake and Portage Lake Outfall Diffusers;
- Geotechnical instrumentation;
- All-Weather Private Access Road (AWPR) and site roads, in particular water course crossings;
- Quarries;
- Landfill;
- Landfarm;
- Bulk fuel storage facilities at the Meadowbank site and in Baker Lake (marshalling area);
- Attenuation Ponds;
- Reclaim Pond; and
- Sumps

The mine is currently in operation, however construction of some facilities continues and as a result an inspection of all items listed above was not completed. The inspection was conducted by Karine Doucet, P.Eng., of Golder, between September 12 and September 19, 2011. The inspection was carried out prior to snowfall and at the time of year when the seasonal depth of thaw (active layer) would be expected at, or near its maximum. Daily minimum temperatures were approximately between 0°C and 7°C, and daily maximum temperatures were between 4°C and 11°C. Wind speed was variable with no significant precipitation occurring during this period. At this time of year there is generally low to moderate surface water flow. Peak water flows typically occur during the spring thaw (mid-June through mid-July). Precipitation over the summer of 2011 was normal; therefore, at the time of the inspection, water levels were normal and flows observed at water crossings were moderate.

An inspection of the following was conducted:

- Dewatering Dikes: East Dike, West Channel Dike, South Channel Dike and Bay-Goose Dike (dewatering of Bay-Goose Basin was ongoing at the time of the inspection and, therefore, South Channel Dike and Bay-Goose Dike are in transition to operation);

☐ Tailings Storage Facility including the Stormwater Dike, Saddle Dam 1, Saddle Dam 2, and the Reclaim Pond. Note construction of Saddle Dam 2 Stage 2 and the connection between Saddle Dam 2 and Stormwater Dike was ongoing at the time of the inspection.

☐ Geotechnical instrumentation (East Dike, South Camp Dike, Bay-Goose Dike, Saddle Dam 1 and Saddle Dam 2);

☐ AWPR and site roads, with particular attention paid to water crossings (bridges and culverts);

☐ Quarries;

☐ Landfill;

☐ Bulk fuel storage facilities at Meadowbank and in Baker Lake; and

☐ Stormwater Management Pond 1 (Teardrop Lake)

Figure 1 shows the mine site area. At the time of the inspection, liner placement at Saddle Dam 2 and Stormwater Dike was underway. Construction of subsequent portions of the Tailings Storage Facility will occur on an ongoing basis as additional capacity to store tailings is required. Construction of Bay-Goose Dike has been completed and dewatering of Bay-Goose Basin was in progress and therefore South Camp Dike and Bay Goose Dike are in transition to operation. Inspection of the Portage Pit was also conducted during this same general period and is reported under separate cover, “Draft - Annual Review of Portage Pit Slope Performance (2011c)”, Golder Doc. No. 1314, dated November 12, 2011. It should be noted that there is no current activity in the Vault Pit or Goose Island Pit areas. Diffusers were not in place at the Wally Lake and Portage Lake outfalls. The landfarm had also not been constructed. Therefore, inspections of these items were not conducted.

This report describes the geotechnical aspects of the areas inspected and presents general observations and recommendations. It is noted that an external review board, the Meadowbank Dike Review Board (MDRB), has also been established which periodically meets to review dike designs, construction activities, as-built information and other geotechnical aspects for the project. The MDRB members were present on site while the annual geotechnical inspection was being performed.

2.2: 2011 Independent Geotechnical Expert Review Panel Report

Executive Summary

Report 8 – April 26-27, 2011

The meeting of the Dike Review Board was held in the Burnaby, B.C. offices of Golder Associates from April 26th to 27th. As Dr. Robertson has resigned from the Board, only two members were present.

The objectives were to:
• update the status of the various structures in operation or under construction;
• be advised of the design basis for the central dike.

The activities covered those outlined in the agenda which is included as Attachment A. The list

of attendees at the meeting is given in Attachment B. The PowerPoint presentations made by Golder and Associates (GAL) during the meeting and various backup documents, such as drawings, were compiled into a binder and a CD prepared specifically for the MDRB meeting #8. In the report which follows, the Board's recommendations are underlined.

Report 9 – September 12-15, 2011

The meeting of the Dike Review Board was held on site as planned from September 12th to 15th. The Board is now comprised of two members, Dr. N. R. Morgenstern and Mr. D. A. Rattue, both of whom were in attendance.

The objectives were to review the progress of the works, the design of the various structures, and the dike behaviour. The activities covered those outlined in the agenda which is included as Attachment A. The list of attendees at the meeting is given in Attachment B. Paper copies of the various PowerPoint presentations were submitted by Agnico-Eagle Mines (AEM) and Golder and Associates (GAL) during the meeting. A selection of photographs taken during the visits is to be found in Appendix C. In the report which follows, the Board's recommendations are underlined.

Report 10 – November 1, 2011

A conference call was held on November 1st, to permit the design concept for the Central Dike to be presented and discussed. The two Board members, Dr. N. R. Morgenstern and Mr. D. A. Rattue, participated in this conference call. A .pdf copy of the 2011 Central Dike Geotechnical Investigation and a PowerPoint presentation were sent out in advance of the meeting and the latter was presented, via a Webex link, during the conference call. The objectives were to review the site conditions, the design criteria and the design concept. It was pointed out by Agnico-Eagle (AEM) and Golder Associates Limited (GAL) that the concept, as presented, was preliminary and that feedback from the Board was desired before proceeding with detailed design and implementation. In the letter report which follows, the Board's recommendations are underlined.

2.3: All Weather Private Access Road: 2011 Water Quality Management Report

Executive Summary

Agnico-Eagle Mines Ltd. (AEM) is responsible to manage erosion, water quality, and the introduction of sediment along the 110 km all weather access road (AWAR) that connects the Hamlet of Baker Lake to the Meadowbank mine site. As in the past, the 2011 AWAR water quality management consisted of routine and event inspections at all of the crossings pre-freshet and post-freshet for potential or current erosional issues at all stream crossings. Water quality monitoring focused on all major crossings, and surface water sample collection at HADD crossings, representative watercourses and quarries as a follow-up from AEM (2009b) during the months of June and July. HADD crossings R02, R06, R09 and R15 water quality results continue to suggest an improvement from post AWAR construction activities water quality data as mine operations road activity did not cause any observable significant effects on the receiving environment from the field observations and water quality data collected in 2011. AWAR surface water quality results did not present concerns to the receiving environment as there were no CCME exceedances.

In 2011, surface water samples were collected in quarries where standing water were present. Similar to 2010, only Quarry 7 contained an area of surface water where sampling was necessary. The majority of the quarries previously identified did not contain pooling due to snow melt or precipitation during the summer period.

Overall, the results of the visual inspections, monitoring and water quality chemical analysis show road operations and activities in 2011 presented no risks to receiving environments.

2.4: Aquatic Effects Monitoring Program – Targeted Study: Dike Construction TSS Effect Assessment Study 2011

Executive Summary

The East Dike TSS EAS (2008 – 2011) targeted the effects of total suspended solids (TSS) on Second Portage Lake. The Bay-Goose TSS EAS (2009 – 2011) targeted the effects of TSS from Bay-Goose construction on the east basin of Third Portage Lake.

