AGNICO EAGLE

MELIADINE GOLD PROJECT

Risk Management and Emergency Response Plan

APRIL 2015
VERSION 4
6513-RMM-01

ᓇᐃᓇᖅᓯᒪᔪᖅ

ᐅᓗᓕᐊᓇᖅᑐᑕᓕᓂᕐᒧᑦ ᐊᐅᑕᕐᑎᓂᖅ ᐊᒪᓗ ᑐᐊᕕᓇᖅᑐᓄᑦ ᐅᐸᓗᐊᓂᕐᒧᑦ ᕿᖅᓄᐅᑎ (ᕿᖅᓄᐅᑎ) ᑕᓯᖏᐊᖏᑦ ᔪᑐᓗᒪᑦ ᐱᑕᕓᐊᖅ (ᐱᑕᕓᐊᖅ)-ᒧᑦ ᐊᕐᕕᓯᒪᔪᖅ ᐱᖓᓯᓯᐃᑕᖓᓱᐊᖅᑐᓂᒃ: (1) ᐅᓗᓕᐊᓇᖅᑐᑦᓂᓂᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ ᐊᒪᓗ ᐊᐅᑕᕐᑎᓂᖅ, (2) ᐱᓂᖅᓗᐊᕿᓄᑦ ᐊᒪᓗ ᐊᔪᑕᖅᑐᑦ, ᐊᒪᓗ (3) ᑐᐊᕕᓇᖅᑐᓂᒃ ᐅᐸᓗᐊᓂᕐᒧᑦ ᕿᖅᓄᐅᑎ.

ᐊᖏᓂᔨᔪᑦ ᐱᓂᐊᖅᓂᖃᖅᑐᑦ ᒥᐊᓂᖅᓯᓂᖏᒃ ᐋᓐᓂᐊᖅᑎᖅᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ ᐊᒪᓗ ᐊᑦᑕᓇᖅᑐᒋᑎᑎᑦᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ ᐱᑕᕆᔨᓗᒋᑦᓴᑦ, ᐊᒪᓗ ᐊᐟᖏᑎᐅᓛᑦ, ᐊᒪᓗ ᒪᑕᖅᓂᖏᒃ ᑕᒪᐃᓐᓇᑦ ᒪᑕᓴᐅᔪᓂᖅ ᐊᒪᓗ ᐊᐟᖏᑎᒪᑦ ᒪᑕᓴᓂᒃ. ᐱᖃᐅᔨᕆᐊᖅᑎᖅᑐᑦ ᒪᓂᒪᓂᐊᖅᑐᑦ ᐅᐸᓗᐊᒋᐊᕕᐅᑎᓂᓂᒧᑦ ᐊᒪᓗ ᐅᓴᒪᑐᖅᓄᑦ ᑐᐊᕕᓇᖅᑐᓗᒋᑦᓴᑦ, ᐃᓱᑕᑎᓴᑕᑎᑎᓂᒧᑦᓵᑐᑦ, ᐃᓄᐃᑦ ᐋᓐᓂᐊᖅᑎᖅᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ ᐊᐟᖏᑎᐅᓛᑦ. ᐊᑐᑕᖅᑎᑎᖅᑐᑦ ᑐᐸᓗᐊᒋᐊᕕᐅᑎᑎᓂᒧᑦ ᐊᒪᓗ ᐅᓴᒪᔭᑦ ᐊᐟᖏᑎᐅᓛᑦ, ᐊᒪᓗ ᒪᑕᓴᓂᒃ ᐃᓐᓇᐃᓐᓂᖅᑐᑦ ᐊᐟᖏᑎᒪᑦ ᒪᑕᓴᓂᒃ. ᐋᓐᓂᐊᖅᑎᖅᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ ᐊᐟᖏᑎᐅᓛᑦ ᐅᐸᓗᐊᓂᕐᒧᑦ ᐊᐟᖏᑎᒪᑦ ᒪᑕᓴᓂᒃ (ERP), ᐊᖏᓂᔨᔪᑦ ᐊᐟᕿᐳᓯᖃᑕᐃᓐᓇᖅᓯᒋᓐᓂᒃ ᕿᖅᓄᐅᓯᒪᔪᕐᓂᕐᒧᑦ.

ᐅᓗᓕᐊᓇᖅᑐᑦᓂᓂᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ

ᐅᓗᓕᐊᓇᖅᑐᑦᓂᓂᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ ᑲᑎᑕᐅᓯᒪᔪᕐ ᐱᓵᖅᓴᐅᑎᖅᑲᖅᑐᑦ ᐅᓴᖅᓂᓂᐊᖅᑐᑕᓕᓂᕐᒧᑦ ᐊᐅᑕᕐᑎᓂᓂᒧᑦ ᐋᖅᑭᐅᓯᒪᔪᕐᓂᒃ. ᑕᑯᓗ ᐊᑐᖅᑕᐅᔪᖅ ᓇᓗᓇᐃᖅᑲᖅᑐᖅ ᐃᓕᑕᒪᔭᔪᕐ ᑲᑎᑕᐅᓯᒪᔪᖅ ᑲᑎᑕᐅᓯᒪᔪᕐᓂᒃ ᐊᐅᓚᑦᑎᑦᑕᐅᓯᒪᔪᖅ (ᕿᖅᓄᓴᐃᒧᑦ-ᐃᓕᓴᐃᒧᑦ-ᐱᖓᓱᐊᖅᑐᓂᒧᑦ) (ᕿᖅᓄᓴᐃᒧᑦ-ᐱᖓᓱᐊᖅᑐᓂᒧᑦ-ᖃᓄᐃᓕᐅᕈᑎᒋᔭᖅᑐᓂᒧᑦ-ᐱᖓᓱᐊᖅᑐᓂᒧᑦ-ᖃᓄᐃᓕᐅᕈᑎᒋᔭᖅᑐᓂᒧᑦ). 17-ᓄᑦ ᐊᕐᕕᒃᓯᒪᔪᖅ, ᐊᑐᐃᓂ ᐅᖃᖅᓯᒪᔪᖅᑐᖅᓴᓂᖅ ᐱᖓᓱᐊᖅᑐᑕᓕᓂᕐᒧᑦ ᐊᐅᑕᕐᑎᓂᓂᒧᑦ ᐋᓐᓂᐊᖅᑎᖅᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ ᐊᐟᖏᑎᐅᓛᑦ, ᐊᑦᑕᓇᖅᑐᒋᑎᑎᑦᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ, ᐊᒪᓗᑎᒃ, ᐊᒪᓗ ᐃᓄᐃᑦ ᐅᓗᓕᐊᓇᖅᑐᒋᐊᖅᓯᖓᓱᐊᖅᑐᓄᑦ.

ᖃᐅᔨᓴᐃᓂᖅ ᐃᖅᒥᖅᑐᖅ ᐅᓗᓕᐊᓇᖅᓂᐅᔪᓂᖅ (ᓴᓪᓗᖅᓂᓪᓂᕐ, ᓴᓪᔨᕐᓗᖅᓂᓪᓂᕐ, ᓄᓇ ᓴᑐᔪᖅ, ᐊᒪᓗ ᐅᓪᓗᔪᓂᓪᓂᕐ) ᖃᐅᓂᑐᒥᑦ ᖃᐅᔨᓴᐃᓂᓂᒥᑦ, ᐃᓪᓕᐅᔭᓗᓂ ᖃᐅᔨᓴᖅᑕᖃᐅᑕᓂᓂᖅ, ᐊᖏᕐᓂᖅᑐᒃ, ᐊᒪᓗ ᑕᐃᓕᐅᖅᑐᒃᓯᒪᔪᖅᓯᒋᓐᓂᒃ ᐊᖏᕐᓂᖅᑐᒃᓯᒪᔪᖅᓯᒋᓐᓂᒃ ᐃᓄᐃᑦ ᐅᓗᓕᐊᓇᖅᑐᒋᐊᖅᓯᖓᓱᐊᖅᑐᓄᑦ. ᐃᓪᓕᐅᔭᓗᓂ ᐅᓗᓕᐊᓇᖅᑐᒋᐊᖅᓯᖓᓱᐊᖅᑐᓄᑦ ᐊᐅᑕᕐᑎᓂᓂᒧᑦ ᐋᓐᓂᐊᖅᑎᖅᑕᐃᑕᒪᓂᖅᓯᒋᓐᓂᒃ ᐅᓗᓕᐊᓇᖅᑐᒋᐊᖅᓯᖓᓱᐊᖅᑐᓄᑦ ᐃᓄᐃᑦ ᐅᓗᓕᐊᓇᖅᑐᒋᐊᖅᓯᖓᓱᐊᖅᑐᓄᑦ ᐃᓕᓐᓂᐊᕐᓗᒋᑦᓴᑦᑎᓂᒧᑦ ᐊᒪᓗ ᐊᐅᑕᕐᑎᓂᓂᒧᑦ ᐊᐅᑕᕐᑎᓂᓂᒧ

