

10 DECOMMISSIONING AND REHABILITATION

The Howse site will be restored to its existing conditions following the mine closure and a full closure plan will be submitted to the government as per NL mining regulations, in the spring of 2016. Being aware of the difficult process of restoration due to the Howse Project's location (e.g. climate and soil conditions), HML will conduct a study/review of applicable restoration methods. TSMC is currently seeking different research program partnerships with governments, research institutes (notably NRcan, University of Laval, McGill university, ...) to support the future closure plan. The Proponent will not request a release certificate prior to consulting with First Nations, local communities and governments to develop the best approach. The main elements of the plan are set out in the sections below.

10.1 OBJECTIVES AND SCOPE OF THE REHABILITATION AND CLOSURE PLAN

The overall objectives of the rehabilitation and closure plan are to:

- provide a balanced, maintenance-free environment for fish, wildlife and plants;
- create a landscape compatible with surrounding areas while taking into account that previous disturbances caused by IOCC mining operations should not be the responsibility of HML;
- keep potential sources of pollution, fire hazards and public liability at an acceptable level and develop mitigation measures, if required; and
- provide a safe environment for long-term public access.

The rehabilitation and closure plan will include details on the natural and existing features of the site. It will include the following components:

- physical and chemical stability of the pit and waste rock dumps;
- natural aesthetic requirements;
- revegetation and wildlife habitats;
- water management;
- air quality;
- noise levels; and
- long-term land use.

10.2 PROPOSED APPROACH TO REHABILITATION AND CLOSURE

The main steps leading to rehabilitation and closure include:

- rehabilitation and closure planning;
- mine construction;
- mine operation / environmental monitoring / progressive rehabilitation;
- review of the rehabilitation and closure plan;
- closure rehabilitation;
- post-closure monitoring; and
- relinquishment of land.

10.3 PROGRESSIVE REHABILITATION

Progressive rehabilitation throughout the life of the project will include a waste management plan (see Section 5.10 in EPP document (Volume 1 Appendix Ia), revegetation/ecological restoration studies, geotechnical and slope stability studies, and in-pit mining methods.

10.3.1 Operational Monitoring

A comprehensive environmental monitoring program will be conducted as part of mining operations (see Chapter 9 in the current document), and the data collected will be used to evaluate the progressive rehabilitation program on an ongoing basis.

10.3.2 Reporting on Progressive Rehabilitation

Progressive rehabilitation activities will be reported as part of the annual operational reporting requirements. Under the *Mining Act*, a detailed report is required on the progressive rehabilitation work completed in the past year and the activities planned for the coming year.

10.4 REHABILITATION AND CLOSURE

10.4.1 Revegetation and Restoration

All areas affected by mining activities (sedimentation ponds, waste rock dumps, overburden stockpile) must be revegetated to control erosion and restore the site's natural conditions (taking into account that these were already at the onset of the Howse Project activities) and functions. Before revegetation, the land must be scarified and fertilized where necessary. Where applicable, the stockpiled organic soil must be spread. In general, grass and bushes must be planted to prevent soil erosion and facilitate the formation of humus. Types of ecosystems that could potentially be created using the Howse Project infrastructure will be specified and associated restoration methods described.

10.4.2 Contaminated Soils

Section 3 of the EPP (Volume 1 Appendix Ia) considers the potential discovery of contaminated soil soils. Following the end of mining activities, the land will be characterized in order to determine whether the resulting contaminated soils need to be rehabilitated. This characterization must include:

- the determination of the contamination level;
- the determination of the precise location and extent of the contamination;
- the determination of the volume of each contaminant; and
- the determination of methods to rehabilitate potentially contaminated sites.

Any spills that occur during the course of the Howse Project operations will be managed and reported in accordance with regulations and Section 6.3 of EPP document (Volume 1 Appendix Ia).

10.4.3 Support Infrastructure, Equipment and Heavy Machinery

During the final Decommissioning and Reclamation phase, the Proponent intends to continue with this practice by relocating generators, trailers and pumps to other DSO Projects. The exact fate of each of these items will be determined as needed during the Decommissioning and Reclamation phase.

All surface installations will be dismantled. Pumps, generators and pipes for the dewatering wells will be removed using excavators and flatbed trucks. Some of the wells may be used as control wells.

Mining equipment and heavy machinery must be removed from the site once it has been checked for contamination. During rehabilitation, equipment areas will be checked for any leakage and decontamination must be undertaken as required.

10.4.4 Open Pit

The Proponent intends to apply a mixed conventional and in pit method of mineral extraction, which will facilitate the restoration process during the operations phase of the Project. The priority in closing the open pit is to prevent wildlife and the public from accessing the pit floor, ensure stability of the slopes and maintain water quality once the pit has flooded. The ramp will be blocked at the pit exit using berms to restrict public access while maintaining access to the pit.

The Howse pit will be decommissioned through a sequence of events designed to maintain long-term wall stability. Flooding of the Howse pit will be allowed to occur naturally from groundwater inflows, snowmelt and rainfall within the pit catchment areas. The pit walls will be excavated to a stable slope angle during mining operations. Exact slope angles will be determined based on engineering specifications, historical pit slope stability in the region, and following a geotechnical pit wall stability study.

Pit water quality will be monitored on a regular basis as flooding proceeds. The pit benches lying in overburden will be regraded in order to facilitate revegetation. The extent of regrading will depend on pilot tests conducted during operations, which will determine optimal vegetation compositions and slope angles for vegetation regrowth.

All perimeter collection ditches will be regraded and contoured in accordance with the surrounding landscape.

During the Decommissioning and Rehabilitation phase, rock barricades consisting of rocks 1-2 m in diameter will be placed 10 m from the edge of the pit. The exact distance from the edge of the pit will be confirmed once a geotechnical assessment of the slopes is completed. These rock barricades will act as a warning and a protective barrier to prevent people and vehicles from going straight over the top of the wall. Signs in English and French will be posted approximately 15 m apart around the pit perimeter.

10.4.5 Waste Rock Dumps and Overburden Stockpile

The end goal of vegetation of the waste rock dumps is to return the area to the state it was in prior to TSMC's mining activities. The vegetation cover of the waste rock dumps should reflect the vegetation in place prior to work by TSMC.

The overburden stockpile will be active over the lifetime of the mine and will be used in progressive site rehabilitation, as well as in the final closure phase. Since the overburden in the Howse area is thick (between 21 m and 50 m), any overburden remaining in the stockpile at the end of the Howse pit operation will be regraded and contoured.

Pending the completion of a complete revegetation study, and based on local site conditions, it is assumed that the most effective revegetation strategy will consist of revegetating small sheltered areas first. This method would concentrate the limited organic materials in areas relatively protected from wind and water scour. The accumulated organic material from these 'vegetation islands' will subsequently disperse and provide a sufficient base for the same vegetation to spread and cover additional areas naturally.

The percentage of the waste rock dump that will be completely vegetated will be evaluated during progressive rehabilitation. Revegetation may not be possible in some areas due to strong winds and high

elevations. In such cases, potential mitigation measures will be evaluated as part of the progressive rehabilitation efforts. It is noteworthy that the In-Pit method will allow the Proponent to limit the size of the waste rock piles considerably, which will facilitate the rehabilitation process.

10.4.6 Sedimentation Ponds

Sedimentation ponds will be restored. Various options will be analyzed, including wildlife ponds, wetlands and fill. Treatment sludge will be disposed of according to NL standards.

10.4.7 Howse Haul Road

The Howse haul road will not be decommissioned, and will remain available for use by local communities.