Collectively, the results of these studies have improved our understanding of the potential short-term and long-term effects of elevated TSS on a broad range of ecosystem components in local receiving environments. Construction-related sediment inputs were initially found (lasting weeks to months) in the water column (pelagic zone), but settled over time (sedimentation) onto the lake bottom (benthic zone). In both cases, the primary concern was TSS, but nutrients and metals were also present.

From a water column (pelagic zone) perspective, both TSS EAS studies identified some short-term effects to primary productivity (e.g., phytoplankton biomass). However, these did not appear to affect zooplankton. Laboratory studies confirmed no adverse effects to zooplankton or fish. Thus, while some effects were seen initially in the water column, they were limited in time and were not shown to propagate up the food chain.

In the benthic zone, sediment trap results showed increased sedimentation closer to the dikes. A 2009 coring study confirmed elevated metals in Second Portage Lake relative to baseline conditions. However, in 2010 sediment toxicity tests and specialized chemical analyses confirmed that sediment metals were not toxic. Initial studies on periphyton biomass in 2009 showed reductions close to the East Dike; follow-up studies in 2010 confirmed that effects were limited to the area closest to the dike. A broader study in 2011 across both lakes confirmed the initial results for periphyton. Benthic invertebrates showed an initial drop in abundance in Second Portage Lake in 2008. However, the subsequent recover pattern to 2011 has been inconsistent due to high natural variability. Results of a graduate research project conducted in Second Portage Lake corroborated these findings. For the east basin of Third Portage Lake, changes since 2009 appear to be more consistent with natural variability than with TSS exposure patterns, suggesting that no impacts occurred there.

As for fish and fish habitat, the main concerns were effects due to sedimentation on highvalue habitats. These concerns were based on the sediment trap results and on a trout embryo development test that suggested possible impairment. Underwater video surveys of high-value habitats in 2009 and 2011 showed conditions improving in Second Portage Lake; minimal impacts were observed in Third Portage Lake. Habitat compensation monitoring conducted in 2009 and 2011 had higher catch-per-unit-effort (CPUE) near the East Dike than in reference areas, suggesting that fish may prefer the dike habitat.
At this stage, we have no further recommendations for additional follow-up studies and welcome discussions with regulators.

2.5: Site Wide Water Balance Model Update

Executive Summary

At the request of Agnico-Eagle Mines Ltd. (AEM), this technical memorandum presents an update to the site wide water balance for the Meadowbank Gold Project, Nunavut. The update was completed in order to evaluate freshwater supply requirements over the life of mine based on actual milling and water usage rates at the mine between January 2010 and November 2011 inclusive.

Details of the site wide water balance for the Meadowbank Project are provided in *Meadowbank Gold Project Updated Water Management Plan* (AEM, July 2011; Doc. No. 1270). The model was developed to assist in the evaluation of the maximum operating storage volume of the contact water management infrastructure under average year climate conditions over the life the mine and under closure conditions. The model focuses specifically on contact water management infrastructure and areas that have been physically or chemically affected by mining activities.

2.6: Aquatic Effects Monitoring Program – Core Receiving Environment Monitoring Program 2011

Executive Summary

The CREMP focuses on identifying changes in basic limnological parameters, water and sediment chemistry, or changes to zooplankton and benthic community structure associated with major mine development activities. CREMP reporting changed substantially in 2011, with an emphasis on assessing temporal/spatial trends in the data.

Meadowbank Study Lakes
CREMP monitoring started in 2006, two years prior to the onset of mine construction. Key mine development activities that could result in changes to the aquatic receiving environment include: East Dike construction (2008), Bay-Goose Dike construction (2009-10), dewatering of both impoundments (2009-11), and general site-related mining activities that mostly generate dust (e.g., rock crushing, blasting, ore and waste hauling; 2008 to present). Key findings to date are:

☐ Dike Construction – As documented previously, dike construction resulted in changes to water chemistry, sediment chemistry and some biological parameters (e.g., short-term effects to phytoplankton and possibly benthic invertebrates); detailed follow-up studies were initiated immediately to address potential ecological effects and water quality improved after the dikes were completed. The only follow-up management action for the 2012 CREMP is the implementation of sediment coring at all areas.
☐ Dewatering – Monitoring to date has shown only minor changes potentially associated with this activity; these will continue to be monitored in 2012. TSS, the major effluent constituent of concern, was rarely found above detection limits in TPN. In May 2011, a change in conductivity was measured at depth in TPN near the dewatering discharge point, possibly indicating the presence of a submerged plume. However, no evidence of this was found in July 2011, suggesting that it was temporally and spatially limited. Sampling protocols will be revised in 2012 to ensure more thorough assessment of water quality associated with anomalous profiles in the future. As TPN will be included in the sediment coring study in 2012, no additional follow-up management actions are required for 2012.

☐ General Site-Related Activities – No changes have been directly attributable to these activities. No follow-up management actions needed for 2012.

Baker Lake
CREMP monitoring started in 2008. Key mine-related activities include barge/shipping traffic and general land-based activities associated with the tank farm area. To our knowledge, no spills of

fuels, hydrocarbons or any other materials have occurred in the vicinity of the barge dock and jetty. No changes in the aquatic receiving environment were observed that were attributable to AEM's activities in Baker Lake. No follow-up management actions are required for 2012.

2.7: 2011 All Weather Access Road Fisheries Report

Executive Summary

Monitoring of fish populations at stream crossings along the all-weather access road (AWAR, formerly AWPAR), between the Hamlet of Baker Lake and the Meadowbank Gold mine site has occurred annually since 2005.

The monitoring program in 2011 was similar to programs in previous years, and included field observations at four crossings (R02, R06, R09 and R15) from June 19 – July 19. The major component of the program consisted of length and weight measurements and maturity identifications of adult fish captured in hoopnets. Nets were set to capture both upstream and downstream movements, and were set as soon as ice conditions allowed. Flow speed and water temperature measurements were also conducted at each crossing. Additionally, larval drift catches have been collected at crossing R02 since 2005. In winter 2009, a spawning pad area for arctic grayling was constructed at that site, and changes to the arctic grayling population using that reach are assessed in this report.

Generally, condition factors of adult fish, population size distributions and timing of upstream and downstream movements were within the range of values seen in previous years. Flow speeds at all crossings were within published arctic grayling sustained or prolonged speeds, indicating the bridge structures likely did not physically affect ability of grayling to move upstream. It is suspected that the primary upstream migration occurs below ice cover or immediately at ice-off, since arctic grayling larval drift has been consistently caught within 1-3 days of study initiation. This coincides with lower temperatures than have been previously published.

An examination of the history of populations at R02 indicates that the constructed spawning pad may be allowing an increase in successful spawning runs, with increasing larval drift collected at all drift trap locations beginning in 2009. The increasing immature arctic grayling since that time compared to fairly consistent numbers of spawners in the population also suggests that more fish are being recruited into the population than pre-construction.

Overall, the information collected in 2011 and in previous years suggests that arctic grayling populations in the affected stream reaches are not being impacted by the bridge structures. Furthermore, the constructed spawning pads have not only increased the quantity of high-value habitat, but are effectively increasing production rates in the local population.

2.8: 2011 Groundwater Monotoring Well Installations And Water Quality Results

Executive Summary

This document provides a summary of the 2011 groundwater monitoring program carried out at the Meadowbank mine site and a summary of water quality results obtained in 2011.