ᐱᓂᓪᓗᐊᕐᓂᓪᓕ ᐊᒪᓗ ᐊᔨᓪᓴᒃᑐᓪᓕ

ᑲᔨᔨᒥᒃ ᐃᓪᓕᓴᒃᓯᓇᓯᒃᑕᓴᓯᒪᒪᓗᐊᖅᑎᓪᓗᑐ ᐊᒪᓗ ᐊᐅᓪᓚᕆᓂᕐᒥᒃ ᐅᓗᓛᐊᓇᖅᑐᐃᓪᑐᖅᓇᓂᕐᒥᒃ, ᐊᖅᑎᔨᑦ ᐱᓂᓪᓗᐊᕐᓂᓪᓕ ᐊᒪᓗ ᐊᔨᓪᓴᒃᑐᓪᑐ ᑕᐃᒪᐅᔨᖅᑐᓪᑐᖅᑐᓪᓕ ᐃᖅᑎᖅᑐᓪᓕ ᐃᓄᒃ ᑕᒪᓪᒪᐅᓂᖅᓱᓄᓪᑦ, ᐊᒪᓗ/ᐅᓴᓗᓂᓪᑐ ᐃᓄᒃ ᑕᒪᓪᒪᐅᓂᖅᓱᓄᓪᑦ. ᑎᑎᕂᖅᓯᒪᔨᑦ ᐊᔨᓪᑕᑐᐃᓪᓇᓚᐊᖅᑲᖅᑐᓂᒃ ᐅᓴᓗᓂᓪᑐ ᐱᓂᓪᓗᐊᕐᓂᓪᓕ ᐱᓪᓚᕆᔨᑦ ᐱᕐᔪᒥᑎᓂᓪᑐ ᐊᒪᓗ ᖃᓄᓇᓪᓚᐅᓂᓪᑐᓄᓪᓕ, ᐃᓪᓚᐅᔨᓗᑎᒃ ᓄᓇ ᐅᓴᓗᓂᓪᑐ ᓯᓂᑎᑐᓂ, ᓯᓪᓚᐃᓪᓇᒥᓪᑦ ᐊᒪᓗ ᐊᔨᕐᓇᓂᕐᒪᓇᓂᖅ, ᐃᓪᓕᐅᓪᓇᒥᓪᑦ ᐱᖅᑎᓪᓚᕆᓂᖅᑐᓪᑐᖅᓇᓂᕐᒥᒃ ᐱᓪᓚᕆᓪᓚᐃᖅᑐᓪᑐᖅᑐᓪᑐᖅᓇᓂᕐᒥᒃ ᐃᓪᓕᐅᓪᓇᒥᓪᑦ ᐱᓪᓚᕆᓪᓚᐃᖅᑐᓪᑐᖅᑐᓪᑐᖅᓇᓂᕐᒥᒃ ᐱᖅᑎᓪᓚᕆᓪᓚᐃᖅᑐᓪᑐᖅᑐᓪᑐᖅᓇᓂᕐᒥᒃ ᐊᐅ

ᐱᓴᐊᑎᖏᑦ ERP ᑐᓂᓯᓂᖅᓯᑦ ᑲᑎᓯᒪᓴᓂᖅ ᑐᑭᓯᐅᒪᓴᕆᑎᑦ ᓇᑭᖏᑦᓱᓕᕆᓂᖅᓯᒪᓕᒃᑯᑦ ᐱᓕᕆᔨᐅᓴᒃ, ᑲᓐᑐᕋᖅᑲᖅᑐᓄᑦ, ᐊᒪᓗ ᐅᓴᕋᖏᓂᕐᓂᖅᓴᖅᓯᐊᖅᑲᓕᖅᑐᓄᑦ ᐅᕙᓪᓕᐊᑲᐅᑎᓂᓂᖅᓯᒪᑦ ᐊᒪᓗ ᐃᓚᐊᖅᑐᕐᒋᑦ ᖃᑲᐅᔨᐅᕙᖏᓐᓇᖅᑐᓂᖅᓴᖅ ᑐᐊᔪᓇᖅᑐᒥᒃ ᑕᐃᒪᐅᕙᖏᓐᓇᖅᑐᑦ ᐱᓕᕆᐊᒥᑦ ᖃᓄᓇᐃᓕᐅᕋᓂᐅᕙᓪᓕᐅᕙᓪᓕᖅ.

ᖃᑲᐅᔨᑎᑎᓂᖅ, ᖃᑲᐅᔨᓴᓕᓯᐅᕋᓂᖅ, ᐊᒪᓗ ᐅᓂᒃᑲᓕᐅᕋᓂᖅᓯᒪᑦ ᐊᑐᖅᑕᐅᕙᑦ ᐱᓴᐊᑎᖃᖅᑐᓄᑦ ᐊᓴᑐᐊᓂᖃᖅᑐᓄᑦ ᑲᑎᓴᖃᑎᒋᓂᖅᑐᓄᑦ ᐊᒪᓗ ᐱᓕᕆᔨᐅᕙᑦᓄᑦ ᓇᓗᓇᐃᔾᖃᓯᒪᓕᒃᑯᑦ <ᖁᓕᐅᑎᑎᑦ. ᐱᓕᕆᐊᖏᓐᓄᑦ, ᐊᓴᓂᓯᓴᑦ ᐊᓯᕈᖏᓂᕐᖁᖅᓴᓯᓕᒥᓄᖅ ᑐᐊᔪᓇᖅᑐᒧᑦ ᐅᕙᓪᓕᐊᓂᓯᒪᑦ ᐱᓕᕆᓂᐊᖅᑐᓄᑦ ᐃᑲᔪᖅᑕᐅᓂᐊᕆᓯᒪᓂᖅᓴᖅ ᐊᒪᓗ ᐊᑦᑕᕆᓂᖅᑐᓄᑦ ᐃᓚᖅᑎᑦᓯᓂᖅ, ᐋᓐᓂᓯᐊᖅᑐᑕᐃᓕᒥᓂᖅᓴᖅ ᐊᒪᓗ ᐊᑦᑕᓇᖅᑐᒃᑎᓂᑎᑦᑕᐃᓕᒥᓂᖅᓴᖅ, ᐊᒪᓗ ᐊᐅᑎᒥᒃ ᖃᑲᐅᔨᓴᓕᓂᓪᓕᖅ. ᐊᒪᓗ ᓇᓗᓇᐃᔾᖃᓯᒪᔨᖅᑕᐅᓂᖅ <ᖁᓇᐅᑎᑎᑦ ᑐᐊᔪᓇᖅᑐᑕᓂᖅᓯᒪᑦ ᐅᕙᓪᓕᐊᔨᓇᓂᖅᓯᒪᑦ ᐊᔨᖓᑎᑦᑐᑦ ᐱᓕᕆᐊᖓᑦᖃᑦᑕᐅᓂᖅᑐᑦ. ᓇᓗᓇᐃᔾᖃᓯᒪᔨᖅ ᖃᓇᓂᖅ ᑕᒪᒃᑯᓂᖓᓕᕆᔨᐅᕙᑦ, ᑲᑎᓴᖃᑎᒋᓂᖅ, ᐊᒪᓗ ᓄᓇᓕᓂᖅ ᐃᓕᐅᓂᐅᕙᓪᓕᖅᑐᓂᖅ ᐱᖓᓕᓕᐅᕙᓪᓕᖅ ᐊᒪᓗ ᐊᑐᓕᖅᑎᓂᓯᒪᓂᖅ ᑭᒃᓴᓇ <ᖁᓇᐅᑎᑎᑦ ᐃᓗᐊᓂᑎᑦ; ᓄᑦᓗ ᐊᑐᖅᑕᐅᖏᓐᓄᖏᓐᓇᖅᑐᖅᖃᓂᖅ ᐱᓕᕆᔨᐅᕙᓪᓕᐅᕙᓪᓕᖅ ᐃᓄᖏᓪᓕᓴᓂᓂ ᐋᖅᑭᒃᑲᐊᓂᕐᒥᑦ ᐊᒪᓗ ᐊᑐᕆᖅᑎᖓᓂᓯᒪᓂᖅ ᑭᒃᓴᓇ <ᖁᓇᐅᑎᑎᑦ ᐃᓗᐊᓂᑎᑦ; ᓄᑦᓗ ᐊᑐᖅᑕᐅᖏᓐᓄᖏᓐᓇᖅᑐᖅᖃᓂᖅ ᐱᓕᕆᔨᐅᕙᓪᓕᐅᕙᓪᓕᖅ ᐃᓄᖏᓪᓕᓴᓂᓂ ᐋᖅᑭᒃᑲᐊᓂᕐᒥᑦ ᐃᓚᖅᑎᑦᓯ

EXECUTIVE SUMMARY

The Risk Management and Emergency Response Plan (Plan) for the Meliadine Gold Project (Project) is divided in three main sections: (1) Risk Assessment and Management, (2) Accidents and Malfunctions, and (3) Emergency Response Plan.

Agnico Eagle Mines Limited (Agnico Eagle) is committed to protecting the health and safety of all its workers and the environment, and to adhering to all legislated safety and environmental standards. The necessary resources will be available to respond quickly and efficiently to all emergencies to prevent injury to, or degradation of, the health of individuals or the environment. In implementing its emergency response plan (ERP), Agnico Eagle will set preparedness targets and report its progress on a regular basis.

Risk Assessment and Management

Risk assessment and management are integrated in the Responsible Mining Management Systems. This Standard details the elements of an integrated system designed on the principles of continual improvement (through the PLAN-DO-CHECK-ACT cycle). It is divided into 17 elements, with each element set out to achieve a specific objective in the management of health, safety, environment, and social acceptability risks.

Assessment of potential natural hazards (including extreme weather events, natural seismic events, landslides, and flooding) in the local study area, including frequency, magnitude, and possibilities of occurrence will be documented. This will include, notably, identification of hazards and classification of risks associated with all phases of the Project. The risk assessment process is used to establish priorities for risk mitigation and control. Each hazard classified as representing a priority risk will require an action plan with recommendations to mitigate and/or control the risk. Contingency plans will be developed as necessary. This information is documented and followed with Intelex software.

Accidents and Malfunctions

Despite an ongoing effort to identify and manage risks, major accidents and malfunctions could occur through natural events, breakdown of mitigation measures, and/or human error. A list of potential malfunctions or accidents associated with Project facilities and activities, including land or ice based, air and road transportation, occurring independent of, or associated with natural hazards, will be developed through the risk assessment process that is part of the Responsible Mining Management Systems. An analysis of the potential for malfunctions and accidents will be done using a methodology linking likelihood with consequence severity. This exercise will incorporate a sensitivity analysis and take into account the constraints resulting from logistics, time frames for prompt reaction (potential distance to an accident or emergency site), and possible weather conditions, which might cause considerable delays and obstacles.

A series of emergency response scenarios are provided in this Plan including: fire, helicopter crash, pipeline break, toxic gas release, fuel spill, dike failure, emulsion plant emergency, and Rankin Inlet Itivia emergency.

Emergency Response Plan

The ERP addresses gold mining, processing, transportation, and related activities at the proposed mine site, as well as possible emergency scenarios that may occur off-site along the All-weather Access Road or at the Rankin Inlet Itivia facility. Guiding the development of the ERP has been the principle that an effective plan must provide:

- a clear chain of command for health and safety activities;
- well-defined corporate expectations regarding health and safety;
- comprehensive hazard prevention and control methods; and
- record-keeping requirements to track program progress.

The purpose of the ERP is to provide a consolidated source of information for employees, contractors, and site visitors to respond quickly and efficiently to any foreseeable emergency that would likely occur in relation with Project activities.

Alerting, notification, and reporting procedures with the associated responsible organisations and personnel are detailed in the Plan. For its Project, Agnico Eagle will have a trained Emergency Response Team supported by management, health and safety, and environment professionals. Also defined in the Plan are the emergency response capabilities to be put in place and maintained. A description of how relevant agencies, organisations, and local communities will be involved in the development and application of this Plan are presented herein; for example the options for the medical transport of injured staff or persons both within and beyond the Project area are discussed.

There will be no fixed wing aircraft infrastructure at the proposed mine site. The emergency response plan of the Aircraft Company and Rankin Inlet airport will be used in the event of an emergency.

The camp complex, process plant, and other buildings will be equipped with a fire detection and audible fire warning system. All site operations personnel will receive basic training in the use of fire extinguishers.

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TABLES AND FIGURES

DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	October 2012			First draft of the Risk Management and Emergency Response Plan	Mélanie Roy, Env. Coord., AEM
2	March 2013	2	7	Insurance coverage	Larry Connell, Director Env., AEM
3	April 2014	1.2 4.6.7 4.6.8 1.3 4.1.12	1-2 29 29-30 2-4 17	Addressed technical comments – included Phase 2 AWAR, Bypass Road and Itivia. Planned location and mobilization of emergency response equipment and emergency response personnel Sustainable Development Policy replacing and adding to former Environment Policy and H&S Policy Updated Table 4-1	John Witteman, Env. Consultant, AEM Josée Noël, Env. Coord., AEM
4	April 2015			Update of Plan for Class A Water Licence	John Witteman, Env. Consultant, Agnico Eagle

ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited
EMC	Emergency Measures Counsellor
EPP	Emergency Preparedness Plan
ERP	emergency response plan
ERT	Emergency Response Team
HR	Human Resources
H&S	Health and Safety
JHSC	Joint Health and Safety Committee
Medevac	Bedside to bedside ground and air ambulance provider
OHF	Oil Handling Facility (Itivia)
Plan	Risk Management and Emergency Response Plan
PPE	Personal Protective Equipment
RCMP	Royal Canadian Mounted Police
RMMS	Responsible Mining Management System

SECTION 1 • INTRODUCTION

1.1 Overview

This Risk Management and Emergency Response Plan (Plan) for the Meliadine Gold Project (Project) is a working document that will be refined and finalized prior to construction activities, and will be reviewed and updated on a regular basis throughout mine development, including construction, operations, closure and, if necessary, post-closure.

The document is divided in three main sections:

1. Risk Assessment and Management;
2. Accidents and Malfunctions; and
3. Emergency Response Plan.

1.2 Purpose and Scope

The purpose of this Plan is to provide a consolidated source of information for employees, contractors, and site visitors to respond quickly and efficiently to any foreseeable emergency that would likely occur in relation with Project activities. This Plan forms a component of the Responsible Mining Management System (RMMS) for the Project.

This Plan addresses emergency scenarios that could result from gold mining, processing, transportation, and related activities at the Project; including but not limited to, the mine site, All-weather Access Road, Rankin Inlet bypass road to Itivia, and Agnico Eagle Mines Limited (Agnico Eagle) Itivia facilities. Guiding the development of this document has been the principle that an effective emergency response plan (ERP) must provide:

- a clear chain of command for health and safety activities;
- well-defined corporate expectations regarding health and safety;
- comprehensive hazard prevention and control methods; and
- record-keeping requirements to track program progress.

Agnico Eagle will ensure that all employees, contractors, and site visitors fully understand and comply with all legislated safety standards, and the policies and procedures outlined in the Plan.

This Plan will be reviewed annually, or more frequently as required, to ensure compliance with applicable legislation, to evaluate its effectiveness, and to continually improve procedures. All employees, contractors, and site visitors are encouraged to offer suggestions to eliminate potential hazards, minimize spills, and improve work procedures.

1.3 Agnico Eagle's Sustainable Development Policy

At the core of our Policy, we are committed to creating value for our shareholders by operating in a safe, socially, and environmentally responsible manner while contributing to the prosperity of our employees, their families, and the communities in which we operate. This has translated into the four fundamental values of our Sustainable Development Policy: operate safely, protect the environment, treat our employees with respect, and treat our communities with respect. We, at Agnico Eagle, commit to:

- Promote leadership, personal commitment, and accountability to these principles from all employees and contractors, both on and off the job.
- Assess potential impacts and risks associated with our activities throughout the life cycle of our projects or operations, including impacts of purchasing or acquisition decisions on the basis of our sustainability values.
- Ensure sufficient resources are allocated to implement and manage these commitments.
- Design and operate our facilities to ensure that effective controls and technologies are in place to minimize and mitigate the identified risks.
- Evaluate, control, eliminate, or minimize risks through the implementation of a RMMS.
- Verify regularly our performance.
- Strive for continuous improvement by setting targets, measuring results against those targets and recognizing and rewarding performance.
- Comply in full with our internal policies and Code of Business Conduct and with the laws and regulations in each country in which we operate.
- Implement emergency response plans to eliminate or minimize and mitigate the impacts of unforeseen events.
- Engage in open and transparent communication and reporting of our policies, programs, payments to government, and performance to our stakeholders.
- Provide appropriate planning and supervision to ensure that our policies, procedures, and RMMS are implemented by all.

Implementing this Plan is thus imbedded into our core Policy commitments.

1.3.1 Operate Safely

We aim to operate a safe and healthy work place that is injury and fatality free. We believe that if we all work together, we can achieve zero accidents in the work place and enhance the well-being of employees, contractors and communities. To achieve a safe and healthy workplace we:

- use sound engineering principles in the design and operation of our facilities;
- provide appropriate training for all employees, at all levels of exploration, development, construction, and operations;
- minimize the generation of hazardous conditions and ensure controls are in place;

- maintain occupational health and industrial hygiene programs;
- provide appropriate tools to carry out the work safely and efficiently; and
- maintain a high degree of emergency preparedness to effectively respond to emergencies.

All relevant safety and emergency response laws and regulations are incorporated into this Plan as minimum standards. The necessary resources will be available to respond quickly and efficiently to all emergencies to prevent injury to, or degradation of, the health of individuals or the environment. In implementing this Plan, Agnico Eagle will set preparedness targets and report its progress on a regular basis. Emergency response will be tested on a periodic basis to ensure its effectiveness.

1.3.2 Protect the Environment

We aim to minimize the effects of our operations on the environment and maintain its viability and its diversity. To achieve this we:

- minimize the generation of waste and ensure its proper disposal;
- manage tailings, waste rock and overburden to ensure environmental protection;
- implement measures to conserve natural resources such as energy and water;
- implement measures to reduce emissions to air, water and land, and to minimize our footprint;
- implement measures to reduce our greenhouse gas emissions and address climate change;
- integrate biodiversity conservation and land use planning considerations through all stages of business and production activities; and
- rehabilitate sites to ensure physical and chemical stability and in consultation with the communities in a timely manner.

1.3.3 Respect for our Employees

We aim to maintain a safe and healthy workplace that is based on mutual respect, fairness and integrity. To achieve this we:

- ensure that no discriminatory conduct is tolerated in the workplace;
- provide a fair and non-discriminatory employee grievance system;
- value diversity and treat all employees and contractors fairly, providing equal opportunity at all levels of the organization without bias;
- employ and promote employees on the basis of merit;
- provide fair and competitive compensation;
- enforce a drug and alcohol free workplace;
- maintain the confidentiality of collected personal and private information about employees;
- recognize the right of employees to freedom of association;
- provide appropriate training and development opportunities; and
- consult, communicate, and provide appropriate support to employees during their association with Agnico Eagle.

1.3.4 Respect for our Communities

We aim to contribute to the social and economic development of sustainable communities associated with our operations. To achieve this we:

- provide a confidential complaint reporting mechanism to report unethical, illegal, or irresponsible behaviour;
- ensure that no child labour or any form of forced and compulsory labour are permitted in the workplace;
- uphold fundamental human rights and respect cultures, customs, and values of all affected by our activities;
- foster an open, transparent, and respectful dialogue with all communities of interest and ensure that activities on private lands and indigenous lands are performed with the free prior informed consent of the land owners;
- support local communities and their sustainability through measures such as development programs, locally sourcing of goods and services, and employing local people; and
- provide assurance that our operations will not support, benefit or contribute to unlawful armed conflict, serious human rights abuses, or breaches of international humanitarian law.

1.3.5 Contractors and Visitors

Every person working at or visiting the proposed mine site will receive an orientation upon arrival and, as such, will be apprised of, and required to, follow the ERP policies and procedures set forth in this Plan. For a list of responsibilities of key personnel, see Section 4.1.

Major contractors, such as those for mining and hauling, will be required to have their own health and safety services. These will be verified by Agnico Eagle management prior to engagement of the contractor.

1.4 Related Documents

Documents containing information related to this Plan include the following:

- Environmental Management and Protection Plan;
- Spill Contingency Plan;
- Explosives Management Plan;
- Occupational Health and Safety Plan (Agnico Eagle 2014a);
- Hazardous Materials Management Plan;
- Landfill and Waste Management Plan;
- Incineration Management Plan;
- Shipping Management Plan (Agnico Eagle 2014b);
- Oil Pollution Emergency Plan (Agnico Eagle 2014c);
- Roads Management Plan;
- Mine Waste Management Plan; and
- RMMS.

SECTION 2 • RISK ASSESSMENT AND MANAGEMENT

Risk assessment and management are integrated in the RMMS, which was built to be consistent with ISO 14001 and OHSAS 18001. It also aims to achieve leading industry practices and as such meets the requirements of the following commitments:

- Toward Sustainable Mining Initiative from the Mining Association of Canada;
- International Cyanide Management Code;
- Conflict Free Gold Standard from the World Gold Council;
- Global Reporting Initiative 4; and
- Carbon Disclosure Project.