Completion of the groundwater monitoring program is a condition of the Meadowbank Project Certificate No.004 issued by the Nunavut Impact Review Board (NIRB) in December 2006 and of the Water License No. 2AM-MEA0815 issued by the Nunavut Water Board (NWB) June 09, 2008. Table 2 of Schedule 1 of the Meadowbank Water Licence states that groundwater must be

monitored annually for Group 3 chemical parameters which include, per Table 1 of this Schedule: pH, turbidity, alkalinity, hardness, ammonia nitrogen, nitrate, nitrite, chloride, fluoride, sulphides, total dissolved solids (TDS), total and free cyanide for wells in the groundwater flow path of the tailing storage facility, and the following dissolved metals: aluminum, arsenic, barium, cadmium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium and zinc.

2.9: Aquatic Effects Monotoring Program (AEMP) : 2011, Meadowbank Mine Site Habitat Compensation Monotoring

Executive Summary

In 2011, AEM conducted Habitat Monitoring along the East Dike and Bay-Goose Dike Habitat Compensation Feature (HCFs). As per the habitat monitoring compensation Tier 1 evaluation consisted of interstitial water quality, periphyton community analysis (qualitative underwater camera work and quantitative periphyton biomass and richness), and fish use (using index gill net sets). The habitat monitoring program uses a weight of evidence approach to assess the functionality of the HCFs.

Interstitial water sampling (referred in the HCMP as pore water) was completed to address the issue of potential metal leaching from dike construction material as identified in the prehearing and environmental assessment process. The interstitial water sampling results did not indicate any concerns for leaching or likely to cause any reduction in periphyton growth or impact fish egg incubation. This was confirmed with the periphyton qualitative and quantitative analysis which found successful immature colonization of periphyton along the Bay-Goose Dike HCF and continued improved colonization of periphyton (density and biomass) since the 2009 study (C+1) along the East Dike HCF. Index gill netting results indicate that fish were present in and around the vicinity of the East Dike and Bay-Goose Dike HCFs at densities or frequencies that were greater than reference high value habitat areas elsewhere in Second Portage Lake and Third Portage Lake. Recruitment of year 2-3 was greater along the East Dike HCF than high value habitat reference stations and CPUE was statistically significantly different along the East Dike HCF than both Bay-Goose Dike HCF and high value habitat reference stations.

Overall, the results indicate comparable water quality to reference stations and improvements from 2009 sampling, periphyton communities are developing and/or improving along the HCFs, and fish are evidently using the areas near HCFs.

2.10: 2011 Blast Monitoring and Recommendations for Future Monitoring

Executive Summary

As required by NIRB Project Certificate No.004, Commitment 85, AEM Meadowbank Division conducts monitoring to evaluate blast related peak particle velocity and overpressure to protect nearby fish baring waters. According to the NIRB commitment, blasting must use a specific charge weight/delay/set.

The detonation of explosives in or near water produces compressive shock waves that can cause significant impacts to the swim bladders of fish, rupture other internal organs and/or damage or kill fish eggs and larvae. In addition, the effects of the shock waves can be intensified in the presence of ice. Consequently, guidelines have been developed by DFO to protect fish and fish habitat from works or undertakings that involve explosives in or near fisheries waters. These

guidelines are presented in the DFO report entitled “Use of Explosives In or Near Canadian Fisheries Water”, and included the following:

- No explosive is to be detonated in or near fish habitat that produces an instantaneous pressure change (IPC) greater than 100 kPa in the swim bladder of a fish; representatives from DFO requested that AEMuse a value of 50 kPa instead of 100 kPa; and

- No explosive is to be detonated that produces a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation (for lakes near the Meadowbank mine, the fisheries window is from August 15 to June 30).

Peak particle velocity (PPV) and overpressure monitoring data was recorded throughout 2010 during blasting activities at the North Portage Pit and South Portage pit. The locations of the blast monitoring stations in 2011, called Portage (North) (14W 7214597.83N 639457.97E) and Portage (South) (14W 7213663.3N 639349.8E) are shown in Figure 1. They are located near the shoreline of Second Portage Lake.

MEADOWBANK GOLD PROJECT

Executive Summary:
2012 Management Plans, Reports and Studies

March 2013

Table of Contents

Section 1: 2012 Management Plans: Summary of Revisions and Executive Summary Translations

1.1: Landfarm Design and Management Plan; Version 3

Summary of Revisions

This document is a revision the design features and operational procedures for the landfarm constructed at the Meadowbank Gold Project site for the storage and treatment of petroleum hydrocarbon contaminated soil, prepared in October 2008.

In 2012 the transport of contaminated soill back to the mine site for treatment/storage began. Landfarm design and management plan modifications (Version 2) were submitted by AEM to the Nunavut Water Board on October 22, 2012. This new plan focuses on minimizing the waste footprint onsite, and maximizing remediation potential through implementation of a pilot bioremediation project. The revisions in this document (Version 3) provide further rationale for the designs presented in Version 2, as well as additional details on the management of contaminated soils onsite. This includes spill prevention and contingency planning.

Executive Summary

General Information
The Landfarm Design and Management Plan (LDMP) describe the design features and operational procedures for the landfarm constructed at the Meadowbank Gold Project site for the storage and treatment of petroleum hydrocarbon contaminated soil.

Annual Review
The LDMP will be reviewed and updated at least annually if necessary. Completion of the annual review of the LDMP will be documented through signatures of the personnel responsible for reviewing, updating and approving the LDMP.

Record of Changes
A record will document all significant changes that have been incorporated in the LDMP subsequent to the latest annual review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Distribution List
Agnico-Eagle Mines Limited (AEM) will maintain a distribution list for the LDMP providing information about all parties that receive the plan including mine personnel, departments, and outside agencies.

1.2: Groundwater Monitoring Plan; Version 3

Summary of Revisions

This document is a revision of the Groundwater Monitoring plan in March 2009.

The whole document was reviewed and updated ; specifically the executive summary, addition of information on wells created in 2011, included well installation section, insert map of monitoring wells on the Meadowbank Site and an updated of wells location.

Executive Summary

This document presents the Meadowbank Mine Groundwater Monitoring Plan, a requirement of the Meadowbank Type A Water License No. 2AM-MEA0815. Conditions applying to groundwater monitoring; Schedule 1, Table 2: annual monitoring of groundwater quality at well locations that are to be determined.

The Meadowbank Mine has currently four operating groundwater monitoring wells. Two of these wells were drilled in 2008 and two were drilled in 2011. Additional, wells were previously drilled in 2003, 2006, and 2008, however these wells are inoperable. The design, installation, and initial production of each well were completed by Golder Associates.

Groundwater quality data has been used to predict the future quality of water that will accumulate in the pits during operation, and to determine baseline groundwater quality underneath the tailings basin before tailing deposition.

Groundwater wells will be sampled on a bi-annual basis. Analytical parameters will comply as per Schedule 1, Table 1, Group 3 of the Meadowbank Water License. Quality Assurance/Quality Control procedures and samples will be implemented for each monitoring well for each sampling occurrence.

An annual groundwater monitoring report will be submitted by Agnico-Eagle Mines Limited to the Nunavut Water Board (NWB) by March 31 annually. This report will conclude the data from the previous year's results, changes, dates in which sampling took place, methods, personnel involved with sampling, and an assessment of the data obtained.

1.3: No-Net-Loss Plan; Version 3

Summary of Revisions

This document is a revision the No-Net-Loss Plan, prepared in November 2006.

The following report describes the new no-net-loss plan (NNLP) that has been developed for the Meadowbank Gold site, near Baker Lake, Nunavut. With approval from Fisheries and Oceans Canada (DFO), this updated NNLP replaces the original that was created in 2006 (Cumberland, 2006), prior to acquisition of the site by Agnico-Eagle Mines Ltd: Meadowbank Division (AEM). This plan quantifies the losses to fish habitat that will occur throughout the mine development and operational phase, and the gains that will be achieved through compensation measures.

Executive Summary

An updated no-net-loss plan (NNLP) has been developed for the Agnico-Eagle Mines Ltd.: Meadowbank site, near Baker Lake, Nunavut. This plan quantifies the losses to fish habitat that will occur through mine operations, and the gains that will be achieved through compensation measures. With approval from Fisheries and Oceans Canada (DFO), this new NNLP will replace the original NNLP that was created in 2006 (Cumberland, 2006).

The habitat evaluation procedure (HEP) followed in this plan was developed by Golder Associates and AEM, in consultation with DFO, and with adjustments as recommended in review

by Dr. Ken Minns. These adjustments were approved by DFO in the draft Meadowbank NNLP (June 2012). As in the original NNLP, this HEP involves the multiplication of affected areas (in ha) by a habitat suitability index (HSI) in order to derive a value in habitat units (HUs) that describes both the quality and quantity of habitat.

Baseline HU calculations (losses) for the Meadowbank site were conducted for three separate areas to facilitate the use of historically accepted loss: gain ratios. These are: the Main Minesite Area, the Tailings Storage Facility (TSF) and the Vault Lake Area. Habitat compensation is provided through a number of features which increase the area and value of habitat for the fish species present at Meadowbank, using the habitat suitability index (HSI) developed as part of the HEP. The majority of habitat ompensation consists of reflooding of pits and basins after implementation of habitat improvement features (pit backfilling, boulder gardens and constructed reef habitat). Supplementary habitat enhancements proposed onsite include the construction of a connecting channel, finger dikes and improvement of access for native fish species to certain areas.

To align with historical documentation, and to meet the required compensation ratios for each area, portions of habitat gains from certain areas were “allotted” to other areas where deficits occurred. After allotment, the calculated habitat units and ratios for each area are:

Thus, based on the compensation measures proposed in this NNLP, targeted historic ratios for gains in habitat units would be met for the Main Minesite Area and the TSF, and NNL would be achieved for the Vault Lake Area.

A suite of contingency options is proposed in the event that any of the primary options are not constructible or fail to meet the criteria for success outlined in the monitoring plan and the original authorization.

1.4: Emergency Response Plan; Version 4

Summary of Revisions

This document is a revision the Emergency response plan, prepared in November 2009.

The whole document was reviewed and updated.

Executive Summary

The Emergency Response Plan (ERP) is activated when a operations-related emergency accident or malfunction occurs, or if such an incident is foreseeable. The ERP outlines potential emergency scenarios, initial actions for emergencies and the internal and external resources available including personnel, emergency response equipment and communication systems.

The ERP will be reviewed and updated at least annually.

1.5: Hazardous Materials Management Meadowbank Mine Site Baker Lake Facilities; Version 2

Summary of Revisions

This document is a revision the hazardous materials management plan, prepared in August 2007.

The whole document was a comprehensive reviewed and updated.

Executive Summary

General Information

The Hazardous Materials Management Plan (HMMP) will be executed within the scope of normal operations. The Meadowbank Gold Project is in the Operations Phase, and as such, requires that the transportation, storage, handling and use of hydrocarbon products, ammonium nitrate and associated explosive materials, and all other chemicals be conducted in a safe and efficient manner.

Annual Review

The HMMP will be reviewed and updated at least annually. Completion of the annual review of the HMMP will be documented through signatures of the personnel responsible for reviewing, updating and approving the HMMP.

Record of Changes

A record will document all significant changes that have been incorporated in the HMMP subsequent to the latest annual review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Distribution List

Agnico-Eagle Mines Limited (AEM) will maintain a distribution list for the HMMP providing information about all parties that receive the plan including mine personnel, departments, and outside agencies.

1.6: Oil Pollution Emergency Plan, Meadowbank Mine Fuel Farm in Baker Lake; Version 1

Summary of Revisions

This document is a new oil pollution emergency plan for fuel farm in Baker Laker done in August 2012.

Executive Summary

This document presents the Oil Pollution Emergency Plan for Agnico-Eagle Mines Limited (AEM) Meadowbank Mine Site, All Weather Private Access Road (AWPAR) and Baker Lake Facilities, which is a requirement of the Meadowbank Gold Project Type A Water License No. 2AM-MEA0815 issued on June 09, 2008. Oil Pollution Emergency Plan (OPEP) designates lines of

authority, responsibility, establishes proper reporting and details plans of action in the event of a spill. This plan applies to the operational phase of the mine and is applicable to all AEM employees and any contractors associated with the project located at latitude 65°01'52"N longitude 96° 04'22"W approximately 70 km north of Baker Lake in Nunavut including the Baker Lake Marshaling Facilities and the Fuel Farm located at latitude 64°18'36"N and longitude 95° 58'04"W and the AWPAR.

1.7: Spill Contingency Plan, Meadowbank Mine Site, All Weather Private Access Road (AWPAR) and Baker Lake Facilities; Version 3

Summary of Revisions

This document is a revision spill contingency plan, prepared in August 2008.

The document was reviewed and updated for hazardous materials stored on site.

Executive Summary

This document presents the Spill Contingency Plan for Agnico-Eagle Mines Limited (AEM) Meadowbank Mine Site, All Weather Private Access Road (AWPAR) and Baker Lake Facilities, which is a requirement of the Meadowbank Gold Project Type A Water License No. 2AM-MEA0815 issued on June 09, 2008. The Spill Contingency Plan (SCP) designates lines of authority, responsibility, establishes proper reporting and details plans of action in the event of a spill. This plan applies to the operational phase of the mine and is applicable to all AEM employees and any contractors associated with the project located at latitude 65°01'52"N longitude 96° 04'22"W approximately 70 km north of Baker Lake in Nunavut including the Baker Lake Marshalling Facilities located at latitude 64°18'36"N and longitude 95° 58'04"W and the AWPAR.

1.8: Wildlife Protection and Response Plan; Version 2

Summary of Revisions

This document is a revision of wildlife protection and response plan, prepared in March 2011.

The document was reviewed and updated to included recommendations from GN.

Executive Summary

As part of the Terrestrial Ecosystem Management Plan (2006), mitigation measures and monitoring initiatives have been proposed to lessen the likelihood that wildlife will become habituated to the Meadowbank Mine Site (the 'mine site') and its infrastructure. The TEMP identified measures to deter wildlife from obtaining food rewards, finding shelter around the mine site, gaining access to harmful substances present on the project site, being injured as a result of vehicle collisions, and damaging mine property.

Despite these mitigation measures, personnel may occasionally come into contact with wildlife that inhabits the Meadowbank area. To manage these incidents, a specific Wildlife Protection and Response Plan (WPRP) has been developed. Incidents must be managed to keep both humans and wildlife safe, using only humane control methods.

Furthermore, all staff must be familiar with the standard operating procedures and best practices aimed at ensuring human-wildlife conflicts are minimized during the life of the project. All personnel, including contractors, on site have a role to play in ensuring human safety, conservation of wildlife and documenting wildlife activities in the mine area.