The RMMS details the elements of an integrated system designed on the principles of continual improvement (through the PLAN-DO-CHECK-ACT cycle) described in the RMMS Standard. It is divided into 17 elements, with each element set out to achieve a specific objective in the management of health, safety, environment, and social acceptability risks. Figure 2-1 illustrates the cycle on which the RMMS is based.

Assessment of potential natural hazards (including extreme weather events, natural seismic events, landslides, and flooding) in the local study area, including frequency, magnitude, and possibilities of occurrence will be documented. This will include, notably, identification of hazards and classification of risks associated with all phases of the Project. The risk assessment process is used to establish priorities for risk mitigation and control. Each hazard classified as representing a priority risk will require an action plan with recommendations to mitigate and/or control the risk. Contingency plans will be developed as necessary. This information will be documented and followed with Intelex software.

The Formula of Supervision is the first level of risk assessment and management. It must be applied in the field daily by the operators and their supervisors before starting a task according to the Agnico Eagle Standard of Formula of Supervision. The immediacy principle applies all the time in managing risk.

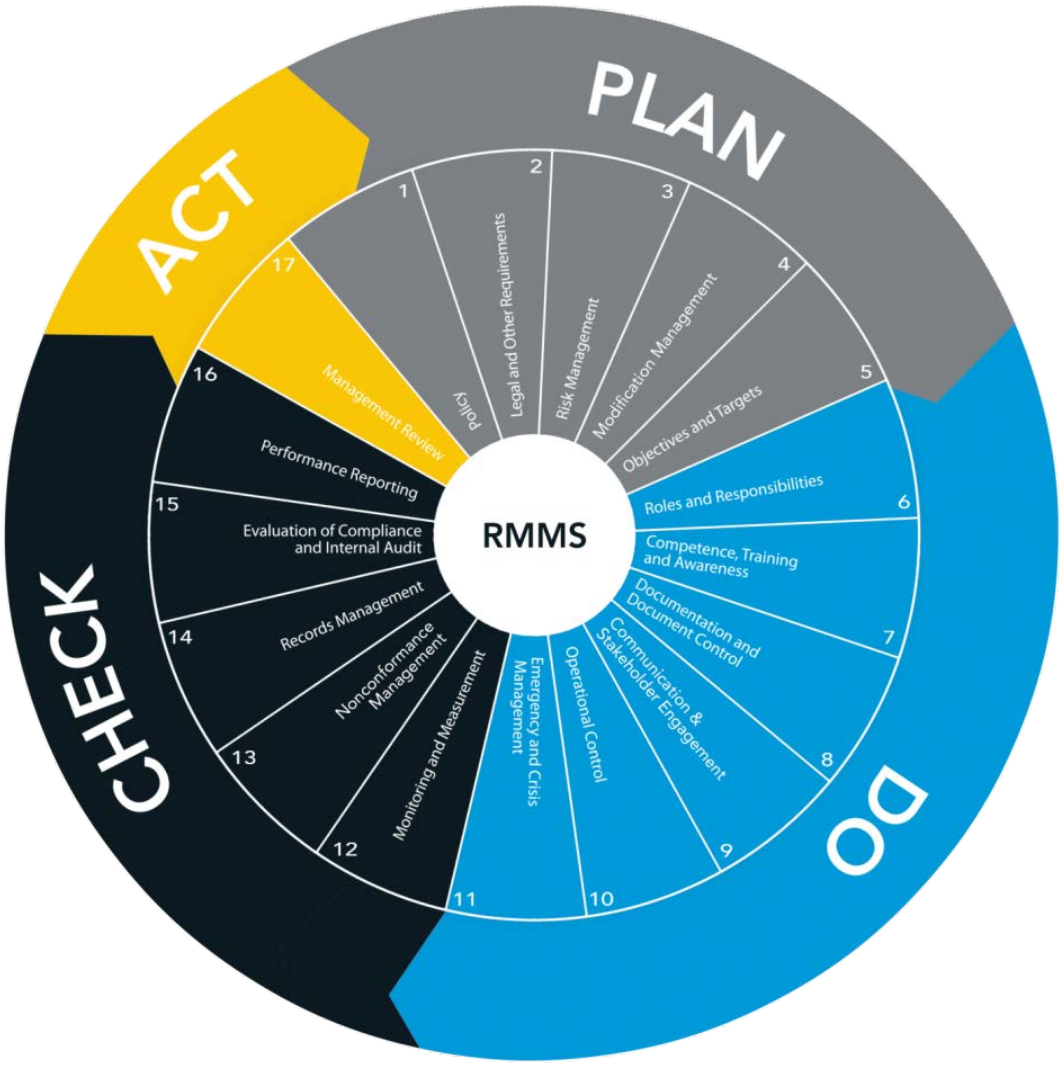

Figure 2-1 Agnico Eagle's Formula of Supervision (PLAN-DO-CHECK-ACT cycle)

The approach to risk management includes the following steps:

- Establish the context in terms of probability and consequences for health and safety, environment, and social acceptability risks, including the definition of what constitutes an acceptable risk.
- Systematically identify hazards/aspects to determine risk scenarios.
- Evaluate risks by qualitative or quantitative assessment(s) with and without the application of control measures.
- Record the risk analysis in the risk register, and document who attended the risk analysis workshops and/or the contributors.

- Manage risks according to their classification of either Low, Medium, High, or Very High (classified using a 5x5 consequence and probability matrix similar to the one shown in clause 2.2) to achieve levels that are deemed to be As Low As Reasonably Practicable.
- Use the following hierarchy of control (from high to low):
  - elimination;
  - substitution;
  - engineering;
  - administrative controls; and
  - personal protective equipment (PPE).
- Develop an action plan for risk management.
- Re-evaluate the risk and classification on a regular basis and when significant changes occur (see the modification management element in RMMS Standard) and update the risk register.
- Document, report, and communicate the risk information.

Information on potential hazards, including the description of the likelihood of possible malfunctions and accidents occurring independently of, or associated with, natural hazards, will be acquired using different sources, examples listed below:

- regulatory requirements;
- Sustainable Development Policy;
- records of incidents, accidents, and non-conformance;
- Environmental Management System audits;
- suggestions from employees and others;
- health and safety consultations;
- information on best practices, typical hazards for the industry, and incident and accident occurrences in other organizations;
- inventory of hazardous materials and toxicology of the hazardous materials;
- monitoring data; and
- administrative, engineering, and PPE controls.

Agnico Eagle plans to document the identification of hazards and classification of risks. This will be used to establish priorities for risk control and action. Each hazard classified as representing a priority risk will require an action plan with recommendations to control the risk. Recommendations may include:

- operational controls;
- training and awareness; and
- performance measurement and monitoring.

The action plan and recommendations will be forwarded to the appropriate sector manager for follow-up. In all cases, the action plan and recommendations will be communicated to affected and

interested employees (and others as required). Typically, the recommendations will be implemented in consultation with affected and interested employees (and others as required). The mitigation measures will address the potential ecological and human health risks. The constraints resulting from logistics and timeframes for prompt reaction, with consideration for the potential distance to an accident or emergency site, and possible weather conditions, which might cause considerable delays and obstacles, will be considered.

Agnico Eagle also purchases and maintains insurance coverage against major loss caused by accidents or malfunctions (such as fire, loss of equipment due to accident, etc.) at each of its operating mines as part of its risk and loss control management strategy. Such coverage in itself does not prevent loss but it does help manage loss in the following manner:

- The insurance companies typically inspect major facilities as part of their due diligence before selling insurance coverage. These inspections help Agnico Eagle ensure that its loss control measures are adequate and meet current industry standards.
- Insurance coverage assists Agnico Eagle in recovery from a major loss, for example insurance helped Agnico Eagle recover from the major fire that occurred at its Meadowbank operation in early 2011 that destroyed the site's kitchen and dining facility.

SECTION 3 • ACCIDENTS AND MALFUNCTIONS EVALUATION

Despite an ongoing effort to identify and manage risks, major accidents and malfunctions can occur through natural events, breakdown of mitigation measures, or human error. A list of potential malfunctions or accidents will be developed from these sources:

- public concerns;
- Project personnel;
- comparative projects; and
- experience of personnel with other projects.

Only credible malfunctions and accidents with a reasonable probability of occurring will be assessed.

Although the likelihood or probability of such events is low, accidental events could have environmental, health, or safety repercussions. An analysis of the potential for malfunctions and accidents associated with Project facilities and activities, including land or ice based, air or road transportation, occurring independent of, or associated with natural hazards, will be done using a risk matrix, as presented in Tables 3.1 to 3.3 below. A sensitivity analysis of the Rankin Inlet area, including an evaluation of the probability of accidents and malfunctions that may be unlikely but would be of significant impact (e.g., major fuel spills, etc.) to the environment, Nipisar Lake, other potential municipal water sources, and to Rankin Inlet will be taken into consideration. The major accidents and malfunctions identified are described in Section 4.6.

Table 3-1 Consequence Severity Levels

Level	Consequence
5	Critical
4	Major
3	Moderate
2	Minor
1	Insignificant

Table 3-2 Probability (likelihood) of Accidents and Malfunctions

Probability	1	2	3	4	5
Likelyhood	Rare or Improbable < 1%	Unlikely or Remote > 1% and < 20%	Possible or Occasionnal > 20% and < 50%	Likely or Probable > 50% and < 99%	Almost Certain / Expected > 99%
Timeframe	Occurs less than once every 20 years	Could occur in 5 to 20 years	Could occur in 2 to 5 years	Could occur annually	Consequences are presently being felt
Experience	No experience of this happening in the broader worldwide industry but is theoretically possible	A similar outcome has arisen at some time previously in the company worldwide or broader industry	A similar outcome has arisen at some time previously in local operations	A similar outcome has arisen several times per year in the company worldwide or broader industry	A similar outcome has arisen several times per year in local operations

Table 3-3 Risk Matrix

		Probability				
Consequence		**Rare or Improbable 1**	**Unlikely or Remote 2**	**Possible or Occasional 3**	**Likely or Probable 4**	**Almost Certain / Expected 5**
Critical	**5**	Medium	Medium	High	**Very High**	**Very High**
Major	**4**	Low	Medium	High	High	**Very High**
Moderate	**3**	Low	Medium	Medium	High	High
Minor	**2**	Low	Low	Medium	Medium	Medium
Insignificant	**1**	Low	Low	Low	Low	Medium
Opportunity	**-1**	Low	Low	Medium	High	High

SECTION 4 • EMERGENCY RESPONSE PLAN

4.1 Organization and Job Responsibilities

This section details the roles and responsibilities of all parties involved in emergency response planning and implementation at the Project.