The following WPRP provides information on general human-wildlife conflicts policies and regulations, species-specific response plans for ungulates and predatory mammals, and wildlife awareness.

1.9: Incinerator Waste Management Plan; Version 4

Summary of Revisions

This document is a revision of incinerator waste management paln, prepared in October 2008.

The document was a comprehensive reviewed and updated to included: stack testing will be completed biennially, adjusted quantities for mass reduction and include procedure for loading incinerator.

Executive Summary

This Incinerator Waste Management Plan (IWMP) describes the performance limits, waste management protocols, operation, monitoring and record keeping requirements for the incinerator, as part of the Agnico-Eagle Mines Limited (AEM) Meadowbank Gold Project in Nunavut. This plan was developed in support of AEM's application for a Type A Water License from the Nunavut Water Board (NWB). This updated IWMP is a component of the Meadowbank Environmental Management System. The IWMP will be reviewed annually by AEM and updated as needed. Any changes in operation/procedures are communicated to all applicable Meadowbank Departments.

The main objective of waste management relating to the primary incinerator and waste oil furnaces is to minimize the amount of waste to be incinerated by implementing an effective waste segregation and reuse (in the case of waste oil) program to ensure that only appropriate types of waste are incinerated. The primary objective of incineration is to eliminate materials from the landfill that could create odours, attracting wildlife to the landfill site or to the Meadowbank camp; as well as to avoid the generation of leachate caused by the decomposition of putrescible materials. The primary incinerator is a dual chamber, high- temperature incinerator and is used to dispose of solid waste from the accommodation camp, kitchen, shops, and offices that cannot be landfilled. The materials to be incinerated will be limited to putrescible waste such as paper, wood, food packaging and food waste. In addition, a series of small waste oil burning furnaces will be used for the disposal of used petroleum products such as heavy lubricants and engine oil. Ash produced from the incineration process will be disposed of in the on-site landfills. A protocol will be implemented for testing incinerator and waste oil burner ash and contingent measures for alternate disposal of ash if quality is unsuitable for landfilling.

AEM has purchased an incinerator from Eco Waste Solutions that complies with applicable regulations. The incinerator is designed to achieve compliance immediately upon attaining normal full scale operation. In addition to the incinerator technology, the implementation of a waste management and segregation plan will limit emissions of dioxins and furans from the incinerator. Compliance to the performance limits will be confirmed by periodic stack testing annual initially and if the results meet the Canadian Council of Ministers of the Environment (CCME) Canada-wide Standards for Dioxin and Furans (CCME, 2000a) and the CCME Canada-wide Standards

for Mercury Emissions (CCME, 2000b), then biennial as long as our waste stream has not changed.

In order to demonstrate compliance with performance limits, an annual incineration management report will be prepared and submitted to the NWB (as part of the water license annual report), Government of Nunavut (GN), Environment Canada (EC), and NIRB. The quantity and type of materials incinerated on site during operations, together with results from stack emission and ash monitoring, will be included within the annual report.

This IWMP will be maintained by AEM to reflect the current operations at the Meadowbank Gold Project, permit requirements and regulatory setting. The IWMP will be reviewed on a regular basis and revised when necessary to ensure that the project staff, operators and regulatory bodies are kept aware of any changes to project operations.

1.10: Operation & Maintenance Manual Sewage Treatment Plant; Version 3

Summary of Revisions

This document is a revision of Operation & Maintenance Manual Sewage Treatment Plant, prepared in November 2008.

The document was a complete reviewed of the plan.

Executive Summary

The Nunavut Water Board (NWB) has issued Type A Water License 2AM-MEA0815 to Agnico-Eagle Mines Limited (AEM) for the Meadowbank Gold Project site authorizing the use of water and the disposal of waste required by mining and milling and associated uses.

AEM has prepared the following document which summarizes the operational and maintenance procedures to be followed at the sewage treatment plant.

This report documents the stand alone Operation & Maintenance Manual – Sewage Treatment Plant, as specified under Water License 2AM-MEA0815 Part D, Item 19 and includes the following requirements:

• The manual was prepared in accordance with the “Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories, 1996”, and adapted for the use of a mechanical sewage treatment facility;

• The manual includes contingency measures in the event of a plant malfunction;
• The manual includes sludge management procedures; and

• The manual incorporates the Operation and Maintenance Manual requirements of 8BC-TEH0809, Part D, Item 10.

1.11: Core Recieving Environmental Monitoring Program (CREMP) Design Document 2012; Version

Summary of Revisions

This document is version 1 of the Core Recieving Environmental Monitoring Program (CREMP).

Executive Summary

This document presents a revised design for the Core Receiving Environment Monitoring Program (CREMP). The CREMP, which was formerly referred to as the Aquatic Effects Management Program (AEMP) for Agnico-Eagle Mines' (AEM) Meadowbank Gold Mine and was included as part of the Environmental Assessment (EA) for the project in 2005 (AEMP 2005), has been formally implemented since 2006. The Type A water license (2AM-MEA0815) for the project issued by the Nunavut Water Board (NWB) in 2008 required a revised AEMP, and specified some of the requirements for that revision. Most importantly, while the 2005 AEMP was focused only on receiving environment studies at the level of basins and lakes, the revised AEMP (Azimuth 2012) needs to be broader in scope to comply with the following licence requirements (stipulated in Part I- 1):

- A detailed monitoring protocol to verify that the Canadian Council of Ministers of Environment Fresh Water Aquatic Life Guidelines are met thirty (30) metres from the outfall diffusers1;
- Annual reporting for more immediate adaptive management2;
- Mechanisms to measure changes to productivity in the lake as a result of the mine adding nutrients3;
- Sampling and Analysis Plans4; and
- Monitoring under Fisheries Authorizations, NWB Licence Compliance
-

Monitoring, Environmental Effects Monitoring, and Groundwater Monitoring. The last requirement diverges from traditional AEMPs (INAC, 2009) and required AEM to propose a new approach, which was presented in draft to the NWB (March 2-3, 2010 in Yellowknife) and necessitated the restructuring of the AEMP. As a result the AEMP was restructured to serve as an overarching 'umbrella' that conceptually provides an opportunity to integrate results of individual, but related, monitoring programs in accordance with the Type A water license requirements. The scope of the 2005 AEMP, which was essentially the core receiving environment monitoring, is now one of the monitoring programs that is integrated under the restructured AEMP and has been renamed the Core Receiving Environment Monitoring Program (CREMP) to minimize confusion. The CREMP is the core, broad scale program that is aimed at detecting potential impacts at the scale of lakes or basins. It is intended to monitor large-scale basin-wide changes in physical and biological variables to evaluate potential impacts from all mine related stressors to the receiving environment. It therefore serves as the most important monitoring program for evaluating short-term and long-term potential impacts, for which other programs provide additional support and verification. In 2011, AEM submitted an updated CREMP design (Azimuth, 2010), which superseded the original design (AEMP 2005). At the same time, AEM commissioned Azimuth to begin a thorough review of the historical data to ensure that the CREMP design would be able to detect potential minerelated impacts and would address most of the requirements in the Type A water license listed above. This document presents the revised CREMP design, which aims to ensure that the data generated from the CREMP will be adequate for detecting potential mine-related impacts in a timely manner, and to determine whether management actions (i.e., further assessment or mitigation) are warranted. The document is organized as follows:

- Section 2 briefly describes the components of the CREMP and the available data.

- Section 3 describes the methodology for development of criteria for action (i.e. determining when action should be taken based on results of monitoring), and applies that methodology to the components of the CREMP.
- Section 4 presents the experimental design for evaluating CREMP data, and applies that design to current data to determine optimal sampling intensities.
- Section 5 summarizes the implications for CREMP sampling of the analyses in Section 4.
- Section 6 discusses links to the broader AEMP including how CREMP findings

are used in identifying whether management actions are warranted Note to reader: the majority of the statistical analyses conducted for this report were conducted on data collected through part or all of 2010. Some components (e.g., zooplankton) included data through 2011.

1.12: Aquatic Effects Management Program (AEMP) Meadowbank Mine, Version 2

Summary of Revisions

This document is version 2 of the Aquatic Effects Management Program (AEMP) Meadowbank prepared in May 2010.

The document was a complete reviewed of the plan.

Executive Summary

The Aquatic Effects Management Program (AEMP) for Agnico-Eagle Mines' (AEM) Meadowbank Gold Mine was included as part of the Environmental Assessment (EA) for the project in 2005 (AEMP 2005), and has been formally implemented since 2006. The water license (2AM-MEA0815) for the project issued by the Nunavut Water Board (NWB) in 2008 required a revised AEMP, and specifies some of the requirements for that revision. Most importantly, while the 2005 AEMP was focused on core receiving environment studies at the level of basins and lakes, the revised AEMP needs to be broader in scope to comply with the following licence requirements (stipulated in Part I-1):

- A detailed monitoring protocol to verify that the Canadian Council of Ministers of Environment Fresh Water Aquatic Life Guidelines are met thirty (30) metres from the outfall diffusers1;
- Annual reporting for more immediate adaptive management2;
- Mechanisms to measure changes to productivity in the lake as a result of the mine adding nutrients3;
- Sampling and Analysis Plans4; and
- Monitoring under Fisheries Authorizations, NWB Licence Compliance Monitoring, Environmental Effects Monitoring, and Groundwater Monitoring.

The last requirement diverges from traditional AEMPs (INAC, 2009) and required AEM to propose a new approach, which was presented in draft to the NWB (March 2-3, 2010 in Yellowknife) and necessitated the restructuring of the AEMP. As a result the AEMP was restructured to serve as an overarching 'umbrella' that conceptually provides an opportunity to integrate results of individual, but related, monitoring programs in accordance with the Type A water license requirements. The scope of the 2005 AEMP, which was essentially the core receiving environment monitoring, is now one of the monitoring programs that is integrated under the restructured AEMP and has been renamed the Core Receiving Environment Monitoring Program (CREMP) to minimize confusion.

Section 2: Executive Summary of Reports or Studies Submitted in 2012

2.1: 2011 Annual Geotechnical Inspection

Executive Summary

Agnico-Eagle Mines Limited (AEM) Meadowbank Division requested Golder Associates Ltd. (Golder) to conduct an annual geotechnical inspection, pursuant to the requirement of Water License Permit No. 2AM-MEA0815, Part I, Item 12 (page 23 and 24) for the Meadowbank Gold Project, Nunavut. Under Part I, Item 12, AEM is required to undertake an annual geotechnical inspection of the following facilities between the months of July and September:

- ☐ Dewatering Dikes;
- ☐ Stormwater Dike;
- ☐ Saddle Dams;
- ☐ Pit walls;
- ☐ Tailings Storage Facility;
- ☐ Shoreline protection at the location of the Wally Lake and Portage Lake Outfall Diffusers;
- ☐ Geotechnical instrumentation;
- ☐ All-Weather Private Access Road (AWPR) and site roads, in particular water course crossings;
- ☐ Quarries;
- ☐ Landfill;
- ☐ Landfarm;
- ☐ Bulk fuel storage facilities at the Meadowbank site and in Baker Lake (marshalling area);
- ☐ Attenuation Ponds;
- ☐ Reclaim Pond; and
- ☐ Sumps

The mine is currently in operation, however construction of some facilities continues and as a result an inspection of all items listed above was not completed. The inspection was conducted by Karine Doucet, P.Eng., of Golder, between September 12 and September 19, 2011. The inspection was carried out prior to snowfall and at the time of year when the seasonal depth of thaw (active layer) would be expected at, or near its maximum. Daily minimum temperatures were approximately between 0°C and 7°C, and daily maximum temperatures were between 4°C and 11°C. Wind speed was variable with no significant precipitation occurring during this period. At

this time of year there is generally low to moderate surface water flow. Peak water flows typically occur during the spring thaw (mid-June through mid-July). Precipitation over the summer of 2011 was normal; therefore, at the time of the inspection, water levels were normal and flows observed at water crossings were moderate.

An inspection of the following was conducted:

- Dewatering Dikes: East Dike, West Channel Dike, South Channel Dike and Bay-Goose Dike (dewatering of Bay-Goose Basin was ongoing at the time of the inspection and, therefore, South Channel Dike and Bay-Goose Dike are in transition to operation);
- Tailings Storage Facility including the Stormwater Dike, Saddle Dam 1, Saddle Dam 2, and the Reclaim Pond. Note construction of Saddle Dam 2 Stage 2 and the connection between Saddle Dam 2 and Stormwater Dike was ongoing at the time of the inspection.
- Geotechnical instrumentation (East Dike, South Camp Dike, Bay-Goose Dike, Saddle Dam 1 and Saddle Dam 2);
- AWPR and site roads, with particular attention paid to water crossings (bridges and culverts);
- Quarries;
- Landfill;
- Bulk fuel storage facilities at Meadowbank and in Baker Lake; and
- Stormwater Management Pond 1 (Teardrop Lake)

Figure 1 shows the mine site area. At the time of the inspection, liner placement at Saddle Dam 2 and Stormwater Dike was underway. Construction of subsequent portions of the Tailings Storage Facility will occur on an ongoing basis as additional capacity to store tailings is required. Construction of Bay-Goose Dike has been completed and dewatering of Bay-Goose Basin was in progress and therefore South Camp Dike and Bay Goose Dike are in transition to operation. Inspection of the Portage Pit was also conducted during this same general period and is reported under separate cover, “Draft - Annual Review of Portage Pit Slope Performance (2011c)”, Golder Doc. No. 1314, dated November 12, 2011. It should be noted that there is no current activity in the Vault Pit or Goose Island Pit areas. Diffusers were not in place at the Wally Lake and Portage Lake outfalls. The landfarm had also not been constructed. Therefore, inspections of these items were not conducted.

This report describes the geotechnical aspects of the areas inspected and presents general observations and recommendations. It is noted that an external review board, the Meadowbank Dike Review Board (MDRB), has also been established which periodically meets to review dike designs, construction activities, as-built information and other geotechnical aspects for the project. The MDRB members were present on site while the annual geotechnical inspection was being performed.

2.2: 2011 Independent Geotechnical Expert Review Panel Report

Executive Summary

Report 8 – April 26-27, 2011

The meeting of the Dike Review Board was held in the Burnaby, B.C. offices of Golder Associates from April 26th to 27th. As Dr. Robertson has resigned from the Board, only two members were present.

The objectives were to:
• update the status of the various structures in operation or under construction;
• be advised of the design basis for the central dike.