4.1.1 General Mine Manager

The General Mine Manager is responsible for implementing and maintaining this Plan. In addition, the General Mine Manager's responsibilities are to:

- Act as a spokesperson on behalf of Agnico Eagle with the public, media, and government agencies, as required.
- Prepare and submit any formal reports (within the required time frame) to regulators and Agnico Eagle management detailing the occurrence of an emergency (this includes submitting an incident reporting form).
- Ensure that the H&S and Environment Superintendents have the means (financial and otherwise) to ensure that all required resources are made available, or provided from off-site if required.
- Work with the H&S, Human Resources (HR), and Environment Superintendents to evaluate what training is required by all staff, ensure that all staff are given appropriate training, and ensure that all staff are retrained as needed.
- Ensure that the HR Superintendent has the means (financial and otherwise) to ensure that all employees' training requirements are current.
- Ensure that inspections of emergency response training practices and emergency response equipment are carried out.
- Ensure that emergency response exercises are conducted annually.
- Ensure that the results of the regular inspections are used to improve emergency response practices, and improve relevant plans accordingly.
- Complete an annual detailed review of the ERP with the management team and the Joint Health and Safety Committee (JHSC), with particular emphasis on the objectives and methods of the plan, and the job descriptions of all positions named within.
- Ensure that this Plan remains up-to-date, and that updated versions are available on request.
- Ensure that updates to new emergency communications information (new phone numbers, changes in reporting structure, etc.) are distributed as soon as the new information becomes available.
- Keep a formal record of distribution and amendments to this Plan.

4.1.2 Emergency Response Team

No single department can handle an emergency alone. Everyone must work together to manage the emergency and coordinate the effective use of all available resources. The site will have an Emergency Response Team (ERT) trained and responsible for firefighting, controlling spills, and assisting with medical and other emergencies that may occur at the proposed mine site. The team members will attend regular training sessions.

Therefore, at the time of any emergency, all management team and/or their designate must report to the Emergency Coordination Centre. The ERT structure lends support, fosters efficiency, and provides additional knowledge during an emergency response situation.

The Official In-Charge maintains the overall coordination and direction of the emergency response and ensures the continued safety of all employees and the public. However, the development of the overall ERP is prepared with the help of the Superintendent or designate of the sector affected by the emergency.

The remainder of the ERT will be given specific tasks to perform to assist with the management and coordination of the ERP.

The roles and general responsibilities of the members of the ERT are described further in this section.

4.1.2.1 Official In-Charge

The Official In-Charge (General Mine Manager or designate) will take charge for overseeing and approving the overall emergency strategy.

Immediate duties of the Official In-Charge include:

- consult with the Incident Commander on the status of emergency;
- appoint an Emergency Log Recorder to record the time and events, including all discussions, instructions and decisions made by the ERT;
- issue specific tasks to the members of the Management team as they arrive at the Control Room;
- brief the ERT;
- arrange for all reports to be presented at specific intervals to the ERT;
- ensure that the safety of personnel is maintained throughout the operation;
- ensure procedures are in place for prompt dispatch of requested personnel, materials and equipment to the emergency area;
- finalize the recommendations of the Incident Commander for rescue and recovery operations;
- release information to Government Agencies, Corporate Office, or the Local Communities, as the only person authorized to do so;

- delegate information release to other members of the ERT, with the following in mind:
  - verify all information to be released;
  - keep a record of all inquiries (media and non-media);
  - do not speculate on causes;
  - do not speculate on resumption of normal operations or when the problem will be solved; and
  - advise that further updates will be forth coming;
- notify the corporate management if the following appear probable:
  - fatality;
  - injury that could probably become item of local, regional or national media interest;
  - a public health or environmental risk;
  - an incident involving chemicals where there is a large volume or the potential for over reaction (e.g., cyanide);
  - a spill of effluent or contaminated water or chemical substance to an area that lies outside the area of drainage control of the mine site (i.e., an external spill);
  - mine operations may be stopped for more than two days; and
  - government authorities will become involved;
- ensure all response teams, regulatory agencies and any other agency on emergency alert notice are advised when the emergency has ended;
- ensure all documentation (i.e., notes, log sheets, written instructions, etc.) is gathered for the creation of the final report; and
- participate in debriefing.

4.1.2.2 Incident Commander

The responsibilities of the Incident Commander include:

- ensure Security has been notified of the emergency;
- ensure the evacuation procedures have been activated, if required;
- ensure that there are sufficient ERT members available to respond to the emergency;
- ensure that the ERT has back-up support;
- ensure that ERT has refreshments and nourishment (if the emergency requires several hours to be resolved);
- assess the size and severity of the emergency and the likely consequences;
  - establish response priorities;
  - if it is believed the services of a rescue team are or may be necessary, do not delay in requesting their services;
  - ensure that the emergency call-out procedures are followed;
- maintain communication with the ERT Captain;
- advise the Official In-Charge of all decisions regarding the rescue and recovery operations;

- appoint sufficient personnel, equipment, and outside services are available; utilize the members of the ERT to organize these resources;
- advise the Official In-Charge when the emergency situation is under control and give the "All-Clear";
- participate in emergency investigation;
- coordinate an orderly return to normal operating conditions;
- arrange for a debriefing session, and utilize the services of all people involved in resolving the emergency;
- review any procedures that may be related to the cause of the emergency;
    - if any revisions to the procedure(s) are required, ensure they are communicated to all employees that could be affected;
    - alternatively, if from the accident investigation it is determined that new procedures are required, ensure that these procedures are formulated and communicated to the affected employees; and
- compile the final report.

4.1.2.3 Emergency Log Recorder

The Official In-Charge will appoint an Emergency Log Recorder. The log is intended to be a progressive record of the events from the start of the emergency through all phases up to termination, and will be used in the preparation of the final report. It is important that the log be legible and that all information be recorded.

Emergency log information will include the following:

- date and time the incident was reported, and who reported the event;
- all subsequent developments as they occur;
- all phone calls, all discussions, and decisions made; and
- any other information that needs to be captured for the final report.

All the sheets of paper should be numbered. All the pages have to be initialed by the Emergency Log Recorder and the Official In-Charge. The official document will stay with the Health and Safety Department upon completion of the emergency.

4.1.3 Emergency Measures Counsellor

The responsibilities of the Emergency Measures Counsellor (EMC) will be to:

- mobilize all ERT personnel, equipment, PPE, and supplies, as required, to the site of the emergency;
- assist in developing and implementing emergency response training programs and exercises;
- review and update Emergency Fire and Evacuation Procedures on a minimum annual basis;

- consolidate and maintain site Fire Prevention and Fire Response Plans;
- maintain all plans, records, and logs relating to fire prevention and response;
- ensure fire incident reports are filed, detailing the causes and responses to fires;
- ensure that all firefighting equipment is inspected regularly and maintained functional;
- ensure that smoke detectors and site fire extinguishers are in proper working order;
- ensure that muster stations remain clear of debris and any other materials that may restrict or limit access; and
- perform regular inspections of fire warning and firefighting equipment.

4.1.4 Environment Superintendent

The following are the responsibilities of the Environment Superintendent:

- provide technical advice on probable environmental effects resulting from an emergency and how to minimize them;
- provide advice to the Incident Commander for appropriate response procedures as it relates to minimizing the potential impacts on the environment;
- be involved in emergency response training exercises;
- contribute to the annual review of the ERP with the H&S Department;
- assist in implementing a routine site inspection and recording/reporting program for environmental spills; and
- assist in developing sampling and testing or monitoring programs for water, soil and air that has been or may have been directly affected by an emergency.

The site inspection and recording/reporting program for environmental spills is to address all applicable issues in relevant legislation pertaining to chemical handling, storage, labelling, use, reporting, and health and safety requirements.

4.1.5 Health and Safety Superintendent

The H&S Superintendent responsibilities are to:

- oversee all activities that require security or nursing;
- arrange for MEDEVAC transport;
- monitor contractors' H&S performance for compliance with applicable legislation and their own safety programs;
- ensure that all new site personnel are properly oriented;
- maintain up-to-date copies of all site procedures and make them available to new personnel;
- ensure that all H&S employees are responding to all emergencies and all specific needs during their absence;
- ensure that the JHSC is performing monthly tours and meetings;

- ensure that the representatives from employer, employees, and major contractors seat on the JHSC;
- ensure proper and timely documentation/reporting of inspections, investigations, and meetings; and
- in cooperation with the Environment Department, deal with wildlife issues in accordance with the mitigation measures set out in the Terrestrial Environment Management and Monitoring Plan (Agnico Eagle 2014d).

The H&S Superintendent may require the assistance of outside persons to conduct damage assessments beyond the scope of the capabilities of on-site personnel. The H&S Superintendent, with the assistance of the General Mine Manager, will identify an appropriate resource for damage assessment. When identified, this person or organization will be listed in this Plan.

4.1.6 Human Resources Superintendent

The following are the responsibilities of the HR Superintendent:

- track all emergency and H&S training that on-site staff have received and when retraining is required;
- notify the Incident Commander when retraining is required;
- ensure that employees are retrained in appropriate emergency response skills; and
- consult with appropriate organizations regarding retraining requirements and schedules.

4.1.7 Health Professional (Site First Aid)

The on-site Health Professional(s) are responsible for the following:

- provide on-site first aid and other medical support;
- provide additional training for ERT members, if necessary;
- ensure that the first aid room is properly organized and equipped with advanced first aid equipment; and
- ensure that the first aid room is maintained at all times.

4.1.8 Joint Health and Safety Committee

The JHSC is responsible reviewing the ERP.

4.1.9 All Employees

All employees have the responsibility to:

- ensure site and personnel safety;
- know the location of first aid stations and supplies, emergency and safety equipment (e.g., fire water pumps, fire extinguishers, monitors, self-contained breathing apparatus), Materials Safety Data Sheets, emergency exits, and muster stations;

- wear appropriate PPE for the task at hand;
- report all emergencies to their supervisor; and
- report by radio on the dedicated emergency channel the type, the location, and the nature of an emergency. This includes possible injuries, trapped personnel, and the presence of any chemical or explosive hazards.

4.1.10 Supervisor

The Supervisor is responsible for the following:

- ensure personnel under their supervision are equipped with and are wearing appropriate PPE for the task at hand;
- perform a preliminary assessment of an emergency; and
- inform the Incident Commander of an emergency and provide details regarding the type, the location, and the nature of the emergency, including possible hazardous materials involved and health and safety concerns.

4.1.11 Other Personnel

Depending on the nature of the emergency (medical, electrical, mechanical, fire, etc.) other site personnel, including the site electricians, site mechanics, and others, may be called upon to play key roles in emergency response.

4.1.12 Emergency Response Contact Information

Agnico Eagle internal emergency response personnel, their duties, and phone numbers are provided in Table 4-1. Important external contacts such as regulatory agencies, health organizations, and transportation companies providing evacuation support are also listed in the same table.

Table 4-1 Emergency Response Contact Information

Emergency Contact Numbers

Last update: Mar 9, 2015 Version B

Radio: Channel 1; call "CODE 1, CODE 1, CODE 1"

AGNICO EAGLE
MELIADINE

Agnico-Eagle Mines (AEM) Meliadine Project
25 km north-north-west of Rankin Inlet
63.027400 (N), - 92.171700 (W) (Helipad)

Meliadine Site Telephone Number: **819-759-3555**
Rankin Office: (Ext:3199) 867-645-2920

On Site Extensions								
	Site Infirmary	3911	Site Manager	3910	Geo office	3901	Procurement	3990
	Health and Safety	3906	Logistic	3905	Orbit	3904	Human Resources	3902
	Environment	3903	Camp Manager	3999	Rankin Office	3193	Site Services	3908
	Cmac Superintendent	3909	Geology/Geo Tech	3912	Cmac Master Mech.	3913	Cmac Shifter	3914
	Cmac Surveyor	3915	AEM Engineering	3916	Conference Room	3917	Cmac Trainer	3920
	Cmac Electrician	3932	Cmac Mechanic	3933	IT support	3950		

Medical Emergency		
Rankin Inlet Health Center Head Nurse: Gracy Dcunha	Monday - Friday 8h30 to 17h00 AFTER HOURS EMERGENCY	**(867) 645-8300** **(867) 645-6700**
Rankin Inlet Ambulance Service (Fire Dept.)	**Emergency**	**(867) 645-2525**
Rankin Inlet Search and Rescue		(867) 645-3300
Poison Control Centre (Qikiqtani General Hospital, Iqaluit)	Emergencies General inquiries	(867) 979-7350 (867) 979-7300
Law Enforcement, Rescue, Wildlife		
RCMP in Rankin Inlet (Death on camp or for Search & Rescue) (0123 = General Information, 1111 for emergency, 24H)		(867) 645-0123 (867) 645-1111
Workers' Safety and Compensation Commission (WSCC) Mine Inspector: Martin van Rooy		(800) 661-0792 (867) 979-8527
Coroner		(867) 975-7292 (867) 975-1063 cell
Conservation & Wildlife officer in Rankin Inlet Officer Johanne Coutut Autut		(867) 645-8084 (867) 645-8085
Hazmat & Spills		
CANUTEC		(613) 996-6666
Spills Hotline	Phone	(867) 920-8130
Agnico-Eagle Mines (AEM)		
Program Manager: Alexandre Proulx alexandre.proulx@agnico-eagle.com	Office	(819) 759-3555 ext: 3931
Others		
FM Radio Frequencies		
Channel 1 – General Camp Transmission – MEDIC		Rx & Tx: 167.43000
Channel 2 – Drill operations -		Rx & Tx: 163.32000
Channel 3 – Exploration – Repeater (Long distance)		Rx: 163.57500 Tx: 168.70500
Channel 4 – Camp Simplex		Rx & Tx: 168.7050
Channel 5 - Simplex		Rx & Tx: 154.3250
Channel 6 - Simplex		Rx & Tx: 158.9400
Channel 7 – Rankin Simplex		Rx: 162.75000 Tx: 167.05500
Channel 8 – AWAR Meliadine		Rx: 162.54000 Tx: 165.57000
Channel 9 – AWAR Rankin		Rx: 162.66000 Tx: 167.64000

4.1.13 Emergency Coordination Centre

Emergency operations will be directed out of the Emergency Coordination Centre and the Incident Command Centre. The Emergency Coordination Centre will have a specific room, from where the following will take place:

- key decisions will be made and operations will be managed;
- technical information to direct emergency activities will be provided;
- communications centre will be established for emergency operations and to communicate with other organizations;
- resource procurement will be provided and resource use will be directed;
- damage will be assessed and long-range objectives and plans will be developed; and
- information on the emergency will be stored and disseminated to all necessary internal and external parties.

The following information will be available at the Emergency Coordination Centre:

- shutdown procedures for operations;
- locations of hazardous material storage areas;
- locations of emergency and safety equipment;
- locations of first aid stations and muster areas;
- maps of communities and environmental maps;
- information on location of other communications equipment, including portable sets;
- information on emergency power;
- contacts for other utilities;
- operating manuals;
- Materials Safety Data Sheets;
- list of personnel with alternate skills for use in emergencies;
- type and location of alarm systems;
- accident and spill report forms;
- accident status board and log book; and
- notification lists, staff lists, contact lists, with regular and emergency telephone/paget numbers, etc.

The Incident Command Centre will be located at a safe and secure place near the site of the emergency. All responses and mitigation efforts developed at the Emergency Coordination Centre will be implemented through the Incident Command Centre.

In the event of an emergency, security personnel may be required to establish and maintain a security perimeter to prevent or minimize injury to personnel, to preserve evidence for investigation, or to prevent unauthorized access to the scene.

4.1.14 Training

The HR Superintendent will be responsible for documenting, tracking, and updating all training activities. Record of training requirements and training attendance will be kept, tracked, and updated for all employees by the HR Superintendent to ensure that retraining occurs as required.

For mine operations, Agnico Eagle will ensure a sufficient number of trained ERT members are on-site at all times. All members of the ERT will be trained and familiar with emergency and spill response procedures. Emergency training will be conducted annually to ensure that a sufficient number of team members are available and that their training is up-to-date.

Also, employees will be trained about all prevention measures for each risk. More details regarding security systems and prevention measures to each risk will be available in the Operation Manual or are available in the Hazardous Materials Management Plan and Occupational Health and Safety Plan (Agnico Eagle 2014a).

4.2 Emergency Response Equipment

The EMC will ensure that site drawings and equipment lists are posted conspicuously in key locations throughout the site so that important information is always readily available. This will include the following:

- location and isolation points of energy sources;
- location of emergency equipment (e.g., fire water pumps, fire extinguishers, monitors, self-contained breathing apparatus);
- emergency procedures outlines, such as specialist firefighting, chemical neutralization;
- location of equipment for combating pollution (e.g., booms, skimmers, pumps, absorbents, dispersants);
- availability of internal and external emergency medical support (e.g., hospitals, clinics, ambulances, medical supplies, personnel with medical or first aid training);
- location of toxicity testing facilities (e.g., gas and water);
- location of wind direction/speed indicators;
- directions on how to contact the local or regional weather forecasting service;
- location of personal protective equipment and directions on its proper use; and
- location of first aid stations and muster areas.

The Incident Commander, EMC, and H&S Superintendent will know where, throughout the Project site, all of this information is posted and where emergency equipment is stored. These individuals will also be trained in the proper use of emergency equipment.

External emergency response equipment includes the mobile spill response equipment described in the Spill Contingency Plan, submitted as part of the Type A Water Licence Application.

4.3 Aviation Audits

There will not be any fixed wing aircraft infrastructure at proposed mine site. Employees will be transported via charter or local airlines to Rankin Inlet airport and will then be transported by road to the mine site. The ERP of the Aircraft Company and Rankin Inlet airport will be applied in case of an emergency.[1]

4.4 Communication Systems

The primary basis for communication will be the phone system; back-up communication will be available via satellite. For on-site communication, hand-held radios will be mandatory for all employees working or travelling in remote areas from the main camp. Cell phones could be used as an additional means of communication. Back-up power sources and replacement batteries for communication equipment will be available to provide continuous, uninterrupted operation either at fixed facilities or at emergency sites.

Key site personnel will be accessible at all times by either portable radios, radios in vehicles, or office radios. The Health Professionals will carry a hand-held radio and will be available at all times. Security personnel will monitor the emergency channel twenty-four hours per day. Senior management personnel will rotate as “On-Call Managers” for after-hour emergencies. An accommodations list that highlights key personnel will be posted and updated as required.

Lists of employees trained in first aid, mine rescue, and emergency response will also be posted. Employees and contractors who will be on-site for extended periods will be trained initially and then retrained annually. This training will include the locations and use of emergency equipment, terminology used, and who needs to be contacted immediately in the event of an emergency.

4.5 Emergency Measures

In the event of an emergency, the employee will have to follow the emergency procedure:

- Emergency is initiated - by calling on two-way radio on Channel 7 – MEDIC-MEDIC-MEDIC or FIRE-FIRE-FIRE;
- All communication stops except for those involved with the Emergency (i.e., First Aid Room Attendants, Medics, ERT, as required);
- All work stops in First Aid Room/Clinic, in affected area and, depending on seriousness of emergency, in the whole site; and
- First Aid Room Attendant/Medic will answer the phone and/or the radio.

  If the Health Professionals do not answer, then the Security Guard will answer and/or a Supervisor on radio will answer so that emergency response can be initiated.

[1] Refer to Nolinor ERP

- Responder – will ask where the medic is required;
- Caller – will give a brief description of the emergency: name, location, and what is wrong and/or required;
- Responder – will confirm location and details of incident and activate the ERT team. Security will be notified by responder and a page will be sent out to all ERT team members on-site;
- The person at the casualty(s) will administer First Aid if trained to do so; and
- The Incident Command Center will be mobilized as to ensure that communications, transportation, and effective deployment of ERT resources are conducted. It is mandatory that the Official In-Charge be notified immediately.