The activities covered those outlined in the agenda which is included as Attachment A. The list of attendees at the meeting is given in Attachment B. The PowerPoint presentations made by Golder and Associates (GAL) during the meeting and various backup documents, such as drawings, were compiled into a binder and a CD prepared specifically for the MDRB meeting #8. In the report which follows, the Board's recommendations are underlined.

Report 9 – September 12-15, 2011

The meeting of the Dike Review Board was held on site as planned from September 12th to 15th. The Board is now comprised of two members, Dr. N. R. Morgenstern and Mr. D. A. Rattue, both of whom were in attendance.

The objectives were to review the progress of the works, the design of the various structures, and the dike behaviour. The activities covered those outlined in the agenda which is included as Attachment A. The list of attendees at the meeting is given in Attachment B. Paper copies of the various PowerPoint presentations were submitted by Agnico-Eagle Mines (AEM) and Golder and Associates (GAL) during the meeting. A selection of photographs taken during the visits is to be found in Appendix C. In the report which follows, the Board's recommendations are underlined.

Report 10 – November 1, 2011

A conference call was held on November 1st, to permit the design concept for the Central Dike to be presented and discussed. The two Board members, Dr. N. R. Morgenstern and Mr. D. A. Rattue, participated in this conference call. A .pdf copy of the 2011 Central Dike Geotechnical Investigation and a PowerPoint presentation were sent out in advance of the meeting and the latter was presented, via a Webex link, during the conference call. The objectives were to review the site conditions, the design criteria and the design concept. It was pointed out by Agnico-Eagle (AEM) and Golder Associates Limited (GAL) that the concept, as presented, was preliminary and that feedback from the Board was desired before proceeding with detailed design and implementation. In the letter report which follows, the Board's recommendations are underlined.

2.3: All Weather Private Access Road: 2011 Water Quality Management Report

Executive Summary

Agnico-Eagle Mines Ltd. (AEM) is responsible to manage erosion, water quality, and the introduction of sediment along the 110 km all weather access road (AWAR) that connects the Hamlet of Baker Lake to the Meadowbank mine site. As in the past, the 2011 AWAR water quality management consisted of routine and event inspections at all of the crossings pre-freshet and post-freshet for potential or current erosional issues at all stream crossings. Water quality monitoring focused on all major crossings, and surface water sample collection at HADD crossings, representative watercourses and quarries as a follow-up from AEM (2009b) during the months of June and July. HADD crossings R02, R06, R09 and R15 water quality results continue to suggest an improvement from post AWAR construction activities water quality data as mine operations road activity did not cause any observable significant effects on the receiving environment from the field observations and water quality data collected in 2011. AWAR surface water quality results did not present concerns to the receiving environment as there were no CCME exceedances.

In 2011, surface water samples were collected in quarries where standing water were present. Similar to 2010, only Quarry 7 contained an area of surface water where sampling was necessary. The majority of the quarries previously identified did not contain pooling due to snow melt or precipitation during the summer period.

Overall, the results of the visual inspections, monitoring and water quality chemical analysis show road operations and activities in 2011 presented no risks to receiving environments.

2.4: Aquatic Effects Monitoring Program – Targeted Study: Dike Construction TSS Effect Assessment Study 2011

Executive Summary

The East Dike TSS EAS (2008 – 2011) targeted the effects of total suspended solids (TSS) on Second Portage Lake. The Bay-Goose TSS EAS (2009 – 2011) targeted the effects of TSS from Bay-Goose construction on the east basin of Third Portage Lake.

Collectively, the results of these studies have improved our understanding of the potential short-term and long-term effects of elevated TSS on a broad range of ecosystem components in local receiving environments. Construction-related sediment inputs were initially found (lasting weeks to months) in the water column (pelagic zone), but settled over time (sedimentation) onto the lake bottom (benthic zone). In both cases, the primary concern was TSS, but nutrients and metals were also present.

From a water column (pelagic zone) perspective, both TSS EAS studies identified some short-term effects to primary productivity (e.g., phytoplankton biomass). However, these did not appear to affect zooplankton. Laboratory studies confirmed no adverse effects to zooplankton or fish. Thus, while some effects were seen initially in the water column, they were limited in time and were not shown to propagate up the food chain.

In the benthic zone, sediment trap results showed increased sedimentation closer to the dikes. A 2009 coring study confirmed elevated metals in Second Portage Lake relative to baseline conditions. However, in 2010 sediment toxicity tests and specialized chemical analyses confirmed that sediment metals were not toxic. Initial studies on periphyton biomass in 2009 showed

reductions close to the East Dike; follow-up studies in 2010 confirmed that effects were limited to the area closest to the dike. A broader study in 2011 across both lakes confirmed the initial results for periphyton. Benthic invertebrates showed an initial drop in abundance in Second Portage Lake in 2008. However, the subsequent recover pattern to 2011 has been inconsistent due to high natural variability. Results of a graduate research project conducted in Second Portage Lake corroborated these findings. For the east basin of Third Portage Lake, changes since 2009 appear to be more consistent with natural variability than with TSS exposure patterns, suggesting that no impacts occurred there.

As for fish and fish habitat, the main concerns were effects due to sedimentation on highvalue habitats. These concerns were based on the sediment trap results and on a trout embryo development test that suggested possible impairment. Underwater video surveys of high-value habitats in 2009 and 2011 showed conditions improving in Second Portage Lake; minimal impacts were observed in Third Portage Lake. Habitat compensation monitoring conducted in 2009 and 2011 had higher catch-per-unit-effort (CPUE) near the East Dike than in reference areas, suggesting that fish may prefer the dike habitat.
At this stage, we have no further recommendations for additional follow-up studies and welcome discussions with regulators.

2.5: Site Wide Water Balance Model Update

Executive Summary

At the request of Agnico-Eagle Mines Ltd. (AEM), this technical memorandum presents an update to the site wide water balance for the Meadowbank Gold Project, Nunavut. The update was completed in order to evaluate freshwater supply requirements over the life of mine based on actual milling and water usage rates at the mine between January 2010 and November 2011 inclusive.

Details of the site wide water balance for the Meadowbank Project are provided in *Meadowbank Gold Project Updated Water Management Plan* (AEM, July 2011; Doc. No. 1270). The model was developed to assist in the evaluation of the maximum operating storage volume of the contact water management infrastructure under average year climate conditions over the life the mine and under closure conditions. The model focuses specifically on contact water management infrastructure and areas that have been physically or chemically affected by mining activities.

2.6: Aquatic Effects Monitoring Program – Core Receiving Environment Monitoring Program 2011

Executive Summary

The CREMP focuses on identifying changes in basic limnological parameters, water and sediment chemistry, or changes to zooplankton and benthic community structure associated with major mine development activities. CREMP reporting changed substantially in 2011, with an emphasis on assessing temporal/spatial trends in the data.

Meadowbank Study Lakes
CREMP monitoring started in 2006, two years prior to the onset of mine construction. Key mine development activities that could result in changes to the aquatic receiving environment include: East Dike construction (2008), Bay-Goose Dike construction (2009-10), dewatering of both

impoundments (2009-11), and general site-related mining activities that mostly generate dust (e.g., rock crushing, blasting, ore and waste hauling; 2008 to present). Key findings to date are:

☐ Dike Construction – As documented previously, dike construction resulted in changes to water chemistry, sediment chemistry and some biological parameters (e.g., short-term effects to phytoplankton and possibly benthic invertebrates); detailed follow-up studies were initiated immediately to address potential ecological effects and water quality improved after the dikes were completed. The only follow-up management action for the 2012 CREMP is the implementation of sediment coring at all areas.
☐ Dewatering – Monitoring to date has shown only minor changes potentially associated with this activity; these will continue to be monitored in 2012. TSS, the major effluent constituent of concern, was rarely found above detection limits in TPN. In May 2011, a change in conductivity was measured at depth in TPN near the dewatering discharge point, possibly indicating the presence of a submerged plume. However, no evidence of this was found in July 2011, suggesting that it was temporally and spatially limited. Sampling protocols will be revised in 2012 to ensure more thorough assessment of water quality associated with anomalous profiles in the future. As TPN will be included in the sediment coring study in 2012, no additional follow-up management actions are required for 2012.