The ERT (minimum of six team members) will assemble as quickly as possible.

4.5.1 Muster Station

In the event that an evacuation is necessary, it is important that all affected personnel leave the emergency area and congregate at a pre-determined area or *Muster Station* so that a head count can be taken to determine if there are any missing persons. Employees must remain at the muster station until the supervisor of the emergency area gives permission to return to work. Proper areas will be identified as "Muster Stations".

Upon hearing a fire alarm, smoke alarm, or evacuation alarm, employees shall:

- ***DO NOT PANIC*** – Always ensure that you are prepared for the weather conditions (dress appropriately, e.g., winter clothing during winter months);
- ***DO NOT DELAY*** and do not stay and finish work before taking the proper steps to evacuate;
- Always **close windows/doors** as you leave your office, etc.;
- Always **head to the *closest* EXIT** door and follow **EXIT** signs to the closest outside door;
- Once outside, go to the ***closest* "Muster Station"**;
- Once in **"Muster Station"**, stay put until relieved or instructed otherwise by your Supervisor;
- Your Supervisor and/or Senior Management person in your department will **conduct a tally (head count)** of everyone in his/her department (note: on night shift, the highest level of Management may be a front line Supervisor). Ensure that you get your name on the **tally form**;
- ***DO NOT ENTER*** a building when the alarm is sounding. Head straight to a "**Muster Station**";
- ***Never go through a building*** to get to a **"Muster Station"**. Once you are outside, the first door you open should be the one to the **"Muster Station"**;
- ***Never disregard an evacuation alarm***. We understand that the system goes off without incident on occasion, but to disregard an alarm is to endanger your life and the lives of others;
- ***Stay in* "Muster Station"** until you are instructed to **"Stand Down"** by the Incident Commander. The only person authorized to initiate a **"Stand Down"** is the Incident Commander or the General Mine Manager or designate; and

- ***Do not leave*** **"Muster Station"** to go outside for a smoke. It is important for your Supervisor to know where you are at all times, especially during an emergency.

Failure to follow proper evacuation procedures will result in discipline.

4.5.2 Medical Evacuation Plan

In the event of serious injury, it may be necessary to remove the individual from the source of the danger and administer emergency first aid. The Health Professional will immediately be notified and take charge of the situation, and ensure the safe removal of the injured person(s) to the First Aid Room, if possible. The medical evacuation plan is as follows:

- The ERT will respond and assist the Health Professional as necessary with equipment, treatment, etc.
- The Health Professional and as many ERT members as required will respond to the incident site. When the Health Professional arrives at the scene, the First Aid Room will be notified;
- First aid will be administered to injured person(s)[2]; the injured person(s) will then be secured and transported to the First Aid Room. Vehicles transporting injured person(s) will have priority over any other vehicle on-site.
- Once the "Mechanisms of Injury" and the patient's condition have been assessed, a decision will be made by the Health Professional whether a MEDEVAC is required and decide on ground or air transportation to the Rankin Inlet airport.
- As per guidelines for transportation, the "Mechanism of Injury" and/or patient condition, the Health Professional will contact one of the following Medical Facilities:

Health Sciences Centre Winnipeg	
Trauma team	1 204 774-6511 or 1 204 787-3901
Main ER doctor in charge	1 204 774-6511
Rankin Inlet Health Centre	
Rankin Inlet Health Care Centre	1 867 645-8300 after hours 6700
Rankin Inlet Health Head Nurse	1 867 669-4111
Churchill Health Centre	1 888 884-8242

If a MEDEVAC is required, the H&S Superintendent or designate, will call Keewatin Air at one of two numbers:

- Keewatin Air 1 867 645-4455 (Rankin Inlet Dispatch)
- Keewatin Air 1 204 888-0100 (Winnipeg)

[2] Injured person(s) and patient(s) are one and the same.

The following information will be relayed to the receiving Medical Facility selected and to MEDEVAC dispatcher:

- Give patient(s)'s name, age, mechanism of injury, nature of injuries, and medical condition. Indicate all tests and treatment already done, as well as ALL of the medication that has been administered to patient including the patient's past medical history and medication that he/she is taking.
- A transfer sheet should be included and, if possible, faxed to the Medical Facility receiving the patient(s) being MEDEVACed (the report should indicate which Medical Facility was contacted).

If a decision is made that a MEDEVAC is necessary, the following sequence of steps will be taken:

- the patient(s) will **STAY in First Aid Room** until his/her **condition is stabilized**;
- unnecessary delays will be avoided in transporting patient(s) to health care providers at the receiving Medical Facility;
- the Health Professional will make the decision, based on patient's condition, regarding which Medical Facility would be the more appropriate to evacuate the patient to (Rankin Inlet, Winnipeg, or Churchill);
- the Health Professional will make the decision if the patient(s) is GOOD to go, and can be transported by either helicopter[3] or ambulance to Rankin Inlet Medical Facility or Rankin Inlet airport for MEDEVAC to the receiving Medical Facility;
- the Health Professional, with the help of the ERT, will transfer the patient(s) into the helicopter or ambulance;
- the Health Professional will escort the patient(s) to the MEDEVAC aircraft at the Rankin Inlet airport and, if necessary, on the MEDEVAC to the receiving Medical Facility; and
- all decision/interventions will be documented with time lines.

After the helicopter or ambulance reaches the Rankin Inlet airport and the patient has been transferred to the MEDEVAC plane, the Health Professional will notify the receiving Medical Facility of the estimated time of arrival at the receiving airport. The MEDEVAC pilot will advise air traffic controllers at the receiving airport that an ambulance is required for transport of patient(s) to the receiving Medical Facility.

Upon arrival of the aircraft to the airport nearest the receiving Medical Facility, the receiving team at the Medical Facility will be notified and a designated person will call the Incident Command Centre and update them on their arrival and the next steps to be taken (e.g., transportation to receiving Medical Facility).

[3] The helicopter pilot can refuse to fly the patient(s) to Rankin Inlet if poor weather conditions persist at the time.

The receiving Medical Facility will communicate with the Meliadine Health Professional on frequent basis and provide an update on the patient(s)' condition and treatment, including any surgical procedures.

As soon as steps have been implemented to properly attend to the injured person(s), the Incident Commander will notify the appropriate authorities of the accident by telephone and provide as much information as possible. A complete accident description and investigation form will be submitted as soon as possible. The accident description and investigation form will be completed and submitted to the General Mine Manager. Unless some action is required to remove an immediate hazard, the site of any serious accident will be cordoned off and remain unchanged until clearance is received from the appropriate authorities.

All operations-type work at incident scene will be suspended until the Health Professional is back in the First Aid Room. The incident scene, materials, machinery, medical equipment, etc. will remain undisturbed until the investigating team has conducted the investigation and an inspector has given the permission to do so. This type of incident is considered a "Reportable Incident"; therefore, the Mines Inspector shall be notified (without delay). The Official In-Charge will be responsible to ensure that reporting is properly completed.

The Official In-Charge will make all necessary calls to the outside for notification purposes (e.g. Corporate Office notification, Mines Inspector, Royal Canadian Mounted Police [RCMP], etc.).

If the incident is of a fatality, the Coroner or, in his/her absence, the RCMP, is in total control of the incident scene. The scene is to remain undisturbed until orders have been issued by either of these two authorities. The scene will then be released to the local authorities such as the Mines Inspector for their investigation.

4.6 Emergency Scenarios

4.6.1 Fire

The camp complex and process plant will be equipped with a fire detection and audible fire warning system. All site operating personnel will receive basic training in the use of fire extinguishers. This training will be tracked by the HR Superintendent.

For any situation involving fire, the first action will be to extinguish the fire if it is safe to do so and then report the incident. If the person cannot safely extinguish the fire, it must be reported as quickly as possible. In the event of a fire alarm, all employees not directly involved with fighting the fire will report to the designated muster station (see section 4.5.1). Employees will remain in this area until assigned other duties by the ERT or until given clearance that the emergency is over.

In the event that a fire causes damage to mining equipment, site buildings, or chemical containers, particulates and/or gases could be released into the air, and hazardous materials and/or other

chemicals (e.g., fuels, oils, battery acid, lime, etc.) could be spilled. In the short-term, this could result in air quality degradation, and potentially affect the local vegetation in the case of a spill or burn scar. Should such scenarios occur, the following actions will be taken, as required and WHEN IT IS SAFE TO DO SO:

- air quality monitoring for airborne emissions;
- collection and incineration of all putrescible (food items); and
- removal of debris and contaminated soil for disposal in the on-site landfill or off-site at a licensed disposal facility.

Further details on the cleanup of chemical spills are provided in the Spill Contingency Plan.

The Incident Commander will:

- locate the source of fire;
- dispatch the evacuation at the safest muster point;
- assign a captain and his team;
- ensure the security of all the ERT's members or any other service persons (Medics, Security Guard, electricians, etc.);
- if the intervention of the mine inspector is necessary for a special investigation, ask the Security Department to ensure the integrity of the fire scene; and
- call the end of the emergency measures, and invite everyone evacuated to return to their original location.

The General Mine Manager or designate can decide to use any available machinery to separate all or part of a building to protect people or minimize losses.

Incident reports are to be filed detailing the causes of the fire and responses undertaken. This information will be used by the EMC in subsequent fire prevention activities.

4.6.2 Helicopter Crash

Emergency response will begin as soon as a helicopter crash is identified or reported:

- when Project Security Personnel is notified that a helicopter is having difficulty, they will immediately notify the General Mine Manager or designate;
- in the event of a reported helicopter crash off-site, Meliadine Security Personnel will notify the General Mine Manager or designate;
- emergency response procedures will be initiated if required for response by ERT;
- if required, for an off-site crash, a helicopter will be contracted from Rankin Inlet to transport ERT personnel and the Health Professional to the crash scene;
- the ERT on scene will make a preliminary assessment ;

- the Health Professional, with the ERT, will establish triage, treatment, transportation, communication, and staging;
- the Incident Commander will direct all emergency response actions, and assess the need for additional resources keeping the appropriate persons updated as to all actions;
- the RCMP will establish access and traffic control, and assist the Coroner in body recovery and identification, if necessary, and keep the airspace clear of intrusive air traffic, to the limit of regulations;
- the Incident Commander will instruct emergency response personnel to not move debris associated with the wreckage, e.g. helicopter remnants, passenger belongings, etc. unless there is imminent danger of items being destroyed, or unless they inhibit access to passenger rescue; and
- the Coroner/RCMP is responsible for the identification, movement and/or removal of the fatality. Unauthorized personnel are not to move the dead without express approval of the Coroner/RCMP, except when there is a question of whether the person is deceased or if the body is in danger of being destroyed. In all cases involving the movement of a body, personnel moving the body shall make careful note of the location and condition of the body for the Coroner/RCMP.

4.6.2.1 Recovery:

Recovery immediately follows emergency response. It involves direction from the General Mine Manager or designate to:

- maintain access control to the scene;
- provide emergency social services (critical stress debriefing) for employees and rescue workers;
- investigate the accident; and
- clean-up the crash site.

4.6.3 Pipeline Breakage

Pipelines will be used for the transport of treated process water, reclaim water, freshwater, and domestic sewage. Pipeline breakage could lead to localized release of poor-quality water, and potentially exposure of mine personnel to infectious substances. In the event of a pipeline breakage, the following actions will be taken as required and when it is safe to do so:

- shut-off the feed to the pipeline;
- physically contain the spill through the construction of dikes, berms, sumps, and collection ditches;
- spilled raw or treated sewage will be pumped to the sewage treatment plant;
- pump collected water to Collection Pond #1; and
- monitor for residual contaminants on land and in surface water.

4.6.4 Toxic Gas Release

In the event of a toxic gas release, the following actions will be taken:

- immediately evacuate the area/building and notify the Incident Commander;
- if possible and safe to do so, turn off the source of the gas and ventilate (i.e., open windows/doors to outdoors) the area;
- isolate the area and restrict access to ERT personnel only; and
- implement air quality monitoring.

For the mill, a specific procedure will be prepared. A general response procedure for the release of compressed gases is provided in the Spill Contingency Plan.

4.6.5 Dike Failure

A detailed Emergency Preparedness Plan (EPP) will be developed to address the consequences of failure of any of the dikes on-site, prior to construction. The procedure will be developed by the EMC and the H&S Superintendent, with the assistance of the dike designer and Engineering Superintendent. Potential failure scenarios of dikes are provided in Appendix A.

4.6.6 Emulsion Plant Emergency

A detailed ERP will be prepared by the explosives supplier (see also the Explosives Management Plan), which will address potential incidents involving the manufacturing, handling, and storage of explosives and related products. The supplier's ERP will be provided in an appendix in the next version the Explosives Management Plan, prior to construction.

4.6.7 All-weather Access Road and Bypass Road Emergency

Emergencies along all roads will be handled by the ERT[4]; this includes spill response. A sea can holding spill response equipment will be located near the Meliadine River next to the All-weather Access Road. As well, additional spill response equipment will be located at the mine site, including a mobile trailer and in a sea can located at Itivia. Further details on spill response along Agnico Eagle's roads are provided in the Spill Contingency Plan.

4.6.8 Rankin Inlet Itivia Emergency

The Rankin Inlet Itivia facility is located in the south end of Rankin Inlet and will be used for the interim storage of supplies, including hazardous materials, prior to their transport to the mine site. An Oil Handling Facility (OHF) (tank farm) will be located at Itivia and will be used for bulk fuel storage. In advance of constructing the OHF, Agnico Eagle will consult the Hamlet on cross-sharing emergency response capabilities and training, particularly as they relate to Rankin Inlet and Itivia.

[4] The ERT is located at the mine site.

Small spills at the OHF will in most cases be operational in nature, having resulted from Agnico Eagle's own activities. The OHF staff, having had spill response training, will respond to spills within their capabilities using spill response equipment stored in a dedicated sea can at the Itivia site. For larger spills, where the capacity of the OHF staff is overwhelmed, the ERT at the mine site will be called to assist. The OHF staff will nonetheless undertake an initial response to contain the spill as best possible should it be safe to do so. It is anticipated that the ERT will take approximately 60 minutes to travel from the mine site to Itivia and take control of the scene.

Spill response during the ship-to-shore transfer of fuel will be the responsibility of the shipper. The OHF staff and, if necessary, the ERT will assist the shipper with near-shore spill response.

Further details on the handling of spills at the OHF facility are provided in the Spill Contingency Plan and the Oil Pollution Emergency Plan (Agnico Eagle 2014c).

More details regarding spill scenarios and response strategies are provided in the Oil Pollution Emergency Plan (Agnico Eagle 2014c). Sensitivity analysis of Rankin Inlet marine area, including the evaluation of the probability of an accident with significant impact, is provided in the Shipping Management Plan (Agnico Eagle 2014b).

REFERENCES

Agnico Eagle (Agnico Eagle Mines Limited). 2014a. Occupational Health and Safety Plan, Final Environmental Impact Statement, Meliadine Gold Project, Nunavut, Volume 9, Support Document 9-6.

Agnico Eagle. 2014b. Shipping Management Plan, Final Environmental Impact Statement, Meliadine Gold Project, Nunavut, Volume 8, Support Document 8-1.

Agnico Eagle. 2014c. Oil Pollution Emergency Plan, Final Environmental Impact Statement, Meliadine Gold Project, Nunavut, Volume 8, Support Document 8-2.

Agnico Eagle. 2014d. Terrestrial Environment Management and Monitoring Plan, Final Environmental Impact Statement, Meliadine Gold Project, Nunavut, Volume 6, Support Document 6-4.

APPENDIX A • POTENTIAL FAILURE SCENARIOS OF THE DIKES AND TAILINGS STORAGE FACILITY

Failure Mode	Scenarios	Cause		Mitigation measures
		Potential Failure	Mechanisms	
Internal Conduit Rupture	Rupture of a conduit	Not applicable as there are no water transfer structures through the dikes.	Not applicable	Not applicable
Overtopping	Water level increase	Water spilling over crest of dike. Mining operations will need to be suspended. Considerable warning time is expected given the freeboard and pond capacities. Decrease of performance is expected and in rare events catastrophic failure.	Critical flood event	- Weekly inspection of outflow channel during thaw, open water season, and ice break-up - Monitor pond level and provide information to mine management
			Obstruction of emergency spillway or discharge channel preventing flow discharge.	
			Loss of control on pumping, re-circulating, transferring water.	
	Dike settlement	Decrease of performance is expected. Catastrophic failure is unlikely to occur as the process of dike settlement is long and there will be time for mitigation.	Thaw-settlement of underlying permafrost resulting in settlement of dam crest.	- Monitoring of crest settlement by monuments - Monitoring of ground temperatures by thermistor cables - Visual inspection for cracks in embankment and permafrost surface at toe of embankment - Remove snow during winter (snow heats underlying permafrost) - Avoid design promoting snow accumulation
			Snow accumulation, thawing and runoff causing excessive erosion mainly on slopes.	- Avoid design promoting snow accumulation - Remove thick snow accumulation during winter
Internal erosion	Seepage within embankment	Increase of void ratio leading to increased water flow through the dike body. Decrease of dike performance and/or, in rare cases, catastrophic failure can be expected.	Grain size incompatibility between adjacent dike material layers, seepage leading to internal erosion because till is non-uniform with more transmissive zones and not self-filtering (improper construction).	- Good design - Good QA/QC during construction
			Increase in void ratio of till core due to defective construction of cut-off wall that results in bentonite loss, where applicable.	- Good QA/QC during construction

Failure Mode	Scenarios	Cause		Mitigation measures
		Potential Failure	Mechanisms	
			Punctures in the liner by various causes such as ice cover, rocks, improper construction, pressure due to abundant water flow underneath liner, liner joint failure, freeze-thaw cycles.	- Good QA/QC during construction - Inspection of liner for damage and/or changes in condition
			Sliding liner if improper placement and/or ice friction.	- Good QA/QC during construction - Inspection of liner during winter and ice break-up
	Seepage within foundation	Increase of void ratio within the foundation leading to increased water flow through the foundation. Decrease of dike performance and/or catastrophic failure.	Abundant snow on sideslopes and toe of embankment causing heavy run-off increasing water availability for seepage.	- Good QA/QC during construction - Snow monitoring (properties & distribution)
			Melting of ice in fractured rock foundation under the effect of permafrost thawing.	- Avoid sites with excess ground ice - Good design that favours equilibrium of ground thermal regime (e.g. favours lesser snow accumulation) - Thermistor cables installed for monitoring ground temperatures
			Thawing of permafrost causing failure of liner anchoring.	
			Improper anchoring of liner causing excessive seepage.	- Good QA/QC during construction
Slope instability	Rotational movement	Catastrophic failure	Thaw-settlement of permafrost underneath and/or adjacent to the dike yielding rotational movement of embankment sideslopes.	- Monitoring of crest settlement by monuments - Monitoring of ground temperatures by thermistor cables - Visual inspection for cracks in embankment and permafrost surface at toe of embankment
	Creep	Decrease of performance	Thaw settlement of underlying ice-rich permafrost.	- Avoid site with excess ground ice - Good design that favours equilibrium of ground thermal regime (e.g. favours lesser snow accumulation) - Thermistor cables for monitoring ground temperatures

Failure Mode	Scenarios	Cause		Mitigation measures
		Potential Failure	Mechanisms	
				- Visual inspection for cracks in embankment and permafrost surface at toe of embankment
			Excessive snow accumulation increasing mass and moisture content of surface and facilitating creep and general down slope movement of embankment material.	- Avoid design promoting snow accumulation - Remove thick snow accumulation during winter
Earthquake induced failure	Occurrence of an extreme earthquake	Decrease of performance	The extreme earthquake loading for the site is a low magnitude. An event of excess of current understanding of seismicity of the area would have to occur in order to have earthquake induced instability, slope or dike body.	- Dike inspection following earthquake
Movement of dikes	Horizontal movement	Differential horizontal movement of dikes due to water or ice loading.	The load of ice or water could generate differential horizontal movement which could cause either cut-off wall breach or liner puncture.	- Monitoring of dike alignment by monuments

Source: Golder Associates (2012) Doc 355-1013730076 Ver. B.