☐ General Site-Related Activities – No changes have been directly attributable to these activities. No follow-up management actions needed for 2012.

Baker Lake
CREMP monitoring started in 2008. Key mine-related activities include barge/shipping traffic and general land-based activities associated with the tank farm area. To our knowledge, no spills of fuels, hydrocarbons or any other materials have occurred in the vicinity of the barge dock and jetty. No changes in the aquatic receiving environment were observed that were attributable to AEM's activities in Baker Lake. No follow-up management actions are required for 2012.

2.7: 2011 All Weather Access Road Fisheries Report

Executive Summary

Monitoring of fish populations at stream crossings along the all-weather access road (AWAR, formerly AWPAR), between the Hamlet of Baker Lake and the Meadowbank Gold mine site has occurred annually since 2005.

The monitoring program in 2011 was similar to programs in previous years, and included field observations at four crossings (R02, R06, R09 and R15) from June 19 – July 19. The major component of the program consisted of length and weight measurements and maturity identifications of adult fish captured in hoopnets. Nets were set to capture both upstream and downstream movements, and were set as soon as ice conditions allowed. Flow speed and water temperature measurements were also conducted at each crossing. Additionally, larval drift catches have been collected at crossing R02 since 2005. In winter 2009, a spawning pad area for arctic grayling was constructed at that site, and changes to the arctic grayling population using that reach are assessed in this report.

Generally, condition factors of adult fish, population size distributions and timing of upstream and downstream movements were within the range of values seen in previous years. Flow speeds at all crossings were within published arctic grayling sustained or prolonged speeds, indicating the bridge structures likely did not physically affect ability of grayling to move upstream. It is suspected that the primary upstream migration occurs below ice cover or immediately at ice-off, since arctic grayling larval drift has been consistently caught within 1-3 days of study initiation. This coincides with lower temperatures than have been previously published.

An examination of the history of populations at R02 indicates that the constructed spawning pad may be allowing an increase in successful spawning runs, with increasing larval drift collected at all drift trap locations beginning in 2009. The increasing immature arctic grayling since that time compared to fairly consistent numbers of spawners in the population also suggests that more fish are being recruited into the population than pre-construction.

Overall, the information collected in 2011 and in previous years suggests that arctic grayling populations in the affected stream reaches are not being impacted by the bridge structures. Furthermore, the constructed spawning pads have not only increased the quantity of high-value habitat, but are effectively increasing production rates in the local population.

2.8: 2011 Groundwater Monotoring Well Installations And Water Quality Results

Executive Summary

This document provides a summary of the 2011 groundwater monitoring program carried out at the Meadowbank mine site and a summary of water quality results obtained in 2011.

Completion of the groundwater monitoring program is a condition of the Meadowbank Project Certificate No.004 issued by the Nunavut Impact Review Board (NIRB) in December 2006 and of the Water License No. 2AM-MEA0815 issued by the Nunavut Water Board (NWB) June 09, 2008. Table 2 of Schedule 1 of the Meadowbank Water Licence states that groundwater must be monitored annually for Group 3 chemical parameters which include, per Table 1 of this Schedule: pH, turbidity, alkalinity, hardness, ammonia nitrogen, nitrate, nitrite, chloride, fluoride, sulphides, total dissolved solids (TDS), total and free cyanide for wells in the groundwater flow path of the tailing storage facility, and the following dissolved metals: aluminum, arsenic, barium, cadmium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium and zinc.

2.9: Aquatic Effects Monotoring Program (AEMP) : 2011, Meadowbank Mine Site Habitat Compensation Monotoring

Executive Summary

In 2011, AEM conducted Habitat Monitoring along the East Dike and Bay-Goose Dike Habitat Compensation Feature (HCFs). As per the habitat monitoring compensation Tier 1 evaluation consisted of interstitial water quality, periphyton community analysis (qualitative underwater camera work and quantitative periphyton biomass and richness), and fish use (using index gill net sets). The habitat monitoring program uses a weight of evidence approach to assess the functionality of the HCFs.

Interstitial water sampling (referred in the HCMP as pore water) was completed to address the issue of potential metal leaching from dike construction material as identified in the prehearing and environmental assessment process. The interstitial water sampling results did not indicate any concerns for leaching or likely to cause any reduction in periphyton growth or impact fish egg incubation. This was confirmed with the periphyton qualitative and quantitative analysis which found successful immature colonization of periphyton along the Bay-Goose Dike HCF and continued improved colonization of periphyton (density and biomass) since the 2009 study (C+1) along the East Dike HCF. Index gill netting results indicate that fish were present in and around the vicinity of the East Dike and Bay-Goose Dike HCFs at densities or frequencies that were greater than reference high value habitat areas elsewhere in Second Portage Lake and Third

Portage Lake. Recruitment of year 2-3 was greater along the East Dike HCF than high value habitat reference stations and CPUE was statistically significantly different along the East Dike HCF than both Bay-Goose Dike HCF and high value habitat reference stations.

Overall, the results indicate comparable water quality to reference stations and improvements from 2009 sampling, periphyton communities are developing and/or improving along the HCFs, and fish are evidently using the areas near HCFs.

2.10: 2011 Blast Monitoring and Recommendations for Future Monitoring

Executive Summary

As required by NIRB Project Certificate No.004, Commitment 85, AEM Meadowbank Division conducts monitoring to evaluate blast related peak particle velocity and overpressure to protect nearby fish baring waters. According to the NIRB commitment, blasting must use a specific charge weight/delay/set.

The detonation of explosives in or near water produces compressive shock waves that can cause significant impacts to the swim bladders of fish, rupture other internal organs and/or damage or kill fish eggs and larvae. In addition, the effects of the shock waves can be intensified in the presence of ice. Consequently, guidelines have been developed by DFO to protect fish and fish habitat from works or undertakings that involve explosives in or near fisheries waters. These guidelines are presented in the DFO report entitled “Use of Explosives In or Near Canadian Fisheries Water”, and included the following:

☐ No explosive is to be detonated in or near fish habitat that produces an instantaneous pressure change (IPC) greater than 100 kPa in the swim bladder of a fish; representatives from DFO requested that AEMuse a value of 50 kPa instead of 100 kPa; and

☐ No explosive is to be detonated that produces a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation (for lakes near the Meadowbank mine, the fisheries window is from August 15 to June 30).

Peak particle velocity (PPV) and overpressure monitoring data was recorded throughout 2010 during blasting activities at the North Portage Pit and South Portage pit. The locations of the blast monitoring stations in 2011, called Portage (North) (14W 7214597.83N 639457.97E) and Portage (South) (14W 7213663.3N 639349.8E) are shown in Figure 1. They are located near the shoreline of Second Portage Lake.